Department of Energy

Portsmouth/Paducah Project Office
1017 Majestic Drive, Suite 200
Lexington, Kentucky 40513
(859) 219-4000

May 29, 2024

Mr. Todd Hendricks
Division of Waste Management
Kentucky Department for Environmental Protection
300 Sower Boulevard, 2nd Floor
Frankfort, Kentucky 40601

PPPO-02-10027697-24B

Ms. Jamie Nielsen
Division of Waste Management
Kentucky Department for Environmental Protection
300 Sower Boulevard, 2nd Floor
Frankfort, Kentucky 40601

Dear Mr. Hendricks and Ms. Nielsen:

C-746-U CONTAINED LANDFILL FIRST QUARTER CALENDAR YEAR 2024 (JANUARY–MARCH) COMPLIANCE MONITORING REPORT, PADUCAH GASEOUS DIFFUSION PLANT, PADUCAH, KENTUCKY, FRNP-RPT-0350/V1, PERMIT NUMBER SW07300014, SW07300015, SW07300045, AGENCY INTEREST ID NO. 3059

The subject report for the first quarter calendar year (CY) 2024 has been uploaded to the Kentucky eForms portal via the Kentucky Online Gateway. Other recipients outside the Solid Waste Branch are receiving this document via email distribution (see distribution list). This report is required in accordance with Permit Condition ACTV0006, Special Condition Number 3, of Solid Waste Landfill Permit Number SW07300014, SW07300015, SW07300045 (Permit). This report includes groundwater analytical data, a validation summary, groundwater flow rate and direction determination, figures depicting well locations, and methane monitoring results.

The statistical analyses on the first quarter CY 2024 monitoring well data collected from the C-746-U Landfill were performed in accordance with Monitoring Condition GSTR0001, Standard Requirement 3, using the U.S. Environmental Protection Agency guidance document, *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Final Guidance* (1989). This report also serves as the statistical exceedance notification for the first quarter CY 2024, in accordance with Monitoring Condition GSTR0001, Standard Requirement 5, of the Permit.

If you have any questions or require additional information, please contact Tom Reed at (859) 397-7003.

Sincerely,

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Date: 2024.05.29 10:31:39 -05'00'

April Ladd
Paducah Site Lead
Portsmouth/Paducah Project Office

Enclosure:
C-746-U Contained Landfill First Quarter Calendar Year 2024 (January–March) Compliance Monitoring Report, Paducah Gaseous Diffusion Plant, Paducah, Kentucky, FRNP-RPT-0350/V1

cc w/enclosure:
abigail.parish@pppo.gov, PPPO
angus.mackelvey@pppo.gov, PPPO
april.ladd@pppo.gov, PPPO
april.webb@ky.gov, KDEP
bruce.ford@pad.pppo.gov, FRNP
bryan.smith@pad.pppo.gov, FRNP
dennis.greene@pad.pppo.gov, FRNP
frnpcorrespondence@pad.pppo.gov, FRNP
jaime.morrow@pad.pppo.gov, FRNP
ken.davis@pad.pppo.gov, FRNP
leo.williamson@ky.gov, KDEP
mary.evans@ky.gov, KDEP
myrna.redfield@pad.pppo.gov, FRNP
pad.rmc@pad.pppo.gov
ryan.callihan@pppo.gov, PPPO
sonja.smiley@ky.gov
stephaniec.brock@ky.gov, KYRHB
tom.reed@pppo.gov, PPPO

e-copy via KY eForms portal:
jamie.nielsen@ky.gov, KDEP
lauren.linehan@ky.gov, KDEP
teresa.osborne@ky.gov, KDEP
todd.hendricks@ky.gov, KDEP

FRNP-RPT-0350/V1

C-746-U Contained Landfill
First Quarter Calendar Year 2024
(January–March)
Compliance Monitoring Report,
Paducah Gaseous Diffusion Plant,
Paducah, Kentucky

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FRNP-RPT-0350/V1

C-746-U Contained Landfill
First Quarter Calendar Year 2024
(January–March)
Compliance Monitoring Report,
Paducah Gaseous Diffusion Plant,
Paducah, Kentucky

Date Issued—May 2024

U.S. DEPARTMENT OF ENERGY
Office of Environmental Management

Prepared by
FOUR RIVERS NUCLEAR PARTNERSHIP, LLC,
managing the
Deactivation and Remediation Project at the
Paducah Gaseous Diffusion Plant
under Contract DE-EM0004895

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CONTENTS

FIGURES

TABLES

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ACRONYMS

CFR	*Code of Federal Regulations*
CY	calendar year
KAR	*Kentucky Administrative Regulations*
KDWM	Kentucky Division of Waste Management
KRS	*Kentucky Revised Statutes*
LEL	lower explosive limit
LRGA	Lower Regional Gravel Aquifer
LTL	lower tolerance limit
MCL	maximum contaminant level
MW	monitoring well
RGA	Regional Gravel Aquifer
UCRS	Upper Continental Recharge System
URGA	Upper Regional Gravel Aquifer
UTL	upper tolerance limit

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1. INTRODUCTION

This report, *C-746-U Contained Landfill First Quarter Calendar Year 2024 (January–March) Compliance Monitoring Report, Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, is being submitted in accordance with Solid Waste Permit No. SW07300014, SW07300015, SW07300045.

The Groundwater, Surface Water, Leachate, and Methane Monitoring Sample Data Reporting Form is provided in Appendix A. The facility information sheet is provided in Appendix B. Groundwater analytical results are presented in groundwater sample analyses tables and laboratory reports, which are presented in Appendix C. The statistical analyses and qualification statement are provided in Appendix D. The groundwater flow rate and direction determinations are provided in Appendix E. Appendix F contains the notifications for all permit required parameters whose concentrations exceed the maximum contaminant level (MCL) for Kentucky solid waste facilities provided in 401 *KAR* 47:030 § 6, *Maximum Groundwater Contaminant Levels*, and for all permit required parameters listed in 40 *CFR* § 302.4, Appendix A, *Sequential CAS Registry Number List of CERCLA Hazardous Substances*, that do not have an MCL and whose concentrations exceed the historical background concentrations [upper tolerance limit (UTL), or both UTL and lower tolerance limit (LTL) for pH, as established at a 95% confidence]. Appendix G provides a chart of MCL and historical background UTL exceedances that have occurred, beginning in the third quarter, calendar year 2002. Methane monitoring results are documented on the approved C-746-U Landfill Methane Monitoring Report form provided in Appendix H. The form includes pertinent remarks/observations as required by 401 *KAR* 48:090 § 5, *Explosive Gases Control*. Surface water analyses are provided in Appendix I. Analytical laboratory certification is provided in Appendix J. Laboratory analytical methods used to analyze the included data set are provided in Appendix K. Micro-purging stability parameter results are provided in Appendix L.

1.1 BACKGROUND

The C-746-U Contained Landfill is an operating solid waste landfill located north of the Paducah Gaseous Diffusion Plant and north of the C-746-S&T Landfills. Construction and operation of the C-746-U Contained Landfill were permitted in November 1996. The operation is regulated under Solid Waste Landfill Permit No. SW07300014, SW07300015, SW07300045. The permitted C-746-U Contained Landfill area covers about 60 acres and includes a liner and leachate collection system. The C-746-U Contained Landfill currently is operating in Phases 4, 5, and 6, with Phase 7 approved for receipt of waste as of September 27, 2019. A minor permit modification that included upgrades to the leachate storage capacity for Phases 6 and 7 was approved by the Kentucky Division of Waste Management (KDWM) on May 21, 2021 (FRNP 2021). Phases 1, 2, and 3 have long-term cover. Phases 8 through 23 have not been constructed.

1.2 MONITORING PERIOD ACTIVITIES

1.2.1 Groundwater Monitoring

Three zones are monitored at the site: the Upper Continental Recharge System (UCRS), the Upper Regional Gravel Aquifer (URGA), and the Lower Regional Gravel Aquifer (LRGA). There are 21 monitoring wells (MWs) under permit for the C-746-U Contained Landfill: 9 UCRS wells, 6 URGA wells, and 6 LRGA wells. A map of the MW locations is presented in Figure 1. All MWs were sampled this quarter with the exception of MW359, MW365, MW368, MW376, and MW377 (screened in the UCRS), which had insufficient amounts of water to obtain samples; therefore, there are no laboratory analysis results for these locations.

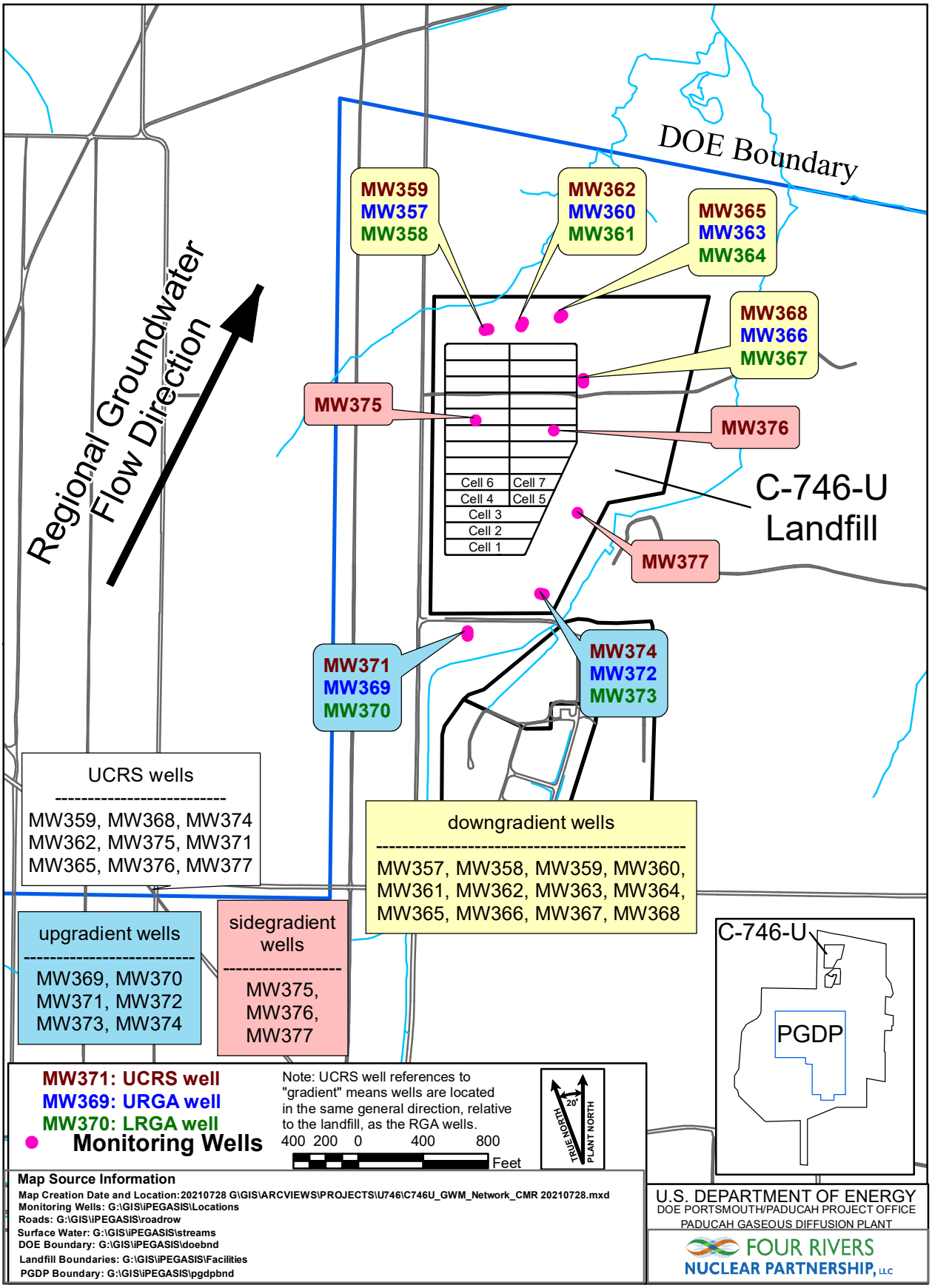

Figure 1. C-746-U Landfill Groundwater Monitoring Well Network

Consistent with the approved *Groundwater Monitoring Plan for the Solid Waste Permitted Landfills (C-746-S Residential Landfill, C-746-T Inert Landfill, and C-746-U Contained Landfill) at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, (Groundwater Monitoring Plan) UCRS wells are included in the monitoring program (LATA Kentucky 2014). Groundwater flow gradients are downward through the UCRS, but flow in the underlying Regional Gravel Aquifer (RGA) is lateral. Groundwater flow in the RGA typically is in a northeasterly direction in the vicinity of the C-746-U Contained Landfill. The Ohio River and lower reaches of Little Bayou Creek are the discharge areas for the RGA flow system from the vicinity of the landfills.

Consistent with the conceptual site model, the constituent concentrations in UCRS wells are considered to be representative only of the conditions local to the well or sourced from overlying soils; thus, no discussion of potential "upgradient" sources is relevant to the discussion for the UCRS. Nevertheless, a UTL for background also has been calculated for UCRS wells using concentrations from UCRS wells located in the same direction (relative to the landfill) as those RGA wells identified as upgradient. The results from these wells are considered to represent historical "background" for UCRS water quality. Similarly, other gradient references for UCRS wells are identified using the same gradient references (relative to the landfill) that are attributed to nearby RGA wells. Results from UCRS wells are compared to this UTL and exceedances of these values are reported in the quarterly report.

Groundwater sampling was conducted within the first quarter 2024 in accordance with the Groundwater Monitoring Plan (LATA Kentucky 2014) using the Deactivation and Remediation Contractor procedure CP4-ES-2101, *Groundwater Sampling*. Groundwater sampling for the first quarter 2024 was conducted on January 23–25, 2024. The analytical laboratory used U.S. Environmental Protection Agency-approved methods, as applicable. Appropriate sample containers and preservatives were used. The parameters specified in Permit Condition GSTR0001, Special Condition 1, were analyzed for all locations sampled.

The groundwater flow rate and direction determination are provided in Appendix E. Depth-to-water was measured on January 22, 2024, in MWs of the C-746-U Contained Landfill (see Appendix E, Table E.1), in MWs of the C-746-S&T Landfills, and in MWs of the surrounding region (shown on Appendix E, Figure E.4). Water level measurements in 39 vicinity wells define the potentiometric surface for the RGA. Typical regional flow in the RGA is northeastward, toward the Ohio River. During January 2024, RGA groundwater flow in the area of the landfill was oriented northeast. The hydraulic gradient for the RGA in the vicinity of the C-746-U Contained Landfill in January 2024 was 3.19×10^{-4} ft/ft (see Appendix E, Table E.2). The hydraulic gradients for the URGA and LRGA at the C-746-U Contained Landfill were 5.92×10^{-4} ft/ft and 6.32×10^{-4} ft/ft, respectively (see Appendix E, Table E.2). Calculated groundwater flow rates (average linear velocity) at the C-746-U Contained Landfill range from 1.01 to 1.72 ft/day for the URGA and 1.07 to 1.83 ft/day for the LRGA (see Appendix E, Table E.3).

1.2.2 Methane Monitoring

Methane monitoring was conducted in accordance with 401 *KAR* 48:090 § 5 and the approved Explosive Gas Monitoring Program (KEEC 2011), which is Technical Application Attachment 12, of the Solid Waste Permit. Industrial Hygiene staff monitored for the occurrence of methane in four on-site building locations and four locations along the landfill boundary on February 8, 2024. Appendix H provides a map of the monitoring locations (Appendix H, Figure H.1). Monitoring results identified that all locations were compliant with the regulatory requirement of < 100% lower explosive limit (LEL) at boundary locations and < 25% LEL at all other locations. The results are documented on the C-746-U Contained Landfill Methane Monitoring Report provided in Appendix H.

1.2.3 Surface Water Monitoring

Surface water was monitored, as specified in 401 *KAR* 48:300 § 2, *Surface Water Monitoring Plan*, and the approved *Surface Water Monitoring Plan for C-746-U and C-746-S&T Landfills Permit Number SW07300014, SW07300015, SW07300045, Paducah Gaseous Diffusion Plant, Paducah, Kentucky, Agency Interest Number 3059* (FRNP 2021), which is Technical Application Attachment 24 of the Solid Waste Permit. Surface water sampling was performed on January 9, 2024, at three locations monitored for the C-746-U Contained Landfill: (1) instream location L154, (2) downstream location L351, and (3) instream location L150 (Figure 2). Surface water results are provided in Appendix I.

1.3 KEY RESULTS

Groundwater data were evaluated in accordance with the approved Groundwater Monitoring Plan (LATA Kentucky 2014), which is Technical Application Attachment 25, of the Solid Waste Permit. For the current reporting quarter, there were no parameters that exceeded their respective MCLs. If there had been any MCL exceedances, they would have been listed in Table 1. Those constituents that exceeded their respective MCL would have been evaluated further against their historical background UTL. Table 2 identifies parameters (that do not have MCLs) with concentrations that exceeded the statistically derived historical background UTL[1] during the first quarter 2024, as well as parameters that exceeded their MCL and also exceeded their historical background UTL. Those constituents (present in downgradient wells) that exceed their historical background UTL were evaluated against their current UTL-derived background using the most recent eight quarters of data from wells considered to be background. Constituents in downgradient wells that exceeded current background UTL are shown on Table 3.

Table 1. Summary of MCL Exceedances

UCRS	URGA	LRGA
None	None	None

[1] The UTL comparison for pH uses a two-sided test for both UTLs and LTLs. For the purposes of this report, the reference to "UTL exceedances" also includes the LTL for pH.

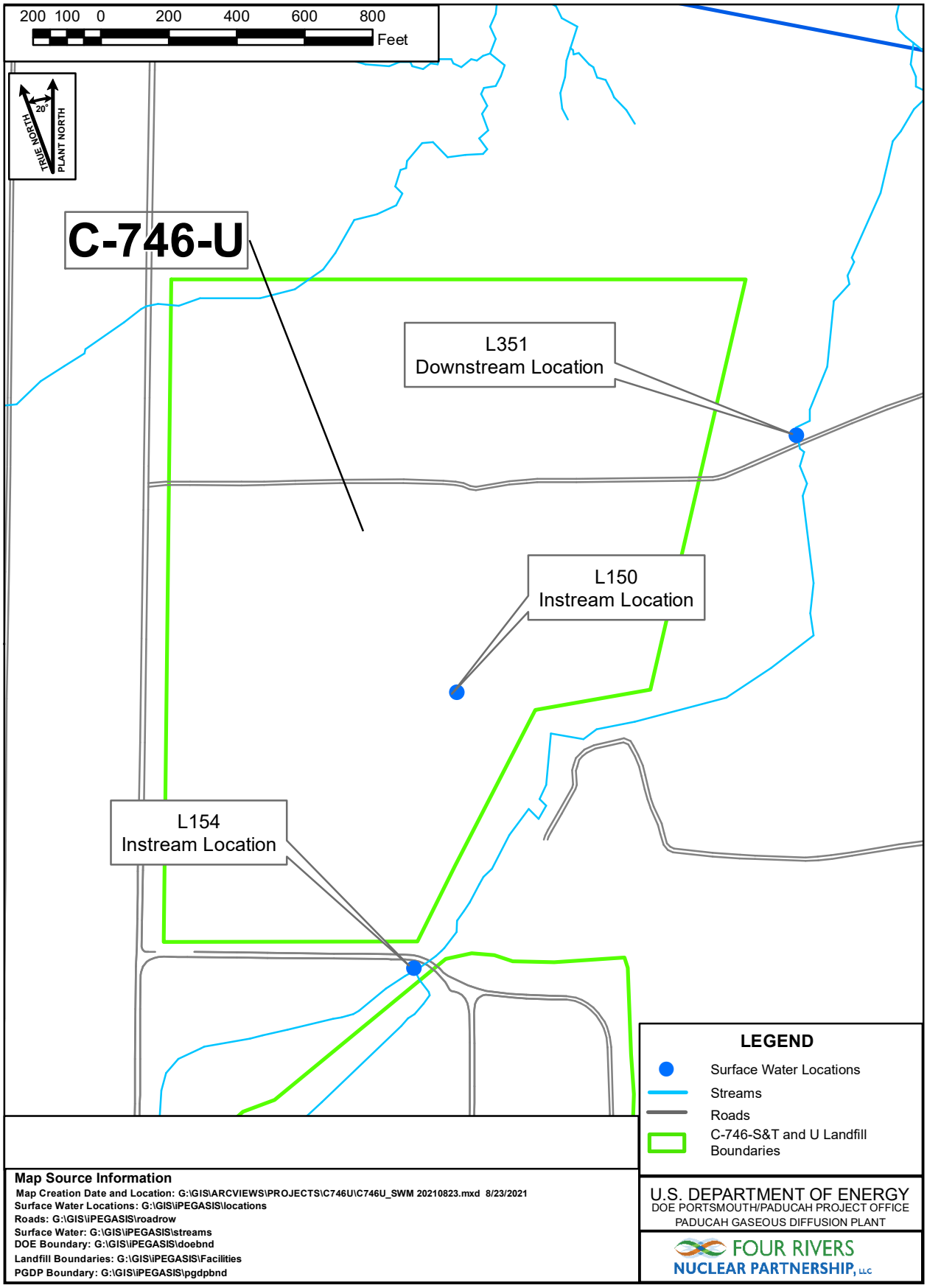

Figure 2. C-746-U Landfill Surface Water Monitoring Locations

Table 2. Exceedances of Statistically Derived Historical Background Concentrations

UCRS[a]	URGA	LRGA
MW362: Oxidation-reduction potential[b]	MW357: Oxidation-reduction potential[b]	MW358: Nickel and oxidation-reduction potential[b]
MW371: Magnesium and oxidation-reduction potential[b]	MW360: Oxidation-reduction potential[b]	MW361: Oxidation-reduction potential[b] and technetium-99
MW374: Oxidation-reduction potential[b] and sulfate	MW363: Oxidation-reduction potential[b]	MW364: Oxidation-reduction potential[b] and technetium-99
MW375: Oxidation-reduction potential[b] and sulfate	MW366: Oxidation-reduction potential[b]	MW367: Oxidation-reduction potential[b]
	MW369: Oxidation-reduction potential[b]	MW370: Dissolved oxygen, oxidation-reduction potential[b]
	MW372: Calcium, conductivity, dissolved solids, magnesium, oxidation-reduction potential,[b] and sulfate	MW373: Calcium and oxidation-reduction potential[b]

[a] Gradients in the UCRS are downward. UCRS gradient designations are identified using the same gradient reference (relative to the landfill) that is attributed to nearby RGA wells.
[b] Oxidation-reduction potential calibrated as Eh.
Sidegradient wells: MW375, MW376, MW377. Downgradient wells: MW357, MW358, MW359, MW360, MW361, MW362, MW363, MW364, MW365, MW366, MW367, MW368. Upgradient wells: MW369, MW370, MW371, MW372, MW373, MW374.

Table 3. Exceedances of Current Background UTL in Downgradient RGA Wells

URGA	LRGA
None	MW358: Nickel
	MW361: Technetium-99
	MW364: Oxidation-reduction potential* and technetium-99

*Oxidation-reduction potential calibrated as Eh.

A notification of MCL exceedances, or lack of exceedances, was submitted electronically to the KDWM, in accordance with 401 *KAR* 48:300 § 7, *Sampling and Analysis,* prior to the submittal of this report. There were no MCL exceedances in the current reporting quarter.

Any constituent that exceeded the MCL in downgradient wells would be subjected to a comparison against the UTL concentration calculated using historical concentrations from wells identified as background.

This report is the notification of parameters that had statistically significant increased concentrations relative to historical background concentrations, as required by Permit No. SW07300014, SW07300015, SW07300045, Condition GSTR0001, Standard Requirement 5, and 401 *KAR* 48:300 § 7.

The constituents that had exceedances of the statistically derived historical background UTL underwent additional statistical evaluation. The current quarter concentrations were compared to the current background UTLs that were developed using the most recent eight quarters of data from wells identified as background in order to determine if the current downgradient (compliance) well concentrations are consistent with current background values. Table 3 summarizes the evaluation against current background UTL for those constituents present in downgradient RGA wells with historical UTL exceedances. In accordance with the approved Groundwater Monitoring Plan, constituents in downgradient wells that exceed the historical UTL, but do not exceed the current UTL, are considered not to have a C-746-U Contained Landfill source; therefore, they are Type 1 exceedances—not attributable to the C-746-U Contained Landfill. Except for nickel in MW358, oxidation-reduction potential in MW364, and

technetium-99 in MW361 and MW364, all UTL exceedances reported for this quarter were evaluated and considered to be Type 1 exceedances—not attributable to the C-746-U Contained Landfill.

Technetium-99 in downgradient LRGA wells MW361 and MW364, nickel in downgradient LRGA well MW358, and oxidation-reduction potential in MW364 exceeded both the historical background UTL and the current background UTL; therefore, these results are preliminarily considered to be Type 2 exceedances. To evaluate the preliminary Type 2 exceedances further, the parameters were subjected to the Mann-Kendall statistical test for trends using the most recent eight quarters of data. The results are summarized in Table 4. No trend was indicated for any of the aforementioned preliminary Type 2 exceedances and; therefore, they are considered to be Type 1 exceedances—not attributable to the C-746-U Contained Landfill.

Table 4. C-746-U Landfills Downgradient Wells Trend Summary Utilizing the Previous Eight Quarters

Location	Well ID	Parameter	Sample Size	Alpha[a]	p-Value[b]	S[c]	Decision[d]
C-746-U Contained Landfill	MW358	Nickel	8	0.05	0.548	0	No trend
	MW361	Technetium-99	8	0.05	0.119	8	No trend
	MW364	Oxidation-reduction potential	8	0.05	0.089	12	No trend
	MW364	Technetium-99	8	0.05	0.360	-5	No Trend

[a] An alpha of 0.05 represents a 95% confidence interval.
[b] The p-value represents the risk of acceptance of the H_a hypothesis of a trend, in terms of a percentage.
[c] The initial value of the Mann-Kendall statistic, S, is assumed to be 0 (e.g., no trend). If a data value from a later time period is higher than a data value from an earlier time period, S is incremented by 1. On the other hand, if the data value from a later time period is lower than a data value sampled earlier, S is decremented by 1. The net result of all such increments and decrements yields the final value of S. A very high positive value of S is an indicator of an increasing trend, and a very low negative value indicates a decreasing trend.
[d] The Mann-Kendall decision operates on two hypotheses; the H_0 and H_a. H_0 assumes there is no trend in the data, whereas H_a assumes either a positive or negative trend.
Note: Statistics generated using ProUCL.

All UTL exceedances reported for this quarter were evaluated and considered to be Type 1 exceedances—not attributable to the C-746-U Contained Landfill.

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2. DATA EVALUATION/STATISTICAL SYNOPSIS

The statistical analyses conducted on the first quarter 2024 groundwater data collected from the C-746-U Contained Landfill MWs were performed in accordance with the Groundwater Monitoring Plan (LATA Kentucky 2014). The statistical analyses for this report use data from the first eight quarters that were sampled for each parameter, beginning with the baseline sampling events in 2002, when available. The sampling dates associated with background data are listed next to the result in the statistical analysis sheets in Appendix D (Attachments D1 and D2).

If parameters that exceed the MCL for Kentucky solid waste facilities found in 401 *KAR* 47:030 § 6 were detected, they were documented and evaluated further. MCL exceedances, if found, were reviewed against historical background results (UTL). If the MCL exceedance was found not to exceed the historical UTL, the exceedance was noted as a Type 1 exceedance—an exceedance not attributable to the C-746-U Contained Landfill. If there was an exceedance of the MCL in a downgradient well and this constituent also exceeded the historical background, the quarterly result was compared to the current background UTL (developed using the most recent eight quarters of data from wells identified as background) to identify if this exceedance is attributable to upgradient/nonlandfill sources. If the downgradient concentration was less than the current background, the exceedance was noted as a Type 1 exceedance. If a constituent exceeds its Kentucky solid waste facility MCL, historical background UTL, and current background UTL, it was reported as a Type 2 exceedance—source undetermined. Type 2 exceedances (undetermined source) were evaluated further using the Mann-Kendall test for trend. If there was no statistically significant increasing trend for a constituent in a downgradient well, the exceedance was reclassified as a Type 1 exceedance (not attributable to the C-746-U Contained Landfill).

For those parameters that do not have a Kentucky solid waste facility MCL, the same process was used. If a constituent without an MCL exceeded its historical background UTL and its current background UTL, it was evaluated further to identify the source of the exceedance, if possible. If the source of the exceedance could not be identified, it was reported as a Type 2 exceedance—source undetermined. Type 2 exceedances (undetermined source) were evaluated further using the Mann-Kendall test for trend. If there was no statistically significant increasing trend for a constituent in a downgradient well, the exceedance was reclassified as a Type 1 exceedance (not attributable to the C-746-U Contained Landfill).

To calculate the UTL, the data were divided into censored (nondetects) and uncensored (detected) observations. The one-sided tolerance interval statistical test was conducted only on parameters that had at least one uncensored observation. Results of the one-sided tolerance interval statistical test were used to determine whether the data showed a statistical exceedance in concentrations with respect to historical background concentrations (UTL).

For the statistical analysis of pH, a two-sided tolerance interval statistical test was conducted. The test well results were compared to both a UTL and LTL to determine if statistically significant deviations in concentrations existed with respect to background well data.

A stepwise list of the one-sided tolerance interval statistical procedures applied to the data is provided in Appendix D under Statistical Analysis Process. The statistical analysis was conducted separately for each parameter in each well. The MWs included in the statistical analyses are listed in Table 5.

Table 5. Monitoring Wells Included in Statistical Analysis

UCRS	URGA	LRGA
MW359[c]	MW357	MW358
MW362	MW360	MW361
MW365[c]	MW363	MW364
MW368[c]	MW366	MW367
MW371[b]	MW369 (background)	MW370 (background)
MW374[b]	MW372 (background)	MW373 (background)
MW375		
MW376[c]		
MW377[c]		

[a] Map showing the MW locations is shown on Figure 1.
[b] In the same direction (relative to the landfill) as RGA wells considered to be upgradient.
[c] Well had insufficient water to permit a water sample for laboratory analysis.

2.1 STATISTICAL ANALYSIS OF GROUNDWATER DATA

Parameters requiring statistical analysis are summarized in Appendix D for each hydrogeological unit. A stepwise list for determining exceedances of statistically derived historical background concentrations is provided in Appendix D under Statistical Analysis Process. A comparison of the current quarter's results to the statistically derived historical background was conducted for parameters that do not have MCLs and also for those parameters whose concentrations exceed MCLs. Appendix G summarizes the occurrences (by well and by quarter) of historical UTLs and MCL exceedances. The constituents that had exceedances of the statistically derived historical background UTL underwent additional statistical evaluation. The current quarter concentrations were compared to the current background UTL developed using the most recent eight quarters of data from wells identified as upgradient in order to determine if the current downgradient concentrations are consistent with current background values.

2.1.1 Upper Continental Recharge System

In this quarter, 24 parameters, including those with MCLs, required statistical analysis in the UCRS. During the first quarter, magnesium, oxidation-reduction potential, and sulfate displayed concentrations that exceeded their respective historical UTL and are listed in Table 2. None of the parameters in downgradient UCRS wells exceeded the current background UTLs.

2.1.2 Upper Regional Gravel Aquifer

In this quarter, 27 parameters, including those with MCLs, required statistical analysis in the URGA. During the first quarter, calcium, conductivity, dissolved solids, magnesium, oxidation-reduction potential, and sulfate displayed concentrations that exceeded their respective historical UTL and are listed in Table 2. None of the parameters in downgradient URGA wells exceeded the current background UTLs.

2.1.3 Lower Regional Gravel Aquifer

In this quarter, 29 parameters, including those with MCLs, required statistical analysis in the LRGA. During the first quarter, calcium, dissolved oxygen, nickel, oxidation-reduction potential, and technetium-99 displayed concentrations that exceeded their respective historical UTL and are listed in Table 2. Nickel in MW358, oxidation-reduction potential in MW364, and technetium-99 in downgradient LRGA wells MW361 and MW364 exceeded the current background UTL.

2.2 DATA VERIFICATION AND VALIDATION

Data verification is the process of comparing a data set against a set standard or contractual requirements. In accordance with the approved Groundwater Monitoring Plan (LATA Kentucky 2014), data verification is performed for 100% of the data. Data are flagged as necessary.

Data validation was performed on 100% of the organic, inorganic, and radiochemical analytical data by a qualified individual independent from sampling, laboratory, project management, or other decision-making personnel. Data validation evaluates the laboratory adherence to analytical method requirements. Validation qualifiers are added by the independent validator and not the laboratory.

Field quality control samples are collected each sampling event. Field blanks, rinseate blanks, and trip blanks are obtained to ensure quality of field and laboratory practices and data are reported in the Groundwater Sample Analysis forms in Appendix C. Laboratory quality control samples, such as matrix spikes, matrix spike duplicates, and method blanks, are performed by the laboratory. Both field and laboratory quality control sample results are reviewed as part of the data verification/validation process.

Data verification and validation results for this data set indicated that all data were considered usable.

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3. PROFESSIONAL GEOLOGIST AUTHORIZATION

DOCUMENT IDENTIFICATION: *C-746-U Contained Landfill First Quarter Calendar Year 2024 (January–March) Compliance Monitoring Report, Paducah Gaseous Diffusion Plant, Paducah, Kentucky* (FRNP-RPT-0350/V1)

Stamped and signed pursuant to my authority as a duly registered geologist under the provisions of *KRS* Chapter 322A.

Evan Clark | PG265379 | 5/24/2024 (Date)

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4. REFERENCES

FRNP (Four Rivers Nuclear Partnership, LLC) 2021. *Surface Water Monitoring Plan for C-746-U and C-746-S&T Landfills Permit Number SW07300014, SW07300015, SW07300045, Paducah Gaseous Diffusion Plant, Paducah, Kentucky, Agency Interest Number 3059*, Solid Waste Landfill Permit No. SW07300014, SW07300015, SW07300045, Technical Application Attachment 24, Four Rivers Nuclear Partnership, LLC, Paducah, KY, March.

KEEC (Kentucky Energy and Environment Cabinet) 2011. Solid Waste Landfill Permit No. SW07300014, SW07300015, SW07300045, Division of Waste Management, Solid Waste Branch, Technical Application Attachment 12, "Explosive Gas Monitoring Program," January 21.

LATA Kentucky (LATA Environmental Services of Kentucky, LLC) 2014. *Groundwater Monitoring Plan for the Solid Waste Permitted Landfills (C-746-S Residential Landfill, C-746-T Inert Landfill, and C-746-U Contained Landfill) at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, PAD-PROJ-0139, Solid Waste Landfill Permit No. SW07300014, SW07300015, SW07300045, Technical Application Attachment 25, LATA Environmental Services of Kentucky, LLC, Kevil, KY, June.

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APPENDIX A

GROUNDWATER, SURFACE WATER, LEACHATE, AND METHANE MONITORING SAMPLE DATA REPORTING FORM

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GROUNDWATER, SURFACE WATER, LEACHATE, AND METHANE MONITORING SAMPLE DATA REPORTING FORM

NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
DIVISION OF WASTE MANAGEMENT
SOLID WASTE BRANCH
14 REILLY ROAD
FRANKFORT, KY 40601

Facility Name: U.S. DOE–Paducah Gaseous Diffusion Plant (As officially shown on DWM Permit Face)

Activity: C-746-U Contained Landfill

Permit No: SW07300014, SW07300015, SW07300045

Finds/Unit No:

Quarter & Year 1st Qtr. CY 2024

Please check the following as applicable:

___ Characterization X Quarterly ___ Semiannual ___ Annual ___ Assessment

Please check applicable submittal(s): X Groundwater X Surface Water

___ Leachate X Methane Monitoring

This form is to be utilized by those sites required by regulation (Kentucky Waste Management Regulations-401 *KAR* 48:300 and 45:160) or by statute (Kentucky Revised Statues Chapter 224) to conduct groundwater and surface water monitoring under the jurisdiction of the Division of Waste Management. **You must report any indication of contamination within forty-eight (48) hours of making the determination using statistical analyses, direct comparison, or other similar techniques. Submitting the lab report is NOT considered notification.** Instructions for completing the form are attached. Do not submit the instruction pages.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for such violations.

Myrna E. Redfield, Program Manager
Four Rivers Nuclear Partnership, LLC

Date

April Ladd, Paducah Site Lead
U.S. Department of Energy

Date

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APPENDIX B

FACILITY INFORMATION SHEET

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FACILITY INFORMATION SHEET

Sampling Date: Groundwater: January 2024; Surface water: January 2024; Methane: February 2024 | County: McCracken | Permit Nos. SW07300014, SW07300015, SW07300045

Facility Name: U.S. DOE—Paducah Gaseous Diffusion Plant
(As officially shown on DWM Permit Face)

Site Address: 5600 Hobbs Road (Street) Kevil, Kentucky (City/State) 42053 (Zip)

Phone No: (270) 441-6800 Latitude: N 37° 07' 45" Longitude: W 88° 47' 55"

OWNER INFORMATION

Facility Owner: U.S. DOE, Joel Bradburne, Manager, Portsmouth/Paducah Project Office | Phone No: (859) 219-4000

Contact Person: Bruce Ford | Phone No: (270) 441-5357

Contact Person Title: Director, Environmental Services, Four Rivers Nuclear Partnership, LLC

Mailing Address: 5511 Hobbs Road (Street) Kevil, Kentucky (City/State) 42053 (Zip)

SAMPLING PERSONNEL
(IF OTHER THAN LANDFILL OR LABORATORY)

Company: Four Rivers Nuclear Partnership, LLC

Contact Person: Chris Skinner | Phone No: (270) 441-5675

Mailing Address: 5511 Hobbs Road (Street) Kevil, Kentucky (City/State) 42053 (Zip)

LABORATORY RECORD #1

Laboratory: GEL Laboratories, LLC | Lab ID No: KY90129

Contact Person: Valerie Davis | Phone No: (843) 769-7391

Mailing Address: 2040 Savage Road (Street) Charleston, South Carolina (City/State) 29407 (Zip)

LABORATORY RECORD #2

Laboratory: N/A | Lab ID No: N/A

Contact Person: N/A | Phone No: N/A

Mailing Address: N/A (Street) (City/State) (Zip)

LABORATORY RECORD #3

Laboratory: N/A | Lab ID No: N/A

Contact Person: N/A | Phone No: N/A

Mailing Address: N/A (Street) (City/State) (Zip)

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APPENDIX C

GROUNDWATER SAMPLE ANALYSES AND LABORATORY REPORTS

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Paducah OREIS
GROUNDWATER MONITORING REPORT

Facility: C-746-U Landfill **County:** McCracken **Permit #:** SW07300014,SW07300015,SW07300045

Sampling Point: MW357 DOWN **RGA Type:** URGA **Period:** 1st Quarter 2024

AKGWA Well Tag #: 8004-4798 **SAMPLE ID:** MW357UG2-24 Sample Type: REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide	W	0.362	mg/L	0.2	1/23/2024			SW846-9056A	=
Chloride	J	31.7	mg/L	250	1/23/2024			SW846-9056A	=
Fluoride	J	0.194	mg/L	4	1/23/2024			SW846-9056A	=
Nitrate as Nitrogen	J	1.11	mg/L	10	1/23/2024			SW846-9056A	=
Sulfate		38.7	mg/L	2	1/23/2024			SW846-9056A	=
Barometric Pressure Reading		30.23	Inches/Hg		1/23/2024				X
Conductivity		411	µmhos/cm		1/23/2024				X
Depth to Water		48.01	ft		1/23/2024				X
Dissolved Oxygen		4.2	mg/L		1/23/2024				X
Eh (approx)		451	mV		1/23/2024				X
pH		6.08	Std Unit		1/23/2024				X
Temperature		58.3	deg F		1/23/2024				X
Turbidity		0	NTU		1/23/2024				X
Aluminum	U	0.05	mg/L	0.05	1/23/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	1/23/2024			SW846-6020B	=
Arsenic	J	0.0028	mg/L	0.005	1/23/2024			SW846-6020B	=
Barium		0.0723	mg/L	0.004	1/23/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	1/23/2024			SW846-6020B	=
Boron	N	0.378	mg/L	0.075	1/23/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	1/23/2024			SW846-6020B	=
Calcium		24.7	mg/L	0.2	1/23/2024			SW846-6020B	J
Chromium	U	0.01	mg/L	0.01	1/23/2024			SW846-6020B	=
Cobalt	U	0.001	mg/L	0.001	1/23/2024			SW846-6020B	=
Copper	J	0.00108	mg/L	0.002	1/23/2024			SW846-6020B	J
Iron	J	0.0543	mg/L	0.1	1/23/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	1/23/2024			SW846-6020B	=
Magnesium	B	12	mg/L	0.03	1/23/2024			SW846-6020B	=
Manganese		0.00591	mg/L	0.005	1/23/2024			SW846-6020B	J
Molybdenum	U	0.001	mg/L	0.001	1/23/2024			SW846-6020B	=
Nickel	U	0.002	mg/L	0.002	1/23/2024			SW846-6020B	=
Potassium		1.69	mg/L	0.3	1/23/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	1/23/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	1/23/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	1/23/2024			SW846-6020B	=
Sodium		45.1	mg/L	0.25	1/23/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	1/23/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	1/23/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	1/23/2024			SW846-6020B	=
Vanadium	BJ	0.00504	mg/L	0.02	1/23/2024			SW846-6020B	U
Zinc	U	0.02	mg/L	0.02	1/23/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	1/23/2024			SW846-7470A	=
Barium, Dissolved		0.0738	mg/L	0.004	1/23/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	1/23/2024			SW846-6020B	UJ
Uranium, Dissolved	U	0.0002	mg/L	0.0002	1/23/2024			SW846-6020B	UJ
PCB-1016	U	0.108	ug/L	0.108	1/23/2024			SW846-8082A	=

PCB-1221	U	0.108	ug/L	0.108	1/23/2024			SW846-8082A	=
PCB-1232	U	0.108	ug/L	0.108	1/23/2024			SW846-8082A	=
PCB-1242	U	0.108	ug/L	0.108	1/23/2024			SW846-8082A	=
PCB-1248	U	0.108	ug/L	0.108	1/23/2024			SW846-8082A	=
PCB-1254	U	0.108	ug/L	0.108	1/23/2024			SW846-8082A	=
PCB-1260	U	0.108	ug/L	0.108	1/23/2024			SW846-8082A	=
PCB-1268	U	0.108	ug/L	0.108	1/23/2024			SW846-8082A	=
Polychlorinated biphenyl	U	0.108	ug/L	0.108	1/23/2024			SW846-8082A	=
Radium-226	U	0.09	pCi/L	0.43	1/23/2024	0.285	0.286	AN-1418	=
Radium-228	U	0.683	pCi/L	4.32	1/23/2024	2.37	2.38	EPA-904-M	=
Strontium-90	U	-0.504	pCi/L	3.63	1/23/2024	1.77	1.77	EPA-905.0-M	=
Tritium	U	196	pCi/L	219	1/23/2024	143	148	EPA-906.0-M	=
Technetium-99	U	18.6	pCi/L	22.9	1/23/2024	13.8	13.9	HASL 300, Tc-02-RC M	=
Thorium-230	U	0.39	pCi/L	1.67	1/23/2024	0.926	0.931	HASL 300, Th-01-RC M	=
Thorium-232	U	-0.0216	pCi/L	0.77	1/23/2024	0.377	0.378	HASL 300, Th-01-RC M	=
Alpha activity	U	5.48	pCi/L	6.22	1/23/2024	4.52	4.62	SW846-9310	=
Beta activity		20.7	pCi/L	9	1/23/2024	7.24	8.02	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.02	ug/L	0.02	1/23/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	1/23/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	1/23/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	1/23/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	1/23/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	1/23/2024			SW846-8260D	UJ
Acrylonitrile	U	5	ug/L	5	1/23/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	1/23/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=

Ethylbenzene	U	1	ug/L	1	1/23/2024	SW846-8260D	=
Iodomethane	U	5	ug/L	5	1/23/2024	SW846-8260D	=
Methylene chloride	U	5	ug/L	5	1/23/2024	SW846-8260D	=
Styrene	U	1	ug/L	1	1/23/2024	SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	1/23/2024	SW846-8260D	=
Toluene	U	1	ug/L	1	1/23/2024	SW846-8260D	=
Total Xylene	U	3	ug/L	3	1/23/2024	SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	1/23/2024	SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	1/23/2024	SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	1/23/2024	SW846-8260D	=
Trichloroethene		2	ug/L	1	1/23/2024	SW846-8260D	=
Trichlorofluoromethane	U	1	ug/L	1	1/23/2024	SW846-8260D	=
Vinyl acetate	U	5	ug/L	5	1/23/2024	SW846-8260D	=
Vinyl chloride	U	1	ug/L	1	1/23/2024	SW846-8260D	=
Dissolved Solids		211	mg/L	10	1/23/2024	EPA-160.1	=
Iodide	U	0.5	mg/L	0.5	1/23/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	U	20	mg/L	20	1/23/2024	EPA-410.4	=
Cyanide	U	0.2	mg/L	0.2	1/23/2024	SW846-9012B	=
Total Organic Halides (TOX)	U	10	ug/L	10	1/23/2024	SW846-9020B	=
Total Organic Carbon (TOC)	J	0.621	mg/L	2	1/23/2024	SW846-9060A	=

Paducah OREIS
GROUNDWATER MONITORING REPORT

Facility: C-746-U Landfill **County:** McCracken **Permit #:** SW07300014,SW07300015,SW07300045

Sampling Point: MW358 DOWN **RGA Type:** LRGA **Period:** 1st Quarter 2024

AKGWA Well Tag #: 8004-4799 **SAMPLE ID:** MW358UG2-24 Sample Type: REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide	W	0.214	mg/L	0.2	1/23/2024			SW846-9056A	=
Chloride	J	16.5	mg/L	250	1/23/2024			SW846-9056A	=
Fluoride	J	0.276	mg/L	4	1/23/2024			SW846-9056A	=
Nitrate as Nitrogen	J	0.185	mg/L	10	1/23/2024			SW846-9056A	=
Sulfate		27.6	mg/L	2	1/23/2024			SW846-9056A	=
Barometric Pressure Reading		30.23	Inches/Hg		1/23/2024				X
Conductivity		504	µmhos/cm		1/23/2024				X
Depth to Water		48.16	ft		1/23/2024				X
Dissolved Oxygen		0.69	mg/L		1/23/2024				X
Eh (approx)		167	mV		1/23/2024				X
pH		6.34	Std Unit		1/23/2024				X
Temperature		58.8	deg F		1/23/2024				X
Turbidity		0	NTU		1/23/2024				X
Aluminum		0.0585	mg/L	0.05	1/23/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	1/23/2024			SW846-6020B	=
Arsenic		0.0065	mg/L	0.005	1/23/2024			SW846-6020B	=
Barium		0.0984	mg/L	0.004	1/23/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	1/23/2024			SW846-6020B	=
Boron	N	0.135	mg/L	0.015	1/23/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	1/23/2024			SW846-6020B	=
Calcium		33.4	mg/L	0.2	1/23/2024			SW846-6020B	J
Chromium	U	0.01	mg/L	0.01	1/23/2024			SW846-6020B	=
Cobalt		0.0269	mg/L	0.001	1/23/2024			SW846-6020B	=
Copper	J	0.000841	mg/L	0.002	1/23/2024			SW846-6020B	J
Iron		14.9	mg/L	0.1	1/23/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	1/23/2024			SW846-6020B	=
Magnesium	B	19.5	mg/L	0.03	1/23/2024			SW846-6020B	=
Manganese		2.55	mg/L	0.05	1/23/2024			SW846-6020B	=
Molybdenum	J	0.000428	mg/L	0.001	1/23/2024			SW846-6020B	=
Nickel		0.0907	mg/L	0.002	1/23/2024			SW846-6020B	=
Potassium		3.28	mg/L	0.3	1/23/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	1/23/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	1/23/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	1/23/2024			SW846-6020B	=
Sodium		34.6	mg/L	0.25	1/23/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	1/23/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	1/23/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	1/23/2024			SW846-6020B	=
Vanadium	BJ	0.00476	mg/L	0.02	1/23/2024			SW846-6020B	U
Zinc	J	0.00826	mg/L	0.02	1/23/2024			SW846-6020B	=
Mercury	J	0.000173	mg/L	0.0002	1/23/2024			SW846-7470A	=
Barium, Dissolved		0.0911	mg/L	0.004	1/23/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	1/23/2024			SW846-6020B	UJ
Uranium, Dissolved	U	0.0002	mg/L	0.0002	1/23/2024			SW846-6020B	UJ
PCB-1016	U	0.105	ug/L	0.105	1/23/2024			SW846-8082A	=

PCB-1221	U	0.105	ug/L	0.105	1/23/2024			SW846-8082A	=
PCB-1232	U	0.105	ug/L	0.105	1/23/2024			SW846-8082A	=
PCB-1242	U	0.105	ug/L	0.105	1/23/2024			SW846-8082A	=
PCB-1248	U	0.105	ug/L	0.105	1/23/2024			SW846-8082A	=
PCB-1254	U	0.105	ug/L	0.105	1/23/2024			SW846-8082A	=
PCB-1260	U	0.105	ug/L	0.105	1/23/2024			SW846-8082A	=
PCB-1268	U	0.105	ug/L	0.105	1/23/2024			SW846-8082A	=
Polychlorinated biphenyl	U	0.105	ug/L	0.105	1/23/2024			SW846-8082A	=
Radium-226	U	0.0666	pCi/L	1.13	1/23/2024	0.549	0.549	AN-1418	=
Radium-228	U	0.279	pCi/L	4.07	1/23/2024	2.17	2.17	EPA-904-M	=
Strontium-90	U	-1.65	pCi/L	4.53	1/23/2024	2.2	2.2	EPA-905.0-M	=
Tritium	U	111	pCi/L	218	1/23/2024	130	131	EPA-906.0-M	=
Technetium-99	U	17.5	pCi/L	22.6	1/23/2024	13.6	13.7	HASL 300, Tc-02-RC M	=
Thorium-230	U	0.945	pCi/L	1.54	1/23/2024	1.09	1.1	HASL 300, Th-01-RC M	=
Thorium-232	U	-0.0214	pCi/L	0.793	1/23/2024	0.39	0.391	HASL 300, Th-01-RC M	=
Alpha activity	U	2.57	pCi/L	5.9	1/23/2024	3.49	3.52	SW846-9310	=
Beta activity		15.4	pCi/L	9.44	1/23/2024	6.85	7.33	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.0189	ug/L	0.0189	1/23/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	1/23/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	1/23/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	1/23/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	1/23/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	1/23/2024			SW846-8260D	UJ
Acrylonitrile	U	5	ug/L	5	1/23/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	1/23/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=

Ethylbenzene	U	1	ug/L	1	1/23/2024	SW846-8260D	=
Iodomethane	U	5	ug/L	5	1/23/2024	SW846-8260D	=
Methylene chloride	U	5	ug/L	5	1/23/2024	SW846-8260D	=
Styrene	U	1	ug/L	1	1/23/2024	SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	1/23/2024	SW846-8260D	=
Toluene	U	1	ug/L	1	1/23/2024	SW846-8260D	=
Total Xylene	U	3	ug/L	3	1/23/2024	SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	1/23/2024	SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	1/23/2024	SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	1/23/2024	SW846-8260D	=
Trichloroethene	J	0.41	ug/L	1	1/23/2024	SW846-8260D	=
Trichlorofluoromethane	U	1	ug/L	1	1/23/2024	SW846-8260D	=
Vinyl acetate	U	5	ug/L	5	1/23/2024	SW846-8260D	=
Vinyl chloride	U	1	ug/L	1	1/23/2024	SW846-8260D	=
Dissolved Solids		242	mg/L	10	1/23/2024	EPA-160.1	=
Iodide	U	0.5	mg/L	0.5	1/23/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	J	12.8	mg/L	20	1/23/2024	EPA-410.4	=
Cyanide	U	0.2	mg/L	0.2	1/23/2024	SW846-9012B	=
Total Organic Halides (TOX)	J	8.66	ug/L	10	1/23/2024	SW846-9020B	=
Total Organic Carbon (TOC)		4.7	mg/L	2	1/23/2024	SW846-9060A	=

Paducah OREIS
GROUNDWATER MONITORING REPORT

Facility: C-746-U Landfill **County:** McCracken **Permit #:** SW07300014,SW07300015,SW07300045

Sampling Point: MW360 DOWN **RGA Type:** URGA **Period:** 1st Quarter 2024

AKGWA Well Tag #: 8004-4800 **SAMPLE ID:** MW360DUG2-24 Sample Type: FR

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide	JW	0.158	mg/L	0.2	1/23/2024			SW846-9056A	=
Chloride	J	7.06	mg/L	250	1/23/2024			SW846-9056A	=
Fluoride	J	0.256	mg/L	4	1/23/2024			SW846-9056A	=
Nitrate as Nitrogen	J	0.611	mg/L	10	1/23/2024			SW846-9056A	=
Sulfate		12.2	mg/L	0.4	1/23/2024			SW846-9056A	=
Aluminum	J	0.0365	mg/L	0.05	1/23/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	1/23/2024			SW846-6020B	=
Arsenic	J	0.00244	mg/L	0.005	1/23/2024			SW846-6020B	=
Barium		0.203	mg/L	0.004	1/23/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	1/23/2024			SW846-6020B	=
Boron	N	0.0373	mg/L	0.015	1/23/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	1/23/2024			SW846-6020B	=
Calcium		18.6	mg/L	0.2	1/23/2024			SW846-6020B	J
Chromium	U	0.01	mg/L	0.01	1/23/2024			SW846-6020B	=
Cobalt	J	0.000985	mg/L	0.001	1/23/2024			SW846-6020B	J
Copper	J	0.00155	mg/L	0.002	1/23/2024			SW846-6020B	J
Iron	J	0.0916	mg/L	0.1	1/23/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	1/23/2024			SW846-6020B	=
Magnesium	B	8.83	mg/L	0.03	1/23/2024			SW846-6020B	=
Manganese		0.00932	mg/L	0.005	1/23/2024			SW846-6020B	J
Molybdenum	U	0.001	mg/L	0.001	1/23/2024			SW846-6020B	=
Nickel	J	0.000628	mg/L	0.002	1/23/2024			SW846-6020B	J
Potassium		0.759	mg/L	0.3	1/23/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	1/23/2024			SW846-6020B	=
Selenium	J	0.00199	mg/L	0.005	1/23/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	1/23/2024			SW846-6020B	=
Sodium		57.8	mg/L	2.5	1/23/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	1/23/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	1/23/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	1/23/2024			SW846-6020B	=
Vanadium	BJ	0.00485	mg/L	0.02	1/23/2024			SW846-6020B	U
Zinc	U	0.02	mg/L	0.02	1/23/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	1/23/2024			SW846-7470A	=
Barium, Dissolved		0.2	mg/L	0.004	1/23/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	1/23/2024			SW846-6020B	UJ
Uranium, Dissolved	U	0.0002	mg/L	0.0002	1/23/2024			SW846-6020B	UJ
PCB-1016	U	0.108	ug/L	0.108	1/23/2024			SW846-8082A	=
PCB-1221	U	0.108	ug/L	0.108	1/23/2024			SW846-8082A	=
PCB-1232	U	0.108	ug/L	0.108	1/23/2024			SW846-8082A	=
PCB-1242	U	0.108	ug/L	0.108	1/23/2024			SW846-8082A	=
PCB-1248	U	0.108	ug/L	0.108	1/23/2024			SW846-8082A	=
PCB-1254	U	0.108	ug/L	0.108	1/23/2024			SW846-8082A	=
PCB-1260	U	0.108	ug/L	0.108	1/23/2024			SW846-8082A	=
PCB-1268	U	0.108	ug/L	0.108	1/23/2024			SW846-8082A	=
Polychlorinated biphenyl	U	0.108	ug/L	0.108	1/23/2024			SW846-8082A	=

Radium-226	U	0.26	pCi/L	0.421	1/23/2024	0.304	0.304	AN-1418	=
Radium-228	U	2.42	pCi/L	3.26	1/23/2024	2.07	2.16	EPA-904-M	=
Strontium-90	U	-0.729	pCi/L	2.95	1/23/2024	1.33	1.33	EPA-905.0-M	=
Tritium	U	7.74	pCi/L	215	1/23/2024	111	111	EPA-906.0-M	=
Technetium-99	U	-0.988	pCi/L	23.1	1/23/2024	13.4	13.4	HASL 300, Tc-02-RC M	=
Thorium-230	U	-0.211	pCi/L	1.68	1/23/2024	0.627	0.628	HASL 300, Th-01-RC M	=
Thorium-232	U	0.307	pCi/L	1.24	1/23/2024	0.755	0.757	HASL 300, Th-01-RC M	=
Alpha activity	U	3.39	pCi/L	6.09	1/23/2024	3.85	3.89	SW846-9310	=
Beta activity	U	2.4	pCi/L	9.44	1/23/2024	5.29	5.31	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.02	ug/L	0.02	1/23/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	1/23/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	1/23/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	1/23/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	1/23/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	1/23/2024			SW846-8260D	UJ
Acrylonitrile	U	5	ug/L	5	1/23/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	1/23/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Ethylbenzene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	1/23/2024			SW846-8260D	=
Methylene chloride	U	5	ug/L	5	1/23/2024			SW846-8260D	=
Styrene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Toluene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Total Xylene	U	3	ug/L	3	1/23/2024			SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	1/23/2024			SW846-8260D	=

trans-1,3-Dichloropropene	U	1	ug/L	1	1/23/2024	SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	1/23/2024	SW846-8260D	=
Trichloroethene	U	1	ug/L	1	1/23/2024	SW846-8260D	=
Trichlorofluoromethane	U	1	ug/L	1	1/23/2024	SW846-8260D	=
Vinyl acetate	U	5	ug/L	5	1/23/2024	SW846-8260D	=
Vinyl chloride	U	1	ug/L	1	1/23/2024	SW846-8260D	=
Dissolved Solids		221	mg/L	10	1/23/2024	EPA-160.1	=
Iodide	U	0.5	mg/L	0.5	1/23/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	U	20	mg/L	20	1/23/2024	EPA-410.4	=
Cyanide	U	0.2	mg/L	0.2	1/23/2024	SW846-9012B	=
Total Organic Halides (TOX)	U	10	ug/L	10	1/23/2024	SW846-9020B	=
Total Organic Carbon (TOC)	J	1.08	mg/L	2	1/23/2024	SW846-9060A	=

Paducah OREIS
GROUNDWATER MONITORING REPORT

Facility: C-746-U Landfill **County:** McCracken **Permit #:** SW07300014,SW07300015,SW07300045

Sampling Point: MW360 DOWN **RGA Type:** URGA **Period:** 1st Quarter 2024

AKGWA Well Tag #: 8004-4800 **SAMPLE ID:** MW360UG2-24 Sample Type: REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide	JW	0.163	mg/L	0.2	1/23/2024			SW846-9056A	=
Chloride	J	5.85	mg/L	250	1/23/2024			SW846-9056A	=
Fluoride	J	0.273	mg/L	4	1/23/2024			SW846-9056A	=
Nitrate as Nitrogen	J	0.538	mg/L	10	1/23/2024			SW846-9056A	=
Sulfate		10.3	mg/L	0.4	1/23/2024			SW846-9056A	=
Barometric Pressure Reading		30.21	Inches/Hg		1/23/2024				X
Conductivity		384	µmhos/cm		1/23/2024				X
Depth to Water		41.34	ft		1/23/2024				X
Dissolved Oxygen		1.99	mg/L		1/23/2024				X
Eh (approx)		480	mV		1/23/2024				X
pH		6.11	Std Unit		1/23/2024				X
Temperature		55.7	deg F		1/23/2024				X
Turbidity		0	NTU		1/23/2024				X
Aluminum	J	0.0375	mg/L	0.05	1/23/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	1/23/2024			SW846-6020B	=
Arsenic	J	0.00326	mg/L	0.005	1/23/2024			SW846-6020B	=
Barium		0.207	mg/L	0.004	1/23/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	1/23/2024			SW846-6020B	=
Boron	N	0.0311	mg/L	0.015	1/23/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	1/23/2024			SW846-6020B	=
Calcium		18.6	mg/L	0.2	1/23/2024			SW846-6020B	J
Chromium	U	0.01	mg/L	0.01	1/23/2024			SW846-6020B	=
Cobalt	J	0.000718	mg/L	0.001	1/23/2024			SW846-6020B	J
Copper	J	0.00167	mg/L	0.002	1/23/2024			SW846-6020B	J
Iron	J	0.0895	mg/L	0.1	1/23/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	1/23/2024			SW846-6020B	=
Magnesium	B	9.29	mg/L	0.03	1/23/2024			SW846-6020B	=
Manganese		0.00783	mg/L	0.005	1/23/2024			SW846-6020B	J
Molybdenum	U	0.001	mg/L	0.001	1/23/2024			SW846-6020B	=
Nickel	J	0.000678	mg/L	0.002	1/23/2024			SW846-6020B	J
Potassium		0.747	mg/L	0.3	1/23/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	1/23/2024			SW846-6020B	=
Selenium		0.00708	mg/L	0.005	1/23/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	1/23/2024			SW846-6020B	=
Sodium		62.4	mg/L	2.5	1/23/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	1/23/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	1/23/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	1/23/2024			SW846-6020B	=
Vanadium	BJ	0.00552	mg/L	0.02	1/23/2024			SW846-6020B	U
Zinc	J	0.00335	mg/L	0.02	1/23/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	1/23/2024			SW846-7470A	=
Barium, Dissolved		0.203	mg/L	0.004	1/23/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	1/23/2024			SW846-6020B	UJ
Uranium, Dissolved	U	0.0002	mg/L	0.0002	1/23/2024			SW846-6020B	UJ
PCB-1016	U	0.107	ug/L	0.107	1/23/2024			SW846-8082A	=

PCB-1221	U	0.107	ug/L	0.107	1/23/2024			SW846-8082A	=
PCB-1232	U	0.107	ug/L	0.107	1/23/2024			SW846-8082A	=
PCB-1242	U	0.107	ug/L	0.107	1/23/2024			SW846-8082A	=
PCB-1248	U	0.107	ug/L	0.107	1/23/2024			SW846-8082A	=
PCB-1254	U	0.107	ug/L	0.107	1/23/2024			SW846-8082A	=
PCB-1260	U	0.107	ug/L	0.107	1/23/2024			SW846-8082A	=
PCB-1268	U	0.107	ug/L	0.107	1/23/2024			SW846-8082A	=
Polychlorinated biphenyl	U	0.107	ug/L	0.107	1/23/2024			SW846-8082A	=
Radium-226	U	0.578	pCi/L	0.651	1/23/2024	0.472	0.474	AN-1418	=
Radium-228	U	1.75	pCi/L	2.73	1/23/2024	1.7	1.76	EPA-904-M	=
Strontium-90	U	0.751	pCi/L	2.93	1/23/2024	1.61	1.62	EPA-905.0-M	=
Tritium	U	-114	pCi/L	220	1/23/2024	88.9	89	EPA-906.0-M	UJ
Technetium-99	U	5.52	pCi/L	22.6	1/23/2024	13.3	13.3	HASL 300, Tc-02-RC M	=
Thorium-230	U	0.281	pCi/L	1.53	1/23/2024	0.823	0.827	HASL 300, Th-01-RC M	=
Thorium-232	U	-0.0654	pCi/L	0.937	1/23/2024	0.379	0.38	HASL 300, Th-01-RC M	=
Alpha activity	U	4.48	pCi/L	6.61	1/23/2024	4.37	4.43	SW846-9310	=
Beta activity	U	-0.882	pCi/L	10	1/23/2024	5.2	5.2	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.0189	ug/L	0.0189	1/23/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	1/23/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	1/23/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	1/23/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	1/23/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	1/23/2024			SW846-8260D	UJ
Acrylonitrile	U	5	ug/L	5	1/23/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	1/23/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=

Ethylbenzene	U	1	ug/L	1	1/23/2024	SW846-8260D	=
Iodomethane	U	5	ug/L	5	1/23/2024	SW846-8260D	=
Methylene chloride	U	5	ug/L	5	1/23/2024	SW846-8260D	=
Styrene	U	1	ug/L	1	1/23/2024	SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	1/23/2024	SW846-8260D	=
Toluene	U	1	ug/L	1	1/23/2024	SW846-8260D	=
Total Xylene	U	3	ug/L	3	1/23/2024	SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	1/23/2024	SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	1/23/2024	SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	1/23/2024	SW846-8260D	=
Trichloroethene	U	1	ug/L	1	1/23/2024	SW846-8260D	=
Trichlorofluoromethane	U	1	ug/L	1	1/23/2024	SW846-8260D	=
Vinyl acetate	U	5	ug/L	5	1/23/2024	SW846-8260D	=
Vinyl chloride	U	1	ug/L	1	1/23/2024	SW846-8260D	=
Dissolved Solids		218	mg/L	10	1/23/2024	EPA-160.1	=
Iodide	U	0.5	mg/L	0.5	1/23/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	U	20	mg/L	20	1/23/2024	EPA-410.4	=
Cyanide	U	0.2	mg/L	0.2	1/23/2024	SW846-9012B	=
Total Organic Halides (TOX)	J	4.24	ug/L	10	1/23/2024	SW846-9020B	=
Total Organic Carbon (TOC)	J	1.25	mg/L	2	1/23/2024	SW846-9060A	=

Paducah OREIS
GROUNDWATER MONITORING REPORT

Facility: C-746-U Landfill **County:** McCracken **Permit #:** SW07300014,SW07300015,SW07300045

Sampling Point: MW361 DOWN **RGA Type:** LRGA **Period:** 1st Quarter 2024

AKGWA Well Tag #: 8004-4795 **SAMPLE ID:** MW361UG2-24 Sample Type: REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide	W	0.481	mg/L	0.2	1/23/2024			SW846-9056A	J
Chloride	J	37.9	mg/L	250	1/23/2024			SW846-9056A	=
Fluoride	J	0.195	mg/L	4	1/23/2024			SW846-9056A	=
Nitrate as Nitrogen	J	1.16	mg/L	10	1/23/2024			SW846-9056A	=
Sulfate		83	mg/L	4	1/23/2024			SW846-9056A	=
Barometric Pressure Reading		30.23	Inches/Hg		1/23/2024				X
Conductivity		515	µmhos/cm		1/23/2024				X
Depth to Water		41.58	ft		1/23/2024				X
Dissolved Oxygen		3.26	mg/L		1/23/2024				X
Eh (approx)		320	mV		1/23/2024				X
pH		6.03	Std Unit		1/23/2024				X
Temperature		58	deg F		1/23/2024				X
Turbidity		0	NTU		1/23/2024				X
Aluminum	U	0.05	mg/L	0.05	1/23/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	1/23/2024			SW846-6020B	=
Arsenic	J	0.00274	mg/L	0.005	1/23/2024			SW846-6020B	=
Barium		0.0541	mg/L	0.004	1/23/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	1/23/2024			SW846-6020B	=
Boron	N	0.198	mg/L	0.015	1/23/2024			SW846-6020B	J
Cadmium	U	0.001	mg/L	0.001	1/23/2024			SW846-6020B	=
Calcium		34.9	mg/L	0.2	1/23/2024			SW846-6020B	J
Chromium	U	0.01	mg/L	0.01	1/23/2024			SW846-6020B	=
Cobalt	U	0.001	mg/L	0.001	1/23/2024			SW846-6020B	=
Copper	J	0.000833	mg/L	0.002	1/23/2024			SW846-6020B	J
Iron	J	0.0379	mg/L	0.1	1/23/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	1/23/2024			SW846-6020B	=
Magnesium	B	17.1	mg/L	0.03	1/23/2024			SW846-6020B	=
Manganese	J	0.00312	mg/L	0.005	1/23/2024			SW846-6020B	U
Molybdenum	U	0.001	mg/L	0.001	1/23/2024			SW846-6020B	=
Nickel	U	0.002	mg/L	0.002	1/23/2024			SW846-6020B	=
Potassium		2.55	mg/L	0.3	1/23/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	1/23/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	1/23/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	1/23/2024			SW846-6020B	=
Sodium		49.4	mg/L	0.25	1/23/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	1/23/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	1/23/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	1/23/2024			SW846-6020B	=
Vanadium	BJ	0.00488	mg/L	0.02	1/23/2024			SW846-6020B	U
Zinc	U	0.02	mg/L	0.02	1/23/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	1/23/2024			SW846-7470A	=
Barium, Dissolved		0.0526	mg/L	0.004	1/23/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	1/23/2024			SW846-6020B	UJ
Uranium, Dissolved	U	0.0002	mg/L	0.0002	1/23/2024			SW846-6020B	UJ
PCB-1016	U	0.1	ug/L	0.1	1/23/2024			SW846-8082A	=

PCB-1221	U	0.1	ug/L	0.1	1/23/2024			SW846-8082A	=
PCB-1232	U	0.1	ug/L	0.1	1/23/2024			SW846-8082A	=
PCB-1242	U	0.1	ug/L	0.1	1/23/2024			SW846-8082A	=
PCB-1248	U	0.1	ug/L	0.1	1/23/2024			SW846-8082A	=
PCB-1254	J	0.0797	ug/L	0.1	1/23/2024			SW846-8082A	J
PCB-1260	J	0.0702	ug/L	0.1	1/23/2024			SW846-8082A	J
PCB-1268	U	0.1	ug/L	0.1	1/23/2024			SW846-8082A	=
Polychlorinated biphenyl		0.15	ug/L	0.1	1/23/2024			SW846-8082A	J
Radium-226	U	0.0593	pCi/L	0.639	1/23/2024	0.318	0.319	AN-1418	=
Radium-228	U	1.7	pCi/L	3.9	1/23/2024	2.28	2.32	EPA-904-M	=
Strontium-90	U	-0.994	pCi/L	3.26	1/23/2024	1.48	1.48	EPA-905.0-M	=
Tritium	U	86.9	pCi/L	213	1/23/2024	123	125	EPA-906.0-M	=
Technetium-99		54.3	pCi/L	22.8	1/23/2024	14.4	15.7	HASL 300, Tc-02-RC M	=
Thorium-230	U	1.26	pCi/L	1.93	1/23/2024	1.44	1.46	HASL 300, Th-01-RC M	=
Thorium-232	U	-0.0217	pCi/L	1.08	1/23/2024	0.554	0.555	HASL 300, Th-01-RC M	=
Alpha activity	U	1.36	pCi/L	8.3	1/23/2024	4.26	4.27	SW846-9310	=
Beta activity		38.6	pCi/L	9.91	1/23/2024	9.22	11.2	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.02	ug/L	0.02	1/23/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	1/23/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	1/23/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	1/23/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	1/23/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	1/23/2024			SW846-8260D	UJ
Acrylonitrile	U	5	ug/L	5	1/23/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	1/23/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=

Ethylbenzene	U	1	ug/L	1	1/23/2024	SW846-8260D	=
Iodomethane	U	5	ug/L	5	1/23/2024	SW846-8260D	=
Methylene chloride	U	5	ug/L	5	1/23/2024	SW846-8260D	=
Styrene	U	1	ug/L	1	1/23/2024	SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	1/23/2024	SW846-8260D	=
Toluene	U	1	ug/L	1	1/23/2024	SW846-8260D	=
Total Xylene	U	3	ug/L	3	1/23/2024	SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	1/23/2024	SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	1/23/2024	SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	1/23/2024	SW846-8260D	=
Trichloroethene	U	1	ug/L	1	1/23/2024	SW846-8260D	=
Trichlorofluoromethane	U	1	ug/L	1	1/23/2024	SW846-8260D	=
Vinyl acetate	U	5	ug/L	5	1/23/2024	SW846-8260D	=
Vinyl chloride	U	1	ug/L	1	1/23/2024	SW846-8260D	=
Dissolved Solids		292	mg/L	10	1/23/2024	EPA-160.1	=
Iodide	U	0.5	mg/L	0.5	1/23/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	U	20	mg/L	20	1/23/2024	EPA-410.4	=
Cyanide	U	0.2	mg/L	0.2	1/23/2024	SW846-9012B	=
Total Organic Halides (TOX)	U	10	ug/L	10	1/23/2024	SW846-9020B	=
Total Organic Carbon (TOC)	J	0.729	mg/L	2	1/23/2024	SW846-9060A	=

Paducah OREIS
GROUNDWATER MONITORING REPORT

Facility: C-746-U Landfill **County:** McCracken **Permit #:** SW07300014,SW07300015,SW07300045

Sampling Point: MW362 DOWN **RGA Type:** UCRS **Period:** 1st Quarter 2024

AKGWA Well Tag #: 8004-0986 **SAMPLE ID:** MW362UG2-24 Sample Type: REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide	UW	0.2	mg/L	0.2	1/23/2024			SW846-9056A	=
Chloride	J	3.96	mg/L	250	1/23/2024			SW846-9056A	=
Fluoride	J	0.349	mg/L	4	1/23/2024			SW846-9056A	=
Nitrate as Nitrogen	J	0.619	mg/L	10	1/23/2024			SW846-9056A	=
Sulfate		12.5	mg/L	0.4	1/23/2024			SW846-9056A	=
Barometric Pressure Reading		30.23	Inches/Hg		1/23/2024				X
Conductivity		603	µmhos/cm		1/23/2024				X
Depth to Water		28.69	ft		1/23/2024				X
Dissolved Oxygen		1.06	mg/L		1/23/2024				X
Eh (approx)		437	mV		1/23/2024				X
pH		6.9	Std Unit		1/23/2024				X
Temperature		58	deg F		1/23/2024				X
Turbidity		3.16	NTU		1/23/2024				X
Aluminum		0.53	mg/L	0.05	1/23/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	1/23/2024			SW846-6020B	=
Arsenic	J	0.00276	mg/L	0.005	1/23/2024			SW846-6020B	=
Barium		0.0984	mg/L	0.004	1/23/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	1/23/2024			SW846-6020B	=
Boron	JN	0.0139	mg/L	0.015	1/23/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	1/23/2024			SW846-6020B	=
Calcium		16	mg/L	0.2	1/23/2024			SW846-6020B	J
Chromium	U	0.01	mg/L	0.01	1/23/2024			SW846-6020B	=
Cobalt	J	0.000422	mg/L	0.001	1/23/2024			SW846-6020B	J
Copper	J	0.0019	mg/L	0.002	1/23/2024			SW846-6020B	J
Iron		0.435	mg/L	0.1	1/23/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	1/23/2024			SW846-6020B	=
Magnesium	B	7.63	mg/L	0.03	1/23/2024			SW846-6020B	=
Manganese		0.00917	mg/L	0.005	1/23/2024			SW846-6020B	J
Molybdenum	J	0.000447	mg/L	0.001	1/23/2024			SW846-6020B	=
Nickel	J	0.00132	mg/L	0.002	1/23/2024			SW846-6020B	J
Potassium		0.375	mg/L	0.3	1/23/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	1/23/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	1/23/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	1/23/2024			SW846-6020B	=
Sodium		104	mg/L	2.5	1/23/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	1/23/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	1/23/2024			SW846-6020B	=
Uranium		0.00109	mg/L	0.0002	1/23/2024			SW846-6020B	=
Vanadium	BJ	0.00609	mg/L	0.02	1/23/2024			SW846-6020B	U
Zinc	U	0.02	mg/L	0.02	1/23/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	1/23/2024			SW846-7470A	=
Barium, Dissolved		0.0919	mg/L	0.004	1/23/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	1/23/2024			SW846-6020B	UJ
Uranium, Dissolved		0.000998	mg/L	0.0002	1/23/2024			SW846-6020B	J
PCB-1016	U	0.11	ug/L	0.11	1/23/2024			SW846-8082A	=

PCB-1221	U	0.11	ug/L	0.11	1/23/2024			SW846-8082A	=
PCB-1232	U	0.11	ug/L	0.11	1/23/2024			SW846-8082A	=
PCB-1242	U	0.11	ug/L	0.11	1/23/2024			SW846-8082A	=
PCB-1248	U	0.11	ug/L	0.11	1/23/2024			SW846-8082A	=
PCB-1254	U	0.11	ug/L	0.11	1/23/2024			SW846-8082A	=
PCB-1260	U	0.11	ug/L	0.11	1/23/2024			SW846-8082A	=
PCB-1268	U	0.11	ug/L	0.11	1/23/2024			SW846-8082A	=
Polychlorinated biphenyl	U	0.11	ug/L	0.11	1/23/2024			SW846-8082A	=
Radium-226	U	0.513	pCi/L	0.579	1/23/2024	0.508	0.509	AN-1418	=
Radium-228	U	1.12	pCi/L	4.23	1/23/2024	2.37	2.38	EPA-904-M	=
Strontium-90	U	-1.76	pCi/L	3.94	1/23/2024	1.8	1.8	EPA-905.0-M	=
Tritium	U	70.7	pCi/L	211	1/23/2024	120	121	EPA-906.0-M	=
Technetium-99	U	7.92	pCi/L	23	1/23/2024	13.6	13.6	HASL 300, Tc-02-RC M	=
Thorium-230	U	0.12	pCi/L	1.61	1/23/2024	0.786	0.788	HASL 300, Th-01-RC M	=
Thorium-232	U	-0.0683	pCi/L	0.992	1/23/2024	0.402	0.403	HASL 300, Th-01-RC M	=
Alpha activity	U	0.134	pCi/L	9.02	1/23/2024	4.69	4.7	SW846-9310	=
Beta activity	U	-22.3	pCi/L	15.6	1/23/2024	6.42	6.42	SW846-9310	UJ
1,2-Dibromo-3-chloropropane	U	0.0189	ug/L	0.0189	1/23/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	1/23/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	1/23/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	1/23/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	1/23/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	1/23/2024			SW846-8260D	UJ
Acrylonitrile	U	5	ug/L	5	1/23/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	1/23/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=

Ethylbenzene	U	1	ug/L	1	1/23/2024	SW846-8260D	=
Iodomethane	U	5	ug/L	5	1/23/2024	SW846-8260D	=
Methylene chloride	U	5	ug/L	5	1/23/2024	SW846-8260D	=
Styrene	U	1	ug/L	1	1/23/2024	SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	1/23/2024	SW846-8260D	=
Toluene	U	1	ug/L	1	1/23/2024	SW846-8260D	=
Total Xylene	U	3	ug/L	3	1/23/2024	SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	1/23/2024	SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	1/23/2024	SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	1/23/2024	SW846-8260D	=
Trichloroethene	U	1	ug/L	1	1/23/2024	SW846-8260D	=
Trichlorofluoromethane	U	1	ug/L	1	1/23/2024	SW846-8260D	=
Vinyl acetate	U	5	ug/L	5	1/23/2024	SW846-8260D	=
Vinyl chloride	U	1	ug/L	1	1/23/2024	SW846-8260D	=
Dissolved Solids		325	mg/L	10	1/23/2024	EPA-160.1	=
Iodide	U	0.5	mg/L	0.5	1/23/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	U	20	mg/L	20	1/23/2024	EPA-410.4	=
Cyanide	U	0.2	mg/L	0.2	1/23/2024	SW846-9012B	=
Total Organic Halides (TOX)	J	6.2	ug/L	10	1/23/2024	SW846-9020B	=
Total Organic Carbon (TOC)	J	1.48	mg/L	2	1/23/2024	SW846-9060A	=

Paducah OREIS
GROUNDWATER MONITORING REPORT

Facility: C-746-U Landfill **County:** McCracken **Permit #:** SW07300014,SW07300015,SW07300045

Sampling Point: MW363 DOWN **RGA Type:** URGA **Period:** 1st Quarter 2024

AKGWA Well Tag #: 8004-4796 **SAMPLE ID:** MW363UG2-24 Sample Type: REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide	UW	0.2	mg/L	0.2	1/23/2024			SW846-9056A	=
Chloride	J	21.1	mg/L	250	1/23/2024			SW846-9056A	=
Fluoride	J	0.305	mg/L	4	1/23/2024			SW846-9056A	=
Nitrate as Nitrogen	J	3.07	mg/L	10	1/23/2024			SW846-9056A	=
Sulfate		28.4	mg/L	2	1/23/2024			SW846-9056A	=
Barometric Pressure Reading		30.2	Inches/Hg		1/23/2024				X
Conductivity		373	µmhos/cm		1/23/2024				X
Depth to Water		47.83	ft		1/23/2024				X
Dissolved Oxygen		1.3	mg/L		1/23/2024				X
Eh (approx)		363	mV		1/23/2024				X
pH		6.13	Std Unit		1/23/2024				X
Temperature		58.4	deg F		1/23/2024				X
Turbidity		0	NTU		1/23/2024				X
Aluminum	U	0.05	mg/L	0.05	1/23/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	1/23/2024			SW846-6020B	=
Arsenic	J	0.00257	mg/L	0.005	1/23/2024			SW846-6020B	=
Barium		0.121	mg/L	0.004	1/23/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	1/23/2024			SW846-6020B	=
Boron	N	0.0214	mg/L	0.015	1/23/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	1/23/2024			SW846-6020B	=
Calcium		21.1	mg/L	0.2	1/23/2024			SW846-6020B	J
Chromium	U	0.01	mg/L	0.01	1/23/2024			SW846-6020B	=
Cobalt	J	0.000878	mg/L	0.001	1/23/2024			SW846-6020B	J
Copper	J	0.000851	mg/L	0.002	1/23/2024			SW846-6020B	J
Iron	J	0.0734	mg/L	0.1	1/23/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	1/23/2024			SW846-6020B	=
Magnesium	B	9.43	mg/L	0.03	1/23/2024			SW846-6020B	=
Manganese		0.112	mg/L	0.005	1/23/2024			SW846-6020B	=
Molybdenum	U	0.001	mg/L	0.001	1/23/2024			SW846-6020B	=
Nickel		0.0445	mg/L	0.002	1/23/2024			SW846-6020B	=
Potassium		2.07	mg/L	0.3	1/23/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	1/23/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	1/23/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	1/23/2024			SW846-6020B	=
Sodium		38.4	mg/L	0.25	1/23/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	1/23/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	1/23/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	1/23/2024			SW846-6020B	=
Vanadium	BJ	0.00511	mg/L	0.02	1/23/2024			SW846-6020B	U
Zinc	U	0.02	mg/L	0.02	1/23/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	1/23/2024			SW846-7470A	=
Barium, Dissolved		0.119	mg/L	0.004	1/23/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	1/23/2024			SW846-6020B	UJ
Uranium, Dissolved	U	0.0002	mg/L	0.0002	1/23/2024			SW846-6020B	UJ
PCB-1016	U	0.11	ug/L	0.11	1/23/2024			SW846-8082A	=

PCB-1221	U	0.11	ug/L	0.11	1/23/2024			SW846-8082A	=
PCB-1232	U	0.11	ug/L	0.11	1/23/2024			SW846-8082A	=
PCB-1242	U	0.11	ug/L	0.11	1/23/2024			SW846-8082A	=
PCB-1248	U	0.11	ug/L	0.11	1/23/2024			SW846-8082A	=
PCB-1254	U	0.11	ug/L	0.11	1/23/2024			SW846-8082A	=
PCB-1260	U	0.11	ug/L	0.11	1/23/2024			SW846-8082A	=
PCB-1268	U	0.11	ug/L	0.11	1/23/2024			SW846-8082A	=
Polychlorinated biphenyl	U	0.11	ug/L	0.11	1/23/2024			SW846-8082A	=
Radium-226	U	0.22	pCi/L	0.692	1/23/2024	0.43	0.43	AN-1418	=
Radium-228	U	2.36	pCi/L	4.05	1/23/2024	2.47	2.54	EPA-904-M	=
Strontium-90	U	0.63	pCi/L	3.7	1/23/2024	2.01	2.01	EPA-905.0-M	=
Tritium	U	121	pCi/L	217	1/23/2024	131	133	EPA-906.0-M	=
Technetium-99	U	6.56	pCi/L	23.3	1/23/2024	13.7	13.8	HASL 300, Tc-02-RC M	=
Thorium-230	U	0.524	pCi/L	1.63	1/23/2024	0.969	0.976	HASL 300, Th-01-RC M	=
Thorium-232	U	0.128	pCi/L	1.01	1/23/2024	0.563	0.564	HASL 300, Th-01-RC M	=
Alpha activity	U	4.51	pCi/L	6.71	1/23/2024	4.44	4.51	SW846-9310	=
Beta activity	U	3.7	pCi/L	9.25	1/23/2024	5.38	5.41	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.02	ug/L	0.02	1/23/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	1/23/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	1/23/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	1/23/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	1/23/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	1/23/2024			SW846-8260D	UJ
Acrylonitrile	U	5	ug/L	5	1/23/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	1/23/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=

Ethylbenzene	U	1	ug/L	1	1/23/2024	SW846-8260D	=
Iodomethane	U	5	ug/L	5	1/23/2024	SW846-8260D	=
Methylene chloride	U	5	ug/L	5	1/23/2024	SW846-8260D	=
Styrene	U	1	ug/L	1	1/23/2024	SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	1/23/2024	SW846-8260D	=
Toluene	U	1	ug/L	1	1/23/2024	SW846-8260D	=
Total Xylene	U	3	ug/L	3	1/23/2024	SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	1/23/2024	SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	1/23/2024	SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	1/23/2024	SW846-8260D	=
Trichloroethene	U	1	ug/L	1	1/23/2024	SW846-8260D	=
Trichlorofluoromethane	U	1	ug/L	1	1/23/2024	SW846-8260D	=
Vinyl acetate	U	5	ug/L	5	1/23/2024	SW846-8260D	=
Vinyl chloride	U	1	ug/L	1	1/23/2024	SW846-8260D	=
Dissolved Solids		202	mg/L	10	1/23/2024	EPA-160.1	=
Iodide	U	0.5	mg/L	0.5	1/23/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	U	20	mg/L	20	1/23/2024	EPA-410.4	=
Cyanide	U	0.2	mg/L	0.2	1/23/2024	SW846-9012B	=
Total Organic Halides (TOX)	J	8.74	ug/L	10	1/23/2024	SW846-9020B	=
Total Organic Carbon (TOC)	J	1.26	mg/L	2	1/23/2024	SW846-9060A	=

Paducah OREIS
GROUNDWATER MONITORING REPORT

Facility: C-746-U Landfill **County:** McCracken **Permit #:** SW07300014,SW07300015,SW07300045

Sampling Point: MW364 DOWN **RGA Type:** LRGA **Period:** 1st Quarter 2024

AKGWA Well Tag #: 8004-4797 **SAMPLE ID:** MW364UG2-24 Sample Type: REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide		0.572	mg/L	0.2	1/24/2024			SW846-9056A	=
Chloride	JW	37.2	mg/L	250	1/24/2024			SW846-9056A	J
Fluoride	J	0.181	mg/L	4	1/24/2024			SW846-9056A	=
Nitrate as Nitrogen	J	1.21	mg/L	10	1/24/2024			SW846-9056A	=
Sulfate		68.2	mg/L	2	1/24/2024			SW846-9056A	=
Barometric Pressure Reading		30.03	Inches/Hg		1/24/2024				X
Conductivity		471	µmhos/cm		1/24/2024				X
Depth to Water		47.39	ft		1/24/2024				X
Dissolved Oxygen		3.97	mg/L		1/24/2024				X
Eh (approx)		520	mV		1/24/2024				X
pH		6.04	Std Unit		1/24/2024				X
Temperature		58.8	deg F		1/24/2024				X
Turbidity		0	NTU		1/24/2024				X
Aluminum	U	0.05	mg/L	0.05	1/24/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	1/24/2024			SW846-6020B	=
Arsenic	J	0.00263	mg/L	0.005	1/24/2024			SW846-6020B	=
Barium		0.0597	mg/L	0.004	1/24/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	1/24/2024			SW846-6020B	=
Boron		0.174	mg/L	0.015	1/24/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	1/24/2024			SW846-6020B	=
Calcium		33.7	mg/L	0.2	1/24/2024			SW846-6020B	=
Chromium	U	0.01	mg/L	0.01	1/24/2024			SW846-6020B	=
Cobalt	U	0.001	mg/L	0.001	1/24/2024			SW846-6020B	=
Copper	J	0.0011	mg/L	0.002	1/24/2024			SW846-6020B	J
Iron	J	0.0589	mg/L	0.1	1/24/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	1/24/2024			SW846-6020B	=
Magnesium		14.8	mg/L	0.03	1/24/2024			SW846-6020B	=
Manganese	J	0.0039	mg/L	0.005	1/24/2024			SW846-6020B	J
Molybdenum	U	0.001	mg/L	0.001	1/24/2024			SW846-6020B	=
Nickel	U	0.002	mg/L	0.002	1/24/2024			SW846-6020B	=
Potassium		1.98	mg/L	0.3	1/24/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	1/24/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	1/24/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	1/24/2024			SW846-6020B	=
Sodium		44.6	mg/L	0.25	1/24/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	1/24/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	1/24/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	1/24/2024			SW846-6020B	=
Vanadium	U	0.02	mg/L	0.02	1/24/2024			SW846-6020B	=
Zinc	J	0.0159	mg/L	0.02	1/24/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	1/24/2024			SW846-7470A	=
Barium, Dissolved		0.056	mg/L	0.004	1/24/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	1/24/2024			SW846-6020B	UJ
Uranium, Dissolved	U	0.0002	mg/L	0.0002	1/24/2024			SW846-6020B	UJ
PCB-1016	U	0.1	ug/L	0.1	1/24/2024			SW846-8082A	=

PCB-1221	U	0.1	ug/L	0.1	1/24/2024			SW846-8082A	=
PCB-1232	U	0.1	ug/L	0.1	1/24/2024			SW846-8082A	=
PCB-1242	U	0.1	ug/L	0.1	1/24/2024			SW846-8082A	=
PCB-1248	U	0.1	ug/L	0.1	1/24/2024			SW846-8082A	=
PCB-1254	U	0.1	ug/L	0.1	1/24/2024			SW846-8082A	=
PCB-1260	U	0.1	ug/L	0.1	1/24/2024			SW846-8082A	=
PCB-1268	U	0.1	ug/L	0.1	1/24/2024			SW846-8082A	=
Polychlorinated biphenyl	U	0.1	ug/L	0.1	1/24/2024			SW846-8082A	=
Radium-226	U	0.69	pCi/L	0.828	1/24/2024	0.699	0.7	AN-1418	=
Radium-228	U	1.62	pCi/L	4.47	1/24/2024	2.57	2.61	EPA-904-M	=
Strontium-90	U	1.15	pCi/L	6.3	1/24/2024	3.5	3.5	EPA-905.0-M	=
Tritium	U	-24.2	pCi/L	229	1/24/2024	126	126	EPA-906.0-M	=
Technetium-99		48.1	pCi/L	17.9	1/24/2024	12.6	13.7	HASL 300, Tc-02-RC M	=
Thorium-230	U	0.672	pCi/L	1.46	1/24/2024	0.946	0.955	HASL 300, Th-01-RC M	=
Thorium-232	U	0.0719	pCi/L	1.04	1/24/2024	0.519	0.52	HASL 300, Th-01-RC M	=
Alpha activity	U	1.39	pCi/L	6.86	1/24/2024	3.41	3.41	SW846-9310	=
Beta activity		27.1	pCi/L	8.72	1/24/2024	7.72	8.89	SW846-9310	=
1,2-Dibromo-3-chloropropane	UY1	0.0187	ug/L	0.0187	1/24/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	1/24/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	1/24/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	1/24/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	1/24/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	1/24/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	1/24/2024			SW846-8260D	UJ
Acrylonitrile	U	5	ug/L	5	1/24/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	1/24/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	1/24/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=

