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August 28, 2024

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Dear Mr. Hendricks and Ms. Nielsen:

**C-746-S&T LANDFILLS SECOND QUARTER CALENDAR YEAR 2024
(APRIL–JUNE) COMPLIANCE MONITORING REPORT, PADUCAH GASEOUS
DIFFUSION PLANT, PADUCAH, KENTUCKY, FRNP-RPT-0351/V2, PERMIT
NUMBER SW07300014, SW07300015, SW07300045, AGENCY INTEREST ID NO. 3059**


The subject report for the second 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 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 of the second quarter CY 2024 monitoring well (MW) data collected from the C-746-S&T Landfills were performed in accordance with Monitoring Condition GSTR0003, 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).

A statistically significant exceedance was indicated for calcium, dissolved solids, magnesium, sodium, and sulfate in MW373. This statistical exceedance is a Type 2 Exceedance—Source Unknown. Continued evaluation of calcium, dissolved solids, magnesium, sodium, and sulfate levels through future quarterly monitoring events is recommended. This report also serves as the statistical exceedance notification for the second 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,
**APRIL
LADD**

 Digitally signed by
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April Ladd
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Enclosure:

C-746-S&T Landfills Second Quarter Calendar Year 2024 (April–June) Compliance Monitoring Report, Paducah Gaseous Diffusion Plant, Paducah, Kentucky, FRNP-RPT-0351/V2

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FRNP-RPT-0351/V2

**C-746-S&T Landfills
Second Quarter Calendar Year 2024
(April–June)
Compliance Monitoring Report,
Paducah Gaseous Diffusion Plant,
Paducah, Kentucky**



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**C-746-S&T Landfills
Second Quarter Calendar Year 2024
(April–June)
Compliance Monitoring Report,
Paducah Gaseous Diffusion Plant,
Paducah, Kentucky**

Date Issued—August 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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ACRONYMS

<i>CFR</i>	<i>Code of Federal Regulations</i>
COD	chemical oxygen demand
<i>KAR</i>	<i>Kentucky Administrative Regulations</i>
<i>KRS</i>	<i>Kentucky Revised Statutes</i>
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-S&T Landfills Second Quarter Calendar Year 2024 (April–June) Compliance Monitoring Report, Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, is being submitted in accordance with Solid Waste Landfill 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 that 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 and for all permit required parameters listed in 40 *CFR* § 302.4, Appendix A, 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 exceedances of the MCL and historical UTL that have occurred since the fourth quarter calendar year 2002. Methane monitoring results are documented on the approved C-746-S&T Landfills Methane Monitoring Report form provided in Appendix H. The form includes pertinent remarks/observations as required by 401 *KAR* 48:090 § 5. Surface water results 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-S&T Landfills are closed, solid waste landfills located north of the Paducah Site and south of the C-746-U Landfill. Construction and operation of the C-746-S Residential Landfill were permitted in April 1981 under Solid Waste Landfill Permit No. 073-00014. The permitted C-746-S Landfill area covers about 16 acres and contains a clay liner with a final cover of compacted soil. The C-746-S Landfill was a sanitary landfill for the Paducah Gaseous Diffusion Plant operations. The C-746-S Landfill is closed and has been inactive since July 1995.

Construction and operation of the C-746-T Inert Landfill were permitted in February 1985 under Solid Waste Landfill Permit No. 073-00015. The permitted C-746-T Landfill area covers about 20 acres and contains a clay liner with a final cover of compacted soil. The C-746-T Landfill was used to dispose of construction debris (e.g., concrete, wood, rock) and steam plant fly ash from the Paducah Gaseous Diffusion Plant operations. The C-746-T Landfill is closed and has been inactive since June 1992.

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 23 monitoring wells (MWs) under permit for the C-746-S&T Landfills: 5 UCRS wells, 11 URGA wells, and 7 LRGA wells. A map of the MW locations is presented in Figure 1. All MWs listed on the permit were sampled this quarter, except MW389 and MW390 (screened in the UCRS), which had insufficient amounts of water to obtain samples.

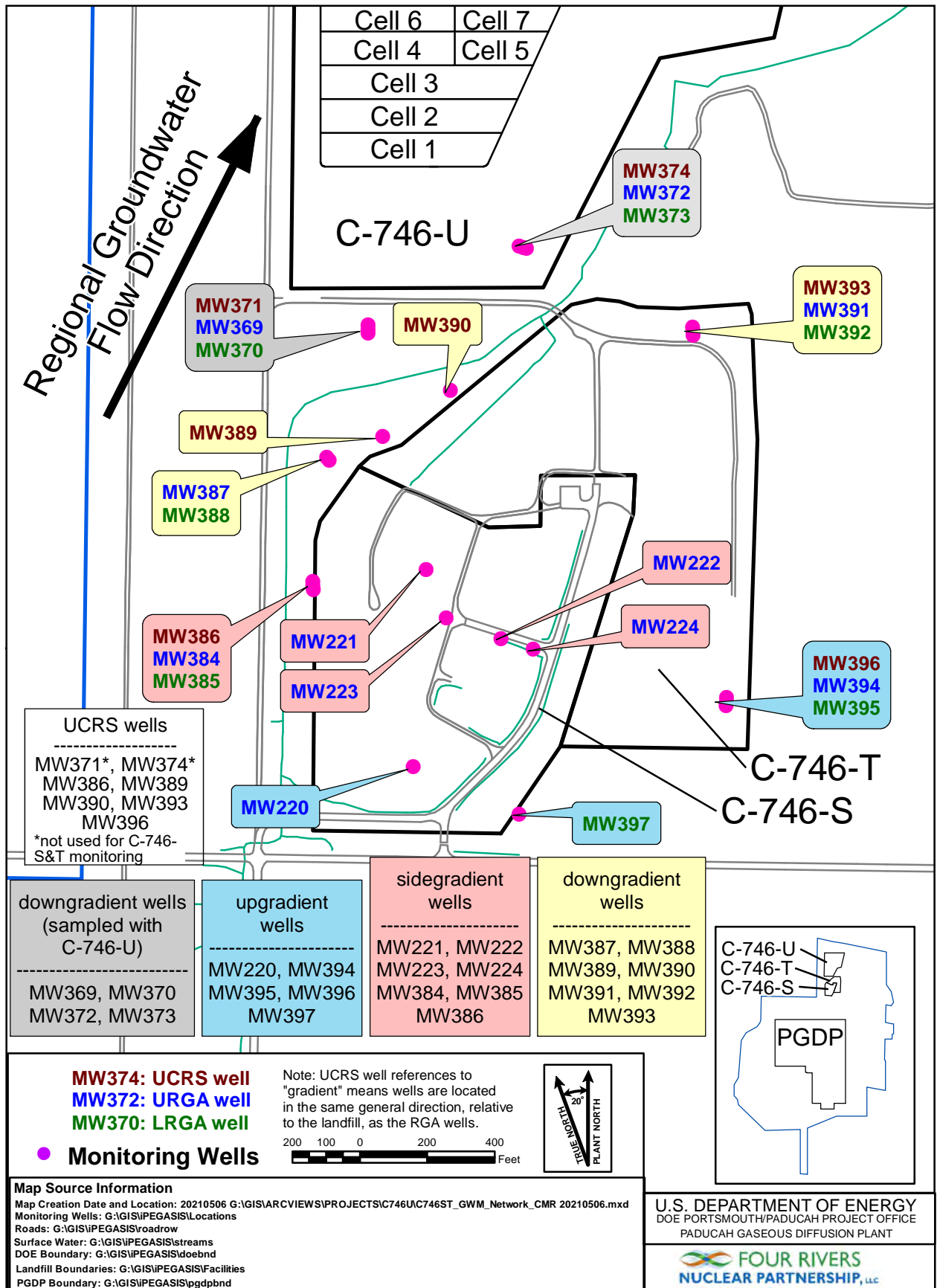


Figure 1. C-746-S&T Landfills Groundwater Monitoring Well Network

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, PAD-PROJ-0139* (Groundwater Monitoring Plan), UCRS wells are included in the monitoring program (LATA Kentucky 2014). Groundwater flow gradients are downward through the UCRS, but the underlying Regional Gravel Aquifer (RGA) flows laterally. Groundwater flow in the RGA is typically in a north-northeasterly direction in the vicinity of the C-746-S&T Landfills. 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 (for background), and exceedances of these values are reported in the quarterly report.

Groundwater sampling was conducted within the second 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 second quarter 2024 was conducted on April 10-16, 2024. The analytical laboratory used U.S. Environmental Protection Agency-approved methods, as applicable. The parameters specified in Permit Condition GSTR0003, Special Condition 3, were analyzed for all locations sampled.

The groundwater flow rate and direction determination are provided in Appendix E. Depth-to-water was measured on April 23-24, 2024, in MWs of the C-746-S&T Landfills (see Appendix E, Table E.1); in MWs of the C-746-U Landfill; and in MWs of the surrounding region (shown on Appendix E, Figure E.3). 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 April 2024, RGA groundwater flow was directed inward and then north towards the Ohio River. The hydraulic gradient for the RGA in the vicinity of the C-746-S&T Landfills in April 2024 was 2.05×10^{-4} ft/ft, while the gradient beneath the C-746-S&T Landfills was approximately 7.19×10^{-4} ft/ft (see Appendix E, Table E.2). Calculated groundwater flow rates (average linear velocities) for the RGA at the C-746-S&T Landfills ranged from 1.22 to 2.08 ft/day (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 Solid Waste Landfill Permit. Industrial Hygiene staff monitored for the occurrence of methane in one on-site building location, four locations along the landfill boundary, and 27 passive gas vents located in Cells 1, 2, and 3 of the C-746-S Landfill on May 13, 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-S&T Landfills Methane Monitoring Report provided in Appendix H.

1.2.3 Surface Water Monitoring

Surface water sampling was performed on April 10, 2024, at the three locations monitored for the C-746-S&T Landfills: (1) upstream location L135, (2) instream location L154, and (3) instream location L136 (Figure 2). Surface water was monitored, as specified in 401 KAR 48:300 § 2, 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 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 but have concentrations that exceeded the statistically derived historical background UTL during the second quarter 2024.¹ 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 designated as background wells (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, both UTL and LTL.

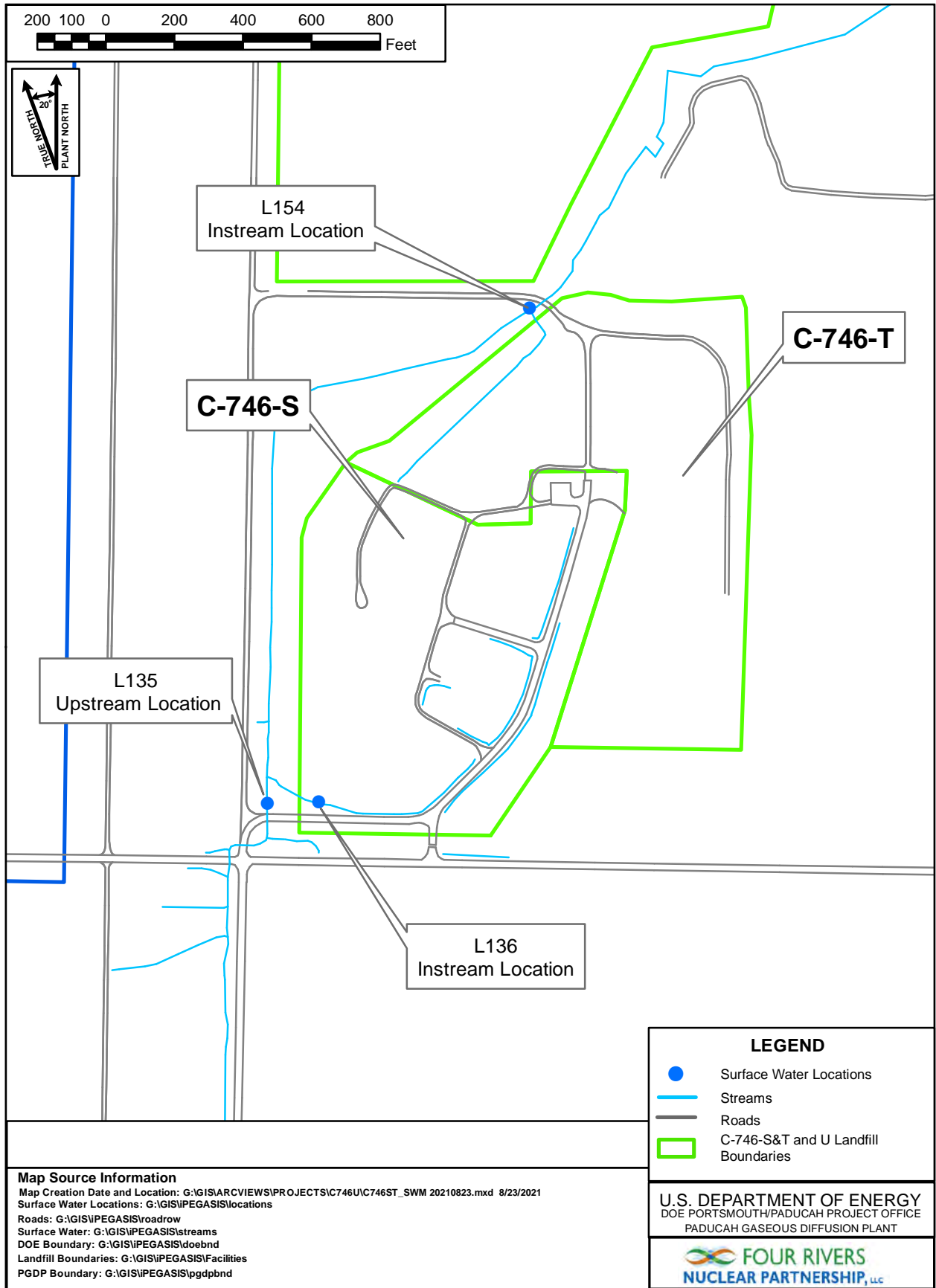


Figure 2. C-746-S&T Landfill Surface Water Monitoring Locations

Table 2. Exceedances of Statistically Derived Historical Background Concentrations

UCRS ^a	URGA	LRGA
MW386: Oxidation-reduction potential ^b	MW220: Sulfate	MW370: Oxidation-reduction potential ^b and sulfate
MW393: Oxidation-reduction potential ^b	MW224: Sodium and sulfate	MW373: Calcium, conductivity, dissolved solids, magnesium, oxidation-reduction potential, ^b sodium, and sulfate
MW396: Oxidation-reduction potential ^b	MW369: Technetium-99	MW385: Oxidation-reduction potential, ^b radium-226, and sulfate
	MW372: Calcium, conductivity, dissolved solids, magnesium, sodium, sulfate, and technetium-99	MW388: Oxidation-reduction potential, ^b radium-226, and sulfate
	MW384: Sulfate	MW392: Oxidation-reduction potential, ^b and radium-226
	MW387: Magnesium, sulfate, and technetium-99	MW395: Oxidation-reduction potential ^b
	MW394: Chemical oxygen demand (COD) and oxidation-reduction potential ^b	MW397: 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: MW221, MW222, MW223, MW224, MW384, MW385, and MW386.

Downgradient wells: MW369, MW370, MW372, MW373, MW387, MW388, MW389, MW390, MW391, MW392, and MW393.

Background wells: MW220, MW394, MW395, MW396, and MW397.

Table 3. Exceedances of Current Background UTL in Downgradient Wells

URGA	LRGA
MW369: Technetium-99	MW370: Sulfate
MW372: Calcium, conductivity, dissolved solids, magnesium, sodium, sulfate, and technetium-99	MW373: Calcium, conductivity, dissolved solids, magnesium, sodium, and sulfate
MW387: Magnesium and technetium-99	MW388: Radium-226 and sulfate
	MW392: Radium-226

The notification of parameters that exceeded the MCL would typically have been submitted electronically to the Kentucky Division of Waste Management, in accordance with 401 KAR 48:300 § 7, prior to the submittal of this report.

This report serves as the notification of parameters that had statistically significant increased concentrations relative to historical background concentrations, as required by Permit No. SW07300014, SW07300015, SW07300045, Condition GSTR0003, Standard Requirement 5, and 401 KAR 48:300 § 7.

The constituents listed in Table 2 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 to identify if the current downgradient well concentrations are consistent with current background values. The current background UTL was developed using the most recent eight quarters of data from wells identified as background wells. Table 3 summarizes the evaluation against current background UTL for those constituents present in downgradient wells with historical UTL exceedances. In accordance with the approved Groundwater Monitoring Plan (LATA Kentucky 2014), constituents in downgradient wells that exceed the historical UTL, but do not exceed the current UTL, are

considered not to have a C-746-S&T Landfills source; therefore, they are Type 1 exceedances—not attributable to the C-746-S&T Landfills.

The constituents listed in Table 3 that exceed both the historical UTL and the current UTL and do not have an identified source are considered preliminarily to be Type 2 exceedances, per the approved Groundwater Monitoring Plan (LATA Kentucky 2014). To evaluate these preliminary Type 2 exceedances further, the parameters were subjected to the Mann-Kendall statistical test for trend using the most recent eight quarters of data. The results are summarized in Table 4. Fifteen of the 20 preliminary Type 2 exceedances in downgradient wells do not have increasing trends and are considered to be Type 1 exceedances—not attributable to the C-746-S&T Landfills.

Table 4. C-746-S&T 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-S&T Landfills	MW369	Technetium-99	8	0.05	0.054	14	No Trend
	MW370	Sulfate	8	0.05	0.119	-8	No Trend
	MW372	Calcium	8	0.05	0.138	10	No Trend
		Conductivity	8	0.05	0.548	0	No Trend
		Dissolved Solids	8	0.05	0.452	-3	No Trend
		Magnesium	8	0.05	0.452	2	No Trend
		Sodium	8	0.05	0.452	2	No Trend
		Sulfate	8	0.05	0.452	3	No Trend
		Technetium-99	8	0.05	0.119	-8	No Trend
	MW373	Calcium	8	0.05	0.001	24	Increasing
		Conductivity	8	0.05	0.089	12	No Trend
		Dissolved Solids	8	0.05	0.016	18	Increasing
		Magnesium	8	0.05	0.002	22	Increasing
		Sodium	8	0.05	0.007	20	Increasing
		Sulfate	8	0.05	0.002	22	Increasing
	MW387	Magnesium	8	0.05	0.054	-15	No Trend
		Technetium-99	8	0.05	0.274	-6	No Trend
	MW388	Radium-226	8	0.05	0.119	8	No Trend
		Sulfate	8	0.05	0.119	-9	No Trend
	MW392	Radium-226	8	0.05	0.138	10	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 (i.e., 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 H₀ and H_a. H₀ assumes there is no trend in the data, whereas H_a assumes either a positive or negative trend.

NOTE: Statistics were generated using ProUCL.

Five of the 20 preliminary Type 2 exceedances in downgradient wells had an increasing trend. Specifically, the Mann-Kendall statistical test indicates increasing trends for calcium, dissolved solids, magnesium, sodium, and sulfate in LRGA well MW373 over the past eight quarters. It should be noted that concentrations of calcium, dissolved solids, magnesium, sodium, and sulfate in URGA well MW372 are consistently lower than those shown in collocated LRGA well MW373. Since calcium, dissolved solids, magnesium, sodium, and sulfate concentrations are lower in the shallower screened well at this location, the C-746-S&T Landfills are likely not the source of the concentrations observed in the deeper screened well. Therefore, the observed trends should be considered Type 2 exceedances—sources undetermined. Evaluation of calcium, dissolved solids, magnesium, sodium, and sulfate trends through future quarterly monitoring events is recommended.

In accordance with Permit Condition GSTR0003, Special Condition 2, of the Solid Waste Landfill Permit, the groundwater assessment and corrective action requirements of 401 *KAR* 48:300 § 8 shall not apply to the C-746-S Residential Landfill and the C-746-T Inert Landfill. This variance in the permit provides that groundwater assessment and corrective actions for these landfills will be conducted in accordance with the corrective action requirements of 401 *KAR* 39:090.

The statistical evaluation of UCRS concentrations against the current UCRS background UTL did not identify any UCRS wells exceeding both the historical and current backgrounds (Table 5).

Table 5. Exceedances of Current Background UTL in Downgradient UCRS Wells*

UCRS
None

*In the same direction (relative to the landfill) as RGA wells.

All MCL and UTL exceedances reported for this quarter, except for calcium, dissolved solids, magnesium, sodium, and sulfate in MW373, were evaluated and considered to be Type 1 exceedances—not attributable to the C-746-S&T Landfills.

2. DATA EVALUATION/STATISTICAL SYNOPSIS

The statistical analyses conducted on the second quarter 2024 groundwater data collected from the C-746-S&T Landfill MWs were performed in accordance with the Groundwater Monitoring Plan (LATA Kentucky 2014). The statistical analyses for this report utilize data from the first eight quarters that were sampled for each parameter, beginning with the first two 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).