Ethylbenzene	U	1	ug/L	1	1/24/2024	SW846-8260D	=
Iodomethane	U	5	ug/L	5	1/24/2024	SW846-8260D	=
Methylene chloride	U	5	ug/L	5	1/24/2024	SW846-8260D	=
Styrene	U	1	ug/L	1	1/24/2024	SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	1/24/2024	SW846-8260D	=
Toluene	U	1	ug/L	1	1/24/2024	SW846-8260D	=
Total Xylene	U	3	ug/L	3	1/24/2024	SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	1/24/2024	SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	1/24/2024	SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	1/24/2024	SW846-8260D	=
Trichloroethene	J	0.72	ug/L	1	1/24/2024	SW846-8260D	=
Trichlorofluoromethane	U	1	ug/L	1	1/24/2024	SW846-8260D	=
Vinyl acetate	U	5	ug/L	5	1/24/2024	SW846-8260D	=
Vinyl chloride	U	1	ug/L	1	1/24/2024	SW846-8260D	=
Dissolved Solids		264	mg/L	10	1/24/2024	EPA-160.1	=
Iodide	U	0.5	mg/L	0.5	1/24/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	U	20	mg/L	20	1/24/2024	EPA-410.4	=
Cyanide	U	0.2	mg/L	0.2	1/24/2024	SW846-9012B	=
Total Organic Halides (TOX)	J	5.24	ug/L	10	1/24/2024	SW846-9020B	=
Total Organic Carbon (TOC)	J	0.497	mg/L	2	1/24/2024	SW846-9060A	=

Paducah OREIS
GROUNDWATER MONITORING REPORT

Facility: C-746-U Landfill **County:** McCracken **Permit #:** SW07300014,SW07300015,SW07300045

Sampling Point: MW366 DOWN **RGA Type:** URGA **Period:** 1st Quarter 2024

AKGWA Well Tag #: 8004-0982 **SAMPLE ID:** MW366UG2-24 Sample Type: REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide		0.571	mg/L	0.2	1/24/2024			SW846-9056A	=
Chloride	JW	38.9	mg/L	250	1/24/2024			SW846-9056A	=
Fluoride	J	0.204	mg/L	4	1/24/2024			SW846-9056A	=
Nitrate as Nitrogen	J	1.02	mg/L	10	1/24/2024			SW846-9056A	=
Sulfate		49.1	mg/L	2	1/24/2024			SW846-9056A	=
Barometric Pressure Reading		30.06	Inches/Hg		1/24/2024				X
Conductivity		484	µmhos/cm		1/24/2024				X
Depth to Water		47.97	ft		1/24/2024				X
Dissolved Oxygen		2.66	mg/L		1/24/2024				X
Eh (approx)		348	mV		1/24/2024				X
pH		6.1	Std Unit		1/24/2024				X
Temperature		60.2	deg F		1/24/2024				X
Turbidity		0	NTU		1/24/2024				X
Aluminum	U	0.05	mg/L	0.05	1/24/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	1/24/2024			SW846-6020B	=
Arsenic	J	0.00316	mg/L	0.005	1/24/2024			SW846-6020B	=
Barium		0.108	mg/L	0.004	1/24/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	1/24/2024			SW846-6020B	=
Boron		0.0871	mg/L	0.015	1/24/2024			SW846-6020B	J
Cadmium	U	0.001	mg/L	0.001	1/24/2024			SW846-6020B	=
Calcium		33.2	mg/L	0.2	1/24/2024			SW846-6020B	=
Chromium	U	0.01	mg/L	0.01	1/24/2024			SW846-6020B	=
Cobalt	U	0.001	mg/L	0.001	1/24/2024			SW846-6020B	=
Copper	J	0.000966	mg/L	0.002	1/24/2024			SW846-6020B	J
Iron		0.121	mg/L	0.1	1/24/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	1/24/2024			SW846-6020B	=
Magnesium		14.5	mg/L	0.03	1/24/2024			SW846-6020B	=
Manganese		0.0165	mg/L	0.005	1/24/2024			SW846-6020B	J
Molybdenum	U	0.001	mg/L	0.001	1/24/2024			SW846-6020B	=
Nickel	J	0.000991	mg/L	0.002	1/24/2024			SW846-6020B	J
Potassium		1.93	mg/L	0.3	1/24/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	1/24/2024			SW846-6020B	=
Selenium	J	0.00221	mg/L	0.005	1/24/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	1/24/2024			SW846-6020B	=
Sodium		47.8	mg/L	0.25	1/24/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	1/24/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	1/24/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	1/24/2024			SW846-6020B	=
Vanadium	U	0.02	mg/L	0.02	1/24/2024			SW846-6020B	=
Zinc	U	0.02	mg/L	0.02	1/24/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	1/24/2024			SW846-7470A	=
Barium, Dissolved		0.103	mg/L	0.004	1/24/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	1/24/2024			SW846-6020B	UJ
Uranium, Dissolved	U	0.0002	mg/L	0.0002	1/24/2024			SW846-6020B	UJ
PCB-1016	U	0.113	ug/L	0.113	1/24/2024			SW846-8082A	=

PCB-1221	U	0.113	ug/L	0.113	1/24/2024			SW846-8082A	=
PCB-1232	U	0.113	ug/L	0.113	1/24/2024			SW846-8082A	=
PCB-1242	U	0.113	ug/L	0.113	1/24/2024			SW846-8082A	=
PCB-1248	U	0.113	ug/L	0.113	1/24/2024			SW846-8082A	=
PCB-1254	U	0.113	ug/L	0.113	1/24/2024			SW846-8082A	=
PCB-1260	U	0.113	ug/L	0.113	1/24/2024			SW846-8082A	=
PCB-1268	U	0.113	ug/L	0.113	1/24/2024			SW846-8082A	=
Polychlorinated biphenyl	U	0.113	ug/L	0.113	1/24/2024			SW846-8082A	=
Radium-226	U	0.349	pCi/L	0.422	1/24/2024	0.341	0.341	AN-1418	=
Radium-228	U	3.55	pCi/L	4.43	1/24/2024	2.79	2.93	EPA-904-M	=
Strontium-90	U	1.42	pCi/L	4.57	1/24/2024	2.6	2.61	EPA-905.0-M	=
Tritium	U	-19	pCi/L	231	1/24/2024	128	128	EPA-906.0-M	=
Technetium-99		62.3	pCi/L	17.8	1/24/2024	13.1	14.9	HASL 300, Tc-02-RC M	=
Thorium-230	U	1.16	pCi/L	1.34	1/24/2024	1.06	1.07	HASL 300, Th-01-RC M	=
Thorium-232	U	-0.103	pCi/L	0.98	1/24/2024	0.359	0.359	HASL 300, Th-01-RC M	=
Alpha activity	U	0.23	pCi/L	8.82	1/24/2024	3.87	3.87	SW846-9310	=
Beta activity		29.4	pCi/L	7.49	1/24/2024	7.66	9.02	SW846-9310	=
1,2-Dibromo-3-chloropropane	UY1	0.019	ug/L	0.019	1/24/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	1/24/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	1/24/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	1/24/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	1/24/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	1/24/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	1/24/2024			SW846-8260D	UJ
Acrylonitrile	U	5	ug/L	5	1/24/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	1/24/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	1/24/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=

Ethylbenzene	U	1	ug/L	1	1/24/2024	SW846-8260D	=
Iodomethane	U	5	ug/L	5	1/24/2024	SW846-8260D	=
Methylene chloride	U	5	ug/L	5	1/24/2024	SW846-8260D	=
Styrene	U	1	ug/L	1	1/24/2024	SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	1/24/2024	SW846-8260D	=
Toluene	U	1	ug/L	1	1/24/2024	SW846-8260D	=
Total Xylene	U	3	ug/L	3	1/24/2024	SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	1/24/2024	SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	1/24/2024	SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	1/24/2024	SW846-8260D	=
Trichloroethene		1.3	ug/L	1	1/24/2024	SW846-8260D	=
Trichlorofluoromethane	U	1	ug/L	1	1/24/2024	SW846-8260D	=
Vinyl acetate	U	5	ug/L	5	1/24/2024	SW846-8260D	=
Vinyl chloride	U	1	ug/L	1	1/24/2024	SW846-8260D	=
Dissolved Solids		278	mg/L	10	1/24/2024	EPA-160.1	=
Iodide	U	0.5	mg/L	0.5	1/24/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	U	20	mg/L	20	1/24/2024	EPA-410.4	=
Cyanide	U	0.2	mg/L	0.2	1/24/2024	SW846-9012B	=
Total Organic Halides (TOX)	J	3.68	ug/L	10	1/24/2024	SW846-9020B	=
Total Organic Carbon (TOC)	J	0.62	mg/L	2	1/24/2024	SW846-9060A	=

Paducah OREIS
GROUNDWATER MONITORING REPORT

Facility: C-746-U Landfill **County:** McCracken **Permit #:** SW07300014,SW07300015,SW07300045

Sampling Point: MW367 DOWN **RGA Type:** LRGA **Period:** 1st Quarter 2024

AKGWA Well Tag #: 8004-4793 **SAMPLE ID:** MW367UG2-24 Sample Type: REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide	U	0.2	mg/L	0.2	1/24/2024			SW846-9056A	=
Chloride	JW	6.65	mg/L	250	1/24/2024			SW846-9056A	=
Fluoride	J	0.121	mg/L	4	1/24/2024			SW846-9056A	=
Nitrate as Nitrogen	U	10	mg/L	10	1/24/2024			SW846-9056A	=
Sulfate		19.5	mg/L	2	1/24/2024			SW846-9056A	=
Barometric Pressure Reading		30.07	Inches/Hg		1/24/2024				X
Conductivity		277	µmhos/cm		1/24/2024				X
Depth to Water		48.4	ft		1/24/2024				X
Dissolved Oxygen		1.43	mg/L		1/24/2024				X
Eh (approx)		295	mV		1/24/2024				X
pH		5.94	Std Unit		1/24/2024				X
Temperature		60.2	deg F		1/24/2024				X
Turbidity		1.96	NTU		1/24/2024				X
Aluminum	U	0.05	mg/L	0.05	1/24/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	1/24/2024			SW846-6020B	=
Arsenic	J	0.00422	mg/L	0.005	1/24/2024			SW846-6020B	=
Barium		0.129	mg/L	0.004	1/24/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	1/24/2024			SW846-6020B	=
Boron		0.0232	mg/L	0.015	1/24/2024			SW846-6020B	J
Cadmium	U	0.001	mg/L	0.001	1/24/2024			SW846-6020B	=
Calcium		13.1	mg/L	0.2	1/24/2024			SW846-6020B	=
Chromium	U	0.01	mg/L	0.01	1/24/2024			SW846-6020B	=
Cobalt		0.00668	mg/L	0.001	1/24/2024			SW846-6020B	J
Copper	J	0.000775	mg/L	0.002	1/24/2024			SW846-6020B	J
Iron		7.08	mg/L	0.1	1/24/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	1/24/2024			SW846-6020B	=
Magnesium		7.44	mg/L	0.03	1/24/2024			SW846-6020B	=
Manganese		1.38	mg/L	0.05	1/24/2024			SW846-6020B	=
Molybdenum	U	0.001	mg/L	0.001	1/24/2024			SW846-6020B	=
Nickel		0.00244	mg/L	0.002	1/24/2024			SW846-6020B	J
Potassium		2.7	mg/L	0.3	1/24/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	1/24/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	1/24/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	1/24/2024			SW846-6020B	=
Sodium		15.7	mg/L	0.25	1/24/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	1/24/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	1/24/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	1/24/2024			SW846-6020B	=
Vanadium	U	0.02	mg/L	0.02	1/24/2024			SW846-6020B	=
Zinc	J	0.0109	mg/L	0.02	1/24/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	1/24/2024			SW846-7470A	=
Barium, Dissolved		0.121	mg/L	0.004	1/24/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	1/24/2024			SW846-6020B	UJ
Uranium, Dissolved	U	0.0002	mg/L	0.0002	1/24/2024			SW846-6020B	UJ
PCB-1016	U	0.107	ug/L	0.107	1/24/2024			SW846-8082A	=

PCB-1221	U	0.107	ug/L	0.107	1/24/2024			SW846-8082A	=
PCB-1232	U	0.107	ug/L	0.107	1/24/2024			SW846-8082A	=
PCB-1242	U	0.107	ug/L	0.107	1/24/2024			SW846-8082A	=
PCB-1248	U	0.107	ug/L	0.107	1/24/2024			SW846-8082A	=
PCB-1254	U	0.107	ug/L	0.107	1/24/2024			SW846-8082A	=
PCB-1260	U	0.107	ug/L	0.107	1/24/2024			SW846-8082A	=
PCB-1268	U	0.107	ug/L	0.107	1/24/2024			SW846-8082A	=
Polychlorinated biphenyl	U	0.107	ug/L	0.107	1/24/2024			SW846-8082A	=
Radium-226	U	0.22	pCi/L	1.19	1/24/2024	0.746	0.746	AN-1418	=
Radium-228	U	2.99	pCi/L	3.68	1/24/2024	2.34	2.46	EPA-904-M	=
Strontium-90	U	3.38	pCi/L	4.61	1/24/2024	2.87	2.92	EPA-905.0-M	=
Tritium	U	19	pCi/L	231	1/24/2024	130	130	EPA-906.0-M	=
Technetium-99	U	-6.79	pCi/L	18	1/24/2024	9.8	9.8	HASL 300, Tc-02-RC M	=
Thorium-230	U	0.541	pCi/L	1.73	1/24/2024	1.01	1.02	HASL 300, Th-01-RC M	=
Thorium-232	U	0.266	pCi/L	1.09	1/24/2024	0.659	0.661	HASL 300, Th-01-RC M	=
Alpha activity	U	-0.744	pCi/L	7.59	1/24/2024	2.95	2.95	SW846-9310	=
Beta activity	U	1.36	pCi/L	7.5	1/24/2024	4.07	4.08	SW846-9310	=
1,2-Dibromo-3-chloropropane	UY1	0.0188	ug/L	0.0188	1/24/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	1/24/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	1/24/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	1/24/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	1/24/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	1/24/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	1/24/2024			SW846-8260D	UJ
Acrylonitrile	U	5	ug/L	5	1/24/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	1/24/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	1/24/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=

Ethylbenzene	U	1	ug/L	1	1/24/2024	SW846-8260D	=
Iodomethane	U	5	ug/L	5	1/24/2024	SW846-8260D	=
Methylene chloride	U	5	ug/L	5	1/24/2024	SW846-8260D	=
Styrene	U	1	ug/L	1	1/24/2024	SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	1/24/2024	SW846-8260D	=
Toluene	U	1	ug/L	1	1/24/2024	SW846-8260D	=
Total Xylene	U	3	ug/L	3	1/24/2024	SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	1/24/2024	SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	1/24/2024	SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	1/24/2024	SW846-8260D	=
Trichloroethene	U	1	ug/L	1	1/24/2024	SW846-8260D	=
Trichlorofluoromethane	U	1	ug/L	1	1/24/2024	SW846-8260D	=
Vinyl acetate	U	5	ug/L	5	1/24/2024	SW846-8260D	=
Vinyl chloride	U	1	ug/L	1	1/24/2024	SW846-8260D	=
Dissolved Solids		122	mg/L	10	1/24/2024	EPA-160.1	=
Iodide	U	0.5	mg/L	0.5	1/24/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	U	20	mg/L	20	1/24/2024	EPA-410.4	=
Cyanide	U	0.2	mg/L	0.2	1/24/2024	SW846-9012B	=
Total Organic Halides (TOX)	U	10	ug/L	10	1/24/2024	SW846-9020B	=
Total Organic Carbon (TOC)	U	2	mg/L	2	1/24/2024	SW846-9060A	=

Paducah OREIS
GROUNDWATER MONITORING REPORT

Facility: C-746-U Landfill **County:** McCracken **Permit #:** SW07300014,SW07300015,SW07300045

Sampling Point: MW369 UP **RGA Type:** URGA **Period:** 1st Quarter 2024

AKGWA Well Tag #: 8004-4820 **SAMPLE ID:** MW369UG2-24 Sample Type: REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide		0.362	mg/L	0.2	1/24/2024			SW846-9056A	=
Chloride	JW	27.7	mg/L	250	1/24/2024			SW846-9056A	=
Fluoride	J	0.27	mg/L	4	1/24/2024			SW846-9056A	=
Nitrate as Nitrogen	J	1.06	mg/L	10	1/24/2024			SW846-9056A	=
Sulfate		8.49	mg/L	0.4	1/24/2024			SW846-9056A	=
Barometric Pressure Reading		30.08	Inches/Hg		1/24/2024				X
Conductivity		341	µmhos/cm		1/24/2024				X
Depth to Water		42.31	ft		1/24/2024				X
Dissolved Oxygen		2.42	mg/L		1/24/2024				X
Eh (approx)		423	mV		1/24/2024				X
pH		6.13	Std Unit		1/24/2024				X
Temperature		59.8	deg F		1/24/2024				X
Turbidity		0	NTU		1/24/2024				X
Aluminum		0.0573	mg/L	0.05	1/24/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	1/24/2024			SW846-6020B	=
Arsenic	J	0.00304	mg/L	0.005	1/24/2024			SW846-6020B	=
Barium		0.375	mg/L	0.004	1/24/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	1/24/2024			SW846-6020B	=
Boron		0.0239	mg/L	0.015	1/24/2024			SW846-6020B	J
Cadmium	U	0.001	mg/L	0.001	1/24/2024			SW846-6020B	=
Calcium		16.4	mg/L	0.2	1/24/2024			SW846-6020B	=
Chromium	U	0.01	mg/L	0.01	1/24/2024			SW846-6020B	=
Cobalt		0.00483	mg/L	0.001	1/24/2024			SW846-6020B	J
Copper	J	0.0017	mg/L	0.002	1/24/2024			SW846-6020B	J
Iron		0.107	mg/L	0.1	1/24/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	1/24/2024			SW846-6020B	=
Magnesium		7.13	mg/L	0.03	1/24/2024			SW846-6020B	=
Manganese		0.0058	mg/L	0.005	1/24/2024			SW846-6020B	J
Molybdenum	U	0.001	mg/L	0.001	1/24/2024			SW846-6020B	=
Nickel		0.00294	mg/L	0.002	1/24/2024			SW846-6020B	J
Potassium		0.564	mg/L	0.3	1/24/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	1/24/2024			SW846-6020B	=
Selenium	J	0.00276	mg/L	0.005	1/24/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	1/24/2024			SW846-6020B	=
Sodium		51.2	mg/L	2.5	1/24/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	1/24/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	1/24/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	1/24/2024			SW846-6020B	=
Vanadium	U	0.02	mg/L	0.02	1/24/2024			SW846-6020B	=
Zinc	U	0.02	mg/L	0.02	1/24/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	1/24/2024			SW846-7470A	=
Barium, Dissolved		0.37	mg/L	0.004	1/24/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	1/24/2024			SW846-6020B	UJ
Uranium, Dissolved	U	0.0002	mg/L	0.0002	1/24/2024			SW846-6020B	UJ
PCB-1016	U	0.112	ug/L	0.112	1/24/2024			SW846-8082A	=

PCB-1221	U	0.112	ug/L	0.112	1/24/2024			SW846-8082A	=
PCB-1232	U	0.112	ug/L	0.112	1/24/2024			SW846-8082A	=
PCB-1242	U	0.112	ug/L	0.112	1/24/2024			SW846-8082A	=
PCB-1248	U	0.112	ug/L	0.112	1/24/2024			SW846-8082A	=
PCB-1254	U	0.112	ug/L	0.112	1/24/2024			SW846-8082A	=
PCB-1260	U	0.112	ug/L	0.112	1/24/2024			SW846-8082A	=
PCB-1268	U	0.112	ug/L	0.112	1/24/2024			SW846-8082A	=
Polychlorinated biphenyl	U	0.112	ug/L	0.112	1/24/2024			SW846-8082A	=
Radium-226	U	0.637	pCi/L	0.653	1/24/2024	0.487	0.489	AN-1418	=
Radium-228	U	0.337	pCi/L	3.17	1/24/2024	1.67	1.67	EPA-904-M	=
Strontium-90	U	-1.67	pCi/L	5	1/24/2024	2.36	2.36	EPA-905.0-M	=
Tritium	U	-122	pCi/L	232	1/24/2024	120	120	EPA-906.0-M	UJ
Technetium-99		62.7	pCi/L	18.5	1/24/2024	13.6	15.3	HASL 300, Tc-02-RC M	=
Thorium-230	U	0.462	pCi/L	1.42	1/24/2024	0.866	0.872	HASL 300, Th-01-RC M	=
Thorium-232	U	-0.0686	pCi/L	0.999	1/24/2024	0.405	0.406	HASL 300, Th-01-RC M	=
Alpha activity	U	-1.14	pCi/L	7.22	1/24/2024	2.32	2.32	SW846-9310	=
Beta activity		27.8	pCi/L	7.25	1/24/2024	7.46	8.71	SW846-9310	=
1,2-Dibromo-3-chloropropane	USY1	0.0188	ug/L	0.0188	1/24/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	1/24/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	1/24/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	1/24/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	1/24/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	1/24/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	1/24/2024			SW846-8260D	UJ
Acrylonitrile	U	5	ug/L	5	1/24/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	1/24/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	1/24/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=

Ethylbenzene	U	1	ug/L	1	1/24/2024	SW846-8260D	=
Iodomethane	U	5	ug/L	5	1/24/2024	SW846-8260D	=
Methylene chloride	U	5	ug/L	5	1/24/2024	SW846-8260D	=
Styrene	U	1	ug/L	1	1/24/2024	SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	1/24/2024	SW846-8260D	=
Toluene	U	1	ug/L	1	1/24/2024	SW846-8260D	=
Total Xylene	U	3	ug/L	3	1/24/2024	SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	1/24/2024	SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	1/24/2024	SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	1/24/2024	SW846-8260D	=
Trichloroethene	J	0.9	ug/L	1	1/24/2024	SW846-8260D	=
Trichlorofluoromethane	U	1	ug/L	1	1/24/2024	SW846-8260D	=
Vinyl acetate	U	5	ug/L	5	1/24/2024	SW846-8260D	=
Vinyl chloride	U	1	ug/L	1	1/24/2024	SW846-8260D	=
Dissolved Solids		189	mg/L	10	1/24/2024	EPA-160.1	=
Iodide	U	0.5	mg/L	0.5	1/24/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	U	20	mg/L	20	1/24/2024	EPA-410.4	=
Cyanide	U	0.2	mg/L	0.2	1/24/2024	SW846-9012B	=
Total Organic Halides (TOX)		21	ug/L	10	1/24/2024	SW846-9020B	=
Total Organic Carbon (TOC)	J	0.769	mg/L	2	1/24/2024	SW846-9060A	=

Paducah OREIS
GROUNDWATER MONITORING REPORT

Facility: C-746-U Landfill **County:** McCracken **Permit #:** SW07300014,SW07300015,SW07300045

Sampling Point: MW370 UP **RGA Type:** LRGA **Period:** 1st Quarter 2024

AKGWA Well Tag #: 8004-4818 **SAMPLE ID:** MW370UG2-24 Sample Type: REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide		0.598	mg/L	0.2	1/24/2024			SW846-9056A	=
Chloride	JW	40.1	mg/L	250	1/24/2024			SW846-9056A	=
Fluoride	J	0.194	mg/L	4	1/24/2024			SW846-9056A	=
Nitrate as Nitrogen	J	1.32	mg/L	10	1/24/2024			SW846-9056A	=
Sulfate		19.3	mg/L	4	1/24/2024			SW846-9056A	=
Barometric Pressure Reading		30.04	Inches/Hg		1/24/2024				X
Conductivity		437	µmhos/cm		1/24/2024				X
Depth to Water		43.12	ft		1/24/2024				X
Dissolved Oxygen		4.65	mg/L		1/24/2024				X
Eh (approx)		530	mV		1/24/2024				X
pH		6.2	Std Unit		1/24/2024				X
Temperature		61.1	deg F		1/24/2024				X
Turbidity		0	NTU		1/24/2024				X
Aluminum	U	0.05	mg/L	0.05	1/24/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	1/24/2024			SW846-6020B	=
Arsenic	J	0.00308	mg/L	0.005	1/24/2024			SW846-6020B	=
Barium		0.239	mg/L	0.004	1/24/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	1/24/2024			SW846-6020B	=
Boron		0.127	mg/L	0.015	1/24/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	1/24/2024			SW846-6020B	=
Calcium		30	mg/L	0.2	1/24/2024			SW846-6020B	=
Chromium	U	0.01	mg/L	0.01	1/24/2024			SW846-6020B	=
Cobalt	U	0.001	mg/L	0.001	1/24/2024			SW846-6020B	=
Copper	J	0.00181	mg/L	0.002	1/24/2024			SW846-6020B	J
Iron	J	0.0376	mg/L	0.1	1/24/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	1/24/2024			SW846-6020B	=
Magnesium		13.5	mg/L	0.03	1/24/2024			SW846-6020B	=
Manganese	J	0.00168	mg/L	0.005	1/24/2024			SW846-6020B	J
Molybdenum	U	0.001	mg/L	0.001	1/24/2024			SW846-6020B	=
Nickel	U	0.002	mg/L	0.002	1/24/2024			SW846-6020B	=
Potassium		2.55	mg/L	0.3	1/24/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	1/24/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	1/24/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	1/24/2024			SW846-6020B	=
Sodium		47.2	mg/L	0.25	1/24/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	1/24/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	1/24/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	1/24/2024			SW846-6020B	=
Vanadium	U	0.02	mg/L	0.02	1/24/2024			SW846-6020B	=
Zinc	J	0.00333	mg/L	0.02	1/24/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	1/24/2024			SW846-7470A	=
Barium, Dissolved		0.236	mg/L	0.004	1/24/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	1/24/2024			SW846-6020B	UJ
Uranium, Dissolved	U	0.0002	mg/L	0.0002	1/24/2024			SW846-6020B	UJ
PCB-1016	U	0.107	ug/L	0.107	1/24/2024			SW846-8082A	=

PCB-1221	U	0.107	ug/L	0.107	1/24/2024			SW846-8082A	=
PCB-1232	U	0.107	ug/L	0.107	1/24/2024			SW846-8082A	=
PCB-1242	U	0.107	ug/L	0.107	1/24/2024			SW846-8082A	=
PCB-1248	U	0.107	ug/L	0.107	1/24/2024			SW846-8082A	=
PCB-1254	U	0.107	ug/L	0.107	1/24/2024			SW846-8082A	=
PCB-1260	U	0.107	ug/L	0.107	1/24/2024			SW846-8082A	=
PCB-1268	U	0.107	ug/L	0.107	1/24/2024			SW846-8082A	=
Polychlorinated biphenyl	U	0.107	ug/L	0.107	1/24/2024			SW846-8082A	=
Radium-226	U	0.529	pCi/L	0.635	1/24/2024	0.47	0.472	AN-1418	=
Radium-228	U	2.97	pCi/L	3.83	1/24/2024	2.43	2.54	EPA-904-M	=
Strontium-90	U	0.933	pCi/L	4.96	1/24/2024	2.77	2.78	EPA-905.0-M	=
Tritium	U	-0.23	pCi/L	231	1/24/2024	129	129	EPA-906.0-M	=
Technetium-99	U	10.3	pCi/L	18	1/24/2024	10.8	10.8	HASL 300, Tc-02-RC M	=
Thorium-230	U	0.814	pCi/L	1.74	1/24/2024	1.14	1.15	HASL 300, Th-01-RC M	=
Thorium-232	U	0.571	pCi/L	1.09	1/24/2024	0.854	0.858	HASL 300, Th-01-RC M	=
Alpha activity	U	1.34	pCi/L	7.14	1/24/2024	3.51	3.51	SW846-9310	=
Beta activity	U	3.36	pCi/L	8.6	1/24/2024	4.98	5.02	SW846-9310	=
1,2-Dibromo-3-chloropropane	USY1	0.0185	ug/L	0.0185	1/24/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	1/24/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	1/24/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	1/24/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	1/24/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	1/24/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	1/24/2024			SW846-8260D	UJ
Acrylonitrile	U	5	ug/L	5	1/24/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	1/24/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	1/24/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=

Ethylbenzene	U	1	ug/L	1	1/24/2024	SW846-8260D	=
Iodomethane	U	5	ug/L	5	1/24/2024	SW846-8260D	=
Methylene chloride	U	5	ug/L	5	1/24/2024	SW846-8260D	=
Styrene	U	1	ug/L	1	1/24/2024	SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	1/24/2024	SW846-8260D	=
Toluene	U	1	ug/L	1	1/24/2024	SW846-8260D	=
Total Xylene	U	3	ug/L	3	1/24/2024	SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	1/24/2024	SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	1/24/2024	SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	1/24/2024	SW846-8260D	=
Trichloroethene		2.12	ug/L	1	1/24/2024	SW846-8260D	=
Trichlorofluoromethane	U	1	ug/L	1	1/24/2024	SW846-8260D	=
Vinyl acetate	U	5	ug/L	5	1/24/2024	SW846-8260D	=
Vinyl chloride	U	1	ug/L	1	1/24/2024	SW846-8260D	=
Dissolved Solids		235	mg/L	10	1/24/2024	EPA-160.1	=
Iodide	U	0.5	mg/L	0.5	1/24/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	U	20	mg/L	20	1/24/2024	EPA-410.4	=
Cyanide	U	0.2	mg/L	0.2	1/24/2024	SW846-9012B	=
Total Organic Halides (TOX)		14.4	ug/L	10	1/24/2024	SW846-9020B	=
Total Organic Carbon (TOC)	J	0.805	mg/L	2	1/24/2024	SW846-9060A	=

Paducah OREIS
GROUNDWATER MONITORING REPORT

Facility: C-746-U Landfill **County:** McCracken **Permit #:** SW07300014,SW07300015,SW07300045

Sampling Point: MW371 UP **RGA Type:** UCRS **Period:** 1st Quarter 2024

AKGWA Well Tag #: 8004-4819 **SAMPLE ID:** MW371UG2-24 Sample Type: REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide	U	0.2	mg/L	0.2	1/24/2024			SW846-9056A	=
Chloride	JW	4.06	mg/L	250	1/24/2024			SW846-9056A	=
Fluoride	J	0.29	mg/L	4	1/24/2024			SW846-9056A	=
Nitrate as Nitrogen	U	10	mg/L	10	1/24/2024			SW846-9056A	=
Sulfate		9.84	mg/L	0.4	1/24/2024			SW846-9056A	=
Barometric Pressure Reading		30.01	Inches/Hg		1/24/2024				X
Conductivity		700	µmhos/cm		1/24/2024				X
Depth to Water		25.46	ft		1/24/2024				X
Dissolved Oxygen		1.97	mg/L		1/24/2024				X
Eh (approx)		452	mV		1/24/2024				X
pH		6.54	Std Unit		1/24/2024				X
Temperature		62	deg F		1/24/2024				X
Turbidity		0	NTU		1/24/2024				X
Aluminum		0.24	mg/L	0.05	1/24/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	1/24/2024			SW846-6020B	=
Arsenic	J	0.00347	mg/L	0.005	1/24/2024			SW846-6020B	=
Barium		0.22	mg/L	0.004	1/24/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	1/24/2024			SW846-6020B	=
Boron	J	0.00984	mg/L	0.015	1/24/2024			SW846-6020B	U
Cadmium	U	0.001	mg/L	0.001	1/24/2024			SW846-6020B	=
Calcium		56.8	mg/L	2	1/24/2024			SW846-6020B	=
Chromium	U	0.01	mg/L	0.01	1/24/2024			SW846-6020B	=
Cobalt	U	0.001	mg/L	0.001	1/24/2024			SW846-6020B	=
Copper	J	0.00115	mg/L	0.002	1/24/2024			SW846-6020B	J
Iron		0.2	mg/L	0.1	1/24/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	1/24/2024			SW846-6020B	=
Magnesium		20.3	mg/L	0.03	1/24/2024			SW846-6020B	=
Manganese		0.00917	mg/L	0.005	1/24/2024			SW846-6020B	J
Molybdenum	J	0.000282	mg/L	0.001	1/24/2024			SW846-6020B	=
Nickel	J	0.00136	mg/L	0.002	1/24/2024			SW846-6020B	J
Potassium		0.396	mg/L	0.3	1/24/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	1/24/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	1/24/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	1/24/2024			SW846-6020B	=
Sodium		98.1	mg/L	2.5	1/24/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	1/24/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	1/24/2024			SW846-6020B	=
Uranium		0.00214	mg/L	0.0002	1/24/2024			SW846-6020B	=
Vanadium	J	0.00367	mg/L	0.02	1/24/2024			SW846-6020B	=
Zinc	J	0.00498	mg/L	0.02	1/24/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	1/24/2024			SW846-7470A	=
Barium, Dissolved		0.215	mg/L	0.004	1/24/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	1/24/2024			SW846-6020B	UJ
Uranium, Dissolved		0.00219	mg/L	0.0002	1/24/2024			SW846-6020B	J
PCB-1016	U	0.109	ug/L	0.109	1/24/2024			SW846-8082A	=

PCB-1221	U	0.109	ug/L	0.109	1/24/2024			SW846-8082A	=
PCB-1232	U	0.109	ug/L	0.109	1/24/2024			SW846-8082A	=
PCB-1242	U	0.109	ug/L	0.109	1/24/2024			SW846-8082A	=
PCB-1248	U	0.109	ug/L	0.109	1/24/2024			SW846-8082A	=
PCB-1254	U	0.109	ug/L	0.109	1/24/2024			SW846-8082A	=
PCB-1260	U	0.109	ug/L	0.109	1/24/2024			SW846-8082A	=
PCB-1268	U	0.109	ug/L	0.109	1/24/2024			SW846-8082A	=
Polychlorinated biphenyl	U	0.109	ug/L	0.109	1/24/2024			SW846-8082A	=
Radium-226	U	0.759	pCi/L	1.45	1/24/2024	1.13	1.13	AN-1418	=
Radium-228	U	-1.25	pCi/L	4.37	1/24/2024	2.13	2.13	EPA-904-M	=
Strontium-90	TU	-0.16	pCi/L	4.71	1/24/2024	2.49	2.49	EPA-905.0-M	=
Tritium	U	62	pCi/L	231	1/24/2024	133	134	EPA-906.0-M	=
Technetium-99	U	-4.4	pCi/L	18.4	1/24/2024	10.2	10.2	HASL 300, Tc-02-RC M	=
Thorium-230	U	-0.0148	pCi/L	1.59	1/24/2024	0.705	0.707	HASL 300, Th-01-RC M	=
Thorium-232	U	-0.0215	pCi/L	0.821	1/24/2024	0.406	0.407	HASL 300, Th-01-RC M	=
Alpha activity	U	1.01	pCi/L	8.15	1/24/2024	3.74	3.74	SW846-9310	=
Beta activity	U	7.24	pCi/L	10.7	1/24/2024	6.59	6.71	SW846-9310	=
1,2-Dibromo-3-chloropropane	UY1	0.0186	ug/L	0.0186	1/24/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	1/24/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	1/24/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	1/24/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	1/24/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	1/24/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	1/24/2024			SW846-8260D	UJ
Acrylonitrile	U	5	ug/L	5	1/24/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	1/24/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	1/24/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=

Ethylbenzene	U	1	ug/L	1	1/24/2024	SW846-8260D	=
Iodomethane	U	5	ug/L	5	1/24/2024	SW846-8260D	=
Methylene chloride	U	5	ug/L	5	1/24/2024	SW846-8260D	=
Styrene	U	1	ug/L	1	1/24/2024	SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	1/24/2024	SW846-8260D	=
Toluene	U	1	ug/L	1	1/24/2024	SW846-8260D	=
Total Xylene	U	3	ug/L	3	1/24/2024	SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	1/24/2024	SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	1/24/2024	SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	1/24/2024	SW846-8260D	=
Trichloroethene	U	1	ug/L	1	1/24/2024	SW846-8260D	=
Trichlorofluoromethane	U	1	ug/L	1	1/24/2024	SW846-8260D	=
Vinyl acetate	U	5	ug/L	5	1/24/2024	SW846-8260D	=
Vinyl chloride	U	1	ug/L	1	1/24/2024	SW846-8260D	=
Dissolved Solids		416	mg/L	10	1/24/2024	EPA-160.1	=
Iodide	U	0.5	mg/L	0.5	1/24/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	U	20	mg/L	20	1/24/2024	EPA-410.4	=
Cyanide	U	0.2	mg/L	0.2	1/24/2024	SW846-9012B	=
Total Organic Halides (TOX)	J	7.32	ug/L	10	1/24/2024	SW846-9020B	=
Total Organic Carbon (TOC)	J	1.94	mg/L	2	1/24/2024	SW846-9060A	=

Paducah OREIS
GROUNDWATER MONITORING REPORT

Facility: C-746-U Landfill **County:** McCracken **Permit #:** SW07300014,SW07300015,SW07300045

Sampling Point: MW372 UP **RGA Type:** URGA **Period:** 1st Quarter 2024

AKGWA Well Tag #: 8004-4808 **SAMPLE ID:** MW372UG2-24 Sample Type: REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide		0.492	mg/L	0.2	1/25/2024			SW846-9056A	=
Chloride	BJ	37.9	mg/L	4	1/25/2024			SW846-9056A	U
Fluoride	J	0.222	mg/L	4	1/25/2024			SW846-9056A	=
Nitrate as Nitrogen	J	0.845	mg/L	10	1/25/2024			SW846-9056A	=
Sulfate		148	mg/L	8	1/25/2024			SW846-9056A	=
Barometric Pressure Reading		30.05	Inches/Hg		1/25/2024				X
Conductivity		727	µmhos/cm		1/25/2024				X
Depth to Water		37.48	ft		1/25/2024				X
Dissolved Oxygen		1.7	mg/L		1/25/2024				X
Eh (approx)		483	mV		1/25/2024				X
pH		6.07	Std Unit		1/25/2024				X
Temperature		61.3	deg F		1/25/2024				X
Turbidity		0	NTU		1/25/2024				X
Aluminum	U	0.05	mg/L	0.05	1/25/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	1/25/2024			SW846-6020B	=
Arsenic		0.0052	mg/L	0.005	1/25/2024			SW846-6020B	=
Barium		0.0576	mg/L	0.004	1/25/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	1/25/2024			SW846-6020B	=
Boron	B	1.38	mg/L	0.3	1/25/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	1/25/2024			SW846-6020B	=
Calcium		71.4	mg/L	4	1/25/2024			SW846-6020B	=
Chromium	U	0.01	mg/L	0.01	1/25/2024			SW846-6020B	=
Cobalt	U	0.001	mg/L	0.001	1/25/2024			SW846-6020B	=
Copper	J	0.00146	mg/L	0.002	1/25/2024			SW846-6020B	J
Iron	J	0.0869	mg/L	0.1	1/25/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	1/25/2024			SW846-6020B	=
Magnesium		25.1	mg/L	0.03	1/25/2024			SW846-6020B	=
Manganese	J	0.00199	mg/L	0.005	1/25/2024			SW846-6020B	J
Molybdenum	J	0.000268	mg/L	0.001	1/25/2024			SW846-6020B	=
Nickel	J	0.000627	mg/L	0.002	1/25/2024			SW846-6020B	J
Potassium		2.12	mg/L	0.3	1/25/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	1/25/2024			SW846-6020B	=
Selenium	J	0.00155	mg/L	0.005	1/25/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	1/25/2024			SW846-6020B	=
Sodium		60.8	mg/L	5	1/25/2024			SW846-6020B	=
Tantalum	UN	0.005	mg/L	0.005	1/25/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	1/25/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	1/25/2024			SW846-6020B	=
Vanadium	J	0.00573	mg/L	0.02	1/25/2024			SW846-6020B	=
Zinc	U	0.02	mg/L	0.02	1/25/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	1/25/2024			SW846-7470A	=
Barium, Dissolved		0.0559	mg/L	0.004	1/25/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	1/25/2024			SW846-6020B	UJ
Uranium, Dissolved	U	0.0002	mg/L	0.0002	1/25/2024			SW846-6020B	UJ
PCB-1016	U	0.106	ug/L	0.106	1/25/2024			SW846-8082A	=

PCB-1221	U	0.106	ug/L	0.106	1/25/2024			SW846-8082A	=
PCB-1232	U	0.106	ug/L	0.106	1/25/2024			SW846-8082A	=
PCB-1242	U	0.106	ug/L	0.106	1/25/2024			SW846-8082A	=
PCB-1248	U	0.106	ug/L	0.106	1/25/2024			SW846-8082A	=
PCB-1254	U	0.106	ug/L	0.106	1/25/2024			SW846-8082A	=
PCB-1260	U	0.106	ug/L	0.106	1/25/2024			SW846-8082A	=
PCB-1268	U	0.106	ug/L	0.106	1/25/2024			SW846-8082A	=
Polychlorinated biphenyl	U	0.106	ug/L	0.106	1/25/2024			SW846-8082A	=
Radium-226	U	0.524	pCi/L	0.646	1/25/2024	0.517	0.518	AN-1418	=
Radium-228	U	0.86	pCi/L	4.09	1/25/2024	2.24	2.26	EPA-904-M	=
Strontium-90	U	0.804	pCi/L	5.45	1/25/2024	3	3	EPA-905.0-M	=
Tritium	U	3.58	pCi/L	230	1/25/2024	129	129	EPA-906.0-M	=
Technetium-99		38.9	pCi/L	16.3	1/25/2024	11.4	12.2	HASL 300, Tc-02-RC M	=
Thorium-230	U	0.827	pCi/L	1.63	1/25/2024	1.07	1.08	HASL 300, Th-01-RC M	=
Thorium-232	U	0.221	pCi/L	1.19	1/25/2024	0.666	0.667	HASL 300, Th-01-RC M	=
Alpha activity	U	6.28	pCi/L	11.7	1/25/2024	7.13	7.21	SW846-9310	UJ
Beta activity		26.5	pCi/L	10.8	1/25/2024	8.54	9.61	SW846-9310	=
1,2-Dibromo-3-chloropropane	US	0.0188	ug/L	0.0188	1/25/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
1,1,1-Trichloroethane	UY2	1	ug/L	1	1/25/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
1,1-Dichloroethene	UY2	1	ug/L	1	1/25/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	1/25/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	1/25/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	1/25/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	1/25/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	1/25/2024			SW846-8260D	=
Acetone	JY2	3.63	ug/L	5	1/25/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	1/25/2024			SW846-8260D	UJ
Acrylonitrile	U	5	ug/L	5	1/25/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Bromomethane	UY2	1	ug/L	1	1/25/2024			SW846-8260D	=
Carbon disulfide	UY2	5	ug/L	5	1/25/2024			SW846-8260D	=
Carbon tetrachloride	UY2	1	ug/L	1	1/25/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Chloromethane	UY1	1	ug/L	1	1/25/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	1/25/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=

Ethylbenzene	UY2	1	ug/L	1	1/25/2024	SW846-8260D	=
Iodomethane	UY2	5	ug/L	5	1/25/2024	SW846-8260D	=
Methylene chloride	JY2	1.35	ug/L	5	1/25/2024	SW846-8260D	=
Styrene	UY2	1	ug/L	1	1/25/2024	SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	1/25/2024	SW846-8260D	=
Toluene	U	1	ug/L	1	1/25/2024	SW846-8260D	=
Total Xylene	UY2	3	ug/L	3	1/25/2024	SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	1/25/2024	SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	1/25/2024	SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	1/25/2024	SW846-8260D	=
Trichloroethene		2.5	ug/L	1	1/25/2024	SW846-8260D	=
Trichlorofluoromethane	U	1	ug/L	1	1/25/2024	SW846-8260D	=
Vinyl acetate	U	5	ug/L	5	1/25/2024	SW846-8260D	=
Vinyl chloride	UY1	1	ug/L	1	1/25/2024	SW846-8260D	UJ
Dissolved Solids		438	mg/L	10	1/25/2024	EPA-160.1	=
Iodide	U	0.5	mg/L	0.5	1/25/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	U	20	mg/L	20	1/25/2024	EPA-410.4	=
Cyanide	U	0.2	mg/L	0.2	1/25/2024	SW846-9012B	=
Total Organic Halides (TOX)		10.9	ug/L	10	1/25/2024	SW846-9020B	=
Total Organic Carbon (TOC)	J	1.02	mg/L	2	1/25/2024	SW846-9060A	=

Paducah OREIS
GROUNDWATER MONITORING REPORT

Facility: C-746-U Landfill **County:** McCracken **Permit #:** SW07300014,SW07300015,SW07300045

Sampling Point: MW373 UP **RGA Type:** LRGA **Period:** 1st Quarter 2024

AKGWA Well Tag #: 8004-4792 **SAMPLE ID:** MW373UG2-24 Sample Type: REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide		0.202	mg/L	0.2	1/25/2024			SW846-9056A	=
Chloride	JB	31.3	mg/L	4	1/25/2024			SW846-9056A	U
Fluoride	J	0.214	mg/L	4	1/25/2024			SW846-9056A	=
Nitrate as Nitrogen	J	0.732	mg/L	10	1/25/2024			SW846-9056A	=
Sulfate		194	mg/L	8	1/25/2024			SW846-9056A	=
Barometric Pressure Reading		30.05	Inches/Hg		1/25/2024				X
Conductivity		909	µmhos/cm		1/25/2024				X
Depth to Water		37.8	ft		1/25/2024				X
Dissolved Oxygen		1.3	mg/L		1/25/2024				X
Eh (approx)		493	mV		1/25/2024				X
pH		6.03	Std Unit		1/25/2024				X
Temperature		60.8	deg F		1/25/2024				X
Turbidity		0	NTU		1/25/2024				X
Aluminum	U	0.05	mg/L	0.05	1/25/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	1/25/2024			SW846-6020B	=
Arsenic		0.00644	mg/L	0.005	1/25/2024			SW846-6020B	=
Barium		0.0361	mg/L	0.004	1/25/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	1/25/2024			SW846-6020B	=
Boron	B	2.22	mg/L	0.3	1/25/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	1/25/2024			SW846-6020B	=
Calcium		84	mg/L	4	1/25/2024			SW846-6020B	=
Chromium	U	0.01	mg/L	0.01	1/25/2024			SW846-6020B	=
Cobalt	J	0.000501	mg/L	0.001	1/25/2024			SW846-6020B	J
Copper	J	0.00116	mg/L	0.002	1/25/2024			SW846-6020B	J
Iron	J	0.0872	mg/L	0.1	1/25/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	1/25/2024			SW846-6020B	=
Magnesium		29.9	mg/L	0.03	1/25/2024			SW846-6020B	=
Manganese		0.0593	mg/L	0.005	1/25/2024			SW846-6020B	J
Molybdenum	U	0.001	mg/L	0.001	1/25/2024			SW846-6020B	=
Nickel	J	0.00164	mg/L	0.002	1/25/2024			SW846-6020B	J
Potassium		2.62	mg/L	0.3	1/25/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	1/25/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	1/25/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	1/25/2024			SW846-6020B	=
Sodium		63.7	mg/L	5	1/25/2024			SW846-6020B	=
Tantalum	UN	0.005	mg/L	0.005	1/25/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	1/25/2024			SW846-6020B	=
Uranium	J	0.000071	mg/L	0.0002	1/25/2024			SW846-6020B	=
Vanadium	J	0.00715	mg/L	0.02	1/25/2024			SW846-6020B	=
Zinc	U	0.02	mg/L	0.02	1/25/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	1/25/2024			SW846-7470A	=
Barium, Dissolved		0.0364	mg/L	0.004	1/25/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	1/25/2024			SW846-6020B	UJ
Uranium, Dissolved	J	0.000091	mg/L	0.0002	1/25/2024			SW846-6020B	J
PCB-1016	U	0.104	ug/L	0.104	1/25/2024			SW846-8082A	=

PCB-1221	U	0.104	ug/L	0.104	1/25/2024			SW846-8082A	=
PCB-1232	U	0.104	ug/L	0.104	1/25/2024			SW846-8082A	=
PCB-1242	U	0.104	ug/L	0.104	1/25/2024			SW846-8082A	=
PCB-1248	U	0.104	ug/L	0.104	1/25/2024			SW846-8082A	=
PCB-1254	U	0.104	ug/L	0.104	1/25/2024			SW846-8082A	=
PCB-1260	U	0.104	ug/L	0.104	1/25/2024			SW846-8082A	=
PCB-1268	U	0.104	ug/L	0.104	1/25/2024			SW846-8082A	=
Polychlorinated biphenyl	U	0.104	ug/L	0.104	1/25/2024			SW846-8082A	=
Radium-226	U	0.026	pCi/L	0.553	1/25/2024	0.264	0.264	AN-1418	=
Radium-228	U	2.49	pCi/L	3.25	1/25/2024	2.07	2.17	EPA-904-M	=
Strontium-90	U	2.98	pCi/L	5.7	1/25/2024	3.39	3.42	EPA-905.0-M	=
Tritium	U	98	pCi/L	238	1/25/2024	140	141	EPA-906.0-M	=
Technetium-99	U	6.7	pCi/L	16.4	1/25/2024	9.63	9.66	HASL 300, Tc-02-RC M	=
Thorium-230	U	1.15	pCi/L	2.82	1/25/2024	1.8	1.81	HASL 300, Th-01-RC M	=
Thorium-232	U	-0.284	pCi/L	2.26	1/25/2024	0.792	0.794	HASL 300, Th-01-RC M	=
Alpha activity	U	2.87	pCi/L	9.17	1/25/2024	4.96	4.98	SW846-9310	UJ
Beta activity	U	2.38	pCi/L	10.6	1/25/2024	5.95	5.96	SW846-9310	=
1,2-Dibromo-3-chloropropane	SU	0.0189	ug/L	0.0189	1/25/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
1,1,1-Trichloroethane	UY2	1	ug/L	1	1/25/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
1,1-Dichloroethene	UY2	1	ug/L	1	1/25/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	1/25/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	1/25/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	1/25/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	1/25/2024			SW846-8260D	=
4-Methyl-2-pentanone	LU	5	ug/L	5	1/25/2024			SW846-8260D	=
Acetone	UY2	5	ug/L	5	1/25/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	1/25/2024			SW846-8260D	UJ
Acrylonitrile	U	5	ug/L	5	1/25/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Bromomethane	UY2	1	ug/L	1	1/25/2024			SW846-8260D	=
Carbon disulfide	UY2	5	ug/L	5	1/25/2024			SW846-8260D	=
Carbon tetrachloride	UY2	1	ug/L	1	1/25/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Chloromethane	UY1	1	ug/L	1	1/25/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	1/25/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=

Ethylbenzene	UY2	1	ug/L	1	1/25/2024	SW846-8260D	=
Iodomethane	UY2	5	ug/L	5	1/25/2024	SW846-8260D	=
Methylene chloride	BJY2	1.6	ug/L	5	1/25/2024	SW846-8260D	U
Styrene	UY2	1	ug/L	1	1/25/2024	SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	1/25/2024	SW846-8260D	=
Toluene	U	1	ug/L	1	1/25/2024	SW846-8260D	=
Total Xylene	UY2	3	ug/L	3	1/25/2024	SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	1/25/2024	SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	1/25/2024	SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	1/25/2024	SW846-8260D	UJ
Trichloroethene		2.72	ug/L	1	1/25/2024	SW846-8260D	=
Trichlorofluoromethane	U	1	ug/L	1	1/25/2024	SW846-8260D	=
Vinyl acetate	U	5	ug/L	5	1/25/2024	SW846-8260D	=
Vinyl chloride	UY1	1	ug/L	1	1/25/2024	SW846-8260D	UJ
Dissolved Solids		536	mg/L	10	1/25/2024	EPA-160.1	=
Iodide	U	0.5	mg/L	0.5	1/25/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	U	20	mg/L	20	1/25/2024	EPA-410.4	=
Cyanide	U	0.2	mg/L	0.2	1/25/2024	SW846-9012B	=
Total Organic Halides (TOX)		14.3	ug/L	10	1/25/2024	SW846-9020B	=
Total Organic Carbon (TOC)	J	1.37	mg/L	2	1/25/2024	SW846-9060A	=

Paducah OREIS
GROUNDWATER MONITORING REPORT

Facility: C-746-U Landfill **County:** McCracken **Permit #:** SW07300014,SW07300015,SW07300045

Sampling Point: MW374 UP **RGA Type:** UCRS **Period:** 1st Quarter 2024

AKGWA Well Tag #: 8004-0990 **SAMPLE ID:** MW374UG2-24 Sample Type: REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide		0.488	mg/L	0.2	1/25/2024			SW846-9056A	=
Chloride	BJ	44.8	mg/L	250	1/25/2024			SW846-9056A	U
Fluoride	J	0.281	mg/L	4	1/25/2024			SW846-9056A	=
Nitrate as Nitrogen	J	0.329	mg/L	10	1/25/2024			SW846-9056A	=
Sulfate		15.4	mg/L	0.4	1/25/2024			SW846-9056A	=
Barometric Pressure Reading		30.02	Inches/Hg		1/25/2024				X
Conductivity		694	µmhos/cm		1/25/2024				X
Depth to Water		24.59	ft		1/25/2024				X
Dissolved Oxygen		2.2	mg/L		1/25/2024				X
Eh (approx)		455	mV		1/25/2024				X
pH		6.7	Std Unit		1/25/2024				X
Temperature		62.1	deg F		1/25/2024				X
Turbidity		5.26	NTU		1/25/2024				X
Aluminum		0.075	mg/L	0.05	1/25/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	1/25/2024			SW846-6020B	=
Arsenic	J	0.00429	mg/L	0.005	1/25/2024			SW846-6020B	=
Barium		0.153	mg/L	0.004	1/25/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	1/25/2024			SW846-6020B	=
Boron	B	0.016	mg/L	0.015	1/25/2024			SW846-6020B	J
Cadmium	U	0.001	mg/L	0.001	1/25/2024			SW846-6020B	=
Calcium		24.7	mg/L	0.2	1/25/2024			SW846-6020B	=
Chromium	U	0.01	mg/L	0.01	1/25/2024			SW846-6020B	=
Cobalt	J	0.000662	mg/L	0.001	1/25/2024			SW846-6020B	J
Copper	J	0.000664	mg/L	0.002	1/25/2024			SW846-6020B	J
Iron		0.854	mg/L	0.1	1/25/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	1/25/2024			SW846-6020B	=
Magnesium		6.28	mg/L	0.03	1/25/2024			SW846-6020B	=
Manganese		0.198	mg/L	0.005	1/25/2024			SW846-6020B	=
Molybdenum	J	0.00033	mg/L	0.001	1/25/2024			SW846-6020B	=
Nickel	U	0.002	mg/L	0.002	1/25/2024			SW846-6020B	=
Potassium		0.421	mg/L	0.3	1/25/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	1/25/2024			SW846-6020B	=
Selenium		0.00576	mg/L	0.005	1/25/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	1/25/2024			SW846-6020B	=
Sodium		128	mg/L	5	1/25/2024			SW846-6020B	=
Tantalum	UN	0.005	mg/L	0.005	1/25/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	1/25/2024			SW846-6020B	=
Uranium		0.000316	mg/L	0.0002	1/25/2024			SW846-6020B	=
Vanadium	J	0.0038	mg/L	0.02	1/25/2024			SW846-6020B	=
Zinc	U	0.02	mg/L	0.02	1/25/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	1/25/2024			SW846-7470A	=
Barium, Dissolved		0.149	mg/L	0.004	1/25/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	1/25/2024			SW846-6020B	UJ
Uranium, Dissolved		0.000314	mg/L	0.0002	1/25/2024			SW846-6020B	J
PCB-1016	U	0.114	ug/L	0.114	1/25/2024			SW846-8082A	=

PCB-1221	U	0.114	ug/L	0.114	1/25/2024			SW846-8082A	=
PCB-1232	U	0.114	ug/L	0.114	1/25/2024			SW846-8082A	=
PCB-1242	U	0.114	ug/L	0.114	1/25/2024			SW846-8082A	=
PCB-1248	U	0.114	ug/L	0.114	1/25/2024			SW846-8082A	=
PCB-1254	U	0.114	ug/L	0.114	1/25/2024			SW846-8082A	=
PCB-1260	U	0.114	ug/L	0.114	1/25/2024			SW846-8082A	=
PCB-1268	U	0.114	ug/L	0.114	1/25/2024			SW846-8082A	=
Polychlorinated biphenyl	U	0.114	ug/L	0.114	1/25/2024			SW846-8082A	=
Radium-226	U	0.381	pCi/L	0.507	1/25/2024	0.379	0.38	AN-1418	=
Radium-228	U	1.78	pCi/L	3.74	1/25/2024	2.2	2.25	EPA-904-M	=
Strontium-90	U	-1.64	pCi/L	5.94	1/25/2024	3	3	EPA-905.0-M	=
Tritium	U	15.3	pCi/L	239	1/25/2024	133	133	EPA-906.0-M	=
Technetium-99	U	3.19	pCi/L	16.7	1/25/2024	9.57	9.58	HASL 300, Tc-02-RC M	=
Thorium-230	U	0.657	pCi/L	1.53	1/25/2024	0.97	0.978	HASL 300, Th-01-RC M	=
Thorium-232	U	0.0744	pCi/L	1.06	1/25/2024	0.53	0.531	HASL 300, Th-01-RC M	=
Alpha activity	U	-0.395	pCi/L	9.11	1/25/2024	3.68	3.68	SW846-9310	UJ
Beta activity	U	-2.43	pCi/L	9.46	1/25/2024	4.58	4.58	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.0189	ug/L	0.0189	1/25/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
1,1,1-Trichloroethane	UY2	1	ug/L	1	1/25/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
1,1-Dichloroethene	UY2	1	ug/L	1	1/25/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	1/25/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	1/25/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	1/25/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	1/25/2024			SW846-8260D	=
4-Methyl-2-pentanone	LU	5	ug/L	5	1/25/2024			SW846-8260D	=
Acetone	UY2	5	ug/L	5	1/25/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	1/25/2024			SW846-8260D	UJ
Acrylonitrile	U	5	ug/L	5	1/25/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Bromomethane	UY2	1	ug/L	1	1/25/2024			SW846-8260D	=
Carbon disulfide	UY2	5	ug/L	5	1/25/2024			SW846-8260D	=
Carbon tetrachloride	UY2	1	ug/L	1	1/25/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Chloromethane	UY1	1	ug/L	1	1/25/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	1/25/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=

Ethylbenzene	UY2	1	ug/L	1	1/25/2024	SW846-8260D	=
Iodomethane	UY2	5	ug/L	5	1/25/2024	SW846-8260D	=
Methylene chloride	BJY2	1.58	ug/L	5	1/25/2024	SW846-8260D	U
Styrene	UY2	1	ug/L	1	1/25/2024	SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	1/25/2024	SW846-8260D	=
Toluene	U	1	ug/L	1	1/25/2024	SW846-8260D	=
Total Xylene	UY2	3	ug/L	3	1/25/2024	SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	1/25/2024	SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	1/25/2024	SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	1/25/2024	SW846-8260D	UJ
Trichloroethene	U	1	ug/L	1	1/25/2024	SW846-8260D	=
Trichlorofluoromethane	U	1	ug/L	1	1/25/2024	SW846-8260D	=
Vinyl acetate	U	5	ug/L	5	1/25/2024	SW846-8260D	=
Vinyl chloride	UY1	1	ug/L	1	1/25/2024	SW846-8260D	UJ
Dissolved Solids		393	mg/L	10	1/25/2024	EPA-160.1	=
Iodide	U	0.5	mg/L	0.5	1/25/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	U	20	mg/L	20	1/25/2024	EPA-410.4	=
Cyanide	U	0.2	mg/L	0.2	1/25/2024	SW846-9012B	=
Total Organic Halides (TOX)		26.7	ug/L	10	1/25/2024	SW846-9020B	=
Total Organic Carbon (TOC)		2.5	mg/L	2	1/25/2024	SW846-9060A	=

Paducah OREIS
GROUNDWATER MONITORING REPORT

Facility: C-746-U Landfill **County:** McCracken **Permit #:** SW07300014,SW07300015,SW07300045

Sampling Point: MW375 SIDE **RGA Type:** UCRS **Period:** 1st Quarter 2024

AKGWA Well Tag #: 8004-0985 **SAMPLE ID:** MW375UG2-24 Sample Type: REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide	U	0.2	mg/L	0.2	1/24/2024			SW846-9056A	=
Chloride	JW	3.09	mg/L	250	1/24/2024			SW846-9056A	=
Fluoride	J	0.324	mg/L	4	1/24/2024			SW846-9056A	=
Nitrate as Nitrogen	J	0.832	mg/L	10	1/24/2024			SW846-9056A	=
Sulfate		22.7	mg/L	0.8	1/24/2024			SW846-9056A	=
Barometric Pressure Reading		30.07	Inches/Hg		1/24/2024				X
Conductivity		334	µmhos/cm		1/24/2024				X
Depth to Water		33.52	ft		1/24/2024				X
Dissolved Oxygen		0.6	mg/L		1/24/2024				X
Eh (approx)		373	mV		1/24/2024				X
pH		6.4	Std Unit		1/24/2024				X
Temperature		60.3	deg F		1/24/2024				X
Turbidity		0	NTU		1/24/2024				X
Aluminum	J	0.0266	mg/L	0.05	1/24/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	1/24/2024			SW846-6020B	=
Arsenic	J	0.00287	mg/L	0.005	1/24/2024			SW846-6020B	=
Barium		0.169	mg/L	0.004	1/24/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	1/24/2024			SW846-6020B	=
Boron	J	0.0111	mg/L	0.015	1/24/2024			SW846-6020B	U
Cadmium	U	0.001	mg/L	0.001	1/24/2024			SW846-6020B	=
Calcium		12.9	mg/L	0.2	1/24/2024			SW846-6020B	=
Chromium	U	0.01	mg/L	0.01	1/24/2024			SW846-6020B	=
Cobalt	U	0.001	mg/L	0.001	1/24/2024			SW846-6020B	=
Copper	J	0.000652	mg/L	0.002	1/24/2024			SW846-6020B	J
Iron	J	0.067	mg/L	0.1	1/24/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	1/24/2024			SW846-6020B	=
Magnesium		5.02	mg/L	0.03	1/24/2024			SW846-6020B	=
Manganese		0.00549	mg/L	0.005	1/24/2024			SW846-6020B	J
Molybdenum	U	0.001	mg/L	0.001	1/24/2024			SW846-6020B	=
Nickel	U	0.002	mg/L	0.002	1/24/2024			SW846-6020B	=
Potassium	J	0.25	mg/L	0.3	1/24/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	1/24/2024			SW846-6020B	=
Selenium	J	0.00239	mg/L	0.005	1/24/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	1/24/2024			SW846-6020B	=
Sodium		55.7	mg/L	2.5	1/24/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	1/24/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	1/24/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	1/24/2024			SW846-6020B	=
Vanadium	U	0.02	mg/L	0.02	1/24/2024			SW846-6020B	=
Zinc	U	0.02	mg/L	0.02	1/24/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	1/24/2024			SW846-7470A	=
Barium, Dissolved		0.165	mg/L	0.004	1/24/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	1/24/2024			SW846-6020B	UJ
Uranium, Dissolved	U	0.0002	mg/L	0.0002	1/24/2024			SW846-6020B	UJ
PCB-1016	U	0.112	ug/L	0.112	1/24/2024			SW846-8082A	=

PCB-1221	U	0.112	ug/L	0.112	1/24/2024			SW846-8082A	=
PCB-1232	U	0.112	ug/L	0.112	1/24/2024			SW846-8082A	=
PCB-1242	U	0.112	ug/L	0.112	1/24/2024			SW846-8082A	=
PCB-1248	U	0.112	ug/L	0.112	1/24/2024			SW846-8082A	=
PCB-1254	U	0.112	ug/L	0.112	1/24/2024			SW846-8082A	=
PCB-1260	U	0.112	ug/L	0.112	1/24/2024			SW846-8082A	=
PCB-1268	U	0.112	ug/L	0.112	1/24/2024			SW846-8082A	=
Polychlorinated biphenyl	U	0.112	ug/L	0.112	1/24/2024			SW846-8082A	=
Radium-226	U	0.282	pCi/L	0.369	1/24/2024	0.297	0.297	AN-1418	=
Radium-228	U	0.89	pCi/L	3.8	1/24/2024	2.12	2.13	EPA-904-M	=
Strontium-90	U	1.08	pCi/L	5.9	1/24/2024	3.31	3.32	EPA-905.0-M	=
Tritium	U	-41.4	pCi/L	232	1/24/2024	126	126	EPA-906.0-M	=
Technetium-99	U	-4.12	pCi/L	18.4	1/24/2024	10.2	10.2	HASL 300, Tc-02-RC M	=
Thorium-230	U	-0.197	pCi/L	1.83	1/24/2024	0.7	0.701	HASL 300, Th-01-RC M	=
Thorium-232	U	-0.138	pCi/L	1.38	1/24/2024	0.513	0.514	HASL 300, Th-01-RC M	=
Alpha activity	U	2.96	pCi/L	8.79	1/24/2024	4.9	4.92	SW846-9310	=
Beta activity	U	5.22	pCi/L	13.7	1/24/2024	8.02	8.07	SW846-9310	=
1,2-Dibromo-3-chloropropane	UY1	0.0187	ug/L	0.0187	1/24/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	1/24/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	1/24/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	1/24/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	1/24/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	1/24/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	1/24/2024			SW846-8260D	UJ
Acrylonitrile	U	5	ug/L	5	1/24/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	1/24/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	1/24/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=

Ethylbenzene	U	1	ug/L	1	1/24/2024	SW846-8260D	=
Iodomethane	U	5	ug/L	5	1/24/2024	SW846-8260D	=
Methylene chloride	U	5	ug/L	5	1/24/2024	SW846-8260D	=
Styrene	U	1	ug/L	1	1/24/2024	SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	1/24/2024	SW846-8260D	=
Toluene	U	1	ug/L	1	1/24/2024	SW846-8260D	=
Total Xylene	U	3	ug/L	3	1/24/2024	SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	1/24/2024	SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	1/24/2024	SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	1/24/2024	SW846-8260D	=
Trichloroethene	U	1	ug/L	1	1/24/2024	SW846-8260D	=
Trichlorofluoromethane	U	1	ug/L	1	1/24/2024	SW846-8260D	=
Vinyl acetate	U	5	ug/L	5	1/24/2024	SW846-8260D	=
Vinyl chloride	U	1	ug/L	1	1/24/2024	SW846-8260D	=
Dissolved Solids		201	mg/L	10	1/24/2024	EPA-160.1	=
Iodide	U	0.5	mg/L	0.5	1/24/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	U	20	mg/L	20	1/24/2024	EPA-410.4	=
Cyanide	U	0.2	mg/L	0.2	1/24/2024	SW846-9012B	=
Total Organic Halides (TOX)	J	7.58	ug/L	10	1/24/2024	SW846-9020B	=
Total Organic Carbon (TOC)	J	0.72	mg/L	2	1/24/2024	SW846-9060A	=

Paducah OREIS
GROUNDWATER MONITORING REPORT

Facility: C-746-U Landfill **County:** McCracken **Permit #:** SW07300014,SW07300015,SW07300045

Sampling Point: QC **Period:** 1st Quarter 2024

AKGWA Well Tag #: N/A **SAMPLE ID:** FB1UG2-24 **Sample Typ** FB

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Aluminum	J	0.0194	mg/L	0.05	1/23/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	1/23/2024			SW846-6020B	=
Arsenic	J	0.0021	mg/L	0.005	1/23/2024			SW846-6020B	=
Barium	U	0.004	mg/L	0.004	1/23/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	1/23/2024			SW846-6020B	=
Boron	JN	0.00828	mg/L	0.015	1/23/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	1/23/2024			SW846-6020B	=
Calcium	U	0.2	mg/L	0.2	1/23/2024			SW846-6020B	UJ
Chromium	U	0.01	mg/L	0.01	1/23/2024			SW846-6020B	=
Cobalt	U	0.001	mg/L	0.001	1/23/2024			SW846-6020B	=
Copper	U	0.002	mg/L	0.002	1/23/2024			SW846-6020B	=
Iron	U	0.1	mg/L	0.1	1/23/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	1/23/2024			SW846-6020B	=
Magnesium	U	0.03	mg/L	0.03	1/23/2024			SW846-6020B	=
Manganese	U	0.005	mg/L	0.005	1/23/2024			SW846-6020B	=
Molybdenum	J	0.000279	mg/L	0.001	1/23/2024			SW846-6020B	=
Nickel	U	0.002	mg/L	0.002	1/23/2024			SW846-6020B	=
Potassium	U	0.3	mg/L	0.3	1/23/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	1/23/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	1/23/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	1/23/2024			SW846-6020B	=
Sodium	J	0.121	mg/L	0.25	1/23/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	1/23/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	1/23/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	1/23/2024			SW846-6020B	=
Vanadium	BJ	0.00544	mg/L	0.02	1/23/2024			SW846-6020B	U
Zinc	U	0.02	mg/L	0.02	1/23/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	1/23/2024			SW846-7470A	=
PCB-1016	U	0.108	ug/L	0.108	1/23/2024			SW846-8082A	=
PCB-1221	U	0.108	ug/L	0.108	1/23/2024			SW846-8082A	=
PCB-1232	U	0.108	ug/L	0.108	1/23/2024			SW846-8082A	=
PCB-1242	U	0.108	ug/L	0.108	1/23/2024			SW846-8082A	=
PCB-1248	U	0.108	ug/L	0.108	1/23/2024			SW846-8082A	=
PCB-1254	U	0.108	ug/L	0.108	1/23/2024			SW846-8082A	=
PCB-1260	U	0.108	ug/L	0.108	1/23/2024			SW846-8082A	=
PCB-1268	U	0.108	ug/L	0.108	1/23/2024			SW846-8082A	=
Polychlorinated biphenyl	U	0.108	ug/L	0.108	1/23/2024			SW846-8082A	=
Radium-226	U	0.35	pCi/L	0.509	1/23/2024	0.375	0.376	AN-1418	=
Radium-228	U	-0.288	pCi/L	4.67	1/23/2024	2.45	2.45	EPA-904-M	=
Strontium-90	U	-1.71	pCi/L	4.41	1/23/2024	1.99	1.99	EPA-905.0-M	=
Tritium	U	47.9	pCi/L	217	1/23/2024	119	119	EPA-906.0-M	=
Technetium-99	U	-1.71	pCi/L	22.6	1/23/2024	13.2	13.2	HASL 300, Tc-02-RC M	=
Thorium-230	U	1.58	pCi/L	2.89	1/23/2024	1.95	1.98	HASL 300, Th-01-RC M	=
Thorium-232	U	0.0742	pCi/L	2.13	1/23/2024	1	1	HASL 300, Th-01-RC M	=
Alpha activity	U	1.18	pCi/L	5.52	1/23/2024	2.78	2.79	SW846-9310	=

Beta activity	U	5.99	pCi/L	9.62	1/23/2024	5.86	5.95	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.0189	ug/L	0.0189	1/23/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
2-Butanone		40.6	ug/L	5	1/23/2024			SW846-8260D	=
2-Hexanone		7.72	ug/L	5	1/23/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	1/23/2024			SW846-8260D	=
Acetone		18	ug/L	5	1/23/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	1/23/2024			SW846-8260D	UJ
Acrylonitrile	U	5	ug/L	5	1/23/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	1/23/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Ethylbenzene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	1/23/2024			SW846-8260D	=
Methylene chloride	U	5	ug/L	5	1/23/2024			SW846-8260D	=
Styrene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Toluene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Total Xylene	U	3	ug/L	3	1/23/2024			SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	1/23/2024			SW846-8260D	=
Trichloroethene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Trichlorofluoromethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Vinyl acetate	U	5	ug/L	5	1/23/2024			SW846-8260D	=
Vinyl chloride	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Iodide	U	0.5	mg/L	0.5	1/23/2024			EPA-300.0	=

Paducah OREIS
GROUNDWATER MONITORING REPORT

Facility: C-746-U Landfill **County:** McCracken **Permit #:** SW07300014,SW07300015,SW07300045

Sampling Point: QC **Period:** 1st Quarter 2024

AKGWA Well Tag #: N/A **SAMPLE ID:** RI1UG2-24 **Sample Typ** RI

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Aluminum	U	0.05	mg/L	0.05	1/23/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	1/23/2024			SW846-6020B	=
Arsenic	J	0.00207	mg/L	0.005	1/23/2024			SW846-6020B	=
Barium	U	0.004	mg/L	0.004	1/23/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	1/23/2024			SW846-6020B	=
Boron	UN	0.015	mg/L	0.015	1/23/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	1/23/2024			SW846-6020B	=
Calcium	U	0.2	mg/L	0.2	1/23/2024			SW846-6020B	UJ
Chromium	U	0.01	mg/L	0.01	1/23/2024			SW846-6020B	=
Cobalt	U	0.001	mg/L	0.001	1/23/2024			SW846-6020B	=
Copper	U	0.002	mg/L	0.002	1/23/2024			SW846-6020B	=
Iron	U	0.1	mg/L	0.1	1/23/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	1/23/2024			SW846-6020B	=
Magnesium	U	0.03	mg/L	0.03	1/23/2024			SW846-6020B	=
Manganese	U	0.005	mg/L	0.005	1/23/2024			SW846-6020B	=
Molybdenum	U	0.001	mg/L	0.001	1/23/2024			SW846-6020B	=
Nickel	U	0.002	mg/L	0.002	1/23/2024			SW846-6020B	=
Potassium	U	0.3	mg/L	0.3	1/23/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	1/23/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	1/23/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	1/23/2024			SW846-6020B	=
Sodium	U	0.25	mg/L	0.25	1/23/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	1/23/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	1/23/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	1/23/2024			SW846-6020B	=
Vanadium	BJ	0.0054	mg/L	0.02	1/23/2024			SW846-6020B	U
Zinc	U	0.02	mg/L	0.02	1/23/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	1/23/2024			SW846-7470A	=
PCB-1016	U	0.107	ug/L	0.107	1/23/2024			SW846-8082A	=
PCB-1221	U	0.107	ug/L	0.107	1/23/2024			SW846-8082A	=
PCB-1232	U	0.107	ug/L	0.107	1/23/2024			SW846-8082A	=
PCB-1242	U	0.107	ug/L	0.107	1/23/2024			SW846-8082A	=
PCB-1248	U	0.107	ug/L	0.107	1/23/2024			SW846-8082A	=
PCB-1254	U	0.107	ug/L	0.107	1/23/2024			SW846-8082A	=
PCB-1260	U	0.107	ug/L	0.107	1/23/2024			SW846-8082A	=
PCB-1268	U	0.107	ug/L	0.107	1/23/2024			SW846-8082A	=
Polychlorinated biphenyl	U	0.107	ug/L	0.107	1/23/2024			SW846-8082A	=
Radium-226	U	0.499	pCi/L	0.951	1/23/2024	0.743	0.744	AN-1418	=
Radium-228	U	0.683	pCi/L	4.78	1/23/2024	2.63	2.63	EPA-904-M	=
Strontium-90	U	2.33	pCi/L	4.72	1/23/2024	2.79	2.82	EPA-905.0-M	=
Tritium		543	pCi/L	218	1/23/2024	185	213	EPA-906.0-M	=
Technetium-99	U	-3.97	pCi/L	23.8	1/23/2024	13.8	13.8	HASL 300, Tc-02-RC M	=
Thorium-230	U	1.6	pCi/L	2.73	1/23/2024	2	2.03	HASL 300, Th-01-RC M	=
Thorium-232	U	-0.0712	pCi/L	1.83	1/23/2024	0.821	0.824	HASL 300, Th-01-RC M	=
Alpha activity	U	-0.97	pCi/L	9.57	1/23/2024	4.04	4.04	SW846-9310	=

Beta activity	U	-4.44	pCi/L	11.2	1/23/2024	5.4	5.41	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.02	ug/L	0.02	1/23/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	1/23/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	1/23/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	1/23/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	1/23/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	1/23/2024			SW846-8260D	UJ
Acrylonitrile	U	5	ug/L	5	1/23/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	1/23/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Ethylbenzene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	1/23/2024			SW846-8260D	=
Methylene chloride	U	5	ug/L	5	1/23/2024			SW846-8260D	=
Styrene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Toluene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Total Xylene	U	3	ug/L	3	1/23/2024			SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	1/23/2024			SW846-8260D	=
Trichloroethene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Trichlorofluoromethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Vinyl acetate	U	5	ug/L	5	1/23/2024			SW846-8260D	=
Vinyl chloride	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Iodide	U	0.5	mg/L	0.5	1/23/2024			EPA-300.0	=

Paducah OREIS
GROUNDWATER MONITORING REPORT

Facility: C-746-U Landfill **County:** McCracken **Permit #:** SW07300014,SW07300015,SW07300045

Sampling Point: QC **Period:** 1st Quarter 2024

AKGWA Well Tag #: N/A **SAMPLE ID:** TB1UG2-24 **Sample Typ** TB

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
1,2-Dibromo-3-chloropropane	U	0.0192	ug/L	0.0192	1/23/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	1/23/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	1/23/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	1/23/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	1/23/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	1/23/2024			SW846-8260D	UJ
Acrylonitrile	U	5	ug/L	5	1/23/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	1/23/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Ethylbenzene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	1/23/2024			SW846-8260D	=
Methylene chloride	U	5	ug/L	5	1/23/2024			SW846-8260D	=
Styrene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Toluene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
Total Xylene	U	3	ug/L	3	1/23/2024			SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	1/23/2024			SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	1/23/2024			SW846-8260D	=
Trichloroethene	U	1	ug/L	1	1/23/2024			SW846-8260D	=

Trichlorofluoromethane	U	1	ug/L	1	1/23/2024	SW846-8260D	=
Vinyl acetate	U	5	ug/L	5	1/23/2024	SW846-8260D	=
Vinyl chloride	U	1	ug/L	1	1/23/2024	SW846-8260D	=

Paducah OREIS
GROUNDWATER MONITORING REPORT

Facility: C-746-U Landfill **County:** McCracken **Permit #:** SW07300014,SW07300015,SW07300045

Sampling Point: QC **Period:** 1st Quarter 2024

AKGWA Well Tag #: N/A **SAMPLE ID:** TB2UG2-24 **Sample Typ** TB

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
1,2-Dibromo-3-chloropropane	USY1	0.0189	ug/L	0.0189	1/24/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	1/24/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	1/24/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	1/24/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	1/24/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	1/24/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	1/24/2024			SW846-8260D	UJ
Acrylonitrile	U	5	ug/L	5	1/24/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	1/24/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	1/24/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Ethylbenzene	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	1/24/2024			SW846-8260D	=
Methylene chloride	U	5	ug/L	5	1/24/2024			SW846-8260D	=
Styrene	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Toluene	U	1	ug/L	1	1/24/2024			SW846-8260D	=
Total Xylene	U	3	ug/L	3	1/24/2024			SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	1/24/2024			SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	1/24/2024			SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	1/24/2024			SW846-8260D	=
Trichloroethene	U	1	ug/L	1	1/24/2024			SW846-8260D	=

Trichlorofluoromethane	U	1	ug/L	1	1/24/2024	SW846-8260D	=
Vinyl acetate	U	5	ug/L	5	1/24/2024	SW846-8260D	=
Vinyl chloride	U	1	ug/L	1	1/24/2024	SW846-8260D	=

Paducah OREIS
GROUNDWATER MONITORING REPORT

Facility: C-746-U Landfill **County:** McCracken **Permit #:** SW07300014,SW07300015,SW07300045

Sampling Point: QC **Period:** 1st Quarter 2024

AKGWA Well Tag #: N/A **SAMPLE ID:** TB3UG2-24 **Sample Typ** TB

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
1,2-Dibromo-3-chloropropane	U	0.0192	ug/L	0.0192	1/25/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
1,1,1-Trichloroethane	UY2	1	ug/L	1	1/25/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
1,1-Dichloroethene	UY2	1	ug/L	1	1/25/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	1/25/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	1/25/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	1/25/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	1/25/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	1/25/2024			SW846-8260D	=
Acetone	UY2	5	ug/L	5	1/25/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	1/25/2024			SW846-8260D	UJ
Acrylonitrile	U	5	ug/L	5	1/25/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Bromomethane	UY2	1	ug/L	1	1/25/2024			SW846-8260D	=
Carbon disulfide	UY2	5	ug/L	5	1/25/2024			SW846-8260D	=
Carbon tetrachloride	UY2	1	ug/L	1	1/25/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Chloromethane	UY1	1	ug/L	1	1/25/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	1/25/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Ethylbenzene	UY2	1	ug/L	1	1/25/2024			SW846-8260D	=
Iodomethane	UY2	5	ug/L	5	1/25/2024			SW846-8260D	=
Methylene chloride	JY2	1.42	ug/L	5	1/25/2024			SW846-8260D	=
Styrene	UY2	1	ug/L	1	1/25/2024			SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Toluene	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Total Xylene	UY2	3	ug/L	3	1/25/2024			SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	1/25/2024			SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	1/25/2024			SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	1/25/2024			SW846-8260D	=
Trichloroethene	U	1	ug/L	1	1/25/2024			SW846-8260D	=

Trichlorofluoromethane	U	1	ug/L	1	1/25/2024	SW846-8260D	=
Vinyl acetate	U	5	ug/L	5	1/25/2024	SW846-8260D	=
Vinyl chloride	UY1	1	ug/L	1	1/25/2024	SW846-8260D	UJ

Qualifier Code Definitions	
*	Duplicate analysis not within control limits.
B	Analyte was detected in the associated blank.
H	Analysis performed outside holding time requirement.
J	Estimated quantitation.
L	LCS and/or LCSD recovery outside of control limits.
L1	LCS/LCSD RPD outside acceptance criteria.
N	Sample spike (MS/MSD) recovery not within control limits
N1	MS/MSD or PS/PSD RPD outside acceptance criteria.
P	Difference between results from two GC columns outside control limits.
S	Sample surrogate recovery outside acceptance criteria.
T	Tracer recovery outside control limits of 30-110%.
U	Not detected.
W	Post-digestion spike recovery out of control limits.
W1	Post-digestion spike and post-digestion spike duplicate RPD out of control limits.
X	Other specific flags and footnotes may be required to properly define the results.
Y1	MS/MSD recovery outside acceptance criteria.
Y2	MS/MSD RPD outside acceptance criteria.

RGA Type Code Definitions	
LRGA	Lower Regional Gravel Aquifer
UCRS	Upper Continental Recharge System
URGA	Upper Regional Gravel Aquifer
NA	Not Applicable.