For those parameters that exceed the MCL for Kentucky solid waste facilities found in 401 *KAR* 47:030 § 6, exceedances are documented and evaluated further as follows. Exceedances are reviewed against historical background results (UTL). If the MCL exceedance is found not to exceed the historical UTL, the exceedance is noted as a Type 1 exceedance—an exceedance not attributable to the landfills. If there is an exceedance of the MCL in a downgradient well and this constituent also exceeds the historical background, the quarterly result is compared to the current background UTL (developed using the most recent eight quarters of data from wells identified as downgradient wells) to identify if this exceedance is attributable to upgradient/non-landfill sources. If the downgradient well concentration is less than the current background, the exceedance is noted as a Type 1 exceedance. If a constituent exceeds its Kentucky solid waste facility MCL, historical background UTL, and current background UTL, it is reported as a Type 2 exceedance—source undetermined. Type 2 exceedances (undetermined source) are further evaluated using the Mann-Kendall test for trend. If there is not a statistically significant increasing trend for a constituent in a downgradient well, the exceedance is reclassified as a Type 1 exceedance—not attributable to the landfills.

For those parameters that do not have a Kentucky solid waste facility MCL, the same process is used. If a constituent without an MCL exceeds its historical background UTL and its current background UTL, it is evaluated further to identify the source of the exceedance, if possible. If the source of the exceedance cannot be identified, it is reported as a Type 2 exceedance—source undetermined. Type 2 exceedances (undetermined source) are further evaluated using the Mann-Kendall test for trend. If there is not a statistically significant increasing trend for a constituent in a downgradient well, the exceedance is reclassified as a Type 1 exceedance—not attributable to the landfills.

To calculate the UTL, the data are divided into censored (nondetects) and uncensored (detected) observations. The one-sided tolerance interval statistical test is conducted only on parameters that have at least one uncensored observation. Results of the one-sided tolerance interval statistical test are used to determine whether the data show 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 is conducted. The test well results are compared to both the UTL and LTL to determine if statistically significant deviations in concentrations exist 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 6.

Table 6. Monitoring Wells Included in Statistical Analysis^a

UCRS	URGA	LRGA
MW386	MW220 (background)	MW370
MW389 ^b	MW221	MW373
MW390 ^b	MW222	MW385
MW393	MW223	MW388
MW396 ^c	MW224	MW392
	MW369	MW395 (background)
	MW372	MW397 (background)
	MW384	
	MW387	
	MW391	
	MW394 (background)	

^a Map showing the MW locations is shown on Figure 1.

^b Well had insufficient water to permit a water sample for laboratory analysis.

^c In the same direction (relative to the landfill) as RGA wells considered to be background.

2.1 STATISTICAL ANALYSIS OF GROUNDWATER DATA

Parameters requiring statistical analysis are summarized in Appendix D for each hydrological 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 exceedances 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 background in order to determine if the current downgradient well concentrations are consistent with current background values. Table 3 summarizes the constituents present in downgradient wells with historical UTL exceedances that are above the current UTL. Those constituents that have exceeded both the historical and current background UTLs in downgradient wells were further evaluated for increasing trends and are listed in Table 4.

2.1.1 Upper Continental Recharge System

In this quarter, 23 parameters, including those with MCLs, required statistical analysis in the UCRS. During the second quarter, oxidation-reduction potential concentrations exceeded the respective historical UTL and are listed in Table 2.

2.1.2 Upper Regional Gravel Aquifer

In this quarter, 27 parameters, including those with MCLs, required statistical analysis in the URGA. During the second quarter, calcium, COD, conductivity, dissolved solids, magnesium, oxidation-reduction potential, sodium, sulfate, and technetium-99 displayed concentrations that exceeded their respective historical UTLs and are listed in Table 2. Calcium, conductivity, dissolved solids, magnesium, sodium, sulfate, and technetium-99 exceeded the current background UTL in downgradient wells and are included in Table 3.

2.1.3 Lower Regional Gravel Aquifer

In this quarter, 27 parameters, including those with MCLs, required statistical analysis in the LRGA. During the second quarter, calcium, conductivity, dissolved solids, magnesium, oxidation-reduction potential, radium-226, sodium, and sulfate displayed concentrations that exceeded their respective historical UTL and are listed in Table 2. Calcium, conductivity, dissolved solids, magnesium, radium-226, sodium, and sulfate exceeded the current background UTL in downgradient wells and are included in Table 3.

2.2 DATA VERIFICATION AND VALIDATION

Data verification is the process of comparing a data set against 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 for 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 tables 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-S&T Landfills Second Quarter Calendar Year 2024
(April-June) Compliance Monitoring Report, Paducah Gaseous
Diffusion Plant, Paducah, Kentucky (FRNP-RPT-0351/V2)*

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



PG 113927
KD 8-22-2024

Kenneth R. Davis
Kenneth R. Davis

PG113927

August 22, 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.

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 Activity: C-746-S&T Landfills
(As officially shown on DWM Permit Face)

Permit No: SW07300014,
SW07300015,
SW07300045 Finds/Unit No: _____ Quarter & Year: 2nd Qtr. CY 2024

Please check the following as applicable:

_____ Characterization X Quarterly _____ Semiannual _____ Annual _____ Assessment

Please check applicable submittal(s): X Groundwater _____ 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 Statutes 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/Date
Four Rivers Nuclear Partnership, LLC

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

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APPENDIX B
FACILITY INFORMATION SHEET

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FACILITY INFORMATION SHEET

Groundwater: April 2024
Methane: May 2024
Surface Water: April 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 Kevil, Kentucky 42053
Street City/State Zip

Phone No: (270) 441-6800 Latitude: N 37° 07' 37.70" Longitude: W 88° 47' 55.41"

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
Director, Environmental Services

Contact Person Title: Four Rivers Nuclear Partnership, LLC

Mailing Address: 5511 Hobbs Road Kevil, Kentucky 42053
Street City/State 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 Kevil, Kentucky 42053
Street City/State 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 Charleston, South Carolina 29407
Street City/State Zip

LABORATORY RECORD #2

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

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

Mailing Address: N/A N/A 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 N/A 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-S&T Landfill **County:** McCracken **Permit #:** SW07300014,SW07300015,SW07300045

Sampling Point: MW220 UP **RGA Type:** URGA **Period:** 2nd Quarter 2024

AKGWA Well Tag #: 8000-5201 **SAMPLE ID:** MW220SG3-24 **Sample Type:** REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide	J	0.183	mg/L	0.2	4/11/2024			SW846-9056A	=
Chloride	JW	17.7	mg/L	250	4/11/2024			SW846-9056A	J
Fluoride	J	0.277	mg/L	4	4/11/2024			SW846-9056A	=
Nitrate as Nitrogen	J	0.956	mg/L	10	4/11/2024			SW846-9056A	=
Sulfate	W	18.6	mg/L	0.4	4/11/2024			SW846-9056A	J
Barometric Pressure Reading		29.57	Inches/Hg		4/11/2024				X
Conductivity		378	µmhos/cm		4/11/2024				X
Depth to Water		59	ft		4/11/2024				X
Dissolved Oxygen		5.17	mg/L		4/11/2024				X
Eh (approx)		366	mV		4/11/2024				X
pH		6.06	Std Unit		4/11/2024				X
Temperature		60.6	deg F		4/11/2024				X
Turbidity		1.11	NTU		4/11/2024				X
Aluminum	U	0.05	mg/L	0.05	4/11/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	4/11/2024			SW846-6020B	=
Arsenic	U	0.005	mg/L	0.005	4/11/2024			SW846-6020B	=
Barium		0.193	mg/L	0.004	4/11/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	4/11/2024			SW846-6020B	=
Boron	J	0.00794	mg/L	0.015	4/11/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	4/11/2024			SW846-6020B	=
Calcium		23.3	mg/L	0.2	4/11/2024			SW846-6020B	=
Chromium	J	0.0064	mg/L	0.01	4/11/2024			SW846-6020B	=
Cobalt	U	0.001	mg/L	0.001	4/11/2024			SW846-6020B	=
Copper		0.00351	mg/L	0.002	4/11/2024			SW846-6020B	J
Iron	J	0.041	mg/L	0.1	4/11/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	4/11/2024			SW846-6020B	=
Magnesium		9.96	mg/L	0.03	4/11/2024			SW846-6020B	=
Manganese	J	0.00187	mg/L	0.005	4/11/2024			SW846-6020B	J
Molybdenum	J	0.000804	mg/L	0.001	4/11/2024			SW846-6020B	=
Nickel		0.00562	mg/L	0.002	4/11/2024			SW846-6020B	J
Potassium	NW	4.61	mg/L	0.3	4/11/2024			SW846-6020B	J
Rhodium	U	0.005	mg/L	0.005	4/11/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	4/11/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	4/11/2024			SW846-6020B	=
Sodium		43.4	mg/L	0.25	4/11/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	4/11/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	4/11/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	4/11/2024			SW846-6020B	=
Vanadium	J	0.00598	mg/L	0.02	4/11/2024			SW846-6020B	=
Zinc	J	0.0072	mg/L	0.02	4/11/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	4/11/2024			SW846-7470A	=
Barium, Dissolved		0.189	mg/L	0.004	4/11/2024			SW846-6020B	J
Chromium, Dissolved	J	0.00587	mg/L	0.01	4/11/2024			SW846-6020B	J
Uranium, Dissolved	U	0.0002	mg/L	0.0002	4/11/2024			SW846-6020B	UJ
Radium-226	U	0.334	pCi/L	0.741	4/11/2024	0.604	0.605	AN-1418	=

Strontium-90	U	-0.722	pCi/L	4.59	4/11/2024	2.27	2.27	EPA-905.0-M	=
Tritium	U	-54.2	pCi/L	227	4/11/2024	108	108	EPA-906.0-M	=
Technetium-99	U	16.4	pCi/L	20.2	4/11/2024	12.4	12.5	HASL 300, Tc-02-RC M	=
Thorium-230	U	0.226	pCi/L	1.69	4/11/2024	0.874	0.877	HASL 300, Th-01-RC M	=
Alpha activity	U	-0.8	pCi/L	10.4	4/11/2024	4.57	4.57	SW846-9310	=
Beta activity		29.5	pCi/L	11.5	4/11/2024	9.07	10.3	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.0192	ug/L	0.0192	4/11/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	4/11/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	4/11/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	4/11/2024			SW846-8260D	=
Acetone	J	2.19	ug/L	5	4/11/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	4/11/2024			SW846-8260D	=
Acrylonitrile	U	5	ug/L	5	4/11/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	4/11/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	4/11/2024			SW846-8260D	UJ
Chlorobenzene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Ethylbenzene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	4/11/2024			SW846-8260D	=
Methylene chloride	U	5	ug/L	5	4/11/2024			SW846-8260D	=
Styrene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Toluene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Total Xylene	U	3	ug/L	3	4/11/2024			SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	4/11/2024			SW846-8260D	=
Trichloroethene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Trichlorofluoromethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=

Vinyl acetate	U	5 ug/L	5	4/11/2024	SW846-8260D	=
Vinyl chloride	U	1 ug/L	1	4/11/2024	SW846-8260D	=
Dissolved Solids		198 mg/L	10	4/11/2024	EPA-160.1	=
Iodide	U	0.5 mg/L	0.5	4/11/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	U	20 mg/L	20	4/11/2024	EPA-410.4	=
Cyanide	U	0.2 mg/L	0.2	4/11/2024	SW846-9012B	=
Total Organic Halides (TOX)	U	10 ug/L	10	4/11/2024	SW846-9020B	=
Total Organic Carbon (TOC)	J	0.749 mg/L	2	4/11/2024	SW846-9060A	=

**Paducah OREIS
GROUNDWATER MONITORING REPORT**

Facility: C-746-S&T Landfill **County:** McCracken **Permit #:** SW07300014,SW07300015,SW07300045

Sampling Point: MW221 **SIDE:** **RGA Type:** URGA **Period:** 2nd Quarter 2024

AKGWA Well Tag #: 8000-5202 **SAMPLE ID:** MW221DSG3-24 **Sample Type:** FR

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide		0.457	mg/L	0.2	4/11/2024			SW846-9056A	=
Chloride	JW	34.8	mg/L	250	4/11/2024			SW846-9056A	=
Fluoride	J	0.271	mg/L	4	4/11/2024			SW846-9056A	=
Nitrate as Nitrogen	J	0.946	mg/L	10	4/11/2024			SW846-9056A	=
Sulfate	W	15.7	mg/L	0.4	4/11/2024			SW846-9056A	=
Aluminum	U	0.05	mg/L	0.05	4/11/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	4/11/2024			SW846-6020B	=
Arsenic	U	0.005	mg/L	0.005	4/11/2024			SW846-6020B	=
Barium		0.2	mg/L	0.004	4/11/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	4/11/2024			SW846-6020B	=
Boron		0.0223	mg/L	0.015	4/11/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	4/11/2024			SW846-6020B	=
Calcium		21.3	mg/L	0.2	4/11/2024			SW846-6020B	=
Chromium	J	0.00406	mg/L	0.01	4/11/2024			SW846-6020B	=
Cobalt	U	0.001	mg/L	0.001	4/11/2024			SW846-6020B	=
Copper	J	0.00099	mg/L	0.002	4/11/2024			SW846-6020B	J
Iron	U	0.1	mg/L	0.1	4/11/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	4/11/2024			SW846-6020B	=
Magnesium		9.82	mg/L	0.03	4/11/2024			SW846-6020B	=
Manganese	U	0.005	mg/L	0.005	4/11/2024			SW846-6020B	=
Molybdenum		0.00408	mg/L	0.001	4/11/2024			SW846-6020B	=
Nickel		0.00972	mg/L	0.002	4/11/2024			SW846-6020B	J
Potassium	NW	2.08	mg/L	0.3	4/11/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	4/11/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	4/11/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	4/11/2024			SW846-6020B	=
Sodium		49.3	mg/L	0.25	4/11/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	4/11/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	4/11/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	4/11/2024			SW846-6020B	=
Vanadium	J	0.00539	mg/L	0.02	4/11/2024			SW846-6020B	=
Zinc	U	0.02	mg/L	0.02	4/11/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	4/11/2024			SW846-7470A	=
Barium, Dissolved		0.198	mg/L	0.004	4/11/2024			SW846-6020B	J
Chromium, Dissolved	J	0.00362	mg/L	0.01	4/11/2024			SW846-6020B	J
Uranium, Dissolved	U	0.0002	mg/L	0.0002	4/11/2024			SW846-6020B	UJ
Radium-226	U	0.662	pCi/L	0.669	4/11/2024	0.527	0.529	AN-1418	=
Strontium-90	U	-0.912	pCi/L	4.29	4/11/2024	2.13	2.13	EPA-905.0-M	=
Tritium	U	46.8	pCi/L	227	4/11/2024	124	125	EPA-906.0-M	=
Technetium-99	U	15.7	pCi/L	20.4	4/11/2024	12.5	12.6	HASL 300, Tc-02-RC M	=
Thorium-230	U	1.4	pCi/L	1.89	4/11/2024	1.41	1.44	HASL 300, Th-01-RC M	=
Alpha activity	U	7.38	pCi/L	7.99	4/11/2024	5.78	5.9	SW846-9310	=
Beta activity	U	5.11	pCi/L	9.03	4/11/2024	5.52	5.6	SW846-9310	=

1,2-Dibromo-3-chloropropane	U	0.0192	ug/L	0.0192	4/11/2024	SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	4/11/2024	SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	4/11/2024	SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	4/11/2024	SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	4/11/2024	SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	4/11/2024	SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	4/11/2024	SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	4/11/2024	SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	4/11/2024	SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	4/11/2024	SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	4/11/2024	SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	4/11/2024	SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	4/11/2024	SW846-8260D	=
2-Butanone	U	5	ug/L	5	4/11/2024	SW846-8260D	=
2-Hexanone	U	5	ug/L	5	4/11/2024	SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	4/11/2024	SW846-8260D	=
Acetone	U	5	ug/L	5	4/11/2024	SW846-8260D	=
Acrolein	U	5	ug/L	5	4/11/2024	SW846-8260D	=
Acrylonitrile	U	5	ug/L	5	4/11/2024	SW846-8260D	=
Benzene	U	1	ug/L	1	4/11/2024	SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	4/11/2024	SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	4/11/2024	SW846-8260D	=
Bromoform	U	1	ug/L	1	4/11/2024	SW846-8260D	=
Bromomethane	U	1	ug/L	1	4/11/2024	SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	4/11/2024	SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	4/11/2024	SW846-8260D	UJ
Chlorobenzene	U	1	ug/L	1	4/11/2024	SW846-8260D	=
Chloroethane	U	1	ug/L	1	4/11/2024	SW846-8260D	=
Chloroform	U	1	ug/L	1	4/11/2024	SW846-8260D	=
Chloromethane	U	1	ug/L	1	4/11/2024	SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	4/11/2024	SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	4/11/2024	SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	4/11/2024	SW846-8260D	=
Dibromomethane	U	1	ug/L	1	4/11/2024	SW846-8260D	=
Ethylbenzene	U	1	ug/L	1	4/11/2024	SW846-8260D	=
Iodomethane	U	5	ug/L	5	4/11/2024	SW846-8260D	=
Methylene chloride	U	5	ug/L	5	4/11/2024	SW846-8260D	=
Styrene	U	1	ug/L	1	4/11/2024	SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	4/11/2024	SW846-8260D	=
Toluene	U	1	ug/L	1	4/11/2024	SW846-8260D	=
Total Xylene	U	3	ug/L	3	4/11/2024	SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	4/11/2024	SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	4/11/2024	SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	4/11/2024	SW846-8260D	=
Trichloroethene	U	1	ug/L	1	4/11/2024	SW846-8260D	=
Trichlorofluoromethane	U	1	ug/L	1	4/11/2024	SW846-8260D	=
Vinyl acetate	U	5	ug/L	5	4/11/2024	SW846-8260D	=
Vinyl chloride	U	1	ug/L	1	4/11/2024	SW846-8260D	=
Dissolved Solids		212	mg/L	10	4/11/2024	EPA-160.1	=
Iodide	U	0.5	mg/L	0.5	4/11/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	U	20	mg/L	20	4/11/2024	EPA-410.4	=
Cyanide	U	0.2	mg/L	0.2	4/11/2024	SW846-9012B	=
Total Organic Halides (TOX)		18.8	ug/L	10	4/11/2024	SW846-9020B	=

Total Organic Carbon (TOC)	J	0.692	mg/L	2	4/11/2024	SW846-9060A	=
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**Paducah OREIS
GROUNDWATER MONITORING REPORT**

Facility: C-746-S&T Landfill **County:** McCracken **Permit #:** SW07300014,SW07300015,SW07300045
Sampling Point: MW221 **SIDE:** **RGA Type:** URGA **Period:** 2nd Quarter 2024
AKGWA Well Tag #: 8000-5202 **SAMPLE ID:** MW221SG3-24 **Sample Type:** REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide	J	0.426	mg/L	0.8	4/11/2024			SW846-9056A	=
Chloride	JW	35.5	mg/L	250	4/11/2024			SW846-9056A	=
Fluoride	J	0.276	mg/L	4	4/11/2024			SW846-9056A	=
Nitrate as Nitrogen	J	0.95	mg/L	10	4/11/2024			SW846-9056A	=
Sulfate	W	15.7	mg/L	0.4	4/11/2024			SW846-9056A	=
Barometric Pressure Reading		29.51	Inches/Hg		4/11/2024				X
Conductivity		398	µmhos/cm		4/11/2024				X
Depth to Water		68.33	ft		4/11/2024				X
Dissolved Oxygen		5.55	mg/L		4/11/2024				X
Eh (approx)		394	mV		4/11/2024				X
pH		5.92	Std Unit		4/11/2024				X
Temperature		59.6	deg F		4/11/2024				X
Turbidity		2.71	NTU		4/11/2024				X
Aluminum	U	0.05	mg/L	0.05	4/11/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	4/11/2024			SW846-6020B	=
Arsenic	U	0.005	mg/L	0.005	4/11/2024			SW846-6020B	=
Barium		0.196	mg/L	0.004	4/11/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	4/11/2024			SW846-6020B	=
Boron		0.0222	mg/L	0.015	4/11/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	4/11/2024			SW846-6020B	=
Calcium		20.9	mg/L	0.2	4/11/2024			SW846-6020B	=
Chromium	J	0.00391	mg/L	0.01	4/11/2024			SW846-6020B	=
Cobalt	U	0.001	mg/L	0.001	4/11/2024			SW846-6020B	=
Copper	J	0.000883	mg/L	0.002	4/11/2024			SW846-6020B	J
Iron	U	0.1	mg/L	0.1	4/11/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	4/11/2024			SW846-6020B	=
Magnesium		9.66	mg/L	0.03	4/11/2024			SW846-6020B	=
Manganese	U	0.005	mg/L	0.005	4/11/2024			SW846-6020B	=
Molybdenum		0.00369	mg/L	0.001	4/11/2024			SW846-6020B	=
Nickel		0.011	mg/L	0.002	4/11/2024			SW846-6020B	J
Potassium	NW	2.03	mg/L	0.3	4/11/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	4/11/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	4/11/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	4/11/2024			SW846-6020B	=
Sodium		48.3	mg/L	0.25	4/11/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	4/11/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	4/11/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	4/11/2024			SW846-6020B	=
Vanadium	J	0.00581	mg/L	0.02	4/11/2024			SW846-6020B	=
Zinc	U	0.02	mg/L	0.02	4/11/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	4/11/2024			SW846-7470A	=
Barium, Dissolved		0.198	mg/L	0.004	4/11/2024			SW846-6020B	J
Chromium, Dissolved	J	0.00371	mg/L	0.01	4/11/2024			SW846-6020B	J
Uranium, Dissolved	U	0.0002	mg/L	0.0002	4/11/2024			SW846-6020B	UJ
Radium-226	U	0.437	pCi/L	0.628	4/11/2024	0.454	0.455	AN-1418	=