Sample Type Code Definitions	
REG	Regular
FR	Field Replicate (code used for Field Duplicate)
RI	Equipment Rinsate Blank
FB	Field Blank
TB	Trip Blank

Validation Code Definitions	
=	Validated result, no additional qualifier necessary
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
UJ	Analyte not detected above the reported detection limit, and the reported detection limit is approximated due to quality deficiency.
X	Not validated

ATTACHMENT C1

GEL LABORATORIES CERTIFICATE OF ANALYSIS

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GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: April 25, 2024

Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW357UG2-24
Sample ID: 652552001
Matrix: WG
Collect Date: 23-JAN-24 11:01
Receive Date: 24-JAN-24
Collector: Client

Project: FRNP00507
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
504.1/8011 Analysis of EDB/DBCP												
8011 VOA- 1,2-Dibromo-3-chloropropane "As Received"												
1,2-Dibromo-3-chloropropane	U	0.0200	0.00900	0.0200	ug/L	1.00	1	BM1	01/25/24	1704	2557973	2
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	0.621	0.330	2.00	mg/L		1	RM3	01/24/24	1923	2558010	3
Flow Injection Analysis												
9012B, Cyanide, Total "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	01/25/24	0828	2555817	4
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens	U	10.0	3.33	10.0	ug/L		1	RM3	01/25/24	1615	2558485	5
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	02/06/24	1356	2564209	6
SW846 9056A Anions (5 elements) "As Received"												
Bromide	W	0.362	0.0670	0.200	mg/L		1	TXT1	01/24/24	1557	2557999	7
Fluoride	J	0.194	0.0330	4.00	mg/L		1					
Nitrate-N	J	1.11	0.0330	10.0	mg/L		1					
Chloride	J	31.7	0.335	250	mg/L		5	TXT1	01/24/24	2244	2557999	8
Sulfate		38.7	0.665	2.00	mg/L		5					
Mercury Analysis-CVAA												
7470, Mercury Liquid "As Received"												
Mercury	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	JP2	01/26/24	1009	2558062	9
Metals Analysis-ICP-MS												
6020, Metals (15+ elements) "As Received"												
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	02/21/24	1313	2557969	10
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1	PRB	02/20/24	2110	2557969	11
Magnesium	B	12.0	0.0100	0.0300	mg/L	1.00	1					
Sodium		45.1	0.0800	0.250	mg/L	1.00	1					
Aluminum	U	0.0500	0.0193	0.0500	mg/L	1.00	1	PRB	02/20/24	0416	2557969	12
Antimony	U	0.00300	0.00100	0.00300	mg/L	1.00	1					
Arsenic	J	0.00280	0.00200	0.00500	mg/L	1.00	1					
Barium		0.0723	0.000670	0.00400	mg/L	1.00	1					

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: April 25, 2024

Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW357UG2-24 Project: FRNP00507
Sample ID: 652552001 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Metals (15+ elements) "As Received"												
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					
Calcium		24.7	0.0800	0.200	mg/L	1.00	1					
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					
Cobalt	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Copper	J	0.00108	0.000300	0.00200	mg/L	1.00	1					
Iron	J	0.0543	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Manganese		0.00591	0.00100	0.00500	mg/L	1.00	1					
Molybdenum	U	0.00100	0.000200	0.00100	mg/L	1.00	1					
Nickel	U	0.00200	0.000600	0.00200	mg/L	1.00	1					
Potassium		1.69	0.0800	0.300	mg/L	1.00	1					
Selenium	U	0.00500	0.00150	0.00500	mg/L	1.00	1					
Silver	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Thallium	U	0.00200	0.000600	0.00200	mg/L	1.00	1					
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1					
Vanadium	BJ	0.00504	0.00330	0.0200	mg/L	1.00	1					
Zinc	U	0.0200	0.00330	0.0200	mg/L	1.00	1					
Boron	N	0.378	0.0260	0.0750	mg/L	1.00	5	BAJ	02/21/24	1118	2557969	13
Semi-Volatiles-PCB												
8082A, PCB Liquids "As Received"												
Aroclor-1016	U	0.108	0.0361	0.108	ug/L	0.00108	1	NS2	01/26/24	1624	2558538	14
Aroclor-1221	U	0.108	0.0361	0.108	ug/L	0.00108	1					
Aroclor-1232	U	0.108	0.0361	0.108	ug/L	0.00108	1					
Aroclor-1242	U	0.108	0.0361	0.108	ug/L	0.00108	1					
Aroclor-1248	U	0.108	0.0361	0.108	ug/L	0.00108	1					
Aroclor-1254	U	0.108	0.0361	0.108	ug/L	0.00108	1					
Aroclor-1260	U	0.108	0.0361	0.108	ug/L	0.00108	1					
Aroclor-1268	U	0.108	0.0361	0.108	ug/L	0.00108	1					
Aroclor-Total	U	0.108	0.0361	0.108	ug/L	0.00108	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		211	2.38	10.0	mg/L			KLP1	01/30/24	1037	2560120	15
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												

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2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: April 25, 2024

Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW357UG2-24 Project: FRNP00507
Sample ID: 652552001 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD	U	20.0	8.95	20.0	mg/L		1	JW2	01/25/24	1511	2558185	16
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	JM6	01/26/24	0234	2558696	17
1,1,1-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
1,2,3-Trichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dibromoethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,4-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
2-Butanone	U	5.00	1.67	5.00	ug/L		1					
2-Hexanone	U	5.00	1.67	5.00	ug/L		1					
4-Methyl-2-pentanone	U	5.00	1.67	5.00	ug/L		1					
Acetone	U	5.00	1.74	5.00	ug/L		1					
Acrolein	U	5.00	1.67	5.00	ug/L		1					
Acrylonitrile	U	5.00	1.67	5.00	ug/L		1					
Benzene	U	1.00	0.333	1.00	ug/L		1					
Bromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromodichloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromoform	U	1.00	0.333	1.00	ug/L		1					
Bromomethane	U	1.00	0.337	1.00	ug/L		1					
Carbon disulfide	U	5.00	1.67	5.00	ug/L		1					
Carbon tetrachloride	U	1.00	0.333	1.00	ug/L		1					
Chlorobenzene	U	1.00	0.333	1.00	ug/L		1					
Chloroethane	U	1.00	0.333	1.00	ug/L		1					
Chloroform	U	1.00	0.333	1.00	ug/L		1					
Chloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromomethane	U	1.00	0.333	1.00	ug/L		1					
Ethylbenzene	U	1.00	0.333	1.00	ug/L		1					
Iodomethane	U	5.00	1.67	5.00	ug/L		1					

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Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW357UG2-24 Project: FRNP00507
Sample ID: 652552001 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
Methylene chloride	U	5.00	0.500	5.00	ug/L		1					
Styrene	U	1.00	0.333	1.00	ug/L		1					
Tetrachloroethylene	U	1.00	0.333	1.00	ug/L		1					
Toluene	U	1.00	0.333	1.00	ug/L		1					
Trichloroethylene		2.00	0.333	1.00	ug/L		1					
Trichlorofluoromethane	U	1.00	0.333	1.00	ug/L		1					
Vinyl acetate	U	5.00	1.67	5.00	ug/L		1					
Vinyl chloride	U	1.00	0.333	1.00	ug/L		1					
Xylenes (total)	U	3.00	1.00	3.00	ug/L		1					
cis-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
cis-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,4-Dichloro-2-butene	U	5.00	1.67	5.00	ug/L		1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-MS 3005A PREP	JD2	01/30/24	0645	2557968
SW846 9010C Distillation	SW846 9010C Prep	ES2	01/25/24	0739	2555812
SW846 8011 PREP	8011 Prep	BM1	01/25/24	1423	2557972
SW846 3535A	SW3535A PCB SPE Extraction	DXF4	01/26/24	0515	2558537
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	AXS5	01/25/24	1150	2558061

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Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW357UG2-24 Project: FRNP00507
Sample ID: 652552001 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 8011	
2	SW846 8011	
3	SW846 9060A	
4	SW846 9012B	
5	SW846 9020B	
6	EPA 300.0	
7	SW846 9056A	
8	SW846 9056A	
9	SW846 7470A	
10	SW846 3005A/6020B	
11	SW846 3005A/6020B	
12	SW846 3005A/6020B	
13	SW846 3005A/6020B	
14	SW846 3535A/8082A	
15	EPA 160.1	
16	EPA 410.4	
17	SW846 8260D	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011 VOA- 1,2-Dibromo-3-chloropropane "As Received"	5.17 ug/L	6.63	78	(56%-149%)
Decachlorobiphenyl	8082A, PCB Liquids "As Received"	0.153 ug/L	0.217	71	(30%-135%)
4cmx	8082A, PCB Liquids "As Received"	0.160 ug/L	0.217	74	(26%-108%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	52.9 ug/L	50.0	106	(74%-123%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	47.1 ug/L	50.0	94	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	44.3 ug/L	50.0	89	(77%-121%)

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-U Landfill Quarterly(UG24-02)

Client Sample ID:	MW357UG2-24	Project:	FRNP00507
Sample ID:	652552002	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	23-JAN-24 11:01		
Receive Date:	24-JAN-24		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Dissolved Metals (3 Elements) "As Received"												
Barium		0.0738	0.000670	0.00400	mg/L	1.00	1	PRB	02/20/24	0420	2557969	1
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 160	Laboratory Filtration	RXB5	01/24/24	1335	2557914
SW846 3005A	ICP-MS 3005A PREP	JD2	01/30/24	0645	2557968

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3005A/6020B	

Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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Report Date: April 25, 2024

Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW358UG2-24
Sample ID: 652552003
Matrix: WG
Collect Date: 23-JAN-24 11:49
Receive Date: 24-JAN-24
Collector: Client

Project: FRNP00507
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
504.1/8011 Analysis of EDB/DBCP												
8011 VOA- 1,2-Dibromo-3-chloropropane "As Received"												
1,2-Dibromo-3-chloropropane	U	0.0189	0.00853	0.0189	ug/L	0.947	1	BM1	01/25/24	1729	2557973	1
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average		4.70	0.330	2.00	mg/L		1	RM3	01/24/24	1956	2558010	3
Flow Injection Analysis												
9012B, Cyanide, Total "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	01/25/24	0835	2555817	4
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens	J	8.66	3.33	10.0	ug/L		1	RM3	01/25/24	1653	2558485	5
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	02/06/24	1409	2564209	6
SW846 9056A Anions (5 elements) "As Received"												
Bromide	W	0.214	0.0670	0.200	mg/L		1	TXT1	01/24/24	1628	2557999	7
Fluoride	J	0.276	0.0330	4.00	mg/L		1					
Nitrate-N	J	0.185	0.0330	10.0	mg/L		1					
Chloride	J	16.5	0.335	250	mg/L		5	TXT1	01/24/24	2315	2557999	8
Sulfate		27.6	0.665	2.00	mg/L		5					
Mercury Analysis-CVAA												
7470, Mercury Liquid "As Received"												
Mercury	J	0.000173	0.0000670	0.000200	mg/L	1.00	1	JP2	01/26/24	1010	2558062	9
Metals Analysis-ICP-MS												
6020, Metals (15+ elements) "As Received"												
Aluminum		0.0585	0.0193	0.0500	mg/L	1.00	1	PRB	02/20/24	0423	2557969	10
Antimony	U	0.00300	0.00100	0.00300	mg/L	1.00	1					
Arsenic		0.00650	0.00200	0.00500	mg/L	1.00	1					
Barium		0.0984	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					
Calcium		33.4	0.0800	0.200	mg/L	1.00	1					
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					
Cobalt		0.0269	0.000300	0.00100	mg/L	1.00	1					
Copper	J	0.000841	0.000300	0.00200	mg/L	1.00	1					

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Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW358UG2-24 Project: FRNP00507
Sample ID: 652552003 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Metals (15+ elements) "As Received"												
Iron		14.9	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Molybdenum	J	0.000428	0.000200	0.00100	mg/L	1.00	1					
Nickel		0.0907	0.000600	0.00200	mg/L	1.00	1					
Potassium		3.28	0.0800	0.300	mg/L	1.00	1					
Selenium	U	0.00500	0.00150	0.00500	mg/L	1.00	1					
Silver	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Thallium	U	0.00200	0.000600	0.00200	mg/L	1.00	1					
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1					
Vanadium	BJ	0.00476	0.00330	0.0200	mg/L	1.00	1					
Zinc	J	0.00826	0.00330	0.0200	mg/L	1.00	1					
Boron	N	0.135	0.00520	0.0150	mg/L	1.00	1	BAJ	02/21/24	1120	2557969	11
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1	PRB	02/20/24	2121	2557969	12
Magnesium	B	19.5	0.0100	0.0300	mg/L	1.00	1					
Sodium		34.6	0.0800	0.250	mg/L	1.00	1					
Manganese		2.55	0.0100	0.0500	mg/L	1.00	10	PRB	02/20/24	2124	2557969	13
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	02/21/24	1315	2557969	14
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Semi-Volatiles-PCB												
8082A, PCB Liquids "As Received"												
Aroclor-1016	U	0.105	0.0350	0.105	ug/L	0.00105	1	NS2	01/26/24	1636	2558538	15
Aroclor-1221	U	0.105	0.0350	0.105	ug/L	0.00105	1					
Aroclor-1232	U	0.105	0.0350	0.105	ug/L	0.00105	1					
Aroclor-1242	U	0.105	0.0350	0.105	ug/L	0.00105	1					
Aroclor-1248	U	0.105	0.0350	0.105	ug/L	0.00105	1					
Aroclor-1254	U	0.105	0.0350	0.105	ug/L	0.00105	1					
Aroclor-1260	U	0.105	0.0350	0.105	ug/L	0.00105	1					
Aroclor-1268	U	0.105	0.0350	0.105	ug/L	0.00105	1					
Aroclor-Total	U	0.105	0.0350	0.105	ug/L	0.00105	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		242	2.38	10.0	mg/L			KLP1	01/30/24	1037	2560120	16
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												

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Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW358UG2-24 Project: FRNP00507
Sample ID: 652552003 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD	J	12.8	8.95	20.0	mg/L		1	JW2	01/25/24	1511	2558185	17
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	JM6	01/26/24	0302	2558696	18
1,1,1-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
1,2,3-Trichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dibromoethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,4-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
2-Butanone	U	5.00	1.67	5.00	ug/L		1					
2-Hexanone	U	5.00	1.67	5.00	ug/L		1					
4-Methyl-2-pentanone	U	5.00	1.67	5.00	ug/L		1					
Acetone	U	5.00	1.74	5.00	ug/L		1					
Acrolein	U	5.00	1.67	5.00	ug/L		1					
Acrylonitrile	U	5.00	1.67	5.00	ug/L		1					
Benzene	U	1.00	0.333	1.00	ug/L		1					
Bromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromodichloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromoform	U	1.00	0.333	1.00	ug/L		1					
Bromomethane	U	1.00	0.337	1.00	ug/L		1					
Carbon disulfide	U	5.00	1.67	5.00	ug/L		1					
Carbon tetrachloride	U	1.00	0.333	1.00	ug/L		1					
Chlorobenzene	U	1.00	0.333	1.00	ug/L		1					
Chloroethane	U	1.00	0.333	1.00	ug/L		1					
Chloroform	U	1.00	0.333	1.00	ug/L		1					
Chloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromomethane	U	1.00	0.333	1.00	ug/L		1					
Ethylbenzene	U	1.00	0.333	1.00	ug/L		1					
Iodomethane	U	5.00	1.67	5.00	ug/L		1					

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Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW358UG2-24 Project: FRNP00507
Sample ID: 652552003 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
Methylene chloride	U	5.00	0.500	5.00	ug/L		1					
Styrene	U	1.00	0.333	1.00	ug/L		1					
Tetrachloroethylene	U	1.00	0.333	1.00	ug/L		1					
Toluene	U	1.00	0.333	1.00	ug/L		1					
Trichloroethylene	J	0.410	0.333	1.00	ug/L		1					
Trichlorofluoromethane	U	1.00	0.333	1.00	ug/L		1					
Vinyl acetate	U	5.00	1.67	5.00	ug/L		1					
Vinyl chloride	U	1.00	0.333	1.00	ug/L		1					
Xylenes (total)	U	3.00	1.00	3.00	ug/L		1					
cis-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
cis-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,4-Dichloro-2-butene	U	5.00	1.67	5.00	ug/L		1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 9010C Distillation	SW846 9010C Prep	ES2	01/25/24	0739	2555812
SW846 3005A	ICP-MS 3005A PREP	JD2	01/30/24	0645	2557968
SW846 8011 PREP	8011 Prep	BM1	01/25/24	1423	2557972
SW846 3535A	SW3535A PCB SPE Extraction	DXF4	01/26/24	0515	2558537
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	AXS5	01/25/24	1150	2558061

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Certificate of Analysis

Report Date: April 25, 2024

Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW358UG2-24 Project: FRNP00507
Sample ID: 652552003 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 8011	
2	SW846 8011	
3	SW846 9060A	
4	SW846 9012B	
5	SW846 9020B	
6	EPA 300.0	
7	SW846 9056A	
8	SW846 9056A	
9	SW846 7470A	
10	SW846 3005A/6020B	
11	SW846 3005A/6020B	
12	SW846 3005A/6020B	
13	SW846 3005A/6020B	
14	SW846 3005A/6020B	
15	SW846 3535A/8082A	
16	EPA 160.1	
17	EPA 410.4	
18	SW846 8260D	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011 VOA- 1,2-Dibromo-3-chloropropane "As Received"	5.80 ug/L	6.77	86	(56%-149%)
Decachlorobiphenyl	8082A, PCB Liquids "As Received"	0.0925 ug/L	0.210	44	(30%-135%)
4cmx	8082A, PCB Liquids "As Received"	0.149 ug/L	0.210	71	(26%-108%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	53.8 ug/L	50.0	108	(74%-123%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	47.1 ug/L	50.0	94	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	44.6 ug/L	50.0	89	(77%-121%)

Notes:

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Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-U Landfill Quarterly(UG24-02)

Client Sample ID:	MW358UG2-24	Project:	FRNP00507
Sample ID:	652552003	Client ID:	FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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Report Date: April 25, 2024

Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID:	MW358UG2-24	Project:	FRNP00507
Sample ID:	652552004	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	23-JAN-24 11:49		
Receive Date:	24-JAN-24		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Dissolved Metals (3 Elements) "As Received"												
Barium		0.0911	0.000670	0.00400	mg/L	1.00	1	PRB	02/20/24	0427	2557969	1
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 160	Laboratory Filtration	RXB5	01/24/24	1335	2557914
SW846 3005A	ICP-MS 3005A PREP	JD2	01/30/24	0645	2557968

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3005A/6020B	

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: April 25, 2024

Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW360DUG2-24
Sample ID: 652552005
Matrix: WG
Collect Date: 23-JAN-24 08:08
Receive Date: 24-JAN-24
Collector: Client

Project: FRNP00507
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
504.1/8011 Analysis of EDB/DBCP												
8011 VOA- 1,2-Dibromo-3-chloropropane "As Received"												
1,2-Dibromo-3-chloropropane	U	0.0200	0.00900	0.0200	ug/L	1.00	1	BM1	01/25/24	1754	2557973	1
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	1.08	0.330	2.00	mg/L		1	RM3	01/24/24	2029	2558010	3
Flow Injection Analysis												
9012B, Cyanide, Total "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	01/25/24	0836	2555817	4
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens	U	10.0	3.33	10.0	ug/L		1	RM3	01/25/24	1750	2558485	5
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	02/06/24	1422	2564209	6
SW846 9056A Anions (5 elements) "As Received"												
Bromide	JW	0.158	0.0670	0.200	mg/L		1	TXT1	01/24/24	1659	2557999	7
Chloride	J	7.06	0.0670	250	mg/L		1					
Fluoride	J	0.256	0.0330	4.00	mg/L		1					
Nitrate-N	J	0.611	0.0330	10.0	mg/L		1					
Sulfate		12.2	0.133	0.400	mg/L		1					
Mercury Analysis-CVAA												
7470, Mercury Liquid "As Received"												
Mercury	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	JP2	01/26/24	1012	2558062	8
Metals Analysis-ICP-MS												
6020, Metals (15+ elements) "As Received"												
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	02/21/24	1317	2557969	9
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Aluminum	J	0.0365	0.0193	0.0500	mg/L	1.00	1	PRB	02/20/24	0438	2557969	10
Antimony	U	0.00300	0.00100	0.00300	mg/L	1.00	1					
Arsenic	J	0.00244	0.00200	0.00500	mg/L	1.00	1					
Barium		0.203	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					
Calcium		18.6	0.0800	0.200	mg/L	1.00	1					
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					

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Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW360DUG2-24 Project: FRNP00507
Sample ID: 652552005 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Metals (15+ elements) "As Received"												
Cobalt	J	0.000985	0.000300	0.00100	mg/L	1.00	1					
Copper	J	0.00155	0.000300	0.00200	mg/L	1.00	1					
Iron	J	0.0916	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Manganese		0.00932	0.00100	0.00500	mg/L	1.00	1					
Molybdenum	U	0.00100	0.000200	0.00100	mg/L	1.00	1					
Nickel	J	0.000628	0.000600	0.00200	mg/L	1.00	1					
Potassium		0.759	0.0800	0.300	mg/L	1.00	1					
Selenium	J	0.00199	0.00150	0.00500	mg/L	1.00	1					
Silver	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Thallium	U	0.00200	0.000600	0.00200	mg/L	1.00	1					
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1					
Vanadium	BJ	0.00485	0.00330	0.0200	mg/L	1.00	1					
Zinc	U	0.0200	0.00330	0.0200	mg/L	1.00	1					
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1	PRB	02/20/24	2139	2557969	11
Magnesium	B	8.83	0.0100	0.0300	mg/L	1.00	1					
Boron	N	0.0373	0.00520	0.0150	mg/L	1.00	1	BAJ	02/21/24	1121	2557969	12
Sodium		57.8	0.800	2.50	mg/L	1.00	10	PRB	02/20/24	2143	2557969	13
Semi-Volatiles-PCB												
8082A, PCB Liquids "As Received"												
Aroclor-1016	U	0.108	0.0360	0.108	ug/L	0.00108	1	NS2	01/26/24	1648	2558538	14
Aroclor-1221	U	0.108	0.0360	0.108	ug/L	0.00108	1					
Aroclor-1232	U	0.108	0.0360	0.108	ug/L	0.00108	1					
Aroclor-1242	U	0.108	0.0360	0.108	ug/L	0.00108	1					
Aroclor-1248	U	0.108	0.0360	0.108	ug/L	0.00108	1					
Aroclor-1254	U	0.108	0.0360	0.108	ug/L	0.00108	1					
Aroclor-1260	U	0.108	0.0360	0.108	ug/L	0.00108	1					
Aroclor-1268	U	0.108	0.0360	0.108	ug/L	0.00108	1					
Aroclor-Total	U	0.108	0.0360	0.108	ug/L	0.00108	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		221	2.38	10.0	mg/L			KLP1	01/30/24	1037	2560120	15
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												

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Address : 5600 Hobbs Road

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW360DUG2-24 Project: FRNP00507
Sample ID: 652552005 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD	U	20.0	8.95	20.0	mg/L		1	JW2	01/25/24	1511	2558185	16
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	JM6	01/26/24	0329	2558696	17
1,1,1-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
1,2,3-Trichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dibromoethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,4-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
2-Butanone	U	5.00	1.67	5.00	ug/L		1					
2-Hexanone	U	5.00	1.67	5.00	ug/L		1					
4-Methyl-2-pentanone	U	5.00	1.67	5.00	ug/L		1					
Acetone	U	5.00	1.74	5.00	ug/L		1					
Acrolein	U	5.00	1.67	5.00	ug/L		1					
Acrylonitrile	U	5.00	1.67	5.00	ug/L		1					
Benzene	U	1.00	0.333	1.00	ug/L		1					
Bromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromodichloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromoform	U	1.00	0.333	1.00	ug/L		1					
Bromomethane	U	1.00	0.337	1.00	ug/L		1					
Carbon disulfide	U	5.00	1.67	5.00	ug/L		1					
Carbon tetrachloride	U	1.00	0.333	1.00	ug/L		1					
Chlorobenzene	U	1.00	0.333	1.00	ug/L		1					
Chloroethane	U	1.00	0.333	1.00	ug/L		1					
Chloroform	U	1.00	0.333	1.00	ug/L		1					
Chloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromomethane	U	1.00	0.333	1.00	ug/L		1					
Ethylbenzene	U	1.00	0.333	1.00	ug/L		1					
Iodomethane	U	5.00	1.67	5.00	ug/L		1					

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Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW360DUG2-24 Project: FRNP00507
Sample ID: 652552005 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
Methylene chloride	U	5.00	0.500	5.00	ug/L		1					
Styrene	U	1.00	0.333	1.00	ug/L		1					
Tetrachloroethylene	U	1.00	0.333	1.00	ug/L		1					
Toluene	U	1.00	0.333	1.00	ug/L		1					
Trichloroethylene	U	1.00	0.333	1.00	ug/L		1					
Trichlorofluoromethane	U	1.00	0.333	1.00	ug/L		1					
Vinyl acetate	U	5.00	1.67	5.00	ug/L		1					
Vinyl chloride	U	1.00	0.333	1.00	ug/L		1					
Xylenes (total)	U	3.00	1.00	3.00	ug/L		1					
cis-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
cis-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,4-Dichloro-2-butene	U	5.00	1.67	5.00	ug/L		1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-MS 3005A PREP	JD2	01/30/24	0645	2557968
SW846 8011 PREP	8011 Prep	BM1	01/25/24	1423	2557972
SW846 3535A	SW3535A PCB SPE Extraction	DXF4	01/26/24	0515	2558537
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	AXS5	01/25/24	1150	2558061
SW846 9010C Distillation	SW846 9010C Prep	ES2	01/25/24	0739	2555812

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Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW360DUG2-24 Project: FRNP00507
Sample ID: 652552005 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 8011	
2	SW846 8011	
3	SW846 9060A	
4	SW846 9012B	
5	SW846 9020B	
6	EPA 300.0	
7	SW846 9056A	
8	SW846 7470A	
9	SW846 3005A/6020B	
10	SW846 3005A/6020B	
11	SW846 3005A/6020B	
12	SW846 3005A/6020B	
13	SW846 3005A/6020B	
14	SW846 3535A/8082A	
15	EPA 160.1	
16	EPA 410.4	
17	SW846 8260D	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011 VOA- 1,2-Dibromo-3-chloropropane "As Received"	5.22 ug/L	6.75	77	(56%-149%)
Decachlorobiphenyl	8082A, PCB Liquids "As Received"	0.147 ug/L	0.216	68	(30%-135%)
4cmx	8082A, PCB Liquids "As Received"	0.155 ug/L	0.216	72	(26%-108%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	51.8 ug/L	50.0	104	(74%-123%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	47.9 ug/L	50.0	96	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	45.0 ug/L	50.0	90	(77%-121%)

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Report Date: April 25, 2024

Company : Four Rivers Nuclear Partnership, LLC
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Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID:	MW360DUG2-24	Project:	FRNP00507
Sample ID:	652552006	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	23-JAN-24 08:08		
Receive Date:	24-JAN-24		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Dissolved Metals (3 Elements) "As Received"												
Barium		0.200	0.000670	0.00400	mg/L	1.00	1	PRB	02/20/24	0441	2557969	1
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-MS 3005A PREP	JD2	01/30/24	0645	2557968
EPA 160	Laboratory Filtration	RXB5	01/24/24	1335	2557914

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3005A/6020B	

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW360UG2-24
Sample ID: 652552007
Matrix: WG
Collect Date: 23-JAN-24 08:08
Receive Date: 24-JAN-24
Collector: Client

Project: FRNP00507
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
504.1/8011 Analysis of EDB/DBCP												
8011 VOA- 1,2-Dibromo-3-chloropropane "As Received"												
1,2-Dibromo-3-chloropropane	U	0.0189	0.00849	0.0189	ug/L	0.943	1	BM1	01/25/24	1818	2557973	1
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	1.25	0.330	2.00	mg/L		1	RM3	01/24/24	2122	2558010	3
Flow Injection Analysis												
9012B, Cyanide, Total "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	01/25/24	0837	2555817	4
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens	J	4.24	3.33	10.0	ug/L		1	RM3	01/25/24	1826	2558485	5
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	02/06/24	1439	2564209	6
SW846 9056A Anions (5 elements) "As Received"												
Bromide	JW	0.163	0.0670	0.200	mg/L		1	TXT1	01/24/24	1731	2557999	7
Chloride	J	5.85	0.0670	250	mg/L		1					
Fluoride	J	0.273	0.0330	4.00	mg/L		1					
Nitrate-N	J	0.538	0.0330	10.0	mg/L		1					
Sulfate		10.3	0.133	0.400	mg/L		1					
Mercury Analysis-CVAA												
7470, Mercury Liquid "As Received"												
Mercury	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	JP2	01/26/24	1014	2558062	8
Metals Analysis-ICP-MS												
6020, Metals (15+ elements) "As Received"												
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1	PRB	02/20/24	2150	2557969	9
Magnesium	B	9.29	0.0100	0.0300	mg/L	1.00	1					
Aluminum	J	0.0375	0.0193	0.0500	mg/L	1.00	1	PRB	02/20/24	0445	2557969	10
Antimony	U	0.00300	0.00100	0.00300	mg/L	1.00	1					
Arsenic	J	0.00326	0.00200	0.00500	mg/L	1.00	1					
Barium		0.207	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					
Calcium		18.6	0.0800	0.200	mg/L	1.00	1					
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					

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Certificate of Analysis

Report Date: April 25, 2024

Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW360UG2-24 Project: FRNP00507
Sample ID: 652552007 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Metals (15+ elements) "As Received"												
Cobalt	J	0.000718	0.000300	0.00100	mg/L	1.00	1					
Copper	J	0.00167	0.000300	0.00200	mg/L	1.00	1					
Iron	J	0.0895	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Manganese		0.00783	0.00100	0.00500	mg/L	1.00	1					
Molybdenum	U	0.00100	0.000200	0.00100	mg/L	1.00	1					
Nickel	J	0.000678	0.000600	0.00200	mg/L	1.00	1					
Potassium		0.747	0.0800	0.300	mg/L	1.00	1					
Selenium		0.00708	0.00150	0.00500	mg/L	1.00	1					
Silver	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Thallium	U	0.00200	0.000600	0.00200	mg/L	1.00	1					
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1					
Vanadium	BJ	0.00552	0.00330	0.0200	mg/L	1.00	1					
Zinc	J	0.00335	0.00330	0.0200	mg/L	1.00	1					
Sodium		62.4	0.800	2.50	mg/L	1.00	10	PRB	02/20/24	2153	2557969	11
Boron	N	0.0311	0.00520	0.0150	mg/L	1.00	1	BAJ	02/21/24	1123	2557969	12
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	02/21/24	1319	2557969	13
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Semi-Volatiles-PCB												
8082A, PCB Liquids "As Received"												
Aroclor-1016	U	0.107	0.0357	0.107	ug/L	0.00107	1	NS2	01/26/24	1700	2558538	14
Aroclor-1221	U	0.107	0.0357	0.107	ug/L	0.00107	1					
Aroclor-1232	U	0.107	0.0357	0.107	ug/L	0.00107	1					
Aroclor-1242	U	0.107	0.0357	0.107	ug/L	0.00107	1					
Aroclor-1248	U	0.107	0.0357	0.107	ug/L	0.00107	1					
Aroclor-1254	U	0.107	0.0357	0.107	ug/L	0.00107	1					
Aroclor-1260	U	0.107	0.0357	0.107	ug/L	0.00107	1					
Aroclor-1268	U	0.107	0.0357	0.107	ug/L	0.00107	1					
Aroclor-Total	U	0.107	0.0357	0.107	ug/L	0.00107	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		218	2.38	10.0	mg/L			KLP1	01/30/24	1037	2560120	15
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												

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Address : 5600 Hobbs Road

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW360UG2-24 Project: FRNP00507
Sample ID: 652552007 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD	U	20.0	8.95	20.0	mg/L		1	JW2	01/25/24	1511	2558185	16
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	JM6	01/26/24	0357	2558696	17
1,1,1-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
1,2,3-Trichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dibromoethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,4-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
2-Butanone	U	5.00	1.67	5.00	ug/L		1					
2-Hexanone	U	5.00	1.67	5.00	ug/L		1					
4-Methyl-2-pentanone	U	5.00	1.67	5.00	ug/L		1					
Acetone	U	5.00	1.74	5.00	ug/L		1					
Acrolein	U	5.00	1.67	5.00	ug/L		1					
Acrylonitrile	U	5.00	1.67	5.00	ug/L		1					
Benzene	U	1.00	0.333	1.00	ug/L		1					
Bromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromodichloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromoform	U	1.00	0.333	1.00	ug/L		1					
Bromomethane	U	1.00	0.337	1.00	ug/L		1					
Carbon disulfide	U	5.00	1.67	5.00	ug/L		1					
Carbon tetrachloride	U	1.00	0.333	1.00	ug/L		1					
Chlorobenzene	U	1.00	0.333	1.00	ug/L		1					
Chloroethane	U	1.00	0.333	1.00	ug/L		1					
Chloroform	U	1.00	0.333	1.00	ug/L		1					
Chloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromomethane	U	1.00	0.333	1.00	ug/L		1					
Ethylbenzene	U	1.00	0.333	1.00	ug/L		1					
Iodomethane	U	5.00	1.67	5.00	ug/L		1					

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Address : 5600 Hobbs Road

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW360UG2-24 Project: FRNP00507
Sample ID: 652552007 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
Methylene chloride	U	5.00	0.500	5.00	ug/L		1					
Styrene	U	1.00	0.333	1.00	ug/L		1					
Tetrachloroethylene	U	1.00	0.333	1.00	ug/L		1					
Toluene	U	1.00	0.333	1.00	ug/L		1					
Trichloroethylene	U	1.00	0.333	1.00	ug/L		1					
Trichlorofluoromethane	U	1.00	0.333	1.00	ug/L		1					
Vinyl acetate	U	5.00	1.67	5.00	ug/L		1					
Vinyl chloride	U	1.00	0.333	1.00	ug/L		1					
Xylenes (total)	U	3.00	1.00	3.00	ug/L		1					
cis-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
cis-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,4-Dichloro-2-butene	U	5.00	1.67	5.00	ug/L		1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-MS 3005A PREP	JD2	01/30/24	0645	2557968
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	AXS5	01/25/24	1150	2558061
SW846 3535A	SW3535A PCB SPE Extraction	DXF4	01/26/24	0515	2558537
SW846 9010C Distillation	SW846 9010C Prep	ES2	01/25/24	0739	2555812
SW846 8011 PREP	8011 Prep	BM1	01/25/24	1423	2557972

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Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW360UG2-24 Project: FRNP00507
Sample ID: 652552007 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 8011	
2	SW846 8011	
3	SW846 9060A	
4	SW846 9012B	
5	SW846 9020B	
6	EPA 300.0	
7	SW846 9056A	
8	SW846 7470A	
9	SW846 3005A/6020B	
10	SW846 3005A/6020B	
11	SW846 3005A/6020B	
12	SW846 3005A/6020B	
13	SW846 3005A/6020B	
14	SW846 3535A/8082A	
15	EPA 160.1	
16	EPA 410.4	
17	SW846 8260D	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011 VOA- 1,2-Dibromo-3-chloropropane "As Received"	4.78 ug/L	6.73	71	(56%-149%)
Decachlorobiphenyl	8082A, PCB Liquids "As Received"	0.107 ug/L	0.214	50	(30%-135%)
4cmx	8082A, PCB Liquids "As Received"	0.119 ug/L	0.214	56	(26%-108%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	52.7 ug/L	50.0	105	(74%-123%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	47.2 ug/L	50.0	94	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	44.8 ug/L	50.0	90	(77%-121%)

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: April 25, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-U Landfill Quarterly(UG24-02)

Client Sample ID:	MW360UG2-24	Project:	FRNP00507
Sample ID:	652552008	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	23-JAN-24 08:08		
Receive Date:	24-JAN-24		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Dissolved Metals (3 Elements) "As Received"												
Barium		0.203	0.000670	0.00400	mg/L	1.00	1	PRB	02/20/24	0449	2557969	1
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 160	Laboratory Filtration	RXB5	01/24/24	1335	2557914
SW846 3005A	ICP-MS 3005A PREP	JD2	01/30/24	0645	2557968

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3005A/6020B	

Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: April 25, 2024

Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW361UG2-24
Sample ID: 652552009
Matrix: WG
Collect Date: 23-JAN-24 09:18
Receive Date: 24-JAN-24
Collector: Client

Project: FRNP00507
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
504.1/8011 Analysis of EDB/DBCP												
8011 VOA- 1,2-Dibromo-3-chloropropane "As Received"												
1,2-Dibromo-3-chloropropane	U	0.0200	0.00900	0.0200	ug/L	1.00	1	BM1	01/25/24	1843	2557973	1
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	0.729	0.330	2.00	mg/L		1	RM3	01/24/24	2155	2558010	3
Flow Injection Analysis												
9012B, Cyanide, Total "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	01/25/24	0824	2555817	4
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens	U	10.0	3.33	10.0	ug/L		1	RM3	01/25/24	1300	2558485	5
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	02/06/24	1454	2564209	6
SW846 9056A Anions (5 elements) "As Received"												
Bromide	W	0.481	0.0670	0.200	mg/L		1	TXT1	01/24/24	1802	2557999	7
Fluoride	J	0.195	0.0330	4.00	mg/L		1					
Nitrate-N	J	1.16	0.0330	10.0	mg/L		1					
Chloride	J	37.9	0.670	250	mg/L		10	TXT1	01/24/24	2347	2557999	8
Sulfate		83.0	1.33	4.00	mg/L		10					
Mercury Analysis-CVAA												
7470, Mercury Liquid "As Received"												
Mercury	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	JP2	01/26/24	1015	2558062	9
Metals Analysis-ICP-MS												
6020, Metals (15+ elements) "As Received"												
Boron	N	0.198	0.00520	0.0150	mg/L	1.00	1	BAJ	02/21/24	1128	2557969	10
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	02/21/24	1325	2557969	11
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1	PRB	02/20/24	2208	2557969	12
Magnesium	B	17.1	0.0100	0.0300	mg/L	1.00	1					
Sodium		49.4	0.0800	0.250	mg/L	1.00	1					
Aluminum	U	0.0500	0.0193	0.0500	mg/L	1.00	1	PRB	02/20/24	0452	2557969	13
Antimony	U	0.00300	0.00100	0.00300	mg/L	1.00	1					
Arsenic	J	0.00274	0.00200	0.00500	mg/L	1.00	1					

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Address : 5600 Hobbs Road

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW361UG2-24 Project: FRNP00507
Sample ID: 652552009 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Metals (15+ elements) "As Received"												
Barium		0.0541	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					
Calcium		34.9	0.0800	0.200	mg/L	1.00	1					
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					
Cobalt	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Copper	J	0.000833	0.000300	0.00200	mg/L	1.00	1					
Iron	J	0.0379	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Manganese	J	0.00312	0.00100	0.00500	mg/L	1.00	1					
Molybdenum	U	0.00100	0.000200	0.00100	mg/L	1.00	1					
Nickel	U	0.00200	0.000600	0.00200	mg/L	1.00	1					
Potassium		2.55	0.0800	0.300	mg/L	1.00	1					
Selenium	U	0.00500	0.00150	0.00500	mg/L	1.00	1					
Silver	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Thallium	U	0.00200	0.000600	0.00200	mg/L	1.00	1					
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1					
Vanadium	BJ	0.00488	0.00330	0.0200	mg/L	1.00	1					
Zinc	U	0.0200	0.00330	0.0200	mg/L	1.00	1					
Semi-Volatiles-PCB												
8082A, PCB Liquids "As Received"												
Aroclor-1016	U	0.100	0.0333	0.100	ug/L	0.00100	1	NS2	01/26/24	1736	2558538	14
Aroclor-1221	U	0.100	0.0333	0.100	ug/L	0.00100	1					
Aroclor-1232	U	0.100	0.0333	0.100	ug/L	0.00100	1					
Aroclor-1242	U	0.100	0.0333	0.100	ug/L	0.00100	1					
Aroclor-1248	U	0.100	0.0333	0.100	ug/L	0.00100	1					
Aroclor-1254	J	0.0797	0.0333	0.100	ug/L	0.00100	1					
Aroclor-1260	J	0.0702	0.0333	0.100	ug/L	0.00100	1					
Aroclor-1268	U	0.100	0.0333	0.100	ug/L	0.00100	1					
Aroclor-Total		0.150	0.0333	0.100	ug/L	0.00100	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		292	2.38	10.0	mg/L			KLP1	01/30/24	1037	2560120	15
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: April 25, 2024

Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW361UG2-24 Project: FRNP00507
Sample ID: 652552009 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD	U	20.0	8.95	20.0	mg/L		1	JW2	01/25/24	1511	2558185	16
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	JM6	01/26/24	0425	2558696	17
1,1,1-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
1,2,3-Trichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dibromoethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,4-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
2-Butanone	U	5.00	1.67	5.00	ug/L		1					
2-Hexanone	U	5.00	1.67	5.00	ug/L		1					
4-Methyl-2-pentanone	U	5.00	1.67	5.00	ug/L		1					
Acetone	U	5.00	1.74	5.00	ug/L		1					
Acrolein	U	5.00	1.67	5.00	ug/L		1					
Acrylonitrile	U	5.00	1.67	5.00	ug/L		1					
Benzene	U	1.00	0.333	1.00	ug/L		1					
Bromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromodichloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromoform	U	1.00	0.333	1.00	ug/L		1					
Bromomethane	U	1.00	0.337	1.00	ug/L		1					
Carbon disulfide	U	5.00	1.67	5.00	ug/L		1					
Carbon tetrachloride	U	1.00	0.333	1.00	ug/L		1					
Chlorobenzene	U	1.00	0.333	1.00	ug/L		1					
Chloroethane	U	1.00	0.333	1.00	ug/L		1					
Chloroform	U	1.00	0.333	1.00	ug/L		1					
Chloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromomethane	U	1.00	0.333	1.00	ug/L		1					
Ethylbenzene	U	1.00	0.333	1.00	ug/L		1					
Iodomethane	U	5.00	1.67	5.00	ug/L		1					

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Company : Four Rivers Nuclear Partnership, LLC
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Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW361UG2-24 Project: FRNP00507
Sample ID: 652552009 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
Methylene chloride	U	5.00	0.500	5.00	ug/L		1					
Styrene	U	1.00	0.333	1.00	ug/L		1					
Tetrachloroethylene	U	1.00	0.333	1.00	ug/L		1					
Toluene	U	1.00	0.333	1.00	ug/L		1					
Trichloroethylene	U	1.00	0.333	1.00	ug/L		1					
Trichlorofluoromethane	U	1.00	0.333	1.00	ug/L		1					
Vinyl acetate	U	5.00	1.67	5.00	ug/L		1					
Vinyl chloride	U	1.00	0.333	1.00	ug/L		1					
Xylenes (total)	U	3.00	1.00	3.00	ug/L		1					
cis-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
cis-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,4-Dichloro-2-butene	U	5.00	1.67	5.00	ug/L		1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3535A	SW3535A PCB SPE Extraction	DXF4	01/26/24	0515	2558537
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	AXS5	01/25/24	1150	2558061
SW846 9010C Distillation	SW846 9010C Prep	ES2	01/25/24	0739	2555812
SW846 3005A	ICP-MS 3005A PREP	JD2	01/30/24	0645	2557968
SW846 8011 PREP	8011 Prep	BM1	01/25/24	1423	2557972

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Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-U Landfill Quarterly(UG24-02)

Client Sample ID:	MW361UG2-24	Project:	FRNP00507
Sample ID:	652552009	Client ID:	FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 8011	
2	SW846 8011	
3	SW846 9060A	
4	SW846 9012B	
5	SW846 9020B	
6	EPA 300.0	
7	SW846 9056A	
8	SW846 9056A	
9	SW846 7470A	
10	SW846 3005A/6020B	
11	SW846 3005A/6020B	
12	SW846 3005A/6020B	
13	SW846 3005A/6020B	
14	SW846 3535A/8082A	
15	EPA 160.1	
16	EPA 410.4	
17	SW846 8260D	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011 VOA- 1,2-Dibromo-3-chloropropane "As Received"	5.68 ug/L	6.66	85	(56%-149%)
Decachlorobiphenyl	8082A, PCB Liquids "As Received"	0.158 ug/L	0.200	79	(30%-135%)
4cmx	8082A, PCB Liquids "As Received"	0.138 ug/L	0.200	69	(26%-108%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	53.0 ug/L	50.0	106	(74%-123%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	46.7 ug/L	50.0	93	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	45.3 ug/L	50.0	91	(77%-121%)

Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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Company : Four Rivers Nuclear Partnership, LLC
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Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID:	MW361UG2-24	Project:	FRNP00507
Sample ID:	652552010	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	23-JAN-24 09:18		
Receive Date:	24-JAN-24		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Dissolved Metals (3 Elements) "As Received"												
Barium		0.0526	0.000670	0.00400	mg/L	1.00	1	PRB	02/20/24	0518	2557969	1
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-MS 3005A PREP	JD2	01/30/24	0645	2557968
EPA 160	Laboratory Filtration	RXB5	01/24/24	1335	2557914

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3005A/6020B	

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Report Date: April 25, 2024

Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW362UG2-24
Sample ID: 652552011
Matrix: WG
Collect Date: 23-JAN-24 10:15
Receive Date: 24-JAN-24
Collector: Client

Project: FRNP00507
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
504.1/8011 Analysis of EDB/DBCP												
8011 VOA- 1,2-Dibromo-3-chloropropane "As Received"												
1,2-Dibromo-3-chloropropane	U	0.0189	0.00849	0.0189	ug/L	0.944	1	BM1	01/25/24	1957	2557973	1
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	1.48	0.330	2.00	mg/L		1	RM3	01/24/24	2333	2558010	3
Flow Injection Analysis												
9012B, Cyanide, Total "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	01/25/24	1013	2555817	4
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens	J	6.20	3.33	10.0	ug/L		1	RM3	01/26/24	1426	2559096	5
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	02/06/24	1533	2564209	6
SW846 9056A Anions (5 elements) "As Received"												
Bromide	UW	0.200	0.0670	0.200	mg/L		1	TXT1	01/24/24	1833	2557999	7
Chloride	J	3.96	0.0670	250	mg/L		1					
Fluoride	J	0.349	0.0330	4.00	mg/L		1					
Nitrate-N	J	0.619	0.0330	10.0	mg/L		1					
Sulfate		12.5	0.133	0.400	mg/L		1					
Mercury Analysis-CVAA												
7470, Mercury Liquid "As Received"												
Mercury	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	JP2	01/26/24	1027	2558062	8
Metals Analysis-ICP-MS												
6020, Metals (15+ elements) "As Received"												
Boron	JN	0.0139	0.00520	0.0150	mg/L	1.00	1	BAJ	02/21/24	1136	2557969	9
Sodium		104	0.800	2.50	mg/L	1.00	10	PRB	02/20/24	2240	2557969	10
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1	PRB	02/20/24	2237	2557969	11
Magnesium	B	7.63	0.0100	0.0300	mg/L	1.00	1					
Aluminum		0.530	0.0193	0.0500	mg/L	1.00	1	PRB	02/20/24	0521	2557969	12
Antimony	U	0.00300	0.00100	0.00300	mg/L	1.00	1					
Arsenic	J	0.00276	0.00200	0.00500	mg/L	1.00	1					
Barium		0.0984	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					

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Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW362UG2-24 Project: FRNP00507
Sample ID: 652552011 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Metals (15+ elements) "As Received"												
Calcium		16.0	0.0800	0.200	mg/L	1.00	1					
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					
Cobalt	J	0.000422	0.000300	0.00100	mg/L	1.00	1					
Copper	J	0.00190	0.000300	0.00200	mg/L	1.00	1					
Iron		0.435	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Manganese		0.00917	0.00100	0.00500	mg/L	1.00	1					
Molybdenum	J	0.000447	0.000200	0.00100	mg/L	1.00	1					
Nickel	J	0.00132	0.000600	0.00200	mg/L	1.00	1					
Potassium		0.375	0.0800	0.300	mg/L	1.00	1					
Selenium	U	0.00500	0.00150	0.00500	mg/L	1.00	1					
Silver	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Thallium	U	0.00200	0.000600	0.00200	mg/L	1.00	1					
Uranium		0.00109	0.0000670	0.000200	mg/L	1.00	1					
Vanadium	BJ	0.00609	0.00330	0.0200	mg/L	1.00	1					
Zinc	U	0.0200	0.00330	0.0200	mg/L	1.00	1					
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	02/21/24	1335	2557969	13
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Semi-Volatiles-PCB												
8082A, PCB Liquids "As Received"												
Aroclor-1016	U	0.110	0.0367	0.110	ug/L	0.00110	1	NS2	01/26/24	1812	2558538	14
Aroclor-1221	U	0.110	0.0367	0.110	ug/L	0.00110	1					
Aroclor-1232	U	0.110	0.0367	0.110	ug/L	0.00110	1					
Aroclor-1242	U	0.110	0.0367	0.110	ug/L	0.00110	1					
Aroclor-1248	U	0.110	0.0367	0.110	ug/L	0.00110	1					
Aroclor-1254	U	0.110	0.0367	0.110	ug/L	0.00110	1					
Aroclor-1260	U	0.110	0.0367	0.110	ug/L	0.00110	1					
Aroclor-1268	U	0.110	0.0367	0.110	ug/L	0.00110	1					
Aroclor-Total	U	0.110	0.0367	0.110	ug/L	0.00110	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		325	2.38	10.0	mg/L			KLP1	01/30/24	1037	2560120	15
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												

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Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW362UG2-24 Project: FRNP00507
Sample ID: 652552011 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD	U	20.0	8.95	20.0	mg/L		1	JW2	01/25/24	1511	2558185	16
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	JM6	01/26/24	0453	2558696	17
1,1,1-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
1,2,3-Trichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dibromoethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,4-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
2-Butanone	U	5.00	1.67	5.00	ug/L		1					
2-Hexanone	U	5.00	1.67	5.00	ug/L		1					
4-Methyl-2-pentanone	U	5.00	1.67	5.00	ug/L		1					
Acetone	U	5.00	1.74	5.00	ug/L		1					
Acrolein	U	5.00	1.67	5.00	ug/L		1					
Acrylonitrile	U	5.00	1.67	5.00	ug/L		1					
Benzene	U	1.00	0.333	1.00	ug/L		1					
Bromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromodichloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromoform	U	1.00	0.333	1.00	ug/L		1					
Bromomethane	U	1.00	0.337	1.00	ug/L		1					
Carbon disulfide	U	5.00	1.67	5.00	ug/L		1					
Carbon tetrachloride	U	1.00	0.333	1.00	ug/L		1					
Chlorobenzene	U	1.00	0.333	1.00	ug/L		1					
Chloroethane	U	1.00	0.333	1.00	ug/L		1					
Chloroform	U	1.00	0.333	1.00	ug/L		1					
Chloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromomethane	U	1.00	0.333	1.00	ug/L		1					
Ethylbenzene	U	1.00	0.333	1.00	ug/L		1					
Iodomethane	U	5.00	1.67	5.00	ug/L		1					

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Client Sample ID: MW362UG2-24 Project: FRNP00507
Sample ID: 652552011 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
Methylene chloride	U	5.00	0.500	5.00	ug/L		1					
Styrene	U	1.00	0.333	1.00	ug/L		1					
Tetrachloroethylene	U	1.00	0.333	1.00	ug/L		1					
Toluene	U	1.00	0.333	1.00	ug/L		1					
Trichloroethylene	U	1.00	0.333	1.00	ug/L		1					
Trichlorofluoromethane	U	1.00	0.333	1.00	ug/L		1					
Vinyl acetate	U	5.00	1.67	5.00	ug/L		1					
Vinyl chloride	U	1.00	0.333	1.00	ug/L		1					
Xylenes (total)	U	3.00	1.00	3.00	ug/L		1					
cis-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
cis-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,4-Dichloro-2-butene	U	5.00	1.67	5.00	ug/L		1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 8011 PREP	8011 Prep	BM1	01/25/24	1423	2557972
SW846 9010C Distillation	SW846 9010C Prep	ES2	01/25/24	0739	2555812
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	AXS5	01/25/24	1150	2558061
SW846 3535A	SW3535A PCB SPE Extraction	DXF4	01/26/24	0515	2558537
SW846 3005A	ICP-MS 3005A PREP	JD2	01/30/24	0645	2557968

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	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-U Landfill Quarterly(UG24-02)

Client Sample ID:	MW362UG2-24	Project:	FRNP00507
Sample ID:	652552011	Client ID:	FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 8011	
2	SW846 8011	
3	SW846 9060A	
4	SW846 9012B	
5	SW846 9020B	
6	EPA 300.0	
7	SW846 9056A	
8	SW846 7470A	
9	SW846 3005A/6020B	
10	SW846 3005A/6020B	
11	SW846 3005A/6020B	
12	SW846 3005A/6020B	
13	SW846 3005A/6020B	
14	SW846 3535A/8082A	
15	EPA 160.1	
16	EPA 410.4	
17	SW846 8260D	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011 VOA- 1,2-Dibromo-3-chloropropane "As Received"	5.73 ug/L	6.74	85	(56%-149%)
Decachlorobiphenyl	8082A, PCB Liquids "As Received"	0.0956 ug/L	0.220	43	(30%-135%)
4cmx	8082A, PCB Liquids "As Received"	0.129 ug/L	0.220	58	(26%-108%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	52.1 ug/L	50.0	104	(74%-123%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	47.0 ug/L	50.0	94	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	45.0 ug/L	50.0	90	(77%-121%)

Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: April 25, 2024

Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID:	MW362UG2-24	Project:	FRNP00507
Sample ID:	652552012	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	23-JAN-24 10:15		
Receive Date:	24-JAN-24		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Dissolved Metals (3 Elements) "As Received"												
Barium		0.0919	0.000670	0.00400	mg/L	1.00	1	PRB	02/20/24	0525	2557969	1
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					
Uranium		0.000998	0.0000670	0.000200	mg/L	1.00	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 160	Laboratory Filtration	RXB5	01/24/24	1335	2557914
SW846 3005A	ICP-MS 3005A PREP	JD2	01/30/24	0645	2557968

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3005A/6020B	

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: April 25, 2024

Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW363UG2-24
Sample ID: 652552013
Matrix: WG
Collect Date: 23-JAN-24 12:40
Receive Date: 24-JAN-24
Collector: Client

Project: FRNP00507
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
504.1/8011 Analysis of EDB/DBCP												
8011 VOA- 1,2-Dibromo-3-chloropropane "As Received"												
1,2-Dibromo-3-chloropropane	U	0.0200	0.00900	0.0200	ug/L	1.00	1	BM1	01/25/24	2110	2557973	2
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	1.26	0.330	2.00	mg/L		1	RM3	01/25/24	0006	2558010	3
Flow Injection Analysis												
9012B, Cyanide, Total "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	01/25/24	1014	2555817	4
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens	J	8.74	3.33	10.0	ug/L		1	RM3	01/26/24	1530	2559096	5
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	02/06/24	1612	2564209	6
SW846 9056A Anions (5 elements) "As Received"												
Chloride	J	21.1	0.335	250	mg/L		5	TXT1	01/25/24	0121	2557999	7
Sulfate		28.4	0.665	2.00	mg/L		5					
Bromide	UW	0.200	0.0670	0.200	mg/L		1	TXT1	01/24/24	1905	2557999	8
Fluoride	J	0.305	0.0330	4.00	mg/L		1					
Nitrate-N	J	3.07	0.0330	10.0	mg/L		1					
Mercury Analysis-CVAA												
7470, Mercury Liquid "As Received"												
Mercury	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	JP2	01/26/24	1029	2558062	9
Metals Analysis-ICP-MS												
6020, Metals (15+ elements) "As Received"												
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	02/21/24	1336	2557969	10
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Aluminum	U	0.0500	0.0193	0.0500	mg/L	1.00	1	PRB	02/20/24	0528	2557969	11
Antimony	U	0.00300	0.00100	0.00300	mg/L	1.00	1					
Arsenic	J	0.00257	0.00200	0.00500	mg/L	1.00	1					
Barium		0.121	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					
Calcium		21.1	0.0800	0.200	mg/L	1.00	1					
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					

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Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW363UG2-24 Project: FRNP00507
Sample ID: 652552013 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Metals (15+ elements) "As Received"												
Cobalt	J	0.000878	0.000300	0.00100	mg/L	1.00	1					
Copper	J	0.000851	0.000300	0.00200	mg/L	1.00	1					
Iron	J	0.0734	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Manganese		0.112	0.00100	0.00500	mg/L	1.00	1					
Molybdenum	U	0.00100	0.000200	0.00100	mg/L	1.00	1					
Nickel		0.0445	0.000600	0.00200	mg/L	1.00	1					
Potassium		2.07	0.0800	0.300	mg/L	1.00	1					
Selenium	U	0.00500	0.00150	0.00500	mg/L	1.00	1					
Silver	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Thallium	U	0.00200	0.000600	0.00200	mg/L	1.00	1					
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1					
Vanadium	BJ	0.00511	0.00330	0.0200	mg/L	1.00	1					
Zinc	U	0.0200	0.00330	0.0200	mg/L	1.00	1					
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1	PRB	02/20/24	2248	2557969	12
Magnesium	B	9.43	0.0100	0.0300	mg/L	1.00	1					
Sodium		38.4	0.0800	0.250	mg/L	1.00	1					
Boron	N	0.0214	0.00520	0.0150	mg/L	1.00	1	BAJ	02/21/24	1137	2557969	13
Semi-Volatiles-PCB												
8082A, PCB Liquids "As Received"												
Aroclor-1016	U	0.110	0.0365	0.110	ug/L	0.00110	1	NS2	01/26/24	1824	2558538	14
Aroclor-1221	U	0.110	0.0365	0.110	ug/L	0.00110	1					
Aroclor-1232	U	0.110	0.0365	0.110	ug/L	0.00110	1					
Aroclor-1242	U	0.110	0.0365	0.110	ug/L	0.00110	1					
Aroclor-1248	U	0.110	0.0365	0.110	ug/L	0.00110	1					
Aroclor-1254	U	0.110	0.0365	0.110	ug/L	0.00110	1					
Aroclor-1260	U	0.110	0.0365	0.110	ug/L	0.00110	1					
Aroclor-1268	U	0.110	0.0365	0.110	ug/L	0.00110	1					
Aroclor-Total	U	0.110	0.0365	0.110	ug/L	0.00110	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		202	2.38	10.0	mg/L			KLP1	01/30/24	1037	2560120	15
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												

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Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW363UG2-24 Project: FRNP00507
Sample ID: 652552013 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD	U	20.0	8.95	20.0	mg/L		1	JW2	01/25/24	1511	2558185	16
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	JM6	01/26/24	0521	2558696	17
1,1,1-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
1,2,3-Trichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dibromoethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,4-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
2-Butanone	U	5.00	1.67	5.00	ug/L		1					
2-Hexanone	U	5.00	1.67	5.00	ug/L		1					
4-Methyl-2-pentanone	U	5.00	1.67	5.00	ug/L		1					
Acetone	U	5.00	1.74	5.00	ug/L		1					
Acrolein	U	5.00	1.67	5.00	ug/L		1					
Acrylonitrile	U	5.00	1.67	5.00	ug/L		1					
Benzene	U	1.00	0.333	1.00	ug/L		1					
Bromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromodichloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromoform	U	1.00	0.333	1.00	ug/L		1					
Bromomethane	U	1.00	0.337	1.00	ug/L		1					
Carbon disulfide	U	5.00	1.67	5.00	ug/L		1					
Carbon tetrachloride	U	1.00	0.333	1.00	ug/L		1					
Chlorobenzene	U	1.00	0.333	1.00	ug/L		1					
Chloroethane	U	1.00	0.333	1.00	ug/L		1					
Chloroform	U	1.00	0.333	1.00	ug/L		1					
Chloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromomethane	U	1.00	0.333	1.00	ug/L		1					
Ethylbenzene	U	1.00	0.333	1.00	ug/L		1					
Iodomethane	U	5.00	1.67	5.00	ug/L		1					

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Report Date: April 25, 2024

Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW363UG2-24 Project: FRNP00507
Sample ID: 652552013 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
Methylene chloride	U	5.00	0.500	5.00	ug/L		1					
Styrene	U	1.00	0.333	1.00	ug/L		1					
Tetrachloroethylene	U	1.00	0.333	1.00	ug/L		1					
Toluene	U	1.00	0.333	1.00	ug/L		1					
Trichloroethylene	U	1.00	0.333	1.00	ug/L		1					
Trichlorofluoromethane	U	1.00	0.333	1.00	ug/L		1					
Vinyl acetate	U	5.00	1.67	5.00	ug/L		1					
Vinyl chloride	U	1.00	0.333	1.00	ug/L		1					
Xylenes (total)	U	3.00	1.00	3.00	ug/L		1					
cis-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
cis-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,4-Dichloro-2-butene	U	5.00	1.67	5.00	ug/L		1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 8011 PREP	8011 Prep	BM1	01/25/24	1423	2557972
SW846 3535A	SW3535A PCB SPE Extraction	DXF4	01/26/24	0515	2558537
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	AXS5	01/25/24	1150	2558061
SW846 9010C Distillation	SW846 9010C Prep	ES2	01/25/24	0739	2555812
SW846 3005A	ICP-MS 3005A PREP	JD2	01/30/24	0645	2557968

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Certificate of Analysis

Report Date: April 25, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-U Landfill Quarterly(UG24-02)

Client Sample ID:	MW363UG2-24	Project:	FRNP00507
Sample ID:	652552013	Client ID:	FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 8011	
2	SW846 8011	
3	SW846 9060A	
4	SW846 9012B	
5	SW846 9020B	
6	EPA 300.0	
7	SW846 9056A	
8	SW846 9056A	
9	SW846 7470A	
10	SW846 3005A/6020B	
11	SW846 3005A/6020B	
12	SW846 3005A/6020B	
13	SW846 3005A/6020B	
14	SW846 3535A/8082A	
15	EPA 160.1	
16	EPA 410.4	
17	SW846 8260D	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011 VOA- 1,2-Dibromo-3-chloropropane "As Received"	5.77 ug/L	6.72	86	(56%-149%)
Decachlorobiphenyl	8082A, PCB Liquids "As Received"	0.154 ug/L	0.219	70	(30%-135%)
4cmx	8082A, PCB Liquids "As Received"	0.162 ug/L	0.219	74	(26%-108%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	52.4 ug/L	50.0	105	(74%-123%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	47.3 ug/L	50.0	95	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	44.8 ug/L	50.0	90	(77%-121%)

Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: April 25, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-U Landfill Quarterly(UG24-02)

Client Sample ID:	MW363UG2-24	Project:	FRNP00507
Sample ID:	652552014	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	23-JAN-24 12:40		
Receive Date:	24-JAN-24		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Dissolved Metals (3 Elements) "As Received"												
Barium		0.119	0.000670	0.00400	mg/L	1.00	1	PRB	02/20/24	0532	2557969	1
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-MS 3005A PREP	JD2	01/30/24	0645	2557968
EPA 160	Laboratory Filtration	RXB5	01/24/24	1335	2557914

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3005A/6020B	

Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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Report Date: April 25, 2024

Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: FB1UG2-24
Sample ID: 652552015
Matrix: WATER
Collect Date: 23-JAN-24 08:10
Receive Date: 24-JAN-24
Collector: Client

Project: FRNP00507
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
504.1/8011 Analysis of EDB/DBCP												
8011 VOA- 1,2-Dibromo-3-chloropropane "As Received"												
1,2-Dibromo-3-chloropropane	U	0.0189	0.00850	0.0189	ug/L	0.945	1	BM1	01/25/24	2135	2557973	1
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	02/06/24	1625	2564209	3
Mercury Analysis-CVAA												
7470, Mercury Liquid "As Received"												
Mercury	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	JP2	01/26/24	1030	2558062	4
Metals Analysis-ICP-MS												
6020, Metals (15+ elements) "As Received"												
Aluminum	J	0.0194	0.0193	0.0500	mg/L	1.00	1	PRB	02/20/24	0536	2557969	5
Antimony	U	0.00300	0.00100	0.00300	mg/L	1.00	1					
Arsenic	J	0.00210	0.00200	0.00500	mg/L	1.00	1					
Barium	U	0.00400	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					
Calcium	U	0.200	0.0800	0.200	mg/L	1.00	1					
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					
Cobalt	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Copper	U	0.00200	0.000300	0.00200	mg/L	1.00	1					
Iron	U	0.100	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Manganese	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Molybdenum	J	0.000279	0.000200	0.00100	mg/L	1.00	1					
Nickel	U	0.00200	0.000600	0.00200	mg/L	1.00	1					
Potassium	U	0.300	0.0800	0.300	mg/L	1.00	1					
Selenium	U	0.00500	0.00150	0.00500	mg/L	1.00	1					
Silver	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Thallium	U	0.00200	0.000600	0.00200	mg/L	1.00	1					
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1					
Vanadium	BJ	0.00544	0.00330	0.0200	mg/L	1.00	1					
Zinc	U	0.0200	0.00330	0.0200	mg/L	1.00	1					
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	02/21/24	1338	2557969	6
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Boron	JN	0.00828	0.00520	0.0150	mg/L	1.00	1	BAJ	02/21/24	1139	2557969	7
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1	PRB	02/20/24	2255	2557969	8

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Certificate of Analysis

Report Date: April 25, 2024

Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: FB1UG2-24 Project: FRNP00507
Sample ID: 652552015 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Metals (15+ elements) "As Received"												
Magnesium	U	0.0300	0.0100	0.0300	mg/L	1.00	1					
Sodium	J	0.121	0.0800	0.250	mg/L	1.00	1					
Semi-Volatiles-PCB												
8082A, PCB Liquids "As Received"												
Aroclor-1016	U	0.108	0.0359	0.108	ug/L	0.00108	1	NS2	01/26/24	1836	2558538	9
Aroclor-1221	U	0.108	0.0359	0.108	ug/L	0.00108	1					
Aroclor-1232	U	0.108	0.0359	0.108	ug/L	0.00108	1					
Aroclor-1242	U	0.108	0.0359	0.108	ug/L	0.00108	1					
Aroclor-1248	U	0.108	0.0359	0.108	ug/L	0.00108	1					
Aroclor-1254	U	0.108	0.0359	0.108	ug/L	0.00108	1					
Aroclor-1260	U	0.108	0.0359	0.108	ug/L	0.00108	1					
Aroclor-1268	U	0.108	0.0359	0.108	ug/L	0.00108	1					
Aroclor-Total	U	0.108	0.0359	0.108	ug/L	0.00108	1					
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	JM6	01/26/24	0549	2558696	10
1,1,1-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
1,2,3-Trichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dibromoethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,4-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
2-Butanone		40.6	1.67	5.00	ug/L		1					
2-Hexanone		7.72	1.67	5.00	ug/L		1					
4-Methyl-2-pentanone	U	5.00	1.67	5.00	ug/L		1					
Acetone		18.0	1.74	5.00	ug/L		1					
Acrolein	U	5.00	1.67	5.00	ug/L		1					
Acrylonitrile	U	5.00	1.67	5.00	ug/L		1					
Benzene	U	1.00	0.333	1.00	ug/L		1					
Bromochloromethane	U	1.00	0.333	1.00	ug/L		1					

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Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: FB1UG2-24 Project: FRNP00507
Sample ID: 652552015 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
Bromodichloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromoform	U	1.00	0.333	1.00	ug/L		1					
Bromomethane	U	1.00	0.337	1.00	ug/L		1					
Carbon disulfide	U	5.00	1.67	5.00	ug/L		1					
Carbon tetrachloride	U	1.00	0.333	1.00	ug/L		1					
Chlorobenzene	U	1.00	0.333	1.00	ug/L		1					
Chloroethane	U	1.00	0.333	1.00	ug/L		1					
Chloroform	U	1.00	0.333	1.00	ug/L		1					
Chloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromomethane	U	1.00	0.333	1.00	ug/L		1					
Ethylbenzene	U	1.00	0.333	1.00	ug/L		1					
Iodomethane	U	5.00	1.67	5.00	ug/L		1					
Methylene chloride	U	5.00	0.500	5.00	ug/L		1					
Styrene	U	1.00	0.333	1.00	ug/L		1					
Tetrachloroethylene	U	1.00	0.333	1.00	ug/L		1					
Toluene	U	1.00	0.333	1.00	ug/L		1					
Trichloroethylene	U	1.00	0.333	1.00	ug/L		1					
Trichlorofluoromethane	U	1.00	0.333	1.00	ug/L		1					
Vinyl acetate	U	5.00	1.67	5.00	ug/L		1					
Vinyl chloride	U	1.00	0.333	1.00	ug/L		1					
Xylenes (total)	U	3.00	1.00	3.00	ug/L		1					
cis-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
cis-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,4-Dichloro-2-butene	U	5.00	1.67	5.00	ug/L		1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 8011 PREP	8011 Prep	BM1	01/25/24	1423	2557972
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	AXS5	01/25/24	1150	2558061
SW846 3535A	SW3535A PCB SPE Extraction	DXF4	01/26/24	0515	2558537
SW846 3005A	ICP-MS 3005A PREP	JD2	01/30/24	0645	2557968

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Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: FB1UG2-24 Project: FRNP00507
Sample ID: 652552015 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 8011	
2	SW846 8011	
3	EPA 300.0	
4	SW846 7470A	
5	SW846 3005A/6020B	
6	SW846 3005A/6020B	
7	SW846 3005A/6020B	
8	SW846 3005A/6020B	
9	SW846 3535A/8082A	
10	SW846 8260D	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011 VOA- 1,2-Dibromo-3-chloropropane "As Received"	5.96 ug/L	6.75	88	(56%-149%)
Decachlorobiphenyl	8082A, PCB Liquids "As Received"	0.160 ug/L	0.216	74	(30%-135%)
4cmx	8082A, PCB Liquids "As Received"	0.143 ug/L	0.216	67	(26%-108%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	52.4 ug/L	50.0	105	(74%-123%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	48.0 ug/L	50.0	96	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	45.0 ug/L	50.0	90	(77%-121%)

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: April 25, 2024

Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: RI1UG2-24
Sample ID: 652552016
Matrix: WATER
Collect Date: 23-JAN-24 07:30
Receive Date: 24-JAN-24
Collector: Client

Project: FRNP00507
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
504.1/8011 Analysis of EDB/DBCP												
8011 VOA- 1,2-Dibromo-3-chloropropane "As Received"												
1,2-Dibromo-3-chloropropane	U	0.0200	0.00900	0.0200	ug/L	1.00	1	BM1	01/25/24	2159	2557973	1
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	02/06/24	1638	2564209	3
Mercury Analysis-CVAA												
7470, Mercury Liquid "As Received"												
Mercury	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	JP2	01/26/24	1032	2558062	4
Metals Analysis-ICP-MS												
6020, Metals (15+ elements) "As Received"												
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	02/21/24	1340	2557969	5
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1	PRB	02/20/24	2259	2557969	6
Magnesium	U	0.0300	0.0100	0.0300	mg/L	1.00	1					
Sodium	U	0.250	0.0800	0.250	mg/L	1.00	1					
Aluminum	U	0.0500	0.0193	0.0500	mg/L	1.00	1	PRB	02/20/24	0539	2557969	7
Antimony	U	0.00300	0.00100	0.00300	mg/L	1.00	1					
Arsenic	J	0.00207	0.00200	0.00500	mg/L	1.00	1					
Barium	U	0.00400	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					
Calcium	U	0.200	0.0800	0.200	mg/L	1.00	1					
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					
Cobalt	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Copper	U	0.00200	0.000300	0.00200	mg/L	1.00	1					
Iron	U	0.100	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Manganese	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Molybdenum	U	0.00100	0.000200	0.00100	mg/L	1.00	1					
Nickel	U	0.00200	0.000600	0.00200	mg/L	1.00	1					
Potassium	U	0.300	0.0800	0.300	mg/L	1.00	1					
Selenium	U	0.00500	0.00150	0.00500	mg/L	1.00	1					
Silver	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Thallium	U	0.00200	0.000600	0.00200	mg/L	1.00	1					
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1					
Vanadium	BJ	0.00540	0.00330	0.0200	mg/L	1.00	1					

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Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: RI1UG2-24 Project: FRNP00507
Sample ID: 652552016 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Metals (15+ elements) "As Received"												
Zinc	U	0.0200	0.00330	0.0200	mg/L	1.00	1					
Boron	UN	0.0150	0.00520	0.0150	mg/L	1.00	1	BAJ	02/21/24	1140	2557969	8
Semi-Volatiles-PCB												
8082A, PCB Liquids "As Received"												
Aroclor-1016	U	0.107	0.0356	0.107	ug/L	0.00107	1	NS2	01/26/24	1849	2558538	9
Aroclor-1221	U	0.107	0.0356	0.107	ug/L	0.00107	1					
Aroclor-1232	U	0.107	0.0356	0.107	ug/L	0.00107	1					
Aroclor-1242	U	0.107	0.0356	0.107	ug/L	0.00107	1					
Aroclor-1248	U	0.107	0.0356	0.107	ug/L	0.00107	1					
Aroclor-1254	U	0.107	0.0356	0.107	ug/L	0.00107	1					
Aroclor-1260	U	0.107	0.0356	0.107	ug/L	0.00107	1					
Aroclor-1268	U	0.107	0.0356	0.107	ug/L	0.00107	1					
Aroclor-Total	U	0.107	0.0356	0.107	ug/L	0.00107	1					
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	JM6	01/26/24	0616	2558696	10
1,1,1-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
1,2,3-Trichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dibromoethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,4-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
2-Butanone	U	5.00	1.67	5.00	ug/L		1					
2-Hexanone	U	5.00	1.67	5.00	ug/L		1					
4-Methyl-2-pentanone	U	5.00	1.67	5.00	ug/L		1					
Acetone	U	5.00	1.74	5.00	ug/L		1					
Acrolein	U	5.00	1.67	5.00	ug/L		1					
Acrylonitrile	U	5.00	1.67	5.00	ug/L		1					
Benzene	U	1.00	0.333	1.00	ug/L		1					
Bromochloromethane	U	1.00	0.333	1.00	ug/L		1					

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Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: RI1UG2-24 Project: FRNP00507
Sample ID: 652552016 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
Bromodichloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromoform	U	1.00	0.333	1.00	ug/L		1					
Bromomethane	U	1.00	0.337	1.00	ug/L		1					
Carbon disulfide	U	5.00	1.67	5.00	ug/L		1					
Carbon tetrachloride	U	1.00	0.333	1.00	ug/L		1					
Chlorobenzene	U	1.00	0.333	1.00	ug/L		1					
Chloroethane	U	1.00	0.333	1.00	ug/L		1					
Chloroform	U	1.00	0.333	1.00	ug/L		1					
Chloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromomethane	U	1.00	0.333	1.00	ug/L		1					
Ethylbenzene	U	1.00	0.333	1.00	ug/L		1					
Iodomethane	U	5.00	1.67	5.00	ug/L		1					
Methylene chloride	U	5.00	0.500	5.00	ug/L		1					
Styrene	U	1.00	0.333	1.00	ug/L		1					
Tetrachloroethylene	U	1.00	0.333	1.00	ug/L		1					
Toluene	U	1.00	0.333	1.00	ug/L		1					
Trichloroethylene	U	1.00	0.333	1.00	ug/L		1					
Trichlorofluoromethane	U	1.00	0.333	1.00	ug/L		1					
Vinyl acetate	U	5.00	1.67	5.00	ug/L		1					
Vinyl chloride	U	1.00	0.333	1.00	ug/L		1					
Xylenes (total)	U	3.00	1.00	3.00	ug/L		1					
cis-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
cis-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,4-Dichloro-2-butene	U	5.00	1.67	5.00	ug/L		1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-MS 3005A PREP	JD2	01/30/24	0645	2557968
SW846 3535A	SW3535A PCB SPE Extraction	DXF4	01/26/24	0515	2558537
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	AXS5	01/25/24	1150	2558061
SW846 8011 PREP	8011 Prep	BM1	01/25/24	1423	2557972

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Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: RI1UG2-24 Project: FRNP00507
Sample ID: 652552016 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 8011	
2	SW846 8011	
3	EPA 300.0	
4	SW846 7470A	
5	SW846 3005A/6020B	
6	SW846 3005A/6020B	
7	SW846 3005A/6020B	
8	SW846 3005A/6020B	
9	SW846 3535A/8082A	
10	SW846 8260D	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011 VOA- 1,2-Dibromo-3-chloropropane "As Received"	6.49 ug/L	6.76	96	(56%-149%)
Decachlorobiphenyl	8082A, PCB Liquids "As Received"	0.171 ug/L	0.214	80	(30%-135%)
4cmx	8082A, PCB Liquids "As Received"	0.153 ug/L	0.214	72	(26%-108%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	52.9 ug/L	50.0	106	(74%-123%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	47.8 ug/L	50.0	96	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	45.4 ug/L	50.0	91	(77%-121%)

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

GEL LABORATORIES LLC
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Certificate of Analysis

Report Date: April 25, 2024

Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: TB1UG2-24
Sample ID: 652552017
Matrix: WATER
Collect Date: 23-JAN-24 07:25
Receive Date: 24-JAN-24
Collector: Client

Project: FRNP00507
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
504.1/8011 Analysis of EDB/DBCP												
8011 VOA- 1,2-Dibromo-3-chloropropane "As Received"												
1,2-Dibromo-3-chloropropane	U	0.0192	0.00863	0.0192	ug/L	0.959	1	BM1	01/25/24	2224	2557973	2
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	JM6	01/26/24	0644	2558696	3
1,1,1-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
1,2,3-Trichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dibromoethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,4-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
2-Butanone	U	5.00	1.67	5.00	ug/L		1					
2-Hexanone	U	5.00	1.67	5.00	ug/L		1					
4-Methyl-2-pentanone	U	5.00	1.67	5.00	ug/L		1					
Acetone	U	5.00	1.74	5.00	ug/L		1					
Acrolein	U	5.00	1.67	5.00	ug/L		1					
Acrylonitrile	U	5.00	1.67	5.00	ug/L		1					
Benzene	U	1.00	0.333	1.00	ug/L		1					
Bromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromodichloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromoform	U	1.00	0.333	1.00	ug/L		1					
Bromomethane	U	1.00	0.337	1.00	ug/L		1					
Carbon disulfide	U	5.00	1.67	5.00	ug/L		1					
Carbon tetrachloride	U	1.00	0.333	1.00	ug/L		1					
Chlorobenzene	U	1.00	0.333	1.00	ug/L		1					
Chloroethane	U	1.00	0.333	1.00	ug/L		1					
Chloroform	U	1.00	0.333	1.00	ug/L		1					
Chloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromomethane	U	1.00	0.333	1.00	ug/L		1					
Ethylbenzene	U	1.00	0.333	1.00	ug/L		1					
Iodomethane	U	5.00	1.67	5.00	ug/L		1					

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Certificate of Analysis

Report Date: April 25, 2024

Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: TB1UG2-24 Project: FRNP00507
Sample ID: 652552017 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
Methylene chloride	U	5.00	0.500	5.00	ug/L		1					
Styrene	U	1.00	0.333	1.00	ug/L		1					
Tetrachloroethylene	U	1.00	0.333	1.00	ug/L		1					
Toluene	U	1.00	0.333	1.00	ug/L		1					
Trichloroethylene	U	1.00	0.333	1.00	ug/L		1					
Trichlorofluoromethane	U	1.00	0.333	1.00	ug/L		1					
Vinyl acetate	U	5.00	1.67	5.00	ug/L		1					
Vinyl chloride	U	1.00	0.333	1.00	ug/L		1					
Xylenes (total)	U	3.00	1.00	3.00	ug/L		1					
cis-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
cis-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,4-Dichloro-2-butene	U	5.00	1.67	5.00	ug/L		1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 8011 PREP	8011 Prep	BM1	01/25/24	1423	2557972

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 8011	
2	SW846 8011	
3	SW846 8260D	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011 VOA- 1,2-Dibromo-3-chloropropane "As Received"	6.11 ug/L	6.85	89	(56%-149%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	51.2 ug/L	50.0	102	(74%-123%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	47.0 ug/L	50.0	94	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	44.6 ug/L	50.0	89	(77%-121%)

Notes:

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Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-U Landfill Quarterly(UG24-02)

Client Sample ID:	TB1UG2-24	Project:	FRNP00507
Sample ID:	652552017	Client ID:	FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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Company : Four Rivers Nuclear Partnership,
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Kevil, Kentucky 42053 Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW357UG2-24 Project: FRNP00507
Sample ID: 652552001 Client ID: FRNP005
Matrix: WG
Collect Date: 23-JAN-24
Receive Date: 24-JAN-24
Collector: Client

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
AN-1418 AlphaSpec Ra226, Liquid "As Received"														
Radium-226	U	0.0900	+/-0.285	0.430	+/-0.286	5.00	pCi/L			CM4	02/13/24	1000	2557927	1
Th-01-RC M, Th Isotopes, Liquid "As Received"														
Thorium-230	U	0.390	+/-0.926	1.67	+/-0.931	50.0	pCi/L			EJ1	02/08/24	0859	2557928	2
Thorium-232	U	-0.0216	+/-0.377	0.770	+/-0.378		pCi/L							
Rad Gas Flow Proportional Counting														
904.0Mod, Ra228, Liquid "As Received"														
Radium-228	U	0.683	+/-2.37	4.32	+/-2.38	4.99	pCi/L			JE1	02/15/24	1144	2563645	3
905.0Mod, Sr90, liquid "As Received"														
Strontium-90	U	-0.504	+/-1.77	3.63	+/-1.77	8.00	pCi/L			ST2	01/27/24	1400	2558361	4
9310, Alpha/Beta Activity, liquid "As Received"														
Alpha	U	5.48	+/-4.52	6.22	+/-4.62	15.0	pCi/L			KP1	01/29/24	1725	2558391	5
Beta		20.7	+/-7.24	9.00	+/-8.02	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
906.0M, Tritium Dist, Liquid "As Received"														
Tritium	U	196	+/-143	219	+/-148	300	pCi/L			HB2	02/15/24	2200	2563303	6
Tc-02-RC-MOD, Tc99, Liquid "As Received"														
Technetium-99	U	18.6	+/-13.8	22.9	+/-13.9	25.0	pCi/L			GS3	02/13/24	0624	2563182	7

The following Analytical Methods were performed

Method	Description
1	Eichrom Industries, AN-1418
2	DOE EML HASL-300, Th-01-RC Modified
3	EPA 904.0/SW846 9320 Modified
4	EPA 905.0 Modified/DOE RP501 Rev. 1 Modified
5	EPA 900.0/SW846 9310
6	EPA 906.0 Modified
7	DOE EML HASL-300, Tc-02-RC Modified

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Barium-133 Tracer	AN-1418 AlphaSpec Ra226, Liquid "As Received"	2557927	90.5	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2557928	98	(30%-110%)
Barium-133 Tracer	904.0Mod, Ra228, Liquid "As Received"	2563645	91.2	(30%-110%)
Strontium Carrier	905.0Mod, Sr90, liquid "As Received"	2558361	86.8	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2563182	97.7	(30%-110%)

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Report Date: April 25, 2024

Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW357UG2-24
Sample ID: 652552001

Project: FRNP00507
Client ID: FRNP005

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Surrogate/Tracer Recovery	**Test**							**Batch ID**		**Recovery%**	**Acceptable Limits**			

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
Lc/LC: Critical Level
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Mtd.: Method
PF: Prep Factor
RL: Reporting Limit
TPU: Total Propagated Uncertainty

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Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW358UG2-24
Sample ID: 652552003
Matrix: WG
Collect Date: 23-JAN-24
Receive Date: 24-JAN-24
Collector: Client

Project: FRNP00507
Client ID: FRNP005

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
AN-1418 AlphaSpec Ra226, Liquid "As Received"														
Radium-226	U	0.0666	+/-0.549	1.13	+/-0.549	5.00	pCi/L			CM4	02/13/24	1423	2557927	1
Th-01-RC M, Th Isotopes, Liquid "As Received"														
Thorium-230	U	0.945	+/-1.09	1.54	+/-1.10	50.0	pCi/L			EJ1	02/09/24	0838	2557928	2
Thorium-232	U	-0.0214	+/-0.390	0.793	+/-0.391		pCi/L							
Rad Gas Flow Proportional Counting														
904.0Mod, Ra228, Liquid "As Received"														
Radium-228	U	0.279	+/-2.17	4.07	+/-2.17	4.99	pCi/L			JE1	02/15/24	1144	2563645	3
905.0Mod, Sr90, liquid "As Received"														
Strontium-90	U	-1.65	+/-2.20	4.53	+/-2.20	8.00	pCi/L			ST2	01/27/24	1400	2558361	4
9310, Alpha/Beta Activity, liquid "As Received"														
Alpha	U	2.57	+/-3.49	5.90	+/-3.52	15.0	pCi/L			KP1	01/29/24	1725	2558391	5
Beta		15.4	+/-6.85	9.44	+/-7.33	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
906.0M, Tritium Dist, Liquid "As Received"														
Tritium	U	111	+/-130	218	+/-131	300	pCi/L			HB2	02/15/24	2221	2563303	6
Tc-02-RC-MOD, Tc99, Liquid "As Received"														
Technetium-99	U	17.5	+/-13.6	22.6	+/-13.7	25.0	pCi/L			GS3	02/13/24	0655	2563182	7

The following Analytical Methods were performed

Method	Description
1	Eichrom Industries, AN-1418
2	DOE EML HASL-300, Th-01-RC Modified
3	EPA 904.0/SW846 9320 Modified
4	EPA 905.0 Modified/DOE RP501 Rev. 1 Modified
5	EPA 900.0/SW846 9310
6	EPA 906.0 Modified
7	DOE EML HASL-300, Tc-02-RC Modified

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Barium-133 Tracer	AN-1418 AlphaSpec Ra226, Liquid "As Received"	2557927	92.2	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2557928	90.4	(30%-110%)
Barium-133 Tracer	904.0Mod, Ra228, Liquid "As Received"	2563645	91	(30%-110%)
Strontium Carrier	905.0Mod, Sr90, liquid "As Received"	2558361	91.4	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2563182	98.7	(30%-110%)

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Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW358UG2-24
Sample ID: 652552003

Project: FRNP00507
Client ID: FRNP005

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Surrogate/Tracer Recovery	**Test**							**Batch ID**		**Recovery%**	**Acceptable Limits**			

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
Lc/LC: Critical Level
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Mtd.: Method
PF: Prep Factor
RL: Reporting Limit
TPU: Total Propagated Uncertainty

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Kevil, Kentucky 42053

Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW360DUG2-24
Sample ID: 652552005
Matrix: WG
Collect Date: 23-JAN-24
Receive Date: 24-JAN-24
Collector: Client

Project: FRNP00507
Client ID: FRNP005

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
AN-1418 AlphaSpec Ra226, Liquid "As Received"														
Radium-226	U	0.260	+/-0.304	0.421	+/-0.304	5.00	pCi/L			CM4	02/10/24	1417	2557927	1
Th-01-RC M, Th Isotopes, Liquid "As Received"														
Thorium-230	U	-0.211	+/-0.627	1.68	+/-0.628	50.0	pCi/L			EJ1	02/09/24	0838	2557928	2
Thorium-232	U	0.307	+/-0.755	1.24	+/-0.757		pCi/L							
Rad Gas Flow Proportional Counting														
904.0Mod, Ra228, Liquid "As Received"														
Radium-228	U	2.42	+/-2.07	3.26	+/-2.16	4.99	pCi/L			JE1	02/15/24	1144	2563645	3
905.0Mod, Sr90, liquid "As Received"														
Strontium-90	U	-0.729	+/-1.33	2.95	+/-1.33	8.00	pCi/L			ST2	01/27/24	1400	2558361	4
9310, Alpha/Beta Activity, liquid "As Received"														
Alpha	U	3.39	+/-3.85	6.09	+/-3.89	15.0	pCi/L			KP1	01/29/24	1725	2558391	5
Beta	U	2.40	+/-5.29	9.44	+/-5.31	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
906.0M, Tritium Dist, Liquid "As Received"														
Tritium	U	7.74	+/-111	215	+/-111	300	pCi/L			HB2	02/15/24	2243	2563303	6
Tc-02-RC-MOD, Tc99, Liquid "As Received"														
Technetium-99	U	-0.988	+/-13.4	23.1	+/-13.4	25.0	pCi/L			GS3	02/13/24	0726	2563182	7

The following Analytical Methods were performed

Method	Description
1	Eichrom Industries, AN-1418
2	DOE EML HASL-300, Th-01-RC Modified
3	EPA 904.0/SW846 9320 Modified
4	EPA 905.0 Modified/DOE RP501 Rev. 1 Modified
5	EPA 900.0/SW846 9310
6	EPA 906.0 Modified
7	DOE EML HASL-300, Tc-02-RC Modified

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Barium-133 Tracer	AN-1418 AlphaSpec Ra226, Liquid "As Received"	2557927	94.4	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2557928	95.7	(30%-110%)
Barium-133 Tracer	904.0Mod, Ra228, Liquid "As Received"	2563645	87.8	(30%-110%)
Strontium Carrier	905.0Mod, Sr90, liquid "As Received"	2558361	98.5	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2563182	96.8	(30%-110%)

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Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW360DUG2-24
Sample ID: 652552005

Project: FRNP00507
Client ID: FRNP005

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Surrogate/Tracer Recovery	**Test**							**Batch ID**		**Recovery%**	**Acceptable Limits**			

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
Lc/LC: Critical Level
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Mtd.: Method
PF: Prep Factor
RL: Reporting Limit
TPU: Total Propagated Uncertainty

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Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW360UG2-24
Sample ID: 652552007
Matrix: WG
Collect Date: 23-JAN-24
Receive Date: 24-JAN-24
Collector: Client

Project: FRNP00507
Client ID: FRNP005

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
AN-1418 AlphaSpec Ra226, Liquid "As Received"														
Radium-226	U	0.578	+/-0.472	0.651	+/-0.474	5.00	pCi/L			CM4	02/10/24	1417	2557927	1
Th-01-RC M, Th Isotopes, Liquid "As Received"														
Thorium-230	U	0.281	+/-0.823	1.53	+/-0.827	50.0	pCi/L			EJ1	02/09/24	0838	2557928	2
Thorium-232	U	-0.0654	+/-0.379	0.937	+/-0.380		pCi/L							
Rad Gas Flow Proportional Counting														
904.0Mod, Ra228, Liquid "As Received"														
Radium-228	U	1.75	+/-1.70	2.73	+/-1.76	4.99	pCi/L			JE1	02/15/24	1144	2563645	3
905.0Mod, Sr90, liquid "As Received"														
Strontium-90	U	0.751	+/-1.61	2.93	+/-1.62	8.00	pCi/L			ST2	01/27/24	1400	2558361	4
9310, Alpha/Beta Activity, liquid "As Received"														
Alpha	U	4.48	+/-4.37	6.61	+/-4.43	15.0	pCi/L			KP1	01/29/24	1725	2558391	5
Beta	U	-0.882	+/-5.20	10.0	+/-5.20	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
906.0M, Tritium Dist, Liquid "As Received"														
Tritium	U	-114	+/-88.9	220	+/-89.0	300	pCi/L			HB2	02/15/24	2305	2563303	6
Tc-02-RC-MOD, Tc99, Liquid "As Received"														
Technetium-99	U	5.52	+/-13.3	22.6	+/-13.3	25.0	pCi/L			GS3	02/13/24	0757	2563182	7

The following Analytical Methods were performed

Method	Description
1	Eichrom Industries, AN-1418
2	DOE EML HASL-300, Th-01-RC Modified
3	EPA 904.0/SW846 9320 Modified
4	EPA 905.0 Modified/DOE RP501 Rev. 1 Modified
5	EPA 900.0/SW846 9310
6	EPA 906.0 Modified
7	DOE EML HASL-300, Tc-02-RC Modified

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Barium-133 Tracer	AN-1418 AlphaSpec Ra226, Liquid "As Received"	2557927	93.2	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2557928	98.8	(30%-110%)
Barium-133 Tracer	904.0Mod, Ra228, Liquid "As Received"	2563645	93.2	(30%-110%)
Strontium Carrier	905.0Mod, Sr90, liquid "As Received"	2558361	96.1	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2563182	98.5	(30%-110%)

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Contact: Ms. Jaime Morrow

Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW360UG2-24
Sample ID: 652552007

Project: FRNP00507
Client ID: FRNP005

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Surrogate/Tracer Recovery	**Test**							**Batch ID**		**Recovery%**	**Acceptable Limits**			

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
Lc/LC: Critical Level
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Mtd.: Method
PF: Prep Factor
RL: Reporting Limit
TPU: Total Propagated Uncertainty

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Certificate of Analysis

Company : Four Rivers Nuclear Partnership,
Address : LLC
5600 Hobbs Road

Kevil, Kentucky 42053

Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW361UG2-24
Sample ID: 652552009
Matrix: WG
Collect Date: 23-JAN-24
Receive Date: 24-JAN-24
Collector: Client

Project: FRNP00507
Client ID: FRNP005

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
AN-1418 AlphaSpec Ra226, Liquid "As Received"														
Radium-226	U	0.0593	+/-0.318	0.639	+/-0.319	5.00	pCi/L			CM4	02/10/24	1417	2557927	1
Th-01-RC M, Th Isotopes, Liquid "As Received"														
Thorium-230	U	1.26	+/-1.44	1.93	+/-1.46	50.0	pCi/L			EJ1	02/09/24	0838	2557928	2
Thorium-232	U	-0.0217	+/-0.554	1.08	+/-0.555		pCi/L							
Rad Gas Flow Proportional Counting														
904.0Mod, Ra228, Liquid "As Received"														
Radium-228	U	1.70	+/-2.28	3.90	+/-2.32	4.99	pCi/L			JE1	02/15/24	1144	2563645	3
905.0Mod, Sr90, liquid "As Received"														
Strontium-90	U	-0.994	+/-1.48	3.26	+/-1.48	8.00	pCi/L			ST2	01/27/24	1400	2558361	4
9310, Alpha/Beta Activity, liquid "As Received"														
Alpha	U	1.36	+/-4.26	8.30	+/-4.27	15.0	pCi/L			KP1	01/29/24	1653	2558391	5
Beta		38.6	+/-9.22	9.91	+/-11.2	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
906.0M, Tritium Dist, Liquid "As Received"														
Tritium	U	86.9	+/-123	213	+/-125	300	pCi/L			HB2	02/15/24	2326	2563303	6
Tc-02-RC-MOD, Tc99, Liquid "As Received"														
Technetium-99		54.3	+/-14.4	22.8	+/-15.7	25.0	pCi/L			GS3	02/13/24	0828	2563182	7

The following Analytical Methods were performed

Method	Description
1	Eichrom Industries, AN-1418
2	DOE EML HASL-300, Th-01-RC Modified
3	EPA 904.0/SW846 9320 Modified
4	EPA 905.0 Modified/DOE RP501 Rev. 1 Modified
5	EPA 900.0/SW846 9310
6	EPA 906.0 Modified
7	DOE EML HASL-300, Tc-02-RC Modified

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Barium-133 Tracer	AN-1418 AlphaSpec Ra226, Liquid "As Received"	2557927	92.5	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2557928	66.8	(30%-110%)
Barium-133 Tracer	904.0Mod, Ra228, Liquid "As Received"	2563645	83	(30%-110%)
Strontium Carrier	905.0Mod, Sr90, liquid "As Received"	2558361	101	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2563182	98.3	(30%-110%)

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Report Date: April 25, 2024

Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW361UG2-24
Sample ID: 652552009

Project: FRNP00507
Client ID: FRNP005

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Surrogate/Tracer Recovery	**Test**							**Batch ID**		**Recovery%**	**Acceptable Limits**			

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
Lc/LC: Critical Level
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Mtd.: Method
PF: Prep Factor
RL: Reporting Limit
TPU: Total Propagated Uncertainty

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Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW362UG2-24
Sample ID: 652552011
Matrix: WG
Collect Date: 23-JAN-24
Receive Date: 24-JAN-24
Collector: Client

Project: FRNP00507
Client ID: FRNP005

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
AN-1418 AlphaSpec Ra226, Liquid "As Received"														
Radium-226	U	0.513	+/-0.508	0.579	+/-0.509	5.00	pCi/L			CM4	02/13/24	1000	2557927	1
Th-01-RC M, Th Isotopes, Liquid "As Received"														
Thorium-230	U	0.120	+/-0.786	1.61	+/-0.788	50.0	pCi/L			EJ1	02/09/24	0838	2557928	2
Thorium-232	U	-0.0683	+/-0.402	0.992	+/-0.403		pCi/L							
Rad Gas Flow Proportional Counting														
904.0Mod, Ra228, Liquid "As Received"														
Radium-228	U	1.12	+/-2.37	4.23	+/-2.38	4.99	pCi/L			JE1	02/15/24	1145	2563645	3
905.0Mod, Sr90, liquid "As Received"														
Strontium-90	U	-1.76	+/-1.80	3.94	+/-1.80	8.00	pCi/L			ST2	01/27/24	1401	2558361	4
9310, Alpha/Beta Activity, liquid "As Received"														
Alpha	U	0.134	+/-4.69	9.02	+/-4.70	15.0	pCi/L			KP1	01/30/24	1156	2558391	5
Beta	U	-22.3	+/-6.42	15.6	+/-6.42	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
906.0M, Tritium Dist, Liquid "As Received"														
Tritium	U	70.7	+/-120	211	+/-121	300	pCi/L			HB2	02/15/24	2348	2563303	6
Tc-02-RC-MOD, Tc99, Liquid "As Received"														
Technetium-99	U	7.92	+/-13.6	23.0	+/-13.6	25.0	pCi/L			GS3	02/13/24	0859	2563182	7

The following Analytical Methods were performed

Method	Description
1	Eichrom Industries, AN-1418
2	DOE EML HASL-300, Th-01-RC Modified
3	EPA 904.0/SW846 9320 Modified
4	EPA 905.0 Modified/DOE RP501 Rev. 1 Modified
5	EPA 900.0/SW846 9310
6	EPA 906.0 Modified
7	DOE EML HASL-300, Tc-02-RC Modified

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Barium-133 Tracer	AN-1418 AlphaSpec Ra226, Liquid "As Received"	2557927	95.5	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2557928	95.8	(30%-110%)
Barium-133 Tracer	904.0Mod, Ra228, Liquid "As Received"	2563645	88.3	(30%-110%)
Strontium Carrier	905.0Mod, Sr90, liquid "As Received"	2558361	96.1	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2563182	97	(30%-110%)

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Report Date: April 25, 2024

Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW362UG2-24
Sample ID: 652552011

Project: FRNP00507
Client ID: FRNP005

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Surrogate/Tracer Recovery	**Test**							**Batch ID**		**Recovery%**	**Acceptable Limits**			

Notes:
The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:
DF: Dilution Factor
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Lc/LC: Critical Level
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Mtd.: Method
PF: Prep Factor
RL: Reporting Limit
TPU: Total Propagated Uncertainty

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Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW363UG2-24
Sample ID: 652552013
Matrix: WG
Collect Date: 23-JAN-24
Receive Date: 24-JAN-24
Collector: Client

Project: FRNP00507
Client ID: FRNP005

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
AN-1418 AlphaSpec Ra226, Liquid "As Received"														
Radium-226	U	0.220	+/-0.430	0.692	+/-0.430	5.00	pCi/L			CM4	02/13/24	1000	2557927	1
Th-01-RC M, Th Isotopes, Liquid "As Received"														
Thorium-230	U	0.524	+/-0.969	1.63	+/-0.976	50.0	pCi/L			EJ1	02/09/24	0838	2557928	2
Thorium-232	U	0.128	+/-0.563	1.01	+/-0.564		pCi/L							
Rad Gas Flow Proportional Counting														
904.0Mod, Ra228, Liquid "As Received"														
Radium-228	U	2.36	+/-2.47	4.05	+/-2.54	4.99	pCi/L			JE1	02/15/24	1432	2563645	3
905.0Mod, Sr90, liquid "As Received"														
Strontium-90	U	0.630	+/-2.01	3.70	+/-2.01	8.00	pCi/L			ST2	01/27/24	1401	2558361	4
9310, Alpha/Beta Activity, liquid "As Received"														
Alpha	U	4.51	+/-4.44	6.71	+/-4.51	15.0	pCi/L			KP1	01/29/24	1653	2558391	5
Beta	U	3.70	+/-5.38	9.25	+/-5.41	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
906.0M, Tritium Dist, Liquid "As Received"														
Tritium	U	121	+/-131	217	+/-133	300	pCi/L			HB2	02/16/24	0009	2563303	6
Tc-02-RC-MOD, Tc99, Liquid "As Received"														
Technetium-99	U	6.56	+/-13.7	23.3	+/-13.8	25.0	pCi/L			GS3	02/13/24	0929	2563182	7

The following Analytical Methods were performed

Method	Description
1	Eichrom Industries, AN-1418
2	DOE EML HASL-300, Th-01-RC Modified
3	EPA 904.0/SW846 9320 Modified
4	EPA 905.0 Modified/DOE RP501 Rev. 1 Modified
5	EPA 900.0/SW846 9310
6	EPA 906.0 Modified
7	DOE EML HASL-300, Tc-02-RC Modified

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Barium-133 Tracer	AN-1418 AlphaSpec Ra226, Liquid "As Received"	2557927	90.4	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2557928	88.5	(30%-110%)
Barium-133 Tracer	904.0Mod, Ra228, Liquid "As Received"	2563645	86.2	(30%-110%)
Strontium Carrier	905.0Mod, Sr90, liquid "As Received"	2558361	82.1	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2563182	96.2	(30%-110%)

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Kevil, Kentucky 42053 Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW363UG2-24 Project: FRNP00507
Sample ID: 652552013 Client ID: FRNP005

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Surrogate/Tracer Recovery	**Test**							**Batch ID**		**Recovery%**	**Acceptable Limits**			

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
Lc/LC: Critical Level
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Mtd.: Method
PF: Prep Factor
RL: Reporting Limit
TPU: Total Propagated Uncertainty

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Company : Four Rivers Nuclear Partnership,
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5600 Hobbs Road

Kevil, Kentucky 42053

Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: FB1UG2-24
Sample ID: 652552015
Matrix: WATER
Collect Date: 23-JAN-24
Receive Date: 24-JAN-24
Collector: Client

Project: FRNP00507
Client ID: FRNP005

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
AN-1418 AlphaSpec Ra226, Liquid "As Received"														
Radium-226	U	0.350	+/-0.375	0.509	+/-0.376	5.00	pCi/L			CM4	02/10/24	1417	2557927	1
Th-01-RC M, Th Isotopes, Liquid "As Received"														
Thorium-230	U	1.58	+/-1.95	2.89	+/-1.98	50.0	pCi/L			EJ1	02/09/24	0838	2557928	2
Thorium-232	U	0.0742	+/-1.00	2.13	+/-1.00		pCi/L							
Rad Gas Flow Proportional Counting														
904.0Mod, Ra228, Liquid "As Received"														
Radium-228	U	-0.288	+/-2.45	4.67	+/-2.45	4.99	pCi/L			JE1	02/15/24	1145	2563645	3
905.0Mod, Sr90, liquid "As Received"														
Strontium-90	U	-1.71	+/-1.99	4.41	+/-1.99	8.00	pCi/L			ST2	01/27/24	1401	2558361	4
9310, Alpha/Beta Activity, liquid "As Received"														
Alpha	U	1.18	+/-2.78	5.52	+/-2.79	15.0	pCi/L			KP1	01/29/24	1725	2558391	5
Beta	U	5.99	+/-5.86	9.62	+/-5.95	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
906.0M, Tritium Dist, Liquid "As Received"														
Tritium	U	47.9	+/-119	217	+/-119	300	pCi/L			HB2	02/16/24	0031	2563303	6
Tc-02-RC-MOD, Tc99, Liquid "As Received"														
Technetium-99	U	-1.71	+/-13.2	22.6	+/-13.2	25.0	pCi/L			GS3	02/13/24	1000	2563182	7

The following Analytical Methods were performed

Method	Description
1	Eichrom Industries, AN-1418
2	DOE EML HASL-300, Th-01-RC Modified
3	EPA 904.0/SW846 9320 Modified
4	EPA 905.0 Modified/DOE RP501 Rev. 1 Modified
5	EPA 900.0/SW846 9310
6	EPA 906.0 Modified
7	DOE EML HASL-300, Tc-02-RC Modified

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Barium-133 Tracer	AN-1418 AlphaSpec Ra226, Liquid "As Received"	2557927	92.6	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2557928	52.6	(30%-110%)
Barium-133 Tracer	904.0Mod, Ra228, Liquid "As Received"	2563645	94.1	(30%-110%)
Strontium Carrier	905.0Mod, Sr90, liquid "As Received"	2558361	72.7	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2563182	98.9	(30%-110%)

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Company : Four Rivers Nuclear Partnership, LLC
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Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: FB1UG2-24
Sample ID: 652552015

Project: FRNP00507
Client ID: FRNP005

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Surrogate/Tracer Recovery	**Test**							**Batch ID**		**Recovery%**	**Acceptable Limits**			

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
Lc/LC: Critical Level
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Mtd.: Method
PF: Prep Factor
RL: Reporting Limit
TPU: Total Propagated Uncertainty

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Certificate of Analysis

Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road
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Report Date: April 25, 2024

Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: RI1UG2-24
Sample ID: 652552016
Matrix: WATER
Collect Date: 23-JAN-24
Receive Date: 24-JAN-24
Collector: Client

Project: FRNP00507
Client ID: FRNP005

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
AN-1418 AlphaSpec Ra226, Liquid "As Received"														
Radium-226	U	0.499	+/-0.743	0.951	+/-0.744	5.00	pCi/L			CM4	02/13/24	1423	2557927	1
Th-01-RC M, Th Isotopes, Liquid "As Received"														
Thorium-230	U	1.60	+/-2.00	2.73	+/-2.03	50.0	pCi/L			EJ1	02/10/24	0926	2557928	2
Thorium-232	U	-0.0712	+/-0.821	1.83	+/-0.824		pCi/L							
Rad Gas Flow Proportional Counting														
904.0Mod, Ra228, Liquid "As Received"														
Radium-228	U	0.683	+/-2.63	4.78	+/-2.63	4.99	pCi/L			JE1	02/15/24	1145	2563645	3
905.0Mod, Sr90, liquid "As Received"														
Strontium-90	U	2.33	+/-2.79	4.72	+/-2.82	8.00	pCi/L			ST2	01/27/24	1401	2558361	4
9310, Alpha/Beta Activity, liquid "As Received"														
Alpha	U	-0.970	+/-4.04	9.57	+/-4.04	15.0	pCi/L			KP1	01/30/24	1156	2558391	5
Beta	U	-4.44	+/-5.40	11.2	+/-5.41	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
906.0M, Tritium Dist, Liquid "As Received"														
Tritium		543	+/-185	218	+/-213	300	pCi/L			HB2	02/16/24	0053	2563303	6
Tc-02-RC-MOD, Tc99, Liquid "As Received"														
Technetium-99	U	-3.97	+/-13.8	23.8	+/-13.8	25.0	pCi/L			GS3	02/13/24	1031	2563182	7

The following Analytical Methods were performed

Method	Description
1	Eichrom Industries, AN-1418
2	DOE EML HASL-300, Th-01-RC Modified
3	EPA 904.0/SW846 9320 Modified
4	EPA 905.0 Modified/DOE RP501 Rev. 1 Modified
5	EPA 900.0/SW846 9310
6	EPA 906.0 Modified
7	DOE EML HASL-300, Tc-02-RC Modified

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Barium-133 Tracer	AN-1418 AlphaSpec Ra226, Liquid "As Received"	2557927	92.8	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2557928	87.5	(30%-110%)
Barium-133 Tracer	904.0Mod, Ra228, Liquid "As Received"	2563645	88	(30%-110%)
Strontium Carrier	905.0Mod, Sr90, liquid "As Received"	2558361	82.1	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2563182	93.9	(30%-110%)

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Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road

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Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: RI1UG2-24
Sample ID: 652552016

Project: FRNP00507
Client ID: FRNP005

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Surrogate/Tracer Recovery	**Test**							**Batch ID**		**Recovery%**	**Acceptable Limits**			

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
Lc/LC: Critical Level
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Mtd.: Method
PF: Prep Factor
RL: Reporting Limit
TPU: Total Propagated Uncertainty

ATTACHMENT C2

GEL LABORATORIES CERTIFICATE OF ANALYSIS

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Certificate of Analysis

Report Date: April 25, 2024

Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW364UG2-24
Sample ID: 652726001
Matrix: WG
Collect Date: 24-JAN-24 07:54
Receive Date: 25-JAN-24
Collector: Client

Project: FRNP00507
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
504.1/8011 Analysis of EDB/DBCP												
8011 VOA- 1,2-Dibromo-3-chloropropane "As Received"												
1,2-Dibromo-3-chloropropane	UY1	0.0187	0.00840	0.0187	ug/L	0.933	1	LL2	01/26/24	1522	2558742	1
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	0.497	0.330	2.00	mg/L		1	RM3	01/26/24	0000	2558749	3
Flow Injection Analysis												
9012B, Cyanide, Total "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	01/29/24	0805	2558930	4
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens	J	5.24	3.33	10.0	ug/L		1	RM3	01/26/24	1247	2559096	5
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	02/06/24	1651	2564209	6
SW846 9056A Anions (5 elements) "As Received"												
Chloride	JW	37.2	0.335	250	mg/L		5	CH6	01/25/24	2027	2558568	7
Nitrate-N	J	1.21	0.165	10.0	mg/L		5					
Sulfate		68.2	0.665	2.00	mg/L		5					
Bromide		0.572	0.0670	0.200	mg/L		1	CH6	01/25/24	1315	2558568	8
Fluoride	J	0.181	0.0330	4.00	mg/L		1					
Mercury Analysis-CVAA												
7470, Mercury Liquid "As Received"												
Mercury	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	JP2	01/31/24	1100	2560151	9
Metals Analysis-ICP-MS												
6020, Metals (15+ elements) "As Received"												
Aluminum	U	0.0500	0.0193	0.0500	mg/L	1.00	1	RM4	02/20/24	1919	2558648	10
Barium		0.0597	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Calcium		33.7	0.0800	0.200	mg/L	1.00	1					
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					
Cobalt	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Copper	J	0.00110	0.000300	0.00200	mg/L	1.00	1					
Iron	J	0.0589	0.0330	0.100	mg/L	1.00	1					

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Certificate of Analysis

Report Date: April 25, 2024

Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW364UG2-24 Project: FRNP00507
Sample ID: 652726001 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Metals (15+ elements) "As Received"												
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Magnesium		14.8	0.0100	0.0300	mg/L	1.00	1					
Manganese	J	0.00390	0.00100	0.00500	mg/L	1.00	1					
Molybdenum	U	0.00100	0.000200	0.00100	mg/L	1.00	1					
Potassium		1.98	0.0800	0.300	mg/L	1.00	1					
Selenium	U	0.00500	0.00150	0.00500	mg/L	1.00	1					
Silver	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Sodium		44.6	0.0800	0.250	mg/L	1.00	1					
Thallium	U	0.00200	0.000600	0.00200	mg/L	1.00	1					
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1					
Vanadium	U	0.0200	0.00330	0.0200	mg/L	1.00	1					
Zinc	J	0.0159	0.00330	0.0200	mg/L	1.00	1					
Nickel	U	0.00200	0.000600	0.00200	mg/L	1.00	1	RM4	02/21/24	0206	2558648	11
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	02/21/24	1525	2558648	12
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Antimony	U	0.00300	0.00100	0.00300	mg/L	1.00	1	RM4	02/21/24	1825	2558648	13
Arsenic	J	0.00263	0.00200	0.00500	mg/L	1.00	1	RM4	02/21/24	1044	2558648	14
Boron		0.174	0.00520	0.0150	mg/L	1.00	1					
Semi-Volatiles-PCB												
8082A, PCB Liquids "As Received"												
Aroclor-1016	U	0.100	0.0333	0.100	ug/L	0.00100	1	YS1	02/16/24	1148	2568588	15
Aroclor-1221	U	0.100	0.0333	0.100	ug/L	0.00100	1					
Aroclor-1232	U	0.100	0.0333	0.100	ug/L	0.00100	1					
Aroclor-1242	U	0.100	0.0333	0.100	ug/L	0.00100	1					
Aroclor-1248	U	0.100	0.0333	0.100	ug/L	0.00100	1					
Aroclor-1254	U	0.100	0.0333	0.100	ug/L	0.00100	1					
Aroclor-1260	U	0.100	0.0333	0.100	ug/L	0.00100	1					
Aroclor-1268	U	0.100	0.0333	0.100	ug/L	0.00100	1					
Aroclor-Total	U	0.100	0.0333	0.100	ug/L	0.00100	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		264	2.38	10.0	mg/L			KLP1	01/31/24	1040	2561127	16
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												

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Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW364UG2-24 Project: FRNP00507
Sample ID: 652726001 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD	U	20.0	8.95	20.0	mg/L		1	JW2	01/25/24	1519	2558570	17
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	JM6	01/26/24	1035	2558696	18
1,1,1-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
1,2,3-Trichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dibromoethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,4-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
2-Butanone	U	5.00	1.67	5.00	ug/L		1					
2-Hexanone	U	5.00	1.67	5.00	ug/L		1					
4-Methyl-2-pentanone	U	5.00	1.67	5.00	ug/L		1					
Acetone	U	5.00	1.74	5.00	ug/L		1					
Acrolein	U	5.00	1.67	5.00	ug/L		1					
Acrylonitrile	U	5.00	1.67	5.00	ug/L		1					
Benzene	U	1.00	0.333	1.00	ug/L		1					
Bromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromodichloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromoform	U	1.00	0.333	1.00	ug/L		1					
Bromomethane	U	1.00	0.337	1.00	ug/L		1					
Carbon disulfide	U	5.00	1.67	5.00	ug/L		1					
Carbon tetrachloride	U	1.00	0.333	1.00	ug/L		1					
Chlorobenzene	U	1.00	0.333	1.00	ug/L		1					
Chloroethane	U	1.00	0.333	1.00	ug/L		1					
Chloroform	U	1.00	0.333	1.00	ug/L		1					
Chloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromomethane	U	1.00	0.333	1.00	ug/L		1					
Ethylbenzene	U	1.00	0.333	1.00	ug/L		1					
Iodomethane	U	5.00	1.67	5.00	ug/L		1					

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Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW364UG2-24 Project: FRNP00507
Sample ID: 652726001 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
Methylene chloride	U	5.00	0.500	5.00	ug/L		1					
Styrene	U	1.00	0.333	1.00	ug/L		1					
Tetrachloroethylene	U	1.00	0.333	1.00	ug/L		1					
Toluene	U	1.00	0.333	1.00	ug/L		1					
Trichloroethylene	J	0.720	0.333	1.00	ug/L		1					
Trichlorofluoromethane	U	1.00	0.333	1.00	ug/L		1					
Vinyl acetate	U	5.00	1.67	5.00	ug/L		1					
Vinyl chloride	U	1.00	0.333	1.00	ug/L		1					
Xylenes (total)	U	3.00	1.00	3.00	ug/L		1					
cis-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
cis-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,4-Dichloro-2-butene	U	5.00	1.67	5.00	ug/L		1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 9010C Distillation	SW846 9010C Prep	ES2	01/26/24	0822	2558929
SW846 3535A	SW3535A PCB SPE Extraction	DXF4	02/16/24	0454	2568582
SW846 8011 PREP	8011 Prep	LL2	01/26/24	1343	2558740
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	01/30/24	1205	2560147
SW846 3005A	ICP-MS 3005A PREP	JD2	01/30/24	0645	2558647

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Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW364UG2-24 Project: FRNP00507
Sample ID: 652726001 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 8011	
2	SW846 8011	
3	SW846 9060A	
4	SW846 9012B	
5	SW846 9020B	
6	EPA 300.0	
7	SW846 9056A	
8	SW846 9056A	
9	SW846 7470A	
10	SW846 3005A/6020B	
11	SW846 3005A/6020B	
12	SW846 3005A/6020B	
13	SW846 3005A/6020B	
14	SW846 3005A/6020B	
15	SW846 3535A/8082A	
16	EPA 160.1	
17	EPA 410.4	
18	SW846 8260D	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011 VOA- 1,2-Dibromo-3-chloropropane "As Received"	6.75 ug/L	6.67	101	(56%-149%)
Decachlorobiphenyl	8082A, PCB Liquids "As Received"	0.144 ug/L	0.200	72	(30%-135%)
4cmx	8082A, PCB Liquids "As Received"	0.136 ug/L	0.200	68	(26%-108%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	52.9 ug/L	50.0	106	(74%-123%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	47.6 ug/L	50.0	95	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	44.8 ug/L	50.0	90	(77%-121%)

Notes:

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Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-U Landfill Quarterly(UG24-02)

Client Sample ID:	MW364UG2-24	Project:	FRNP00507
Sample ID:	652726001	Client ID:	FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID:	MW364UG2-24	Project:	FRNP00507
Sample ID:	652726002	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	24-JAN-24 07:54		
Receive Date:	25-JAN-24		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Dissolved Metals (3 Elements) "As Received"												
Barium		0.0560	0.000670	0.00400	mg/L	1.00	1	RM4	02/20/24	1938	2558648	1
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-MS 3005A PREP	JD2	01/30/24	0645	2558647
EPA 160	Laboratory Filtration	RXB5	01/25/24	1244	2558567

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3005A/6020B	

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW366UG2-24
Sample ID: 652726003
Matrix: WG
Collect Date: 24-JAN-24 09:03
Receive Date: 25-JAN-24
Collector: Client

Project: FRNP00507
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
504.1/8011 Analysis of EDB/DBCP												
8011 VOA- 1,2-Dibromo-3-chloropropane "As Received"												
1,2-Dibromo-3-chloropropane	UY1	0.0190	0.00854	0.0190	ug/L	0.949	1	LL2	01/26/24	1636	2558742	1
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	0.620	0.330	2.00	mg/L		1	RM3	01/26/24	0138	2558749	3
Flow Injection Analysis												
9012B, Cyanide, Total "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	01/29/24	0808	2558930	4
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens	J	3.68	3.33	10.0	ug/L		1	RM3	01/26/24	1711	2559096	5
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	02/06/24	1730	2564209	6
SW846 9056A Anions (5 elements) "As Received"												
Nitrate-N	J	1.02	0.165	10.0	mg/L		5	CH6	01/25/24	2231	2558568	7
Sulfate		49.1	0.665	2.00	mg/L		5					
Chloride	JW	38.9	0.670	250	mg/L		10	CH6	01/25/24	2200	2558568	8
Bromide		0.571	0.0670	0.200	mg/L		1	CH6	01/25/24	1448	2558568	9
Fluoride	J	0.204	0.0330	4.00	mg/L		1					
Mercury Analysis-CVAA												
7470, Mercury Liquid "As Received"												
Mercury	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	JP2	01/31/24	1112	2560151	10
Metals Analysis-ICP-MS												
6020, Metals (15+ elements) "As Received"												
Antimony	U	0.00300	0.00100	0.00300	mg/L	1.00	1	RM4	02/21/24	1849	2558648	11
Arsenic	J	0.00316	0.00200	0.00500	mg/L	1.00	1	RM4	02/21/24	1116	2558648	12
Boron		0.0871	0.00520	0.0150	mg/L	1.00	1					
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	02/21/24	1539	2558648	13
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Nickel	J	0.000991	0.000600	0.00200	mg/L	1.00	1	RM4	02/21/24	0251	2558648	14
Aluminum	U	0.0500	0.0193	0.0500	mg/L	1.00	1	RM4	02/20/24	2005	2558648	15
Barium		0.108	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					

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Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW366UG2-24 Project: FRNP00507
Sample ID: 652726003 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Metals (15+ elements) "As Received"												
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Calcium		33.2	0.0800	0.200	mg/L	1.00	1					
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					
Cobalt	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Copper	J	0.000966	0.000300	0.00200	mg/L	1.00	1					
Iron		0.121	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Magnesium		14.5	0.0100	0.0300	mg/L	1.00	1					
Manganese		0.0165	0.00100	0.00500	mg/L	1.00	1					
Molybdenum	U	0.00100	0.000200	0.00100	mg/L	1.00	1					
Potassium		1.93	0.0800	0.300	mg/L	1.00	1					
Selenium	J	0.00221	0.00150	0.00500	mg/L	1.00	1					
Silver	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Sodium		47.8	0.0800	0.250	mg/L	1.00	1					
Thallium	U	0.00200	0.000600	0.00200	mg/L	1.00	1					
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1					
Vanadium	U	0.0200	0.00330	0.0200	mg/L	1.00	1					
Zinc	U	0.0200	0.00330	0.0200	mg/L	1.00	1					
Semi-Volatiles-PCB												
8082A, PCB Liquids "As Received"												
Aroclor-1016	U	0.113	0.0377	0.113	ug/L	0.00113	1	YS1	02/16/24	1221	2568588	16
Aroclor-1221	U	0.113	0.0377	0.113	ug/L	0.00113	1					
Aroclor-1232	U	0.113	0.0377	0.113	ug/L	0.00113	1					
Aroclor-1242	U	0.113	0.0377	0.113	ug/L	0.00113	1					
Aroclor-1248	U	0.113	0.0377	0.113	ug/L	0.00113	1					
Aroclor-1254	U	0.113	0.0377	0.113	ug/L	0.00113	1					
Aroclor-1260	U	0.113	0.0377	0.113	ug/L	0.00113	1					
Aroclor-1268	U	0.113	0.0377	0.113	ug/L	0.00113	1					
Aroclor-Total	U	0.113	0.0377	0.113	ug/L	0.00113	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		278	2.38	10.0	mg/L			KLP1	01/31/24	1040	2561127	17
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												

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Certificate of Analysis

Report Date: April 25, 2024

Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW366UG2-24 Project: FRNP00507
Sample ID: 652726003 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD	U	20.0	8.95	20.0	mg/L		1	JW2	01/25/24	1519	2558570	18
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	JM6	01/26/24	1103	2558696	19
1,1,1-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
1,2,3-Trichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dibromoethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,4-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
2-Butanone	U	5.00	1.67	5.00	ug/L		1					
2-Hexanone	U	5.00	1.67	5.00	ug/L		1					
4-Methyl-2-pentanone	U	5.00	1.67	5.00	ug/L		1					
Acetone	U	5.00	1.74	5.00	ug/L		1					
Acrolein	U	5.00	1.67	5.00	ug/L		1					
Acrylonitrile	U	5.00	1.67	5.00	ug/L		1					
Benzene	U	1.00	0.333	1.00	ug/L		1					
Bromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromodichloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromoform	U	1.00	0.333	1.00	ug/L		1					
Bromomethane	U	1.00	0.337	1.00	ug/L		1					
Carbon disulfide	U	5.00	1.67	5.00	ug/L		1					
Carbon tetrachloride	U	1.00	0.333	1.00	ug/L		1					
Chlorobenzene	U	1.00	0.333	1.00	ug/L		1					
Chloroethane	U	1.00	0.333	1.00	ug/L		1					
Chloroform	U	1.00	0.333	1.00	ug/L		1					
Chloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromomethane	U	1.00	0.333	1.00	ug/L		1					
Ethylbenzene	U	1.00	0.333	1.00	ug/L		1					
Iodomethane	U	5.00	1.67	5.00	ug/L		1					

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Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW366UG2-24 Project: FRNP00507
Sample ID: 652726003 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
Methylene chloride	U	5.00	0.500	5.00	ug/L		1					
Styrene	U	1.00	0.333	1.00	ug/L		1					
Tetrachloroethylene	U	1.00	0.333	1.00	ug/L		1					
Toluene	U	1.00	0.333	1.00	ug/L		1					
Trichloroethylene		1.30	0.333	1.00	ug/L		1					
Trichlorofluoromethane	U	1.00	0.333	1.00	ug/L		1					
Vinyl acetate	U	5.00	1.67	5.00	ug/L		1					
Vinyl chloride	U	1.00	0.333	1.00	ug/L		1					
Xylenes (total)	U	3.00	1.00	3.00	ug/L		1					
cis-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
cis-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,4-Dichloro-2-butene	U	5.00	1.67	5.00	ug/L		1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	01/30/24	1205	2560147
SW846 3535A	SW3535A PCB SPE Extraction	DXF4	02/16/24	0454	2568582
SW846 3005A	ICP-MS 3005A PREP	JD2	01/30/24	0645	2558647
SW846 9010C Distillation	SW846 9010C Prep	ES2	01/26/24	0822	2558929
SW846 8011 PREP	8011 Prep	LL2	01/26/24	1343	2558740

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Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW366UG2-24 Project: FRNP00507
Sample ID: 652726003 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 8011	
2	SW846 8011	
3	SW846 9060A	
4	SW846 9012B	
5	SW846 9020B	
6	EPA 300.0	
7	SW846 9056A	
8	SW846 9056A	
9	SW846 9056A	
10	SW846 7470A	
11	SW846 3005A/6020B	
12	SW846 3005A/6020B	
13	SW846 3005A/6020B	
14	SW846 3005A/6020B	
15	SW846 3005A/6020B	
16	SW846 3535A/8082A	
17	EPA 160.1	
18	EPA 410.4	
19	SW846 8260D	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011 VOA- 1,2-Dibromo-3-chloropropane "As Received"	7.24 ug/L	6.78	107	(56%-149%)
Decachlorobiphenyl	8082A, PCB Liquids "As Received"	0.127 ug/L	0.227	56	(30%-135%)
4cmx	8082A, PCB Liquids "As Received"	0.134 ug/L	0.227	59	(26%-108%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	54.0 ug/L	50.0	108	(74%-123%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	46.9 ug/L	50.0	94	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	44.6 ug/L	50.0	89	(77%-121%)

Notes:

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Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-U Landfill Quarterly(UG24-02)

Client Sample ID:	MW366UG2-24	Project:	FRNP00507
Sample ID:	652726003	Client ID:	FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID:	MW366UG2-24	Project:	FRNP00507
Sample ID:	652726004	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	24-JAN-24 09:03		
Receive Date:	25-JAN-24		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Dissolved Metals (3 Elements) "As Received"												
Barium		0.103	0.000670	0.00400	mg/L	1.00	1	RM4	02/20/24	2009	2558648	1
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-MS 3005A PREP	JD2	01/30/24	0645	2558647
EPA 160	Laboratory Filtration	RXB5	01/25/24	1244	2558567

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3005A/6020B	

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Report Date: April 25, 2024

Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW367UG2-24
Sample ID: 652726005
Matrix: WG
Collect Date: 24-JAN-24 09:53
Receive Date: 25-JAN-24
Collector: Client

Project: FRNP00507
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
504.1/8011 Analysis of EDB/DBCP												
8011 VOA- 1,2-Dibromo-3-chloropropane "As Received"												
1,2-Dibromo-3-chloropropane	UY1	0.0188	0.00847	0.0188	ug/L	0.941	1	LL2	01/26/24	1700	2558742	2
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	U	2.00	0.330	2.00	mg/L		1	RM3	01/26/24	0211	2558749	3
Flow Injection Analysis												
9012B, Cyanide, Total "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	01/29/24	0809	2558930	4
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens	U	10.0	3.33	10.0	ug/L		1	RM3	01/26/24	1734	2559096	5
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	02/06/24	1743	2564209	6
SW846 9056A Anions (5 elements) "As Received"												
Bromide	U	0.200	0.0670	0.200	mg/L		1	CH6	01/25/24	1519	2558568	7
Chloride	JW	6.65	0.0670	250	mg/L		1					
Fluoride	J	0.121	0.0330	4.00	mg/L		1					
Nitrate-N	U	10.0	0.0330	10.0	mg/L		1					
Sulfate		19.5	0.665	2.00	mg/L		5	CH6	01/25/24	2302	2558568	8
Mercury Analysis-CVAA												
7470, Mercury Liquid "As Received"												
Mercury	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	JP2	01/31/24	1113	2560151	9
Metals Analysis-ICP-MS												
6020, Metals (15+ elements) "As Received"												
Arsenic	J	0.00422	0.00200	0.00500	mg/L	1.00	1	RM4	02/21/24	1119	2558648	10
Boron		0.0232	0.00520	0.0150	mg/L	1.00	1					
Manganese		1.38	0.0100	0.0500	mg/L	1.00	10	RM4	02/21/24	1132	2558648	11
Aluminum	U	0.0500	0.0193	0.0500	mg/L	1.00	1	RM4	02/20/24	2012	2558648	12
Barium		0.129	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Calcium		13.1	0.0800	0.200	mg/L	1.00	1					
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					

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Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW367UG2-24 Project: FRNP00507
Sample ID: 652726005 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Metals (15+ elements) "As Received"												
Cobalt		0.00668	0.000300	0.00100	mg/L	1.00	1					
Copper	J	0.000775	0.000300	0.00200	mg/L	1.00	1					
Iron		7.08	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Magnesium		7.44	0.0100	0.0300	mg/L	1.00	1					
Molybdenum	U	0.00100	0.000200	0.00100	mg/L	1.00	1					
Potassium		2.70	0.0800	0.300	mg/L	1.00	1					
Selenium	U	0.00500	0.00150	0.00500	mg/L	1.00	1					
Silver	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Sodium		15.7	0.0800	0.250	mg/L	1.00	1					
Thallium	U	0.00200	0.000600	0.00200	mg/L	1.00	1					
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1					
Vanadium	U	0.0200	0.00330	0.0200	mg/L	1.00	1					
Zinc	J	0.0109	0.00330	0.0200	mg/L	1.00	1					
Nickel		0.00244	0.000600	0.00200	mg/L	1.00	1	RM4	02/21/24	0259	2558648	13
Antimony	U	0.00300	0.00100	0.00300	mg/L	1.00	1	RM4	02/21/24	1854	2558648	14
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	02/21/24	1541	2558648	15
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Semi-Volatiles-PCB												
8082A, PCB Liquids "As Received"												
Aroclor-1016	U	0.107	0.0358	0.107	ug/L	0.00107	1	YS1	02/16/24	1232	2568588	16
Aroclor-1221	U	0.107	0.0358	0.107	ug/L	0.00107	1					
Aroclor-1232	U	0.107	0.0358	0.107	ug/L	0.00107	1					
Aroclor-1242	U	0.107	0.0358	0.107	ug/L	0.00107	1					
Aroclor-1248	U	0.107	0.0358	0.107	ug/L	0.00107	1					
Aroclor-1254	U	0.107	0.0358	0.107	ug/L	0.00107	1					
Aroclor-1260	U	0.107	0.0358	0.107	ug/L	0.00107	1					
Aroclor-1268	U	0.107	0.0358	0.107	ug/L	0.00107	1					
Aroclor-Total	U	0.107	0.0358	0.107	ug/L	0.00107	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		122	2.38	10.0	mg/L			KLP1	01/31/24	1040	2561127	17
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												

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Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW367UG2-24 Project: FRNP00507
Sample ID: 652726005 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD	U	20.0	8.95	20.0	mg/L		1	JW2	01/25/24	1519	2558570	18
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	JM6	01/26/24	1130	2558696	19
1,1,1-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
1,2,3-Trichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dibromoethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,4-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
2-Butanone	U	5.00	1.67	5.00	ug/L		1					
2-Hexanone	U	5.00	1.67	5.00	ug/L		1					
4-Methyl-2-pentanone	U	5.00	1.67	5.00	ug/L		1					
Acetone	U	5.00	1.74	5.00	ug/L		1					
Acrolein	U	5.00	1.67	5.00	ug/L		1					
Acrylonitrile	U	5.00	1.67	5.00	ug/L		1					
Benzene	U	1.00	0.333	1.00	ug/L		1					
Bromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromodichloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromoform	U	1.00	0.333	1.00	ug/L		1					
Bromomethane	U	1.00	0.337	1.00	ug/L		1					
Carbon disulfide	U	5.00	1.67	5.00	ug/L		1					
Carbon tetrachloride	U	1.00	0.333	1.00	ug/L		1					
Chlorobenzene	U	1.00	0.333	1.00	ug/L		1					
Chloroethane	U	1.00	0.333	1.00	ug/L		1					
Chloroform	U	1.00	0.333	1.00	ug/L		1					
Chloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromomethane	U	1.00	0.333	1.00	ug/L		1					
Ethylbenzene	U	1.00	0.333	1.00	ug/L		1					
Iodomethane	U	5.00	1.67	5.00	ug/L		1					

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Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW367UG2-24 Project: FRNP00507
Sample ID: 652726005 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
Methylene chloride	U	5.00	0.500	5.00	ug/L		1					
Styrene	U	1.00	0.333	1.00	ug/L		1					
Tetrachloroethylene	U	1.00	0.333	1.00	ug/L		1					
Toluene	U	1.00	0.333	1.00	ug/L		1					
Trichloroethylene	U	1.00	0.333	1.00	ug/L		1					
Trichlorofluoromethane	U	1.00	0.333	1.00	ug/L		1					
Vinyl acetate	U	5.00	1.67	5.00	ug/L		1					
Vinyl chloride	U	1.00	0.333	1.00	ug/L		1					
Xylenes (total)	U	3.00	1.00	3.00	ug/L		1					
cis-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
cis-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,4-Dichloro-2-butene	U	5.00	1.67	5.00	ug/L		1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 8011 PREP	8011 Prep	LL2	01/26/24	1343	2558740
SW846 3535A	SW3535A PCB SPE Extraction	DXF4	02/16/24	0454	2568582
SW846 9010C Distillation	SW846 9010C Prep	ES2	01/26/24	0822	2558929
SW846 3005A	ICP-MS 3005A PREP	JD2	01/30/24	0645	2558647
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	01/30/24	1205	2560147

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Certificate of Analysis

Report Date: April 25, 2024

Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW367UG2-24 Project: FRNP00507
Sample ID: 652726005 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 8011	
2	SW846 8011	
3	SW846 9060A	
4	SW846 9012B	
5	SW846 9020B	
6	EPA 300.0	
7	SW846 9056A	
8	SW846 9056A	
9	SW846 7470A	
10	SW846 3005A/6020B	
11	SW846 3005A/6020B	
12	SW846 3005A/6020B	
13	SW846 3005A/6020B	
14	SW846 3005A/6020B	
15	SW846 3005A/6020B	
16	SW846 3535A/8082A	
17	EPA 160.1	
18	EPA 410.4	
19	SW846 8260D	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011 VOA- 1,2-Dibromo-3-chloropropane "As Received"	6.51 ug/L	6.72	97	(56%-149%)
Decachlorobiphenyl	8082A, PCB Liquids "As Received"	0.169 ug/L	0.215	79	(30%-135%)
4cmx	8082A, PCB Liquids "As Received"	0.144 ug/L	0.215	67	(26%-108%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	51.6 ug/L	50.0	103	(74%-123%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	48.1 ug/L	50.0	96	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	44.5 ug/L	50.0	89	(77%-121%)

Notes:

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Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-U Landfill Quarterly(UG24-02)

Client Sample ID:	MW367UG2-24	Project:	FRNP00507
Sample ID:	652726005	Client ID:	FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW367UG2-24
Sample ID: 652726006
Matrix: WG
Collect Date: 24-JAN-24 09:53
Receive Date: 25-JAN-24
Collector: Client

Project: FRNP00507
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Dissolved Metals (3 Elements) "As Received"												
Barium		0.121	0.000670	0.00400	mg/L	1.00	1	RM4	02/20/24	2016	2558648	1
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 160	Laboratory Filtration	RXB5	01/25/24	1244	2558567
SW846 3005A	ICP-MS 3005A PREP	JD2	01/30/24	0645	2558647

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3005A/6020B	

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Report Date: April 25, 2024

Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW369UG2-24
Sample ID: 652726007
Matrix: WG
Collect Date: 24-JAN-24 11:26
Receive Date: 25-JAN-24
Collector: Client

Project: FRNP00507
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
504.1/8011 Analysis of EDB/DBCP												
8011 VOA- 1,2-Dibromo-3-chloropropane "As Received"												
1,2-Dibromo-3-chloropropane	USY1	0.0188	0.00846	0.0188	ug/L	0.940	1	LL2	01/26/24	1725	2558742	1
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	0.769	0.330	2.00	mg/L		1	RM3	01/26/24	0243	2558749	3
Flow Injection Analysis												
9012B, Cyanide, Total "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	01/29/24	0810	2558930	4
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens		21.0	3.33	10.0	ug/L		1	RM3	01/26/24	1813	2559096	5
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	02/06/24	1756	2564209	6
SW846 9056A Anions (5 elements) "As Received"												
Bromide		0.362	0.0670	0.200	mg/L		1	CH6	01/25/24	1550	2558568	7
Fluoride	J	0.270	0.0330	4.00	mg/L		1					
Sulfate		8.49	0.133	0.400	mg/L		1					
Chloride	JW	27.7	0.335	250	mg/L		5	CH6	01/26/24	1058	2558568	8
Nitrate-N	J	1.06	0.165	10.0	mg/L		5					
Mercury Analysis-CVAA												
7470, Mercury Liquid "As Received"												
Mercury	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	JP2	01/31/24	1115	2560151	9
Metals Analysis-ICP-MS												
6020, Metals (15+ elements) "As Received"												
Arsenic	J	0.00304	0.00200	0.00500	mg/L	1.00	1	RM4	02/21/24	1121	2558648	10
Boron		0.0239	0.00520	0.0150	mg/L	1.00	1					
Sodium		51.2	0.800	2.50	mg/L	1.00	10	RM4	02/21/24	1135	2558648	11
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	02/21/24	1543	2558648	12
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Aluminum		0.0573	0.0193	0.0500	mg/L	1.00	1	RM4	02/20/24	2020	2558648	13
Barium		0.375	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1					

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Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW369UG2-24 Project: FRNP00507
Sample ID: 652726007 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Metals (15+ elements) "As Received"												
Calcium		16.4	0.0800	0.200	mg/L	1.00	1					
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					
Cobalt		0.00483	0.000300	0.00100	mg/L	1.00	1					
Copper	J	0.00170	0.000300	0.00200	mg/L	1.00	1					
Iron		0.107	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Magnesium		7.13	0.0100	0.0300	mg/L	1.00	1					
Manganese		0.00580	0.00100	0.00500	mg/L	1.00	1					
Molybdenum	U	0.00100	0.000200	0.00100	mg/L	1.00	1					
Potassium		0.564	0.0800	0.300	mg/L	1.00	1					
Selenium	J	0.00276	0.00150	0.00500	mg/L	1.00	1					
Silver	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Thallium	U	0.00200	0.000600	0.00200	mg/L	1.00	1					
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1					
Vanadium	U	0.0200	0.00330	0.0200	mg/L	1.00	1					
Zinc	U	0.0200	0.00330	0.0200	mg/L	1.00	1					
Antimony	U	0.00300	0.00100	0.00300	mg/L	1.00	1	RM4	02/21/24	1858	2558648	14
Nickel		0.00294	0.000600	0.00200	mg/L	1.00	1	RM4	02/21/24	0306	2558648	15
Semi-Volatiles-PCB												
8082A, PCB Liquids "As Received"												
Aroclor-1016	U	0.112	0.0372	0.112	ug/L	0.00112	1	YS1	02/16/24	1242	2568588	16
Aroclor-1221	U	0.112	0.0372	0.112	ug/L	0.00112	1					
Aroclor-1232	U	0.112	0.0372	0.112	ug/L	0.00112	1					
Aroclor-1242	U	0.112	0.0372	0.112	ug/L	0.00112	1					
Aroclor-1248	U	0.112	0.0372	0.112	ug/L	0.00112	1					
Aroclor-1254	U	0.112	0.0372	0.112	ug/L	0.00112	1					
Aroclor-1260	U	0.112	0.0372	0.112	ug/L	0.00112	1					
Aroclor-1268	U	0.112	0.0372	0.112	ug/L	0.00112	1					
Aroclor-Total	U	0.112	0.0372	0.112	ug/L	0.00112	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		189	2.38	10.0	mg/L			KLP1	01/31/24	1040	2561127	17
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												

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Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW369UG2-24 Project: FRNP00507
Sample ID: 652726007 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD	U	20.0	8.95	20.0	mg/L		1	JW2	01/25/24	1519	2558570	18
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	JM6	01/26/24	1158	2558696	19
1,1,1-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
1,2,3-Trichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dibromoethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,4-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
2-Butanone	U	5.00	1.67	5.00	ug/L		1					
2-Hexanone	U	5.00	1.67	5.00	ug/L		1					
4-Methyl-2-pentanone	U	5.00	1.67	5.00	ug/L		1					
Acetone	U	5.00	1.74	5.00	ug/L		1					
Acrolein	U	5.00	1.67	5.00	ug/L		1					
Acrylonitrile	U	5.00	1.67	5.00	ug/L		1					
Benzene	U	1.00	0.333	1.00	ug/L		1					
Bromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromodichloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromoform	U	1.00	0.333	1.00	ug/L		1					
Bromomethane	U	1.00	0.337	1.00	ug/L		1					
Carbon disulfide	U	5.00	1.67	5.00	ug/L		1					
Carbon tetrachloride	U	1.00	0.333	1.00	ug/L		1					
Chlorobenzene	U	1.00	0.333	1.00	ug/L		1					
Chloroethane	U	1.00	0.333	1.00	ug/L		1					
Chloroform	U	1.00	0.333	1.00	ug/L		1					
Chloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromomethane	U	1.00	0.333	1.00	ug/L		1					
Ethylbenzene	U	1.00	0.333	1.00	ug/L		1					
Iodomethane	U	5.00	1.67	5.00	ug/L		1					

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Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW369UG2-24 Project: FRNP00507
Sample ID: 652726007 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
Methylene chloride	U	5.00	0.500	5.00	ug/L		1					
Styrene	U	1.00	0.333	1.00	ug/L		1					
Tetrachloroethylene	U	1.00	0.333	1.00	ug/L		1					
Toluene	U	1.00	0.333	1.00	ug/L		1					
Trichloroethylene	J	0.900	0.333	1.00	ug/L		1					
Trichlorofluoromethane	U	1.00	0.333	1.00	ug/L		1					
Vinyl acetate	U	5.00	1.67	5.00	ug/L		1					
Vinyl chloride	U	1.00	0.333	1.00	ug/L		1					
Xylenes (total)	U	3.00	1.00	3.00	ug/L		1					
cis-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
cis-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,4-Dichloro-2-butene	U	5.00	1.67	5.00	ug/L		1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-MS 3005A PREP	JD2	01/30/24	0645	2558647
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	01/30/24	1205	2560147
SW846 9010C Distillation	SW846 9010C Prep	ES2	01/26/24	0822	2558929
SW846 3535A	SW3535A PCB SPE Extraction	DXF4	02/16/24	0454	2568582
SW846 8011 PREP	8011 Prep	LL2	01/26/24	1343	2558740

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Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW369UG2-24 Project: FRNP00507
Sample ID: 652726007 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 8011	
2	SW846 8011	
3	SW846 9060A	
4	SW846 9012B	
5	SW846 9020B	
6	EPA 300.0	
7	SW846 9056A	
8	SW846 9056A	
9	SW846 7470A	
10	SW846 3005A/6020B	
11	SW846 3005A/6020B	
12	SW846 3005A/6020B	
13	SW846 3005A/6020B	
14	SW846 3005A/6020B	
15	SW846 3005A/6020B	
16	SW846 3535A/8082A	
17	EPA 160.1	
18	EPA 410.4	
19	SW846 8260D	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011 VOA- 1,2-Dibromo-3-chloropropane "As Received"	9.35 ug/L	6.71	139	(56%-149%)
Decachlorobiphenyl	8082A, PCB Liquids "As Received"	0.127 ug/L	0.223	57	(30%-135%)
4cmx	8082A, PCB Liquids "As Received"	0.143 ug/L	0.223	64	(26%-108%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	50.7 ug/L	50.0	101	(74%-123%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	46.4 ug/L	50.0	93	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	44.6 ug/L	50.0	89	(77%-121%)

Notes:

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Address :	5600 Hobbs Road
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Contact:	Ms. Jaime Morrow
Project:	C-746-U Landfill Quarterly(UG24-02)

Client Sample ID:	MW369UG2-24	Project:	FRNP00507
Sample ID:	652726007	Client ID:	FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-U Landfill Quarterly(UG24-02)

Client Sample ID:	MW369UG2-24	Project:	FRNP00507
Sample ID:	652726008	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	24-JAN-24 11:26		
Receive Date:	25-JAN-24		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Dissolved Metals (3 Elements) "As Received"												
Barium		0.370	0.000670	0.00400	mg/L	1.00	1	RM4	02/20/24	2024	2558648	1
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-MS 3005A PREP	JD2	01/30/24	0645	2558647
EPA 160	Laboratory Filtration	RXB5	01/25/24	1244	2558567

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3005A/6020B	

Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW370UG2-24
Sample ID: 652726009
Matrix: WG
Collect Date: 24-JAN-24 12:42
Receive Date: 25-JAN-24
Collector: Client

Project: FRNP00507
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
504.1/8011 Analysis of EDB/DBCP												
8011 VOA- 1,2-Dibromo-3-chloropropane "As Received"												
1,2-Dibromo-3-chloropropane	USY1	0.0185	0.00834	0.0185	ug/L	0.927	1	LL2	01/26/24	1750	2558742	2
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	0.805	0.330	2.00	mg/L		1	RM3	01/26/24	0336	2558749	3
Flow Injection Analysis												
9012B, Cyanide, Total "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	01/29/24	0811	2558930	4
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens		14.4	3.33	10.0	ug/L		1	RM3	01/30/24	1408	2560465	5
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	02/06/24	1808	2564209	6
SW846 9056A Anions (5 elements) "As Received"												
Bromide		0.598	0.0670	0.200	mg/L		1	CH6	01/25/24	1620	2558568	7
Fluoride	J	0.194	0.0330	4.00	mg/L		1					
Chloride	JW	40.1	0.670	250	mg/L		10	CH6	01/26/24	0034	2558568	8
Nitrate-N	J	1.32	0.330	10.0	mg/L		10					
Sulfate		19.3	1.33	4.00	mg/L		10					
Mercury Analysis-CVAA												
7470, Mercury Liquid "As Received"												
Mercury	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	JP2	01/31/24	1117	2560151	9
Metals Analysis-ICP-MS												
6020, Metals (15+ elements) "As Received"												
Arsenic	J	0.00308	0.00200	0.00500	mg/L	1.00	1	RM4	02/21/24	1124	2558648	10
Boron		0.127	0.00520	0.0150	mg/L	1.00	1					
Aluminum	U	0.0500	0.0193	0.0500	mg/L	1.00	1	RM4	02/20/24	2027	2558648	11
Barium		0.239	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Calcium		30.0	0.0800	0.200	mg/L	1.00	1					
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					
Cobalt	U	0.00100	0.000300	0.00100	mg/L	1.00	1					

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Certificate of Analysis

Report Date: April 25, 2024

Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW370UG2-24 Project: FRNP00507
Sample ID: 652726009 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Metals (15+ elements) "As Received"												
Copper	J	0.00181	0.000300	0.00200	mg/L	1.00	1					
Iron	J	0.0376	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Magnesium		13.5	0.0100	0.0300	mg/L	1.00	1					
Manganese	J	0.00168	0.00100	0.00500	mg/L	1.00	1					
Molybdenum	U	0.00100	0.000200	0.00100	mg/L	1.00	1					
Potassium		2.55	0.0800	0.300	mg/L	1.00	1					
Selenium	U	0.00500	0.00150	0.00500	mg/L	1.00	1					
Silver	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Sodium		47.2	0.0800	0.250	mg/L	1.00	1					
Thallium	U	0.00200	0.000600	0.00200	mg/L	1.00	1					
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1					
Vanadium	U	0.0200	0.00330	0.0200	mg/L	1.00	1					
Zinc	J	0.00333	0.00330	0.0200	mg/L	1.00	1					
Nickel	U	0.00200	0.000600	0.00200	mg/L	1.00	1	RM4	02/21/24	0314	2558648	12
Antimony	U	0.00300	0.00100	0.00300	mg/L	1.00	1	RM4	02/21/24	1906	2558648	13
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	02/21/24	1545	2558648	14
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Semi-Volatiles-PCB												
8082A, PCB Liquids "As Received"												
Aroclor-1016	U	0.107	0.0357	0.107	ug/L	0.00107	1	YS1	02/16/24	1253	2568588	15
Aroclor-1221	U	0.107	0.0357	0.107	ug/L	0.00107	1					
Aroclor-1232	U	0.107	0.0357	0.107	ug/L	0.00107	1					
Aroclor-1242	U	0.107	0.0357	0.107	ug/L	0.00107	1					
Aroclor-1248	U	0.107	0.0357	0.107	ug/L	0.00107	1					
Aroclor-1254	U	0.107	0.0357	0.107	ug/L	0.00107	1					
Aroclor-1260	U	0.107	0.0357	0.107	ug/L	0.00107	1					
Aroclor-1268	U	0.107	0.0357	0.107	ug/L	0.00107	1					
Aroclor-Total	U	0.107	0.0357	0.107	ug/L	0.00107	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		235	2.38	10.0	mg/L			KLP1	01/31/24	1040	2561127	16
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												

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Address : 5600 Hobbs Road

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW370UG2-24 Project: FRNP00507
Sample ID: 652726009 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD	U	20.0	8.95	20.0	mg/L		1	JW2	01/25/24	1519	2558570	17
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	JM6	01/26/24	1226	2558696	18
1,1,1-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
1,2,3-Trichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dibromoethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,4-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
2-Butanone	U	5.00	1.67	5.00	ug/L		1					
2-Hexanone	U	5.00	1.67	5.00	ug/L		1					
4-Methyl-2-pentanone	U	5.00	1.67	5.00	ug/L		1					
Acetone	U	5.00	1.74	5.00	ug/L		1					
Acrolein	U	5.00	1.67	5.00	ug/L		1					
Acrylonitrile	U	5.00	1.67	5.00	ug/L		1					
Benzene	U	1.00	0.333	1.00	ug/L		1					
Bromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromodichloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromoform	U	1.00	0.333	1.00	ug/L		1					
Bromomethane	U	1.00	0.337	1.00	ug/L		1					
Carbon disulfide	U	5.00	1.67	5.00	ug/L		1					
Carbon tetrachloride	U	1.00	0.333	1.00	ug/L		1					
Chlorobenzene	U	1.00	0.333	1.00	ug/L		1					
Chloroethane	U	1.00	0.333	1.00	ug/L		1					
Chloroform	U	1.00	0.333	1.00	ug/L		1					
Chloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromomethane	U	1.00	0.333	1.00	ug/L		1					
Ethylbenzene	U	1.00	0.333	1.00	ug/L		1					
Iodomethane	U	5.00	1.67	5.00	ug/L		1					

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Address : 5600 Hobbs Road

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW370UG2-24 Project: FRNP00507
Sample ID: 652726009 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
Methylene chloride	U	5.00	0.500	5.00	ug/L		1					
Styrene	U	1.00	0.333	1.00	ug/L		1					
Tetrachloroethylene	U	1.00	0.333	1.00	ug/L		1					
Toluene	U	1.00	0.333	1.00	ug/L		1					
Trichloroethylene		2.12	0.333	1.00	ug/L		1					
Trichlorofluoromethane	U	1.00	0.333	1.00	ug/L		1					
Vinyl acetate	U	5.00	1.67	5.00	ug/L		1					
Vinyl chloride	U	1.00	0.333	1.00	ug/L		1					
Xylenes (total)	U	3.00	1.00	3.00	ug/L		1					
cis-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
cis-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,4-Dichloro-2-butene	U	5.00	1.67	5.00	ug/L		1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-MS 3005A PREP	JD2	01/30/24	0645	2558647
SW846 3535A	SW3535A PCB SPE Extraction	DXF4	02/16/24	0454	2568582
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	01/30/24	1205	2560147
SW846 9010C Distillation	SW846 9010C Prep	ES2	01/26/24	0822	2558929
SW846 8011 PREP	8011 Prep	LL2	01/26/24	1343	2558740

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Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW370UG2-24 Project: FRNP00507
Sample ID: 652726009 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 8011	
2	SW846 8011	
3	SW846 9060A	
4	SW846 9012B	
5	SW846 9020B	
6	EPA 300.0	
7	SW846 9056A	
8	SW846 9056A	
9	SW846 7470A	
10	SW846 3005A/6020B	
11	SW846 3005A/6020B	
12	SW846 3005A/6020B	
13	SW846 3005A/6020B	
14	SW846 3005A/6020B	
15	SW846 3535A/8082A	
16	EPA 160.1	
17	EPA 410.4	
18	SW846 8260D	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011 VOA- 1,2-Dibromo-3-chloropropane "As Received"	10.5 ug/L	6.62	158*	(56%-149%)
Decachlorobiphenyl	8082A, PCB Liquids "As Received"	0.141 ug/L	0.215	66	(30%-135%)
4cmx	8082A, PCB Liquids "As Received"	0.133 ug/L	0.215	62	(26%-108%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	52.2 ug/L	50.0	104	(74%-123%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	46.8 ug/L	50.0	94	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	44.6 ug/L	50.0	89	(77%-121%)

Notes:

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Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-U Landfill Quarterly(UG24-02)

Client Sample ID:	MW370UG2-24	Project:	FRNP00507
Sample ID:	652726009	Client ID:	FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: April 25, 2024

Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID:	MW370UG2-24	Project:	FRNP00507
Sample ID:	652726010	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	24-JAN-24 12:42		
Receive Date:	25-JAN-24		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Dissolved Metals (3 Elements) "As Received"												
Barium		0.236	0.000670	0.00400	mg/L	1.00	1	RM4	02/20/24	2039	2558648	1
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-MS 3005A PREP	JD2	01/30/24	0645	2558647
EPA 160	Laboratory Filtration	RXB5	01/25/24	1244	2558567

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3005A/6020B	

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Report Date: April 25, 2024

Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW371UG2-24
Sample ID: 652726011
Matrix: WG
Collect Date: 24-JAN-24 13:26
Receive Date: 25-JAN-24
Collector: Client

Project: FRNP00507
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
504.1/8011 Analysis of EDB/DBCP												
8011 VOA- 1,2-Dibromo-3-chloropropane "As Received"												
1,2-Dibromo-3-chloropropane	UY1	0.0186	0.00838	0.0186	ug/L	0.931	1	LL2	01/26/24	1814	2558742	2
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	1.94	0.330	2.00	mg/L		1	RM3	01/26/24	0409	2558749	3
Flow Injection Analysis												
9012B, Cyanide, Total "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	01/29/24	0812	2558930	4
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens	J	7.32	3.33	10.0	ug/L		1	RM3	01/26/24	1951	2559096	5
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	02/06/24	1847	2564209	6
SW846 9056A Anions (5 elements) "As Received"												
Bromide	U	0.200	0.0670	0.200	mg/L		1	CH6	01/25/24	1651	2558568	7
Chloride	JW	4.06	0.0670	250	mg/L		1					
Fluoride	J	0.290	0.0330	4.00	mg/L		1					
Nitrate-N	U	10.0	0.0330	10.0	mg/L		1					
Sulfate		9.84	0.133	0.400	mg/L		1					
Mercury Analysis-CVAA												
7470, Mercury Liquid "As Received"												
Mercury	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	JP2	01/31/24	1118	2560151	8
Metals Analysis-ICP-MS												
6020, Metals (15+ elements) "As Received"												
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	02/21/24	1547	2558648	9
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Antimony	U	0.00300	0.00100	0.00300	mg/L	1.00	1	RM4	02/21/24	1910	2558648	10
Nickel	J	0.00136	0.000600	0.00200	mg/L	1.00	1	RM4	02/21/24	0329	2558648	11
Aluminum		0.240	0.0193	0.0500	mg/L	1.00	1	RM4	02/20/24	2043	2558648	12
Barium		0.220	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					

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Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW371UG2-24 Project: FRNP00507
Sample ID: 652726011 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Metals (15+ elements) "As Received"												
Cobalt	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Copper	J	0.00115	0.000300	0.00200	mg/L	1.00	1					
Iron		0.200	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Magnesium		20.3	0.0100	0.0300	mg/L	1.00	1					
Manganese		0.00917	0.00100	0.00500	mg/L	1.00	1					
Molybdenum	J	0.000282	0.000200	0.00100	mg/L	1.00	1					
Potassium		0.396	0.0800	0.300	mg/L	1.00	1					
Selenium	U	0.00500	0.00150	0.00500	mg/L	1.00	1					
Silver	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Thallium	U	0.00200	0.000600	0.00200	mg/L	1.00	1					
Uranium		0.00214	0.0000670	0.000200	mg/L	1.00	1					
Vanadium	J	0.00367	0.00330	0.0200	mg/L	1.00	1					
Zinc	J	0.00498	0.00330	0.0200	mg/L	1.00	1					
Arsenic	J	0.00347	0.00200	0.00500	mg/L	1.00	1	RM4	02/21/24	1127	2558648	13
Boron	J	0.00984	0.00520	0.0150	mg/L	1.00	1					
Calcium		56.8	0.800	2.00	mg/L	1.00	10	RM4	02/21/24	1137	2558648	14
Sodium		98.1	0.800	2.50	mg/L	1.00	10					
Semi-Volatiles-PCB												
8082A, PCB Liquids "As Received"												
Aroclor-1016	U	0.109	0.0361	0.109	ug/L	0.00109	1	YS1	02/16/24	1304	2568588	15
Aroclor-1221	U	0.109	0.0361	0.109	ug/L	0.00109	1					
Aroclor-1232	U	0.109	0.0361	0.109	ug/L	0.00109	1					
Aroclor-1242	U	0.109	0.0361	0.109	ug/L	0.00109	1					
Aroclor-1248	U	0.109	0.0361	0.109	ug/L	0.00109	1					
Aroclor-1254	U	0.109	0.0361	0.109	ug/L	0.00109	1					
Aroclor-1260	U	0.109	0.0361	0.109	ug/L	0.00109	1					
Aroclor-1268	U	0.109	0.0361	0.109	ug/L	0.00109	1					
Aroclor-Total	U	0.109	0.0361	0.109	ug/L	0.00109	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		416	2.38	10.0	mg/L			KLP1	01/31/24	1040	2561127	16
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												

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Certificate of Analysis

Report Date: April 25, 2024

Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW371UG2-24 Project: FRNP00507
Sample ID: 652726011 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD	U	20.0	8.95	20.0	mg/L		1	JW2	01/25/24	1519	2558570	17
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	JM6	01/26/24	1253	2558696	18
1,1,1-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
1,2,3-Trichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dibromoethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,4-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
2-Butanone	U	5.00	1.67	5.00	ug/L		1					
2-Hexanone	U	5.00	1.67	5.00	ug/L		1					
4-Methyl-2-pentanone	U	5.00	1.67	5.00	ug/L		1					
Acetone	U	5.00	1.74	5.00	ug/L		1					
Acrolein	U	5.00	1.67	5.00	ug/L		1					
Acrylonitrile	U	5.00	1.67	5.00	ug/L		1					
Benzene	U	1.00	0.333	1.00	ug/L		1					
Bromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromodichloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromoform	U	1.00	0.333	1.00	ug/L		1					
Bromomethane	U	1.00	0.337	1.00	ug/L		1					
Carbon disulfide	U	5.00	1.67	5.00	ug/L		1					
Carbon tetrachloride	U	1.00	0.333	1.00	ug/L		1					
Chlorobenzene	U	1.00	0.333	1.00	ug/L		1					
Chloroethane	U	1.00	0.333	1.00	ug/L		1					
Chloroform	U	1.00	0.333	1.00	ug/L		1					
Chloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromomethane	U	1.00	0.333	1.00	ug/L		1					
Ethylbenzene	U	1.00	0.333	1.00	ug/L		1					
Iodomethane	U	5.00	1.67	5.00	ug/L		1					

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Report Date: April 25, 2024

Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW371UG2-24 Project: FRNP00507
Sample ID: 652726011 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
Methylene chloride	U	5.00	0.500	5.00	ug/L		1					
Styrene	U	1.00	0.333	1.00	ug/L		1					
Tetrachloroethylene	U	1.00	0.333	1.00	ug/L		1					
Toluene	U	1.00	0.333	1.00	ug/L		1					
Trichloroethylene	U	1.00	0.333	1.00	ug/L		1					
Trichlorofluoromethane	U	1.00	0.333	1.00	ug/L		1					
Vinyl acetate	U	5.00	1.67	5.00	ug/L		1					
Vinyl chloride	U	1.00	0.333	1.00	ug/L		1					
Xylenes (total)	U	3.00	1.00	3.00	ug/L		1					
cis-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
cis-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,4-Dichloro-2-butene	U	5.00	1.67	5.00	ug/L		1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 8011 PREP	8011 Prep	LL2	01/26/24	1343	2558740
SW846 3535A	SW3535A PCB SPE Extraction	DXF4	02/16/24	0454	2568582
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	01/30/24	1205	2560147
SW846 9010C Distillation	SW846 9010C Prep	ES2	01/26/24	0822	2558929
SW846 3005A	ICP-MS 3005A PREP	JD2	01/30/24	0645	2558647

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Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW371UG2-24 Project: FRNP00507
Sample ID: 652726011 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 8011	
2	SW846 8011	
3	SW846 9060A	
4	SW846 9012B	
5	SW846 9020B	
6	EPA 300.0	
7	SW846 9056A	
8	SW846 7470A	
9	SW846 3005A/6020B	
10	SW846 3005A/6020B	
11	SW846 3005A/6020B	
12	SW846 3005A/6020B	
13	SW846 3005A/6020B	
14	SW846 3005A/6020B	
15	SW846 3535A/8082A	
16	EPA 160.1	
17	EPA 410.4	
18	SW846 8260D	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011 VOA- 1,2-Dibromo-3-chloropropane "As Received"	6.80 ug/L	6.65	102	(56%-149%)
Decachlorobiphenyl	8082A, PCB Liquids "As Received"	0.129 ug/L	0.217	59	(30%-135%)
4cmx	8082A, PCB Liquids "As Received"	0.155 ug/L	0.217	71	(26%-108%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	52.5 ug/L	50.0	105	(74%-123%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	46.3 ug/L	50.0	93	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	45.2 ug/L	50.0	90	(77%-121%)

Notes:

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Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-U Landfill Quarterly(UG24-02)

Client Sample ID:	MW371UG2-24	Project:	FRNP00507
Sample ID:	652726011	Client ID:	FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

GEL LABORATORIES LLC
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Certificate of Analysis

Report Date: April 25, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-U Landfill Quarterly(UG24-02)

Client Sample ID:	MW371UG2-24	Project:	FRNP00507
Sample ID:	652726012	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	24-JAN-24 13:26		
Receive Date:	25-JAN-24		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Dissolved Metals (3 Elements) "As Received"												
Barium		0.215	0.000670	0.00400	mg/L	1.00	1	RM4	02/20/24	2047	2558648	1
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					
Uranium		0.00219	0.0000670	0.000200	mg/L	1.00	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 160	Laboratory Filtration	RXB5	01/25/24	1244	2558567
SW846 3005A	ICP-MS 3005A PREP	JD2	01/30/24	0645	2558647

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3005A/6020B	

Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: April 25, 2024

Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW375UG2-24
Sample ID: 652726013
Matrix: WG
Collect Date: 24-JAN-24 10:40
Receive Date: 25-JAN-24
Collector: Client

Project: FRNP00507
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
504.1/8011 Analysis of EDB/DBCP												
8011 VOA- 1,2-Dibromo-3-chloropropane "As Received"												
1,2-Dibromo-3-chloropropane	UY1	0.0187	0.00842	0.0187	ug/L	0.936	1	LL2	01/26/24	1839	2558742	1
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	0.720	0.330	2.00	mg/L		1	RM3	01/26/24	0442	2558749	3
Flow Injection Analysis												
9012B, Cyanide, Total "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	01/29/24	0819	2558930	4
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens	J	7.58	3.33	10.0	ug/L		1	RM3	01/30/24	1508	2560465	5
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	02/06/24	1900	2564209	6
SW846 9056A Anions (5 elements) "As Received"												
Bromide	U	0.200	0.0670	0.200	mg/L		1	CH6	01/25/24	1824	2558568	7
Chloride	JW	3.09	0.0670	250	mg/L		1					
Fluoride	J	0.324	0.0330	4.00	mg/L		1					
Nitrate-N	J	0.832	0.0660	10.0	mg/L		2	CH6	01/26/24	0105	2558568	8
Sulfate		22.7	0.266	0.800	mg/L		2					
Mercury Analysis-CVAA												
7470, Mercury Liquid "As Received"												
Mercury	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	JP2	01/31/24	1120	2560151	9
Metals Analysis-ICP-MS												
6020, Metals (15+ elements) "As Received"												
Sodium		55.7	0.800	2.50	mg/L	1.00	10	RM4	02/21/24	1140	2558648	10
Nickel	U	0.00200	0.000600	0.00200	mg/L	1.00	1	RM4	02/21/24	0337	2558648	11
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	02/21/24	1549	2558648	12
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Antimony	U	0.00300	0.00100	0.00300	mg/L	1.00	1	RM4	02/21/24	1914	2558648	13
Arsenic	J	0.00287	0.00200	0.00500	mg/L	1.00	1	RM4	02/21/24	1129	2558648	14
Boron	J	0.0111	0.00520	0.0150	mg/L	1.00	1					
Aluminum	J	0.0266	0.0193	0.0500	mg/L	1.00	1	RM4	02/20/24	2050	2558648	15
Barium		0.169	0.000670	0.00400	mg/L	1.00	1					

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Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW375UG2-24 Project: FRNP00507
Sample ID: 652726013 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Metals (15+ elements) "As Received"												
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Calcium		12.9	0.0800	0.200	mg/L	1.00	1					
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					
Cobalt	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Copper	J	0.000652	0.000300	0.00200	mg/L	1.00	1					
Iron	J	0.0670	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Magnesium		5.02	0.0100	0.0300	mg/L	1.00	1					
Manganese		0.00549	0.00100	0.00500	mg/L	1.00	1					
Molybdenum	U	0.00100	0.000200	0.00100	mg/L	1.00	1					
Potassium	J	0.250	0.0800	0.300	mg/L	1.00	1					
Selenium	J	0.00239	0.00150	0.00500	mg/L	1.00	1					
Silver	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Thallium	U	0.00200	0.000600	0.00200	mg/L	1.00	1					
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1					
Vanadium	U	0.0200	0.00330	0.0200	mg/L	1.00	1					
Zinc	U	0.0200	0.00330	0.0200	mg/L	1.00	1					
Semi-Volatiles-PCB												
8082A, PCB Liquids "As Received"												
Aroclor-1016	U	0.112	0.0372	0.112	ug/L	0.00112	1	YS1	02/16/24	1337	2568588	16
Aroclor-1221	U	0.112	0.0372	0.112	ug/L	0.00112	1					
Aroclor-1232	U	0.112	0.0372	0.112	ug/L	0.00112	1					
Aroclor-1242	U	0.112	0.0372	0.112	ug/L	0.00112	1					
Aroclor-1248	U	0.112	0.0372	0.112	ug/L	0.00112	1					
Aroclor-1254	U	0.112	0.0372	0.112	ug/L	0.00112	1					
Aroclor-1260	U	0.112	0.0372	0.112	ug/L	0.00112	1					
Aroclor-1268	U	0.112	0.0372	0.112	ug/L	0.00112	1					
Aroclor-Total	U	0.112	0.0372	0.112	ug/L	0.00112	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		201	2.38	10.0	mg/L			KLP1	01/31/24	1040	2561127	17
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												

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Company : Four Rivers Nuclear Partnership, LLC
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Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW375UG2-24 Project: FRNP00507
Sample ID: 652726013 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD	U	20.0	8.95	20.0	mg/L		1	JW2	01/25/24	1519	2558570	18
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	JM6	01/26/24	1321	2558696	19
1,1,1-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
1,2,3-Trichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dibromoethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,4-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
2-Butanone	U	5.00	1.67	5.00	ug/L		1					
2-Hexanone	U	5.00	1.67	5.00	ug/L		1					
4-Methyl-2-pentanone	U	5.00	1.67	5.00	ug/L		1					
Acetone	U	5.00	1.74	5.00	ug/L		1					
Acrolein	U	5.00	1.67	5.00	ug/L		1					
Acrylonitrile	U	5.00	1.67	5.00	ug/L		1					
Benzene	U	1.00	0.333	1.00	ug/L		1					
Bromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromodichloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromoform	U	1.00	0.333	1.00	ug/L		1					
Bromomethane	U	1.00	0.337	1.00	ug/L		1					
Carbon disulfide	U	5.00	1.67	5.00	ug/L		1					
Carbon tetrachloride	U	1.00	0.333	1.00	ug/L		1					
Chlorobenzene	U	1.00	0.333	1.00	ug/L		1					
Chloroethane	U	1.00	0.333	1.00	ug/L		1					
Chloroform	U	1.00	0.333	1.00	ug/L		1					
Chloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromomethane	U	1.00	0.333	1.00	ug/L		1					
Ethylbenzene	U	1.00	0.333	1.00	ug/L		1					
Iodomethane	U	5.00	1.67	5.00	ug/L		1					

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Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW375UG2-24 Project: FRNP00507
Sample ID: 652726013 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
Methylene chloride	U	5.00	0.500	5.00	ug/L		1					
Styrene	U	1.00	0.333	1.00	ug/L		1					
Tetrachloroethylene	U	1.00	0.333	1.00	ug/L		1					
Toluene	U	1.00	0.333	1.00	ug/L		1					
Trichloroethylene	U	1.00	0.333	1.00	ug/L		1					
Trichlorofluoromethane	U	1.00	0.333	1.00	ug/L		1					
Vinyl acetate	U	5.00	1.67	5.00	ug/L		1					
Vinyl chloride	U	1.00	0.333	1.00	ug/L		1					
Xylenes (total)	U	3.00	1.00	3.00	ug/L		1					
cis-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
cis-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,4-Dichloro-2-butene	U	5.00	1.67	5.00	ug/L		1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 9010C Distillation	SW846 9010C Prep	ES2	01/26/24	0822	2558929
SW846 8011 PREP	8011 Prep	LL2	01/26/24	1343	2558740
SW846 3535A	SW3535A PCB SPE Extraction	DXF4	02/16/24	0454	2568582
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	01/30/24	1205	2560147
SW846 3005A	ICP-MS 3005A PREP	JD2	01/30/24	0645	2558647

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Certificate of Analysis

Report Date: April 25, 2024

Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW375UG2-24 Project: FRNP00507
Sample ID: 652726013 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 8011	
2	SW846 8011	
3	SW846 9060A	
4	SW846 9012B	
5	SW846 9020B	
6	EPA 300.0	
7	SW846 9056A	
8	SW846 9056A	
9	SW846 7470A	
10	SW846 3005A/6020B	
11	SW846 3005A/6020B	
12	SW846 3005A/6020B	
13	SW846 3005A/6020B	
14	SW846 3005A/6020B	
15	SW846 3005A/6020B	
16	SW846 3535A/8082A	
17	EPA 160.1	
18	EPA 410.4	
19	SW846 8260D	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011 VOA- 1,2-Dibromo-3-chloropropane "As Received"	7.76 ug/L	6.69	116	(56%-149%)
Decachlorobiphenyl	8082A, PCB Liquids "As Received"	0.125 ug/L	0.223	56	(30%-135%)
4cmx	8082A, PCB Liquids "As Received"	0.151 ug/L	0.223	68	(26%-108%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	51.7 ug/L	50.0	103	(74%-123%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	46.1 ug/L	50.0	92	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	46.4 ug/L	50.0	93	(77%-121%)

Notes:

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Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-U Landfill Quarterly(UG24-02)

Client Sample ID:	MW375UG2-24	Project:	FRNP00507
Sample ID:	652726013	Client ID:	FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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Report Date: April 25, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-U Landfill Quarterly(UG24-02)

Client Sample ID:	MW375UG2-24	Project:	FRNP00507
Sample ID:	652726014	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	24-JAN-24 10:40		
Receive Date:	25-JAN-24		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Dissolved Metals (3 Elements) "As Received"												
Barium		0.165	0.000670	0.00400	mg/L	1.00	1	RM4	02/20/24	2054	2558648	1
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-MS 3005A PREP	JD2	01/30/24	0645	2558647
EPA 160	Laboratory Filtration	RXB5	01/25/24	1244	2558567

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3005A/6020B	

Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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Report Date: April 25, 2024

Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: TB2UG2-24
Sample ID: 652726015
Matrix: WATER
Collect Date: 24-JAN-24 07:05
Receive Date: 25-JAN-24
Collector: Client

Project: FRNP00507
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
504.1/8011 Analysis of EDB/DBCP												
8011 VOA- 1,2-Dibromo-3-chloropropane "As Received"												
1,2-Dibromo-3-chloropropane	USY1	0.0189	0.00852	0.0189	ug/L	0.946	1	LL2	01/26/24	1903	2558742	2
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	JM6	01/26/24	1348	2558696	3
1,1,1-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
1,2,3-Trichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dibromoethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,4-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
2-Butanone	U	5.00	1.67	5.00	ug/L		1					
2-Hexanone	U	5.00	1.67	5.00	ug/L		1					
4-Methyl-2-pentanone	U	5.00	1.67	5.00	ug/L		1					
Acetone	U	5.00	1.74	5.00	ug/L		1					
Acrolein	U	5.00	1.67	5.00	ug/L		1					
Acrylonitrile	U	5.00	1.67	5.00	ug/L		1					
Benzene	U	1.00	0.333	1.00	ug/L		1					
Bromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromodichloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromoform	U	1.00	0.333	1.00	ug/L		1					
Bromomethane	U	1.00	0.337	1.00	ug/L		1					
Carbon disulfide	U	5.00	1.67	5.00	ug/L		1					
Carbon tetrachloride	U	1.00	0.333	1.00	ug/L		1					
Chlorobenzene	U	1.00	0.333	1.00	ug/L		1					
Chloroethane	U	1.00	0.333	1.00	ug/L		1					
Chloroform	U	1.00	0.333	1.00	ug/L		1					
Chloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromomethane	U	1.00	0.333	1.00	ug/L		1					
Ethylbenzene	U	1.00	0.333	1.00	ug/L		1					
Iodomethane	U	5.00	1.67	5.00	ug/L		1					

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Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: TB2UG2-24 Project: FRNP00507
Sample ID: 652726015 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
Methylene chloride	U	5.00	0.500	5.00	ug/L		1					
Styrene	U	1.00	0.333	1.00	ug/L		1					
Tetrachloroethylene	U	1.00	0.333	1.00	ug/L		1					
Toluene	U	1.00	0.333	1.00	ug/L		1					
Trichloroethylene	U	1.00	0.333	1.00	ug/L		1					
Trichlorofluoromethane	U	1.00	0.333	1.00	ug/L		1					
Vinyl acetate	U	5.00	1.67	5.00	ug/L		1					
Vinyl chloride	U	1.00	0.333	1.00	ug/L		1					
Xylenes (total)	U	3.00	1.00	3.00	ug/L		1					
cis-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
cis-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,4-Dichloro-2-butene	U	5.00	1.67	5.00	ug/L		1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 8011 PREP	8011 Prep	LL2	01/26/24	1343	2558740

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 8011	
2	SW846 8011	
3	SW846 8260D	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011 VOA- 1,2-Dibromo-3-chloropropane "As Received"	10.7 ug/L	6.76	159*	(56%-149%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	53.2 ug/L	50.0	106	(74%-123%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	46.8 ug/L	50.0	94	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	45.3 ug/L	50.0	91	(77%-121%)

Notes:

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Certificate of Analysis

Report Date: April 25, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-U Landfill Quarterly(UG24-02)

Client Sample ID:	TB2UG2-24	Project:	FRNP00507
Sample ID:	652726015	Client ID:	FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Certificate of Analysis

Company : Four Rivers Nuclear Partnership,
Address : LLC
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Kevil, Kentucky 42053 Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW364UG2-24 Project: FRNP00507
Sample ID: 652726001 Client ID: FRNP005
Matrix: WG
Collect Date: 24-JAN-24
Receive Date: 25-JAN-24
Collector: Client

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
AN-1418 AlphaSpec Ra226, Liquid "As Received"														
Radium-226	U	0.690	+/-0.699	0.828	+/-0.700	5.00	pCi/L			EJ1	02/12/24	1310	2558724	1
Th-01-RC M, Th Isotopes, Liquid "As Received"														
Thorium-230	U	0.672	+/-0.946	1.46	+/-0.955	50.0	pCi/L			EJ1	02/08/24	0826	2558725	2
Thorium-232	U	0.0719	+/-0.519	1.04	+/-0.520		pCi/L							
Rad Gas Flow Proportional Counting														
904.0Mod, Ra228, Liquid "As Received"														
Radium-228	U	1.62	+/-2.57	4.47	+/-2.61	4.99	pCi/L			JE1	02/21/24	0827	2563663	3
905.0Mod, Sr90, liquid "As Received"														
Strontium-90	U	1.15	+/-3.50	6.30	+/-3.50	8.00	pCi/L			ST2	02/07/24	1521	2562680	4
9310, Alpha/Beta Activity, liquid "As Received"														
Alpha	U	1.39	+/-3.41	6.86	+/-3.41	15.0	pCi/L			AW5	02/05/24	1517	2559932	5
Beta		27.1	+/-7.72	8.72	+/-8.89	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
906.0M, Tritium Dist, Liquid "As Received"														
Tritium	U	-24.2	+/-126	229	+/-126	300	pCi/L			HB2	02/16/24	1633	2563308	6
Tc-02-RC-MOD, Tc99, Liquid "As Received"														
Technetium-99		48.1	+/-12.6	17.9	+/-13.7	25.0	pCi/L			GS3	02/19/24	0605	2564391	7

The following Analytical Methods were performed

Method	Description
1	Eichrom Industries, AN-1418
2	DOE EML HASL-300, Th-01-RC Modified
3	EPA 904.0/SW846 9320 Modified
4	EPA 905.0 Modified/DOE RP501 Rev. 1 Modified
5	EPA 900.0/SW846 9310
6	EPA 906.0 Modified
7	DOE EML HASL-300, Tc-02-RC Modified

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Barium-133 Tracer	AN-1418 AlphaSpec Ra226, Liquid "As Received"	2558724	89.9	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2558725	75.8	(30%-110%)
Barium-133 Tracer	904.0Mod, Ra228, Liquid "As Received"	2563663	89.2	(30%-110%)
Strontium Carrier	905.0Mod, Sr90, liquid "As Received"	2562680	85.9	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2564391	99.2	(30%-110%)

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Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW364UG2-24
Sample ID: 652726001

Project: FRNP00507
Client ID: FRNP005

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Surrogate/Tracer Recovery	**Test**							**Batch ID**		**Recovery%**	**Acceptable Limits**			

Notes:

The MDC is a sample specific MDC.

TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
Lc/LC: Critical Level
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Mtd.: Method
PF: Prep Factor
RL: Reporting Limit
TPU: Total Propagated Uncertainty

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Kevil, Kentucky 42053

Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW366UG2-24
Sample ID: 652726003
Matrix: WG
Collect Date: 24-JAN-24
Receive Date: 25-JAN-24
Collector: Client

Project: FRNP00507
Client ID: FRNP005

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
AN-1418 AlphaSpec Ra226, Liquid "As Received"														
Radium-226	U	0.349	+/-0.341	0.422	+/-0.341	5.00	pCi/L			EJ1	02/10/24	0856	2558724	1
Th-01-RC M, Th Isotopes, Liquid "As Received"														
Thorium-230	U	1.16	+/-1.06	1.34	+/-1.07	50.0	pCi/L			EJ1	02/09/24	0830	2558725	2
Thorium-232	U	-0.103	+/-0.359	0.980	+/-0.359		pCi/L							
Rad Gas Flow Proportional Counting														
904.0Mod, Ra228, Liquid "As Received"														
Radium-228	U	3.55	+/-2.79	4.43	+/-2.93	4.99	pCi/L			JE1	02/21/24	0827	2563663	3
905.0Mod, Sr90, liquid "As Received"														
Strontium-90	U	1.42	+/-2.60	4.57	+/-2.61	8.00	pCi/L			ST2	02/07/24	1521	2562680	4
9310, Alpha/Beta Activity, liquid "As Received"														
Alpha	U	0.230	+/-3.87	8.82	+/-3.87	15.0	pCi/L			AW5	02/05/24	1517	2559932	5
Beta		29.4	+/-7.66	7.49	+/-9.02	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
906.0M, Tritium Dist, Liquid "As Received"														
Tritium	U	-19.0	+/-128	231	+/-128	300	pCi/L			HB2	02/16/24	1710	2563308	6
Tc-02-RC-MOD, Tc99, Liquid "As Received"														
Technetium-99		62.3	+/-13.1	17.8	+/-14.9	25.0	pCi/L			GS3	02/19/24	0621	2564391	7

The following Analytical Methods were performed

Method	Description
1	Eichrom Industries, AN-1418
2	DOE EML HASL-300, Th-01-RC Modified
3	EPA 904.0/SW846 9320 Modified
4	EPA 905.0 Modified/DOE RP501 Rev. 1 Modified
5	EPA 900.0/SW846 9310
6	EPA 906.0 Modified
7	DOE EML HASL-300, Tc-02-RC Modified

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Barium-133 Tracer	AN-1418 AlphaSpec Ra226, Liquid "As Received"	2558724	92.4	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2558725	79.4	(30%-110%)
Barium-133 Tracer	904.0Mod, Ra228, Liquid "As Received"	2563663	89.8	(30%-110%)
Strontium Carrier	905.0Mod, Sr90, liquid "As Received"	2562680	107	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2564391	99	(30%-110%)

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Kevil, Kentucky 42053 Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW366UG2-24 Project: FRNP00507
Sample ID: 652726003 Client ID: FRNP005

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Surrogate/Tracer Recovery	**Test**							**Batch ID**		**Recovery%**	**Acceptable Limits**			

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
Lc/LC: Critical Level
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Mtd.: Method
PF: Prep Factor
RL: Reporting Limit
TPU: Total Propagated Uncertainty

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Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW367UG2-24
Sample ID: 652726005
Matrix: WG
Collect Date: 24-JAN-24
Receive Date: 25-JAN-24
Collector: Client

Project: FRNP00507
Client ID: FRNP005

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
AN-1418 AlphaSpec Ra226, Liquid "As Received"														
Radium-226	U	0.220	+/-0.746	1.19	+/-0.746	5.00	pCi/L			EJ1	02/13/24	1423	2558724	1
Th-01-RC M, Th Isotopes, Liquid "As Received"														
Thorium-230	U	0.541	+/-1.01	1.73	+/-1.02	50.0	pCi/L			EJ1	02/08/24	0826	2558725	2
Thorium-232	U	0.266	+/-0.659	1.09	+/-0.661		pCi/L							
Rad Gas Flow Proportional Counting														
904.0Mod, Ra228, Liquid "As Received"														
Radium-228	U	2.99	+/-2.34	3.68	+/-2.46	4.99	pCi/L			JE1	02/21/24	0828	2563663	3
905.0Mod, Sr90, liquid "As Received"														
Strontium-90	U	3.38	+/-2.87	4.61	+/-2.92	8.00	pCi/L			ST2	02/07/24	1521	2562680	4
9310, Alpha/Beta Activity, liquid "As Received"														
Alpha	U	-0.744	+/-2.95	7.59	+/-2.95	15.0	pCi/L			AW5	02/05/24	1517	2559932	5
Beta	U	1.36	+/-4.07	7.50	+/-4.08	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
906.0M, Tritium Dist, Liquid "As Received"														
Tritium	U	19.0	+/-130	231	+/-130	300	pCi/L			HB2	02/16/24	1747	2563308	6
Tc-02-RC-MOD, Tc99, Liquid "As Received"														
Technetium-99	U	-6.79	+/-9.80	18.0	+/-9.80	25.0	pCi/L			GS3	02/19/24	0638	2564391	7

The following Analytical Methods were performed

Method	Description
1	Eichrom Industries, AN-1418
2	DOE EML HASL-300, Th-01-RC Modified
3	EPA 904.0/SW846 9320 Modified
4	EPA 905.0 Modified/DOE RP501 Rev. 1 Modified
5	EPA 900.0/SW846 9310
6	EPA 906.0 Modified
7	DOE EML HASL-300, Tc-02-RC Modified

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Barium-133 Tracer	AN-1418 AlphaSpec Ra226, Liquid "As Received"	2558724	88.3	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2558725	77.4	(30%-110%)
Barium-133 Tracer	904.0Mod, Ra228, Liquid "As Received"	2563663	92.3	(30%-110%)
Strontium Carrier	905.0Mod, Sr90, liquid "As Received"	2562680	96.4	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2564391	98.2	(30%-110%)

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Certificate of Analysis

Company : Four Rivers Nuclear Partnership,
Address : LLC
5600 Hobbs Road

Kevil, Kentucky 42053 Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW367UG2-24 Project: FRNP00507
Sample ID: 652726005 Client ID: FRNP005

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Surrogate/Tracer Recovery	**Test**							**Batch ID**		**Recovery%**	**Acceptable Limits**			

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
Lc/LC: Critical Level
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Mtd.: Method
PF: Prep Factor
RL: Reporting Limit
TPU: Total Propagated Uncertainty

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Certificate of Analysis

Company : Four Rivers Nuclear Partnership,
Address : LLC
5600 Hobbs Road

Kevil, Kentucky 42053

Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW369UG2-24
Sample ID: 652726007
Matrix: WG
Collect Date: 24-JAN-24
Receive Date: 25-JAN-24
Collector: Client

Project: FRNP00507
Client ID: FRNP005

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
AN-1418 AlphaSpec Ra226, Liquid "As Received"														
Radium-226	U	0.637	+/-0.487	0.653	+/-0.489	5.00	pCi/L			EJ1	02/10/24	0856	2558724	1
Th-01-RC M, Th Isotopes, Liquid "As Received"														
Thorium-230	U	0.462	+/-0.866	1.42	+/-0.872	50.0	pCi/L			EJ1	02/08/24	0858	2558725	2
Thorium-232	U	-0.0686	+/-0.405	0.999	+/-0.406		pCi/L							
Rad Gas Flow Proportional Counting														
904.0Mod, Ra228, Liquid "As Received"														
Radium-228	U	0.337	+/-1.67	3.17	+/-1.67	4.99	pCi/L			JE1	02/21/24	0828	2563663	3
905.0Mod, Sr90, liquid "As Received"														
Strontium-90	U	-1.67	+/-2.36	5.00	+/-2.36	8.00	pCi/L			ST2	02/07/24	1521	2562680	4
9310, Alpha/Beta Activity, liquid "As Received"														
Alpha	U	-1.14	+/-2.32	7.22	+/-2.32	15.0	pCi/L			AW5	02/05/24	1517	2559932	5
Beta		27.8	+/-7.46	7.25	+/-8.71	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
906.0M, Tritium Dist, Liquid "As Received"														
Tritium	U	-122	+/-120	232	+/-120	300	pCi/L			HB2	02/16/24	1824	2563308	6
Tc-02-RC-MOD, Tc99, Liquid "As Received"														
Technetium-99		62.7	+/-13.6	18.5	+/-15.3	25.0	pCi/L			GS3	02/19/24	0655	2564391	7

The following Analytical Methods were performed

Method	Description
1	Eichrom Industries, AN-1418
2	DOE EML HASL-300, Th-01-RC Modified
3	EPA 904.0/SW846 9320 Modified
4	EPA 905.0 Modified/DOE RP501 Rev. 1 Modified
5	EPA 900.0/SW846 9310
6	EPA 906.0 Modified
7	DOE EML HASL-300, Tc-02-RC Modified

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Barium-133 Tracer	AN-1418 AlphaSpec Ra226, Liquid "As Received"	2558724	93.4	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2558725	92	(30%-110%)
Barium-133 Tracer	904.0Mod, Ra228, Liquid "As Received"	2563663	93.1	(30%-110%)
Strontium Carrier	905.0Mod, Sr90, liquid "As Received"	2562680	93.8	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2564391	95.9	(30%-110%)

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Company : Four Rivers Nuclear Partnership, LLC
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Report Date: April 25, 2024

Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW369UG2-24
Sample ID: 652726007

Project: FRNP00507
Client ID: FRNP005

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Surrogate/Tracer Recovery	**Test**							**Batch ID**		**Recovery%**	**Acceptable Limits**			

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
Lc/LC: Critical Level
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Mtd.: Method
PF: Prep Factor
RL: Reporting Limit
TPU: Total Propagated Uncertainty

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Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road
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Report Date: April 25, 2024

Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW370UG2-24
Sample ID: 652726009
Matrix: WG
Collect Date: 24-JAN-24
Receive Date: 25-JAN-24
Collector: Client

Project: FRNP00507
Client ID: FRNP005

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
AN-1418 AlphaSpec Ra226, Liquid "As Received"														
Radium-226	U	0.529	+/-0.470	0.635	+/-0.472	5.00	pCi/L			EJ1	02/10/24	0856	2558724	1
Th-01-RC M, Th Isotopes, Liquid "As Received"														
Thorium-230	U	0.814	+/-1.14	1.74	+/-1.15	50.0	pCi/L			EJ1	02/08/24	0858	2558725	2
Thorium-232	U	0.571	+/-0.854	1.09	+/-0.858		pCi/L							
Rad Gas Flow Proportional Counting														
904.0Mod, Ra228, Liquid "As Received"														
Radium-228	U	2.97	+/-2.43	3.83	+/-2.54	4.99	pCi/L			JE1	02/21/24	0828	2563663	3
905.0Mod, Sr90, liquid "As Received"														
Strontium-90	U	0.933	+/-2.77	4.96	+/-2.78	8.00	pCi/L			ST2	02/07/24	1521	2562680	4
9310, Alpha/Beta Activity, liquid "As Received"														
Alpha	U	1.34	+/-3.51	7.14	+/-3.51	15.0	pCi/L			AW5	02/05/24	1517	2559932	5
Beta	U	3.36	+/-4.98	8.60	+/-5.02	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
906.0M, Tritium Dist, Liquid "As Received"														
Tritium	U	-0.230	+/-129	231	+/-129	300	pCi/L			HB2	02/16/24	1901	2563308	6
Tc-02-RC-MOD, Tc99, Liquid "As Received"														
Technetium-99	U	10.3	+/-10.8	18.0	+/-10.8	25.0	pCi/L			GS3	02/19/24	0711	2564391	7

The following Analytical Methods were performed

Method	Description
1	Eichrom Industries, AN-1418
2	DOE EML HASL-300, Th-01-RC Modified
3	EPA 904.0/SW846 9320 Modified
4	EPA 905.0 Modified/DOE RP501 Rev. 1 Modified
5	EPA 900.0/SW846 9310
6	EPA 906.0 Modified
7	DOE EML HASL-300, Tc-02-RC Modified

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Barium-133 Tracer	AN-1418 AlphaSpec Ra226, Liquid "As Received"	2558724	92.7	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2558725	82.5	(30%-110%)
Barium-133 Tracer	904.0Mod, Ra228, Liquid "As Received"	2563663	93.3	(30%-110%)
Strontium Carrier	905.0Mod, Sr90, liquid "As Received"	2562680	109	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2564391	97.9	(30%-110%)

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Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW370UG2-24
Sample ID: 652726009

Project: FRNP00507
Client ID: FRNP005

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Surrogate/Tracer Recovery	**Test**							**Batch ID**		**Recovery%**	**Acceptable Limits**			

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
Lc/LC: Critical Level
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Mtd.: Method
PF: Prep Factor
RL: Reporting Limit
TPU: Total Propagated Uncertainty

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Certificate of Analysis

Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road
Kevil, Kentucky 42053

Report Date: April 25, 2024

Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW371UG2-24
Sample ID: 652726011
Matrix: WG
Collect Date: 24-JAN-24
Receive Date: 25-JAN-24
Collector: Client

Project: FRNP00507
Client ID: FRNP005

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
AN-1418 AlphaSpec Ra226, Liquid "As Received"														
Radium-226	U	0.759	+/-1.13	1.45	+/-1.13	5.00	pCi/L			CM4	02/20/24	0832	2568311	1
Th-01-RC M, Th Isotopes, Liquid "As Received"														
Thorium-230	U	-0.0148	+/-0.705	1.59	+/-0.707	50.0	pCi/L			EJ1	02/08/24	0858	2558725	2
Thorium-232	U	-0.0215	+/-0.406	0.821	+/-0.407		pCi/L							
Rad Gas Flow Proportional Counting														
904.0Mod, Ra228, Liquid "As Received"														
Radium-228	U	-1.25	+/-2.13	4.37	+/-2.13	4.99	pCi/L			JE1	02/21/24	0828	2563663	3
905.0Mod, Sr90, liquid "As Received"														
Strontium-90	TU	-0.160	+/-2.49	4.71	+/-2.49	8.00	pCi/L			ST2	02/07/24	1521	2562680	4
9310, Alpha/Beta Activity, liquid "As Received"														
Alpha	U	1.01	+/-3.74	8.15	+/-3.74	15.0	pCi/L			AW5	02/05/24	1517	2559932	5
Beta	U	7.24	+/-6.59	10.7	+/-6.71	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
906.0M, Tritium Dist, Liquid "As Received"														
Tritium	U	62.0	+/-133	231	+/-134	300	pCi/L			HB2	02/16/24	1938	2563308	6
Tc-02-RC-MOD, Tc99, Liquid "As Received"														
Technetium-99	U	-4.40	+/-10.2	18.4	+/-10.2	25.0	pCi/L			GS3	02/19/24	0728	2564391	7

The following Analytical Methods were performed

Method	Description
1	Eichrom Industries, AN-1418
2	DOE EML HASL-300, Th-01-RC Modified
3	EPA 904.0/SW846 9320 Modified
4	EPA 905.0 Modified/DOE RP501 Rev. 1 Modified
5	EPA 900.0/SW846 9310
6	EPA 906.0 Modified
7	DOE EML HASL-300, Tc-02-RC Modified

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Barium-133 Tracer	AN-1418 AlphaSpec Ra226, Liquid "As Received"	2568311	98.9	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2558725	87.1	(30%-110%)
Barium-133 Tracer	904.0Mod, Ra228, Liquid "As Received"	2563663	94	(30%-110%)
Strontium Carrier	905.0Mod, Sr90, liquid "As Received"	2562680	112 *	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2564391	96	(30%-110%)

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Certificate of Analysis

Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road
Kevil, Kentucky 42053

Report Date: April 25, 2024

Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW371UG2-24
Sample ID: 652726011

Project: FRNP00507
Client ID: FRNP005

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Surrogate/Tracer Recovery	**Test**							**Batch ID**		**Recovery%**	**Acceptable Limits**			

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
Lc/LC: Critical Level
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Mtd.: Method
PF: Prep Factor
RL: Reporting Limit
TPU: Total Propagated Uncertainty

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Certificate of Analysis

Company : Four Rivers Nuclear Partnership,
Address : LLC
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Kevil, Kentucky 42053

Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW375UG2-24
Sample ID: 652726013
Matrix: WG
Collect Date: 24-JAN-24
Receive Date: 25-JAN-24
Collector: Client

Project: FRNP00507
Client ID: FRNP005

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
AN-1418 AlphaSpec Ra226, Liquid "As Received"														
Radium-226	U	0.282	+/-0.297	0.369	+/-0.297	5.00	pCi/L			EJ1	02/10/24	0856	2558724	1
Th-01-RC M, Th Isotopes, Liquid "As Received"														
Thorium-230	U	-0.197	+/-0.700	1.83	+/-0.701	50.0	pCi/L			EJ1	02/08/24	0858	2558725	2
Thorium-232	U	-0.138	+/-0.513	1.38	+/-0.514		pCi/L							
Rad Gas Flow Proportional Counting														
904.0Mod, Ra228, Liquid "As Received"														
Radium-228	U	0.890	+/-2.12	3.80	+/-2.13	4.99	pCi/L			JE1	02/21/24	0828	2563663	3
905.0Mod, Sr90, liquid "As Received"														
Strontium-90	U	1.08	+/-3.31	5.90	+/-3.32	8.00	pCi/L			ST2	02/08/24	1056	2562680	4
9310, Alpha/Beta Activity, liquid "As Received"														
Alpha	U	2.96	+/-4.90	8.79	+/-4.92	15.0	pCi/L			AW5	02/05/24	1517	2559932	5
Beta	U	5.22	+/-8.02	13.7	+/-8.07	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
906.0M, Tritium Dist, Liquid "As Received"														
Tritium	U	-41.4	+/-126	232	+/-126	300	pCi/L			HB2	02/16/24	2015	2563308	6
Tc-02-RC-MOD, Tc99, Liquid "As Received"														
Technetium-99	U	-4.12	+/-10.2	18.4	+/-10.2	25.0	pCi/L			GS3	02/19/24	0745	2564391	7

The following Analytical Methods were performed

Method	Description
1	Eichrom Industries, AN-1418
2	DOE EML HASL-300, Th-01-RC Modified
3	EPA 904.0/SW846 9320 Modified
4	EPA 905.0 Modified/DOE RP501 Rev. 1 Modified
5	EPA 900.0/SW846 9310
6	EPA 906.0 Modified
7	DOE EML HASL-300, Tc-02-RC Modified

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Barium-133 Tracer	AN-1418 AlphaSpec Ra226, Liquid "As Received"	2558724	93	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2558725	85.7	(30%-110%)
Barium-133 Tracer	904.0Mod, Ra228, Liquid "As Received"	2563663	94.5	(30%-110%)
Strontium Carrier	905.0Mod, Sr90, liquid "As Received"	2562680	85.9	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2564391	96.1	(30%-110%)

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Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road
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Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW375UG2-24
Sample ID: 652726013

Project: FRNP00507
Client ID: FRNP005

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Surrogate/Tracer Recovery	**Test**							**Batch ID**		**Recovery%**	**Acceptable Limits**			

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
Lc/LC: Critical Level
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Mtd.: Method
PF: Prep Factor
RL: Reporting Limit
TPU: Total Propagated Uncertainty

ATTACHMENT C3

GEL LABORATORIES CERTIFICATE OF ANALYSIS

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Certificate of Analysis

Report Date: April 25, 2024

Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW372UG2-24
Sample ID: 652906001
Matrix: WG
Collect Date: 25-JAN-24 10:05
Receive Date: 26-JAN-24
Collector: Client

Project: FRNP00507
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
504.1/8011 Analysis of EDB/DBCP												
8011 VOA- 1,2-Dibromo-3-chloropropane "As Received"												
1,2-Dibromo-3-chloropropane	US	0.0188	0.00845	0.0188	ug/L	0.939	1	LL2	02/01/24	1344	2559322	1
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	1.02	0.330	2.00	mg/L		1	RM3	01/31/24	1644	2561367	2
Flow Injection Analysis												
9012B, Cyanide, Total "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	01/31/24	0545	2559564	3
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens		10.9	3.33	10.0	ug/L		1	RM3	01/30/24	1546	2560465	4
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	02/06/24	1913	2564209	5
SW846 9056A Anions (5 elements) "As Received"												
Bromide		0.492	0.0670	0.200	mg/L		1	CH6	01/26/24	1642	2559331	6
Fluoride	J	0.222	0.0330	4.00	mg/L		1					
Nitrate-N	J	0.845	0.0330	10.0	mg/L		1					
Chloride	BJ	37.9	1.34	250	mg/L		20	CH6	01/26/24	2221	2559331	7
Sulfate		148	2.66	8.00	mg/L		20					
Mercury Analysis-CVAA												
7470, Mercury Liquid "As Received"												
Mercury	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	JP2	01/31/24	1126	2560151	8
Metals Analysis-ICP-MS												
6020, Metals (15+ elements) "As Received"												
Nickel	J	0.000627	0.000600	0.00200	mg/L	1.00	1	RM4	02/21/24	0000	2559335	9
Antimony	U	0.00300	0.00100	0.00300	mg/L	1.00	1	RM4	02/21/24	1641	2559335	10
Boron	B	1.38	0.104	0.300	mg/L	1.00	20	RM4	02/21/24	1354	2559335	11
Calcium		71.4	1.60	4.00	mg/L	1.00	20					
Sodium		60.8	1.60	5.00	mg/L	1.00	20					
Aluminum	U	0.0500	0.0193	0.0500	mg/L	1.00	1	RM4	02/20/24	1713	2559335	12
Arsenic		0.00520	0.00200	0.00500	mg/L	1.00	1					
Barium		0.0576	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					

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Report Date: April 25, 2024

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Address : 5600 Hobbs Road

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW372UG2-24 Project: FRNP00507
Sample ID: 652906001 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Metals (15+ elements) "As Received"												
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					
Cobalt	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Copper	J	0.00146	0.000300	0.00200	mg/L	1.00	1					
Iron	J	0.0869	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Magnesium		25.1	0.0100	0.0300	mg/L	1.00	1					
Manganese	J	0.00199	0.00100	0.00500	mg/L	1.00	1					
Molybdenum	J	0.000268	0.000200	0.00100	mg/L	1.00	1					
Potassium		2.12	0.0800	0.300	mg/L	1.00	1					
Selenium	J	0.00155	0.00150	0.00500	mg/L	1.00	1					
Silver	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Thallium	U	0.00200	0.000600	0.00200	mg/L	1.00	1					
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1					
Vanadium	J	0.00573	0.00330	0.0200	mg/L	1.00	1					
Zinc	U	0.0200	0.00330	0.0200	mg/L	1.00	1					
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	02/21/24	1446	2559335	13
Tantalum	UN	0.00500	0.00100	0.00500	mg/L	1.00	1					
Semi-Volatiles-PCB												
8082A, PCB Liquids "As Received"												
Aroclor-1016	U	0.106	0.0354	0.106	ug/L	0.00106	1	YS1	02/16/24	1348	2568588	14
Aroclor-1221	U	0.106	0.0354	0.106	ug/L	0.00106	1					
Aroclor-1232	U	0.106	0.0354	0.106	ug/L	0.00106	1					
Aroclor-1242	U	0.106	0.0354	0.106	ug/L	0.00106	1					
Aroclor-1248	U	0.106	0.0354	0.106	ug/L	0.00106	1					
Aroclor-1254	U	0.106	0.0354	0.106	ug/L	0.00106	1					
Aroclor-1260	U	0.106	0.0354	0.106	ug/L	0.00106	1					
Aroclor-1268	U	0.106	0.0354	0.106	ug/L	0.00106	1					
Aroclor-Total	U	0.106	0.0354	0.106	ug/L	0.00106	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		438	2.38	10.0	mg/L			KLP1	02/01/24	1158	2561837	15
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												

GEL LABORATORIES LLC
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Certificate of Analysis

Report Date: April 25, 2024

Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW372UG2-24 Project: FRNP00507
Sample ID: 652906001 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD	U	20.0	8.95	20.0	mg/L		1	HH2	01/29/24	1244	2559247	16
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	JM6	01/29/24	1204	2559983	17
1,1,1-Trichloroethane	UY2	1.00	0.333	1.00	ug/L		1					
1,1,2,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethylene	UY2	1.00	0.333	1.00	ug/L		1					
1,2,3-Trichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dibromoethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,4-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
2-Butanone	U	5.00	1.67	5.00	ug/L		1					
2-Hexanone	U	5.00	1.67	5.00	ug/L		1					
4-Methyl-2-pentanone	U	5.00	1.67	5.00	ug/L		1					
Acetone	JY2	3.63	1.74	5.00	ug/L		1					
Acrolein	U	5.00	1.67	5.00	ug/L		1					
Acrylonitrile	U	5.00	1.67	5.00	ug/L		1					
Benzene	U	1.00	0.333	1.00	ug/L		1					
Bromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromodichloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromoform	U	1.00	0.333	1.00	ug/L		1					
Bromomethane	UY2	1.00	0.337	1.00	ug/L		1					
Carbon disulfide	UY2	5.00	1.67	5.00	ug/L		1					
Carbon tetrachloride	UY2	1.00	0.333	1.00	ug/L		1					
Chlorobenzene	U	1.00	0.333	1.00	ug/L		1					
Chloroethane	U	1.00	0.333	1.00	ug/L		1					
Chloroform	U	1.00	0.333	1.00	ug/L		1					
Chloromethane	UY1	1.00	0.333	1.00	ug/L		1					
Dibromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromomethane	U	1.00	0.333	1.00	ug/L		1					
Ethylbenzene	UY2	1.00	0.333	1.00	ug/L		1					
Iodomethane	UY2	5.00	1.67	5.00	ug/L		1					

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Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW372UG2-24 Project: FRNP00507
Sample ID: 652906001 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
Methylene chloride	JY2	1.35	0.500	5.00	ug/L		1					
Styrene	UY2	1.00	0.333	1.00	ug/L		1					
Tetrachloroethylene	U	1.00	0.333	1.00	ug/L		1					
Toluene	U	1.00	0.333	1.00	ug/L		1					
Trichloroethylene		2.50	0.333	1.00	ug/L		1					
Trichlorofluoromethane	U	1.00	0.333	1.00	ug/L		1					
Vinyl acetate	U	5.00	1.67	5.00	ug/L		1					
Vinyl chloride	UY1	1.00	0.333	1.00	ug/L		1					
Xylenes (total)	UY2	3.00	1.00	3.00	ug/L		1					
cis-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
cis-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,4-Dichloro-2-butene	U	5.00	1.67	5.00	ug/L		1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3535A	SW3535A PCB SPE Extraction	DXF4	02/16/24	0454	2568582
SW846 8011 PREP	8011 Prep	LL2	02/01/24	1147	2559321
SW846 3005A	ICP-MS 3005A PREP	SD	01/29/24	1520	2559334
SW846 9010C Distillation	SW846 9010C Prep	ES2	01/30/24	1104	2559563
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	01/30/24	1205	2560147

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Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW372UG2-24 Project: FRNP00507
Sample ID: 652906001 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 8011	
2	SW846 9060A	
3	SW846 9012B	
4	SW846 9020B	
5	EPA 300.0	
6	SW846 9056A	
7	SW846 9056A	
8	SW846 7470A	
9	SW846 3005A/6020B	
10	SW846 3005A/6020B	
11	SW846 3005A/6020B	
12	SW846 3005A/6020B	
13	SW846 3005A/6020B	
14	SW846 3535A/8082A	
15	EPA 160.1	
16	EPA 410.4	
17	SW846 8260D	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011 VOA- 1,2-Dibromo-3-chloropropane "As Received"	11.3 ug/L	6.70	168*	(56%-149%)
Decachlorobiphenyl	8082A, PCB Liquids "As Received"	0.131 ug/L	0.213	62	(30%-135%)
4cmx	8082A, PCB Liquids "As Received"	0.123 ug/L	0.213	58	(26%-108%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	50.2 ug/L	50.0	100	(74%-123%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	43.8 ug/L	50.0	88	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	43.9 ug/L	50.0	88	(77%-121%)

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-U Landfill Quarterly(UG24-02)

Client Sample ID:	MW372UG2-24	Project:	FRNP00507
Sample ID:	652906002	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	25-JAN-24 10:05		
Receive Date:	26-JAN-24		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Dissolved Metals (3 Elements) "As Received"												
Barium		0.0559	0.000670	0.00400	mg/L	1.00	1	RM4	02/20/24	1717	2559335	1
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-MS 3005A PREP	SD	01/29/24	1520	2559334
EPA 160	Laboratory Filtration	RXB5	01/26/24	1247	2559164

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3005A/6020B	

Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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Report Date: April 25, 2024

Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW373UG2-24
Sample ID: 652906003
Matrix: WG
Collect Date: 25-JAN-24 10:47
Receive Date: 26-JAN-24
Collector: Client

Project: FRNP00507
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
504.1/8011 Analysis of EDB/DBCP												
8011 VOA- 1,2-Dibromo-3-chloropropane "As Received"												
1,2-Dibromo-3-chloropropane	SU	0.0189	0.00851	0.0189	ug/L	0.946	1	LL2	02/01/24	1458	2559322	1
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	1.37	0.330	2.00	mg/L		1	RM3	01/31/24	1717	2561367	2
Flow Injection Analysis												
9012B, Cyanide, Total "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	01/31/24	0546	2559564	3
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens		14.3	3.33	10.0	ug/L		1	RM3	01/30/24	1743	2560465	4
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	02/06/24	1952	2564209	5
SW846 9056A Anions (5 elements) "As Received"												
Bromide		0.202	0.0670	0.200	mg/L		1	CH6	01/26/24	1713	2559331	6
Fluoride	J	0.214	0.0330	4.00	mg/L		1					
Nitrate-N	J	0.732	0.0330	10.0	mg/L		1					
Chloride	JB	31.3	1.34	250	mg/L		20	CWW	01/29/24	1348	2559331	7
Sulfate		194	2.66	8.00	mg/L		20					
Mercury Analysis-CVAA												
7470, Mercury Liquid "As Received"												
Mercury	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	JP2	01/31/24	1131	2560151	8
Metals Analysis-ICP-MS												
6020, Metals (15+ elements) "As Received"												
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1	RM4	02/21/24	0008	2559335	9
Molybdenum	U	0.00100	0.000200	0.00100	mg/L	1.00	1					
Nickel	J	0.00164	0.000600	0.00200	mg/L	1.00	1					
Selenium	U	0.00500	0.00150	0.00500	mg/L	1.00	1					
Uranium	J	0.0000710	0.0000670	0.000200	mg/L	1.00	1					
Antimony	U	0.00300	0.00100	0.00300	mg/L	1.00	1	RM4	02/21/24	1645	2559335	10
Boron	B	2.22	0.104	0.300	mg/L	1.00	20	RM4	02/21/24	1356	2559335	11
Calcium		84.0	1.60	4.00	mg/L	1.00	20					
Sodium		63.7	1.60	5.00	mg/L	1.00	20					

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Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW373UG2-24 Project: FRNP00507
Sample ID: 652906003 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Metals (15+ elements) "As Received"												
Aluminum	U	0.0500	0.0193	0.0500	mg/L	1.00	1	RM4	02/20/24	1721	2559335	12
Arsenic		0.00644	0.00200	0.00500	mg/L	1.00	1					
Barium		0.0361	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					
Cobalt	J	0.000501	0.000300	0.00100	mg/L	1.00	1					
Copper	J	0.00116	0.000300	0.00200	mg/L	1.00	1					
Iron	J	0.0872	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Magnesium		29.9	0.0100	0.0300	mg/L	1.00	1					
Manganese		0.0593	0.00100	0.00500	mg/L	1.00	1					
Potassium		2.62	0.0800	0.300	mg/L	1.00	1					
Silver	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Thallium	U	0.00200	0.000600	0.00200	mg/L	1.00	1					
Vanadium	J	0.00715	0.00330	0.0200	mg/L	1.00	1					
Zinc	U	0.0200	0.00330	0.0200	mg/L	1.00	1					
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	02/21/24	1448	2559335	13
Tantalum	UN	0.00500	0.00100	0.00500	mg/L	1.00	1					
Semi-Volatiles-PCB												
8082A, PCB Liquids "As Received"												
Aroclor-1016	U	0.104	0.0346	0.104	ug/L	0.00104	1	YS1	02/16/24	1359	2568588	14
Aroclor-1221	U	0.104	0.0346	0.104	ug/L	0.00104	1					
Aroclor-1232	U	0.104	0.0346	0.104	ug/L	0.00104	1					
Aroclor-1242	U	0.104	0.0346	0.104	ug/L	0.00104	1					
Aroclor-1248	U	0.104	0.0346	0.104	ug/L	0.00104	1					
Aroclor-1254	U	0.104	0.0346	0.104	ug/L	0.00104	1					
Aroclor-1260	U	0.104	0.0346	0.104	ug/L	0.00104	1					
Aroclor-1268	U	0.104	0.0346	0.104	ug/L	0.00104	1					
Aroclor-Total	U	0.104	0.0346	0.104	ug/L	0.00104	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		536	2.38	10.0	mg/L			KLP1	02/01/24	1158	2561837	15
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												

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Client Sample ID: MW373UG2-24 Project: FRNP00507
Sample ID: 652906003 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD	U	20.0	8.95	20.0	mg/L		1	HH2	01/29/24	1244	2559247	16
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	JM6	02/01/24	1303	2559983	17
1,1,1-Trichloroethane	UY2	1.00	0.333	1.00	ug/L		1					
1,1,2,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethylene	UY2	1.00	0.333	1.00	ug/L		1					
1,2,3-Trichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dibromoethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,4-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
2-Butanone	U	5.00	1.67	5.00	ug/L		1					
2-Hexanone	U	5.00	1.67	5.00	ug/L		1					
4-Methyl-2-pentanone	LU	5.00	1.67	5.00	ug/L		1					
Acetone	UY2	5.00	1.74	5.00	ug/L		1					
Acrolein	U	5.00	1.67	5.00	ug/L		1					
Acrylonitrile	U	5.00	1.67	5.00	ug/L		1					
Benzene	U	1.00	0.333	1.00	ug/L		1					
Bromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromodichloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromoform	U	1.00	0.333	1.00	ug/L		1					
Bromomethane	UY2	1.00	0.337	1.00	ug/L		1					
Carbon disulfide	UY2	5.00	1.67	5.00	ug/L		1					
Carbon tetrachloride	UY2	1.00	0.333	1.00	ug/L		1					
Chlorobenzene	U	1.00	0.333	1.00	ug/L		1					
Chloroethane	U	1.00	0.333	1.00	ug/L		1					
Chloroform	U	1.00	0.333	1.00	ug/L		1					
Chloromethane	UY1	1.00	0.333	1.00	ug/L		1					
Dibromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromomethane	U	1.00	0.333	1.00	ug/L		1					
Ethylbenzene	UY2	1.00	0.333	1.00	ug/L		1					
Iodomethane	UY2	5.00	1.67	5.00	ug/L		1					

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Certificate of Analysis

Report Date: April 25, 2024

Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW373UG2-24 Project: FRNP00507
Sample ID: 652906003 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
Methylene chloride	BJY2	1.60	0.500	5.00	ug/L		1					
Styrene	UY2	1.00	0.333	1.00	ug/L		1					
Tetrachloroethylene	U	1.00	0.333	1.00	ug/L		1					
Toluene	U	1.00	0.333	1.00	ug/L		1					
Trichloroethylene		2.72	0.333	1.00	ug/L		1					
Trichlorofluoromethane	U	1.00	0.333	1.00	ug/L		1					
Vinyl acetate	U	5.00	1.67	5.00	ug/L		1					
Vinyl chloride	UY1	1.00	0.333	1.00	ug/L		1					
Xylenes (total)	UY2	3.00	1.00	3.00	ug/L		1					
cis-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
cis-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,4-Dichloro-2-butene	U	5.00	1.67	5.00	ug/L		1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3535A	SW3535A PCB SPE Extraction	DXF4	02/16/24	0454	2568582
SW846 8011 PREP	8011 Prep	LL2	02/01/24	1147	2559321
SW846 3005A	ICP-MS 3005A PREP	SD	01/29/24	1520	2559334
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	01/30/24	1205	2560147
SW846 9010C Distillation	SW846 9010C Prep	ES2	01/30/24	1104	2559563

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Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW373UG2-24 Project: FRNP00507
Sample ID: 652906003 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 8011	
2	SW846 9060A	
3	SW846 9012B	
4	SW846 9020B	
5	EPA 300.0	
6	SW846 9056A	
7	SW846 9056A	
8	SW846 7470A	
9	SW846 3005A/6020B	
10	SW846 3005A/6020B	
11	SW846 3005A/6020B	
12	SW846 3005A/6020B	
13	SW846 3005A/6020B	
14	SW846 3535A/8082A	
15	EPA 160.1	
16	EPA 410.4	
17	SW846 8260D	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011 VOA- 1,2-Dibromo-3-chloropropane "As Received"	10.4 ug/L	6.75	154*	(56%-149%)
Decachlorobiphenyl	8082A, PCB Liquids "As Received"	0.146 ug/L	0.208	70	(30%-135%)
4cmx	8082A, PCB Liquids "As Received"	0.127 ug/L	0.208	61	(26%-108%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	47.4 ug/L	50.0	95	(74%-123%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	44.8 ug/L	50.0	90	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	41.6 ug/L	50.0	83	(77%-121%)

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Report Date: April 25, 2024

Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID:	MW373UG2-24	Project:	FRNP00507
Sample ID:	652906004	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	25-JAN-24 10:47		
Receive Date:	26-JAN-24		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Dissolved Metals (3 Elements) "As Received"												
Barium		0.0364	0.000670	0.00400	mg/L	1.00	1	RM4	02/20/24	1725	2559335	1
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					
Uranium	J	0.0000910	0.0000670	0.000200	mg/L	1.00	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 160	Laboratory Filtration	RXB5	01/26/24	1247	2559164
SW846 3005A	ICP-MS 3005A PREP	SD	01/29/24	1520	2559334

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3005A/6020B	

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Report Date: April 25, 2024

Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW374UG2-24
Sample ID: 652906005
Matrix: WG
Collect Date: 25-JAN-24 11:32
Receive Date: 26-JAN-24
Collector: Client

Project: FRNP00507
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
504.1/8011 Analysis of EDB/DBCP												
8011 VOA- 1,2-Dibromo-3-chloropropane "As Received"												
1,2-Dibromo-3-chloropropane	U	0.0189	0.00850	0.0189	ug/L	0.945	1	LL2	02/01/24	1522	2559322	1
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average		2.50	0.330	2.00	mg/L		1	RM3	01/31/24	1750	2561367	2
Flow Injection Analysis												
9012B, Cyanide, Total "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	01/31/24	0547	2559564	3
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens		26.7	3.33	10.0	ug/L		1	RM3	01/31/24	1413	2561263	4
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	02/06/24	2005	2564209	5
SW846 9056A Anions (5 elements) "As Received"												
Bromide		0.488	0.0670	0.200	mg/L		1	CH6	01/26/24	1743	2559331	6
Fluoride	J	0.281	0.0330	4.00	mg/L		1					
Nitrate-N	J	0.329	0.0330	10.0	mg/L		1					
Sulfate		15.4	0.133	0.400	mg/L		1					
Chloride	BJ	44.8	0.670	250	mg/L		10	CH6	01/26/24	2323	2559331	7
Mercury Analysis-CVAA												
7470, Mercury Liquid "As Received"												
Mercury	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	JP2	01/31/24	1133	2560151	8
Metals Analysis-ICP-MS												
6020, Metals (15+ elements) "As Received"												
Nickel	U	0.00200	0.000600	0.00200	mg/L	1.00	1	RM4	02/21/24	0016	2559335	9
Sodium		128	1.60	5.00	mg/L	1.00	20	RM4	02/21/24	1359	2559335	10
Antimony	U	0.00300	0.00100	0.00300	mg/L	1.00	1	RM4	02/21/24	1649	2559335	11
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	02/21/24	1450	2559335	12
Tantalum	UN	0.00500	0.00100	0.00500	mg/L	1.00	1					
Aluminum		0.0750	0.0193	0.0500	mg/L	1.00	1	RM4	02/20/24	1729	2559335	13
Arsenic	J	0.00429	0.00200	0.00500	mg/L	1.00	1					
Barium		0.153	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					

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Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW374UG2-24 Project: FRNP00507
Sample ID: 652906005 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Metals (15+ elements) "As Received"												
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Calcium		24.7	0.0800	0.200	mg/L	1.00	1					
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					
Cobalt	J	0.000662	0.000300	0.00100	mg/L	1.00	1					
Copper	J	0.000664	0.000300	0.00200	mg/L	1.00	1					
Iron		0.854	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Magnesium		6.28	0.0100	0.0300	mg/L	1.00	1					
Manganese		0.198	0.00100	0.00500	mg/L	1.00	1					
Molybdenum	J	0.000330	0.000200	0.00100	mg/L	1.00	1					
Potassium		0.421	0.0800	0.300	mg/L	1.00	1					
Selenium		0.00576	0.00150	0.00500	mg/L	1.00	1					
Silver	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Thallium	U	0.00200	0.000600	0.00200	mg/L	1.00	1					
Uranium		0.000316	0.0000670	0.000200	mg/L	1.00	1					
Vanadium	J	0.00380	0.00330	0.0200	mg/L	1.00	1					
Zinc	U	0.0200	0.00330	0.0200	mg/L	1.00	1					
Boron	B	0.0160	0.00520	0.0150	mg/L	1.00	1	RM4	02/21/24	1309	2559335	14
Semi-Volatiles-PCB												
8082A, PCB Liquids "As Received"												
Aroclor-1016	U	0.114	0.0381	0.114	ug/L	0.00114	1	YS1	02/16/24	1410	2568588	15
Aroclor-1221	U	0.114	0.0381	0.114	ug/L	0.00114	1					
Aroclor-1232	U	0.114	0.0381	0.114	ug/L	0.00114	1					
Aroclor-1242	U	0.114	0.0381	0.114	ug/L	0.00114	1					
Aroclor-1248	U	0.114	0.0381	0.114	ug/L	0.00114	1					
Aroclor-1254	U	0.114	0.0381	0.114	ug/L	0.00114	1					
Aroclor-1260	U	0.114	0.0381	0.114	ug/L	0.00114	1					
Aroclor-1268	U	0.114	0.0381	0.114	ug/L	0.00114	1					
Aroclor-Total	U	0.114	0.0381	0.114	ug/L	0.00114	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		393	2.38	10.0	mg/L			KLP1	02/01/24	1158	2561837	16
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												

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Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW374UG2-24 Project: FRNP00507
Sample ID: 652906005 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD	U	20.0	8.95	20.0	mg/L		1	HH2	01/29/24	1244	2559247	17
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	JM6	02/01/24	1331	2559983	18
1,1,1-Trichloroethane	UY2	1.00	0.333	1.00	ug/L		1					
1,1,2,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethylene	UY2	1.00	0.333	1.00	ug/L		1					
1,2,3-Trichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dibromoethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,4-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
2-Butanone	U	5.00	1.67	5.00	ug/L		1					
2-Hexanone	U	5.00	1.67	5.00	ug/L		1					
4-Methyl-2-pentanone	LU	5.00	1.67	5.00	ug/L		1					
Acetone	UY2	5.00	1.74	5.00	ug/L		1					
Acrolein	U	5.00	1.67	5.00	ug/L		1					
Acrylonitrile	U	5.00	1.67	5.00	ug/L		1					
Benzene	U	1.00	0.333	1.00	ug/L		1					
Bromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromodichloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromoform	U	1.00	0.333	1.00	ug/L		1					
Bromomethane	UY2	1.00	0.337	1.00	ug/L		1					
Carbon disulfide	UY2	5.00	1.67	5.00	ug/L		1					
Carbon tetrachloride	UY2	1.00	0.333	1.00	ug/L		1					
Chlorobenzene	U	1.00	0.333	1.00	ug/L		1					
Chloroethane	U	1.00	0.333	1.00	ug/L		1					
Chloroform	U	1.00	0.333	1.00	ug/L		1					
Chloromethane	UY1	1.00	0.333	1.00	ug/L		1					
Dibromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromomethane	U	1.00	0.333	1.00	ug/L		1					
Ethylbenzene	UY2	1.00	0.333	1.00	ug/L		1					
Iodomethane	UY2	5.00	1.67	5.00	ug/L		1					

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Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW374UG2-24 Project: FRNP00507
Sample ID: 652906005 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
Methylene chloride	BJY2	1.58	0.500	5.00	ug/L		1					
Styrene	UY2	1.00	0.333	1.00	ug/L		1					
Tetrachloroethylene	U	1.00	0.333	1.00	ug/L		1					
Toluene	U	1.00	0.333	1.00	ug/L		1					
Trichloroethylene	U	1.00	0.333	1.00	ug/L		1					
Trichlorofluoromethane	U	1.00	0.333	1.00	ug/L		1					
Vinyl acetate	U	5.00	1.67	5.00	ug/L		1					
Vinyl chloride	UY1	1.00	0.333	1.00	ug/L		1					
Xylenes (total)	UY2	3.00	1.00	3.00	ug/L		1					
cis-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
cis-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,4-Dichloro-2-butene	U	5.00	1.67	5.00	ug/L		1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	01/30/24	1205	2560147
SW846 3005A	ICP-MS 3005A PREP	SD	01/29/24	1520	2559334
SW846 9010C Distillation	SW846 9010C Prep	ES2	01/30/24	1104	2559563
SW846 8011 PREP	8011 Prep	LL2	02/01/24	1147	2559321
SW846 3535A	SW3535A PCB SPE Extraction	DXF4	02/16/24	0454	2568582

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Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW374UG2-24 Project: FRNP00507
Sample ID: 652906005 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 8011	
2	SW846 9060A	
3	SW846 9012B	
4	SW846 9020B	
5	EPA 300.0	
6	SW846 9056A	
7	SW846 9056A	
8	SW846 7470A	
9	SW846 3005A/6020B	
10	SW846 3005A/6020B	
11	SW846 3005A/6020B	
12	SW846 3005A/6020B	
13	SW846 3005A/6020B	
14	SW846 3005A/6020B	
15	SW846 3535A/8082A	
16	EPA 160.1	
17	EPA 410.4	
18	SW846 8260D	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011 VOA- 1,2-Dibromo-3-chloropropane "As Received"	6.40 ug/L	6.75	95	(56%-149%)
Decachlorobiphenyl	8082A, PCB Liquids "As Received"	0.0876 ug/L	0.229	38	(30%-135%)
4cmx	8082A, PCB Liquids "As Received"	0.136 ug/L	0.229	59	(26%-108%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	48.1 ug/L	50.0	96	(74%-123%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	43.9 ug/L	50.0	88	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	45.0 ug/L	50.0	90	(77%-121%)

Notes:

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Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-U Landfill Quarterly(UG24-02)

Client Sample ID:	MW374UG2-24	Project:	FRNP00507
Sample ID:	652906005	Client ID:	FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-U Landfill Quarterly(UG24-02)

Client Sample ID:	MW374UG2-24	Project:	FRNP00507
Sample ID:	652906006	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	25-JAN-24 11:32		
Receive Date:	26-JAN-24		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Dissolved Metals (3 Elements) "As Received"												
Barium		0.149	0.000670	0.00400	mg/L	1.00	1	RM4	02/20/24	1732	2559335	1
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					
Uranium		0.000314	0.0000670	0.000200	mg/L	1.00	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-MS 3005A PREP	SD	01/29/24	1520	2559334
EPA 160	Laboratory Filtration	RXB5	01/26/24	1247	2559164

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3005A/6020B	

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: April 25, 2024

Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: TB3UG2-24
Sample ID: 652906007
Matrix: WATER
Collect Date: 25-JAN-24 06:40
Receive Date: 26-JAN-24
Collector: Client

Project: FRNP00507
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
504.1/8011 Analysis of EDB/DBCP												
8011 VOA- 1,2-Dibromo-3-chloropropane "As Received"												
1,2-Dibromo-3-chloropropane	U	0.0192	0.00865	0.0192	ug/L	0.961	1	LL2	02/01/24	1547	2559322	1
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	JM6	01/29/24	1326	2559983	2
1,1,1-Trichloroethane	UY2	1.00	0.333	1.00	ug/L		1					
1,1,2,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethylene	UY2	1.00	0.333	1.00	ug/L		1					
1,2,3-Trichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dibromoethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,4-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
2-Butanone	U	5.00	1.67	5.00	ug/L		1					
2-Hexanone	U	5.00	1.67	5.00	ug/L		1					
4-Methyl-2-pentanone	U	5.00	1.67	5.00	ug/L		1					
Acetone	UY2	5.00	1.74	5.00	ug/L		1					
Acrolein	U	5.00	1.67	5.00	ug/L		1					
Acrylonitrile	U	5.00	1.67	5.00	ug/L		1					
Benzene	U	1.00	0.333	1.00	ug/L		1					
Bromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromodichloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromoform	U	1.00	0.333	1.00	ug/L		1					
Bromomethane	UY2	1.00	0.337	1.00	ug/L		1					
Carbon disulfide	UY2	5.00	1.67	5.00	ug/L		1					
Carbon tetrachloride	UY2	1.00	0.333	1.00	ug/L		1					
Chlorobenzene	U	1.00	0.333	1.00	ug/L		1					
Chloroethane	U	1.00	0.333	1.00	ug/L		1					
Chloroform	U	1.00	0.333	1.00	ug/L		1					
Chloromethane	UY1	1.00	0.333	1.00	ug/L		1					
Dibromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromomethane	U	1.00	0.333	1.00	ug/L		1					
Ethylbenzene	UY2	1.00	0.333	1.00	ug/L		1					
Iodomethane	UY2	5.00	1.67	5.00	ug/L		1					

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Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: TB3UG2-24 Project: FRNP00507
Sample ID: 652906007 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
Methylene chloride	JY2	1.42	0.500	5.00	ug/L		1					
Styrene	UY2	1.00	0.333	1.00	ug/L		1					
Tetrachloroethylene	U	1.00	0.333	1.00	ug/L		1					
Toluene	U	1.00	0.333	1.00	ug/L		1					
Trichloroethylene	U	1.00	0.333	1.00	ug/L		1					
Trichlorofluoromethane	U	1.00	0.333	1.00	ug/L		1					
Vinyl acetate	U	5.00	1.67	5.00	ug/L		1					
Vinyl chloride	UY1	1.00	0.333	1.00	ug/L		1					
Xylenes (total)	UY2	3.00	1.00	3.00	ug/L		1					
cis-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
cis-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,4-Dichloro-2-butene	U	5.00	1.67	5.00	ug/L		1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 8011 PREP	8011 Prep	LL2	02/01/24	1147	2559321

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 8011	
2	SW846 8260D	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011 VOA- 1,2-Dibromo-3-chloropropane "As Received"	8.14 ug/L	6.87	119	(56%-149%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	49.3 ug/L	50.0	99	(74%-123%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	44.4 ug/L	50.0	89	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	44.7 ug/L	50.0	89	(77%-121%)

Notes:

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Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-U Landfill Quarterly(UG24-02)

Client Sample ID:	TB3UG2-24	Project:	FRNP00507
Sample ID:	652906007	Client ID:	FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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Kevil, Kentucky 42053 Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW372UG2-24 Project: FRNP00507
Sample ID: 652906001 Client ID: FRNP005
Matrix: WG
Collect Date: 25-JAN-24
Receive Date: 26-JAN-24
Collector: Client

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
AN-1418 AlphaSpec Ra226, Liquid "As Received"														
Radium-226	U	0.524	+/-0.517	0.646	+/-0.518	5.00	pCi/L			CM4	02/12/24	1142	2559993	1
Th-01-RC M, Th Isotopes, Liquid "As Received"														
Thorium-230	U	0.827	+/-1.07	1.63	+/-1.08	50.0	pCi/L			EJ1	02/03/24	0926	2559991	2
Thorium-232	U	0.221	+/-0.666	1.19	+/-0.667		pCi/L							
Rad Gas Flow Proportional Counting														
904.0Mod, Ra228, Liquid "As Received"														
Radium-228	U	0.860	+/-2.24	4.09	+/-2.26	4.99	pCi/L			JE1	02/19/24	1059	2563688	3
905.0Mod, Sr90, liquid "As Received"														
Strontium-90	U	0.804	+/-3.00	5.45	+/-3.00	8.00	pCi/L			ST2	02/07/24	1521	2562680	4
9310, Alpha/Beta Activity, liquid "As Received"														
Alpha	U	6.28	+/-7.13	11.7	+/-7.21	15.0	pCi/L			KP1	02/05/24	1803	2559936	5
Beta		26.5	+/-8.54	10.8	+/-9.61	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
906.0M, Tritium Dist, Liquid "As Received"														
Tritium	U	3.58	+/-129	230	+/-129	300	pCi/L			HB2	02/22/24	0257	2563918	6
Tc-02-RC-MOD, Tc99, Liquid "As Received"														
Technetium-99		38.9	+/-11.4	16.3	+/-12.2	25.0	pCi/L			GS3	02/20/24	1023	2564441	7

The following Analytical Methods were performed

Method	Description
1	Eichrom Industries, AN-1418
2	DOE EML HASL-300, Th-01-RC Modified
3	EPA 904.0/SW846 9320 Modified
4	EPA 905.0 Modified/DOE RP501 Rev. 1 Modified
5	EPA 900.0/SW846 9310
6	EPA 906.0 Modified
7	DOE EML HASL-300, Tc-02-RC Modified

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Barium-133 Tracer	AN-1418 AlphaSpec Ra226, Liquid "As Received"	2559993	97.2	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2559991	92.8	(30%-110%)
Barium-133 Tracer	904.0Mod, Ra228, Liquid "As Received"	2563688	84	(30%-110%)
Strontium Carrier	905.0Mod, Sr90, liquid "As Received"	2562680	99	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2564441	99.7	(30%-110%)

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Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW372UG2-24
Sample ID: 652906001

Project: FRNP00507
Client ID: FRNP005

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Surrogate/Tracer Recovery	**Test**							**Batch ID**		**Recovery%**	**Acceptable Limits**			

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
Lc/LC: Critical Level
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Mtd.: Method
PF: Prep Factor
RL: Reporting Limit
TPU: Total Propagated Uncertainty

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Report Date: April 25, 2024

Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW373UG2-24
Sample ID: 652906003
Matrix: WG
Collect Date: 25-JAN-24
Receive Date: 26-JAN-24
Collector: Client

Project: FRNP00507
Client ID: FRNP005

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
AN-1418 AlphaSpec Ra226, Liquid "As Received"														
Radium-226	U	0.0260	+/-0.264	0.553	+/-0.264	5.00	pCi/L			CM4	02/12/24	1142	2559993	1
Th-01-RC M, Th Isotopes, Liquid "As Received"														
Thorium-230	U	1.15	+/-1.80	2.82	+/-1.81	50.0	pCi/L			EJ1	02/03/24	0926	2559991	2
Thorium-232	U	-0.284	+/-0.792	2.26	+/-0.794		pCi/L							
Rad Gas Flow Proportional Counting														
904.0Mod, Ra228, Liquid "As Received"														
Radium-228	U	2.49	+/-2.07	3.25	+/-2.17	4.99	pCi/L			JE1	02/19/24	1059	2563688	3
905.0Mod, Sr90, liquid "As Received"														
Strontium-90	U	2.98	+/-3.39	5.70	+/-3.42	8.00	pCi/L			ST2	02/07/24	1521	2562680	4
9310, Alpha/Beta Activity, liquid "As Received"														
Alpha	U	2.87	+/-4.96	9.17	+/-4.98	15.0	pCi/L			KP1	02/05/24	1803	2559936	5
Beta	U	2.38	+/-5.95	10.6	+/-5.96	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
906.0M, Tritium Dist, Liquid "As Received"														
Tritium	U	98.0	+/-140	238	+/-141	300	pCi/L			HB2	02/20/24	0916	2563918	6
Tc-02-RC-MOD, Tc99, Liquid "As Received"														
Technetium-99	U	6.70	+/-9.63	16.4	+/-9.66	25.0	pCi/L			GS3	02/20/24	1040	2564441	7

The following Analytical Methods were performed

Method	Description
1	Eichrom Industries, AN-1418
2	DOE EML HASL-300, Th-01-RC Modified
3	EPA 904.0/SW846 9320 Modified
4	EPA 905.0 Modified/DOE RP501 Rev. 1 Modified
5	EPA 900.0/SW846 9310
6	EPA 906.0 Modified
7	DOE EML HASL-300, Tc-02-RC Modified

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Barium-133 Tracer	AN-1418 AlphaSpec Ra226, Liquid "As Received"	2559993	95.2	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2559991	48.5	(30%-110%)
Barium-133 Tracer	904.0Mod, Ra228, Liquid "As Received"	2563688	90	(30%-110%)
Strontium Carrier	905.0Mod, Sr90, liquid "As Received"	2562680	96.4	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2564441	99.6	(30%-110%)

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Kevil, Kentucky 42053 Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW373UG2-24 Project: FRNP00507
Sample ID: 652906003 Client ID: FRNP005

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Surrogate/Tracer Recovery	**Test**							**Batch ID**		**Recovery%**	**Acceptable Limits**			

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
Lc/LC: Critical Level
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Mtd.: Method
PF: Prep Factor
RL: Reporting Limit
TPU: Total Propagated Uncertainty

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Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW374UG2-24
Sample ID: 652906005
Matrix: WG
Collect Date: 25-JAN-24
Receive Date: 26-JAN-24
Collector: Client

Project: FRNP00507
Client ID: FRNP005

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
AN-1418 AlphaSpec Ra226, Liquid "As Received"														
Radium-226	U	0.381	+/-0.379	0.507	+/-0.380	5.00	pCi/L			CM4	02/10/24	0856	2559993	1
Th-01-RC M, Th Isotopes, Liquid "As Received"														
Thorium-230	U	0.657	+/-0.970	1.53	+/-0.978	50.0	pCi/L			EJ1	02/03/24	0926	2559991	2
Thorium-232	U	0.0744	+/-0.530	1.06	+/-0.531		pCi/L							
Rad Gas Flow Proportional Counting														
904.0Mod, Ra228, Liquid "As Received"														
Radium-228	U	1.78	+/-2.20	3.74	+/-2.25	4.99	pCi/L			JE1	02/19/24	1100	2563688	3
905.0Mod, Sr90, liquid "As Received"														
Strontium-90	U	-1.64	+/-3.00	5.94	+/-3.00	8.00	pCi/L			ST2	02/07/24	1522	2562680	4
9310, Alpha/Beta Activity, liquid "As Received"														
Alpha	U	-0.395	+/-3.68	9.11	+/-3.68	15.0	pCi/L			KP1	02/05/24	1803	2559936	5
Beta	U	-2.43	+/-4.58	9.46	+/-4.58	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
906.0M, Tritium Dist, Liquid "As Received"														
Tritium	U	15.3	+/-133	239	+/-133	300	pCi/L			HB2	02/20/24	0947	2563918	6
Tc-02-RC-MOD, Tc99, Liquid "As Received"														
Technetium-99	U	3.19	+/-9.57	16.7	+/-9.58	25.0	pCi/L			GS3	02/20/24	1057	2564441	7

The following Analytical Methods were performed

Method	Description
1	Eichrom Industries, AN-1418
2	DOE EML HASL-300, Th-01-RC Modified
3	EPA 904.0/SW846 9320 Modified
4	EPA 905.0 Modified/DOE RP501 Rev. 1 Modified
5	EPA 900.0/SW846 9310
6	EPA 906.0 Modified
7	DOE EML HASL-300, Tc-02-RC Modified

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Barium-133 Tracer	AN-1418 AlphaSpec Ra226, Liquid "As Received"	2559993	96	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2559991	94.6	(30%-110%)
Barium-133 Tracer	904.0Mod, Ra228, Liquid "As Received"	2563688	84.8	(30%-110%)
Strontium Carrier	905.0Mod, Sr90, liquid "As Received"	2562680	88.5	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2564441	98.1	(30%-110%)

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Report Date: April 25, 2024

Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW374UG2-24
Sample ID: 652906005

Project: FRNP00507
Client ID: FRNP005

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Surrogate/Tracer Recovery	**Test**							**Batch ID**		**Recovery%**	**Acceptable Limits**			

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
Lc/LC: Critical Level
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Mtd.: Method
PF: Prep Factor
RL: Reporting Limit
TPU: Total Propagated Uncertainty

APPENDIX D

STATISTICAL ANALYSES AND QUALIFICATION STATEMENT

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RESIDENTIAL/CONTAINED—QUARTERLY, 1st CY 2024 Finds/Unit: KY8-980-008-982/1
Facility: U.S. DOE—Paducah Gaseous Diffusion Plant LAB ID: None
Permit Number: SW07300014, SW07300015, SW07300045

GROUNDWATER STATISTICAL COMMENTS

Introduction

The statistical analyses conducted on the first quarter 2024 groundwater data collected from the C-746-U Contained Landfill monitoring wells (MWs) were performed in accordance with Permit GSTR0001, Standard Requirement 3, using the U.S. Environmental Protection Agency (EPA) guidance document, *EPA Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Interim Final Guidance* (1989). A statistician qualification statement has been provided for this analysis.

The statistical evaluation was conducted separately for the three groundwater systems: the Upper Continental Recharge System (UCRS), the Upper Regional Gravel Aquifer (URGA), and the Lower Regional Gravel Aquifer (LRGA). For each groundwater system, data from wells considered to represent background conditions were compared with test wells (downgradient or sidegradient wells) (Exhibit D.1). The first quarter 2024 data used to conduct the statistical analyses were collected in January 2024. The statistical analyses for this report first used data from the first eight quarters that had been sampled for each parameter to develop the historical background value, beginning with the first two baseline sampling events in 2002, when available. Then a second set of statistical analyses, using the last eight quarters, was run on analytes that had at least one downgradient well that had exceeded the historical background. The sampling dates associated with both the historical and the current background data are listed next to the result in the statistical analysis sheets of this appendix.

Statistical Analysis Process

Constituents of concern that have Kentucky maximum contaminant levels (MCLs) and results that do not exceed their respective MCL are not included in the statistical evaluation. Parameters that have MCLs can be found in 401 *KAR* 47:030 § 6, *Maximum Groundwater Contaminant Levels*. For parameters with no established MCL and those parameters that exceed their MCLs, the most recent results are compared to historical background concentrations, as follows: the data are divided into censored and uncensored observations. The one-sided tolerance interval statistical test is conducted only on parameters that have at least one uncensored (detected) observation. The current result is compared to the results of the one-sided tolerance interval statistical test to determine if the current data exceed the historical background concentration calculated using the first eight quarters of data. The tolerance interval statistical analysis is conducted separately for each parameter in each well (no pooling of downgradient data).

For the statistical analysis of pH, a two-sided tolerance interval statistical test is conducted. The test well results are compared to both an upper and lower tolerance limit (TL) to determine if statistically significant deviations in concentrations exist with respect to upgradient (background) well data from the first eight quarters.

Statistical analyses are performed on the first eight quarters of historical background data, not on the data for the current quarter. Once a statistical result is obtained using the background data, the result for the current quarter is compared to that value. If the value is exceeded, the well is considered to have an exceedance of the statistically derived historical background concentration.

Exhibit D.1. Station Identification for Monitoring Wells Analyzed

Station	Type	Groundwater Unit
MW357	TW	URGA
MW358	TW	LRGA
MW359[a,b]	TW	UCRS
MW360	TW	URGA
MW361	TW	LRGA
MW362[a]	TW	UCRS
MW363	TW	URGA
MW364	TW	LRGA
MW365[a,b]	TW	UCRS
MW366	TW	URGA
MW367	TW	LRGA
MW368[a,b]	TW	UCRS
MW369	BG	URGA
MW370	BG	LRGA
MW371[a]	BG	UCRS
MW372	BG	URGA
MW373	BG	LRGA
MW374[a]	BG	UCRS
MW375[a]	SG	UCRS
MW376[a,b]	SG	UCRS
MW377[a,b]	SG	UCRS

[a] The gradients in UCRS wells are downward and, hydrogeologically, UCRS wells are not considered upgradient, downgradient, or sidegradient from the C-746-U Contained Landfill. The UCRS wells identified as upgradient, sidegradient, or downgradient are those wells located in the same general direction as the LRGA and URGA wells considered to be upgradient, sidegradient, or downgradient.
[b] Well was dry this quarter, and a groundwater sample could not be collected.
BG: upgradient or background wells
TW: downgradient or test wells
SG**:** sidegradient wells

For those parameters that are determined to exceed the historical background concentration, a second one-sided tolerance interval statistical test, or a two-sided tolerance interval statistical test in the case of pH, is conducted. The second one-sided tolerance interval statistical test is conducted to determine whether the current concentration in downgradient wells exceeds the current background, as determined by a comparison against the statistically derived upper TL using the most recent eight quarters of data for the relevant background wells. For the statistical analysis of pH, a two-sided tolerance interval statistical test is conducted, if required. The test well pH results are compared to both an upper and lower TL to determine if the current pH is different from the current background level to a statistically significant level. The tolerance interval statistical analysis is conducted separately for each parameter in each well (no pooling of downgradient data).

Statistical analyses are performed on the last eight quarters of current background data, not on the data for the current quarter. Once a statistical result is obtained using the background data, the result for the current quarter is compared to that value. If the value is exceeded, the well has an exceedance of the statistically derived current background concentration.

A stepwise list of the one-sided tolerance interval statistical procedure applied to the data is summarized below.[1]

1. The TL is calculated for the background data (first using the first eight quarters, then using the last eight quarters, if required).

    - For each parameter, the background data are used to establish a baseline. On this data set, the mean (X) and the standard deviation (S) are computed.

    - The data set is checked for normality using coefficient of variation (CV). If CV ≤ 1.0, then the data are assumed to be normally distributed. Data sets with CV > 1.0 are assumed to be log-normally distributed; for data sets with CV > 1.0, the data are log-transformed and analyzed.

    - The factor (K) for one-sided upper TL with 95% minimum coverage is determined (Table 5, Appendix B, *EPA Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Interim Final Guidance*, 1989) based on the number of background data points.

    - The one-sided upper TL is calculated using the following equation:

      $TL = X + (K \times S)$

2. Each observation from downgradient wells is compared to the calculated one-sided upper TL in Step 1. If an observation value exceeds the TL, then there is statistically significant evidence that the well concentration exceeds the historical background.

Type of Data Used

Exhibit D.1 presents the upgradient or background wells (identified as "BG"), the downgradient or test wells (identified as "TW"), and the sidegradient wells (identified as "SG") for the C-746-U Contained Landfill. Exhibit D.2 presents the parameters from the available data set for which a statistical test was performed using the one-sided tolerance interval.

Exhibits D.3, D.4, and D.5 list the number of analyses (observations), nondetects (censored observations), and detects (uncensored observations), by parameter in the UCRS, the URGA, and the LRGA, respectively. Those parameters displayed with bold-face type indicate the one-sided tolerance interval statistical test was performed. The data presented in Exhibits D.3, D.4, and D.5 were collected during the current quarter, first quarter 2024. The observations are representative of the current quarter data. Background data are presented in Attachments D1 and D2. The sampling dates associated with background data are listed next to the result in Attachments D1 and D2. When field duplicate data are available, the higher of the two readings is retained for further evaluation. When a data point has been rejected following data validation or data assessment, this result is not used, and the next available data point is used for the background or current quarter data.

[1] For pH, two-sided TLs (upper and lower) were calculated with an adjusted K factor using the following equations:
upper $TL = X + (K \times S)$
lower $TL = X - (K \times S)$

Exhibit D.2. List of Parameters Tested Using the One-Sided Upper Tolerance Level Test with Historical Background

Parameters
Acetone
Aluminum
Boron
Bromide
Calcium
Chemical Oxygen Demand (COD)
Chloride
Cobalt
Conductivity
Copper
Dissolved Oxygen
Dissolved Solids
Iron
Magnesium
Manganese
Methylene Chloride
Molybdenum
Nickel
Oxidation-Reduction Potential[a]
Polychlorinated Biphenyl (PCB), Total
PCB-1254
PCB-1260
pH[b]
Potassium
Sodium
Sulfate
Technetium-99
Total Organic Carbon (TOC)
Total Organic Halides (TOX)
Vanadium
Zinc

[a] Oxidation-Reduction Potential calibrated as Eh.

[b] For pH, the test well results were compared to both an upper and lower TL to determine if the current result differs to a statistically significant degree from the historical background values.

Exhibit D.3. Summary of Censored, and Uncensored Data—UCRS

Parameters	Observations	Censored Observation	Uncensored Observation	Statistical Analysis?
1,1,1,2-Tetrachloroethane	4	4	0	No
1,1,2,2-Tetrachloroethane	4	4	0	No
1,1,2-Trichloroethane	4	4	0	No
1,1-Dichloroethane	4	4	0	No
1,2,3-Trichloropropane	4	4	0	No
1,2-Dibromo-3-chloropropane	4	4	0	No
1,2-Dibromoethane	4	4	0	No
1,2-Dichlorobenzene	4	4	0	No
1,2-Dichloropropane	4	4	0	No
2-Butanone	4	4	0	No
2-Hexanone	4	4	0	No
4-Methyl-2-pentanone	4	4	0	No
Acetone	4	4	0	No
Acrolein	4	4	0	No
Acrylonitrile	4	4	0	No
Aluminum	**4**	**0**	**4**	**Yes**
Antimony	4	4	0	No
Beryllium	4	4	0	No
Boron	**4**	**2**	**2**	**Yes**
Bromide	**4**	**3**	**1**	**Yes**
Bromochloromethane	4	4	0	No
Bromodichloromethane	4	4	0	No
Bromoform	4	4	0	No
Bromomethane	4	4	0	No
Calcium	**4**	**0**	**4**	**Yes**
Carbon disulfide	4	4	0	No
COD	4	4	0	No
Chloride	**4**	**1**	**3**	**Yes**
Chlorobenzene	4	4	0	No
Chloroethane	4	4	0	No
Chloroform	4	4	0	No
Chloromethane	4	4	0	No
cis-1,2-Dichloroethene	4	4	0	No
cis-1,3-Dichloropropene	4	4	0	No
Cobalt	**4**	**2**	**2**	**Yes**
Conductivity	**4**	**0**	**4**	**Yes**
Copper	**4**	**0**	**4**	**Yes**
Cyanide	4	4	0	No
Dibromochloromethane	4	4	0	No
Dibromomethane	4	4	0	No
Dimethylbenzene, Total	4	4	0	No
Dissolved Oxygen	**4**	**0**	**4**	**Yes**
Dissolved Solids	**4**	**0**	**4**	**Yes**
Ethylbenzene	4	4	0	No
Iodide	4	4	0	No
Iodomethane	4	4	0	No
Iron	**4**	**0**	**4**	**Yes**
Magnesium	**4**	**0**	**4**	**Yes**
Manganese	**4**	**0**	**4**	**Yes**
Methylene chloride	4	4	0	No
Molybdenum	**4**	**1**	**3**	**Yes**

Exhibit D.3. Summary of Censored, and Uncensored Data—UCRS (Continued)

Parameters	Observations	Censored Observation	Uncensored Observation	Statistical Analysis?
Nickel	**4**	**2**	**2**	**Yes**
Oxidation-Reduction Potential	**4**	**0**	**4**	**Yes**
PCB, Total	4	4	0	No
PCB-1016	4	4	0	No
PCB-1221	4	4	0	No
PCB-1232	4	4	0	No
PCB-1242	4	4	0	No
PCB-1248	4	4	0	No
PCB-1254	4	4	0	No
PCB-1260	4	4	0	No
PCB-1268	4	4	0	No
pH	**4**	**0**	**4**	**Yes**
Potassium	**4**	**0**	**4**	**Yes**
Radium-226	4	4	0	No
Rhodium	4	4	0	No
Sodium	**4**	**0**	**4**	**Yes**
Styrene	4	4	0	No
Sulfate	**4**	**0**	**4**	**Yes**
Tantalum	4	4	0	No
Technetium-99	4	4	0	No
Tetrachloroethene	4	4	0	No
Thallium	4	4	0	No
Thorium-230	4	4	0	No
Toluene	4	4	0	No
TOC	**4**	**0**	**4**	**Yes**
TOX	**4**	**0**	**4**	**Yes**
trans-1,2-Dichloroethene	4	4	0	No
trans-1,3-Dichloropropene	4	4	0	No
trans-1,4-Dichloro-2-Butene	4	4	0	No
Trichlorofluoromethane	4	4	0	No
Vanadium	**4**	**2**	**2**	**Yes**
Vinyl Acetate	4	4	0	No
Zinc	**4**	**3**	**1**	**Yes**

Bold denotes parameters with at least one uncensored observation.

Exhibit D.4. Summary of Censored, and Uncensored Data—URGA

Parameters	Observations	Censored Observation	Uncensored Observation	Statistical Analysis?
1,1,1,2-Tetrachloroethane	6	6	0	No
1,1,2,2-Tetrachloroethane	6	6	0	No
1,1,2-Trichloroethane	6	6	0	No
1,1-Dichloroethane	6	6	0	No
1,2,3-Trichloropropane	6	6	0	No
1,2-Dibromo-3-chloropropane	6	6	0	No
1,2-Dibromoethane	6	6	0	No
1,2-Dichlorobenzene	6	6	0	No
1,2-Dichloropropane	6	6	0	No
2-Butanone	6	6	0	No
2-Hexanone	6	6	0	No
4-Methyl-2-pentanone	6	6	0	No
Acetone	**6**	**5**	**1**	**Yes**
Acrolein	6	6	0	No
Acrylonitrile	6	6	0	No
Aluminum	**6**	**4**	**2**	**Yes**
Antimony	6	6	0	No
Beryllium	6	6	0	No
Boron	**6**	**0**	**6**	**Yes**
Bromide	**6**	**1**	**5**	**Yes**
Bromochloromethane	6	6	0	No
Bromodichloromethane	6	6	0	No
Bromoform	6	6	0	No
Bromomethane	6	6	0	No
Calcium	**6**	**0**	**6**	**Yes**
Carbon disulfide	6	6	0	No
COD	6	6	0	No
Chloride	**6**	**1**	**5**	**Yes**
Chlorobenzene	6	6	0	No
Chloroethane	6	6	0	No
Chloroform	6	6	0	No
Chloromethane	6	6	0	No
cis-1,2-Dichloroethene	6	6	0	No
cis-1,3-Dichloropropene	6	6	0	No
Cobalt	**6**	**3**	**3**	**Yes**
Conductivity	**6**	**0**	**6**	**Yes**
Copper	**6**	**0**	**6**	**Yes**
Cyanide	6	6	0	No
Dibromochloromethane	6	6	0	No
Dibromomethane	6	6	0	No
Dimethylbenzene, Total	6	6	0	No
Dissolved Oxygen	**6**	**0**	**6**	**Yes**
Dissolved Solids	**6**	**0**	**6**	**Yes**
Ethylbenzene	6	6	0	No
Iodide	6	6	0	No
Iodomethane	6	6	0	No
Iron	**6**	**0**	**6**	**Yes**
Magnesium	**6**	**0**	**6**	**Yes**
Manganese	**6**	**0**	**6**	**Yes**
Methylene chloride	**6**	**5**	**1**	**Yes**
Molybdenum	**6**	**5**	**1**	**Yes**

Exhibit D.4. Summary of Censored, and Uncensored Data—URGA (Continued)

Parameters	Observations	Censored Observation	Uncensored Observation	Statistical Analysis?
Nickel	**6**	**1**	**5**	**Yes**
Oxidation-Reduction Potential	**6**	**0**	**6**	**Yes**
PCB, Total	6	6	0	No
PCB-1016	6	6	0	No
PCB-1221	6	6	0	No
PCB-1232	6	6	0	No
PCB-1242	6	6	0	No
PCB-1248	6	6	0	No
PCB-1254	6	6	0	No
PCB-1260	6	6	0	No
PCB-1268	6	6	0	No
pH	**6**	**0**	**6**	**Yes**
Potassium	**6**	**0**	**6**	**Yes**
Radium-226	6	6	0	No
Rhodium	6	6	0	No
Sodium	**6**	**0**	**6**	**Yes**
Styrene	6	6	0	No
Sulfate	**6**	**0**	**6**	**Yes**
Tantalum	6	6	0	No
Technetium-99	**6**	**3**	**3**	**Yes**
Tetrachloroethene	6	6	0	No
Thallium	6	6	0	No
Thorium-230	6	6	0	No
Toluene	6	6	0	No
TOC	**6**	**0**	**6**	**Yes**
TOX	**6**	**1**	**5**	**Yes**
trans-1,2-Dichloroethene	6	6	0	No
trans-1,3-Dichloropropene	6	6	0	No
trans-1,4-Dichloro-2-Butene	6	6	0	No
Trichlorofluoromethane	6	6	0	No
Vanadium	**6**	**5**	**1**	**Yes**
Vinyl Acetate	6	6	0	No
Zinc	**6**	**5**	**1**	**Yes**

Bold denotes parameters with at least one uncensored observation.

Exhibit D.5. Summary of Censored, and Uncensored Data—LRGA

Parameters	Observations	Censored Observation	Uncensored Observation	Statistical Analysis?
1,1,1,2-Tetrachloroethane	6	6	0	No
1,1,2,2-Tetrachloroethane	6	6	0	No
1,1,2-Trichloroethane	6	6	0	No
1,1-Dichloroethane	6	6	0	No
1,2,3-Trichloropropane	6	6	0	No
1,2-Dibromo-3-chloropropane	6	6	0	No
1,2-Dibromoethane	6	6	0	No
1,2-Dichlorobenzene	6	6	0	No
1,2-Dichloropropane	6	6	0	No
2-Butanone	6	6	0	No
2-Hexanone	6	6	0	No
4-Methyl-2-pentanone	6	6	0	No
Acetone	6	6	0	No
Acrolein	6	6	0	No
Acrylonitrile	6	6	0	No
Aluminum	**6**	**5**	**1**	**Yes**
Antimony	6	6	0	No
Beryllium	6	6	0	No
Boron	**6**	**0**	**6**	**Yes**
Bromide	**6**	**1**	**5**	**Yes**
Bromochloromethane	6	6	0	No
Bromodichloromethane	6	6	0	No
Bromoform	6	6	0	No
Bromomethane	6	6	0	No
Calcium	**6**	**0**	**6**	**Yes**
Carbon disulfide	6	6	0	No
COD	**6**	**5**	**1**	**Yes**
Chloride	**6**	**1**	**5**	**Yes**
Chlorobenzene	6	6	0	No
Chloroethane	6	6	0	No
Chloroform	6	6	0	No
Chloromethane	6	6	0	No
cis-1,2-Dichloroethene	6	6	0	No
cis-1,3-Dichloropropene	6	6	0	No
Cobalt	**6**	**3**	**3**	**Yes**
Conductivity	**6**	**0**	**6**	**Yes**
Copper	**6**	**0**	**6**	**Yes**
Cyanide	6	6	0	No
Dibromochloromethane	6	6	0	No
Dibromomethane	6	6	0	No
Dimethylbenzene, Total	6	6	0	No
Dissolved Oxygen	**6**	**0**	**6**	**Yes**
Dissolved Solids	**6**	**0**	**6**	**Yes**
Ethylbenzene	6	6	0	No
Iodide	6	6	0	No
Iodomethane	6	6	0	No
Iron	**6**	**0**	**6**	**Yes**
Magnesium	**6**	**0**	**6**	**Yes**
Manganese	**6**	**1**	**5**	**Yes**
Methylene chloride	6	6	0	No
Molybdenum	**6**	**5**	**1**	**Yes**

Exhibit D.5. Summary of Censored, and Uncensored Data—LRGA (Continued)

Parameters	Observations	Censored Observation	Uncensored Observation	Statistical Analysis?
Nickel	**6**	**3**	**3**	**Yes**
Oxidation-Reduction Potential	**6**	**0**	**6**	**Yes**
PCB, Total	**6**	**5**	**1**	**Yes**
PCB-1016	6	6	0	No
PCB-1221	6	6	0	No
PCB-1232	6	6	0	No
PCB-1242	6	6	0	No
PCB-1248	6	6	0	No
PCB-1254	**6**	**5**	**1**	**Yes**
PCB-1260	**6**	**5**	**1**	**Yes**
PCB-1268	6	6	0	No
pH	**6**	**0**	**6**	**Yes**
Potassium	**6**	**0**	**6**	**Yes**
Radium-226	6	6	0	No
Rhodium	6	6	0	No
Sodium	**6**	**0**	**6**	**Yes**
Styrene	6	6	0	No
Sulfate	**6**	**0**	**6**	**Yes**
Tantalum	6	6	0	No
Technetium-99	**6**	**4**	**2**	**Yes**
Tetrachloroethene	6	6	0	No
Thallium	6	6	0	No
Thorium-230	6	6	0	No
Toluene	6	6	0	No
TOC	**6**	**1**	**5**	**Yes**
TOX	**6**	**2**	**4**	**Yes**
trans-1,2-Dichloroethene	6	6	0	No
trans-1,3-Dichloropropene	6	6	0	No
trans-1,4-Dichloro-2-Butene	6	6	0	No
Trichlorofluoromethane	6	6	0	No
Vanadium	**6**	**5**	**1**	**Yes**
Vinyl Acetate	6	6	0	No
Zinc	**6**	**2**	**4**	**Yes**

Bold denotes parameters with at least one uncensored observation.

Discussion of Results from Historical Background Comparison

For the UCRS, URGA, and LRGA, the concentrations of this quarter were compared to the results of the one-sided tolerance interval test calculated using historical background and are presented in Attachment D1. The statistician qualification statement is presented in Attachment D3. For the UCRS, URGA, and LRGA, the test was applied to 24, 27, and 29 parameters, respectively, including those listed in bold print in Exhibits D.3, D.4, and D.5, which includes those constituents that exceeded their MCL. A summary of exceedances when compared to statistically derive historical upgradient background by well number is shown in Exhibit D.6.

UCRS

This quarter's results identified historical background exceedances for magnesium, oxidation-reduction potential, and sulfate.

URGA

This quarter's results identified historical background exceedances for calcium, conductivity, dissolved solids, magnesium, oxidation-reduction potential, and sulfate.

LRGA

This quarter's results identified historical background exceedances for calcium, dissolved oxygen, nickel, oxidation-reduction potential, and technetium-99.

Statistical Summary

Summaries of the results of the statistical tests conducted on data obtained from wells in the UCRS, the URGA, and in the LRGA in comparison to historical data are presented in Exhibit D.7, Exhibit D.8, and Exhibit D.9, respectively.

Exhibit D.6. Summary of Exceedances of Statistically Derived Historical Background Concentrations

UCRS	URGA	LRGA
MW362: Oxidation-Reduction Potential*	**MW357:** Oxidation-Reduction Potential*	**MW358:** Nickel and Oxidation-Reduction Potential*
MW371: Magnesium and Oxidation-Reduction Potential*	**MW360:** Oxidation-Reduction Potential*	**MW361:** Oxidation-Reduction Potential* and Technetium-99
MW374: Oxidation-Reduction Potential* and Sulfate	**MW363:** Oxidation-Reduction Potential*	**MW364:** Oxidation-Reduction Potential* and Technetium-99
MW375: Oxidation-Reduction Potential* and Sulfate	**MW366:** Oxidation-Reduction Potential*	**MW367:** Oxidation-Reduction Potential*
	MW369: Oxidation-Reduction Potential*	**MW370:** Dissolved Oxygen and Oxidation-Reduction Potential*
	MW372: Calcium, Conductivity, Dissolved Solids, Magnesium, Oxidation-Reduction Potential,* and Sulfate	**MW373:** Calcium and Oxidation-Reduction Potential*

*Oxidation-Reduction Potential calibrated as Eh.

Exhibit D.7. Test Summaries for Qualified Parameters for Historical Background—UCRS

Parameter	Performed Test	CV Normality Test[a]	Results of Tolerance Interval Test Conducted
Aluminum	Tolerance Interval	2.08	No exceedance of statistically derived historical background concentration.
Boron	Tolerance Interval	1.24	No exceedance of statistically derived historical background concentration.
Bromide	Tolerance Interval	0.34	No exceedance of statistically derived historical background concentration.
Calcium	Tolerance Interval	0.40	No exceedance of statistically derived historical background concentration.
Chloride	Tolerance Interval	0.95	No exceedance of statistically derived historical background concentration.
Cobalt	Tolerance Interval	1.31	No exceedance of statistically derived historical background concentration.
Conductivity	Tolerance Interval	0.45	No exceedance of statistically derived historical background concentration.
Copper	Tolerance Interval	1.27	No exceedance of statistically derived historical background concentration.
Dissolved Oxygen	Tolerance Interval	0.55	No exceedance of statistically derived historical background concentration.
Dissolved Solids	Tolerance Interval	0.42	No exceedance of statistically derived historical background concentration.
Iron	Tolerance Interval	0.98	No exceedance of statistically derived historical background concentration.
Magnesium	Tolerance Interval	0.27	Current results exceed statistically derived historical background concentration in MW371.
Manganese	Tolerance Interval	0.89	No exceedance of statistically derived historical background concentration.
Molybdenum	Tolerance Interval	1.65	No exceedance of statistically derived historical background concentration.
Nickel	Tolerance Interval	0.98	No exceedance of statistically derived historical background concentration.
Oxidation-Reduction Potential[b]	Tolerance Interval	3.54	Current results exceed statistically derived historical background concentration in MW362, MW371, MW374, and MW375.
pH	Tolerance Interval	0.04	No exceedance of statistically derived historical background concentration.
Potassium	Tolerance Interval	0.72	No exceedance of statistically derived historical background concentration.
Sodium	Tolerance Interval	0.40	No exceedance of statistically derived historical background concentration.
Sulfate	Tolerance Interval	0.49	Current results exceed statistically derived historical background concentration in MW374 and MW375.
TOC	Tolerance Interval	1.38	No exceedance of statistically derived historical background concentration.
TOX	Tolerance Interval	1.08	No exceedance of statistically derived historical background concentration.

Exhibit D.7. Test Summaries for Qualified Parameters for Historical Background—UCRS (Continued)

Parameter	Performed Test	CV Normality Test[a]	Results of Tolerance Interval Test Conducted
Vanadium	Tolerance Interval	1.32	No exceedance of statistically derived historical background concentration.
Zinc	Tolerance Interval	1.38	No exceedance of statistically derived historical background concentration.

CV: coefficient of variation
[a] If CV > 1.0, used log-transformed data.
[b] Oxidation-Reduction Potential calibrated as Eh.

Exhibit D.8. Test Summaries for Qualified Parameters for Historical Background—URGA

Parameter	Performed Test	CV Normality Test[a]	Results of Tolerance Interval Test Conducted
Acetone	Tolerance Interval	3.88	No exceedance of statistically derived historical background concentration.
Aluminum	Tolerance Interval	1.24	No exceedance of statistically derived historical background concentration.
Boron	Tolerance Interval	0.84	No exceedance of statistically derived historical background concentration.
Bromide	Tolerance Interval	0.00	No exceedance of statistically derived historical background concentration.
Calcium	Tolerance Interval	0.29	Current results exceed statistically derived historical background concentration in MW372.
Chloride	Tolerance Interval	0.10	No exceedance of statistically derived historical background concentration.
Cobalt	Tolerance Interval	0.84	No exceedance of statistically derived historical background concentration.
Conductivity	Tolerance Interval	0.12	Current results exceed statistically derived historical background concentration in MW372.
Copper	Tolerance Interval	0.40	No exceedance of statistically derived historical background concentration.
Dissolved Oxygen	Tolerance Interval	0.76	No exceedance of statistically derived historical background concentration.
Dissolved Solids	Tolerance Interval	0.16	Current results exceed statistically derived historical background concentration in MW372.
Iron	Tolerance Interval	0.95	No exceedance of statistically derived historical background concentration.
Magnesium	Tolerance Interval	0.27	Current results exceed statistically derived historical background concentration in MW372.
Manganese	Tolerance Interval	0.66	No exceedance of statistically derived historical background concentration.
Methylene Chloride	Tolerance Interval	0.36	No exceedance of statistically derived historical background concentration.
Molybdenum	Tolerance Interval	1.20	No exceedance of statistically derived historical background concentration.
Nickel	Tolerance Interval	0.91	No exceedance of statistically derived historical background concentration.
Oxidation-Reduction Potential[b]	Tolerance Interval	1.26	Current results exceed statistically derived historical background concentration in MW357, MW360, MW363, MW366, MW369, and MW372.
pH	Tolerance Interval	0.03	No exceedance of statistically derived historical background concentration.
Potassium	Tolerance Interval	0.29	No exceedance of statistically derived historical background concentration.
Sodium	Tolerance Interval	0.26	No exceedance of statistically derived historical background concentration.

Exhibit D.8. Test Summaries for Qualified Parameters for Historical Background—URGA (Continued)

Parameter	Performed Test	CV Normality Test[a]	Results of Tolerance Interval Test Conducted
Sulfate	Tolerance Interval	0.75	Current results exceed statistically derived historical background concentration in MW372.
Technetium-99	Tolerance Interval	0.87	No exceedance of statistically derived historical background concentration.
TOC	Tolerance Interval	1.23	No exceedance of statistically derived historical background concentration.
TOX	Tolerance Interval	0.95	No exceedance of statistically derived historical background concentration.
Vanadium	Tolerance Interval	0.26	No exceedance of statistically derived historical background concentration.
Zinc	Tolerance Interval	1.49	No exceedance of statistically derived historical background concentration.

CV: coefficient of variation
[a] If CV > 1.0, used log-transformed data.
[b] Oxidation-Reduction Potential calibrated as Eh.

Exhibit D.9. Test Summaries for Qualified Parameters for Historical Background—LRGA

Parameter	Performed Test	CV Normality Test[a]	Results of Tolerance Interval Test Conducted
Aluminum	Tolerance Interval	2.78	No exceedance of statistically derived historical background concentration.
Boron	Tolerance Interval	0.68	No exceedance of statistically derived historical background concentration.
Bromide	Tolerance Interval	0.00	No exceedance of statistically derived historical background concentration.
Calcium	Tolerance Interval	0.31	Current results exceed statistically derived historical background concentration in MW373.
COD	Tolerance Interval	0.59	No exceedance of statistically derived historical background concentration.
Chloride	Tolerance Interval	0.16	No exceedance of statistically derived historical background concentration.
Cobalt	Tolerance Interval	1.16	No exceedance of statistically derived historical background concentration.
Conductivity	Tolerance Interval	0.26	No exceedance of statistically derived historical background concentration.
Copper	Tolerance Interval	0.40	No exceedance of statistically derived historical background concentration.
Dissolved Oxygen	Tolerance Interval	0.83	Current results exceed statistically derived historical background concentration in MW370.
Dissolved Solids	Tolerance Interval	0.30	No exceedance of statistically derived historical background concentration.
Iron	Tolerance Interval	0.96	No exceedance of statistically derived historical background concentration.
Magnesium	Tolerance Interval	0.34	No exceedance of statistically derived historical background concentration.
Manganese	Tolerance Interval	0.62	No exceedance of statistically derived historical background concentration.
Molybdenum	Tolerance Interval	1.20	No exceedance of statistically derived historical background concentration.
Nickel	Tolerance Interval	0.90	Current results exceed statistically derived historical background concentration in MW358.
Oxidation-Reduction Potential[b]	Tolerance Interval	1.31	Current results exceed statistically derived historical background concentration in MW358, MW361, MW364, MW367, MW370, and MW373.
PCB, Total	Tolerance Interval	1.00	No exceedance of statistically derived historical background concentration.
PCB-1254	Tolerance Interval	1.41	No exceedance of statistically derived historical background concentration.
PCB-1260	Tolerance Interval	1.62	No exceedance of statistically derived historical background concentration.
pH	Tolerance Interval	0.03	No exceedance of statistically derived historical background concentration.
Potassium	Tolerance Interval	0.18	No exceedance of statistically derived historical background concentration.
Sodium	Tolerance Interval	0.30	No exceedance of statistically derived historical background concentration.
Sulfate	Tolerance Interval	1.59	No exceedance of statistically derived historical background concentration.
Technetium-99	Tolerance Interval	1.73	Current results exceed statistically derived historical background concentration in MW361 and MW364.
TOC	Tolerance Interval	1.96	No exceedance of statistically derived historical background concentration.
TOX	Tolerance Interval	0.98	No exceedance of statistically derived historical background concentration.

Exhibit D.9. Test Summaries for Qualified Parameters for Historical Background—LRGA (Continued)

Parameter	Performed Test	CV Normality Test[a]	Results of Tolerance Interval Test Conducted
Vanadium	Tolerance Interval	0.32	No exceedance of statistically derived historical background concentration.
Zinc	Tolerance Interval	0.67	No exceedance of statistically derived historical background concentration.

CV: coefficient of variation
[a] If CV > 1.0, used log-transformed data.
[b] Oxidation-Reduction Potential calibrated as Eh.

Discussion of Results from Current Background Comparison

For concentrations in wells in the UCRS, URGA, and LRGA that exceeded the TL test using historical background, the concentrations were compared to the results of the one-sided tolerance interval test compared to current background, and are presented in Attachment D2. The statistician qualification statement is presented in Attachment D3. For the UCRS, URGA, and LRGA, the test was applied to 3, 6, and 5 parameters, respectively, because these parameter concentrations exceeded the historical background TL.

UCRS

Because gradients in the UCRS are downward (vertical), there are no hydrogeologically downgradient UCRS wells. It should be noted; however, that none of the UCRS wells exceeded the current TL this quarter.

URGA

This quarter's results showed that none of the URGA wells exceeded the current TL this quarter.

LRGA

This quarter's results showed statistically significant exceedances of current background TL for nickel, oxidation-reduction potential, and technetium-99 in downgradient LRGA wells.

Statistical Summary

Summaries of the statistical tests conducted on data obtained from wells in the UCRS, the URGA, and the LRGA are presented in Exhibit D.10, Exhibit D.11, and Exhibit D.12, respectively.

Exhibit D.10. Test Summaries for Qualified Parameters for Current Background—UCRS

Parameter	Performed Test	CV Normality Test	Results of Tolerance Interval Test Conducted
Magnesium	Tolerance Interval	0.53	None of the test wells exceeded the upper TL, which is evidence that concentrations in these wells are not different from current background concentrations to a statistically significant level.
Oxidation-Reduction Potential*	Tolerance Interval	0.20	None of the test wells exceeded the upper TL, which is evidence that concentrations in these wells are not different from current background concentrations to a statistically significant level.
Sulfate	Tolerance Interval	0.80	None of the test wells exceeded the upper TL, which is evidence that concentrations in these wells are not different from current background concentrations to a statistically significant level.

CV: coefficient of variation
*Oxidation-Reduction Potential calibrated as Eh.

Exhibit D.11. Test Summaries for Qualified Parameters for Current Background—URGA

Parameter	Performed Test	CV Normality Test	Results of Tolerance Interval Test Conducted
Calcium	Tolerance Interval	0.61	None of the test wells exceeded the upper TL, which is evidence that concentrations in these wells are not different from current background concentrations to a statistically significant level.
Conductivity	Tolerance Interval	0.36	None of the test wells exceeded the upper TL, which is evidence that concentrations in these wells are not different from current background concentrations to a statistically significant level.
Dissolved Solids	Tolerance Interval	0.41	None of the test wells exceeded the upper TL, which is evidence that concentrations in these wells are not different from current background concentrations to a statistically significant level.
Magnesium	Tolerance Interval	0.56	None of the test wells exceeded the upper TL, which is evidence that concentrations in these wells are not different from current background concentrations to a statistically significant level.
Oxidation-Reduction Potential*	Tolerance Interval	0.08	None of the test wells exceeded the upper TL, which is evidence that concentrations in these wells are not different from current background concentrations to a statistically significant level.
Sulfate	Tolerance Interval	0.92	None of the test wells exceeded the upper TL, which is evidence that concentrations in these wells are not different from current background concentrations to a statistically significant level.

CV: coefficient of variation
*Oxidation-Reduction Potential calibrated as Eh.

Exhibit D.12. Test Summaries for Qualified Parameters for Current Background—LRGA

Parameter	Performed Test	CV Normality Test	Results of Tolerance Interval Test Conducted
Calcium	Tolerance Interval	0.42	None of the test wells exceeded the upper TL, which is evidence that concentrations in these wells are not different from current background concentrations to a statistically significant level.
Dissolved Oxygen	Tolerance Interval	0.34	None of the test wells exceeded the upper TL, which is evidence that concentrations in these wells are not different from current background concentrations to a statistically significant level.
Nickel	Tolerance Interval	0.47	MW358 exceeded the upper TL, which is evidence of elevated concentration with respect to current background data.
Oxidation-Reduction Potential*	Tolerance Interval	0.09	MW364 and MW370 exceeded the upper TL, which is evidence of elevated concentration with respect to current background data.
Technetium-99	Tolerance Interval	0.47	MW361 and MW364 exceeded the upper TL, which is evidence of elevated concentration with respect to current background data.

CV: coefficient of variation
*Oxidation-Reduction Potential calibrated as Eh.

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ATTACHMENT D1

COMPARISON OF CURRENT DATA TO ONE-SIDED UPPER TOLERANCE INTERVAL TEST CALCULATED USING HISTORICAL BACKGROUND DATA

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C-746-U First Quarter 2024 Statistical Analysis Historical Background Comparison

Aluminum UNITS: mg/L UCRS

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data **X=** 3.300 **S=** 6.859 **CV(1)=** 2.078 **K factor**=** 2.523 **TL(1)=** 2.06E+01 **LL(1)=**N/A

Statistics-Transformed Background Data **X=** -0.371 **S=** 1.678 **CV(2)=** -4.521 **K factor**=** 2.523 **TL(2)=** 3.86E+00 **LL(2)=**N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW371	
Date Collected	Result	LN(Result)
3/18/2002	2.24E+00	8.06E-01
4/22/2002	2.00E-01	-1.61E+00
7/15/2002	2.00E-01	-1.61E+00
10/8/2002	2.00E-01	-1.61E+00
1/8/2003	2.00E-01	-1.61E+00
4/3/2003	2.00E-01	-1.61E+00
7/9/2003	2.00E-01	-1.61E+00
10/6/2003	2.00E-01	-1.61E+00

Well Number:	MW374	
Date Collected	Result	LN(Result)
10/8/2002	2.13E+01	3.06E+00
1/7/2003	2.00E+01	3.00E+00
4/2/2003	4.11E+00	1.41E+00
7/9/2003	1.41E+00	3.44E-01
10/7/2003	1.09E+00	8.62E-02
1/6/2004	8.54E-01	-1.58E-01
4/7/2004	2.00E-01	-1.61E+00
7/14/2004	2.00E-01	-1.61E+00

Dry/Partially Dry Wells

Well No.	Gradient
MW359	Downgradient
MW365	Downgradient
MW368	Downgradient
MW376	Sidegradient
MW377	Sidegradient

Because CV(1) is greater than 1, the natural logarithm of background and test well results were calculated utilizing TL(2) for comparison.

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW362	Downgradient	Yes	5.30E-01	N/A	-6.35E-01	NO
MW371	Upgradient	Yes	2.40E-01	N/A	-1.43E+00	NO
MW374	Upgradient	Yes	7.50E-02	N/A	-2.59E+00	NO
MW375	Sidegradient	Yes	2.66E-02	N/A	-3.63E+00	NO

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-U First Quarter 2024 Statistical Analysis Historical Background Comparison

Boron **UNITS: mg/L** **UCRS**

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 0.650	**S=** 0.805	**CV(1)=** 1.238	**K factor**=** 2.523	**TL(1)=** 2.68E+00	**LL(1)=**N/A
Statistics-Transformed Background Data	**X=** -1.034	**S=** 1.030	**CV(2)=** -0.996	**K factor**=** 2.523	**TL(2)=** 1.56E+00	**LL(2)=**N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW371	
Date Collected	Result	LN(Result)
3/18/2002	2.00E+00	6.93E-01
4/22/2002	2.00E+00	6.93E-01
7/15/2002	2.00E+00	6.93E-01
10/8/2002	2.00E-01	-1.61E+00
1/8/2003	2.00E-01	-1.61E+00
4/3/2003	2.00E-01	-1.61E+00
7/9/2003	2.00E-01	-1.61E+00
10/6/2003	2.00E-01	-1.61E+00

Well Number:	MW374	
Date Collected	Result	LN(Result)
10/8/2002	2.00E+00	6.93E-01
1/7/2003	2.00E-01	-1.61E+00
4/2/2003	2.00E-01	-1.61E+00
7/9/2003	2.00E-01	-1.61E+00
10/7/2003	2.00E-01	-1.61E+00
1/6/2004	2.00E-01	-1.61E+00
4/7/2004	2.00E-01	-1.61E+00
7/14/2004	2.00E-01	-1.61E+00

Dry/Partially Dry Wells

Well No.	Gradient
MW359	Downgradient
MW365	Downgradient
MW368	Downgradient
MW376	Sidegradient
MW377	Sidegradient

Because CV(1) is greater than 1, the natural logarithm of background and test well results were calculated utilizing TL(2) for comparison.