Strontium-90	U	3.32	pCi/L	4.42	4/11/2024	2.77	2.82	EPA-905.0-M	=
Tritium	U	-86.8	pCi/L	229	4/11/2024	103	103	EPA-906.0-M	=
Technetium-99	U	18.5	pCi/L	20.4	4/11/2024	12.7	12.8	HASL 300, Tc-02-RC M	=
Thorium-230	U	-0.442	pCi/L	1.84	4/11/2024	0.515	0.516	HASL 300, Th-01-RC M	=
Alpha activity	U	3.68	pCi/L	7.21	4/11/2024	4.42	4.46	SW846-9310	=
Beta activity	U	4.43	pCi/L	16.2	4/11/2024	9.32	9.35	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.0191	ug/L	0.0191	4/11/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	4/11/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	4/11/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	4/11/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	4/11/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	4/11/2024			SW846-8260D	=
Acrylonitrile	U	5	ug/L	5	4/11/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	4/11/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	4/11/2024			SW846-8260D	UJ
Chlorobenzene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Ethylbenzene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	4/11/2024			SW846-8260D	=
Methylene chloride	U	5	ug/L	5	4/11/2024			SW846-8260D	=
Styrene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Toluene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Total Xylene	U	3	ug/L	3	4/11/2024			SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	4/11/2024			SW846-8260D	=
Trichloroethene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Trichlorofluoromethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=

Vinyl acetate	U	5 ug/L	5	4/11/2024	SW846-8260D	=
Vinyl chloride	U	1 ug/L	1	4/11/2024	SW846-8260D	=
Dissolved Solids		214 mg/L	10	4/11/2024	EPA-160.1	=
Iodide	U	0.5 mg/L	0.5	4/11/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	U	20 mg/L	20	4/11/2024	EPA-410.4	=
Cyanide	U	0.2 mg/L	0.2	4/11/2024	SW846-9012B	=
Total Organic Halides (TOX)		13.9 ug/L	10	4/11/2024	SW846-9020B	=
Total Organic Carbon (TOC)	J	0.715 mg/L	2	4/11/2024	SW846-9060A	=

**Paducah OREIS
GROUNDWATER MONITORING REPORT**

Facility: C-746-S&T Landfill **County:** McCracken **Permit #:** SW07300014,SW07300015,SW07300045
Sampling Point: MW222 **SIDE:** **RGA Type:** URGA **Period:** 2nd Quarter 2024
AKGWA Well Tag #: 8000-5242 **SAMPLE ID:** MW222SG3-24 **Sample Type:** REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide	J	0.41	mg/L	0.8	4/11/2024			SW846-9056A	=
Chloride	JW	34.5	mg/L	250	4/11/2024			SW846-9056A	=
Fluoride	J	0.326	mg/L	4	4/11/2024			SW846-9056A	=
Nitrate as Nitrogen	J	0.906	mg/L	10	4/11/2024			SW846-9056A	=
Sulfate	W	13.4	mg/L	0.4	4/11/2024			SW846-9056A	=
Barometric Pressure Reading		29.54	Inches/Hg		4/11/2024				X
Conductivity		391	µmhos/cm		4/11/2024				X
Depth to Water		72.26	ft		4/11/2024				X
Dissolved Oxygen		4.54	mg/L		4/11/2024				X
Eh (approx)		385	mV		4/11/2024				X
pH		6.01	Std Unit		4/11/2024				X
Temperature		60.5	deg F		4/11/2024				X
Turbidity		1.09	NTU		4/11/2024				X
Aluminum	U	0.05	mg/L	0.05	4/11/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	4/11/2024			SW846-6020B	=
Arsenic	U	0.005	mg/L	0.005	4/11/2024			SW846-6020B	=
Barium		0.266	mg/L	0.004	4/11/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	4/11/2024			SW846-6020B	=
Boron	J	0.00889	mg/L	0.015	4/11/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	4/11/2024			SW846-6020B	=
Calcium		21.4	mg/L	0.2	4/11/2024			SW846-6020B	=
Chromium	J	0.00574	mg/L	0.01	4/11/2024			SW846-6020B	=
Cobalt	U	0.001	mg/L	0.001	4/11/2024			SW846-6020B	=
Copper	J	0.000996	mg/L	0.002	4/11/2024			SW846-6020B	J
Iron	U	0.1	mg/L	0.1	4/11/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	4/11/2024			SW846-6020B	=
Magnesium		9.73	mg/L	0.03	4/11/2024			SW846-6020B	=
Manganese	J	0.00196	mg/L	0.005	4/11/2024			SW846-6020B	J
Molybdenum		0.00727	mg/L	0.001	4/11/2024			SW846-6020B	=
Nickel		0.0221	mg/L	0.002	4/11/2024			SW846-6020B	=
Potassium	NW	0.562	mg/L	0.3	4/11/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	4/11/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	4/11/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	4/11/2024			SW846-6020B	=
Sodium		47.6	mg/L	0.25	4/11/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	4/11/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	4/11/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	4/11/2024			SW846-6020B	=
Vanadium	J	0.00553	mg/L	0.02	4/11/2024			SW846-6020B	=
Zinc	U	0.02	mg/L	0.02	4/11/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	4/11/2024			SW846-7470A	=
Barium, Dissolved		0.261	mg/L	0.004	4/11/2024			SW846-6020B	J
Chromium, Dissolved	J	0.00543	mg/L	0.01	4/11/2024			SW846-6020B	J
Uranium, Dissolved	U	0.0002	mg/L	0.0002	4/11/2024			SW846-6020B	UJ
Radium-226	U	0.472	pCi/L	0.95	4/11/2024	0.719	0.72	AN-1418	=

Strontium-90	U	-1.64	pCi/L	7.54	4/11/2024	3.7	3.7	EPA-905.0-M	=
Tritium	U	-76.5	pCi/L	228	4/11/2024	104	104	EPA-906.0-M	=
Technetium-99	U	4.89	pCi/L	20.9	4/11/2024	12	12	HASL 300, Tc-02-RC M	=
Thorium-230	U	0.169	pCi/L	1.76	4/11/2024	0.875	0.877	HASL 300, Th-01-RC M	=
Alpha activity	U	-0.996	pCi/L	7.36	4/11/2024	2.41	2.41	SW846-9310	=
Beta activity	U	2.04	pCi/L	7.85	4/11/2024	4.36	4.37	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.0191	ug/L	0.0191	4/11/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	4/11/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	4/11/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	4/11/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	4/11/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	4/11/2024			SW846-8260D	=
Acrylonitrile	U	5	ug/L	5	4/11/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	4/11/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	4/11/2024			SW846-8260D	UJ
Chlorobenzene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Ethylbenzene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	4/11/2024			SW846-8260D	=
Methylene chloride	U	5	ug/L	5	4/11/2024			SW846-8260D	=
Styrene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Toluene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Total Xylene	U	3	ug/L	3	4/11/2024			SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	4/11/2024			SW846-8260D	=
Trichloroethene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Trichlorofluoromethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=

Vinyl acetate	U	5 ug/L	5	4/11/2024	SW846-8260D	=
Vinyl chloride	U	1 ug/L	1	4/11/2024	SW846-8260D	=
Dissolved Solids		210 mg/L	10	4/11/2024	EPA-160.1	=
Iodide	U	0.5 mg/L	0.5	4/11/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	U	20 mg/L	20	4/11/2024	EPA-410.4	=
Cyanide	U	0.2 mg/L	0.2	4/11/2024	SW846-9012B	=
Total Organic Halides (TOX)	J	4.08 ug/L	10	4/11/2024	SW846-9020B	=
Total Organic Carbon (TOC)	J	0.765 mg/L	2	4/11/2024	SW846-9060A	=

**Paducah OREIS
GROUNDWATER MONITORING REPORT**

Facility: C-746-S&T Landfill **County:** McCracken **Permit #:** SW07300014,SW07300015,SW07300045