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW362	Downgradient	Yes	1.39E-02	N/A	-4.28E+00	NO
MW371	Upgradient	No	9.84E-03	N/A	-4.62E+00	N/A
MW374	Upgradient	Yes	1.60E-02	N/A	-4.14E+00	NO
MW375	Sidegradient	No	1.11E-02	N/A	-4.50E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-U First Quarter 2024 Statistical Analysis Historical Background Comparison

Bromide UNITS: mg/L UCRS

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data **X=** 1.394 **S=** 0.474 **CV(1)=** 0.340 **K factor**=** 2.523 **TL(1)=** 2.59E+00 **LL(1)=**N/A

Statistics-Transformed Background Data **X=** 0.279 **S=** 0.332 **CV(2)=** 1.190 **K factor**=** 2.523 **TL(2)=** 1.12E+00 **LL(2)=**N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW371	
Date Collected	Result	LN(Result)
3/18/2002	1.00E+00	0.00E+00
4/22/2002	1.00E+00	0.00E+00
7/15/2002	1.00E+00	0.00E+00
10/8/2002	1.00E+00	0.00E+00
1/8/2003	1.00E+00	0.00E+00
4/3/2003	1.00E+00	0.00E+00
7/9/2003	1.00E+00	0.00E+00
10/6/2003	1.00E+00	0.00E+00

Well Number:	MW374	
Date Collected	Result	LN(Result)
10/8/2002	2.10E+00	7.42E-01
1/7/2003	2.10E+00	7.42E-01
4/2/2003	1.90E+00	6.42E-01
7/9/2003	1.00E+00	0.00E+00
10/7/2003	1.90E+00	6.42E-01
1/6/2004	1.90E+00	6.42E-01
4/7/2004	1.80E+00	5.88E-01
7/14/2004	1.60E+00	4.70E-01

Dry/Partially Dry Wells

Well No.	Gradient
MW359	Downgradient
MW365	Downgradient
MW368	Downgradient
MW376	Sidegradient
MW377	Sidegradient

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW362	Downgradient	No	2.00E-01	N/A	-1.61E+00	N/A
MW371	Upgradient	No	2.00E-01	N/A	-1.61E+00	N/A
MW374	Upgradient	Yes	4.88E-01	NO	-7.17E-01	N/A
MW375	Sidegradient	No	2.00E-01	N/A	-1.61E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

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Calcium UNITS: mg/L UCRS

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data **X=** 34.100 **S=** 13.637 **CV(1)=** 0.400 **K factor**=** 2.523 **TL(1)=** 6.85E+01 **LL(1)=**N/A

Statistics-Transformed Background Data **X=** 3.466 **S=** 0.356 **CV(2)=** 0.103 **K factor**=** 2.523 **TL(2)=** 4.36E+00 **LL(2)=**N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW371	
Date Collected	Result	LN(Result)
3/18/2002	1.72E+01	2.84E+00
4/22/2002	2.24E+01	3.11E+00
7/15/2002	2.55E+01	3.24E+00
10/8/2002	2.64E+01	3.27E+00
1/8/2003	2.72E+01	3.30E+00
4/3/2003	3.03E+01	3.41E+00
7/9/2003	2.59E+01	3.25E+00
10/6/2003	2.70E+01	3.30E+00

Well Number:	MW374	
Date Collected	Result	LN(Result)
10/8/2002	6.73E+01	4.21E+00
1/7/2003	6.06E+01	4.10E+00
4/2/2003	4.72E+01	3.85E+00
7/9/2003	3.47E+01	3.55E+00
10/7/2003	3.71E+01	3.61E+00
1/6/2004	3.77E+01	3.63E+00
4/7/2004	3.22E+01	3.47E+00
7/14/2004	2.69E+01	3.29E+00

Dry/Partially Dry Wells

Well No.	Gradient
MW359	Downgradient
MW365	Downgradient
MW368	Downgradient
MW376	Sidegradient
MW377	Sidegradient

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW362	Downgradient	Yes	1.60E+01	NO	2.77E+00	N/A
MW371	Upgradient	Yes	5.68E+01	NO	4.04E+00	N/A
MW374	Upgradient	Yes	2.47E+01	NO	3.21E+00	N/A
MW375	Sidegradient	Yes	1.29E+01	NO	2.56E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

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Chloride UNITS: mg/L UCRS

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 91.300	**S=** 86.959	**CV(1)=** 0.952	**K factor**=** 2.523	**TL(1)=** 3.11E+02	**LL(1)=** N/A
Statistics-Transformed Background Data	**X=** 3.620	**S=** 1.590	**CV(2)=** 0.439	**K factor**=** 2.523	**TL(2)=** 7.63E+00	**LL(2)=** N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW371	
Date Collected	Result	LN(Result)
7/15/2002	8.30E+00	2.12E+00
10/8/2002	7.60E+00	2.03E+00
1/8/2003	7.70E+00	2.04E+00
4/3/2003	8.80E+00	2.17E+00
7/9/2003	8.10E+00	2.09E+00
10/6/2003	8.60E+00	2.15E+00
1/7/2004	7.60E+00	2.03E+00
4/6/2004	7.60E+00	2.03E+00

Well Number:	MW374	
Date Collected	Result	LN(Result)
10/8/2002	1.99E+02	5.29E+00
1/7/2003	2.00E+02	5.30E+00
4/2/2003	1.72E+02	5.15E+00
7/9/2003	1.79E+02	5.19E+00
10/7/2003	1.76E+02	5.17E+00
1/6/2004	1.70E+02	5.14E+00
4/7/2004	1.56E+02	5.05E+00
7/14/2004	1.45E+02	4.97E+00

Dry/Partially Dry Wells

Well No.	Gradient
MW359	Downgradient
MW365	Downgradient
MW368	Downgradient
MW376	Sidegradient
MW377	Sidegradient

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW362	Downgradient	Yes	3.96E+00	NO	1.38E+00	N/A
MW371	Upgradient	Yes	4.06E+00	NO	1.40E+00	N/A
MW374	Upgradient	No	4.48E+01	N/A	3.80E+00	N/A
MW375	Sidegradient	Yes	3.09E+00	NO	1.13E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-U First Quarter 2024 Statistical Analysis Historical Background Comparison

Cobalt UNITS: mg/L UCRS

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 0.007	**S=** 0.009	**CV(1)=** 1.314	**K factor**=** 2.523	**TL(1)=** 3.12E-02	**LL(1)=**N/A
Statistics-Transformed Background Data	**X=** -5.843	**S=** 1.392	**CV(2)=** -0.238	**K factor**=** 2.523	**TL(2)=** -2.33E+00	**LL(2)=**N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW371	
Date Collected	Result	LN(Result)
3/18/2002	2.50E-02	-3.69E+00
4/22/2002	2.50E-02	-3.69E+00
7/15/2002	2.50E-02	-3.69E+00
10/8/2002	1.00E-03	-6.91E+00
1/8/2003	1.00E-03	-6.91E+00
4/3/2003	1.00E-03	-6.91E+00
7/9/2003	1.00E-03	-6.91E+00
10/6/2003	1.00E-03	-6.91E+00

Well Number:	MW374	
Date Collected	Result	LN(Result)
10/8/2002	1.00E-02	-4.61E+00
1/7/2003	1.00E-02	-4.61E+00
4/2/2003	1.00E-02	-4.61E+00
7/9/2003	1.61E-03	-6.43E+00
10/7/2003	1.00E-03	-6.91E+00
1/6/2004	1.00E-03	-6.91E+00
4/7/2004	1.00E-03	-6.91E+00
7/14/2004	1.00E-03	-6.91E+00

Dry/Partially Dry Wells

Well No.	Gradient
MW359	Downgradient
MW365	Downgradient
MW368	Downgradient
MW376	Sidegradient
MW377	Sidegradient

Because CV(1) is greater than 1, the natural logarithm of background and test well results were calculated utilizing TL(2) for comparison.

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW362	Downgradient	Yes	4.22E-04	N/A	-7.77E+00	NO
MW371	Upgradient	No	1.00E-03	N/A	-6.91E+00	N/A
MW374	Upgradient	Yes	6.62E-04	N/A	-7.32E+00	NO
MW375	Sidegradient	No	1.00E-03	N/A	-6.91E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-U First Quarter 2024 Statistical Analysis Historical Background Comparison

Conductivity UNITS: umho/cm UCRS

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data **X=** 918.744 **S=** 417.257 **CV(1)=** 0.454 **K factor**=** 2.523 **TL(1)=** 1.97E+03 **LL(1)=** N/A

Statistics-Transformed Background Data **X=** 6.705 **S=** 0.550 **CV(2)=** 0.082 **K factor**=** 2.523 **TL(2)=** 8.09E+00 **LL(2)=** N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW371	
Date Collected	Result	LN(Result)
3/18/2002	5.41E+02	6.29E+00
4/22/2002	6.43E+02	6.47E+00
7/15/2002	6.32E+02	6.45E+00
10/8/2002	6.31E+02	6.45E+00
1/8/2003	6.80E+02	6.52E+00
4/3/2003	7.49E+02	6.62E+00
7/9/2003	7.34E+02	6.60E+00
10/6/2003	7.53E+02	6.62E+00

Well Number:	MW374	
Date Collected	Result	LN(Result)
3/18/2002	1.01E+03	6.91E+00
10/8/2002	1.68E+03	7.43E+00
1/7/2003	1.72E+03	7.45E+00
4/2/2003	1.72E+02	5.15E+00
7/9/2003	1.23E+03	7.12E+00
10/7/2003	1.21E+03	7.10E+00
1/6/2004	1.17E+03	7.07E+00
4/7/2004	1.15E+03	7.04E+00

Dry/Partially Dry Wells

Well No.	Gradient
MW359	Downgradient
MW365	Downgradient
MW368	Downgradient
MW376	Sidegradient
MW377	Sidegradient

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW362	Downgradient	Yes	6.03E+02	NO	6.40E+00	N/A
MW371	Upgradient	Yes	7.00E+02	NO	6.55E+00	N/A
MW374	Upgradient	Yes	6.94E+02	NO	6.54E+00	N/A
MW375	Sidegradient	Yes	3.34E+02	NO	5.81E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-U First Quarter 2024 Statistical Analysis Historical Background Comparison

Copper UNITS: mg/L UCRS

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data **X=** 0.056 **S=** 0.072 **CV(1)=** 1.275 **K factor**=** 2.523 **TL(1)=** 2.37E-01 **LL(1)=**N/A

Statistics-Transformed Background Data **X=** -3.395 **S=** 0.915 **CV(2)=** -0.270 **K factor**=** 2.523 **TL(2)=** -1.09E+00 **LL(2)=**N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW371	
Date Collected	Result	LN(Result)
3/18/2002	2.50E-02	-3.69E+00
4/22/2002	2.50E-02	-3.69E+00
7/15/2002	5.00E-02	-3.00E+00
10/8/2002	2.00E-02	-3.91E+00
1/8/2003	2.00E-02	-3.91E+00
4/3/2003	2.00E-02	-3.91E+00
7/9/2003	2.00E-02	-3.91E+00
10/6/2003	2.00E-02	-3.91E+00

Well Number:	MW374	
Date Collected	Result	LN(Result)
10/8/2002	2.00E-01	-1.61E+00
1/7/2003	2.00E-01	-1.61E+00
4/2/2003	2.00E-01	-1.61E+00
7/9/2003	2.00E-02	-3.91E+00
10/7/2003	2.00E-02	-3.91E+00
1/6/2004	2.00E-02	-3.91E+00
4/7/2004	2.00E-02	-3.91E+00
7/14/2004	2.00E-02	-3.91E+00

Dry/Partially Dry Wells

Well No.	Gradient
MW359	Downgradient
MW365	Downgradient
MW368	Downgradient
MW376	Sidegradient
MW377	Sidegradient

Because CV(1) is greater than 1, the natural logarithm of background and test well results were calculated utilizing TL(2) for comparison.

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW362	Downgradient	Yes	1.90E-03	N/A	-6.27E+00	NO
MW371	Upgradient	Yes	1.15E-03	N/A	-6.77E+00	NO
MW374	Upgradient	Yes	6.64E-04	N/A	-7.32E+00	NO
MW375	Sidegradient	Yes	6.52E-04	N/A	-7.34E+00	NO

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-U First Quarter 2024 Statistical Analysis Historical Background Comparison

Dissolved Oxygen UNITS: mg/L UCRS

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data **X=** 1.138 **S=** 0.621 **CV(1)=** 0.546 **K factor**=** 2.523 **TL(1)=** 2.70E+00 **LL(1)=** N/A

Statistics-Transformed Background Data **X=** -0.013 **S=** 0.577 **CV(2)=** -43.069 **K factor**=** 2.523 **TL(2)=** 1.44E+00 **LL(2)=** N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW371	
Date Collected	Result	LN(Result)
3/18/2002	2.26E+00	8.15E-01
4/22/2002	1.15E+00	1.40E-01
7/15/2002	9.40E-01	-6.19E-02
10/8/2002	7.40E-01	-3.01E-01
1/8/2003	2.62E+00	9.63E-01
4/3/2003	1.50E+00	4.05E-01
7/9/2003	1.66E+00	5.07E-01
10/6/2003	1.28E+00	2.47E-01

Well Number:	MW374	
Date Collected	Result	LN(Result)
3/18/2002	6.00E-01	-5.11E-01
10/8/2002	6.70E-01	-4.00E-01
1/7/2003	2.30E-01	-1.47E+00
4/2/2003	6.50E-01	-4.31E-01
7/9/2003	9.20E-01	-8.34E-02
10/7/2003	9.90E-01	-1.01E-02
1/6/2004	1.11E+00	1.04E-01
4/7/2004	8.80E-01	-1.28E-01

Dry/Partially Dry Wells

Well No.	Gradient
MW359	Downgradient
MW365	Downgradient
MW368	Downgradient
MW376	Sidegradient
MW377	Sidegradient

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW362	Downgradient	Yes	1.06E+00	NO	5.83E-02	N/A
MW371	Upgradient	Yes	1.97E+00	NO	6.78E-01	N/A
MW374	Upgradient	Yes	2.20E+00	NO	7.88E-01	N/A
MW375	Sidegradient	Yes	6.00E-01	NO	-5.11E-01	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-U First Quarter 2024 Statistical Analysis Historical Background Comparison

Dissolved Solids UNITS: mg/L UCRS

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data **X=** 590.000 **S=** 248.068 **CV(1)=** 0.420 **K factor**=** 2.523 **TL(1)=** 1.22E+03 **LL(1)=**N/A

Statistics-Transformed Background Data **X=** 6.308 **S=** 0.383 **CV(2)=** 0.061 **K factor**=** 2.523 **TL(2)=** 7.27E+00 **LL(2)=**N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW371	
Date Collected	Result	LN(Result)
3/18/2002	2.74E+02	5.61E+00
4/22/2002	4.09E+02	6.01E+00
7/15/2002	4.18E+02	6.04E+00
10/8/2002	4.24E+02	6.05E+00
1/8/2003	4.31E+02	6.07E+00
4/3/2003	4.44E+02	6.10E+00
7/9/2003	4.45E+02	6.10E+00
10/6/2003	4.38E+02	6.08E+00

Well Number:	MW374	
Date Collected	Result	LN(Result)
10/8/2002	1.14E+03	7.04E+00
1/7/2003	1.10E+03	7.00E+00
4/2/2003	8.63E+02	6.76E+00
7/9/2003	6.82E+02	6.53E+00
10/7/2003	5.89E+02	6.38E+00
1/6/2004	6.03E+02	6.40E+00
4/7/2004	6.01E+02	6.40E+00
7/14/2004	5.82E+02	6.37E+00

Dry/Partially Dry Wells

Well No.	Gradient
MW359	Downgradient
MW365	Downgradient
MW368	Downgradient
MW376	Sidegradient
MW377	Sidegradient

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW362	Downgradient	Yes	3.25E+02	NO	5.78E+00	N/A
MW371	Upgradient	Yes	4.16E+02	NO	6.03E+00	N/A
MW374	Upgradient	Yes	3.93E+02	NO	5.97E+00	N/A
MW375	Sidegradient	Yes	2.01E+02	NO	5.30E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-U First Quarter 2024 Statistical Analysis Historical Background Comparison

Iron UNITS: mg/L UCRS

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data **X=** 6.612 **S=** 6.487 **CV(1)=** 0.981 **K factor**=** 2.523 **TL(1)=** 2.30E+01 **LL(1)=**N/A

Statistics-Transformed Background Data **X=** 1.363 **S=** 1.147 **CV(2)=** 0.841 **K factor**=** 2.523 **TL(2)=** 4.26E+00 **LL(2)=**N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW371	
Date Collected	Result	LN(Result)
3/18/2002	1.31E+00	2.70E-01
4/22/2002	9.13E-01	-9.10E-02
7/15/2002	8.81E-01	-1.27E-01
10/8/2002	3.86E+00	1.35E+00
1/8/2003	1.88E+00	6.31E-01
4/3/2003	3.18E+00	1.16E+00
7/9/2003	4.84E-01	-7.26E-01
10/6/2003	2.72E+00	1.00E+00

Well Number:	MW374	
Date Collected	Result	LN(Result)
10/8/2002	2.30E+01	3.14E+00
1/7/2003	1.39E+01	2.63E+00
4/2/2003	1.40E+01	2.64E+00
7/9/2003	1.42E+01	2.65E+00
10/7/2003	7.92E+00	2.07E+00
1/6/2004	7.86E+00	2.06E+00
4/7/2004	4.82E+00	1.57E+00
7/14/2004	4.87E+00	1.58E+00

Dry/Partially Dry Wells

Well No.	Gradient
MW359	Downgradient
MW365	Downgradient
MW368	Downgradient
MW376	Sidegradient
MW377	Sidegradient

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW362	Downgradient	Yes	4.35E-01	NO	-8.32E-01	N/A
MW371	Upgradient	Yes	2.00E-01	NO	-1.61E+00	N/A
MW374	Upgradient	Yes	8.54E-01	NO	-1.58E-01	N/A
MW375	Sidegradient	Yes	6.70E-02	NO	-2.70E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-U First Quarter 2024 Statistical Analysis Historical Background Comparison

Magnesium UNITS: mg/L UCRS

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 11.347	**S=** 3.019	**CV(1)=** 0.266	**K factor**=** 2.523	**TL(1)=** 1.90E+01	**LL(1)=** N/A
Statistics-Transformed Background Data	**X=** 2.401	**S=** 0.237	**CV(2)=** 0.099	**K factor**=** 2.523	**TL(2)=** 3.00E+00	**LL(2)=** N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW371	
Date Collected	Result	LN(Result)
3/18/2002	7.10E+00	1.96E+00
4/22/2002	9.77E+00	2.28E+00
7/15/2002	1.04E+01	2.34E+00
10/8/2002	1.02E+01	2.32E+00
1/8/2003	1.07E+01	2.37E+00
4/3/2003	1.19E+01	2.48E+00
7/9/2003	1.08E+01	2.38E+00
10/6/2003	1.09E+01	2.39E+00

Well Number:	MW374	
Date Collected	Result	LN(Result)
10/8/2002	2.00E+01	3.00E+00
1/7/2003	1.61E+01	2.78E+00
4/2/2003	1.31E+01	2.57E+00
7/9/2003	1.03E+01	2.33E+00
10/7/2003	1.11E+01	2.41E+00
1/6/2004	1.10E+01	2.40E+00
4/7/2004	9.69E+00	2.27E+00
7/14/2004	8.49E+00	2.14E+00

Dry/Partially Dry Wells

Well No.	Gradient
MW359	Downgradient
MW365	Downgradient
MW368	Downgradient
MW376	Sidegradient
MW377	Sidegradient

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW362	Downgradient	Yes	7.63E+00	NO	2.03E+00	N/A
MW371	Upgradient	Yes	2.03E+01	YES	3.01E+00	N/A
MW374	Upgradient	Yes	6.28E+00	NO	1.84E+00	N/A
MW375	Sidegradient	Yes	5.02E+00	NO	1.61E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

The test well(s) listed exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to historical background data.

Wells with Exceedances

MW371

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-U First Quarter 2024 Statistical Analysis Historical Background Comparison

Manganese UNITS: mg/L UCRS

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data **X=** 0.248 **S=** 0.222 **CV(1)=** 0.894 **K factor**=** 2.523 **TL(1)=** 8.09E-01 **LL(1)=**N/A

Statistics-Transformed Background Data **X=** -1.873 **S=** 1.068 **CV(2)=** -0.570 **K factor**=** 2.523 **TL(2)=** 8.21E-01 **LL(2)=**N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW371	
Date Collected	Result	LN(Result)
3/18/2002	6.30E-02	-2.76E+00
4/22/2002	6.70E-02	-2.70E+00
7/15/2002	7.40E-02	-2.60E+00
10/8/2002	5.21E-02	-2.95E+00
1/8/2003	3.85E-02	-3.26E+00
4/3/2003	5.51E-02	-2.90E+00
7/9/2003	5.46E-02	-2.91E+00
10/6/2003	5.43E-02	-2.91E+00

Well Number:	MW374	
Date Collected	Result	LN(Result)
10/8/2002	5.96E-01	-5.18E-01
1/7/2003	5.65E-01	-5.71E-01
4/2/2003	6.75E-01	-3.93E-01
7/9/2003	3.97E-01	-9.24E-01
10/7/2003	3.12E-01	-1.16E+00
1/6/2004	2.99E-01	-1.21E+00
4/7/2004	3.29E-01	-1.11E+00
7/14/2004	3.42E-01	-1.07E+00

Dry/Partially Dry Wells

Well No.	Gradient
MW359	Downgradient
MW365	Downgradient
MW368	Downgradient
MW376	Sidegradient
MW377	Sidegradient

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW362	Downgradient	Yes	9.17E-03	NO	-4.69E+00	N/A
MW371	Upgradient	Yes	9.17E-03	NO	-4.69E+00	N/A
MW374	Upgradient	Yes	1.98E-01	NO	-1.62E+00	N/A
MW375	Sidegradient	Yes	5.49E-03	NO	-5.20E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-U First Quarter 2024 Statistical Analysis Historical Background Comparison

Molybdenum UNITS: mg/L UCRS

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 0.006	**S=** 0.010	**CV(1)=** 1.650	**K factor**=** 2.523	**TL(1)=** 2.99E-02	**LL(1)=**N/A
Statistics-Transformed Background Data	**X=** -6.108	**S=** 1.239	**CV(2)=** -0.203	**K factor**=** 2.523	**TL(2)=** -2.98E+00	**LL(2)=**N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW371	
Date Collected	Result	LN(Result)
3/18/2002	2.50E-02	-3.69E+00
4/22/2002	2.50E-02	-3.69E+00
7/15/2002	2.50E-02	-3.69E+00
10/8/2002	1.00E-03	-6.91E+00
1/8/2003	1.21E-03	-6.72E+00
4/3/2003	1.00E-03	-6.91E+00
7/9/2003	1.11E-03	-6.80E+00
10/6/2003	1.00E-03	-6.91E+00

Well Number:	MW374	
Date Collected	Result	LN(Result)
10/8/2002	2.22E-03	-6.11E+00
1/7/2003	2.01E-03	-6.21E+00
4/2/2003	1.59E-03	-6.44E+00
7/9/2003	2.42E-03	-6.02E+00
10/7/2003	1.00E-03	-6.91E+00
1/6/2004	1.00E-03	-6.91E+00
4/7/2004	1.00E-03	-6.91E+00
7/14/2004	1.00E-03	-6.91E+00

Dry/Partially Dry Wells

Well No.	Gradient
MW359	Downgradient
MW365	Downgradient
MW368	Downgradient
MW376	Sidegradient
MW377	Sidegradient

Because CV(1) is greater than 1, the natural logarithm of background and test well results were calculated utilizing TL(2) for comparison.

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW362	Downgradient	Yes	4.47E-04	N/A	-7.71E+00	NO
MW371	Upgradient	Yes	2.82E-04	N/A	-8.17E+00	NO
MW374	Upgradient	Yes	3.30E-04	N/A	-8.02E+00	NO
MW375	Sidegradient	No	1.00E-03	N/A	-6.91E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-U First Quarter 2024 Statistical Analysis Historical Background Comparison

Nickel UNITS: mg/L UCRS

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data **X=** 0.023 **S=** 0.022 **CV(1)=** 0.980 **K factor**=** 2.523 **TL(1)=** 7.82E-02 **LL(1)=**N/A

Statistics-Transformed Background Data **X=** -4.349 **S=** 1.109 **CV(2)=** -0.255 **K factor**=** 2.523 **TL(2)=** -1.55E+00 **LL(2)=**N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW371	
Date Collected	Result	LN(Result)
3/18/2002	5.00E-02	-3.00E+00
4/22/2002	5.00E-02	-3.00E+00
7/15/2002	5.00E-02	-3.00E+00
10/8/2002	1.24E-02	-4.39E+00
1/8/2003	5.00E-03	-5.30E+00
4/3/2003	5.00E-03	-5.30E+00
7/9/2003	5.00E-03	-5.30E+00
10/6/2003	5.00E-03	-5.30E+00

Well Number:	MW374	
Date Collected	Result	LN(Result)
10/8/2002	5.00E-02	-3.00E+00
1/7/2003	5.00E-02	-3.00E+00
4/2/2003	5.00E-02	-3.00E+00
7/9/2003	7.94E-03	-4.84E+00
10/7/2003	5.00E-03	-5.30E+00
1/6/2004	5.00E-03	-5.30E+00
4/7/2004	5.00E-03	-5.30E+00
7/14/2004	5.00E-03	-5.30E+00

Dry/Partially Dry Wells

Well No.	Gradient
MW359	Downgradient
MW365	Downgradient
MW368	Downgradient
MW376	Sidegradient
MW377	Sidegradient

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW362	Downgradient	Yes	1.32E-03	NO	-6.63E+00	N/A
MW371	Upgradient	Yes	1.36E-03	NO	-6.60E+00	N/A
MW374	Upgradient	No	2.00E-03	N/A	-6.21E+00	N/A
MW375	Sidegradient	No	2.00E-03	N/A	-6.21E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-U First Quarter 2024 Statistical Analysis Historical Background Comparison

Oxidation-Reduction Potential UNITS: mV UCRS

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 22.281	**S=** 78.889	**CV(1)=** 3.541	**K factor**=** 2.523	**TL(1)=** 2.21E+02	**LL(1)=** N/A
Statistics-Transformed Background Data	**X=** 3.642	**S=** 1.729	**CV(2)=** 0.475	**K factor**=** 2.523	**TL(2)=** 5.11E+00	**LL(2)=** N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW371	
Date Collected	Result	LN(Result)
3/18/2002	7.50E+01	4.32E+00
4/22/2002	1.65E+02	5.11E+00
7/15/2002	6.50E+01	4.17E+00
4/3/2003	-1.90E+01	#Func!
7/9/2003	1.14E+02	4.74E+00
10/6/2003	-2.20E+01	#Func!
1/7/2004	2.05E+01	3.02E+00
4/6/2004	1.13E+02	4.73E+00

Well Number:	MW374	
Date Collected	Result	LN(Result)
3/18/2002	1.35E+02	4.91E+00
4/2/2003	-5.60E+01	#Func!
7/9/2003	-6.80E+01	#Func!
10/7/2003	-5.00E+01	#Func!
1/6/2004	-8.50E+01	#Func!
4/7/2004	6.00E+00	1.79E+00
7/14/2004	-3.80E+01	#Func!
10/7/2004	1.00E+00	0.00E+00

Dry/Partially Dry Wells

Well No.	Gradient
MW359	Downgradient
MW365	Downgradient
MW368	Downgradient
MW376	Sidegradient
MW377	Sidegradient

Because CV(1) is greater than 1, the natural logarithm of background and test well results were calculated utilizing TL(2) for comparison.

#Because the natural log was not possible for all background values, the TL was considered equal to the maximum background value.

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW362	Downgradient	Yes	4.37E+02	N/A	6.08E+00	YES
MW371	Upgradient	Yes	4.52E+02	N/A	6.11E+00	YES
MW374	Upgradient	Yes	4.55E+02	N/A	6.12E+00	YES
MW375	Sidegradient	Yes	3.73E+02	N/A	5.92E+00	YES

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

The test well(s) listed exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to historical background data.

Wells with Exceedances

MW362
MW371
MW374
MW375

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-U First Quarter 2024 Statistical Analysis Historical Background Comparison

pH UNITS: Std Unit UCRS

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data **X=** 6.619 **S=** 0.295 **CV(1)=** 0.045 **K factor**=** 2.904 **TL(1)=** 7.48E+00 **LL(1)=** 5.76E+00

Statistics-Transformed Background Data **X=** 1.889 **S=** 0.046 **CV(2)=** 0.024 **K factor**=** 2.904 **TL(2)=** 2.02E+00 **LL(2)=** 1.75E+00

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW371	
Date Collected	Result	LN(Result)
3/18/2002	6.30E+00	1.84E+00
4/22/2002	6.50E+00	1.87E+00
7/15/2002	6.50E+00	1.87E+00
10/8/2002	6.60E+00	1.89E+00
1/8/2003	6.60E+00	1.89E+00
4/3/2003	6.90E+00	1.93E+00
7/9/2003	6.70E+00	1.90E+00
10/6/2003	7.00E+00	1.95E+00

Well Number:	MW374	
Date Collected	Result	LN(Result)
3/18/2002	5.75E+00	1.75E+00
10/8/2002	6.60E+00	1.89E+00
1/7/2003	6.82E+00	1.92E+00
4/2/2003	6.86E+00	1.93E+00
7/9/2003	6.70E+00	1.90E+00
10/7/2003	6.60E+00	1.89E+00
1/6/2004	6.90E+00	1.93E+00
4/7/2004	6.58E+00	1.88E+00

Dry/Partially Dry Wells

Well No.	Gradient
MW359	Downgradient
MW365	Downgradient
MW368	Downgradient
MW376	Sidegradient
MW377	Sidegradient

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)? Result <LL(1)?	LN(Result)	LN(Result) >TL(2)? LN(Result) <LL(2)?
MW362	Downgradient	Yes	6.90E+00	NO	1.93E+00	N/A
MW371	Upgradient	Yes	6.54E+00	NO	1.88E+00	N/A
MW374	Upgradient	Yes	6.70E+00	NO	1.90E+00	N/A
MW375	Sidegradient	Yes	6.40E+00	NO	1.86E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-U First Quarter 2024 Statistical Analysis Historical Background Comparison

Potassium UNITS: mg/L UCRS

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data **X=** 1.262 **S=** 0.907 **CV(1)=** 0.718 **K factor**=** 2.523 **TL(1)=** 3.55E+00 **LL(1)=** N/A

Statistics-Transformed Background Data **X=** -0.023 **S=** 0.752 **CV(2)=** -32.218 **K factor**=** 2.523 **TL(2)=** 1.87E+00 **LL(2)=** N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW371	
Date Collected	Result	LN(Result)
3/18/2002	2.00E+00	6.93E-01
4/22/2002	2.00E+00	6.93E-01
7/15/2002	2.00E+00	6.93E-01
10/8/2002	4.08E-01	-8.96E-01
1/8/2003	3.84E-01	-9.57E-01
4/3/2003	3.68E-01	-1.00E+00
7/9/2003	5.87E-01	-5.33E-01
10/6/2003	3.82E-01	-9.62E-01

Well Number:	MW374	
Date Collected	Result	LN(Result)
10/8/2002	3.04E+00	1.11E+00
1/7/2003	2.83E+00	1.04E+00
4/2/2003	2.00E+00	6.93E-01
7/9/2003	1.09E+00	8.62E-02
10/7/2003	8.02E-01	-2.21E-01
1/6/2004	8.97E-01	-1.09E-01
4/7/2004	6.89E-01	-3.73E-01
7/14/2004	7.16E-01	-3.34E-01

Dry/Partially Dry Wells

Well No.	Gradient
MW359	Downgradient
MW365	Downgradient
MW368	Downgradient
MW376	Sidegradient
MW377	Sidegradient

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW362	Downgradient	Yes	3.75E-01	NO	-9.81E-01	N/A
MW371	Upgradient	Yes	3.96E-01	NO	-9.26E-01	N/A
MW374	Upgradient	Yes	4.21E-01	NO	-8.65E-01	N/A
MW375	Sidegradient	Yes	2.50E-01	NO	-1.39E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-U First Quarter 2024 Statistical Analysis Historical Background Comparison

Sodium UNITS: mg/L UCRS

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data **X=** 183.063 **S=** 73.222 **CV(1)=** 0.400 **K factor**=** 2.523 **TL(1)=** 3.68E+02 **LL(1)=**N/A

Statistics-Transformed Background Data **X=** 5.146 **S=** 0.356 **CV(2)=** 0.069 **K factor**=** 2.523 **TL(2)=** 6.04E+00 **LL(2)=**N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW371	
Date Collected	Result	LN(Result)
3/18/2002	1.29E+02	4.86E+00
4/22/2002	1.31E+02	4.88E+00
7/15/2002	1.27E+02	4.84E+00
10/8/2002	1.23E+02	4.81E+00
1/8/2003	1.28E+02	4.85E+00
4/3/2003	1.44E+02	4.97E+00
7/9/2003	1.26E+02	4.84E+00
10/6/2003	1.20E+02	4.79E+00

Well Number:	MW374	
Date Collected	Result	LN(Result)
10/8/2002	3.36E+02	5.82E+00
1/7/2003	3.29E+02	5.80E+00
4/2/2003	2.87E+02	5.66E+00
7/9/2003	1.81E+02	5.20E+00
10/7/2003	1.82E+02	5.20E+00
1/6/2004	2.06E+02	5.33E+00
4/7/2004	1.82E+02	5.20E+00
7/14/2004	1.98E+02	5.29E+00

Dry/Partially Dry Wells

Well No.	Gradient
MW359	Downgradient
MW365	Downgradient
MW368	Downgradient
MW376	Sidegradient
MW377	Sidegradient

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW362	Downgradient	Yes	1.04E+02	NO	4.64E+00	N/A
MW371	Upgradient	Yes	9.81E+01	NO	4.59E+00	N/A
MW374	Upgradient	Yes	1.28E+02	NO	4.85E+00	N/A
MW375	Sidegradient	Yes	5.57E+01	NO	4.02E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-U First Quarter 2024 Statistical Analysis Historical Background Comparison

Sulfate UNITS: mg/L UCRS

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 6.469	**S=** 3.153	**CV(1)=** 0.487	**K factor**=** 2.523	**TL(1)=** 1.44E+01	**LL(1)=** N/A
Statistics-Transformed Background Data	**X=** 1.794	**S=** 0.357	**CV(2)=** 0.199	**K factor**=** 2.523	**TL(2)=** 2.69E+00	**LL(2)=** N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW371	
Date Collected	Result	LN(Result)
3/18/2002	1.63E+01	2.79E+00
4/22/2002	8.60E+00	2.15E+00
7/15/2002	6.70E+00	1.90E+00
10/8/2002	5.00E+00	1.61E+00
1/8/2003	5.00E+00	1.61E+00
4/3/2003	5.00E+00	1.61E+00
7/9/2003	5.00E+00	1.61E+00
10/6/2003	5.00E+00	1.61E+00

Well Number:	MW374	
Date Collected	Result	LN(Result)
10/8/2002	5.00E+00	1.61E+00
1/7/2003	5.00E+00	1.61E+00
4/2/2003	5.00E+00	1.61E+00
7/9/2003	5.60E+00	1.72E+00
10/7/2003	5.00E+00	1.61E+00
1/6/2004	5.00E+00	1.61E+00
4/7/2004	1.13E+01	2.42E+00
7/14/2004	5.00E+00	1.61E+00

Dry/Partially Dry Wells

Well No.	Gradient
MW359	Downgradient
MW365	Downgradient
MW368	Downgradient
MW376	Sidegradient
MW377	Sidegradient

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW362	Downgradient	Yes	1.25E+01	NO	2.53E+00	N/A
MW371	Upgradient	Yes	9.84E+00	NO	2.29E+00	N/A
MW374	Upgradient	Yes	1.54E+01	YES	2.73E+00	N/A
MW375	Sidegradient	Yes	2.27E+01	YES	3.12E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

The test well(s) listed exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to historical background data.

Wells with Exceedances

MW374
MW375

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

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Total Organic Carbon (TOC) UNITS: mg/L UCRS

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data **X=** 17.631 **S=** 24.314 **CV(1)=** 1.379 **K factor**=** 2.523 **TL(1)=** 7.90E+01 **LL(1)=**N/A

Statistics-Transformed Background Data **X=** 2.318 **S=** 0.979 **CV(2)=** 0.422 **K factor**=** 2.523 **TL(2)=** 4.79E+00 **LL(2)=**N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW371	
Date Collected	Result	LN(Result)
3/18/2002	1.11E+01	2.41E+00
4/22/2002	7.00E+00	1.95E+00
7/15/2002	4.10E+00	1.41E+00
10/8/2002	6.00E+00	1.79E+00
1/8/2003	5.30E+00	1.67E+00
4/3/2003	5.30E+00	1.67E+00
7/9/2003	2.90E+00	1.06E+00
10/6/2003	3.20E+00	1.16E+00

Well Number:	MW374	
Date Collected	Result	LN(Result)
10/8/2002	9.00E+01	4.50E+00
1/7/2003	6.40E+01	4.16E+00
4/2/2003	2.50E+01	3.22E+00
7/9/2003	1.60E+01	2.77E+00
10/7/2003	1.30E+01	2.56E+00
1/6/2004	1.00E+01	2.30E+00
4/7/2004	7.20E+00	1.97E+00
7/14/2004	1.20E+01	2.48E+00

Dry/Partially Dry Wells

Well No.	Gradient
MW359	Downgradient
MW365	Downgradient
MW368	Downgradient
MW376	Sidegradient
MW377	Sidegradient

Because CV(1) is greater than 1, the natural logarithm of background and test well results were calculated utilizing TL(2) for comparison.

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW362	Downgradient	Yes	1.48E+00	N/A	3.92E-01	NO
MW371	Upgradient	Yes	1.94E+00	N/A	6.63E-01	NO
MW374	Upgradient	Yes	2.50E+00	N/A	9.16E-01	NO
MW375	Sidegradient	Yes	7.20E-01	N/A	-3.29E-01	NO

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-U First Quarter 2024 Statistical Analysis Historical Background Comparison

Total Organic Halides (TOX) UNITS: ug/L UCRS

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data **X=** 214.094 **S=** 231.089 **CV(1)=** 1.079 **K factor**=** 2.523 **TL(1)=** 7.97E+02 **LL(1)=**N/A

Statistics-Transformed Background Data **X=** 4.867 **S=** 1.065 **CV(2)=** 0.219 **K factor**=** 2.523 **TL(2)=** 7.55E+00 **LL(2)=**N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW371	
Date Collected	Result	LN(Result)
3/18/2002	5.00E+01	3.91E+00
4/22/2002	1.05E+02	4.65E+00
7/15/2002	7.00E+01	4.25E+00
10/8/2002	5.20E+01	3.95E+00
1/8/2003	2.02E+01	3.01E+00
4/3/2003	1.04E+02	4.64E+00
7/9/2003	3.42E+01	3.53E+00
10/6/2003	4.61E+01	3.83E+00

Well Number:	MW374	
Date Collected	Result	LN(Result)
10/8/2002	9.03E+02	6.81E+00
1/7/2003	5.39E+02	6.29E+00
4/2/2003	2.95E+02	5.69E+00
7/9/2003	2.72E+02	5.61E+00
10/7/2003	1.97E+02	5.28E+00
1/6/2004	3.30E+02	5.80E+00
4/7/2004	1.83E+02	5.21E+00
7/14/2004	2.25E+02	5.42E+00

Dry/Partially Dry Wells

Well No.	Gradient
MW359	Downgradient
MW365	Downgradient
MW368	Downgradient
MW376	Sidegradient
MW377	Sidegradient

Because CV(1) is greater than 1, the natural logarithm of background and test well results were calculated utilizing TL(2) for comparison.

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW362	Downgradient	Yes	6.20E+00	N/A	1.82E+00	NO
MW371	Upgradient	Yes	7.32E+00	N/A	1.99E+00	NO
MW374	Upgradient	Yes	2.67E+01	N/A	3.28E+00	NO
MW375	Sidegradient	Yes	7.58E+00	N/A	2.03E+00	NO

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-U First Quarter 2024 Statistical Analysis Historical Background Comparison

Vanadium UNITS: mg/L UCRS

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data **X=** 0.055 **S=** 0.072 **CV(1)=** 1.319 **K factor**=** 2.523 **TL(1)=** 2.37E-01 **LL(1)=**N/A

Statistics-Transformed Background Data **X=** -3.438 **S=** 0.912 **CV(2)=** -0.265 **K factor**=** 2.523 **TL(2)=** -1.14E+00 **LL(2)=**N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW371	
Date Collected	Result	LN(Result)
3/18/2002	2.50E-02	-3.69E+00
4/22/2002	2.50E-02	-3.69E+00
7/15/2002	2.50E-02	-3.69E+00
10/8/2002	2.00E-02	-3.91E+00
1/8/2003	2.00E-02	-3.91E+00
4/3/2003	2.00E-02	-3.91E+00
7/9/2003	2.00E-02	-3.91E+00
10/6/2003	2.00E-02	-3.91E+00

Well Number:	MW374	
Date Collected	Result	LN(Result)
10/8/2002	2.00E-01	-1.61E+00
1/7/2003	2.00E-01	-1.61E+00
4/2/2003	2.00E-01	-1.61E+00
7/9/2003	2.00E-02	-3.91E+00
10/7/2003	2.00E-02	-3.91E+00
1/6/2004	2.00E-02	-3.91E+00
4/7/2004	2.00E-02	-3.91E+00
7/14/2004	2.00E-02	-3.91E+00

Dry/Partially Dry Wells

Well No.	Gradient
MW359	Downgradient
MW365	Downgradient
MW368	Downgradient
MW376	Sidegradient
MW377	Sidegradient

Because CV(1) is greater than 1, the natural logarithm of background and test well results were calculated utilizing TL(2) for comparison.

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW362	Downgradient	No	6.09E-03	N/A	-5.10E+00	N/A
MW371	Upgradient	Yes	3.67E-03	N/A	-5.61E+00	NO
MW374	Upgradient	Yes	3.80E-03	N/A	-5.57E+00	NO
MW375	Sidegradient	No	2.00E-02	N/A	-3.91E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-U First Quarter 2024 Statistical Analysis Historical Background Comparison

Zinc UNITS: mg/L UCRS

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data **X=** 0.060 **S=** 0.083 **CV(1)=** 1.380 **K factor**=** 2.523 **TL(1)=** 2.70E-01 **LL(1)=**N/A

Statistics-Transformed Background Data **X=** -3.259 **S=** 0.840 **CV(2)=** -0.258 **K factor**=** 2.523 **TL(2)=** -1.14E+00 **LL(2)=**N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW371	
Date Collected	Result	LN(Result)
3/18/2002	1.00E-01	-2.30E+00
4/22/2002	1.00E-01	-2.30E+00
7/15/2002	1.00E-01	-2.30E+00
10/8/2002	2.50E-02	-3.69E+00
1/8/2003	3.50E-02	-3.35E+00
4/3/2003	3.50E-02	-3.35E+00
7/9/2003	3.76E-02	-3.28E+00
10/6/2003	2.00E-02	-3.91E+00

Well Number:	MW374	
Date Collected	Result	LN(Result)
10/8/2002	2.50E-02	-3.69E+00
1/7/2003	3.50E-01	-1.05E+00
4/2/2003	3.50E-02	-3.35E+00
7/9/2003	2.00E-02	-3.91E+00
10/7/2003	2.00E-02	-3.91E+00
1/6/2004	2.00E-02	-3.91E+00
4/7/2004	2.00E-02	-3.91E+00
7/14/2004	2.00E-02	-3.91E+00

Dry/Partially Dry Wells

Well No.	Gradient
MW359	Downgradient
MW365	Downgradient
MW368	Downgradient
MW376	Sidegradient
MW377	Sidegradient

Because CV(1) is greater than 1, the natural logarithm of background and test well results were calculated utilizing TL(2) for comparison.

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW362	Downgradient	No	2.00E-02	N/A	-3.91E+00	N/A
MW371	Upgradient	Yes	4.98E-03	N/A	-5.30E+00	NO
MW374	Upgradient	No	2.00E-02	N/A	-3.91E+00	N/A
MW375	Sidegradient	No	2.00E-02	N/A	-3.91E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-U First Quarter 2024 Statistical Analysis Historical Background Comparison

Acetone UNITS: ug/L URGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 372.563	**S=** 1447.319	**CV(1)=** 3.885	**K factor**=** 2.523	**TL(1)=** 4.02E+03	**LL(1)=** N/A
Statistics-Transformed Background Data	**X=** 2.736	**S=** 1.603	**CV(2)=** 0.586	**K factor**=** 2.523	**TL(2)=** 6.78E+00	**LL(2)=** N/A

Historical Background Data from Upgradient Wells with Transformed Result

Because CV(1) is greater than 1, the natural logarithm of background and test well results were calculated utilizing TL(2) for comparison.

Well Number: MW369

Date Collected	Result	LN(Result)
3/18/2002	5.00E+00	1.61E+00
4/22/2002	1.00E+01	2.30E+00
7/15/2002	1.40E+01	2.64E+00
10/8/2002	1.00E+01	2.30E+00
1/8/2003	1.00E+01	2.30E+00
4/3/2003	1.00E+01	2.30E+00
7/8/2003	1.00E+01	2.30E+00
10/6/2003	5.80E+03	8.67E+00

Well Number: MW372

Date Collected	Result	LN(Result)
3/19/2002	1.40E+01	2.64E+00
4/23/2002	1.00E+01	2.30E+00
7/16/2002	1.00E+01	2.30E+00
10/8/2002	1.00E+01	2.30E+00
1/7/2003	1.00E+01	2.30E+00
4/2/2003	1.00E+01	2.30E+00
7/9/2003	1.80E+01	2.89E+00
10/7/2003	1.00E+01	2.30E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW357	Downgradient	No	5.00E+00	N/A	1.61E+00	N/A
MW360	Downgradient	No	5.00E+00	N/A	1.61E+00	N/A
MW363	Downgradient	No	5.00E+00	N/A	1.61E+00	N/A
MW366	Downgradient	No	5.00E+00	N/A	1.61E+00	N/A
MW369	Upgradient	No	5.00E+00	N/A	1.61E+00	N/A
MW372	Upgradient	Yes	3.63E+00	N/A	1.29E+00	NO

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-U First Quarter 2024 Statistical Analysis Historical Background Comparison

Aluminum UNITS: mg/L URGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 0.625	**S=** 0.774	**CV(1)=** 1.239	**K factor**=** 2.523	**TL(1)=** 2.58E+00	**LL(1)=**N/A
Statistics-Transformed Background Data	**X=** -0.973	**S=** 0.935	**CV(2)=** -0.961	**K factor**=** 2.523	**TL(2)=** 1.39E+00	**LL(2)=**N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW369	
Date Collected	Result	LN(Result)
3/18/2002	2.55E-01	-1.37E+00
4/22/2002	2.00E-01	-1.61E+00
7/15/2002	3.22E-01	-1.13E+00
10/8/2002	2.00E-01	-1.61E+00
1/8/2003	2.00E-01	-1.61E+00
4/3/2003	2.00E-01	-1.61E+00
7/8/2003	2.00E-01	-1.61E+00
10/6/2003	6.89E-01	-3.73E-01

Well Number:	MW372	
Date Collected	Result	LN(Result)
3/19/2002	2.61E+00	9.59E-01
4/23/2002	2.00E-01	-1.61E+00
7/16/2002	1.14E+00	1.31E-01
10/8/2002	8.62E-01	-1.49E-01
1/7/2003	2.32E+00	8.42E-01
4/2/2003	2.00E-01	-1.61E+00
7/9/2003	2.00E-01	-1.61E+00
10/7/2003	2.00E-01	-1.61E+00

Because CV(1) is greater than 1, the natural logarithm of background and test well results were calculated utilizing TL(2) for comparison.

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW357	Downgradient	No	5.00E-02	N/A	-3.00E+00	N/A
MW360	Downgradient	Yes	3.75E-02	N/A	-3.28E+00	NO
MW363	Downgradient	No	5.00E-02	N/A	-3.00E+00	N/A
MW366	Downgradient	No	5.00E-02	N/A	-3.00E+00	N/A
MW369	Upgradient	Yes	5.73E-02	N/A	-2.86E+00	NO
MW372	Upgradient	No	5.00E-02	N/A	-3.00E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-U First Quarter 2024 Statistical Analysis Historical Background Comparison

Boron UNITS: mg/L URGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 0.985	**S=** 0.825	**CV(1)=** 0.838	**K factor**=** 2.523	**TL(1)=** 3.07E+00	**LL(1)=** N/A
Statistics-Transformed Background Data	**X=** -0.430	**S=** 0.990	**CV(2)=** -2.302	**K factor**=** 2.523	**TL(2)=** 2.07E+00	**LL(2)=** N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW369	
Date Collected	Result	LN(Result)
3/18/2002	2.00E+00	6.93E-01
4/22/2002	2.00E+00	6.93E-01
7/15/2002	2.00E+00	6.93E-01
10/8/2002	2.00E-01	-1.61E+00
1/8/2003	2.00E-01	-1.61E+00
4/3/2003	2.00E-01	-1.61E+00
7/8/2003	2.00E-01	-1.61E+00
10/6/2003	2.00E-01	-1.61E+00

Well Number:	MW372	
Date Collected	Result	LN(Result)
3/19/2002	2.00E+00	6.93E-01
4/23/2002	2.00E+00	6.93E-01
7/16/2002	2.00E+00	6.93E-01
10/8/2002	4.92E-01	-7.09E-01
1/7/2003	4.92E-01	-7.09E-01
4/2/2003	6.00E-01	-5.11E-01
7/9/2003	5.70E-01	-5.62E-01
10/7/2003	6.04E-01	-5.04E-01

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW357	Downgradient	Yes	3.78E-01	NO	-9.73E-01	N/A
MW360	Downgradient	Yes	3.73E-02	NO	-3.29E+00	N/A
MW363	Downgradient	Yes	2.14E-02	NO	-3.84E+00	N/A
MW366	Downgradient	Yes	8.71E-02	NO	-2.44E+00	N/A
MW369	Upgradient	Yes	2.39E-02	NO	-3.73E+00	N/A
MW372	Upgradient	Yes	1.38E+00	NO	3.22E-01	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-U First Quarter 2024 Statistical Analysis Historical Background Comparison

Bromide UNITS: mg/L URGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 1.000	**S=** 0.000	**CV(1)=** 0.000	**K factor**=** 2.523	**TL(1)=** 1.00E+00	**LL(1)=** N/A
Statistics-Transformed Background Data	**X=** 0.000	**S=** 0.000	**CV(2)=** #Num!	**K factor**=** 2.523	**TL(2)=** 0.00E+00	**LL(2)=** N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number: MW369

Date Collected	Result	LN(Result)
3/18/2002	1.00E+00	0.00E+00
4/22/2002	1.00E+00	0.00E+00
7/15/2002	1.00E+00	0.00E+00
10/8/2002	1.00E+00	0.00E+00
1/8/2003	1.00E+00	0.00E+00
4/3/2003	1.00E+00	0.00E+00
7/8/2003	1.00E+00	0.00E+00
10/6/2003	1.00E+00	0.00E+00

Well Number: MW372

Date Collected	Result	LN(Result)
3/19/2002	1.00E+00	0.00E+00
4/23/2002	1.00E+00	0.00E+00
7/16/2002	1.00E+00	0.00E+00
10/8/2002	1.00E+00	0.00E+00
1/7/2003	1.00E+00	0.00E+00
4/2/2003	1.00E+00	0.00E+00
7/9/2003	1.00E+00	0.00E+00
10/7/2003	1.00E+00	0.00E+00

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW357	Downgradient	Yes	3.62E-01	NO	-1.02E+00	N/A
MW360	Downgradient	Yes	1.63E-01	NO	-1.81E+00	N/A
MW363	Downgradient	No	2.00E-01	N/A	-1.61E+00	N/A
MW366	Downgradient	Yes	5.71E-01	NO	-5.60E-01	N/A
MW369	Upgradient	Yes	3.62E-01	NO	-1.02E+00	N/A
MW372	Upgradient	Yes	4.92E-01	NO	-7.09E-01	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-U First Quarter 2024 Statistical Analysis Historical Background Comparison

Calcium UNITS: mg/L URGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 32.763	**S=** 9.391	**CV(1)=** 0.287	**K factor**=** 2.523	**TL(1)=** 5.65E+01	**LL(1)=** N/A
Statistics-Transformed Background Data	**X=** 3.449	**S=** 0.299	**CV(2)=** 0.087	**K factor**=** 2.523	**TL(2)=** 4.20E+00	**LL(2)=** N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW369	
Date Collected	Result	LN(Result)
3/18/2002	2.95E+01	3.38E+00
4/22/2002	2.98E+01	3.39E+00
7/15/2002	2.53E+01	3.23E+00
10/8/2002	2.19E+01	3.09E+00
1/8/2003	2.09E+01	3.04E+00
4/3/2003	2.22E+01	3.10E+00
7/8/2003	2.29E+01	3.13E+00
10/6/2003	2.17E+01	3.08E+00

Well Number:	MW372	
Date Collected	Result	LN(Result)
3/19/2002	4.15E+01	3.73E+00
4/23/2002	4.36E+01	3.78E+00
7/16/2002	4.04E+01	3.70E+00
10/8/2002	3.88E+01	3.66E+00
1/7/2003	4.11E+01	3.72E+00
4/2/2003	4.29E+01	3.76E+00
7/9/2003	3.51E+01	3.56E+00
10/7/2003	4.66E+01	3.84E+00

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW357	Downgradient	Yes	2.47E+01	NO	3.21E+00	N/A
MW360	Downgradient	Yes	1.86E+01	NO	2.92E+00	N/A
MW363	Downgradient	Yes	2.11E+01	NO	3.05E+00	N/A
MW366	Downgradient	Yes	3.32E+01	NO	3.50E+00	N/A
MW369	Upgradient	Yes	1.64E+01	NO	2.80E+00	N/A
MW372	Upgradient	Yes	7.14E+01	YES	4.27E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

The test well(s) listed exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to historical background data.

Wells with Exceedances

MW372

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-U First Quarter 2024 Statistical Analysis Historical Background Comparison

Chloride UNITS: mg/L URGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 44.119	**S=** 4.554	**CV(1)=** 0.103	**K factor**=** 2.523	**TL(1)=** 5.56E+01	**LL(1)=** N/A
Statistics-Transformed Background Data	**X=** 3.782	**S=** 0.099	**CV(2)=** 0.026	**K factor**=** 2.523	**TL(2)=** 4.03E+00	**LL(2)=** N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW369	
Date Collected	Result	LN(Result)
7/15/2002	4.83E+01	3.88E+00
10/8/2002	4.77E+01	3.86E+00
1/8/2003	4.57E+01	3.82E+00
4/3/2003	4.74E+01	3.86E+00
7/8/2003	5.59E+01	4.02E+00
10/6/2003	4.74E+01	3.86E+00
1/7/2004	4.55E+01	3.82E+00
4/7/2004	4.34E+01	3.77E+00

Well Number:	MW372	
Date Collected	Result	LN(Result)
7/16/2002	3.98E+01	3.68E+00
10/8/2002	4.10E+01	3.71E+00
1/7/2003	3.94E+01	3.67E+00
4/2/2003	3.92E+01	3.67E+00
7/9/2003	3.98E+01	3.68E+00
10/7/2003	4.00E+01	3.69E+00
1/5/2004	4.34E+01	3.77E+00
4/5/2004	4.20E+01	3.74E+00

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW357	Downgradient	Yes	3.17E+01	NO	3.46E+00	N/A
MW360	Downgradient	Yes	7.06E+00	NO	1.95E+00	N/A
MW363	Downgradient	Yes	2.11E+01	NO	3.05E+00	N/A
MW366	Downgradient	Yes	3.89E+01	NO	3.66E+00	N/A
MW369	Upgradient	Yes	2.77E+01	NO	3.32E+00	N/A
MW372	Upgradient	No	3.79E+01	N/A	3.63E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-U First Quarter 2024 Statistical Analysis Historical Background Comparison

Cobalt UNITS: mg/L URGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 0.025	**S=** 0.021	**CV(1)=** 0.845	**K factor**=** 2.523	**TL(1)=** 7.73E-02	**LL(1)=** N/A
Statistics-Transformed Background Data	**X=** -4.090	**S=** 1.006	**CV(2)=** -0.246	**K factor**=** 2.523	**TL(2)=** -1.55E+00	**LL(2)=** N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW369	
Date Collected	Result	LN(Result)
3/18/2002	2.50E-02	-3.69E+00
4/22/2002	2.50E-02	-3.69E+00
7/15/2002	2.50E-02	-3.69E+00
10/8/2002	9.38E-03	-4.67E+00
1/8/2003	5.48E-03	-5.21E+00
4/3/2003	5.87E-03	-5.14E+00
7/8/2003	5.41E-02	-2.92E+00
10/6/2003	6.89E-02	-2.68E+00

Well Number:	MW372	
Date Collected	Result	LN(Result)
3/19/2002	2.50E-02	-3.69E+00
4/23/2002	2.50E-02	-3.69E+00
7/16/2002	2.50E-02	-3.69E+00
10/8/2002	1.58E-03	-6.45E+00
1/7/2003	1.47E-02	-4.22E+00
4/2/2003	1.16E-02	-4.46E+00
7/9/2003	6.53E-02	-2.73E+00
10/7/2003	7.88E-03	-4.84E+00

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW357	Downgradient	No	1.00E-03	N/A	-6.91E+00	N/A
MW360	Downgradient	Yes	9.85E-04	NO	-6.92E+00	N/A
MW363	Downgradient	Yes	8.78E-04	NO	-7.04E+00	N/A
MW366	Downgradient	No	1.00E-03	N/A	-6.91E+00	N/A
MW369	Upgradient	Yes	4.83E-03	NO	-5.33E+00	N/A
MW372	Upgradient	No	1.00E-03	N/A	-6.91E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-U First Quarter 2024 Statistical Analysis Historical Background Comparison

Conductivity UNITS: umho/cm URGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 482.856	**S=** 57.603	**CV(1)=** 0.119	**K factor**=** 2.523	**TL(1)=** 6.28E+02	**LL(1)=** N/A
Statistics-Transformed Background Data	**X=** 6.173	**S=** 0.123	**CV(2)=** 0.020	**K factor**=** 2.523	**TL(2)=** 6.48E+00	**LL(2)=** N/A

Historical Background Data from Upgradient Wells with Transformed Result

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Well Number: MW369

Date Collected	Result	LN(Result)
3/18/2002	3.88E+02	5.96E+00
4/22/2002	4.04E+02	6.00E+00
7/15/2002	3.94E+02	5.98E+00
10/8/2002	4.03E+02	6.00E+00
1/8/2003	5.20E+02	6.25E+00
4/3/2003	4.87E+02	6.19E+00
7/8/2003	4.78E+02	6.17E+00
10/6/2003	4.76E+02	6.17E+00

Well Number: MW372

Date Collected	Result	LN(Result)
3/19/2002	5.08E+02	6.23E+00
4/23/2002	5.01E+02	6.22E+00
7/16/2002	5.07E+02	6.23E+00
10/8/2002	4.95E+02	6.20E+00
1/7/2003	5.09E+02	6.23E+00
4/2/2003	5.15E+02	6.24E+00
7/9/2003	5.76E+02	6.36E+00
10/7/2003	5.65E+02	6.34E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW357	Downgradient	Yes	4.11E+02	NO	6.02E+00	N/A
MW360	Downgradient	Yes	3.84E+02	NO	5.95E+00	N/A
MW363	Downgradient	Yes	3.73E+02	NO	5.92E+00	N/A
MW366	Downgradient	Yes	4.84E+02	NO	6.18E+00	N/A
MW369	Upgradient	Yes	3.41E+02	NO	5.83E+00	N/A
MW372	Upgradient	Yes	7.27E+02	YES	6.59E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

The test well(s) listed exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to historical background data.

Wells with Exceedances

MW372

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-U First Quarter 2024 Statistical Analysis Historical Background Comparison

Copper UNITS: mg/L URGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 0.025	**S=** 0.010	**CV(1)=** 0.400	**K factor**=** 2.523	**TL(1)=** 5.02E-02	**LL(1)=** N/A
Statistics-Transformed Background Data	**X=** -3.742	**S=** 0.307	**CV(2)=** -0.082	**K factor**=** 2.523	**TL(2)=** -2.97E+00	**LL(2)=** N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW369	
Date Collected	Result	LN(Result)
3/18/2002	2.50E-02	-3.69E+00
4/22/2002	2.50E-02	-3.69E+00
7/15/2002	5.00E-02	-3.00E+00
10/8/2002	2.00E-02	-3.91E+00
1/8/2003	2.00E-02	-3.91E+00
4/3/2003	2.00E-02	-3.91E+00
7/8/2003	2.00E-02	-3.91E+00
10/6/2003	2.00E-02	-3.91E+00

Well Number:	MW372	
Date Collected	Result	LN(Result)
3/19/2002	2.50E-02	-3.69E+00
4/23/2002	2.50E-02	-3.69E+00
7/16/2002	5.00E-02	-3.00E+00
10/8/2002	2.00E-02	-3.91E+00
1/7/2003	2.00E-02	-3.91E+00
4/2/2003	2.00E-02	-3.91E+00
7/9/2003	2.00E-02	-3.91E+00
10/7/2003	2.00E-02	-3.91E+00

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW357	Downgradient	Yes	1.08E-03	NO	-6.83E+00	N/A
MW360	Downgradient	Yes	1.67E-03	NO	-6.39E+00	N/A
MW363	Downgradient	Yes	8.51E-04	NO	-7.07E+00	N/A
MW366	Downgradient	Yes	9.66E-04	NO	-6.94E+00	N/A
MW369	Upgradient	Yes	1.70E-03	NO	-6.38E+00	N/A
MW372	Upgradient	Yes	1.46E-03	NO	-6.53E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-U First Quarter 2024 Statistical Analysis Historical Background Comparison

Dissolved Oxygen UNITS: mg/L URGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 1.781	**S=** 1.351	**CV(1)=** 0.759	**K factor**=** 2.523	**TL(1)=** 5.19E+00	**LL(1)=** N/A
Statistics-Transformed Background Data	**X=** 0.228	**S=** 1.065	**CV(2)=** 4.665	**K factor**=** 2.523	**TL(2)=** 2.92E+00	**LL(2)=** N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW369	
Date Collected	Result	LN(Result)
3/18/2002	5.41E+00	1.69E+00
4/22/2002	1.57E+00	4.51E-01
7/15/2002	8.00E-01	-2.23E-01
10/8/2002	1.09E+00	8.62E-02
1/8/2003	2.69E+00	9.90E-01
4/3/2003	2.04E+00	7.13E-01
7/8/2003	1.19E+00	1.74E-01
10/6/2003	1.78E+00	5.77E-01

Well Number:	MW372	
Date Collected	Result	LN(Result)
3/19/2002	3.89E+00	1.36E+00
4/23/2002	5.00E-02	-3.00E+00
7/16/2002	1.33E+00	2.85E-01
10/8/2002	2.66E+00	9.78E-01
1/7/2003	4.00E-01	-9.16E-01
4/2/2003	9.10E-01	-9.43E-02
7/9/2003	1.42E+00	3.51E-01
10/7/2003	1.26E+00	2.31E-01

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW357	Downgradient	Yes	4.20E+00	NO	1.44E+00	N/A
MW360	Downgradient	Yes	1.99E+00	NO	6.88E-01	N/A
MW363	Downgradient	Yes	1.30E+00	NO	2.62E-01	N/A
MW366	Downgradient	Yes	2.66E+00	NO	9.78E-01	N/A
MW369	Upgradient	Yes	2.42E+00	NO	8.84E-01	N/A
MW372	Upgradient	Yes	1.70E+00	NO	5.31E-01	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-U First Quarter 2024 Statistical Analysis Historical Background Comparison

Dissolved Solids UNITS: mg/L URGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 285.188	**S=** 44.908	**CV(1)=** 0.157	**K factor**=** 2.523	**TL(1)=** 3.98E+02	**LL(1)=** N/A
Statistics-Transformed Background Data	**X=** 5.640	**S=** 0.175	**CV(2)=** 0.031	**K factor**=** 2.523	**TL(2)=** 6.08E+00	**LL(2)=** N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW369	
Date Collected	Result	LN(Result)
3/18/2002	1.73E+02	5.15E+00
4/22/2002	2.46E+02	5.51E+00
7/15/2002	2.32E+02	5.45E+00
10/8/2002	2.75E+02	5.62E+00
1/8/2003	2.69E+02	5.59E+00
4/3/2003	2.50E+02	5.52E+00
7/8/2003	2.95E+02	5.69E+00
10/6/2003	2.76E+02	5.62E+00

Well Number:	MW372	
Date Collected	Result	LN(Result)
3/19/2002	2.95E+02	5.69E+00
4/23/2002	3.22E+02	5.77E+00
7/16/2002	3.29E+02	5.80E+00
10/8/2002	2.90E+02	5.67E+00
1/7/2003	3.16E+02	5.76E+00
4/2/2003	3.11E+02	5.74E+00
7/9/2003	3.47E+02	5.85E+00
10/7/2003	3.37E+02	5.82E+00

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW357	Downgradient	Yes	2.11E+02	NO	5.35E+00	N/A
MW360	Downgradient	Yes	2.21E+02	NO	5.40E+00	N/A
MW363	Downgradient	Yes	2.02E+02	NO	5.31E+00	N/A
MW366	Downgradient	Yes	2.78E+02	NO	5.63E+00	N/A
MW369	Upgradient	Yes	1.89E+02	NO	5.24E+00	N/A
MW372	Upgradient	Yes	4.38E+02	YES	6.08E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

The test well(s) listed exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to historical background data.

Wells with Exceedances

MW372

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-U First Quarter 2024 Statistical Analysis Historical Background Comparison

Iron UNITS: mg/L URGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data **X=** 7.385 **S=** 6.991 **CV(1)=** 0.947 **K factor**=** 2.523 **TL(1)=** 2.50E+01 **LL(1)=**N/A

Statistics-Transformed Background Data **X=** 1.358 **S=** 1.323 **CV(2)=** 0.974 **K factor**=** 2.523 **TL(2)=** 4.70E+00 **LL(2)=**N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW369	
Date Collected	Result	LN(Result)
3/18/2002	6.56E-01	-4.22E-01
4/22/2002	6.95E-01	-3.64E-01
7/15/2002	7.10E+00	1.96E+00
10/8/2002	2.15E+01	3.07E+00
1/8/2003	1.85E+01	2.92E+00
4/3/2003	1.49E+01	2.70E+00
7/8/2003	1.13E+01	2.42E+00
10/6/2003	1.49E+01	2.70E+00

Well Number:	MW372	
Date Collected	Result	LN(Result)
3/19/2002	5.95E+00	1.78E+00
4/23/2002	7.92E-01	-2.33E-01
7/16/2002	1.78E+00	5.77E-01
10/8/2002	7.76E-01	-2.54E-01
1/7/2003	3.55E+00	1.27E+00
4/2/2003	5.02E+00	1.61E+00
7/9/2003	1.00E+01	2.30E+00
10/7/2003	7.33E-01	-3.11E-01

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW357	Downgradient	Yes	5.43E-02	NO	-2.91E+00	N/A
MW360	Downgradient	Yes	9.16E-02	NO	-2.39E+00	N/A
MW363	Downgradient	Yes	7.34E-02	NO	-2.61E+00	N/A
MW366	Downgradient	Yes	1.21E-01	NO	-2.11E+00	N/A
MW369	Upgradient	Yes	1.07E-01	NO	-2.23E+00	N/A
MW372	Upgradient	Yes	8.69E-02	NO	-2.44E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-U First Quarter 2024 Statistical Analysis Historical Background Comparison

Magnesium UNITS: mg/L URGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 12.864	**S=** 3.505	**CV(1)=** 0.272	**K factor**=** 2.523	**TL(1)=** 2.17E+01	**LL(1)=** N/A
Statistics-Transformed Background Data	**X=** 2.517	**S=** 0.290	**CV(2)=** 0.115	**K factor**=** 2.523	**TL(2)=** 3.25E+00	**LL(2)=** N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW369	
Date Collected	Result	LN(Result)
3/18/2002	1.14E+01	2.43E+00
4/22/2002	1.20E+01	2.48E+00
7/15/2002	1.00E+01	2.30E+00
10/8/2002	8.62E+00	2.15E+00
1/8/2003	7.89E+00	2.07E+00
4/3/2003	7.97E+00	2.08E+00
7/8/2003	1.03E+01	2.33E+00
10/6/2003	9.14E+00	2.21E+00

Well Number:	MW372	
Date Collected	Result	LN(Result)
3/19/2002	1.57E+01	2.75E+00
4/23/2002	1.66E+01	2.81E+00
7/16/2002	1.54E+01	2.73E+00
10/8/2002	1.58E+01	2.76E+00
1/7/2003	1.58E+01	2.76E+00
4/2/2003	1.64E+01	2.80E+00
7/9/2003	1.52E+01	2.72E+00
10/7/2003	1.76E+01	2.87E+00

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW357	Downgradient	Yes	1.20E+01	NO	2.48E+00	N/A
MW360	Downgradient	Yes	9.29E+00	NO	2.23E+00	N/A
MW363	Downgradient	Yes	9.43E+00	NO	2.24E+00	N/A
MW366	Downgradient	Yes	1.45E+01	NO	2.67E+00	N/A
MW369	Upgradient	Yes	7.13E+00	NO	1.96E+00	N/A
MW372	Upgradient	Yes	2.51E+01	YES	3.22E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

The test well(s) listed exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to historical background data.

Wells with Exceedances

MW372

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-U First Quarter 2024 Statistical Analysis Historical Background Comparison

Manganese UNITS: mg/L URGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 0.413	**S=** 0.274	**CV(1)=** 0.664	**K factor**=** 2.523	**TL(1)=** 1.11E+00	**LL(1)=** N/A
Statistics-Transformed Background Data	**X=** -1.226	**S=** 1.008	**CV(2)=** -0.822	**K factor**=** 2.523	**TL(2)=** 1.32E+00	**LL(2)=** N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW369	
Date Collected	Result	LN(Result)
3/18/2002	3.40E-02	-3.38E+00
4/22/2002	6.20E-02	-2.78E+00
7/15/2002	4.36E-01	-8.30E-01
10/8/2002	8.67E-01	-1.43E-01
1/8/2003	8.28E-01	-1.89E-01
4/3/2003	6.72E-01	-3.97E-01
7/8/2003	3.21E-01	-1.14E+00
10/6/2003	7.14E-01	-3.37E-01

Well Number:	MW372	
Date Collected	Result	LN(Result)
3/19/2002	2.05E-01	-1.58E+00
4/23/2002	3.45E-01	-1.06E+00
7/16/2002	2.10E-01	-1.56E+00
10/8/2002	5.39E-02	-2.92E+00
1/7/2003	5.37E-01	-6.22E-01
4/2/2003	4.15E-01	-8.79E-01
7/9/2003	6.54E-01	-4.25E-01
10/7/2003	2.54E-01	-1.37E+00

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW357	Downgradient	Yes	5.91E-03	NO	-5.13E+00	N/A
MW360	Downgradient	Yes	9.32E-03	NO	-4.68E+00	N/A
MW363	Downgradient	Yes	1.12E-01	NO	-2.19E+00	N/A
MW366	Downgradient	Yes	1.65E-02	NO	-4.10E+00	N/A
MW369	Upgradient	Yes	5.80E-03	NO	-5.15E+00	N/A
MW372	Upgradient	Yes	1.99E-03	NO	-6.22E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-U First Quarter 2024 Statistical Analysis Historical Background Comparison

Methylene chloride UNITS: ug/L URGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 5.438	**S=** 1.931	**CV(1)=** 0.355	**K factor**=** 2.523	**TL(1)=** 1.03E+01	**LL(1)=** N/A
Statistics-Transformed Background Data	**X=** 1.639	**S=** 0.345	**CV(2)=** 0.211	**K factor**=** 2.523	**TL(2)=** 2.51E+00	**LL(2)=** N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number: MW369

Date Collected	Result	LN(Result)
3/18/2002	2.00E+00	6.93E-01
4/22/2002	5.00E+00	1.61E+00
7/15/2002	1.00E+01	2.30E+00
10/8/2002	5.00E+00	1.61E+00
1/8/2003	5.00E+00	1.61E+00
4/3/2003	5.00E+00	1.61E+00
7/8/2003	5.00E+00	1.61E+00
10/6/2003	5.00E+00	1.61E+00

Well Number: MW372

Date Collected	Result	LN(Result)
3/19/2002	5.00E+00	1.61E+00
4/23/2002	5.00E+00	1.61E+00
7/16/2002	1.00E+01	2.30E+00
10/8/2002	5.00E+00	1.61E+00
1/7/2003	5.00E+00	1.61E+00
4/2/2003	5.00E+00	1.61E+00
7/9/2003	5.00E+00	1.61E+00
10/7/2003	5.00E+00	1.61E+00

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW357	Downgradient	No	5.00E+00	N/A	1.61E+00	N/A
MW360	Downgradient	No	5.00E+00	N/A	1.61E+00	N/A
MW363	Downgradient	No	5.00E+00	N/A	1.61E+00	N/A
MW366	Downgradient	No	5.00E+00	N/A	1.61E+00	N/A
MW369	Upgradient	No	5.00E+00	N/A	1.61E+00	N/A
MW372	Upgradient	Yes	1.35E+00	NO	3.00E-01	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-U First Quarter 2024 Statistical Analysis Historical Background Comparison

Molybdenum UNITS: mg/L URGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 0.010	**S=** 0.012	**CV(1)=** 1.199	**K factor**=** 2.523	**TL(1)=** 4.03E-02	**LL(1)=**N/A
Statistics-Transformed Background Data	**X=** -5.698	**S=** 1.607	**CV(2)=** -0.282	**K factor**=** 2.523	**TL(2)=** -1.64E+00	**LL(2)=**N/A

Historical Background Data from Upgradient Wells with Transformed Result

Because CV(1) is greater than 1, the natural logarithm of background and test well results were calculated utilizing TL(2) for comparison.

Well Number: MW369

Date Collected	Result	LN(Result)
3/18/2002	2.50E-02	-3.69E+00
4/22/2002	2.50E-02	-3.69E+00
7/15/2002	2.50E-02	-3.69E+00
10/8/2002	1.00E-03	-6.91E+00
1/8/2003	1.00E-03	-6.91E+00
4/3/2003	1.00E-03	-6.91E+00
7/8/2003	1.00E-03	-6.91E+00
10/6/2003	1.00E-03	-6.91E+00

Well Number: MW372

Date Collected	Result	LN(Result)
3/19/2002	2.50E-02	-3.69E+00
4/23/2002	2.50E-02	-3.69E+00
7/16/2002	2.50E-02	-3.69E+00
10/8/2002	1.00E-03	-6.91E+00
1/7/2003	1.00E-03	-6.91E+00
4/2/2003	1.00E-03	-6.91E+00
7/9/2003	1.05E-03	-6.86E+00
10/7/2003	1.00E-03	-6.91E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW357	Downgradient	No	1.00E-03	N/A	-6.91E+00	N/A
MW360	Downgradient	No	1.00E-03	N/A	-6.91E+00	N/A
MW363	Downgradient	No	1.00E-03	N/A	-6.91E+00	N/A
MW366	Downgradient	No	1.00E-03	N/A	-6.91E+00	N/A
MW369	Upgradient	No	1.00E-03	N/A	-6.91E+00	N/A
MW372	Upgradient	Yes	2.68E-04	N/A	-8.22E+00	NO

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-U First Quarter 2024 Statistical Analysis Historical Background Comparison

Nickel UNITS: mg/L URGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 0.024	**S=** 0.021	**CV(1)=** 0.910	**K factor**=** 2.523	**TL(1)=** 7.77E-02	**LL(1)=** N/A
Statistics-Transformed Background Data	**X=** -4.246	**S=** 1.075	**CV(2)=** -0.253	**K factor**=** 2.523	**TL(2)=** -1.53E+00	**LL(2)=** N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW369	
Date Collected	Result	LN(Result)
3/18/2002	5.00E-02	-3.00E+00
4/22/2002	5.00E-02	-3.00E+00
7/15/2002	5.00E-02	-3.00E+00
10/8/2002	5.00E-03	-5.30E+00
1/8/2003	5.00E-03	-5.30E+00
4/3/2003	5.00E-03	-5.30E+00
7/8/2003	1.30E-02	-4.34E+00
10/6/2003	1.04E-02	-4.57E+00

Well Number:	MW372	
Date Collected	Result	LN(Result)
3/19/2002	5.00E-02	-3.00E+00
4/23/2002	5.00E-02	-3.00E+00
7/16/2002	5.00E-02	-3.00E+00
10/8/2002	5.00E-03	-5.30E+00
1/7/2003	5.00E-03	-5.30E+00
4/2/2003	5.00E-03	-5.30E+00
7/9/2003	1.90E-02	-3.96E+00
10/7/2003	5.00E-03	-5.30E+00

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW357	Downgradient	No	2.00E-03	N/A	-6.21E+00	N/A
MW360	Downgradient	Yes	6.78E-04	NO	-7.30E+00	N/A
MW363	Downgradient	Yes	4.45E-02	NO	-3.11E+00	N/A
MW366	Downgradient	Yes	9.91E-04	NO	-6.92E+00	N/A
MW369	Upgradient	Yes	2.94E-03	NO	-5.83E+00	N/A
MW372	Upgradient	Yes	6.27E-04	NO	-7.37E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-U First Quarter 2024 Statistical Analysis Historical Background Comparison

Oxidation-Reduction Potential UNITS: mV URGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 74.563	**S=** 94.243	**CV(1)=** 1.264	**K factor**=** 2.523	**TL(1)=** 3.12E+02	**LL(1)=**N/A
Statistics-Transformed Background Data	**X=** 4.554	**S=** 0.784	**CV(2)=** 0.172	**K factor**=** 2.523	**TL(2)=** 5.37E+00	**LL(2)=**N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW369	
Date Collected	Result	LN(Result)
3/18/2002	2.15E+02	5.37E+00
4/22/2002	1.10E+02	4.70E+00
7/15/2002	2.00E+01	3.00E+00
1/8/2003	-5.00E+00	#Func!
4/3/2003	-1.80E+01	#Func!
7/8/2003	-6.70E+01	#Func!
10/6/2003	-1.00E+00	#Func!
1/7/2004	5.50E+01	4.01E+00

Well Number:	MW372	
Date Collected	Result	LN(Result)
3/19/2002	2.10E+02	5.35E+00
4/23/2002	6.50E+01	4.17E+00
7/16/2002	2.15E+02	5.37E+00
10/8/2002	1.85E+02	5.22E+00
1/7/2003	4.50E+01	3.81E+00
4/2/2003	6.50E+01	4.17E+00
7/9/2003	-3.90E+01	#Func!
10/7/2003	1.38E+02	4.93E+00

Because CV(1) is greater than 1, the natural logarithm of background and test well results were calculated utilizing TL(2) for comparison.

#Because the natural log was not possible for all background values, the TL was considered equal to the maximum background value.

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW357	Downgradient	Yes	4.51E+02	N/A	6.11E+00	YES
MW360	Downgradient	Yes	4.80E+02	N/A	6.17E+00	YES
MW363	Downgradient	Yes	3.63E+02	N/A	5.89E+00	YES
MW366	Downgradient	Yes	3.48E+02	N/A	5.85E+00	YES
MW369	Upgradient	Yes	4.23E+02	N/A	6.05E+00	YES
MW372	Upgradient	Yes	4.83E+02	N/A	6.18E+00	YES

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

The test well(s) listed exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to historical background data.

Wells with Exceedances

MW357
MW360
MW363
MW366
MW369
MW372

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

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pH UNITS: Std Unit URGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 6.274	**S=** 0.194	**CV(1)=** 0.031	**K factor**=** 2.904	**TL(1)=** 6.84E+00	**LL(1)=** 5.71E+00
Statistics-Transformed Background Data	**X=** 1.836	**S=** 0.031	**CV(2)=** 0.017	**K factor**=** 2.904	**TL(2)=** 1.93E+00	**LL(2)=** 1.75E+00

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW369	
Date Collected	Result	LN(Result)
3/18/2002	6.10E+00	1.81E+00
4/22/2002	6.10E+00	1.81E+00
7/15/2002	6.10E+00	1.81E+00
10/8/2002	6.50E+00	1.87E+00
1/8/2003	6.50E+00	1.87E+00
4/3/2003	6.60E+00	1.89E+00
7/8/2003	6.50E+00	1.87E+00
10/6/2003	6.50E+00	1.87E+00

Well Number:	MW372	
Date Collected	Result	LN(Result)
3/19/2002	6.10E+00	1.81E+00
4/23/2002	6.12E+00	1.81E+00
7/16/2002	6.10E+00	1.81E+00
10/8/2002	6.06E+00	1.80E+00
1/7/2003	6.26E+00	1.83E+00
4/2/2003	6.15E+00	1.82E+00
7/9/2003	6.30E+00	1.84E+00
10/7/2003	6.40E+00	1.86E+00

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)? Result <LL(1)?	LN(Result)	LN(Result) >TL(2)? LN(Result) <LL(2)?
MW357	Downgradient	Yes	6.08E+00	NO	1.81E+00	N/A
MW360	Downgradient	Yes	6.11E+00	NO	1.81E+00	N/A
MW363	Downgradient	Yes	6.13E+00	NO	1.81E+00	N/A
MW366	Downgradient	Yes	6.10E+00	NO	1.81E+00	N/A
MW369	Upgradient	Yes	6.13E+00	NO	1.81E+00	N/A
MW372	Upgradient	Yes	6.07E+00	NO	1.80E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

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Potassium UNITS: mg/L URGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 1.663	**S=** 0.488	**CV(1)=** 0.293	**K factor**=** 2.523	**TL(1)=** 2.89E+00	**LL(1)=** N/A
Statistics-Transformed Background Data	**X=** 0.456	**S=** 0.362	**CV(2)=** 0.794	**K factor**=** 2.523	**TL(2)=** 1.37E+00	**LL(2)=** N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW369	
Date Collected	Result	LN(Result)
3/18/2002	2.00E+00	6.93E-01
4/22/2002	2.21E+00	7.93E-01
7/15/2002	2.00E+00	6.93E-01
10/8/2002	9.66E-01	-3.46E-02
1/8/2003	7.27E-01	-3.19E-01
4/3/2003	8.00E-01	-2.23E-01
7/8/2003	1.62E+00	4.82E-01
10/6/2003	1.14E+00	1.31E-01

Well Number:	MW372	
Date Collected	Result	LN(Result)
3/19/2002	2.04E+00	7.13E-01
4/23/2002	2.03E+00	7.08E-01
7/16/2002	2.00E+00	6.93E-01
10/8/2002	1.54E+00	4.32E-01
1/7/2003	1.88E+00	6.31E-01
4/2/2003	2.09E+00	7.37E-01
7/9/2003	1.78E+00	5.77E-01
10/7/2003	1.79E+00	5.82E-01

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW357	Downgradient	Yes	1.69E+00	NO	5.25E-01	N/A
MW360	Downgradient	Yes	7.59E-01	NO	-2.76E-01	N/A
MW363	Downgradient	Yes	2.07E+00	NO	7.28E-01	N/A
MW366	Downgradient	Yes	1.93E+00	NO	6.58E-01	N/A
MW369	Upgradient	Yes	5.64E-01	NO	-5.73E-01	N/A
MW372	Upgradient	Yes	2.12E+00	NO	7.51E-01	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

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Sodium UNITS: mg/L URGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 45.100	**S=** 11.875	**CV(1)=** 0.263	**K factor**=** 2.523	**TL(1)=** 7.51E+01	**LL(1)=** N/A
Statistics-Transformed Background Data	**X=** 3.780	**S=** 0.242	**CV(2)=** 0.064	**K factor**=** 2.523	**TL(2)=** 4.39E+00	**LL(2)=** N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW369	
Date Collected	Result	LN(Result)
3/18/2002	3.57E+01	3.58E+00
4/22/2002	3.76E+01	3.63E+00
7/15/2002	4.24E+01	3.75E+00
10/8/2002	6.69E+01	4.20E+00
1/8/2003	6.79E+01	4.22E+00
4/3/2003	6.18E+01	4.12E+00
7/8/2003	4.56E+01	3.82E+00
10/6/2003	5.91E+01	4.08E+00

Well Number:	MW372	
Date Collected	Result	LN(Result)
3/19/2002	3.72E+01	3.62E+00
4/23/2002	3.86E+01	3.65E+00
7/16/2002	3.56E+01	3.57E+00
10/8/2002	3.75E+01	3.62E+00
1/7/2003	3.41E+01	3.53E+00
4/2/2003	3.44E+01	3.54E+00
7/9/2003	4.41E+01	3.79E+00
10/7/2003	4.31E+01	3.76E+00

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW357	Downgradient	Yes	4.51E+01	NO	3.81E+00	N/A
MW360	Downgradient	Yes	6.24E+01	NO	4.13E+00	N/A
MW363	Downgradient	Yes	3.84E+01	NO	3.65E+00	N/A
MW366	Downgradient	Yes	4.78E+01	NO	3.87E+00	N/A
MW369	Upgradient	Yes	5.12E+01	NO	3.94E+00	N/A
MW372	Upgradient	Yes	6.08E+01	NO	4.11E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

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Sulfate UNITS: mg/L URGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 45.031	**S=** 33.919	**CV(1)=** 0.753	**K factor**=** 2.523	**TL(1)=** 1.31E+02	**LL(1)=** N/A
Statistics-Transformed Background Data	**X=** 3.420	**S=** 0.981	**CV(2)=** 0.287	**K factor**=** 2.523	**TL(2)=** 5.89E+00	**LL(2)=** N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW369	
Date Collected	Result	LN(Result)
3/18/2002	1.55E+01	2.74E+00
4/22/2002	1.58E+01	2.76E+00
7/15/2002	1.38E+01	2.62E+00
10/8/2002	6.90E+00	1.93E+00
1/8/2003	1.05E+01	2.35E+00
4/3/2003	1.05E+01	2.35E+00
7/8/2003	1.09E+01	2.39E+00
10/6/2003	1.63E+01	2.79E+00

Well Number:	MW372	
Date Collected	Result	LN(Result)
3/19/2002	7.17E+01	4.27E+00
4/23/2002	7.47E+01	4.31E+00
7/16/2002	7.41E+01	4.31E+00
10/8/2002	7.05E+01	4.26E+00
1/7/2003	7.58E+01	4.33E+00
4/2/2003	8.18E+01	4.40E+00
7/9/2003	8.36E+01	4.43E+00
10/7/2003	8.81E+01	4.48E+00

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW357	Downgradient	Yes	3.87E+01	NO	3.66E+00	N/A
MW360	Downgradient	Yes	1.22E+01	NO	2.50E+00	N/A
MW363	Downgradient	Yes	2.84E+01	NO	3.35E+00	N/A
MW366	Downgradient	Yes	4.91E+01	NO	3.89E+00	N/A
MW369	Upgradient	Yes	8.49E+00	NO	2.14E+00	N/A
MW372	Upgradient	Yes	1.48E+02	YES	5.00E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

The test well(s) listed exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to historical background data.

Wells with Exceedances

MW372

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

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Technetium-99 UNITS: pCi/L URGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 20.821	**S=** 18.044	**CV(1)=** 0.867	**K factor**=** 2.523	**TL(1)=** 6.63E+01	**LL(1)=** N/A
Statistics-Transformed Background Data	**X=** 2.770	**S=** 1.150	**CV(2)=** 0.415	**K factor**=** 2.523	**TL(2)=** 3.97E+00	**LL(2)=** N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW369	
Date Collected	Result	LN(Result)
3/18/2002	4.17E+01	3.73E+00
4/22/2002	5.31E+01	3.97E+00
7/15/2002	1.81E+01	2.90E+00
10/8/2002	1.64E+01	2.80E+00
1/8/2003	3.49E+00	1.25E+00
4/3/2003	9.34E+00	2.23E+00
7/8/2003	1.75E+01	2.86E+00
10/6/2003	1.70E+01	2.83E+00

Well Number:	MW372	
Date Collected	Result	LN(Result)
3/19/2002	4.48E+01	3.80E+00
4/23/2002	8.02E-01	-2.21E-01
7/16/2002	1.98E+01	2.99E+00
10/8/2002	4.61E+01	3.83E+00
1/7/2003	-9.73E-01	#Func!
4/2/2003	9.07E+00	2.20E+00
7/9/2003	0.00E+00	#Func!
10/7/2003	3.69E+01	3.61E+00

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

#Because the natural log was not possible for all background values, the TL was considered equal to the maximum background value.

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW357	Downgradient	No	1.86E+01	N/A	2.92E+00	N/A
MW360	Downgradient	No	5.52E+00	N/A	1.71E+00	N/A
MW363	Downgradient	No	6.56E+00	N/A	1.88E+00	N/A
MW366	Downgradient	Yes	6.23E+01	NO	4.13E+00	N/A
MW369	Upgradient	Yes	6.27E+01	NO	4.14E+00	N/A
MW372	Upgradient	Yes	3.89E+01	NO	3.66E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

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Total Organic Carbon (TOC) UNITS: mg/L URGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 3.513	**S=** 4.307	**CV(1)=** 1.226	**K factor**=** 2.523	**TL(1)=** 1.44E+01	**LL(1)=**N/A
Statistics-Transformed Background Data	**X=** 0.851	**S=** 0.828	**CV(2)=** 0.973	**K factor**=** 2.523	**TL(2)=** 2.94E+00	**LL(2)=**N/A

Historical Background Data from Upgradient Wells with Transformed Result

Because CV(1) is greater than 1, the natural logarithm of background and test well results were calculated utilizing TL(2) for comparison.

Well Number:	MW369	
Date Collected	Result	LN(Result)
3/18/2002	1.70E+00	5.31E-01
4/22/2002	1.60E+00	4.70E-01
7/15/2002	3.10E+00	1.13E+00
10/8/2002	1.77E+01	2.87E+00
1/8/2003	9.00E+00	2.20E+00
4/3/2003	4.00E+00	1.39E+00
7/8/2003	4.90E+00	1.59E+00
10/6/2003	2.40E+00	8.75E-01

Well Number:	MW372	
Date Collected	Result	LN(Result)
3/19/2002	1.00E+00	0.00E+00
4/23/2002	1.20E+00	1.82E-01
7/16/2002	1.00E+00	0.00E+00
10/8/2002	1.00E+00	0.00E+00
1/7/2003	1.60E+00	4.70E-01
4/2/2003	1.50E+00	4.05E-01
7/9/2003	3.00E+00	1.10E+00
10/7/2003	1.50E+00	4.05E-01

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW357	Downgradient	Yes	6.21E-01	N/A	-4.76E-01	NO
MW360	Downgradient	Yes	1.25E+00	N/A	2.23E-01	NO
MW363	Downgradient	Yes	1.26E+00	N/A	2.31E-01	NO
MW366	Downgradient	Yes	6.20E-01	N/A	-4.78E-01	NO
MW369	Upgradient	Yes	7.69E-01	N/A	-2.63E-01	NO
MW372	Upgradient	Yes	1.02E+00	N/A	1.98E-02	NO

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

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Total Organic Halides (TOX) UNITS: ug/L URGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 67.963	**S=** 64.316	**CV(1)=** 0.946	**K factor**=** 2.523	**TL(1)=** 2.30E+02	**LL(1)=** N/A
Statistics-Transformed Background Data	**X=** 3.772	**S=** 1.023	**CV(2)=** 0.271	**K factor**=** 2.523	**TL(2)=** 6.35E+00	**LL(2)=** N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW369	
Date Collected	Result	LN(Result)
3/18/2002	5.00E+01	3.91E+00
4/22/2002	5.00E+01	3.91E+00
7/15/2002	8.10E+01	4.39E+00
10/8/2002	2.02E+02	5.31E+00
1/8/2003	1.77E+02	5.18E+00
4/3/2003	9.31E+01	4.53E+00
7/8/2003	1.75E+01	2.86E+00
10/6/2003	3.75E+01	3.62E+00

Well Number:	MW372	
Date Collected	Result	LN(Result)
3/19/2002	1.84E+02	5.21E+00
4/23/2002	5.00E+01	3.91E+00
7/16/2002	5.00E+01	3.91E+00
10/8/2002	5.00E+01	3.91E+00
1/7/2003	1.00E+01	2.30E+00
4/2/2003	1.27E+01	2.54E+00
7/9/2003	1.00E+01	2.30E+00
10/7/2003	1.26E+01	2.53E+00

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW357	Downgradient	No	1.00E+01	N/A	2.30E+00	N/A
MW360	Downgradient	Yes	4.24E+00	NO	1.44E+00	N/A
MW363	Downgradient	Yes	8.74E+00	NO	2.17E+00	N/A
MW366	Downgradient	Yes	3.68E+00	NO	1.30E+00	N/A
MW369	Upgradient	Yes	2.10E+01	NO	3.04E+00	N/A
MW372	Upgradient	Yes	1.09E+01	NO	2.39E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-U First Quarter 2024 Statistical Analysis Historical Background Comparison

Vanadium UNITS: mg/L URGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 0.024	**S=** 0.006	**CV(1)=** 0.259	**K factor**=** 2.523	**TL(1)=** 3.91E-02	**LL(1)=**N/A
Statistics-Transformed Background Data	**X=** -3.771	**S=** 0.223	**CV(2)=** -0.059	**K factor**=** 2.523	**TL(2)=** -3.21E+00	**LL(2)=**N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW369	
Date Collected	Result	LN(Result)
3/18/2002	2.50E-02	-3.69E+00
4/22/2002	2.70E-02	-3.61E+00
7/15/2002	2.50E-02	-3.69E+00
10/8/2002	2.00E-02	-3.91E+00
1/8/2003	2.00E-02	-3.91E+00
4/3/2003	2.00E-02	-3.91E+00
7/8/2003	2.00E-02	-3.91E+00
10/6/2003	2.00E-02	-3.91E+00

Well Number:	MW372	
Date Collected	Result	LN(Result)
3/19/2002	3.90E-02	-3.24E+00
4/23/2002	3.70E-02	-3.30E+00
7/16/2002	2.50E-02	-3.69E+00
10/8/2002	2.00E-02	-3.91E+00
1/7/2003	2.00E-02	-3.91E+00
4/2/2003	2.00E-02	-3.91E+00
7/9/2003	2.00E-02	-3.91E+00
10/7/2003	2.00E-02	-3.91E+00

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW357	Downgradient	No	5.04E-03	N/A	-5.29E+00	N/A
MW360	Downgradient	No	5.52E-03	N/A	-5.20E+00	N/A
MW363	Downgradient	No	5.11E-03	N/A	-5.28E+00	N/A
MW366	Downgradient	No	2.00E-02	N/A	-3.91E+00	N/A
MW369	Upgradient	No	2.00E-02	N/A	-3.91E+00	N/A
MW372	Upgradient	Yes	5.73E-03	NO	-5.16E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-U First Quarter 2024 Statistical Analysis Historical Background Comparison

Zinc UNITS: mg/L URGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 0.116	**S=** 0.173	**CV(1)=** 1.490	**K factor**=** 2.523	**TL(1)=** 5.52E-01	**LL(1)=**N/A
Statistics-Transformed Background Data	**X=** -2.729	**S=** 1.014	**CV(2)=** -0.371	**K factor**=** 2.523	**TL(2)=** -1.72E-01	**LL(2)=**N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW369	
Date Collected	Result	LN(Result)
3/18/2002	1.00E-01	-2.30E+00
4/22/2002	1.00E-01	-2.30E+00
7/15/2002	1.00E-01	-2.30E+00
10/8/2002	2.50E-02	-3.69E+00
1/8/2003	3.50E-02	-3.35E+00
4/3/2003	3.50E-02	-3.35E+00
7/8/2003	2.00E-02	-3.91E+00
10/6/2003	2.00E-02	-3.91E+00

Well Number:	MW372	
Date Collected	Result	LN(Result)
3/19/2002	7.25E-01	-3.22E-01
4/23/2002	1.00E-01	-2.30E+00
7/16/2002	1.00E-01	-2.30E+00
10/8/2002	2.50E-02	-3.69E+00
1/7/2003	3.50E-02	-3.35E+00
4/2/2003	3.50E-02	-3.35E+00
7/9/2003	2.00E-01	-1.61E+00
10/7/2003	2.00E-01	-1.61E+00

Because CV(1) is greater than 1, the natural logarithm of background and test well results were calculated utilizing TL(2) for comparison.

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW357	Downgradient	No	2.00E-02	N/A	-3.91E+00	N/A
MW360	Downgradient	Yes	3.35E-03	N/A	-5.70E+00	NO
MW363	Downgradient	No	2.00E-02	N/A	-3.91E+00	N/A
MW366	Downgradient	No	2.00E-02	N/A	-3.91E+00	N/A
MW369	Upgradient	No	2.00E-02	N/A	-3.91E+00	N/A
MW372	Upgradient	No	2.00E-02	N/A	-3.91E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-U First Quarter 2024 Statistical Analysis Historical Background Comparison

Aluminum UNITS: mg/L LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 2.026	**S=** 5.626	**CV(1)=** 2.777	**K factor**=** 2.523	**TL(1)=** 1.62E+01	**LL(1)=** N/A
Statistics-Transformed Background Data	**X=** -0.803	**S=** 1.380	**CV(2)=** -1.718	**K factor**=** 2.523	**TL(2)=** 2.68E+00	**LL(2)=** N/A

Historical Background Data from Upgradient Wells with Transformed Result

Because CV(1) is greater than 1, the natural logarithm of background and test well results were calculated utilizing TL(2) for comparison.

Well Number: MW370

Date Collected	Result	LN(Result)
3/17/2002	4.66E+00	1.54E+00
4/23/2002	2.00E-01	-1.61E+00
7/15/2002	2.00E-01	-1.61E+00
10/8/2002	2.00E-01	-1.61E+00
1/8/2003	2.00E-01	-1.61E+00
4/3/2003	2.00E-01	-1.61E+00
7/9/2003	2.00E-01	-1.61E+00
10/6/2003	2.00E-01	-1.61E+00

Well Number: MW373

Date Collected	Result	LN(Result)
3/18/2002	2.27E+01	3.12E+00
4/23/2002	1.46E+00	3.78E-01
7/16/2002	2.53E-01	-1.37E+00
10/8/2002	4.82E-01	-7.30E-01
1/7/2003	6.08E-01	-4.98E-01
4/2/2003	4.46E-01	-8.07E-01
7/9/2003	2.00E-01	-1.61E+00
10/7/2003	2.00E-01	-1.61E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW358	Downgradient	Yes	5.85E-02	N/A	-2.84E+00	NO
MW361	Downgradient	No	5.00E-02	N/A	-3.00E+00	N/A
MW364	Downgradient	No	5.00E-02	N/A	-3.00E+00	N/A
MW367	Downgradient	No	5.00E-02	N/A	-3.00E+00	N/A
MW370	Upgradient	No	5.00E-02	N/A	-3.00E+00	N/A
MW373	Upgradient	No	5.00E-02	N/A	-3.00E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-U First Quarter 2024 Statistical Analysis Historical Background Comparison

Boron UNITS: mg/L LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data **X=** 1.140 **S=** 0.780 **CV(1)=** 0.684 **K factor**=** 2.523 **TL(1)=** 3.11E+00 **LL(1)=** N/A

Statistics-Transformed Background Data **X=** -0.235 **S=** 1.006 **CV(2)=** -4.287 **K factor**=** 2.523 **TL(2)=** 2.30E+00 **LL(2)=** N/A

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Historical Background Data from Upgradient Wells with Transformed Result

Well Number: MW370

Date Collected	Result	LN(Result)
3/17/2002	2.00E+00	6.93E-01
4/23/2002	2.00E+00	6.93E-01
7/15/2002	2.00E+00	6.93E-01
10/8/2002	2.00E-01	-1.61E+00
1/8/2003	2.00E-01	-1.61E+00
4/3/2003	2.00E-01	-1.61E+00
7/9/2003	2.00E-01	-1.61E+00
10/6/2003	2.00E-01	-1.61E+00

Well Number: MW373

Date Collected	Result	LN(Result)
3/18/2002	2.00E+00	6.93E-01
4/23/2002	2.00E+00	6.93E-01
7/16/2002	2.00E+00	6.93E-01
10/8/2002	7.90E-01	-2.36E-01
1/7/2003	8.07E-01	-2.14E-01
4/2/2003	1.13E+00	1.22E-01
7/9/2003	1.28E+00	2.47E-01
10/7/2003	1.24E+00	2.15E-01

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW358	Downgradient	Yes	1.35E-01	NO	-2.00E+00	N/A
MW361	Downgradient	Yes	1.98E-01	NO	-1.62E+00	N/A
MW364	Downgradient	Yes	1.74E-01	NO	-1.75E+00	N/A
MW367	Downgradient	Yes	2.32E-02	NO	-3.76E+00	N/A
MW370	Upgradient	Yes	1.27E-01	NO	-2.06E+00	N/A
MW373	Upgradient	Yes	2.22E+00	NO	7.98E-01	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-U First Quarter 2024 Statistical Analysis Historical Background Comparison

Bromide UNITS: mg/L LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 1.000	**S=** 0.000	**CV(1)=** 0.000	**K factor**=** 2.523	**TL(1)=** 1.00E+00	**LL(1)=** N/A
Statistics-Transformed Background Data	**X=** 0.000	**S=** 0.000	**CV(2)=** #Num!	**K factor**=** 2.523	**TL(2)=** 0.00E+00	**LL(2)=** N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number: MW370

Date Collected	Result	LN(Result)
3/17/2002	1.00E+00	0.00E+00
4/23/2002	1.00E+00	0.00E+00
7/15/2002	1.00E+00	0.00E+00
10/8/2002	1.00E+00	0.00E+00
1/8/2003	1.00E+00	0.00E+00
4/3/2003	1.00E+00	0.00E+00
7/9/2003	1.00E+00	0.00E+00
10/6/2003	1.00E+00	0.00E+00

Well Number: MW373

Date Collected	Result	LN(Result)
3/18/2002	1.00E+00	0.00E+00
4/23/2002	1.00E+00	0.00E+00
7/16/2002	1.00E+00	0.00E+00
10/8/2002	1.00E+00	0.00E+00
1/7/2003	1.00E+00	0.00E+00
4/2/2003	1.00E+00	0.00E+00
7/9/2003	1.00E+00	0.00E+00
10/7/2003	1.00E+00	0.00E+00

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW358	Downgradient	Yes	2.14E-01	NO	-1.54E+00	N/A
MW361	Downgradient	Yes	4.81E-01	NO	-7.32E-01	N/A
MW364	Downgradient	Yes	5.72E-01	NO	-5.59E-01	N/A
MW367	Downgradient	No	2.00E-01	N/A	-1.61E+00	N/A
MW370	Upgradient	Yes	5.98E-01	NO	-5.14E-01	N/A
MW373	Upgradient	Yes	2.02E-01	NO	-1.60E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-U First Quarter 2024 Statistical Analysis Historical Background Comparison

Calcium UNITS: mg/L LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 43.413	**S=** 13.444	**CV(1)=** 0.310	**K factor**=** 2.523	**TL(1)=** 7.73E+01	**LL(1)=** N/A
Statistics-Transformed Background Data	**X=** 3.723	**S=** 0.323	**CV(2)=** 0.087	**K factor**=** 2.523	**TL(2)=** 4.54E+00	**LL(2)=** N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW370	
Date Collected	Result	LN(Result)
3/17/2002	3.48E+01	3.55E+00
4/23/2002	4.34E+01	3.77E+00
7/15/2002	3.32E+01	3.50E+00
10/8/2002	2.92E+01	3.37E+00
1/8/2003	3.13E+01	3.44E+00
4/3/2003	3.24E+01	3.48E+00
7/9/2003	2.29E+01	3.13E+00
10/6/2003	2.80E+01	3.33E+00

Well Number:	MW373	
Date Collected	Result	LN(Result)
3/18/2002	6.19E+01	4.13E+00
4/23/2002	5.92E+01	4.08E+00
7/16/2002	4.76E+01	3.86E+00
10/8/2002	4.61E+01	3.83E+00
1/7/2003	4.92E+01	3.90E+00
4/2/2003	5.78E+01	4.06E+00
7/9/2003	5.27E+01	3.96E+00
10/7/2003	6.49E+01	4.17E+00

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW358	Downgradient	Yes	3.34E+01	NO	3.51E+00	N/A
MW361	Downgradient	Yes	3.49E+01	NO	3.55E+00	N/A
MW364	Downgradient	Yes	3.37E+01	NO	3.52E+00	N/A
MW367	Downgradient	Yes	1.31E+01	NO	2.57E+00	N/A
MW370	Upgradient	Yes	3.00E+01	NO	3.40E+00	N/A
MW373	Upgradient	Yes	8.40E+01	YES	4.43E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

The test well(s) listed exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to historical background data.

Wells with Exceedances

MW373

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-U First Quarter 2024 Statistical Analysis Historical Background Comparison

Chemical Oxygen Demand (COD) UNITS: mg/L LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 41.938	**S=** 24.732	**CV(1)=** 0.590	**K factor**=** 2.523	**TL(1)=** 1.04E+02	**LL(1)=** N/A
Statistics-Transformed Background Data	**X=** 3.658	**S=** 0.339	**CV(2)=** 0.093	**K factor**=** 2.523	**TL(2)=** 4.51E+00	**LL(2)=** N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW370	
Date Collected	Result	LN(Result)
3/17/2002	3.50E+01	3.56E+00
4/23/2002	1.34E+02	4.90E+00
7/15/2002	3.50E+01	3.56E+00
10/8/2002	3.50E+01	3.56E+00
1/8/2003	3.50E+01	3.56E+00
4/3/2003	3.50E+01	3.56E+00
7/9/2003	3.50E+01	3.56E+00
10/6/2003	3.50E+01	3.56E+00

Well Number:	MW373	
Date Collected	Result	LN(Result)
3/18/2002	3.50E+01	3.56E+00
4/23/2002	4.70E+01	3.85E+00
7/16/2002	3.50E+01	3.56E+00
10/8/2002	3.50E+01	3.56E+00
1/7/2003	3.50E+01	3.56E+00
4/2/2003	3.50E+01	3.56E+00
7/9/2003	3.50E+01	3.56E+00
10/7/2003	3.50E+01	3.56E+00

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW358	Downgradient	Yes	1.28E+01	NO	2.55E+00	N/A
MW361	Downgradient	No	2.00E+01	N/A	3.00E+00	N/A
MW364	Downgradient	No	2.00E+01	N/A	3.00E+00	N/A
MW367	Downgradient	No	2.00E+01	N/A	3.00E+00	N/A
MW370	Upgradient	No	2.00E+01	N/A	3.00E+00	N/A
MW373	Upgradient	No	2.00E+01	N/A	3.00E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-U First Quarter 2024 Statistical Analysis Historical Background Comparison

Chloride UNITS: mg/L LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 45.919	**S=** 7.524	**CV(1)=** 0.164	**K factor**=** 2.523	**TL(1)=** 6.49E+01	**LL(1)=** N/A
Statistics-Transformed Background Data	**X=** 3.814	**S=** 0.165	**CV(2)=** 0.043	**K factor**=** 2.523	**TL(2)=** 4.23E+00	**LL(2)=** N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW370	
Date Collected	Result	LN(Result)
7/15/2002	5.55E+01	4.02E+00
10/8/2002	5.36E+01	3.98E+00
1/8/2003	5.29E+01	3.97E+00
4/3/2003	5.36E+01	3.98E+00
7/9/2003	5.19E+01	3.95E+00
10/6/2003	5.30E+01	3.97E+00
1/7/2004	5.30E+01	3.97E+00
4/7/2004	5.16E+01	3.94E+00

Well Number:	MW373	
Date Collected	Result	LN(Result)
7/16/2002	4.06E+01	3.70E+00
10/8/2002	3.88E+01	3.66E+00
1/7/2003	3.90E+01	3.66E+00
4/2/2003	3.84E+01	3.65E+00
7/9/2003	3.81E+01	3.64E+00
10/7/2003	3.80E+01	3.64E+00
1/6/2004	3.79E+01	3.63E+00
4/7/2004	3.88E+01	3.66E+00

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW358	Downgradient	Yes	1.65E+01	NO	2.80E+00	N/A
MW361	Downgradient	Yes	3.79E+01	NO	3.63E+00	N/A
MW364	Downgradient	Yes	3.72E+01	NO	3.62E+00	N/A
MW367	Downgradient	Yes	6.65E+00	NO	1.89E+00	N/A
MW370	Upgradient	Yes	4.01E+01	NO	3.69E+00	N/A
MW373	Upgradient	No	3.13E+01	N/A	3.44E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-U First Quarter 2024 Statistical Analysis Historical Background Comparison

Cobalt UNITS: mg/L LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 0.027	**S=** 0.032	**CV(1)=** 1.165	**K factor**=** 2.523	**TL(1)=** 1.08E-01	**LL(1)=**N/A
Statistics-Transformed Background Data	**X=** -4.058	**S=** 1.011	**CV(2)=** -0.249	**K factor**=** 2.523	**TL(2)=** -1.51E+00	**LL(2)=**N/A

Historical Background Data from Upgradient Wells with Transformed Result

Because CV(1) is greater than 1, the natural logarithm of background and test well results were calculated utilizing TL(2) for comparison.

Well Number: MW370

Date Collected	Result	LN(Result)
3/17/2002	2.50E-02	-3.69E+00
4/23/2002	2.50E-02	-3.69E+00
7/15/2002	2.50E-02	-3.69E+00
10/8/2002	1.74E-02	-4.05E+00
1/8/2003	1.05E-02	-4.56E+00
4/3/2003	9.31E-03	-4.68E+00
7/9/2003	1.37E-01	-1.99E+00
10/6/2003	4.63E-02	-3.07E+00

Well Number: MW373

Date Collected	Result	LN(Result)
3/18/2002	2.50E-02	-3.69E+00
4/23/2002	3.40E-02	-3.38E+00
7/16/2002	2.50E-02	-3.69E+00
10/8/2002	4.11E-03	-5.49E+00
1/7/2003	3.44E-03	-5.67E+00
4/2/2003	3.68E-03	-5.60E+00
7/9/2003	4.05E-02	-3.21E+00
10/7/2003	8.43E-03	-4.78E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW358	Downgradient	Yes	2.69E-02	N/A	-3.62E+00	NO
MW361	Downgradient	No	1.00E-03	N/A	-6.91E+00	N/A
MW364	Downgradient	No	1.00E-03	N/A	-6.91E+00	N/A
MW367	Downgradient	Yes	6.68E-03	N/A	-5.01E+00	NO
MW370	Upgradient	No	1.00E-03	N/A	-6.91E+00	N/A
MW373	Upgradient	Yes	5.01E-04	N/A	-7.60E+00	NO

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-U First Quarter 2024 Statistical Analysis Historical Background Comparison

Conductivity UNITS: umho/cm LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 608.719	**S=** 156.157	**CV(1)=** 0.257	**K factor**=** 2.523	**TL(1)=** 1.00E+03	**LL(1)=** N/A
Statistics-Transformed Background Data	**X=** 6.380	**S=** 0.260	**CV(2)=** 0.041	**K factor**=** 2.523	**TL(2)=** 7.04E+00	**LL(2)=** N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW370	
Date Collected	Result	LN(Result)
3/17/2002	4.06E+02	6.01E+00
4/23/2002	5.43E+02	6.30E+00
7/15/2002	4.76E+02	6.17E+00
10/8/2002	4.41E+02	6.09E+00
1/8/2003	4.86E+02	6.19E+00
4/3/2003	4.66E+02	6.14E+00
7/9/2003	4.79E+02	6.17E+00
10/6/2003	4.35E+02	6.08E+00

Well Number:	MW373	
Date Collected	Result	LN(Result)
3/18/2002	6.61E+02	6.49E+00
4/23/2002	8.01E+02	6.69E+00
7/16/2002	7.74E+02	6.65E+00
10/8/2002	6.80E+02	6.52E+00
1/7/2003	6.87E+02	6.53E+00
4/2/2003	7.63E+02	6.64E+00
7/9/2003	8.28E+02	6.72E+00
10/7/2003	8.14E+02	6.70E+00

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW358	Downgradient	Yes	5.04E+02	NO	6.22E+00	N/A
MW361	Downgradient	Yes	5.15E+02	NO	6.24E+00	N/A
MW364	Downgradient	Yes	4.71E+02	NO	6.15E+00	N/A
MW367	Downgradient	Yes	2.77E+02	NO	5.62E+00	N/A
MW370	Upgradient	Yes	4.37E+02	NO	6.08E+00	N/A
MW373	Upgradient	Yes	9.09E+02	NO	6.81E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-U First Quarter 2024 Statistical Analysis Historical Background Comparison

Copper UNITS: mg/L LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 0.025	**S=** 0.010	**CV(1)=** 0.399	**K factor**=** 2.523	**TL(1)=** 5.03E-02	**LL(1)=** N/A
Statistics-Transformed Background Data	**X=** -3.739	**S=** 0.308	**CV(2)=** -0.082	**K factor**=** 2.523	**TL(2)=** -2.96E+00	**LL(2)=** N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW370	
Date Collected	Result	LN(Result)
3/17/2002	2.50E-02	-3.69E+00
4/23/2002	2.50E-02	-3.69E+00
7/15/2002	5.00E-02	-3.00E+00
10/8/2002	2.00E-02	-3.91E+00
1/8/2003	2.00E-02	-3.91E+00
4/3/2003	2.00E-02	-3.91E+00
7/9/2003	2.00E-02	-3.91E+00
10/6/2003	2.00E-02	-3.91E+00

Well Number:	MW373	
Date Collected	Result	LN(Result)
3/18/2002	2.60E-02	-3.65E+00
4/23/2002	2.50E-02	-3.69E+00
7/16/2002	5.00E-02	-3.00E+00
10/8/2002	2.00E-02	-3.91E+00
1/7/2003	2.00E-02	-3.91E+00
4/2/2003	2.00E-02	-3.91E+00
7/9/2003	2.00E-02	-3.91E+00
10/7/2003	2.00E-02	-3.91E+00

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW358	Downgradient	Yes	8.41E-04	NO	-7.08E+00	N/A
MW361	Downgradient	Yes	8.33E-04	NO	-7.09E+00	N/A
MW364	Downgradient	Yes	1.10E-03	NO	-6.81E+00	N/A
MW367	Downgradient	Yes	7.75E-04	NO	-7.16E+00	N/A
MW370	Upgradient	Yes	1.81E-03	NO	-6.31E+00	N/A
MW373	Upgradient	Yes	1.16E-03	NO	-6.76E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-U First Quarter 2024 Statistical Analysis Historical Background Comparison

Dissolved Oxygen UNITS: mg/L LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 1.387	**S=** 1.153	**CV(1)=** 0.831	**K factor**=** 2.523	**TL(1)=** 4.30E+00	**LL(1)=** N/A
Statistics-Transformed Background Data	**X=** -0.115	**S=** 1.207	**CV(2)=** -10.514	**K factor**=** 2.523	**TL(2)=** 2.93E+00	**LL(2)=** N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW370	
Date Collected	Result	LN(Result)
3/17/2002	4.32E+00	1.46E+00
4/23/2002	1.24E+00	2.15E-01
7/15/2002	7.50E-01	-2.88E-01
10/8/2002	9.40E-01	-6.19E-02
1/8/2003	3.08E+00	1.12E+00
4/3/2003	1.45E+00	3.72E-01
7/9/2003	1.22E+00	1.99E-01
10/6/2003	1.07E+00	6.77E-02

Well Number:	MW373	
Date Collected	Result	LN(Result)
3/18/2002	3.04E+00	1.11E+00
4/23/2002	3.00E-02	-3.51E+00
7/16/2002	2.30E-01	-1.47E+00
10/8/2002	8.60E-01	-1.51E-01
1/7/2003	2.10E-01	-1.56E+00
4/2/2003	1.19E+00	1.74E-01
7/9/2003	1.10E+00	9.53E-02
10/7/2003	1.46E+00	3.78E-01

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW358	Downgradient	Yes	6.90E-01	NO	-3.71E-01	N/A
MW361	Downgradient	Yes	3.26E+00	NO	1.18E+00	N/A
MW364	Downgradient	Yes	3.97E+00	NO	1.38E+00	N/A
MW367	Downgradient	Yes	1.43E+00	NO	3.58E-01	N/A
MW370	Upgradient	Yes	4.65E+00	YES	1.54E+00	N/A
MW373	Upgradient	Yes	1.30E+00	NO	2.62E-01	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

The test well(s) listed exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to historical background data.

Wells with Exceedances

MW370

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-U First Quarter 2024 Statistical Analysis Historical Background Comparison

Dissolved Solids UNITS: mg/L LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 356.188	**S=**	106.752	**CV(1)=** 0.300	**K factor**=** 2.523	**TL(1)=** 6.26E+02	**LL(1)=** N/A
Statistics-Transformed Background Data	**X=** 5.831	**S=**	0.311	**CV(2)=** 0.053	**K factor**=** 2.523	**TL(2)=** 6.62E+00	**LL(2)=** N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW370	
Date Collected	Result	LN(Result)
3/17/2002	2.36E+02	5.46E+00
4/23/2002	3.37E+02	5.82E+00
7/15/2002	2.66E+02	5.58E+00
10/8/2002	2.40E+02	5.48E+00
1/8/2003	2.82E+02	5.64E+00
4/3/2003	2.38E+02	5.47E+00
7/9/2003	2.48E+02	5.51E+00
10/6/2003	2.24E+02	5.41E+00

Well Number:	MW373	
Date Collected	Result	LN(Result)
3/18/2002	4.27E+02	6.06E+00
4/23/2002	5.07E+02	6.23E+00
7/16/2002	4.64E+02	6.14E+00
10/8/2002	4.08E+02	6.01E+00
1/7/2003	4.04E+02	6.00E+00
4/2/2003	4.50E+02	6.11E+00
7/9/2003	4.87E+02	6.19E+00
10/7/2003	4.81E+02	6.18E+00

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW358	Downgradient	Yes	2.42E+02	NO	5.49E+00	N/A
MW361	Downgradient	Yes	2.92E+02	NO	5.68E+00	N/A
MW364	Downgradient	Yes	2.64E+02	NO	5.58E+00	N/A
MW367	Downgradient	Yes	1.22E+02	NO	4.80E+00	N/A
MW370	Upgradient	Yes	2.35E+02	NO	5.46E+00	N/A
MW373	Upgradient	Yes	5.36E+02	NO	6.28E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-U First Quarter 2024 Statistical Analysis Historical Background Comparison

Iron UNITS: mg/L LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 9.230	**S=** 8.841	**CV(1)=** 0.958	**K factor**=** 2.523	**TL(1)=** 3.15E+01	**LL(1)=** N/A
Statistics-Transformed Background Data	**X=** 1.942	**S=** 0.713	**CV(2)=** 0.367	**K factor**=** 2.523	**TL(2)=** 3.74E+00	**LL(2)=** N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW370	
Date Collected	Result	LN(Result)
3/17/2002	9.34E+00	2.23E+00
4/23/2002	4.33E+00	1.47E+00
7/15/2002	3.52E+00	1.26E+00
10/8/2002	7.45E+00	2.01E+00
1/8/2003	7.04E+00	1.95E+00
4/3/2003	4.64E+00	1.53E+00
7/9/2003	1.58E+01	2.76E+00
10/6/2003	6.49E+00	1.87E+00

Well Number:	MW373	
Date Collected	Result	LN(Result)
3/18/2002	3.76E+01	3.63E+00
4/23/2002	1.90E+01	2.94E+00
7/16/2002	1.07E+01	2.37E+00
10/8/2002	3.75E+00	1.32E+00
1/7/2003	3.87E+00	1.35E+00
4/2/2003	3.50E+00	1.25E+00
7/9/2003	7.72E+00	2.04E+00
10/7/2003	2.93E+00	1.08E+00

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW358	Downgradient	Yes	1.49E+01	NO	2.70E+00	N/A
MW361	Downgradient	Yes	3.79E-02	NO	-3.27E+00	N/A
MW364	Downgradient	Yes	5.89E-02	NO	-2.83E+00	N/A
MW367	Downgradient	Yes	7.08E+00	NO	1.96E+00	N/A
MW370	Upgradient	Yes	3.76E-02	NO	-3.28E+00	N/A
MW373	Upgradient	Yes	8.72E-02	NO	-2.44E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-U First Quarter 2024 Statistical Analysis Historical Background Comparison

Magnesium UNITS: mg/L LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 17.544	**S=** 5.911	**CV(1)=** 0.337	**K factor**=** 2.523	**TL(1)=** 3.25E+01	**LL(1)=** N/A
Statistics-Transformed Background Data	**X=** 2.810	**S=** 0.343	**CV(2)=** 0.122	**K factor**=** 2.523	**TL(2)=** 3.68E+00	**LL(2)=** N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number: MW370

Date Collected	Result	LN(Result)
3/17/2002	1.21E+01	2.49E+00
4/23/2002	1.51E+01	2.71E+00
7/15/2002	1.24E+01	2.52E+00
10/8/2002	1.22E+01	2.50E+00
1/8/2003	1.15E+01	2.44E+00
4/3/2003	1.23E+01	2.51E+00
7/9/2003	1.00E+01	2.30E+00
10/6/2003	1.21E+01	2.49E+00

Well Number: MW373

Date Collected	Result	LN(Result)
3/18/2002	2.48E+01	3.21E+00
4/23/2002	2.27E+01	3.12E+00
7/16/2002	1.88E+01	2.93E+00
10/8/2002	2.11E+01	3.05E+00
1/7/2003	1.99E+01	2.99E+00
4/2/2003	2.55E+01	3.24E+00
7/9/2003	2.33E+01	3.15E+00
10/7/2003	2.69E+01	3.29E+00

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW358	Downgradient	Yes	1.95E+01	NO	2.97E+00	N/A
MW361	Downgradient	Yes	1.71E+01	NO	2.84E+00	N/A
MW364	Downgradient	Yes	1.48E+01	NO	2.69E+00	N/A
MW367	Downgradient	Yes	7.44E+00	NO	2.01E+00	N/A
MW370	Upgradient	Yes	1.35E+01	NO	2.60E+00	N/A
MW373	Upgradient	Yes	2.99E+01	NO	3.40E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-U First Quarter 2024 Statistical Analysis Historical Background Comparison

Manganese UNITS: mg/L LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 1.080	**S=** 0.674	**CV(1)=** 0.624	**K factor**=** 2.523	**TL(1)=** 2.78E+00	**LL(1)=** N/A
Statistics-Transformed Background Data	**X=** -0.114	**S=** 0.658	**CV(2)=** -5.762	**K factor**=** 2.523	**TL(2)=** 1.55E+00	**LL(2)=** N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW370	
Date Collected	Result	LN(Result)
3/17/2002	2.44E-01	-1.41E+00
4/23/2002	1.82E+00	5.99E-01
7/15/2002	1.22E+00	1.99E-01
10/8/2002	9.88E-01	-1.21E-02
1/8/2003	7.29E-01	-3.16E-01
4/3/2003	6.37E-01	-4.51E-01
7/9/2003	2.51E+00	9.20E-01
10/6/2003	1.05E+00	4.88E-02

Well Number:	MW373	
Date Collected	Result	LN(Result)
3/18/2002	3.55E-01	-1.04E+00
4/23/2002	2.16E+00	7.70E-01
7/16/2002	1.39E+00	3.29E-01
10/8/2002	7.17E-01	-3.33E-01
1/7/2003	5.87E-01	-5.33E-01
4/2/2003	5.45E-01	-6.07E-01
7/9/2003	1.76E+00	5.65E-01
10/7/2003	5.70E-01	-5.62E-01

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW358	Downgradient	Yes	2.55E+00	NO	9.36E-01	N/A
MW361	Downgradient	No	3.12E-03	N/A	-5.77E+00	N/A
MW364	Downgradient	Yes	3.90E-03	NO	-5.55E+00	N/A
MW367	Downgradient	Yes	1.38E+00	NO	3.22E-01	N/A
MW370	Upgradient	Yes	1.68E-03	NO	-6.39E+00	N/A
MW373	Upgradient	Yes	5.93E-02	NO	-2.83E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-U First Quarter 2024 Statistical Analysis Historical Background Comparison

Molybdenum UNITS: mg/L LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 0.010	**S=** 0.012	**CV(1)=** 1.198	**K factor**=** 2.523	**TL(1)=** 4.03E-02	**LL(1)=**N/A
Statistics-Transformed Background Data	**X=** -5.693	**S=** 1.604	**CV(2)=** -0.282	**K factor**=** 2.523	**TL(2)=** -1.65E+00	**LL(2)=**N/A

Historical Background Data from Upgradient Wells with Transformed Result

Because CV(1) is greater than 1, the natural logarithm of background and test well results were calculated utilizing TL(2) for comparison.

Well Number: MW370

Date Collected	Result	LN(Result)
3/17/2002	2.50E-02	-3.69E+00
4/23/2002	2.50E-02	-3.69E+00
7/15/2002	2.50E-02	-3.69E+00
10/8/2002	1.13E-03	-6.79E+00
1/8/2003	1.00E-03	-6.91E+00
4/3/2003	1.00E-03	-6.91E+00
7/9/2003	1.00E-03	-6.91E+00
10/6/2003	1.00E-03	-6.91E+00

Well Number: MW373

Date Collected	Result	LN(Result)
3/18/2002	2.50E-02	-3.69E+00
4/23/2002	2.50E-02	-3.69E+00
7/16/2002	2.50E-02	-3.69E+00
10/8/2002	1.00E-03	-6.91E+00
1/7/2003	1.00E-03	-6.91E+00
4/2/2003	1.00E-03	-6.91E+00
7/9/2003	1.00E-03	-6.91E+00
10/7/2003	1.00E-03	-6.91E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW358	Downgradient	Yes	4.28E-04	N/A	-7.76E+00	NO
MW361	Downgradient	No	1.00E-03	N/A	-6.91E+00	N/A
MW364	Downgradient	No	1.00E-03	N/A	-6.91E+00	N/A
MW367	Downgradient	No	1.00E-03	N/A	-6.91E+00	N/A
MW370	Upgradient	No	1.00E-03	N/A	-6.91E+00	N/A
MW373	Upgradient	No	1.00E-03	N/A	-6.91E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-U First Quarter 2024 Statistical Analysis Historical Background Comparison

Nickel UNITS: mg/L LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 0.024	**S=** 0.022	**CV(1)=** 0.901	**K factor**=** 2.523	**TL(1)=** 7.82E-02	**LL(1)=** N/A
Statistics-Transformed Background Data	**X=** -4.239	**S=** 1.087	**CV(2)=** -0.256	**K factor**=** 2.523	**TL(2)=** -1.50E+00	**LL(2)=** N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW370	
Date Collected	Result	LN(Result)
3/17/2002	5.00E-02	-3.00E+00
4/23/2002	5.00E-02	-3.00E+00
7/15/2002	5.00E-02	-3.00E+00
10/8/2002	5.00E-03	-5.30E+00
1/8/2003	5.00E-03	-5.30E+00
4/3/2003	5.00E-03	-5.30E+00
7/9/2003	2.64E-02	-3.63E+00
10/6/2003	9.71E-03	-4.63E+00

Well Number:	MW373	
Date Collected	Result	LN(Result)
3/18/2002	5.00E-02	-3.00E+00
4/23/2002	5.00E-02	-3.00E+00
7/16/2002	5.00E-02	-3.00E+00
10/8/2002	5.00E-03	-5.30E+00
1/7/2003	5.00E-03	-5.30E+00
4/2/2003	5.00E-03	-5.30E+00
7/9/2003	1.12E-02	-4.49E+00
10/7/2003	5.00E-03	-5.30E+00

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW358	Downgradient	Yes	9.07E-02	YES	-2.40E+00	N/A
MW361	Downgradient	No	2.00E-03	N/A	-6.21E+00	N/A
MW364	Downgradient	No	2.00E-03	N/A	-6.21E+00	N/A
MW367	Downgradient	Yes	2.44E-03	NO	-6.02E+00	N/A
MW370	Upgradient	No	2.00E-03	N/A	-6.21E+00	N/A
MW373	Upgradient	Yes	1.64E-03	NO	-6.41E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

The test well(s) listed exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to historical background data.

Wells with Exceedances

MW358

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-U First Quarter 2024 Statistical Analysis Historical Background Comparison

Oxidation-Reduction Potential UNITS: mV LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 46.688	**S=** 60.986	**CV(1)=** 1.306	**K factor**=** 2.523	**TL(1)=** 2.01E+02	**LL(1)=**N/A
Statistics-Transformed Background Data	**X=** 3.829	**S=** 1.151	**CV(2)=** 0.301	**K factor**=** 2.523	**TL(2)=** 4.94E+00	**LL(2)=**N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW370	
Date Collected	Result	LN(Result)
3/17/2002	1.40E+02	4.94E+00
4/23/2002	-1.50E+01	#Func!
7/15/2002	5.00E+00	1.61E+00
4/3/2003	4.90E+01	3.89E+00
7/9/2003	-3.50E+01	#Func!
10/6/2003	4.00E+01	3.69E+00
1/7/2004	1.01E+02	4.62E+00
4/7/2004	1.05E+02	4.65E+00

Well Number:	MW373	
Date Collected	Result	LN(Result)
3/18/2002	1.40E+02	4.94E+00
4/23/2002	-2.00E+01	#Func!
10/8/2002	1.00E+01	2.30E+00
1/7/2003	1.00E+01	2.30E+00
4/2/2003	6.70E+01	4.20E+00
7/9/2003	-2.90E+01	#Func!
10/7/2003	1.27E+02	4.84E+00
1/6/2004	5.20E+01	3.95E+00

Because CV(1) is greater than 1, the natural logarithm of background and test well results were calculated utilizing TL(2) for comparison.

#Because the natural log was not possible for all background values, the TL was considered equal to the maximum background value.

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW358	Downgradient	Yes	1.67E+02	N/A	5.12E+00	YES
MW361	Downgradient	Yes	3.20E+02	N/A	5.77E+00	YES
MW364	Downgradient	Yes	5.20E+02	N/A	6.25E+00	YES
MW367	Downgradient	Yes	2.95E+02	N/A	5.69E+00	YES
MW370	Upgradient	Yes	5.30E+02	N/A	6.27E+00	YES
MW373	Upgradient	Yes	4.93E+02	N/A	6.20E+00	YES

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

The test well(s) listed exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to historical background data.

Wells with Exceedances

MW358
MW361
MW364
MW367
MW370
MW373

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-U First Quarter 2024 Statistical Analysis Historical Background Comparison

PCB, Total UNITS: ug/L LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 0.280	**S=** 0.281	**CV(1)=** 1.005	**K factor**=** 2.523	**TL(1)=** 9.89E-01	**LL(1)=**N/A
Statistics-Transformed Background Data	**X=** -1.516	**S=** 0.593	**CV(2)=** -0.391	**K factor**=** 2.523	**TL(2)=** -2.01E-02	**LL(2)=**N/A

Historical Background Data from Upgradient Wells with Transformed Result

Because CV(1) is greater than 1, the natural logarithm of background and test well results were calculated utilizing TL(2) for comparison.

Well Number: MW370

Date Collected	Result	LN(Result)
3/17/2002	1.00E+00	0.00E+00
4/23/2002	1.70E-01	-1.77E+00
7/15/2002	1.70E-01	-1.77E+00
7/9/2003	1.70E-01	-1.77E+00
10/6/2003	1.88E-01	-1.67E+00
7/13/2004	1.80E-01	-1.71E+00
7/20/2005	1.80E-01	-1.71E+00
4/5/2006	1.80E-01	-1.71E+00

Well Number: MW373

Date Collected	Result	LN(Result)
3/18/2002	1.00E+00	0.00E+00
4/23/2002	1.70E-01	-1.77E+00
7/16/2002	1.70E-01	-1.77E+00
7/9/2003	1.90E-01	-1.66E+00
10/7/2003	1.70E-01	-1.77E+00
7/14/2004	1.80E-01	-1.71E+00
7/26/2005	1.80E-01	-1.71E+00
4/5/2006	1.80E-01	-1.71E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW358	Downgradient	No	1.05E-01	N/A	-2.25E+00	N/A
MW361	Downgradient	Yes	1.50E-01	N/A	-1.90E+00	NO
MW364	Downgradient	No	1.00E-01	N/A	-2.30E+00	N/A
MW367	Downgradient	No	1.07E-01	N/A	-2.23E+00	N/A
MW370	Upgradient	No	1.07E-01	N/A	-2.23E+00	N/A
MW373	Upgradient	No	1.04E-01	N/A	-2.26E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-U First Quarter 2024 Statistical Analysis Historical Background Comparison

PCB-1254 UNITS: ug/L LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 0.218	**S=** 0.307	**CV(1)=** 1.414	**K factor**=** 2.523	**TL(1)=** 9.93E-01	**LL(1)=**N/A
Statistics-Transformed Background Data	**X=** -2.017	**S=** 0.852	**CV(2)=** -0.423	**K factor**=** 2.523	**TL(2)=** 1.34E-01	**LL(2)=**N/A

Historical Background Data from Upgradient Wells with Transformed Result

Because CV(1) is greater than 1, the natural logarithm of background and test well results were calculated utilizing TL(2) for comparison.

Well Number: MW370

Date Collected	Result	LN(Result)
3/17/2002	1.00E+00	0.00E+00
4/23/2002	1.30E-01	-2.04E+00
7/15/2002	1.30E-01	-2.04E+00
7/9/2003	1.70E-01	-1.77E+00
10/6/2003	1.00E-01	-2.30E+00
7/13/2004	7.00E-02	-2.66E+00
7/20/2005	7.00E-02	-2.66E+00
4/5/2006	7.00E-02	-2.66E+00

Well Number: MW373

Date Collected	Result	LN(Result)
3/18/2002	1.00E+00	0.00E+00
4/23/2002	1.30E-01	-2.04E+00
7/16/2002	1.30E-01	-2.04E+00
7/9/2003	1.70E-01	-1.77E+00
10/7/2003	1.00E-01	-2.30E+00
7/14/2004	7.00E-02	-2.66E+00
7/26/2005	7.00E-02	-2.66E+00
4/5/2006	7.00E-02	-2.66E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW358	Downgradient	No	1.05E-01	N/A	-2.25E+00	N/A
MW361	Downgradient	Yes	7.97E-02	N/A	-2.53E+00	NO
MW364	Downgradient	No	1.00E-01	N/A	-2.30E+00	N/A
MW367	Downgradient	No	1.07E-01	N/A	-2.23E+00	N/A
MW370	Upgradient	No	1.07E-01	N/A	-2.23E+00	N/A
MW373	Upgradient	No	1.04E-01	N/A	-2.26E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-U First Quarter 2024 Statistical Analysis Historical Background Comparison

PCB-1260 UNITS: ug/L LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 0.195	**S=** 0.316	**CV(1)=** 1.619	**K factor**=** 2.523	**TL(1)=** 9.91E-01	**LL(1)=**N/A
Statistics-Transformed Background Data	**X=** -2.266	**S=** 0.946	**CV(2)=** -0.418	**K factor**=** 2.523	**TL(2)=** 1.22E-01	**LL(2)=**N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW370	
Date Collected	Result	LN(Result)
3/17/2002	1.00E+00	0.00E+00
4/23/2002	9.00E-02	-2.41E+00
7/15/2002	9.00E-02	-2.41E+00
7/9/2003	9.00E-02	-2.41E+00
10/6/2003	8.00E-02	-2.53E+00
7/13/2004	5.00E-02	-3.00E+00
7/20/2005	5.00E-02	-3.00E+00
4/5/2006	1.70E-01	-1.77E+00

Well Number:	MW373	
Date Collected	Result	LN(Result)
3/18/2002	1.00E+00	0.00E+00
4/23/2002	9.00E-02	-2.41E+00
7/16/2002	9.00E-02	-2.41E+00
7/9/2003	9.00E-02	-2.41E+00
10/7/2003	8.00E-02	-2.53E+00
7/14/2004	5.00E-02	-3.00E+00
7/26/2005	5.00E-02	-3.00E+00
4/5/2006	5.00E-02	-3.00E+00

Because CV(1) is greater than 1, the natural logarithm of background and test well results were calculated utilizing TL(2) for comparison.

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW358	Downgradient	No	1.05E-01	N/A	-2.25E+00	N/A
MW361	Downgradient	Yes	7.02E-02	N/A	-2.66E+00	NO
MW364	Downgradient	No	1.00E-01	N/A	-2.30E+00	N/A
MW367	Downgradient	No	1.07E-01	N/A	-2.23E+00	N/A
MW370	Upgradient	No	1.07E-01	N/A	-2.23E+00	N/A
MW373	Upgradient	No	1.04E-01	N/A	-2.26E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-U First Quarter 2024 Statistical Analysis Historical Background Comparison

pH UNITS: Std Unit LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 6.283	**S=** 0.159	**CV(1)=** 0.025	**K factor**=** 2.904	**TL(1)=** 6.74E+00	**LL(1)=** 5.82E+00
Statistics-Transformed Background Data	**X=** 1.837	**S=** 0.025	**CV(2)=** 0.014	**K factor**=** 2.904	**TL(2)=** 1.91E+00	**LL(2)=** 1.76E+00

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW370	
Date Collected	Result	LN(Result)
3/17/2002	6.30E+00	1.84E+00
4/23/2002	6.40E+00	1.86E+00
7/15/2002	6.30E+00	1.84E+00
10/8/2002	6.30E+00	1.84E+00
1/8/2003	6.40E+00	1.86E+00
4/3/2003	6.50E+00	1.87E+00
7/9/2003	6.30E+00	1.84E+00
10/6/2003	6.50E+00	1.87E+00

Well Number:	MW373	
Date Collected	Result	LN(Result)
3/18/2002	6.00E+00	1.79E+00
4/23/2002	6.30E+00	1.84E+00
7/16/2002	6.45E+00	1.86E+00
10/8/2002	6.18E+00	1.82E+00
1/7/2003	6.35E+00	1.85E+00
4/2/2003	6.14E+00	1.81E+00
7/9/2003	6.10E+00	1.81E+00
10/7/2003	6.00E+00	1.79E+00

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)? Result <LL(1)?	LN(Result)	LN(Result) >TL(2)? LN(Result) <LL(2)?
MW358	Downgradient	Yes	6.34E+00	NO	1.85E+00	N/A
MW361	Downgradient	Yes	6.03E+00	NO	1.80E+00	N/A
MW364	Downgradient	Yes	6.04E+00	NO	1.80E+00	N/A
MW367	Downgradient	Yes	5.94E+00	NO	1.78E+00	N/A
MW370	Upgradient	Yes	6.20E+00	NO	1.82E+00	N/A
MW373	Upgradient	Yes	6.03E+00	NO	1.80E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-U First Quarter 2024 Statistical Analysis Historical Background Comparison

Potassium UNITS: mg/L LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 2.823	**S=** 0.522	**CV(1)=** 0.185	**K factor**=** 2.523	**TL(1)=** 4.14E+00	**LL(1)=** N/A
Statistics-Transformed Background Data	**X=** 1.024	**S=** 0.167	**CV(2)=** 0.163	**K factor**=** 2.523	**TL(2)=** 1.45E+00	**LL(2)=** N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW370	
Date Collected	Result	LN(Result)
3/17/2002	3.22E+00	1.17E+00
4/23/2002	3.43E+00	1.23E+00
7/15/2002	2.98E+00	1.09E+00
10/8/2002	2.46E+00	9.00E-01
1/8/2003	2.41E+00	8.80E-01
4/3/2003	2.43E+00	8.88E-01
7/9/2003	2.44E+00	8.92E-01
10/6/2003	2.48E+00	9.08E-01

Well Number:	MW373	
Date Collected	Result	LN(Result)
3/18/2002	4.34E+00	1.47E+00
4/23/2002	3.04E+00	1.11E+00
7/16/2002	2.93E+00	1.08E+00
10/8/2002	2.30E+00	8.33E-01
1/7/2003	2.45E+00	8.96E-01
4/2/2003	2.70E+00	9.93E-01
7/9/2003	2.68E+00	9.86E-01
10/7/2003	2.88E+00	1.06E+00

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW358	Downgradient	Yes	3.28E+00	NO	1.19E+00	N/A
MW361	Downgradient	Yes	2.55E+00	NO	9.36E-01	N/A
MW364	Downgradient	Yes	1.98E+00	NO	6.83E-01	N/A
MW367	Downgradient	Yes	2.70E+00	NO	9.93E-01	N/A
MW370	Upgradient	Yes	2.55E+00	NO	9.36E-01	N/A
MW373	Upgradient	Yes	2.62E+00	NO	9.63E-01	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-U First Quarter 2024 Statistical Analysis Historical Background Comparison

Sodium UNITS: mg/L LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 51.544	**S=** 15.227	**CV(1)=** 0.295	**K factor**=** 2.523	**TL(1)=** 9.00E+01	**LL(1)=** N/A
Statistics-Transformed Background Data	**X=** 3.906	**S=** 0.272	**CV(2)=** 0.070	**K factor**=** 2.523	**TL(2)=** 4.59E+00	**LL(2)=** N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW370	
Date Collected	Result	LN(Result)
3/17/2002	3.18E+01	3.46E+00
4/23/2002	5.00E+01	3.91E+00
7/15/2002	4.47E+01	3.80E+00
10/8/2002	4.00E+01	3.69E+00
1/8/2003	4.46E+01	3.80E+00
4/3/2003	4.19E+01	3.74E+00
7/9/2003	4.00E+01	3.69E+00
10/6/2003	3.81E+01	3.64E+00

Well Number:	MW373	
Date Collected	Result	LN(Result)
3/18/2002	4.34E+01	3.77E+00
4/23/2002	7.98E+01	4.38E+00
7/16/2002	8.77E+01	4.47E+00
10/8/2002	6.16E+01	4.12E+00
1/7/2003	5.93E+01	4.08E+00
4/2/2003	6.21E+01	4.13E+00
7/9/2003	5.01E+01	3.91E+00
10/7/2003	4.96E+01	3.90E+00

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW358	Downgradient	Yes	3.46E+01	NO	3.54E+00	N/A
MW361	Downgradient	Yes	4.94E+01	NO	3.90E+00	N/A
MW364	Downgradient	Yes	4.46E+01	NO	3.80E+00	N/A
MW367	Downgradient	Yes	1.57E+01	NO	2.75E+00	N/A
MW370	Upgradient	Yes	4.72E+01	NO	3.85E+00	N/A
MW373	Upgradient	Yes	6.37E+01	NO	4.15E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-U First Quarter 2024 Statistical Analysis Historical Background Comparison

Sulfate UNITS: mg/L LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 122.381	**S=** 195.095	**CV(1)=** 1.594	**K factor**=** 2.523	**TL(1)=** 6.15E+02	**LL(1)=** N/A
Statistics-Transformed Background Data	**X=** 3.985	**S=** 1.323	**CV(2)=** 0.332	**K factor**=** 2.523	**TL(2)=** 7.32E+00	**LL(2)=** N/A

Historical Background Data from Upgradient Wells with Transformed Result

Because CV(1) is greater than 1, the natural logarithm of background and test well results were calculated utilizing TL(2) for comparison.

Well Number: MW370

Date Collected	Result	LN(Result)
3/17/2002	1.74E+01	2.86E+00
4/23/2002	3.79E+01	3.63E+00
7/15/2002	1.57E+01	2.75E+00
10/8/2002	1.34E+01	2.60E+00
1/8/2003	1.44E+01	2.67E+00
4/3/2003	1.81E+01	2.90E+00
7/9/2003	9.60E+00	2.26E+00
10/6/2003	1.65E+01	2.80E+00

Well Number: MW373

Date Collected	Result	LN(Result)
3/18/2002	1.63E+02	5.10E+00
4/23/2002	8.10E+02	6.70E+00
7/16/2002	1.09E+02	4.70E+00
10/8/2002	1.11E+02	4.71E+00
1/7/2003	1.14E+02	4.73E+00
4/2/2003	1.33E+02	4.89E+00
7/9/2003	1.82E+02	5.20E+00
10/7/2003	1.93E+02	5.26E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW358	Downgradient	Yes	2.76E+01	N/A	3.32E+00	NO
MW361	Downgradient	Yes	8.30E+01	N/A	4.42E+00	NO
MW364	Downgradient	Yes	6.82E+01	N/A	4.22E+00	NO
MW367	Downgradient	Yes	1.95E+01	N/A	2.97E+00	NO
MW370	Upgradient	Yes	1.93E+01	N/A	2.96E+00	NO
MW373	Upgradient	Yes	1.94E+02	N/A	5.27E+00	NO

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-U First Quarter 2024 Statistical Analysis Historical Background Comparison

Technetium-99 UNITS: pCi/L LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 7.655	**S=** 13.274	**CV(1)=** 1.734	**K factor**=** 2.523	**TL(1)=** 4.11E+01	**LL(1)=** N/A
Statistics-Transformed Background Data	**X=** 1.946	**S=** 0.939	**CV(2)=** 0.483	**K factor**=** 2.523	**TL(2)=** 3.83E+00	**LL(2)=** N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW370	
Date Collected	Result	LN(Result)
3/17/2002	1.08E+01	2.38E+00
4/23/2002	8.53E+00	2.14E+00
7/15/2002	5.09E+00	1.63E+00
10/8/2002	4.78E+00	1.56E+00
1/8/2003	-5.12E+00	#Func!
4/3/2003	5.11E+00	1.63E+00
7/9/2003	4.25E+00	1.45E+00
10/6/2003	6.54E+00	1.88E+00

Well Number:	MW373	
Date Collected	Result	LN(Result)
3/18/2002	1.65E+01	2.80E+00
4/23/2002	3.49E+00	1.25E+00
7/16/2002	1.42E+00	3.51E-01
10/8/2002	-6.06E+00	#Func!
1/7/2003	-8.41E+00	#Func!
4/2/2003	2.63E+01	3.27E+00
7/9/2003	3.06E+00	1.12E+00
10/7/2003	4.62E+01	3.83E+00

Because CV(1) is greater than 1, the natural logarithm of background and test well results were calculated utilizing TL(2) for comparison.

#Because the natural log was not possible for all background values, the TL was considered equal to the maximum background value.

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW358	Downgradient	No	1.75E+01	N/A	2.86E+00	N/A
MW361	Downgradient	Yes	5.43E+01	N/A	3.99E+00	YES
MW364	Downgradient	Yes	4.81E+01	N/A	3.87E+00	YES
MW367	Downgradient	No	-6.79E+00	N/A	#Error	N/A
MW370	Upgradient	No	1.03E+01	N/A	2.33E+00	N/A
MW373	Upgradient	No	6.70E+00	N/A	1.90E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

The test well(s) listed exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to historical background data.

Wells with Exceedances

MW361
MW364

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-U First Quarter 2024 Statistical Analysis Historical Background Comparison

Total Organic Carbon (TOC) UNITS: mg/L LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 6.169	**S=** 12.072	**CV(1)=** 1.957	**K factor**=** 2.523	**TL(1)=** 3.66E+01	**LL(1)=**N/A
Statistics-Transformed Background Data	**X=** 1.069	**S=** 1.014	**CV(2)=** 0.948	**K factor**=** 2.523	**TL(2)=** 3.63E+00	**LL(2)=**N/A

Historical Background Data from Upgradient Wells with Transformed Result

Because CV(1) is greater than 1, the natural logarithm of background and test well results were calculated utilizing TL(2) for comparison.

Well Number: MW370

Date Collected	Result	LN(Result)
3/17/2002	1.20E+00	1.82E-01
4/23/2002	4.30E+00	1.46E+00
7/15/2002	2.60E+00	9.56E-01
10/8/2002	2.30E+00	8.33E-01
1/8/2003	3.00E+00	1.10E+00
4/3/2003	1.20E+00	1.82E-01
7/9/2003	2.60E+00	9.56E-01
10/6/2003	1.70E+00	5.31E-01

Well Number: MW373

Date Collected	Result	LN(Result)
3/18/2002	1.10E+00	9.53E-02
4/23/2002	1.75E+01	2.86E+00
7/16/2002	4.90E+01	3.89E+00
10/8/2002	2.90E+00	1.06E+00
1/7/2003	3.90E+00	1.36E+00
4/2/2003	2.50E+00	9.16E-01
7/9/2003	1.70E+00	5.31E-01
10/7/2003	1.20E+00	1.82E-01

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW358	Downgradient	Yes	4.70E+00	N/A	1.55E+00	NO
MW361	Downgradient	Yes	7.29E-01	N/A	-3.16E-01	NO
MW364	Downgradient	Yes	4.97E-01	N/A	-6.99E-01	NO
MW367	Downgradient	No	2.00E+00	N/A	6.93E-01	N/A
MW370	Upgradient	Yes	8.05E-01	N/A	-2.17E-01	NO
MW373	Upgradient	Yes	1.37E+00	N/A	3.15E-01	NO

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-U First Quarter 2024 Statistical Analysis Historical Background Comparison

Total Organic Halides (TOX) UNITS: ug/L LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 79.819	**S=** 78.470	**CV(1)=** 0.983	**K factor**=** 2.523	**TL(1)=** 2.78E+02	**LL(1)=** N/A
Statistics-Transformed Background Data	**X=** 3.971	**S=** 0.950	**CV(2)=** 0.239	**K factor**=** 2.523	**TL(2)=** 6.37E+00	**LL(2)=** N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW370	
Date Collected	Result	LN(Result)
3/17/2002	5.00E+01	3.91E+00
4/23/2002	2.28E+02	5.43E+00
7/15/2002	8.80E+01	4.48E+00
10/8/2002	5.80E+01	4.06E+00
1/8/2003	7.24E+01	4.28E+00
4/3/2003	2.66E+01	3.28E+00
7/9/2003	1.64E+01	2.80E+00
10/6/2003	3.11E+01	3.44E+00

Well Number:	MW373	
Date Collected	Result	LN(Result)
3/18/2002	5.00E+01	3.91E+00
4/23/2002	2.76E+02	5.62E+00
7/16/2002	1.77E+02	5.18E+00
10/8/2002	7.60E+01	4.33E+00
1/7/2003	4.59E+01	3.83E+00
4/2/2003	5.78E+01	4.06E+00
7/9/2003	1.00E+01	2.30E+00
10/7/2003	1.39E+01	2.63E+00

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW358	Downgradient	Yes	8.66E+00	NO	2.16E+00	N/A
MW361	Downgradient	No	1.00E+01	N/A	2.30E+00	N/A
MW364	Downgradient	Yes	5.24E+00	NO	1.66E+00	N/A
MW367	Downgradient	No	1.00E+01	N/A	2.30E+00	N/A
MW370	Upgradient	Yes	1.44E+01	NO	2.67E+00	N/A
MW373	Upgradient	Yes	1.43E+01	NO	2.66E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

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Vanadium UNITS: mg/L LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 0.024	**S=** 0.008	**CV(1)=** 0.324	**K factor**=** 2.523	**TL(1)=** 4.44E-02	**LL(1)=**N/A
Statistics-Transformed Background Data	**X=** -3.749	**S=** 0.265	**CV(2)=** -0.071	**K factor**=** 2.523	**TL(2)=** -3.08E+00	**LL(2)=**N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW370	
Date Collected	Result	LN(Result)
3/17/2002	3.50E-02	-3.35E+00
4/23/2002	3.30E-02	-3.41E+00
7/15/2002	2.50E-02	-3.69E+00
10/8/2002	2.00E-02	-3.91E+00
1/8/2003	2.00E-02	-3.91E+00
4/3/2003	2.00E-02	-3.91E+00
7/9/2003	2.00E-02	-3.91E+00
10/6/2003	2.00E-02	-3.91E+00

Well Number:	MW373	
Date Collected	Result	LN(Result)
3/18/2002	4.80E-02	-3.04E+00
4/23/2002	2.50E-02	-3.69E+00
7/16/2002	2.50E-02	-3.69E+00
10/8/2002	2.00E-02	-3.91E+00
1/7/2003	2.00E-02	-3.91E+00
4/2/2003	2.00E-02	-3.91E+00
7/9/2003	2.00E-02	-3.91E+00
10/7/2003	2.00E-02	-3.91E+00

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW358	Downgradient	No	4.76E-03	N/A	-5.35E+00	N/A
MW361	Downgradient	No	4.88E-03	N/A	-5.32E+00	N/A
MW364	Downgradient	No	2.00E-02	N/A	-3.91E+00	N/A
MW367	Downgradient	No	2.00E-02	N/A	-3.91E+00	N/A
MW370	Upgradient	No	2.00E-02	N/A	-3.91E+00	N/A
MW373	Upgradient	Yes	7.15E-03	NO	-4.94E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-U First Quarter 2024 Statistical Analysis Historical Background Comparison

Zinc UNITS: mg/L LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data **X=** 0.055 **S=** 0.037 **CV(1)=** 0.673 **K factor**=** 2.523 **TL(1)=** 1.47E-01 **LL(1)=**N/A

Statistics-Transformed Background Data **X=** -3.131 **S=** 0.691 **CV(2)=** -0.221 **K factor**=** 2.523 **TL(2)=** -1.39E+00 **LL(2)=**N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW370	
Date Collected	Result	LN(Result)
3/17/2002	1.00E-01	-2.30E+00
4/23/2002	1.00E-01	-2.30E+00
7/15/2002	1.00E-01	-2.30E+00
10/8/2002	2.50E-02	-3.69E+00
1/8/2003	3.50E-02	-3.35E+00
4/3/2003	3.50E-02	-3.35E+00
7/9/2003	2.00E-02	-3.91E+00
10/6/2003	2.00E-02	-3.91E+00

Well Number:	MW373	
Date Collected	Result	LN(Result)
3/18/2002	1.00E-01	-2.30E+00
4/23/2002	1.00E-01	-2.30E+00
7/16/2002	1.00E-01	-2.30E+00
10/8/2002	2.50E-02	-3.69E+00
1/7/2003	3.50E-02	-3.35E+00
4/2/2003	3.50E-02	-3.35E+00
7/9/2003	2.34E-02	-3.76E+00
10/7/2003	2.00E-02	-3.91E+00

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW358	Downgradient	Yes	8.26E-03	NO	-4.80E+00	N/A
MW361	Downgradient	No	2.00E-02	N/A	-3.91E+00	N/A
MW364	Downgradient	Yes	1.59E-02	NO	-4.14E+00	N/A
MW367	Downgradient	Yes	1.09E-02	NO	-4.52E+00	N/A
MW370	Upgradient	Yes	3.33E-03	NO	-5.70E+00	N/A
MW373	Upgradient	No	2.00E-02	N/A	-3.91E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

ATTACHMENT D2

COMPARISON OF CURRENT DATA TO ONE-SIDED UPPER TOLERANCE INTERVAL TEST CALCULATED USING CURRENT BACKGROUND DATA

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C-746-U First Quarter 2024 Statistical Analysis — Current Background Comparison

Magnesium — UNITS: mg/L — UCRS

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is statistically significant evidence of elevated concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data **X=** 10.413 **S=** 5.510 **CV(1)=** 0.529 **K factor**=** 2.523 **TL(1)=** 2.43E+01 **LL(1)=**N/A

Statistics-Transformed Background Data **X=** 2.216 **S=** 0.514 **CV(2)=** 0.232 **K factor**=** 2.523 **TL(2)=** 3.51E+00 **LL(2)=**N/A

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Background Data from Upgradient Wells with Transformed Result

Well Number:	MW371	
Date Collected	Result	LN(Result)
1/12/2022	1.79E+01	2.88E+00
4/12/2022	8.52E+00	2.14E+00
7/14/2022	1.45E+01	2.67E+00
10/11/2022	1.84E+01	2.91E+00
1/19/2023	1.95E+01	2.97E+00
4/25/2023	9.13E+00	2.21E+00
7/25/2023	1.45E+01	2.67E+00
10/11/2023	1.73E+01	2.85E+00

Well Number:	MW374	
Date Collected	Result	LN(Result)
1/13/2022	5.62E+00	1.73E+00
4/12/2022	5.25E+00	1.66E+00
7/14/2022	5.96E+00	1.79E+00
10/11/2022	6.14E+00	1.81E+00
1/19/2023	5.88E+00	1.77E+00
4/25/2023	6.31E+00	1.84E+00
7/25/2023	5.79E+00	1.76E+00
10/11/2023	5.90E+00	1.77E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW371	Upgradient	Yes	2.03E+01	NO	3.01E+00	N/A

Conclusion of Statistical Analysis on Current Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from current background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-U First Quarter 2024 Statistical Analysis — Current Background Comparison

Oxidation-Reduction Potential — UNITS: mV — UCRS

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is statistically significant evidence of elevated concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data **X=** 355.313 **S=** 72.739 **CV(1)=** 0.205 **K factor**=** 2.523 **TL(1)=** 5.39E+02 **LL(1)=**N/A

Statistics-Transformed Background Data **X=** 5.846 **S=** 0.262 **CV(2)=** 0.045 **K factor**=** 2.523 **TL(2)=** 6.51E+00 **LL(2)=**N/A

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Background Data from Upgradient Wells with Transformed Result

Well Number:	MW371	
Date Collected	Result	LN(Result)
1/12/2022	3.89E+02	5.96E+00
4/12/2022	3.75E+02	5.93E+00
7/14/2022	3.78E+02	5.93E+00
10/11/2022	4.09E+02	6.01E+00
1/19/2023	4.20E+02	6.04E+00
4/25/2023	4.04E+02	6.00E+00
7/25/2023	3.72E+02	5.92E+00
10/11/2023	3.76E+02	5.93E+00

Well Number:	MW374	
Date Collected	Result	LN(Result)
1/13/2022	1.92E+02	5.26E+00
4/12/2022	3.53E+02	5.87E+00
7/14/2022	3.45E+02	5.84E+00
10/11/2022	3.30E+02	5.80E+00
1/19/2023	1.72E+02	5.15E+00
4/25/2023	4.21E+02	6.04E+00
7/25/2023	3.51E+02	5.86E+00
10/11/2023	3.98E+02	5.99E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW362	Downgradient	Yes	4.37E+02	NO	6.08E+00	N/A
MW371	Upgradient	Yes	4.52E+02	NO	6.11E+00	N/A
MW374	Upgradient	Yes	4.55E+02	NO	6.12E+00	N/A
MW375	Sidegradient	Yes	3.73E+02	NO	5.92E+00	N/A

Conclusion of Statistical Analysis on Current Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from current background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-U First Quarter 2024 Statistical Analysis — Current Background Comparison

Sulfate — **UNITS: mg/L** — **UCRS**

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is statistically significant evidence of elevated concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 22.650	**S=** 18.037	**CV(1)=** 0.796	**K factor**=** 2.523	**TL(1)=** 6.82E+01	**LL(1)=**N/A
Statistics-Transformed Background Data	**X=** 2.937	**S=** 0.553	**CV(2)=** 0.188	**K factor**=** 2.523	**TL(2)=** 4.33E+00	**LL(2)=**N/A

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Background Data from Upgradient Wells with Transformed Result

Well Number:	MW371	
Date Collected	Result	LN(Result)
1/12/2022	1.43E+01	2.66E+00
4/12/2022	7.54E+01	4.32E+00
7/14/2022	2.87E+01	3.36E+00
10/11/2022	1.18E+01	2.47E+00
1/19/2023	1.20E+01	2.48E+00
4/25/2023	5.69E+01	4.04E+00
7/25/2023	2.86E+01	3.35E+00
10/11/2023	1.58E+01	2.76E+00

Well Number:	MW374	
Date Collected	Result	LN(Result)
1/13/2022	1.24E+01	2.52E+00
4/12/2022	1.64E+01	2.80E+00
7/14/2022	1.67E+01	2.82E+00
10/11/2022	1.32E+01	2.58E+00
1/19/2023	1.39E+01	2.63E+00
4/25/2023	1.65E+01	2.80E+00
7/25/2023	1.56E+01	2.75E+00
10/11/2023	1.42E+01	2.65E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW374	Upgradient	Yes	1.54E+01	NO	2.73E+00	N/A
MW375	Sidegradient	Yes	2.27E+01	NO	3.12E+00	N/A

Conclusion of Statistical Analysis on Current Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from current background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-U First Quarter 2024 Statistical Analysis — Current Background Comparison

Calcium — UNITS: mg/L — URGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is statistically significant evidence of elevated concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data **X=** 39.331 **S=** 24.117 **CV(1)=** 0.613 **K factor**=** 2.523 **TL(1)=** 1.00E+02 **LL(1)=**N/A

Statistics-Transformed Background Data **X=** 3.455 **S=** 0.704 **CV(2)=** 0.204 **K factor**=** 2.523 **TL(2)=** 5.23E+00 **LL(2)=**N/A

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Background Data from Upgradient Wells with Transformed Result

Well Number:	MW369	
Date Collected	Result	LN(Result)
1/12/2022	1.63E+01	2.79E+00
4/12/2022	1.65E+01	2.80E+00
7/14/2022	1.57E+01	2.75E+00
10/11/2022	1.60E+01	2.77E+00
1/19/2023	1.60E+01	2.77E+00
4/24/2023	1.60E+01	2.77E+00
7/25/2023	1.57E+01	2.75E+00
10/11/2023	1.60E+01	2.77E+00

Well Number:	MW372	
Date Collected	Result	LN(Result)
1/13/2022	6.70E+01	4.20E+00
4/12/2022	6.11E+01	4.11E+00
7/14/2022	6.26E+01	4.14E+00
10/11/2022	6.22E+01	4.13E+00
1/19/2023	6.06E+01	4.10E+00
4/25/2023	6.20E+01	4.13E+00
7/25/2023	6.10E+01	4.11E+00
10/11/2023	6.46E+01	4.17E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW372	Upgradient	Yes	7.14E+01	NO	4.27E+00	N/A

Conclusion of Statistical Analysis on Current Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from current background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-U First Quarter 2024 Statistical Analysis Current Background Comparison

Conductivity UNITS: umho/cm URGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is statistically significant evidence of elevated concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data **X=** 570.875 **S=** 206.229 **CV(1)=** 0.361 **K factor**=** 2.523 **TL(1)=** 1.09E+03 **LL(1)=**N/A

Statistics-Transformed Background Data **X=** 6.282 **S=** 0.376 **CV(2)=** 0.060 **K factor**=** 2.523 **TL(2)=** 7.23E+00 **LL(2)=**N/A

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Background Data from Upgradient Wells with Transformed Result

Well Number:	MW369	
Date Collected	Result	LN(Result)
1/12/2022	3.59E+02	5.88E+00
4/12/2022	3.78E+02	5.93E+00
7/14/2022	3.71E+02	5.92E+00
10/11/2022	4.85E+02	6.18E+00
1/19/2023	3.59E+02	5.88E+00
4/24/2023	3.75E+02	5.93E+00
7/25/2023	3.50E+02	5.86E+00
10/11/2023	3.45E+02	5.84E+00

Well Number:	MW372	
Date Collected	Result	LN(Result)
1/13/2022	7.52E+02	6.62E+00
4/12/2022	7.38E+02	6.60E+00
7/14/2022	7.15E+02	6.57E+00
10/11/2022	9.14E+02	6.82E+00
1/19/2023	7.54E+02	6.63E+00
4/25/2023	7.33E+02	6.60E+00
7/25/2023	7.59E+02	6.63E+00
10/11/2023	7.47E+02	6.62E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW372	Upgradient	Yes	7.27E+02	NO	6.59E+00	N/A

Conclusion of Statistical Analysis on Current Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from current background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-U First Quarter 2024 Statistical Analysis — Current Background Comparison

Dissolved Solids — UNITS: mg/L — URGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is statistically significant evidence of elevated concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data **X=** 324.563 **S=** 132.044 **CV(1)=** 0.407 **K factor**=** 2.523 **TL(1)=** 6.58E+02 **LL(1)=**N/A

Statistics-Transformed Background Data **X=** 5.698 **S=** 0.430 **CV(2)=** 0.076 **K factor**=** 2.523 **TL(2)=** 6.78E+00 **LL(2)=**N/A

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Background Data from Upgradient Wells with Transformed Result

Well Number: MW369

Date Collected	Result	LN(Result)
1/12/2022	2.00E+02	5.30E+00
4/12/2022	2.34E+02	5.46E+00
7/14/2022	1.96E+02	5.28E+00
10/11/2022	2.12E+02	5.36E+00
1/19/2023	1.86E+02	5.23E+00
4/24/2023	1.93E+02	5.26E+00
7/25/2023	1.75E+02	5.16E+00
10/11/2023	1.92E+02	5.26E+00

Well Number: MW372

Date Collected	Result	LN(Result)
1/13/2022	5.06E+02	6.23E+00
4/12/2022	4.57E+02	6.12E+00
7/14/2022	4.61E+02	6.13E+00
10/11/2022	4.55E+02	6.12E+00
1/19/2023	4.28E+02	6.06E+00
4/25/2023	4.28E+02	6.06E+00
7/25/2023	4.23E+02	6.05E+00
10/11/2023	4.47E+02	6.10E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW372	Upgradient	Yes	4.38E+02	NO	6.08E+00	N/A

Conclusion of Statistical Analysis on Current Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from current background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-U First Quarter 2024 Statistical Analysis — Current Background Comparison

Magnesium — UNITS: mg/L — URGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is statistically significant evidence of elevated concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data **X=** 14.421 **S=** 8.016 **CV(1)=** 0.556 **K factor**=** 2.523 **TL(1)=** 3.46E+01 **LL(1)=**N/A

Statistics-Transformed Background Data **X=** 2.498 **S=** 0.621 **CV(2)=** 0.248 **K factor**=** 2.523 **TL(2)=** 4.06E+00 **LL(2)=**N/A

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Background Data from Upgradient Wells with Transformed Result

Well Number:	MW369	
Date Collected	Result	LN(Result)
1/12/2022	6.84E+00	1.92E+00
4/12/2022	6.89E+00	1.93E+00
7/14/2022	6.84E+00	1.92E+00
10/11/2022	6.84E+00	1.92E+00
1/19/2023	6.56E+00	1.88E+00
4/24/2023	6.87E+00	1.93E+00
7/25/2023	6.17E+00	1.82E+00
10/11/2023	6.42E+00	1.86E+00

Well Number:	MW372	
Date Collected	Result	LN(Result)
1/13/2022	2.28E+01	3.13E+00
4/12/2022	2.20E+01	3.09E+00
7/14/2022	2.27E+01	3.12E+00
10/11/2022	2.17E+01	3.08E+00
1/19/2023	2.19E+01	3.09E+00
4/25/2023	2.35E+01	3.16E+00
7/25/2023	2.11E+01	3.05E+00
10/11/2023	2.16E+01	3.07E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW372	Upgradient	Yes	2.51E+01	NO	3.22E+00	N/A

Conclusion of Statistical Analysis on Current Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from current background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-U First Quarter 2024 Statistical Analysis — Current Background Comparison

Oxidation-Reduction Potential — UNITS: mV — URGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is statistically significant evidence of elevated concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data **X=** 406.625 **S=** 34.469 **CV(1)=** 0.085 **K factor**=** 2.523 **TL(1)=** 4.94E+02 **LL(1)=**N/A

Statistics-Transformed Background Data **X=** 6.005 **S=** 0.084 **CV(2)=** 0.014 **K factor**=** 2.523 **TL(2)=** 6.22E+00 **LL(2)=**N/A

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Background Data from Upgradient Wells with Transformed Result

Well Number:	MW369	
Date Collected	Result	LN(Result)
1/12/2022	3.92E+02	5.97E+00
4/12/2022	3.82E+02	5.95E+00
7/14/2022	4.20E+02	6.04E+00
10/11/2022	4.06E+02	6.01E+00
1/19/2023	4.80E+02	6.17E+00
4/24/2023	4.39E+02	6.08E+00
7/25/2023	4.06E+02	6.01E+00
10/11/2023	3.85E+02	5.95E+00

Well Number:	MW372	
Date Collected	Result	LN(Result)
1/13/2022	3.76E+02	5.93E+00
4/12/2022	4.02E+02	6.00E+00
7/14/2022	4.02E+02	6.00E+00
10/11/2022	4.16E+02	6.03E+00
1/19/2023	4.03E+02	6.00E+00
4/25/2023	4.70E+02	6.15E+00
7/25/2023	3.87E+02	5.96E+00
10/11/2023	3.40E+02	5.83E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW357	Downgradient	Yes	4.51E+02	NO	6.11E+00	N/A
MW360	Downgradient	Yes	4.80E+02	NO	6.17E+00	N/A
MW363	Downgradient	Yes	3.63E+02	NO	5.89E+00	N/A
MW366	Downgradient	Yes	3.48E+02	NO	5.85E+00	N/A
MW369	Upgradient	Yes	4.23E+02	NO	6.05E+00	N/A
MW372	Upgradient	Yes	4.83E+02	NO	6.18E+00	N/A

Conclusion of Statistical Analysis on Current Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from current background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-U First Quarter 2024 Statistical Analysis — Current Background Comparison

Sulfate — UNITS: mg/L — URGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is statistically significant evidence of elevated concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data **X=** 75.220 **S=** 69.494 **CV(1)=** 0.924 **K factor**=** 2.523 **TL(1)=** 2.51E+02 **LL(1)=**N/A

Statistics-Transformed Background Data **X=** 3.521 **S=** 1.484 **CV(2)=** 0.422 **K factor**=** 2.523 **TL(2)=** 7.27E+00 **LL(2)=**N/A

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Background Data from Upgradient Wells with Transformed Result

Well Number:	MW369	
Date Collected	Result	LN(Result)
1/12/2022	7.80E+00	2.05E+00
4/12/2022	8.93E+00	2.19E+00
7/14/2022	8.16E+00	2.10E+00
10/11/2022	8.07E+00	2.09E+00
1/19/2023	7.93E+00	2.07E+00
4/24/2023	7.00E+00	1.95E+00
7/25/2023	7.91E+00	2.07E+00
10/11/2023	8.72E+00	2.17E+00

Well Number:	MW372	
Date Collected	Result	LN(Result)
1/13/2022	1.45E+02	4.98E+00
4/12/2022	1.44E+02	4.97E+00
7/14/2022	1.45E+02	4.98E+00
10/11/2022	1.31E+02	4.88E+00
1/19/2023	1.35E+02	4.91E+00
4/25/2023	1.51E+02	5.02E+00
7/25/2023	1.45E+02	4.98E+00
10/11/2023	1.43E+02	4.96E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW372	Upgradient	Yes	1.48E+02	NO	5.00E+00	N/A

Conclusion of Statistical Analysis on Current Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from current background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-U First Quarter 2024 Statistical Analysis — Current Background Comparison

Calcium — UNITS: mg/L — LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is statistically significant evidence of elevated concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data **X=** 49.381 **S=** 20.747 **CV(1)=** 0.420 **K factor**=** 2.523 **TL(1)=** 1.02E+02 **LL(1)=**N/A

Statistics-Transformed Background Data **X=** 3.812 **S=** 0.437 **CV(2)=** 0.115 **K factor**=** 2.523 **TL(2)=** 4.91E+00 **LL(2)=**N/A

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Background Data from Upgradient Wells with Transformed Result

Well Number: MW370

Date Collected	Result	LN(Result)
1/12/2022	3.00E+01	3.40E+00
4/12/2022	3.05E+01	3.42E+00
7/14/2022	2.92E+01	3.37E+00
10/11/2022	2.89E+01	3.36E+00
1/19/2023	3.05E+01	3.42E+00
4/24/2023	3.09E+01	3.43E+00
7/25/2023	2.93E+01	3.38E+00
10/11/2023	2.90E+01	3.37E+00

Well Number: MW373

Date Collected	Result	LN(Result)
1/13/2022	6.72E+01	4.21E+00
4/12/2022	6.28E+01	4.14E+00
7/14/2022	6.28E+01	4.14E+00
10/11/2022	6.56E+01	4.18E+00
1/19/2023	6.46E+01	4.17E+00
4/25/2023	7.11E+01	4.26E+00
7/25/2023	7.87E+01	4.37E+00
10/11/2023	7.90E+01	4.37E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW373	Upgradient	Yes	8.40E+01	NO	4.43E+00	N/A

Conclusion of Statistical Analysis on Current Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from current background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-U First Quarter 2024 Statistical Analysis — Current Background Comparison

Dissolved Oxygen — UNITS: mg/L — LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is statistically significant evidence of elevated concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data **X=** 3.268 **S=** 1.122 **CV(1)=** 0.343 **K factor**=** 2.523 **TL(1)=** 6.10E+00 **LL(1)=**N/A

Statistics-Transformed Background Data **X=** 1.125 **S=** 0.362 **CV(2)=** 0.322 **K factor**=** 2.523 **TL(2)=** 2.04E+00 **LL(2)=**N/A

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Background Data from Upgradient Wells with Transformed Result

Well Number:	MW370	
Date Collected	Result	LN(Result)
1/12/2022	4.36E+00	1.47E+00
4/12/2022	3.45E+00	1.24E+00
7/14/2022	4.73E+00	1.55E+00
10/11/2022	4.80E+00	1.57E+00
1/19/2023	4.00E+00	1.39E+00
4/24/2023	4.26E+00	1.45E+00
7/25/2023	4.01E+00	1.39E+00
10/11/2023	4.64E+00	1.53E+00

Well Number:	MW373	
Date Collected	Result	LN(Result)
1/13/2022	2.72E+00	1.00E+00
4/12/2022	2.79E+00	1.03E+00
7/14/2022	2.42E+00	8.84E-01
10/11/2022	2.31E+00	8.37E-01
1/19/2023	2.11E+00	7.47E-01
4/25/2023	2.00E+00	6.93E-01
7/25/2023	1.69E+00	5.25E-01
10/11/2023	2.00E+00	6.93E-01

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW370	Upgradient	Yes	4.65E+00	NO	1.54E+00	N/A

Conclusion of Statistical Analysis on Current Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from current background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-U First Quarter 2024 Statistical Analysis — Current Background Comparison

Nickel — **UNITS: mg/L** — **LRGA**

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is statistically significant evidence of elevated concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data **X=** 0.001 **S=** 0.001 **CV(1)=** 0.472 **K factor**=** 2.523 **TL(1)=** 3.14E-03 **LL(1)=**N/A

Statistics-Transformed Background Data **X=** -6.653 **S=** 0.474 **CV(2)=** -0.071 **K factor**=** 2.523 **TL(2)=** -5.46E+00 **LL(2)=**N/A

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Background Data from Upgradient Wells with Transformed Result

Well Number: MW370

Date Collected	Result	LN(Result)
1/12/2022	7.92E-04	-7.14E+00
4/12/2022	8.34E-04	-7.09E+00
7/14/2022	9.09E-04	-7.00E+00
10/11/2022	1.00E-03	-6.91E+00
1/19/2023	7.91E-04	-7.14E+00
4/24/2023	2.00E-03	-6.21E+00
7/25/2023	7.52E-04	-7.19E+00
10/11/2023	2.00E-03	-6.21E+00

Well Number: MW373

Date Collected	Result	LN(Result)
1/13/2022	2.48E-03	-6.00E+00
4/12/2022	7.96E-04	-7.14E+00
7/14/2022	2.66E-03	-5.93E+00
10/11/2022	2.18E-03	-6.13E+00
1/19/2023	1.45E-03	-6.54E+00
4/25/2023	8.29E-04	-7.10E+00
7/25/2023	1.68E-03	-6.39E+00
10/11/2023	1.79E-03	-6.33E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW358	Downgradient	Yes	9.07E-02	YES	-2.40E+00	N/A

Conclusion of Statistical Analysis on Current Data

The test well(s) listed exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to current background data.

Wells with Exceedances

MW358

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-U First Quarter 2024 Statistical Analysis — Current Background Comparison

Oxidation-Reduction Potential — UNITS: mV — LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is statistically significant evidence of elevated concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data **X=** 402.000 **S=** 37.370 **CV(1)=** 0.093 **K factor**=** 2.523 **TL(1)=** 4.96E+02 **LL(1)=**N/A

Statistics-Transformed Background Data **X=** 5.992 **S=** 0.093 **CV(2)=** 0.016 **K factor**=** 2.523 **TL(2)=** 6.23E+00 **LL(2)=**N/A

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Background Data from Upgradient Wells with Transformed Result

Well Number:	MW370	
Date Collected	Result	LN(Result)
1/12/2022	4.02E+02	6.00E+00
4/12/2022	3.90E+02	5.97E+00
7/14/2022	4.15E+02	6.03E+00
10/11/2022	4.27E+02	6.06E+00
1/19/2023	4.68E+02	6.15E+00
4/24/2023	4.60E+02	6.13E+00
7/25/2023	3.88E+02	5.96E+00
10/11/2023	3.27E+02	5.79E+00

Well Number:	MW373	
Date Collected	Result	LN(Result)
1/13/2022	3.76E+02	5.93E+00
4/12/2022	3.99E+02	5.99E+00
7/14/2022	3.82E+02	5.95E+00
10/11/2022	4.01E+02	5.99E+00
1/19/2023	3.99E+02	5.99E+00
4/25/2023	4.57E+02	6.12E+00
7/25/2023	3.84E+02	5.95E+00
10/11/2023	3.57E+02	5.88E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW358	Downgradient	Yes	1.67E+02	NO	5.12E+00	N/A
MW361	Downgradient	Yes	3.20E+02	NO	5.77E+00	N/A
MW364	Downgradient	Yes	5.20E+02	YES	6.25E+00	N/A
MW367	Downgradient	Yes	2.95E+02	NO	5.69E+00	N/A
MW370	Upgradient	Yes	5.30E+02	YES	6.27E+00	N/A
MW373	Upgradient	Yes	4.93E+02	NO	6.20E+00	N/A

Conclusion of Statistical Analysis on Current Data

The test well(s) listed exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to current background data.

Wells with Exceedances

MW364
MW370

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-U First Quarter 2024 Statistical Analysis — Current Background Comparison

Technetium-99 — UNITS: pCi/L — LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is statistically significant evidence of elevated concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data **X=** 17.513 **S=** 8.151 **CV(1)=** 0.465 **K factor**=** 2.523 **TL(1)=** 3.81E+01 **LL(1)=**N/A

Statistics-Transformed Background Data **X=** 2.876 **S=** 0.356 **CV(2)=** 0.124 **K factor**=** 2.523 **TL(2)=** 3.42E+00 **LL(2)=**N/A

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

#Because the natural log was not possible for all background values, the TL was considered equal to the maximum background value.

Current Background Data from Upgradient Wells with Transformed Result

Well Number:	MW370	
Date Collected	Result	LN(Result)
1/12/2022	2.56E+01	3.24E+00
4/12/2022	2.34E+01	3.15E+00
7/14/2022	2.40E+01	3.18E+00
10/11/2022	2.09E+01	3.04E+00
1/19/2023	3.07E+01	3.42E+00
4/24/2023	2.83E+01	3.34E+00
7/25/2023	2.03E+01	3.01E+00
10/11/2023	1.86E+01	2.92E+00

Well Number:	MW373	
Date Collected	Result	LN(Result)
1/13/2022	1.12E+01	2.42E+00
4/12/2022	1.48E+01	2.69E+00
7/14/2022	9.69E+00	2.27E+00
10/11/2022	-1.78E+00	#Func!
1/19/2023	1.25E+01	2.53E+00
4/25/2023	1.40E+01	2.64E+00
7/25/2023	1.33E+01	2.59E+00
10/11/2023	1.47E+01	2.69E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW361	Downgradient	Yes	5.43E+01	YES	3.99E+00	N/A
MW364	Downgradient	Yes	4.81E+01	YES	3.87E+00	N/A

Conclusion of Statistical Analysis on Current Data

The test well(s) listed exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to current background data.

Wells with Exceedances

MW361
MW364

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

ATTACHMENT D3

STATISTICIAN QUALIFICATION STATEMENT

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FOUR RIVERS NUCLEAR PARTNERSHIP, LLC

Four Rivers Nuclear Partnership, LLC
5511 Hobbs Road
Kevil, KY 42053
www.fourriversnuclearpartnership.com

April 29, 2024

Mr. Dennis Greene
Four Rivers Nuclear Partnership, LLC
5511 Hobbs Road
Kevil, KY 42053

Dear Mr. Greene:

As an Environmental Scientist, with a bachelor's degree in Earth Sciences/Geology, I have over 30 years of experience in reviewing and assessing laboratory analytical results associated with environmental sampling and investigation activities. For the generation of these statistical analyses, my work was reviewed by a qualified independent technical reviewer with Four Rivers Nuclear Partnership, LLC.

For this project, the statistical analyses conducted on the first quarter 2024 monitoring well data collected from the C-746-S&T and C-746-U Landfills were performed in accordance with guidance provided in the U.S. Environmental Protection Agency guidance document, *EPA Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Interim Final Guidance* (1989).

Sincerely,

Bryan Smith

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APPENDIX E

GROUNDWATER FLOW RATE AND DIRECTION

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GROUNDWATER FLOW RATE AND DIRECTION

Determination of groundwater flow rate and direction of flow in the uppermost aquifer whenever the monitoring wells (MWs) are sampled is a requirement of 401 *KAR* 48.300, § 11, *Groundwater Monitoring Parameters*. The uppermost aquifer below the C-746-U Contained Landfill is the Regional Gravel Aquifer (RGA). Water level measurements currently are recorded in several wells at the landfill on a quarterly basis. These measurements were used to plot the potentiometric surface of the RGA for the first quarter 2024 and determine groundwater flow rate and direction.

Water levels during this reporting period were measured on January 22, 2024. As shown on Figure E.1, all UCRS wells had sufficient water to permit water level measurement. UCRS monitoring wells MW359, MW365, MW368, MW376, and MW377 did not have sufficient water for sampling and laboratory analysis during this reporting period.