Sampling Point: MW223 **SIDE:** **RGA Type:** URGA **Period:** 2nd Quarter 2024

AKGWA Well Tag #: 8000-5243 **SAMPLE ID:** MW223SG3-24 **Sample Type:** REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide		0.427	mg/L	0.2	4/11/2024			SW846-9056A	=
Chloride	JW	35.6	mg/L	250	4/11/2024			SW846-9056A	=
Fluoride	J	0.283	mg/L	4	4/11/2024			SW846-9056A	=
Nitrate as Nitrogen	J	0.892	mg/L	10	4/11/2024			SW846-9056A	=
Sulfate	W	14.5	mg/L	0.4	4/11/2024			SW846-9056A	=
Barometric Pressure Reading		29.52	Inches/Hg		4/11/2024				X
Conductivity		393	µmhos/cm		4/11/2024				X
Depth to Water		71.37	ft		4/11/2024				X
Dissolved Oxygen		3.69	mg/L		4/11/2024				X
Eh (approx)		393	mV		4/11/2024				X
pH		5.97	Std Unit		4/11/2024				X
Temperature		60	deg F		4/11/2024				X
Turbidity		2.17	NTU		4/11/2024				X
Aluminum	U	0.05	mg/L	0.05	4/11/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	4/11/2024			SW846-6020B	=
Arsenic	U	0.005	mg/L	0.005	4/11/2024			SW846-6020B	=
Barium		0.236	mg/L	0.004	4/11/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	4/11/2024			SW846-6020B	=
Boron	J	0.00766	mg/L	0.015	4/11/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	4/11/2024			SW846-6020B	=
Calcium		21.5	mg/L	0.2	4/11/2024			SW846-6020B	=
Chromium		0.0164	mg/L	0.01	4/11/2024			SW846-6020B	=
Cobalt		0.00455	mg/L	0.001	4/11/2024			SW846-6020B	J
Copper	J	0.00104	mg/L	0.002	4/11/2024			SW846-6020B	J
Iron		0.217	mg/L	0.1	4/11/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	4/11/2024			SW846-6020B	=
Magnesium		9.54	mg/L	0.03	4/11/2024			SW846-6020B	=
Manganese		0.0912	mg/L	0.005	4/11/2024			SW846-6020B	=
Molybdenum		0.00302	mg/L	0.001	4/11/2024			SW846-6020B	=
Nickel		0.636	mg/L	0.002	4/11/2024			SW846-6020B	=
Potassium	NW	1.18	mg/L	0.3	4/11/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	4/11/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	4/11/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	4/11/2024			SW846-6020B	=
Sodium		45.5	mg/L	0.25	4/11/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	4/11/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	4/11/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	4/11/2024			SW846-6020B	=
Vanadium	J	0.00612	mg/L	0.02	4/11/2024			SW846-6020B	=
Zinc	U	0.02	mg/L	0.02	4/11/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	4/11/2024			SW846-7470A	=
Barium, Dissolved		0.239	mg/L	0.004	4/11/2024			SW846-6020B	J
Chromium, Dissolved	J	0.00983	mg/L	0.01	4/11/2024			SW846-6020B	J
Uranium, Dissolved	U	0.0002	mg/L	0.0002	4/11/2024			SW846-6020B	UJ
Radium-226	U	0.316	pCi/L	0.567	4/11/2024	0.392	0.392	AN-1418	=

Strontium-90	U	-0.311	pCi/L	4.87	4/11/2024	2.35	2.35	EPA-905.0-M	=
Tritium	U	21.5	pCi/L	228	4/11/2024	121	121	EPA-906.0-M	=
Technetium-99	U	6.56	pCi/L	20.8	4/11/2024	12.1	12.1	HASL 300, Tc-02-RC M	=
Thorium-230	U	-0.317	pCi/L	1.95	4/11/2024	0.699	0.7	HASL 300, Th-01-RC M	=
Alpha activity	U	2	pCi/L	8.16	4/11/2024	4.25	4.26	SW846-9310	=
Beta activity	U	1.99	pCi/L	8.05	4/11/2024	4.48	4.49	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.0194	ug/L	0.0194	4/11/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	4/11/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	4/11/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	4/11/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	4/11/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	4/11/2024			SW846-8260D	=
Acrylonitrile	U	5	ug/L	5	4/11/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	4/11/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	4/11/2024			SW846-8260D	UJ
Chlorobenzene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Ethylbenzene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	4/11/2024			SW846-8260D	=
Methylene chloride	U	5	ug/L	5	4/11/2024			SW846-8260D	=
Styrene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Toluene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Total Xylene	U	3	ug/L	3	4/11/2024			SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	4/11/2024			SW846-8260D	=
Trichloroethene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Trichlorofluoromethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=

Vinyl acetate	U	5 ug/L	5	4/11/2024	SW846-8260D	=
Vinyl chloride	U	1 ug/L	1	4/11/2024	SW846-8260D	=
Dissolved Solids		210 mg/L	10	4/11/2024	EPA-160.1	=
Iodide	U	0.5 mg/L	0.5	4/11/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	U	20 mg/L	20	4/11/2024	EPA-410.4	=
Cyanide	U	0.2 mg/L	0.2	4/11/2024	SW846-9012B	=
Total Organic Halides (TOX)	U	10 ug/L	10	4/11/2024	SW846-9020B	=
Total Organic Carbon (TOC)	J	0.669 mg/L	2	4/11/2024	SW846-9060A	=

**Paducah OREIS
GROUNDWATER MONITORING REPORT**

Facility: C-746-S&T Landfill **County:** McCracken **Permit #:** SW07300014,SW07300015,SW07300045
Sampling Point: MW224 **SIDE:** **RGA Type:** URGA **Period:** 2nd Quarter 2024
AKGWA Well Tag #: 8000-5244 **SAMPLE ID:** MW224SG3-24 **Sample Type:** REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide	U	0.2	mg/L	0.2	4/11/2024			SW846-9056A	=
Chloride	JW	19.1	mg/L	250	4/11/2024			SW846-9056A	=
Fluoride	J	0.356	mg/L	4	4/11/2024			SW846-9056A	=
Nitrate as Nitrogen	J	0.671	mg/L	10	4/11/2024			SW846-9056A	=
Sulfate	W	18.3	mg/L	0.4	4/11/2024			SW846-9056A	=
Barometric Pressure Reading		29.54	Inches/Hg		4/11/2024				X
Conductivity		460	µmhos/cm		4/11/2024				X
Depth to Water		72.67	ft		4/11/2024				X
Dissolved Oxygen		2.99	mg/L		4/11/2024				X
Eh (approx)		387	mV		4/11/2024				X
pH		6.01	Std Unit		4/11/2024				X
Temperature		60.9	deg F		4/11/2024				X
Turbidity		1.09	NTU		4/11/2024				X
Aluminum	U	0.05	mg/L	0.05	4/11/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	4/11/2024			SW846-6020B	=
Arsenic	U	0.005	mg/L	0.005	4/11/2024			SW846-6020B	=
Barium		0.231	mg/L	0.004	4/11/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	4/11/2024			SW846-6020B	=
Boron		0.0223	mg/L	0.015	4/11/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	4/11/2024			SW846-6020B	=
Calcium		24.5	mg/L	0.2	4/11/2024			SW846-6020B	=
Chromium	J	0.00575	mg/L	0.01	4/11/2024			SW846-6020B	=
Cobalt	U	0.001	mg/L	0.001	4/11/2024			SW846-6020B	=
Copper	J	0.00179	mg/L	0.002	4/11/2024			SW846-6020B	J
Iron	J	0.0646	mg/L	0.1	4/11/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	4/11/2024			SW846-6020B	=
Magnesium		11.2	mg/L	0.03	4/11/2024			SW846-6020B	=
Manganese		0.00637	mg/L	0.005	4/11/2024			SW846-6020B	J
Molybdenum		0.00134	mg/L	0.001	4/11/2024			SW846-6020B	=
Nickel		0.0124	mg/L	0.002	4/11/2024			SW846-6020B	J
Potassium	NW	0.91	mg/L	0.3	4/11/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	4/11/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	4/11/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	4/11/2024			SW846-6020B	=
Sodium		61.3	mg/L	2.5	4/11/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	4/11/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	4/11/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	4/11/2024			SW846-6020B	=
Vanadium	J	0.00541	mg/L	0.02	4/11/2024			SW846-6020B	=
Zinc	U	0.02	mg/L	0.02	4/11/2024			SW846-6020B	=
Mercury		0.000385	mg/L	0.0002	4/11/2024			SW846-7470A	=
Barium, Dissolved		0.23	mg/L	0.004	4/11/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	4/11/2024			SW846-6020B	UJ
Uranium, Dissolved	U	0.0002	mg/L	0.0002	4/11/2024			SW846-6020B	UJ
Radium-226	U	0.959	pCi/L	1.03	4/11/2024	0.934	0.936	AN-1418	=

Strontium-90	U	0.289	pCi/L	3.42	4/11/2024	1.76	1.76	EPA-905.0-M	=
Tritium	U	5.53	pCi/L	229	4/11/2024	119	119	EPA-906.0-M	=
Technetium-99	U	4.67	pCi/L	20.1	4/11/2024	11.5	11.5	HASL 300, Tc-02-RC M	=
Thorium-230	U	-0.136	pCi/L	1.79	4/11/2024	0.71	0.711	HASL 300, Th-01-RC M	=
Alpha activity	U	0.885	pCi/L	9.67	4/11/2024	4.69	4.7	SW846-9310	=
Beta activity	U	7.62	pCi/L	15.2	4/11/2024	9.02	9.12	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.0192	ug/L	0.0192	4/11/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	4/11/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	4/11/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	4/11/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	4/11/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	4/11/2024			SW846-8260D	=
Acrylonitrile	U	5	ug/L	5	4/11/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	4/11/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	4/11/2024			SW846-8260D	UJ
Chlorobenzene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Ethylbenzene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	4/11/2024			SW846-8260D	=
Methylene chloride	U	5	ug/L	5	4/11/2024			SW846-8260D	=
Styrene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Toluene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Total Xylene	U	3	ug/L	3	4/11/2024			SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	4/11/2024			SW846-8260D	=
Trichloroethene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Trichlorofluoromethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=

Vinyl acetate	U	5 ug/L	5	4/11/2024	SW846-8260D	=
Vinyl chloride	U	1 ug/L	1	4/11/2024	SW846-8260D	=
Dissolved Solids		266 mg/L	10	4/11/2024	EPA-160.1	=
Iodide	U	0.5 mg/L	0.5	4/11/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	U	20 mg/L	20	4/11/2024	EPA-410.4	=
Cyanide	U	0.2 mg/L	0.2	4/11/2024	SW846-9012B	=
Total Organic Halides (TOX)		22.5 ug/L	10	4/11/2024	SW846-9020B	=
Total Organic Carbon (TOC)	J	1.19 mg/L	2	4/11/2024	SW846-9060A	=