The UCRS has a strong vertical hydraulic gradient; therefore, the available UCRS wells screened over different elevations are not sufficient for mapping the potentiometric surface. As shown in Table E.1, the RGA data were converted to elevations to plot the potentiometric surfaces within the Upper Regional Gravel Aquifer (URGA) and Lower Regional Gravel Aquifer (LRGA). (At the request of the Commonwealth of Kentucky, the RGA is differentiated into two zones, the URGA and LRGA.) Based on the potentiometric maps (Figures E.2 and E.3), the hydraulic gradients for the URGA and LRGA at the C-746-U Contained Landfill, as measured along the defined groundwater flow directions, were 5.92×10^{-4} ft/ft and 6.32×10^{-4} ft/ft, respectively. Water level measurements in wells at the C-746-U Contained Landfill and in wells of the surrounding region (MW98, MW100, MW125, MW139, MW165A, MW173, MW193, MW197, and MW200), along with the C-746-S&T Landfill wells, were used to contour the general RGA potentiometric surface (Figure E.4). The hydraulic gradient for the RGA, as a whole, in the vicinity of the C-746-U Contained Landfill was 3.19×10^{-4} ft/ft. The hydraulic gradients are shown in Table E.2.

The average linear groundwater flow velocity (v) is determined by multiplying the hydraulic gradient (i) by the hydraulic conductivity (K) [resulting in the specific discharge (q)] and dividing by the effective porosity (n_e). The RGA hydraulic conductivity values used are reported in the Administrative Application for the New Solid Waste Landfill Permit No. SW07300045NWC1 and range from 425 to 725 ft/day (0.150 to 0.256 cm/s). RGA (both URGA and LRGA) effective porosity is assumed to be 25%. Flow velocities were calculated for the URGA and LRGA using the low and high values for hydraulic conductivity, as shown in the Table E.3.

Groundwater flow beneath the C-746-U Contained Landfill typically trends northeastward toward the Ohio River. As demonstrated on the potentiometric maps for January 2024, the groundwater flow direction in the immediate area of the landfill was to the north.

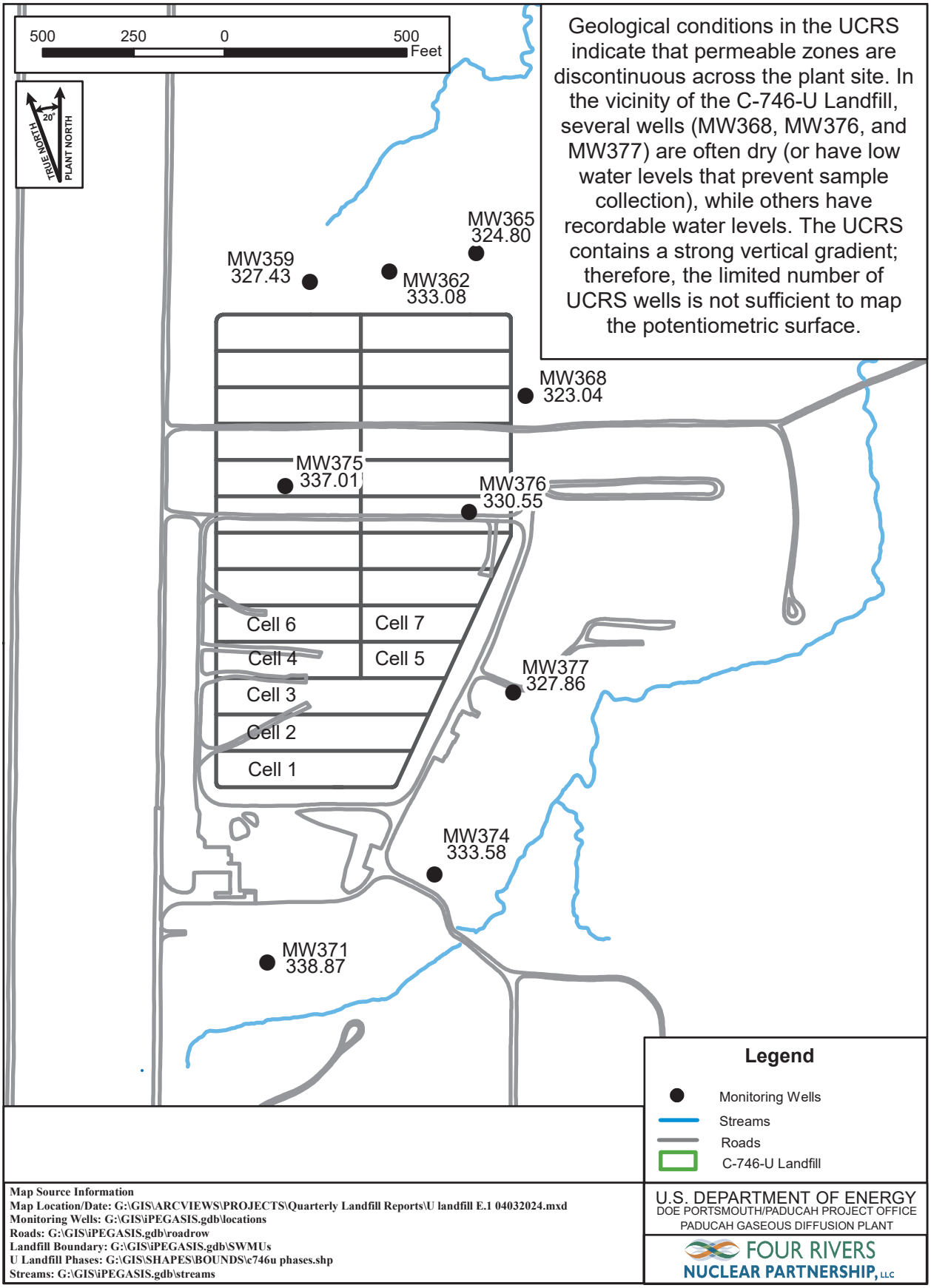

Figure E.1. Potentiometric Measurements of the Upper Continental Recharge System at the C-746-U Landfill, January 22, 2024

Table E.1. C-746-U Contained Landfill First Quarter 2024 (January) Water Levels

C-746-U Contained Landfill (January 2024) Water Levels										
							Raw Data		*Corrected Data	
Date	Time	Well	Aquifer	Datum Elev (ft amsl)	BP (in Hg)	Delta BP (ft H20)	DTW (ft)	Elev (ft amsl)	DTW (ft)	Elev (ft amsl)
1/22/2024	9:43	MW357	URGA	368.77	30.42	0.01	48.20	320.57	48.21	320.56
1/22/2024	9:44	MW358	LRGA	368.92	30.42	0.01	48.34	320.58	48.35	320.57
1/22/2024	9:45	MW359	UCRS	368.91	30.42	0.01	41.47	327.44	41.48	327.43
1/22/2024	9:38	MW360	URGA	362.07	30.42	0.01	41.51	320.56	41.52	320.55
1/22/2024	9:39	MW361	LRGA	361.32	30.42	0.01	40.76	320.56	40.77	320.55
1/22/2024	9:40	MW362	UCRS	361.85	30.42	0.01	28.76	333.09	28.77	333.08
1/22/2024	10:02	MW363	URGA	368.56	30.43	0.00	48.06	320.50	48.06	320.50
1/22/2024	10:04	MW364	LRGA	368.17	30.43	0.00	47.79	320.38	47.79	320.38
1/22/2024	10:03	MW365	UCRS	368.14	30.43	0.00	43.34	324.80	43.34	324.80
1/22/2024	10:09	MW366	URGA	368.95	30.43	0.00	48.36	320.59	48.36	320.59
1/22/2024	10:11	MW367	LRGA	369.37	30.43	0.00	48.78	320.59	48.78	320.59
1/22/2024	10:10	MW368	UCRS	368.98	30.43	0.00	45.94	323.04	45.94	323.04
1/22/2024	10:30	MW369	URGA	364.23	30.43	0.00	42.64	321.59	42.64	321.59
1/22/2024	10:31	MW370	LRGA	365.12	30.43	0.00	43.54	321.58	43.54	321.58
1/22/2024	10:32	MW371	UCRS	364.64	30.43	0.00	25.77	338.87	25.77	338.87
1/22/2024	10:36	MW372	URGA	359.42	30.43	0.00	37.83	321.59	37.83	321.59
1/22/2024	10:37	MW373	LRGA	359.73	30.43	0.00	38.14	321.59	38.14	321.59
1/22/2024	10:38	MW374	UCRS	359.44	30.43	0.00	25.86	333.58	25.86	333.58
1/22/2024	10:21	MW375	UCRS	370.36	30.43	0.00	33.35	337.01	33.35	337.01
1/22/2024	10:23	MW376	UCRS	370.39	30.43	0.00	39.84	330.55	39.84	330.55
1/22/2024	10:02	MW377	UCRS	365.74	30.43	0.00	37.88	327.86	37.88	327.86
Reference Barometric Pressure					**30.43**					

Elev = elevation
amsl = above mean sea level
BP = barometric pressure
DTW = depth to water in feet below datum
URGA = Upper Regional Gravel Aquifer
LRGA = Lower Regional Gravel Aquifer
UCRS = Upper Continental Recharge System
*Assumes a barometric efficiency of 1.0

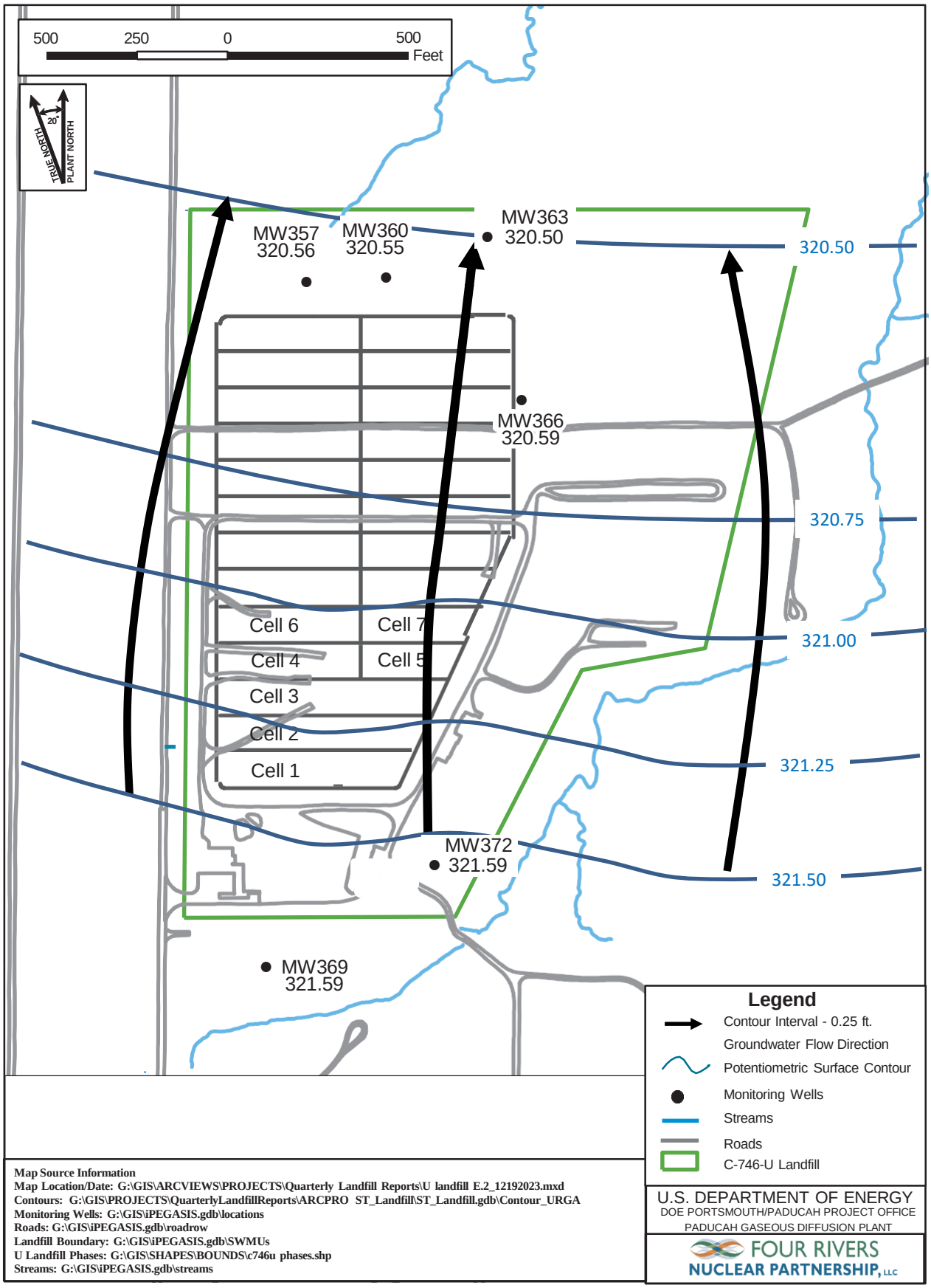

Figure E.2. Potentiometric Surface of the Upper Regional Gravel Aquifer at the C-746-U Landfill, January 22, 2024

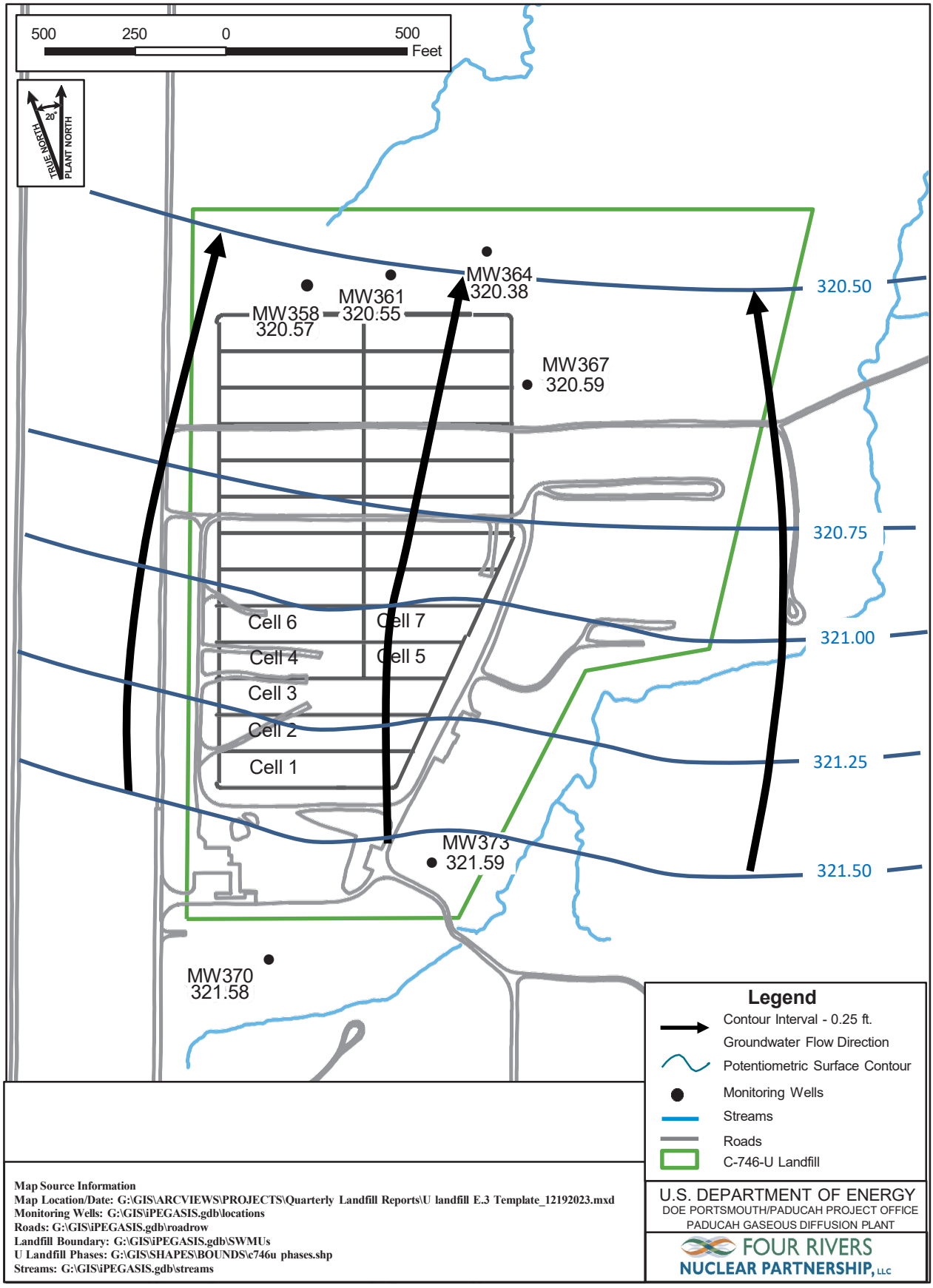

Figure E.3. Potentiometric Surface of the Lower Regional Gravel Aquifer at the C-746-U Landfill, January 22, 2024

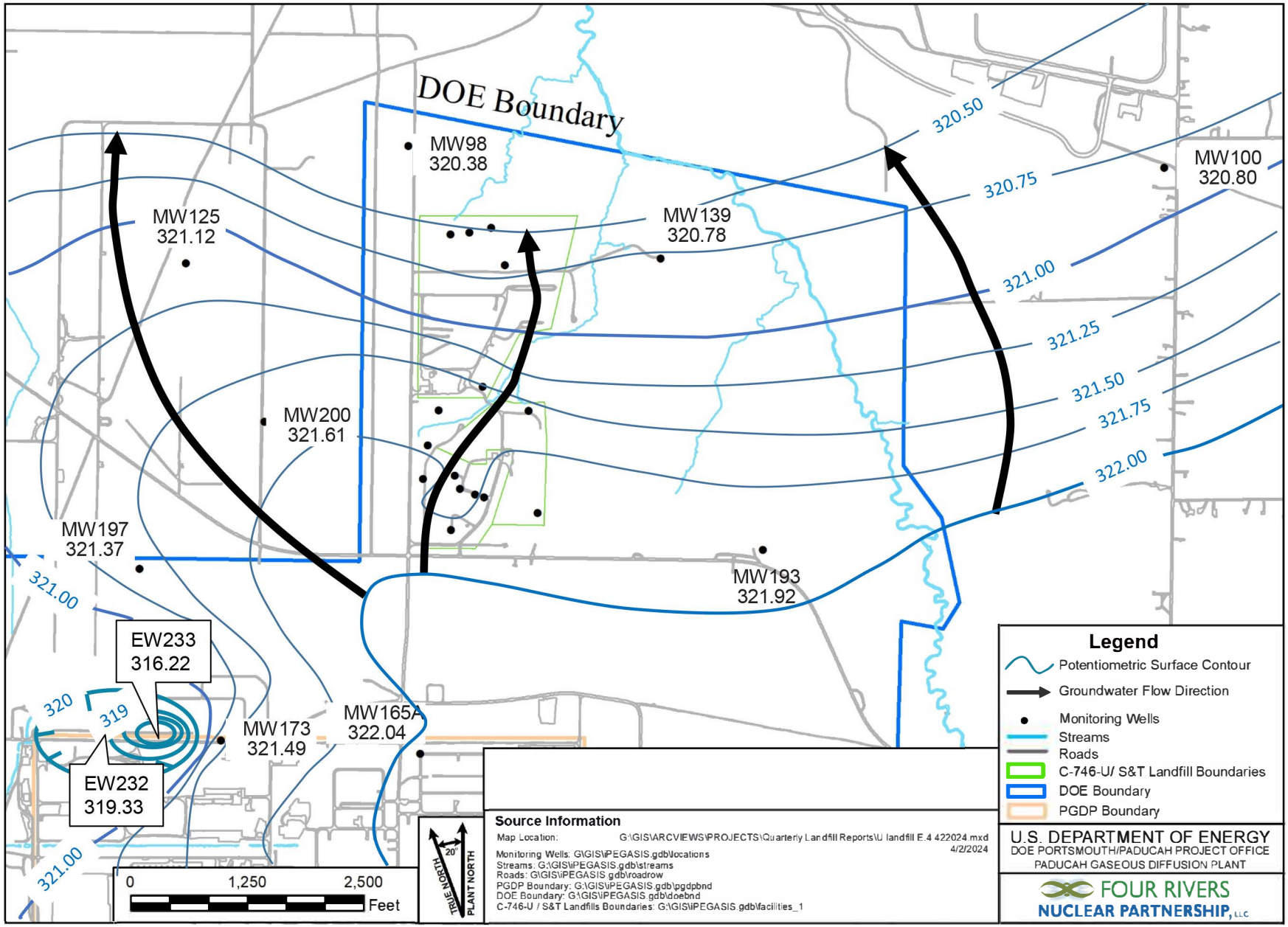

Figure E.4. Vicinity Potentiometric Surface of the Regional Gravel Aquifer, January 22, 2024

Table E.2. C-746-U Contained Landfill Hydraulic Gradients

	ft/ft
Beneath Landfill—Upper RGA	5.92×10^{-4}
Beneath Landfill—Lower RGA	6.32×10^{-4}
Vicinity	3.19×10^{-4}

Table E.3. C-746-U Contained Landfill Groundwater Flow Rate

Hydraulic Conductivity (K)		Specific Discharge (q)		Average Linear Velocity (v)	
ft/day	cm/s	ft/day	cm/s	ft/day	cm/s
Upper RGA					
725	0.256	0.429	1.51×10^{-4}	1.72	6.06×10^{-4}
425	0.150	0.251	8.88×10^{-5}	1.01	3.55×10^{-4}
Lower RGA					
725	0.256	0.458	1.62×10^{-4}	1.83	6.47×10^{-4}
425	0.150	0.268	9.48×10^{-5}	1.07	3.79×10^{-4}

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APPENDIX F

NOTIFICATIONS

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NOTIFICATIONS

In accordance with 401 *KAR* 48:300 § 7, *Sampling and Analysis*, the notification for parameters that exceed (or did not exceed) the maximum contaminant level (MCL) has been submitted to the Kentucky Division of Waste Management. There were no MCL exceedances in the current reporting period. The parameters submitted are listed on page F-4. The notification for parameters that do not have MCLs, but had statistically significant increased concentrations relative to historical background concentrations, is provided below.

Statistical Analysis of Parameters Notification

The statistical analyses conducted on the first quarter 2024 groundwater data collected from the C-746-U Landfill monitoring wells were performed in accordance with *Groundwater Monitoring Plan for the Solid Waste Permitted Landfills (C-746-S Residential Landfill, C-746-T Inert Landfill, and C-746-U Contained Landfill) at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky* (LATA Kentucky 2014).

The following are the permit required parameters in 40 *CFR* § 302.4, Appendix A, which had statistically significant, increased concentrations relative to historical background concentrations.

	Parameter	**Monitoring Well**
Upper Continental Recharge System	None	
Upper Regional Gravel Aquifer	None	
Lower Regional Gravel Aquifer	Nickel	MW358
	Technetium-99	MW361, MW364

NOTE: Although technetium-99 is not cited in 40 *CFR* § 302.4, Appendix A, *Sequential CAS Registry Number List of CERCLA Hazardous Substances*, this radionuclide is being reported along with the parameters of this regulation.

2/26/2024

Four Rivers Nuclear Partnership, LLC
PROJECT ENVIRONMENTAL MEASUREMENTS SYSTEM
C-746-U LANDFILL
SOLID WASTE PERMIT NUMBER SW07300014, SW07300015, SW07300045
MAXIMUM CONTAMINANT LEVEL (MCL) EXCEEDANCE REPORT
Quarterly Groundwater Sampling

AKGWA	Station	Analysis	Method	Results	Units	MCL

No exceedances reported.

NOTE 1: MCLs are defined in 401 KAR 47:030.

NOTE 2: MW369, MW370, MW372, and MW373 are down-gradient wells for the C-746-S and C-746-T Landfills and upgradient for the C-746-U Landfill. These wells are sampled with the C-746-U Landfill monitoring well network. These wells are reported on the exceedance reports for C-746-S, C-746-T, and C-746-U.

APPENDIX G

CHART OF MCL AND UTL EXCEEDANCES

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Chart of MCL and Historical UTL Exceedances for the C-746-U Contained Landfill

Groundwater Flow System	UCRS									URGA						LRGA					
Gradient	D	S	S	S	D	D	D	U	U	D	D	D	D	U	U	D	D	D	D	U	U
Monitoring Well	368	375	376	377	359	362	365	371	374	366	360	363	357	369	372	367	361	364	358	370	373
ACETONE																					
Quarter 3, 2002										✱	✱	✱									
Quarter 4, 2002										✱	✱	✱									
Quarter 1, 2003											✱	✱									
Quarter 2, 2003											✱	✱									
Quarter 3, 2003	✱						✱			✱	✱	✱			✱			✱			
Quarter 4, 2003						✱	✱				✱			✱							
Quarter 3, 2004						✱										✱					
Quarter 3, 2005						✱															
Quarter 4, 2005						✱															
ALPHA ACTIVITY																					
Quarter 1, 2004																					■
Quarter 2, 2004						■															
Quarter 3, 2009						■															
ALUMINUM																					
Quarter 3, 2003											✱										
BETA ACTIVITY																					
Quarter 1, 2004															■						
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Quarter 4, 2020																				■	
BROMIDE																					
Quarter 2, 2004													✱								

Chart of MCL and Historical UTL Exceedances for the C-746-U Contained Landfill (Continued)

Groundwater Flow System	UCRS									URGA						LRGA					
Gradient	D	S	S	S	D	D	D	U	U	D	D	D	D	U	U	D	D	D	D	U	U
Monitoring Well	368	375	376	377	359	362	365	371	374	366	360	363	357	369	372	367	361	364	358	370	373
CALCIUM																					
Quarter 3, 2003										*											
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Quarter 3, 2003	*						*			*	*		*	*	*	*	*	*		*	
Quarter 1, 2004														*							
Quarter 2, 2016														*							

Chart of MCL and Historical UTL Exceedances for the C-746-U Contained Landfill (Continued)

Groundwater Flow System	UCRS									URGA						LRGA					
Gradient	D	S	S	S	D	D	D	U	U	D	D	D	D	U	U	D	D	D	D	U	U
Monitoring Well	368	375	376	377	359	362	365	371	374	366	360	363	357	369	372	367	361	364	358	370	373
CONDUCTIVITY																					
Quarter 4, 2002										*											
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Quarter 2, 2013															*						
Quarter 3, 2013															*						
Quarter 4, 2013															*						
Quarter 1, 2014															*						
Quarter 2, 2014															*						
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Quarter 4, 2014															*						
Quarter 1, 2015															*						
Quarter 2, 2015															*						
Quarter 3, 2015															*						
Quarter 4, 2015															*						
Quarter 1, 2016															*						
Quarter 2, 2016															*						
Quarter 3, 2016															*						
Quarter 2, 2019															*						
Quarter 3, 2019															*						
Quarter 4, 2019															*						
Quarter 1, 2020															*						
Quarter 2, 2020															*						
Quarter 3, 2020															*						
Quarter 4, 2020															*						
Quarter 1, 2021															*						
Quarter 2, 2021															*						
Quarter 3, 2021															*						
Quarter 1, 2022															*						
Quarter 2, 2022															*						
Quarter 3, 2022															*						
Quarter 4, 2022															*						
Quarter 1, 2023															*						
Quarter 2, 2023															*						
Quarter 3, 2023															*						
Quarter 4, 2023															*						
Quarter 1, 2024															*						
DISSOLVED OXYGEN																					
Quarter 1, 2003					*	*				*											
Quarter 3, 2003					*					*											
Quarter 4, 2003					*																
Quarter 1, 2004					*																
Quarter 2, 2004								*								*					
Quarter 1, 2005					*																
Quarter 2, 2005								*													
Quarter 1, 2006					*																
Quarter 2, 2006					*			*													
Quarter 3, 2006					*			*													
Quarter 4, 2006					*				*												
Quarter 2, 2007					*			*													
Quarter 3, 2007					*			*	*												
Quarter 1, 2008					*														*		
Quarter 2, 2008								*	*												
Quarter 3, 2008								*													

Chart of MCL and Historical UTL Exceedances for the C-746-U Contained Landfill (Continued)

Groundwater Flow System	UCRS									URGA						LRGA					
Gradient	D	S	S	S	D	D	D	U	U	D	D	D	D	U	U	D	D	D	D	U	U
Monitoring Well	368	375	376	377	359	362	365	371	374	366	360	363	357	369	372	367	361	364	358	370	373
DISSOLVED OXYGEN																					
Quarter 1, 2009							✱														
Quarter 2, 2009					✱			✱	✱												
Quarter 3, 2009						✱		✱	✱												
Quarter 1, 2010					✱		✱														
Quarter 2, 2010					✱	✱		✱	✱											✱	✱
Quarter 3, 2010					✱	✱															
Quarter 4, 2010							✱					✱								✱	
Quarter 1, 2011						✱															
Quarter 2, 2011					✱	✱	✱	✱	✱					✱							
Quarter 3, 2011						✱			✱												
Quarter 1, 2012							✱		✱												
Quarter 2, 2012	✱			✱	✱	✱		✱	✱												
Quarter 3, 2012						✱															
Quarter 4, 2012									✱												
Quarter 1, 2013						✱			✱												
Quarter 2, 2013							✱		✱												
Quarter 3, 2013	✱				✱		✱	✱	✱												
Quarter 4, 2013									✱											✱	
Quarter 2, 2014	✱				✱	✱	✱	✱	✱									✱			
Quarter 3, 2014	✱				✱	✱	✱														
Quarter 4, 2014						✱															
Quarter 2, 2015					✱	✱	✱	✱													
Quarter 3, 2015					✱	✱		✱													
Quarter 4, 2015	✱					✱	✱														
Quarter 1, 2016	✱				✱		✱														
Quarter 2, 2016	✱	✱			✱	✱	✱	✱	✱											✱	✱
Quarter 3, 2016					✱	✱	✱	✱					✱								
Quarter 4, 2016						✱			✱												
Quarter 1, 2017							✱						✱								
Quarter 2, 2017	✱				✱	✱	✱	✱													
Quarter 3, 2017	✱	✱			✱	✱	✱	✱										✱			
Quarter 4, 2017						✱	✱											✱			
Quarter 1, 2018					✱	✱	✱	✱												✱	
Quarter 2, 2018					✱	✱	✱	✱													
Quarter 3, 2018	✱				✱	✱	✱	✱													
Quarter 4, 2018						✱															
Quarter 1, 2019					✱	✱	✱	✱													
Quarter 2, 2019					✱	✱		✱													
Quarter 3, 2019	✱				✱	✱	✱	✱													
Quarter 4, 2019					✱	✱	✱														
Quarter 1, 2020							✱	✱	✱												
Quarter 2, 2020					✱	✱		✱													
Quarter 3, 2020	✱				✱	✱															
Quarter 4, 2020	✱						✱														
Quarter 1, 2021					✱		✱													✱	
Quarter 2, 2021					✱	✱	✱	✱	✱												
Quarter 3, 2021	✱				✱	✱	✱	✱												✱	
Quarter 4, 2021					✱		✱	✱												✱	
Quarter 1, 2022	✱				✱	✱	✱	✱					✱				✱			✱	
Quarter 2, 2022	✱				✱	✱	✱	✱	✱												
Quarter 3, 2022	✱	✱			✱	✱	✱	✱					✱				✱			✱	
Quarter 4, 2022		✱					✱	✱												✱	
Quarter 2, 2023	✱				✱	✱	✱	✱									✱				
Quarter 3, 2023						✱	✱	✱													
Quarter 4, 2023		✱				✱	✱													✱	
Quarter 1, 2024																				✱	
DISSOLVED SOLIDS																					
Quarter 4, 2002										✱											
Quarter 1, 2003										✱											
Quarter 2, 2003										✱											
Quarter 3, 2003							✱			✱	✱										
Quarter 4, 2003										✱											
Quarter 3, 2005						✱															
Quarter 4, 2006															✱						
Quarter 1, 2007															✱						
Quarter 2, 2007															✱						
Quarter 4, 2008															✱						
Quarter 1, 2009															✱						
Quarter 2, 2009															✱						
Quarter 3, 2009															✱						
Quarter 4, 2009															✱						
Quarter 1, 2010															✱						
Quarter 2, 2010															✱						
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Quarter 1, 2011															✱						
Quarter 2, 2011															✱						
Quarter 3, 2011															✱						
Quarter 4, 2011															✱						
Quarter 1, 2012														✱	✱						
Quarter 2, 2012															✱						✱
Quarter 3, 2012															✱						✱
Quarter 4, 2012															✱						
Quarter 1, 2013															✱						
Quarter 2, 2013															✱						
Quarter 3, 2013															✱						
Quarter 4, 2013															✱						

Chart of MCL and Historical UTL Exceedances for the C-746-U Contained Landfill (Continued)

Groundwater Flow System	UCRS									URGA						LRGA						
Gradient	D	S	S	S	D	D	D	U	U	D	D	D	D	U	U	D	D	D	D	U	U	
Monitoring Well	368	375	376	377	359	362	365	371	374	366	360	363	357	369	372	367	361	364	358	370	373	
DISSOLVED SOLIDS																						
Quarter 1, 2014															✱							
Quarter 2, 2014															✱							
Quarter 4, 2014															✱							
Quarter 2, 2015															✱							
Quarter 3, 2015															✱							
Quarter 4, 2015															✱							
Quarter 1, 2016															✱							
Quarter 3, 2019															✱							
Quarter 4, 2019															✱							
Quarter 1, 2020															✱							
Quarter 2, 2020															✱							
Quarter 3, 2020															✱							
Quarter 4, 2020															✱							
Quarter 1, 2021															✱							
Quarter 2, 2021															✱							
Quarter 3, 2021															✱							
Quarter 4, 2021															✱							
Quarter 1, 2022															✱							
Quarter 2, 2022															✱							
Quarter 3, 2022															✱							
Quarter 4, 2022															✱							
Quarter 1, 2023															✱							
Quarter 2, 2023															✱							
Quarter 3, 2023															✱							
Quarter 1, 2024															✱							
IODIDE																						
Quarter 2, 2003																✱						
Quarter 3, 2003	✱									✱												
Quarter 4, 2003							✱															
Quarter 3, 2010						✱		✱					✱				✱					
IODINE-131																						
Quarter 3, 2010																		■				
IODOMETHANE																						
Quarter 4, 2003						✱																
IRON																						
Quarter 4, 2002						✱																
Quarter 3, 2003																✱						
Quarter 4, 2003										✱						✱						
Quarter 1, 2004										✱						✱						
Quarter 2, 2004										✱												
Quarter 3, 2004										✱												
Quarter 3, 2005																✱						
MAGNESIUM																						
Quarter 2, 2005															✱						✱	
Quarter 3, 2005						✱															✱	
Quarter 2, 2006															✱						✱	
Quarter 3, 2006															✱							
Quarter 1, 2007															✱							
Quarter 2, 2008															✱							
Quarter 2, 2009															✱							
Quarter 3, 2009															✱							
Quarter 4, 2009															✱							
Quarter 1, 2010															✱							
Quarter 2, 2010															✱							
Quarter 3, 2010															✱							
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Quarter 4, 2015															✱							
Quarter 1, 2016															✱							
Quarter 2, 2016															✱							
Quarter 3, 2016	✱																					
Quarter 4, 2016	✱																					
Quarter 2, 2017	✱																					
Quarter 3, 2017	✱																					
Quarter 1, 2018	✱																					
Quarter 3, 2018	✱																					
Quarter 3, 2019	✱																					
Quarter 4, 2019															✱							
Quarter 2, 2020															✱							
Quarter 4, 2020															✱							
Quarter 1, 2021															✱							
Quarter 2, 2021															✱							
Quarter 3, 2021															✱							
Quarter 4, 2021															✱							
Quarter 1, 2022															✱							
Quarter 2, 2022															✱							
Quarter 3, 2022								✱							✱							
Quarter 1, 2023								✱							✱							
Quarter 2, 2023															✱							
Quarter 1, 2024								✱							✱							

Chart of MCL and Historical UTL Exceedances for the C-746-U Contained Landfill (Continued)

Groundwater Flow System	UCRS									URGA						LRGA					
Gradient	D	S	S	S	D	D	D	U	U	D	D	D	D	U	U	D	D	D	D	U	U
Monitoring Well	368	375	376	377	359	362	365	371	374	366	360	363	357	369	372	367	361	364	358	370	373
MANGANESE																					
Quarter 3, 2002										✱		✱									
Quarter 4, 2002		✱				✱	✱			✱		✱		✱							
Quarter 2, 2003										✱		✱									
Quarter 3, 2003										✱		✱	✱			✱	✱	✱	✱		
Quarter 4, 2003										✱	✱	✱	✱				✱	✱			
Quarter 1, 2004										✱	✱	✱				✱	✱	✱			
Quarter 2, 2004							✱			✱	✱	✱						✱			
Quarter 3, 2004							✱			✱	✱	✱				✱					
Quarter 4, 2004										✱		✱				✱					
Quarter 1, 2005										✱		✱									
Quarter 2, 2005										✱		✱									
Quarter 3, 2005										✱		✱				✱					
Quarter 4, 2005										✱						✱					
Quarter 1, 2006										✱											
Quarter 2, 2006							✱			✱		✱									
Quarter 3, 2006										✱						✱					
Quarter 4, 2006										✱											
Quarter 1, 2007										✱											
Quarter 2, 2007							✱			✱											
Quarter 3, 2007							✱														
Quarter 3, 2008							✱														
Quarter 4, 2008							✱														
Quarter 3, 2009							✱														
Quarter 3, 2011							✱														
Quarter 2, 2016														✱							
Quarter 3, 2016									✱												
Quarter 1, 2022																			✱		
NICKEL																					
Quarter 3, 2003										✱											
Quarter 1, 2022																			✱		
Quarter 4, 2022																			✱		
Quarter 1, 2023																			✱		
Quarter 2, 2023																			✱		
Quarter 4, 2023												✱									
Quarter 1, 2024																			✱		
NITRATE AS NITROGEN																					
Quarter 4, 2021												■									
OXIDATION-REDUCTION POTENTIAL																					
Quarter 4, 2002																	✱		✱		
Quarter 1, 2003																	✱		✱		
Quarter 2, 2003																			✱		
Quarter 3, 2003	✱																				
Quarter 4, 2003					✱																
Quarter 2, 2004													✱				✱				✱
Quarter 3, 2004					✱			✱					✱	✱	✱		✱			✱	✱
Quarter 4, 2004												✱									✱
Quarter 1, 2005																	✱			✱	✱
Quarter 2, 2005								✱					✱				✱			✱	
Quarter 3, 2005					✱	✱		✱			✱	✱	✱				✱		✱	✱	✱
Quarter 4, 2005		✱						✱					✱				✱			✱	
Quarter 1, 2006					✱			✱	✱								✱				✱
Quarter 2, 2006					✱		✱	✱					✱				✱			✱	
Quarter 3, 2006					✱			✱					✱				✱			✱	
Quarter 4, 2006					✱		✱			✱		✱	✱				✱			✱	✱
Quarter 1, 2007		✱			✱			✱					✱				✱			✱	✱
Quarter 2, 2007					✱								✱				✱			✱	✱
Quarter 3, 2007					✱			✱									✱			✱	
Quarter 4, 2007																	✱			✱	✱
Quarter 1, 2008					✱			✱				✱	✱						✱	✱	
Quarter 2, 2008					✱			✱		✱			✱	✱				✱		✱	✱
Quarter 3, 2008					✱		✱	✱	✱	✱		✱	✱	✱			✱	✱	✱	✱	✱
Quarter 4, 2008								✱		✱		✱	✱				✱	✱		✱	✱
Quarter 1, 2009							✱	✱		✱		✱	✱					✱		✱	
Quarter 2, 2009					✱		✱	✱		✱		✱	✱				✱	✱		✱	✱
Quarter 3, 2009		✱			✱	✱	✱	✱	✱	✱		✱	✱	✱			✱	✱	✱	✱	✱
Quarter 4, 2009		✱				✱	✱	✱	✱	✱		✱	✱				✱	✱	✱	✱	✱
Quarter 1, 2010		✱			✱		✱	✱		✱			✱			✱	✱	✱		✱	
Quarter 2, 2010					✱	✱		✱		✱	✱	✱	✱			✱	✱	✱	✱	✱	✱
Quarter 3, 2010		✱			✱	✱	✱	✱	✱	✱	✱		✱	✱	✱		✱	✱	✱	✱	✱
Quarter 4, 2010		✱				✱	✱	✱	✱	✱	✱	✱	✱	✱		✱	✱	✱	✱	✱	✱
Quarter 1, 2011						✱		✱		✱	✱	✱	✱	✱		✱	✱	✱	✱	✱	
Quarter 2, 2011		✱			✱	✱	✱	✱	✱	✱	✱	✱	✱	✱		✱	✱	✱	✱	✱	✱
Quarter 3, 2011		✱				✱		✱	✱	✱		✱	✱	✱		✱	✱	✱	✱	✱	✱
Quarter 4, 2011		✱				✱		✱	✱	✱	✱	✱	✱	✱		✱	✱	✱		✱	✱
Quarter 1, 2012		✱				✱	✱	✱	✱	✱	✱	✱	✱	✱		✱	✱	✱	✱	✱	✱
Quarter 2, 2012	✱	✱		✱	✱	✱	✱	✱	✱	✱	✱	✱	✱	✱		✱	✱	✱	✱	✱	✱
Quarter 3, 2012		✱				✱		✱		✱		✱	✱	✱		✱	✱	✱	✱	✱	✱
Quarter 4, 2012		✱				✱		✱	✱	✱	✱	✱	✱	✱		✱	✱	✱	✱	✱	✱
Quarter 1, 2013		✱				✱		✱	✱	✱	✱	✱	✱	✱		✱	✱	✱		✱	
Quarter 2, 2013		✱						✱	✱	✱	✱	✱	✱	✱	✱	✱	✱	✱	✱	✱	✱
Quarter 3, 2013	✱	✱			✱	✱	✱	✱	✱	✱	✱	✱	✱	✱	✱	✱	✱	✱	✱	✱	✱
Quarter 4, 2013		✱				✱		✱	✱	✱	✱	✱	✱	✱	✱	✱	✱	✱	✱	✱	✱
Quarter 1, 2014		✱						✱	✱	✱	✱	✱	✱	✱	✱	✱	✱	✱	✱	✱	✱
Quarter 2, 2014	✱	✱			✱	✱	✱	✱	✱	✱	✱	✱	✱	✱	✱	✱	✱	✱	✱	✱	✱
Quarter 3, 2014	✱	✱			✱	✱	✱	✱	✱	✱		✱	✱	✱		✱	✱	✱	✱	✱	✱
Quarter 4, 2014		✱				✱		✱	✱	✱		✱	✱	✱		✱	✱	✱	✱	✱	✱
Quarter 1, 2015		✱				✱		✱	✱	✱	✱	✱	✱	✱	✱	✱	✱	✱	✱	✱	✱
Quarter 2, 2015	✱	✱			✱	✱	✱	✱	✱	✱	✱	✱	✱	✱	✱	✱	✱	✱	✱	✱	✱
Quarter 3, 2015		✱			✱	✱		✱	✱	✱	✱	✱	✱	✱	✱	✱	✱	✱	✱	✱	✱
Quarter 4, 2015	✱	✱				✱	✱	✱	✱	✱	✱	✱	✱	✱	✱	✱	✱	✱	✱	✱	✱

Chart of MCL and Historical UTL Exceedances for the C-746-U Contained Landfill (Continued)

Groundwater Flow System	UCRS									URGA						LRGA					
Gradient	D	S	S	S	D	D	D	U	U	D	D	D	D	U	U	D	D	D	D	U	U
Monitoring Well	368	375	376	377	359	362	365	371	374	366	360	363	357	369	372	367	361	364	358	370	373
OXIDATION-REDUCTION POTENTIAL																					
Quarter 1, 2016	*	*			*		*	*		*		*	*	*	*	*	*	*	*	*	*
Quarter 2, 2016	*	*			*	*	*	*	*	*		*	*	*	*	*	*	*	*	*	*
Quarter 3, 2016	*	*			*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Quarter 4, 2016	*	*				*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Quarter 1, 2017	*	*				*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Quarter 2, 2017	*	*			*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Quarter 3, 2017	*	*			*	*	*	*	*	*		*	*	*	*	*	*	*	*	*	*
Quarter 4, 2017		*				*	*	*	*	*		*	*	*	*		*	*		*	*
Quarter 1, 2018	*	*			*	*	*	*	*	*		*	*	*	*	*	*	*		*	*
Quarter 2, 2018	*	*			*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Quarter 3, 2018	*	*			*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Quarter 4, 2018		*				*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Quarter 1, 2019	*	*			*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Quarter 2, 2019	*	*			*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Quarter 3, 2019	*	*			*	*	*	*	*	*	*	*	*	*	*	*	*	*		*	*
Quarter 4, 2019	*	*			*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Quarter 1, 2020	*	*			*	*	*	*	*	*	*	*	*	*	*	*	*	*		*	*
Quarter 2, 2020	*	*			*	*	*	*	*	*	*	*	*	*	*	*	*	*		*	*
Quarter 3, 2020	*	*			*	*	*	*	*	*	*	*	*	*	*	*	*	*		*	*
Quarter 4, 2020	*	*				*	*	*	*	*	*		*	*	*	*	*	*		*	*
Quarter 1, 2021	*	*			*	*	*	*		*	*	*	*	*	*	*	*	*		*	*
Quarter 2, 2021	*	*			*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Quarter 3, 2021	*	*			*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Quarter 4, 2021	*	*			*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Quarter 1, 2022	*	*			*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Quarter 2, 2022	*	*			*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Quarter 3, 2022	*	*			*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Quarter 4, 2022		*				*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Quarter 1, 2023		*				*		*	*	*	*	*	*	*	*	*	*	*		*	*
Quarter 2, 2023	*	*			*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Quarter 3, 2023		*				*	*	*	*	*	*	*	*	*	*	*	*	*		*	*
Quarter 4, 2023		*				*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Quarter 1, 2024		*				*		*	*	*	*	*	*	*	*	*	*	*	*	*	*
PCB, TOTAL																					
Quarter 4, 2003																	*				
Quarter 3, 2004												*									
Quarter 3, 2005							*														
Quarter 2, 2006							*														
Quarter 3, 2006							*														
Quarter 1, 2007							*														
Quarter 2, 2007							*														
Quarter 3, 2007							*														
Quarter 1, 2008							*														
Quarter 2, 2008							*														
Quarter 4, 2008							*														
Quarter 3, 2009							*														
Quarter 1, 2010							*														
Quarter 2, 2010							*														
Quarter 4, 2010							*														
PCB-1016																					
Quarter 3, 2004												*									
Quarter 2, 2006							*					*									
Quarter 1, 2007							*														
Quarter 2, 2007							*														
Quarter 3, 2007							*														
Quarter 2, 2008							*														
Quarter 4, 2008							*														
Quarter 3, 2009							*														
Quarter 1, 2010							*														
Quarter 2, 2010							*														
Quarter 4, 2010							*														
PCB-1242																					
Quarter 3, 2006							*					*									
Quarter 4, 2006										*											
Quarter 1, 2008							*														
Quarter 2, 2012							*														
PCB-1248																					
Quarter 2, 2008							*														
PCB-1260																					
Quarter 2, 2006							*														
pH																					
Quarter 3, 2002										*											
Quarter 4, 2002										*											
Quarter 1, 2003										*											
Quarter 2, 2003										*											
Quarter 3, 2003	*						*			*											
Quarter 4, 2003							*									*					
Quarter 1, 2004							*									*					
Quarter 3, 2005						*												*	*		
Quarter 4, 2005						*													*		
Quarter 3, 2006																*					
Quarter 2, 2011														*							
Quarter 3, 2011														*							
Quarter 4, 2011														*							
Quarter 1, 2012																*	*				
Quarter 2, 2012												*									
Quarter 1, 2013										*		*				*					
Quarter 3, 2015																	*				
Quarter 2, 2016																				*	*
Quarter 3, 2016																				*	
Quarter 2, 2017																	*				

Chart of MCL and Historical UTL Exceedances for the C-746-U Contained Landfill (Continued)

Groundwater Flow System	UCRS									URGA						LRGA					
Gradient	D	S	S	S	D	D	D	U	U	D	D	D	D	U	U	D	D	D	D	U	U
Monitoring Well	368	375	376	377	359	362	365	371	374	366	360	363	357	369	372	367	361	364	358	370	373
pH																					
Quarter 3, 2018					✱					✱		✱					✱	✱	✱		
Quarter 4, 2018																✱		✱			
Quarter 3, 2019																✱					
Quarter 1, 2021																✱		✱		✱	
Quarter 3, 2021																					✱
Quarter 4, 2021																✱					✱
POTASSIUM																					
Quarter 1, 2014																✱					
RADIUM-228																					
Quarter 2, 2005														■							
Quarter 4, 2005						■						■						■			
SELENIUM																					
Quarter 4, 2003									■												
SODIUM																					
Quarter 3, 2002										✱	✱		✱								
Quarter 4, 2002										✱	✱			✱							
Quarter 1, 2003										✱											
Quarter 2, 2003										✱	✱										
Quarter 3, 2003											✱										
Quarter 1, 2007											✱										
Quarter 1, 2012														✱							
Quarter 1, 2014															✱						
Quarter 3, 2014											✱										
Quarter 4, 2014											✱										
Quarter 4, 2015											✱										
Quarter 1, 2016											✱										
Quarter 2, 2016											✱										
Quarter 3, 2016											✱										
Quarter 4, 2016											✱										
Quarter 1, 2017											✱										
Quarter 2, 2017											✱										
Quarter 3, 2017											✱										
Quarter 4, 2017											✱										
Quarter 1, 2018											✱										
Quarter 3, 2018											✱										
STRONTIUM-90																					
Quarter 4, 2008							■														
SULFATE																					
Quarter 1, 2003							✱														
Quarter 2, 2003						✱	✱														
Quarter 3, 2003	✱					✱															
Quarter 4, 2003					✱		✱														
Quarter 1, 2004					✱	✱	✱														
Quarter 2, 2004					✱	✱	✱														
Quarter 3, 2004					✱	✱	✱														
Quarter 1, 2005					✱	✱			✱												
Quarter 2, 2005					✱		✱		✱						✱						
Quarter 3, 2005					✱	✱	✱														
Quarter 4, 2005															✱						
Quarter 1, 2006					✱				✱												
Quarter 2, 2006						✱	✱		✱						✱						
Quarter 3, 2006							✱														
Quarter 1, 2007							✱														
Quarter 2, 2007							✱														
Quarter 3, 2007							✱														
Quarter 4, 2007		✱																			
Quarter 1, 2008		✱			✱		✱		✱												
Quarter 2, 2008		✱			✱	✱	✱														
Quarter 3, 2008		✱			✱	✱	✱														
Quarter 4, 2008		✱				✱	✱														
Quarter 1, 2009		✱					✱														
Quarter 2, 2009		✱			✱	✱	✱														
Quarter 3, 2009		✱			✱	✱	✱								✱						
Quarter 4, 2009		✱			✱	✱									✱						
Quarter 1, 2010		✱			✱	✱	✱								✱						
Quarter 2, 2010		✱			✱	✱	✱								✱						
Quarter 3, 2010		✱			✱	✱	✱								✱						
Quarter 4, 2010		✱				✱	✱								✱						
Quarter 1, 2011		✱																			
Quarter 2, 2011		✱			✱	✱	✱								✱						
Quarter 3, 2011		✱				✱	✱	✱							✱						
Quarter 4, 2011		✱				✱									✱						
Quarter 1, 2012		✱					✱	✱							✱						
Quarter 2, 2012	✱	✱		✱	✱	✱	✱	✱	✱						✱						
Quarter 3, 2012		✱				✱									✱						
Quarter 4, 2012		✱													✱						
Quarter 1, 2013		✱				✱									✱						
Quarter 2, 2013		✱													✱						
Quarter 3, 2013	✱	✱		✱	✱	✱	✱								✱						
Quarter 4, 2013		✱													✱						
Quarter 1, 2014		✱													✱						
Quarter 2, 2014	✱	✱			✱		✱	✱							✱						
Quarter 3, 2014	✱	✱			✱	✱	✱	✱							✱						
Quarter 4, 2014		✱				✱															
Quarter 1, 2015		✱																			

Chart of MCL and Historical UTL Exceedances for the C-746-U Contained Landfill (Continued)

Groundwater Flow System	UCRS									URGA						LRGA						
Gradient	D	S	S	S	D	D	D	U	U	D	D	D	D	U	U	D	D	D	D	U	U
Monitoring Well	368	375	376	377	359	362	365	371	374	366	360	363	357	369	372	367	361	364	358	370	373
SULFATE																					
Quarter 2, 2015	*	*			*		*								*						
Quarter 3, 2015		*			*	*		*							*						
Quarter 4, 2015	*	*				*	*	*													
Quarter 1, 2016	*	*			*	*	*														
Quarter 2, 2016	*	*			*	*	*														
Quarter 3, 2016	*	*			*	*	*	*													
Quarter 4, 2016	*	*				*	*	*													
Quarter 1, 2017	*	*				*	*														
Quarter 2, 2017	*	*			*	*	*														
Quarter 3, 2017	*	*			*	*	*														
Quarter 4, 2017		*				*	*														
Quarter 1, 2018	*	*			*	*	*														
Quarter 2, 2018	*	*			*	*	*	*													
Quarter 3, 2018	*	*			*	*	*	*													
Quarter 4, 2018		*				*	*	*													
Quarter 1, 2019	*	*			*	*	*														
Quarter 2, 2019	*	*			*	*	*	*													
Quarter 3, 2019	*	*			*	*	*	*													
Quarter 4, 2019	*	*			*	*	*	*													
Quarter 1, 2020	*	*			*	*	*	*													
Quarter 2, 2020	*	*			*	*	*	*													
Quarter 3, 2020	*	*			*	*	*	*													
Quarter 4, 2020	*	*				*	*	*													
Quarter 1, 2021	*	*			*	*	*	*							*						
Quarter 2, 2021	*	*			*	*	*	*							*						
Quarter 3, 2021	*	*			*	*	*	*							*						
Quarter 4, 2021	*	*			*	*	*								*						
Quarter 1, 2022	*	*			*	*	*								*						
Quarter 2, 2022	*	*			*	*	*	*	*						*						
Quarter 3, 2022	*	*			*	*	*	*	*						*						
Quarter 4, 2022		*				*	*														
Quarter 1, 2023		*				*									*						
Quarter 2, 2023	*	*			*	*	*	*	*						*						
Quarter 3, 2023		*				*	*	*	*						*						
Quarter 4, 2023		*				*	*	*							*						
Quarter 1, 2024		*							*						*						
TECHNETIUM-99																					
Quarter 4, 2002																	*	*	*		
Quarter 2, 2003							*						*			*	*	*	*		*
Quarter 3, 2003																	*				
Quarter 4, 2003																	*				*
Quarter 1, 2004															*		*				*
Quarter 2, 2004															*						*
Quarter 3, 2004															*						*
Quarter 4, 2004															*		*				*
Quarter 3, 2005																	*				
Quarter 1, 2006															*						*
Quarter 2, 2006		*							*												*
Quarter 3, 2006																					*
Quarter 4, 2006															*						*
Quarter 1, 2007																					*
Quarter 2, 2007													*		*					*	
Quarter 3, 2007															*		*	*			
Quarter 4, 2007										*					*				*		*
Quarter 1, 2008															*					*	*
Quarter 2, 2008							*	*						*		*			*		
Quarter 3, 2008															*						
Quarter 4, 2008										*							*		*		
Quarter 1, 2009										*											
Quarter 2, 2009																		*			
Quarter 3, 2009								*		*					*						
Quarter 4, 2009										*					*			*	*		
Quarter 2, 2010										*						*	*	*	*		
Quarter 3, 2010										*					*						
Quarter 4, 2010																		*			
Quarter 1, 2011		*								*							*				
Quarter 2, 2011																*	*	*	*		
Quarter 1, 2012																	*	*			
Quarter 2, 2012								*										*			
Quarter 3, 2012																	*	*			
Quarter 4, 2012															*			*			*
Quarter 1, 2013																		*			*
Quarter 2, 2013																					*
Quarter 3, 2013										*											*
Quarter 4, 2013															*		*	*			*
Quarter 1, 2014															*		*	*			
Quarter 2, 2014																		*			
Quarter 3, 2014																	*	*	*		
Quarter 4, 2014															*						
Quarter 1, 2015															*			*			
Quarter 2, 2015																*					
Quarter 3, 2015																		*	*	*	
Quarter 4, 2015															*		*			*	
Quarter 1, 2016																*	*	*	*		*
Quarter 2, 2016																*	*	*	*	*	
Quarter 3, 2016																	*		*	*	
Quarter 4, 2016										*				*			*	*			
Quarter 1, 2017																	*		*	*	
Quarter 2, 2017																				*	
Quarter 3, 2017																		*		*	
Quarter 4, 2017														*	*		*	*		*	
Quarter 1, 2018																				*	

Chart of MCL and Historical UTL Exceedances for the C-746-U Contained Landfill (Continued)

Groundwater Flow System	UCRS									URGA						LRGA						
Gradient	D	S	S	S	D	D	D	U	U	D	D	D	D	U	U	D	D	D	D	U	U	
Monitoring Well	368	375	376	377	359	362	365	371	374	366	360	363	357	369	372	367	361	364	358	370	373	
TECHNETIUM-99																						
Quarter 2, 2018														✱		✱				✱		
Quarter 3, 2018															✱					✱		
Quarter 4, 2018															✱		✱	✱	✱	✱		
Quarter 1, 2019																✱				✱		
Quarter 2, 2019														✱						✱		
Quarter 3, 2019															✱			✱		✱		
Quarter 4, 2019															✱		✱	✱		✱		
Quarter 1, 2020															✱		✱	✱		✱		
Quarter 2, 2020																✱		✱	✱	✱		
Quarter 3, 2020															✱		✱	✱	✱	✱		
Quarter 4, 2020															✱		✱	✱		✱		
Quarter 1, 2021																				✱		
Quarter 2, 2021										✱						✱	✱	✱	✱			
Quarter 3, 2021														✱	✱			✱				
Quarter 4, 2021																	✱	✱				
Quarter 1, 2022										✱							✱	✱				
Quarter 2, 2022										✱					✱			✱				
Quarter 3, 2022															✱		✱	✱				
Quarter 4, 2022															✱							
Quarter 1, 2023										✱					✱		✱	✱				
Quarter 2, 2023										✱								✱				
Quarter 3, 2023																	✱	✱	✱			
Quarter 4, 2023														✱			✱	✱				
Quarter 1, 2024																	✱	✱				
THORIUM-230																						
Quarter 4, 2015																✱						
Quarter 2, 2016										✱												
Quarter 4, 2016	✱											✱				✱			✱			
Quarter 4, 2017													✱									
Quarter 2, 2018										✱			✱									
Quarter 2, 2021									✱													
TOLUENE																						
Quarter 2, 2014										✱				✱								
TOTAL ORGANIC CARBON																						
Quarter 3, 2002										✱	✱	✱		✱								✱
Quarter 4, 2002										✱	✱			✱								
Quarter 1, 2003											✱											
Quarter 3, 2003	✱									✱	✱					✱						
Quarter 4, 2003										✱	✱											
Quarter 1, 2004											✱											
Quarter 3, 2005						✱				✱					✱	✱			✱			
Quarter 4, 2005						✱												✱	✱			
Quarter 1, 2006																			✱			
TOTAL ORGANIC HALIDES																						
Quarter 4, 2002										✱												
Quarter 1, 2003										✱												
Quarter 2, 2003										✱												
Quarter 1, 2004																✱						
TRICHLOROETHENE																						
Quarter 3, 2002														■						■		
Quarter 4, 2002															■					■		
Quarter 1, 2003																				■	■	
Quarter 2, 2003															■					■		
Quarter 3, 2003							■													■	■	
Quarter 4, 2003															■					■	■	
Quarter 1, 2004															■					■	■	
Quarter 2, 2004															■					■	■	
Quarter 3, 2004															■					■	■	
Quarter 4, 2004															■					■	■	
Quarter 1, 2005															■					■	■	
Quarter 2, 2005															■					■	■	
Quarter 3, 2005															■					■	■	
Quarter 4, 2005															■					■	■	
Quarter 1, 2006															■					■	■	
Quarter 2, 2006															■					■	■	
Quarter 3, 2006															■					■	■	
Quarter 4, 2006															■						■	
Quarter 1, 2007															■					■	■	
Quarter 2, 2007															■						■	
Quarter 3, 2007															■						■	
Quarter 4, 2007															■						■	
Quarter 1, 2008															■						■	
Quarter 2, 2008															■				■		■	
Quarter 3, 2008															■						■	
Quarter 4, 2008															■						■	
Quarter 1, 2009															■						■	
Quarter 2, 2009															■						■	
Quarter 3, 2009															■						■	
Quarter 4, 2009						■	■				■		■	■	■		■				■	
Quarter 1, 2010													■		■						■	
Quarter 2, 2010													■		■						■	
Quarter 3, 2010													■		■						■	
Quarter 4, 2010													■		■						■	
Quarter 2, 2011															■				■		■	
Quarter 3, 2011													■		■				■		■	
Quarter 4, 2011													■		■						■	
Quarter 1, 2012													■		■		■		▨		■	
Quarter 2, 2012															■						■	

Chart of MCL and Historical UTL Exceedances for the C-746-U Contained Landfill (Continued)

Groundwater Flow System	UCRS									URGA						LRGA						
Gradient	D	S	S	S	D	D	D	U	U	D	D	D	D	U	U	D	D	D	D	U	U
Monitoring Well	368	375	376	377	359	362	365	371	374	366	360	363	357	369	372	367	361	364	358	370	373
TRICHLOROETHENE																					
Quarter 3, 2012															■						■
Quarter 4, 2012														■	■						■
Quarter 1, 2013													■		■						■
Quarter 2, 2013													■		■		■		■		■
Quarter 3, 2013																	■	■			
Quarter 3, 2013													■		■						■
Quarter 4, 2013													■		■				■		■
Quarter 1, 2014													■		■				■		■
Quarter 2, 2014															■		■		■		
Quarter 3, 2014													■		■				■		■
Quarter 4, 2014													■		■				■		■
Quarter 1, 2015													■		■						■
Quarter 2, 2015					■										■				■		■
Quarter 3, 2015													■		■		■				■
Quarter 4, 2015													■		■						■
Quarter 1, 2016													■		■		■	■			■
Quarter 2, 2016												■	■		■		■		■		■
Quarter 3, 2016													■		■		■	■			■
Quarter 4, 2016													■		■		■	■	■		■
Quarter 1, 2017													■		■			■			■
Quarter 2, 2017															■		■	■			■
Quarter 3, 2017															■		■	■			■
Quarter 4, 2017										■			■	■			■	■			■
Quarter 1, 2018															■		■	■			■
Quarter 2, 2018													■		■	■	■	■	■		■
Quarter 3, 2018										■					■		■	■			■
Quarter 4, 2018										■			■		■		■	■	■		■
Quarter 1, 2019										■					■	■	■	■			
Quarter 2, 2019										■						■	■	■			■
Quarter 3, 2019																	■	■	■		
Quarter 4, 2019																	■	■			
Quarter 1, 2020															■		■	■			
Quarter 2, 2020																■		■			
Quarter 3, 2020																	■	■			
Quarter 4, 2020																	■	■			
Quarter 1, 2021																	■	■			
Quarter 2, 2021																		■			■
Quarter 3, 2021																	■	■			
Quarter 4, 2021																	■	■			■
Quarter 1, 2022																	■				■
Quarter 2, 2022																	■				■
Quarter 3, 2022																	■				
Quarter 1, 2023													■	■	■		■				■
Quarter 2, 2023															■						
Quarter 3, 2023											■		■		■					■	
TURBIDITY																					
Quarter 1, 2003										✱											
URANIUM																					
Quarter 4, 2002		✱			✱	✱	✱			✱	✱	✱	✱	✱	✱	✱		✱	✱	✱	✱
Quarter 4, 2006																					✱
ZINC																					
Quarter 3, 2005																			✱		

✱ Statistical test results indicate an elevated concentration (i.e., a statistical exceedance).

■ MCL Exceedance

■ Previously reported as an MCL exceedance; however, result was equal to MCL

UCRS Upper Continental Recharge System

URGA Upper Regional Gravel Aquifer

LRGA Lower Regional Gravel Aquifer

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APPENDIX H

METHANE MONITORING DATA

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CP3-WM-0017-F04 - C-746-U LANDFILL METHANE MONITORING REPORT

PADUCAH GASEOUS DIFFUSION PLANT

Permit #: 073-00045

McCracken County, Kentucky

Date:	February 8, 2024	Time:	1300	Monitor:	Michael Hideg

Weather Conditions: Mostly sunny, Approximately 65°, humidity: 56%

Monitoring Equipment: Multi RAE – Serial # 7970

Monitoring Location		Reading (% LEL)
C-746-U1	Checked at close to ground level	0
C-746-U2	Checked at close to ground level	0
C-746-U-T-14	Checked at close to ground level	0
C-746-U15	Checked at close to ground level	0
MG1	Checked inside casing	0
MG2	Checked inside casing	0
MG3	Checked inside casing	0
MG4	Checked inside casing	0
Suspect or Problem Areas	No problems noted	None

Remarks: N/A

Performed by: Michael Hideg

Signature

2/20/2024

Date

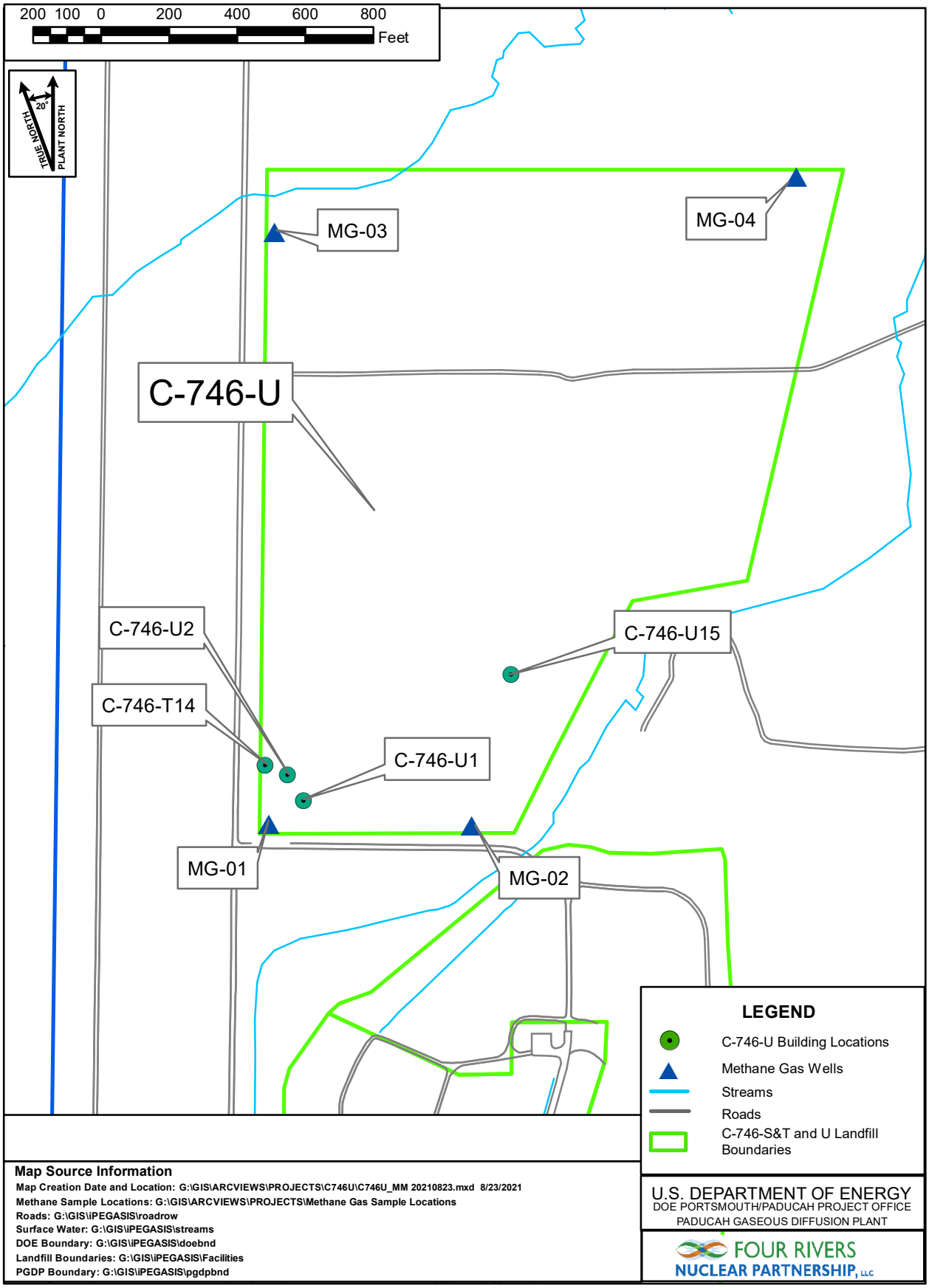

Figure H.1. C-746-U Landfill Methane Monitoring Locations

APPENDIX I

SURFACE WATER ANALYSES AND LABORATORY REPORTS

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Paducah OREIS
SURFACE WATER MONITORING REPORT

Facility: C-746-U Landfill **County:** McCracken **Permit #:** SW07300014,SW07300015,SW07300045

Sampling Point: L150 INSTREAM **Period:** 1st Quarter 2024

SAMPLE ID: L150US2-24 Sample Type: REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Chloride	B	2.05	mg/L	0.2	1/9/2024			EPA-300.0	X
Sulfate		14.9	mg/L	0.4	1/9/2024			EPA-300.0	X
Conductivity		114	µmhos/cm		1/9/2024				X
pH		7.44	Std Unit		1/9/2024				X
Iron		21.5	mg/L	0.1	1/9/2024			EPA-200.8	X
Sodium		3.59	mg/L	0.25	1/9/2024			EPA-200.8	X
Uranium		0.00102	mg/L	0.0002	1/9/2024			EPA-200.8	X
Alpha activity		16.8	pCi/L	9.43	1/9/2024	8.73	9.17	SW846-9310	X
Beta activity		17.2	pCi/L	13.3	1/9/2024	8.89	9.38	SW846-9310	X
Dissolved Solids	H*	322	mg/L	10	1/9/2024			EPA-160.1	X
Suspended Solids	*	276	mg/L	25	1/9/2024			EPA-160.2	X
Chemical Oxygen Demand (COD)	J	13.2	mg/L	20	1/9/2024			EPA-410.4	X
Total Solids		550	mg/L	10	1/9/2024			SM-2540 B 17	X
Total Organic Carbon (TOC)		4.04	mg/L	1	1/9/2024			SW846-9060A	X

Paducah OREIS
SURFACE WATER MONITORING REPORT

Facility: C-746-U Landfill **County:** McCracken **Permit #:** SW07300014,SW07300015,SW07300045

Sampling Point: L154 INSTREAM **Period:** 1st Quarter 2024

SAMPLE ID: L154US2-24 Sample Type: REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Chloride	B	1.39	mg/L	0.2	1/9/2024			EPA-300.0	X
Sulfate		2.63	mg/L	0.4	1/9/2024			EPA-300.0	X
Conductivity		89	µmhos/cm		1/9/2024				X
pH		7.25	Std Unit		1/9/2024				X
Iron		1.19	mg/L	0.1	1/9/2024			EPA-200.8	X
Sodium		2	mg/L	0.25	1/9/2024			EPA-200.8	X
Uranium		0.00104	mg/L	0.0002	1/9/2024			EPA-200.8	X
Alpha activity	U	6.01	pCi/L	10.6	1/9/2024	6.51	6.6	SW846-9310	X
Beta activity		15.5	pCi/L	12.2	1/9/2024	8.18	8.59	SW846-9310	X
Dissolved Solids	*	94	mg/L	10	1/9/2024			EPA-160.1	X
Suspended Solids	*	19.6	mg/L	5	1/9/2024			EPA-160.2	X
Chemical Oxygen Demand (COD)		31.8	mg/L	20	1/9/2024			EPA-410.4	X
Total Solids		112	mg/L	10	1/9/2024			SM-2540 B 17	X
Total Organic Carbon (TOC)		11.9	mg/L	1	1/9/2024			SW846-9060A	X

Paducah OREIS
SURFACE WATER MONITORING REPORT

Facility: C-746-U Landfill **County:** McCracken **Permit #:** SW07300014,SW07300015,SW07300045

Sampling Point: L351 DOWNSTREAM **Period:** 1st Quarter 2024

SAMPLE ID: L351US2-24 Sample Type: REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Chloride	B	1.33	mg/L	0.2	1/9/2024			EPA-300.0	X
Sulfate		3.34	mg/L	0.4	1/9/2024			EPA-300.0	X
Conductivity		88	µmhos/cm		1/9/2024				X
pH		7.39	Std Unit		1/9/2024				X
Iron		1.36	mg/L	0.1	1/9/2024			EPA-200.8	X
Sodium		1.79	mg/L	0.25	1/9/2024			EPA-200.8	X
Uranium		0.00148	mg/L	0.0002	1/9/2024			EPA-200.8	X
Alpha activity	U	2.99	pCi/L	7.39	1/9/2024	4.25	4.28	SW846-9310	X
Beta activity		15.9	pCi/L	12.5	1/9/2024	8.35	8.76	SW846-9310	X
Dissolved Solids	*	89	mg/L	10	1/9/2024			EPA-160.1	X
Suspended Solids	*	40	mg/L	5	1/9/2024			EPA-160.2	X
Chemical Oxygen Demand (COD)		31.8	mg/L	20	1/9/2024			EPA-410.4	X
Total Solids		136	mg/L	10	1/9/2024			SM-2540 B 17	X
Total Organic Carbon (TOC)		12.4	mg/L	1	1/9/2024			SW846-9060A	X

Qualifier Code Definitions	
*	Duplicate analysis not within control limits.
B	Analyte was detected in the associated blank.
H	Analysis performed outside holding time requirement.
J	Estimated quantitation.
L	LCS and/or LCSD recovery outside of control limits.
L1	LCS/LCSD RPD outside acceptance criteria.
N	Sample spike (MS/MSD) recovery not within control limits
N1	MS/MSD or PS/PSD RPD outside acceptance criteria.
P	Difference between results from two GC columns outside control limits.
S	Sample surrogate recovery outside acceptance criteria.
T	Tracer recovery outside control limits of 30-110%.
U	Not detected.
W	Post-digestion spike recovery out of control limits.
W1	Post-digestion spike and post-digestion spike duplicate RPD out of control limits.
X	Other specific flags and footnotes may be required to properly define the results.
Y1	MS/MSD recovery outside acceptance criteria.
Y2	MS/MSD RPD outside acceptance criteria.

RGA Type Code Definitions	
LRGA	Lower Regional Gravel Aquifer
UCRS	Upper Continental Recharge System
URGA	Upper Regional Gravel Aquifer
NA	Not Applicable.

Sample Type Code Definitions	
REG	Regular
FR	Field Replicate (code used for Field Duplicate)
RI	Equipment Rinsate Blank
FB	Field Blank
TB	Trip Blank

Validation Code Definitions	
=	Validated result, no additional qualifier necessary
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
UJ	Analyte not detected above the reported detection limit, and the reported detection limit is approximated due to quality deficiency.
X	Not validated

ATTACHMENT I1

GEL LABORATORIES CERTIFICATE OF ANALYSIS

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GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: April 25, 2024

Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Surface Water Quarterly(US24-02)

Client Sample ID: L150US2-24
Sample ID: 651193001
Matrix: WS
Collect Date: 09-JAN-24 09:06
Receive Date: 10-JAN-24
Collector: Client

Project: FRNP00514
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average		4.04	0.330	1.00	mg/L		1	RM3	01/11/24	0704	2551399	1
Ion Chromatography												
EPA 300.0 Anions (Chloride and Sulfate) "As Received"												
Chloride	B	2.05	0.0670	0.200	mg/L		1	TXT1	01/11/24	1332	2551878	2
Sulfate		14.9	0.133	0.400	mg/L		1					
Metals Analysis-ICP-MS												
200.8/200.2 MIMICP Metals- Fe Na U "As Received"												
Iron		21.5	0.0330	0.100	mg/L	1.00	1	RM4	01/19/24	1325	2555006	3
Sodium		3.59	0.0800	0.250	mg/L	1.00	1					
Uranium		0.00102	0.0000670	0.000200	mg/L	1.00	1					
Solids Analysis												
EPA 160.1 Solids, Dissolved "As Received"												
Total Dissolved Solids	H*	322	2.38	10.0	mg/L			ES2	01/17/24	1027	2552500	4
EPA 160.2 Total Suspended Liq "As Received"												
Total Suspended Solids	*	276	5.70	25.0	mg/L			CH6	01/12/24	1605	2552882	5
SM 2540 B Solids, Total "As Received"												
Total Solids		550	6.29	10.0	mg/L			CH6	01/12/24	1509	2552885	6
Spectrometric Analysis												
EPA 410.4 Chem. Oxygen Demand "As Received"												
COD	J	13.2	8.95	20.0	mg/L		1	JW2	01/11/24	1609	2551983	7

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	AB5	01/18/24	1415	2555005

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2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: April 25, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-U Landfill Surface Water Quarterly(US24-02)

Client Sample ID:	L150US2-24	Project:	FRNP00514
Sample ID:	651193001	Client ID:	FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9060A	
2	EPA 300.0	
3	EPA 200.8	
4	EPA 160.1	
5	EPA 160.2	
6	SM 2540B	
7	EPA 410.4	

Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: April 25, 2024

Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Surface Water Quarterly(US24-02)

Client Sample ID: L154US2-24
Sample ID: 651193002
Matrix: WS
Collect Date: 09-JAN-24 09:17
Receive Date: 10-JAN-24
Collector: Client

Project: FRNP00514
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average		11.9	0.330	1.00	mg/L		1	RM3	01/11/24	0900	2551399	1
Ion Chromatography												
EPA 300.0 Anions (Chloride and Sulfate) "As Received"												
Chloride	B	1.39	0.0670	0.200	mg/L		1	TXT1	01/11/24	1507	2551878	2
Sulfate		2.63	0.133	0.400	mg/L		1					
Metals Analysis-ICP-MS												
200.8/200.2 MIMICP Metals- Fe Na U "As Received"												
Iron		1.19	0.0330	0.100	mg/L	1.00	1	RM4	01/19/24	1340	2555006	3
Sodium		2.00	0.0800	0.250	mg/L	1.00	1					
Uranium		0.00104	0.0000670	0.000200	mg/L	1.00	1					
Solids Analysis												
EPA 160.1 Solids, Dissolved "As Received"												
Total Dissolved Solids	*	94.0	2.38	10.0	mg/L			ES2	01/16/24	0804	2552500	4
EPA 160.2 Total Suspended Liq "As Received"												
Total Suspended Solids	*	19.6	1.14	5.00	mg/L			CH6	01/12/24	1605	2552882	5
SM 2540 B Solids, Total "As Received"												
Total Solids		112	6.29	10.0	mg/L			CH6	01/12/24	1509	2552885	6
Spectrometric Analysis												
EPA 410.4 Chem. Oxygen Demand "As Received"												
COD		31.8	8.95	20.0	mg/L		1	JW2	01/11/24	1610	2551983	7

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	AB5	01/18/24	1415	2555005

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: April 25, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-U Landfill Surface Water Quarterly(US24-02)

Client Sample ID:	L154US2-24	Project:	FRNP00514
Sample ID:	651193002	Client ID:	FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9060A	
2	EPA 300.0	
3	EPA 200.8	
4	EPA 160.1	
5	EPA 160.2	
6	SM 2540B	
7	EPA 410.4	

Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: April 25, 2024

Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Surface Water Quarterly(US24-02)

Client Sample ID: L351US2-24
Sample ID: 651193003
Matrix: WS
Collect Date: 09-JAN-24 08:52
Receive Date: 10-JAN-24
Collector: Client

Project: FRNP00514
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average		12.4	0.330	1.00	mg/L		1	RM3	01/11/24	0940	2551399	1
Ion Chromatography												
EPA 300.0 Anions (Chloride and Sulfate) "As Received"												
Chloride	B	1.33	0.0670	0.200	mg/L		1	TXT1	01/11/24	1539	2551878	2
Sulfate		3.34	0.133	0.400	mg/L		1					
Metals Analysis-ICP-MS												
200.8/200.2 MIMICP Metals- Fe Na U "As Received"												
Iron		1.36	0.0330	0.100	mg/L	1.00	1	RM4	01/19/24	1344	2555006	3
Sodium		1.79	0.0800	0.250	mg/L	1.00	1					
Uranium		0.00148	0.0000670	0.000200	mg/L	1.00	1					
Solids Analysis												
EPA 160.1 Solids, Dissolved "As Received"												
Total Dissolved Solids	*	89.0	2.38	10.0	mg/L			ES2	01/16/24	0804	2552500	4
EPA 160.2 Total Suspended Liq "As Received"												
Total Suspended Solids	*	40.0	1.14	5.00	mg/L			CH6	01/12/24	1605	2552882	5
SM 2540 B Solids, Total "As Received"												
Total Solids		136	6.29	10.0	mg/L			CH6	01/12/24	1509	2552885	6
Spectrometric Analysis												
EPA 410.4 Chem. Oxygen Demand "As Received"												
COD		31.8	8.95	20.0	mg/L		1	JW2	01/11/24	1610	2551983	7

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	AB5	01/18/24	1415	2555005

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: April 25, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-U Landfill Surface Water Quarterly(US24-02)

Client Sample ID:	L351US2-24	Project:	FRNP00514
Sample ID:	651193003	Client ID:	FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9060A	
2	EPA 300.0	
3	EPA 200.8	
4	EPA 160.1	
5	EPA 160.2	
6	SM 2540B	
7	EPA 410.4	

Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road
Kevil, Kentucky 42053
Report Date: April 25, 2024
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Surface Water Quarterly(US24-02)

Client Sample ID: L150US2-24
Sample ID: 651193001
Matrix: WS
Collect Date: 09-JAN-24
Receive Date: 10-JAN-24
Collector: Client
Project: FRNP00514
Client ID: FRNP005

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gas Flow Proportional Counting														
GFPC, Gross A/B, liquid "As Received"														
Alpha		16.8	+/-8.73	9.43	+/-9.17	15.0	pCi/L			AW5	01/18/24	1234	2551485	1
Beta		17.2	+/-8.89	13.3	+/-9.38	50.0	pCi/L							

The following Analytical Methods were performed

Method	Description
1	EPA 900.0/SW846 9310

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
Lc/LC: Critical Level
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Mtd.: Method
PF: Prep Factor
RL: Reporting Limit
TPU: Total Propagated Uncertainty

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Four Rivers Nuclear Partnership,
Address : LLC
5600 Hobbs Road

Kevil, Kentucky 42053 Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

Project: C-746-U Landfill Surface Water Quarterly(US24-02)

Client Sample ID: L154US2-24 Project: FRNP00514
Sample ID: 651193002 Client ID: FRNP005
Matrix: WS
Collect Date: 09-JAN-24
Receive Date: 10-JAN-24
Collector: Client

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gas Flow Proportional Counting														
GFPC, Gross A/B, liquid "As Received"														
Alpha	U	6.01	+/-6.51	10.6	+/-6.60	15.0	pCi/L			AW5	01/15/24	1357	2551485	1
Beta		15.5	+/-8.18	12.2	+/-8.59	50.0	pCi/L							

The following Analytical Methods were performed

Method	Description
1	EPA 900.0/SW846 9310

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
Lc/LC: Critical Level
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Mtd.: Method
PF: Prep Factor
RL: Reporting Limit
TPU: Total Propagated Uncertainty

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Four Rivers Nuclear Partnership,
Address : LLC
5600 Hobbs Road

Kevil, Kentucky 42053 Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

Project: C-746-U Landfill Surface Water Quarterly(US24-02)

Client Sample ID: L351US2-24 Project: FRNP00514
Sample ID: 651193003 Client ID: FRNP005
Matrix: WS
Collect Date: 09-JAN-24
Receive Date: 10-JAN-24
Collector: Client

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gas Flow Proportional Counting														
GFPC, Gross A/B, liquid "As Received"														
Alpha	U	2.99	+/-4.25	7.39	+/-4.28	15.0	pCi/L			AW5	01/15/24	1357	2551485	1
Beta		15.9	+/-8.35	12.5	+/-8.76	50.0	pCi/L							

The following Analytical Methods were performed

Method	Description
1	EPA 900.0/SW846 9310

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
Lc/LC: Critical Level
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Mtd.: Method
PF: Prep Factor
RL: Reporting Limit
TPU: Total Propagated Uncertainty

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APPENDIX J

ANALYTICAL LABORATORY CERTIFICATION

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Accredited Laboratory

A2LA has accredited

GEL LABORATORIES, LLC

Charleston, SC

for technical competence in the field of

Environmental Testing

In recognition of the successful completion of the A2LA evaluation process that includes an assessment of the laboratory's compliance with ISO/IEC 17025:2017, the 2009 and 2016 TNI Environmental Testing Laboratory Standard, the requirements of the Department of Defense Environmental Laboratory Accreditation Program (DoD ELAP), and the requirements of the Department of Energy Consolidated Audit Program (DOECAP) as detailed in Version 5.4 of the DoD/DOE Quality System Manual for Environmental Laboratories (QSM), accreditation is granted to this laboratory to perform recognized EPA methods as defined on the associated A2LA Environmental Scope of Accreditation. This accreditation demonstrates technical competence for this defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated April 2017).

Presented this 26th day of June 2023.

Mr. Trace McInturff, Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 2567.01
Valid to June 30, 2025

For the tests to which this accreditation applies, please refer to the laboratory's Environmental Scope of Accreditation.

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APPENDIX K

LABORATORY ANALYTICAL METHODS

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LABORATORY ANALYTICAL METHODS

Analytical Method	Preparation Method	Product
SM 2540B		Solids, Total
SW846 8260D		Volatile Organic Compounds (VOC) by Gas Chromatograph/Mass Spectrometer
SW846 8011	SW846 8011 PREP	Analysis of 1,2-Dibromoethane (EDB), 1,2-Dibromo-3-Chloropropane (DBCP) and 1,2,3-Trichloropropane in Water by GC/ECD Using Methods 504.1 or 8011
SW846 8082A	SW846 3535A	Analysis of Polychlorinated Biphenyls by GC/ECD by ECD
SW846 6020B	SW846 3005A	Determination of Metals by ICP-MS
SW846 7470A	SW846 7470A Prep	Mercury Analysis Using the Perkin Elmer Automated Mercury Analyzer
SW846 9060A		Carbon, Total Organic
SW846 9012B	SW846 9010C Distillation	Cyanide, Total
EPA 300.0		Ion Chromatography Iodide
SW846 9056A		Ion Chromatography
EPA 160.1		Solids, Total Dissolved
EPA 160.2		Solids, Total Suspended
EPA 200.8	EPA 200.2	Determination of Metals by ICP-MS
EPA 410.4		COD
Eichrom Industries, AN-1418		AlphaSpec Ra226, Liquid
DOE EML HASL-300, Th-01-RC Modified		Th-01-RC M, Th Isotopes, Liquid
EPA 904.0 Modified		904.0Mod, Ra228, Liquid
SW846 9310		9310, Alpha/Beta Activity, liquid
EPA 905.0 Modified		905.0Mod, Sr90, liquid
DOE EML HASL-300, Tc-02-RC Modified		Tc-02-RC-MOD, Tc99, Liquid
EPA 906.0 Modified		906.0M, Tritium Dist, Liquid
SW846 9020B		Total Organic Halogens (TOX)

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APPENDIX L

MICRO-PURGING STABILITY PARAMETERS

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Micro-Purge Stability Parameters
for the C-746-U Contained Landfill

	Temperature (°F)	Conductivity (µmhos/cm)	pH (Std Unit)	Dissolved oxygen (mg/L)	Turbidity (NTU)
MW357					
Date Collected:1/23/24					
1054	58.7	411	6.16	3.96	0.00
1057	58.4	412	6.10	4.17	0.00
1100	58.3	411	6.08	4.20	0.00
MW360					
Date Collected:1/23/24					
0801	55.6	382	6.10	2.46	0.00
0804	55.7	383	6.12	2.07	0.00
0807	55.7	384	6.11	1.99	0.00
MW362					
Date Collected:1/23/24					
1008	57.8	604	6.86	1.17	3.51
1011	57.9	603	6.89	1.04	3.37
1014	58.0	603	6.90	1.06	3.16
MW364					
Date Collected:1/24/24					
0747	58.8	466	6.07	4.99	0.00
0750	58.7	470	6.05	4.03	0.00
0753	58.8	471	6.04	3.97	0.00
MW367					
Date Collected:1/24/24					
0946	60.0	280	5.98	1.99	2.36
0949	60.1	278	5.95	1.51	2.04
0952	60.2	277	5.94	1.43	1.96
MW370					
Date Collected: 1/24/24					
1235	61.3	426	6.17	5.31	0.00
1238	61.1	430	6.20	4.70	0.00
1241	61.1	437	6.20	4.65	0.00
MW372					
Date Collected:1/25/24					
0958	61.1	729	6.17	1.89	0.00
1001	61.2	727	6.11	1.74	0.00
1004	61.3	727	6.07	1.70	0.00
MW374					
Date Collected: 1/25/24					
1125	62.1	699	6.73	4.18	5.24
1128	62.0	692	6.68	2.25	5.57
1131	62.1	694	6.70	2.20	5.26

	Temperature (°F)	Conductivity (µmhos/cm)	pH (Std Unit)	Dissolved oxygen (mg/L)	Turbidity (NTU)
MW358					
Date Collected:1/23/24					
1142	59.1	504	6.39	1.08	0.00
1145	58.9	505	6.35	0.77	0.00
1148	58.8	504	6.34	0.69	0.00
MW361					
Date Collected: 1/23/24					
0911	58.3	515	6.09	3.77	0.00
0914	58.1	514	6.04	3.29	0.00
0917	58.0	515	6.03	3.26	0.00
MW363					
Date Collected: 1/23/24					
1233	58.9	369	6.20	2.03	0.00
1236	58.4	372	6.17	1.37	0.00
1239	58.4	373	6.13	1.30	0.00
MW366					
Date Collected: 1/24/24					
0856	60.0	477	6.14	2.68	0.00
0859	60.2	480	6.11	2.64	0.00
0902	60.2	484	6.10	2.66	0.00
MW369					
Date Collected: 1/24/24					
1119	60.1	343	6.20	2.33	0.00
1122	59.9	342	6.14	2.40	0.00
1125	59.8	341	6.13	2.42	0.00
MW371					
Date Collected:1/24/24					
1319	62.4	700	6.59	2.44	0.00
1322	62.1	699	6.55	2.06	0.00
1325	62.0	700	6.54	1.97	0.00
MW373					
Date Collected: 1/25/24					
1040	61.3	904	6.10	3.28	0.00
1043	60.9	907	6.06	1.36	0.00
1046	60.8	909	6.03	1.30	0.00
MW375					
Date Collected:1/24/24					
1033	60.1	330	6.47	1.35	0.00
1036	60.3	332	6.42	0.65	0.00
1039	60.3	334	6.40	0.60	0.00

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