**Paducah OREIS
GROUNDWATER MONITORING REPORT**

Facility: C-746-S&T Landfill **County:** McCracken **Permit #:** SW07300014,SW07300015,SW07300045
Sampling Point: MW369 DOWN **RGA Type:** URGA **Period:** 2nd Quarter 2024
AKGWA Well Tag #: 8004-4820 **SAMPLE ID:** MW369UG3-24 **Sample Type:** REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide		0.374	mg/L	0.2	4/10/2024			SW846-9056A	=
Chloride	JW	27.2	mg/L	250	4/10/2024			SW846-9056A	=
Fluoride	J	0.276	mg/L	4	4/10/2024			SW846-9056A	=
Nitrate as Nitrogen	J	0.924	mg/L	10	4/10/2024			SW846-9056A	=
Sulfate		7.81	mg/L	0.4	4/10/2024			SW846-9056A	=
Barometric Pressure Reading		29.82	Inches/Hg		4/10/2024				X
Conductivity		347	µmhos/cm		4/10/2024				X
Depth to Water		41.39	ft		4/10/2024				X
Dissolved Oxygen		2.39	mg/L		4/10/2024				X
Eh (approx)		312	mV		4/10/2024				X
pH		5.89	Std Unit		4/10/2024				X
Temperature		60.7	deg F		4/10/2024				X
Turbidity		4.64	NTU		4/10/2024				X
Aluminum		0.0791	mg/L	0.05	4/10/2024			SW846-6020B	J
Antimony	U	0.003	mg/L	0.003	4/10/2024			SW846-6020B	=
Arsenic	J	0.00206	mg/L	0.005	4/10/2024			SW846-6020B	=
Barium	B	0.349	mg/L	0.004	4/10/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	4/10/2024			SW846-6020B	=
Boron		0.0153	mg/L	0.015	4/10/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	4/10/2024			SW846-6020B	=
Calcium		14.9	mg/L	0.2	4/10/2024			SW846-6020B	=
Chromium	U	0.01	mg/L	0.01	4/10/2024			SW846-6020B	=
Cobalt		0.00409	mg/L	0.001	4/10/2024			SW846-6020B	J
Copper	J	0.0014	mg/L	0.002	4/10/2024			SW846-6020B	J
Iron		0.122	mg/L	0.1	4/10/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	4/10/2024			SW846-6020B	=
Magnesium		6.41	mg/L	0.03	4/10/2024			SW846-6020B	=
Manganese		0.00554	mg/L	0.005	4/10/2024			SW846-6020B	J
Molybdenum	U	0.001	mg/L	0.001	4/10/2024			SW846-6020B	=
Nickel		0.00298	mg/L	0.002	4/10/2024			SW846-6020B	J
Potassium		0.492	mg/L	0.3	4/10/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	4/10/2024			SW846-6020B	=
Selenium	J	0.00271	mg/L	0.005	4/10/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	4/10/2024			SW846-6020B	=
Sodium		47.8	mg/L	0.25	4/10/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	4/10/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	4/10/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	4/10/2024			SW846-6020B	=
Vanadium	BJ	0.00897	mg/L	0.02	4/10/2024			SW846-6020B	U
Zinc	U	0.02	mg/L	0.02	4/10/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	4/10/2024			SW846-7470A	=
Barium, Dissolved		0.371	mg/L	0.004	4/10/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	4/10/2024			SW846-6020B	UJ
Uranium, Dissolved	U	0.0002	mg/L	0.0002	4/10/2024			SW846-6020B	UJ
PCB-1016	U	0.116	ug/L	0.116	4/10/2024			SW846-8082A	=

PCB-1221	U	0.116	ug/L	0.116	4/10/2024			SW846-8082A	=
PCB-1232	U	0.116	ug/L	0.116	4/10/2024			SW846-8082A	=
PCB-1242	U	0.116	ug/L	0.116	4/10/2024			SW846-8082A	=
PCB-1248	U	0.116	ug/L	0.116	4/10/2024			SW846-8082A	=
PCB-1254	U	0.116	ug/L	0.116	4/10/2024			SW846-8082A	=
PCB-1260	U	0.116	ug/L	0.116	4/10/2024			SW846-8082A	UJ
PCB-1268	U	0.116	ug/L	0.116	4/10/2024			SW846-8082A	=
Polychlorinated biphenyl	U	0.116	ug/L	0.116	4/10/2024			SW846-8082A	UJ
Radium-226	U	0.384	pCi/L	1.18	4/10/2024	0.798	0.799	AN-1418	=
Radium-228	U	1.63	pCi/L	3.43	4/10/2024	2.02	2.06	EPA-904.0-M	=
Strontium-90	U	0.714	pCi/L	7.36	4/10/2024	4.06	4.06	EPA-905.0-M	=
Tritium	U	32.9	pCi/L	228	4/10/2024	129	129	EPA-906.0-M	=
Technetium-99		70.9	pCi/L	20.5	4/10/2024	16	17.9	HASL 300, Tc-02-RC M	=
Thorium-230	U	0.507	pCi/L	1.37	4/10/2024	0.831	0.837	HASL 300, Th-01-RC M	=
Thorium-232	U	0.255	pCi/L	0.813	4/10/2024	0.544	0.545	HASL 300, Th-01-RC M	=
Alpha activity	U	1.96	pCi/L	6.06	4/10/2024	3.32	3.33	SW846-9310	=
Beta activity		33.2	pCi/L	9.32	4/10/2024	8.43	10.1	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.0193	ug/L	0.0193	4/10/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	4/10/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	4/10/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	4/10/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	4/10/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	4/10/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	4/10/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	4/10/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	4/10/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	4/10/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	4/10/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	4/10/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	4/10/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	4/10/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	4/10/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	4/10/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	4/10/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	4/10/2024			SW846-8260D	=
Acrylonitrile	U	5	ug/L	5	4/10/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	4/10/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	4/10/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	4/10/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	4/10/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	4/10/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	4/10/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	4/10/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	4/10/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	4/10/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	4/10/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	4/10/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	4/10/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	4/10/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	4/10/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	4/10/2024			SW846-8260D	=

Ethylbenzene	U	1 ug/L	1	4/10/2024	SW846-8260D	=
Iodomethane	U	5 ug/L	5	4/10/2024	SW846-8260D	=
Methylene chloride	U	5 ug/L	5	4/10/2024	SW846-8260D	=
Styrene	U	1 ug/L	1	4/10/2024	SW846-8260D	=
Tetrachloroethene	U	1 ug/L	1	4/10/2024	SW846-8260D	=
Toluene	U	1 ug/L	1	4/10/2024	SW846-8260D	=
Total Xylene	U	3 ug/L	3	4/10/2024	SW846-8260D	=
trans-1,2-Dichloroethene	U	1 ug/L	1	4/10/2024	SW846-8260D	=
trans-1,3-Dichloropropene	U	1 ug/L	1	4/10/2024	SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5 ug/L	5	4/10/2024	SW846-8260D	=
Trichloroethene	J	0.96 ug/L	1	4/10/2024	SW846-8260D	=
Trichlorofluoromethane	U	1 ug/L	1	4/10/2024	SW846-8260D	=
Vinyl acetate	U	5 ug/L	5	4/10/2024	SW846-8260D	=
Vinyl chloride	U	1 ug/L	1	4/10/2024	SW846-8260D	UJ
Dissolved Solids	*	186 mg/L	10	4/10/2024	EPA-160.1	=
Iodide	U	0.5 mg/L	0.5	4/10/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	U	20 mg/L	20	4/10/2024	EPA-410.4	=
Cyanide	U	0.2 mg/L	0.2	4/10/2024	SW846-9012B	=
Total Organic Halides (TOX)	J	8.2 ug/L	10	4/10/2024	SW846-9020B	=
Total Organic Carbon (TOC)	J	0.829 mg/L	2	4/10/2024	SW846-9060A	=

**Paducah OREIS
GROUNDWATER MONITORING REPORT**

Facility: C-746-S&T Landfill **County:** McCracken **Permit #:** SW07300014,SW07300015,SW07300045
Sampling Point: MW370 DOWN **RGA Type:** LRGA **Period:** 2nd Quarter 2024
AKGWA Well Tag #: 8004-4818 **SAMPLE ID:** MW370UG3-24 **Sample Type:** REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide		0.54	mg/L	0.4	4/10/2024			SW846-9056A	=
Chloride	JW	40.9	mg/L	250	4/10/2024			SW846-9056A	J
Fluoride	J	0.225	mg/L	4	4/10/2024			SW846-9056A	=
Nitrate as Nitrogen	J	0.962	mg/L	10	4/10/2024			SW846-9056A	=
Sulfate		19.7	mg/L	0.8	4/10/2024			SW846-9056A	=
Barometric Pressure Reading		29.83	Inches/Hg		4/10/2024				X
Conductivity		409	µmhos/cm		4/10/2024				X
Depth to Water		42.28	ft		4/10/2024				X
Dissolved Oxygen		3.09	mg/L		4/10/2024				X
Eh (approx)		345	mV		4/10/2024				X
pH		5.93	Std Unit		4/10/2024				X
Temperature		61.5	deg F		4/10/2024				X
Turbidity		2.97	NTU		4/10/2024				X
Aluminum	U	0.05	mg/L	0.05	4/10/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	4/10/2024			SW846-6020B	=
Arsenic	U	0.005	mg/L	0.005	4/10/2024			SW846-6020B	=
Barium	B	0.221	mg/L	0.004	4/10/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	4/10/2024			SW846-6020B	=
Boron		0.105	mg/L	0.015	4/10/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	4/10/2024			SW846-6020B	=
Calcium		28.4	mg/L	0.2	4/10/2024			SW846-6020B	=
Chromium	U	0.01	mg/L	0.01	4/10/2024			SW846-6020B	=
Cobalt	U	0.001	mg/L	0.001	4/10/2024			SW846-6020B	=
Copper	J	0.00117	mg/L	0.002	4/10/2024			SW846-6020B	J
Iron	J	0.0363	mg/L	0.1	4/10/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	4/10/2024			SW846-6020B	=
Magnesium		12.3	mg/L	0.03	4/10/2024			SW846-6020B	=
Manganese	J	0.00124	mg/L	0.005	4/10/2024			SW846-6020B	J
Molybdenum	U	0.001	mg/L	0.001	4/10/2024			SW846-6020B	=
Nickel	U	0.002	mg/L	0.002	4/10/2024			SW846-6020B	=
Potassium		2.28	mg/L	0.3	4/10/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	4/10/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	4/10/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	4/10/2024			SW846-6020B	=
Sodium		43.9	mg/L	0.25	4/10/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	4/10/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	4/10/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	4/10/2024			SW846-6020B	=
Vanadium	BJ	0.00456	mg/L	0.02	4/10/2024			SW846-6020B	U
Zinc	U	0.02	mg/L	0.02	4/10/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	4/10/2024			SW846-7470A	=
Barium, Dissolved		0.227	mg/L	0.004	4/10/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	4/10/2024			SW846-6020B	UJ
Uranium, Dissolved	U	0.0002	mg/L	0.0002	4/10/2024			SW846-6020B	UJ
PCB-1016	U	0.1	ug/L	0.1	4/10/2024			SW846-8082A	=

PCB-1221	U	0.1	ug/L	0.1	4/10/2024			SW846-8082A	=
PCB-1232	U	0.1	ug/L	0.1	4/10/2024			SW846-8082A	=
PCB-1242	U	0.1	ug/L	0.1	4/10/2024			SW846-8082A	=
PCB-1248	U	0.1	ug/L	0.1	4/10/2024			SW846-8082A	=
PCB-1254	U	0.1	ug/L	0.1	4/10/2024			SW846-8082A	=
PCB-1260	U	0.1	ug/L	0.1	4/10/2024			SW846-8082A	UJ
PCB-1268	U	0.1	ug/L	0.1	4/10/2024			SW846-8082A	=
Polychlorinated biphenyl	U	0.1	ug/L	0.1	4/10/2024			SW846-8082A	UJ
Radium-226	U	0.852	pCi/L	1.23	4/10/2024	1.16	1.16	AN-1418	=
Radium-228	U	1.14	pCi/L	3.79	4/10/2024	2.11	2.13	EPA-904.0-M	=
Strontium-90	U	-1.41	pCi/L	4.01	4/10/2024	1.89	1.89	EPA-905.0-M	=
Tritium	U	81.4	pCi/L	228	4/10/2024	132	133	EPA-906.0-M	=
Technetium-99		22.9	pCi/L	20.2	4/10/2024	12.9	13.1	HASL 300, Tc-02-RC M	=
Thorium-230	U	0.804	pCi/L	1.88	4/10/2024	1.22	1.23	HASL 300, Th-01-RC M	=
Thorium-232	U	0.476	pCi/L	0.988	4/10/2024	0.853	0.856	HASL 300, Th-01-RC M	=
Alpha activity	U	2.93	pCi/L	6.51	4/10/2024	3.86	3.89	SW846-9310	=
Beta activity		13.2	pCi/L	9.6	4/10/2024	6.67	7.02	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.0191	ug/L	0.0191	4/10/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	4/10/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	4/10/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	4/10/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	4/10/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	4/10/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	4/10/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	4/10/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	4/10/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	4/10/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	4/10/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	4/10/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	4/10/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	4/10/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	4/10/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	4/10/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	4/10/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	4/10/2024			SW846-8260D	=
Acrylonitrile	U	5	ug/L	5	4/10/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	4/10/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	4/10/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	4/10/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	4/10/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	4/10/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	4/10/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	4/10/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	4/10/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	4/10/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	4/10/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	4/10/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	4/10/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	4/10/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	4/10/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	4/10/2024			SW846-8260D	=

Ethylbenzene	U	1 ug/L	1	4/10/2024	SW846-8260D	=
Iodomethane	U	5 ug/L	5	4/10/2024	SW846-8260D	=
Methylene chloride	U	5 ug/L	5	4/10/2024	SW846-8260D	=
Styrene	U	1 ug/L	1	4/10/2024	SW846-8260D	=
Tetrachloroethene	U	1 ug/L	1	4/10/2024	SW846-8260D	=
Toluene	U	1 ug/L	1	4/10/2024	SW846-8260D	=
Total Xylene	U	3 ug/L	3	4/10/2024	SW846-8260D	=
trans-1,2-Dichloroethene	U	1 ug/L	1	4/10/2024	SW846-8260D	=
trans-1,3-Dichloropropene	U	1 ug/L	1	4/10/2024	SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5 ug/L	5	4/10/2024	SW846-8260D	=
Trichloroethene		2.14 ug/L	1	4/10/2024	SW846-8260D	=
Trichlorofluoromethane	U	1 ug/L	1	4/10/2024	SW846-8260D	=
Vinyl acetate	U	5 ug/L	5	4/10/2024	SW846-8260D	=
Vinyl chloride	U	1 ug/L	1	4/10/2024	SW846-8260D	UJ
Dissolved Solids	*	232 mg/L	10	4/10/2024	EPA-160.1	=
Iodide	U	0.5 mg/L	0.5	4/10/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	J	18.7 mg/L	20	4/10/2024	EPA-410.4	=
Cyanide	U	0.2 mg/L	0.2	4/10/2024	SW846-9012B	=
Total Organic Halides (TOX)		10.6 ug/L	10	4/10/2024	SW846-9020B	=
Total Organic Carbon (TOC)	J	0.928 mg/L	2	4/10/2024	SW846-9060A	=

**Paducah OREIS
GROUNDWATER MONITORING REPORT**

Facility: C-746-S&T Landfill **County:** McCracken **Permit #:** SW07300014,SW07300015,SW07300045

Sampling Point: MW372 DOWN **RGA Type:** URGA **Period:** 2nd Quarter 2024

AKGWA Well Tag #: 8004-4808 **SAMPLE ID:** MW372UG3-24R **Sample Type:** REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide		0.744	mg/L	0.2	4/11/2024			SW846-9056A	=
Chloride	J	38.7	mg/L	250	4/11/2024			SW846-9056A	=
Fluoride	J	0.242	mg/L	4	4/11/2024			SW846-9056A	=
Nitrate as Nitrogen	J	0.871	mg/L	10	4/11/2024			SW846-9056A	=
Sulfate		140	mg/L	4	4/11/2024			SW846-9056A	=
Barometric Pressure Reading		29.57	Inches/Hg		4/11/2024				X
Conductivity		758	µmhos/cm		4/11/2024				X
Depth to Water		36.31	ft		4/11/2024				X
Dissolved Oxygen		2.12	mg/L		4/11/2024				X
Eh (approx)		381	mV		4/11/2024				X
pH		6.05	Std Unit		4/11/2024				X
Temperature		61.5	deg F		4/11/2024				X
Turbidity		1.04	NTU		4/11/2024				X
Aluminum	U	0.05	mg/L	0.05	4/11/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	4/11/2024			SW846-6020B	=
Arsenic	U	0.005	mg/L	0.005	4/11/2024			SW846-6020B	=
Barium		0.0527	mg/L	0.004	4/11/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	4/11/2024			SW846-6020B	=
Boron		1.14	mg/L	0.15	4/11/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	4/11/2024			SW846-6020B	=
Calcium		65.3	mg/L	2	4/11/2024			SW846-6020B	=
Chromium	U	0.01	mg/L	0.01	4/11/2024			SW846-6020B	=
Cobalt	U	0.001	mg/L	0.001	4/11/2024			SW846-6020B	=
Copper	J	0.00067	mg/L	0.002	4/11/2024			SW846-6020B	J
Iron	J	0.0797	mg/L	0.1	4/11/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	4/11/2024			SW846-6020B	=
Magnesium	B	22.5	mg/L	0.03	4/11/2024			SW846-6020B	=
Manganese	J	0.00137	mg/L	0.005	4/11/2024			SW846-6020B	J
Molybdenum	U	0.001	mg/L	0.001	4/11/2024			SW846-6020B	=
Nickel	U	0.002	mg/L	0.002	4/11/2024			SW846-6020B	=
Potassium		2.14	mg/L	0.3	4/11/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	4/11/2024			SW846-6020B	=
Selenium	J	0.00212	mg/L	0.005	4/11/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	4/11/2024			SW846-6020B	=
Sodium		61.2	mg/L	2.5	4/11/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	4/11/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	4/11/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	4/11/2024			SW846-6020B	=
Vanadium	BJ	0.00419	mg/L	0.02	4/11/2024			SW846-6020B	U
Zinc	U	0.02	mg/L	0.02	4/11/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	4/11/2024			SW846-7470A	=
Barium, Dissolved		0.0533	mg/L	0.004	4/11/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	4/11/2024			SW846-6020B	UJ
Uranium, Dissolved	U	0.0002	mg/L	0.0002	4/11/2024			SW846-6020B	UJ
PCB-1016	U	0.118	ug/L	0.118	4/11/2024			SW846-8082A	=

PCB-1221	U	0.118	ug/L	0.118	4/11/2024			SW846-8082A	=
PCB-1232	U	0.118	ug/L	0.118	4/11/2024			SW846-8082A	=
PCB-1242	U	0.118	ug/L	0.118	4/11/2024			SW846-8082A	=
PCB-1248	U	0.118	ug/L	0.118	4/11/2024			SW846-8082A	=
PCB-1254	U	0.118	ug/L	0.118	4/11/2024			SW846-8082A	=
PCB-1260	U	0.118	ug/L	0.118	4/11/2024			SW846-8082A	=
PCB-1268	U	0.118	ug/L	0.118	4/11/2024			SW846-8082A	=
Polychlorinated biphenyl	U	0.118	ug/L	0.118	4/11/2024			SW846-8082A	=
Radium-226	U	0.0405	pCi/L	0.535	4/11/2024	0.261	0.261	AN-1418	=
Radium-228	U	0.973	pCi/L	3.22	4/11/2024	1.8	1.82	EPA-904.0-M	=
Strontium-90	U	2.81	pCi/L	6.31	4/11/2024	3.71	3.73	EPA-905.0-M	=
Tritium	U	11.5	pCi/L	229	4/11/2024	120	120	EPA-906.0-M	=
Technetium-99		61.5	pCi/L	19.9	4/11/2024	15.2	16.6	HASL 300, Tc-02-RC M	=
Thorium-230	U	0.108	pCi/L	1.8	4/11/2024	0.864	0.866	HASL 300, Th-01-RC M	=
Thorium-232	U	-0.0218	pCi/L	0.861	4/11/2024	0.428	0.429	HASL 300, Th-01-RC M	=
Alpha activity	U	3.78	pCi/L	8.09	4/11/2024	4.83	4.87	SW846-9310	=
Beta activity		37.6	pCi/L	9.26	4/11/2024	8.93	10.9	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.0191	ug/L	0.0191	4/11/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	4/11/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	4/11/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	4/11/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	4/11/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	4/11/2024			SW846-8260D	=
Acrylonitrile	U	5	ug/L	5	4/11/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	4/11/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=

Ethylbenzene	U	1 ug/L	1	4/11/2024	SW846-8260D	=
Iodomethane	U	5 ug/L	5	4/11/2024	SW846-8260D	=
Methylene chloride	U	5 ug/L	5	4/11/2024	SW846-8260D	=
Styrene	U	1 ug/L	1	4/11/2024	SW846-8260D	=
Tetrachloroethene	U	1 ug/L	1	4/11/2024	SW846-8260D	=
Toluene	U	1 ug/L	1	4/11/2024	SW846-8260D	=
Total Xylene	U	3 ug/L	3	4/11/2024	SW846-8260D	=
trans-1,2-Dichloroethene	U	1 ug/L	1	4/11/2024	SW846-8260D	=
trans-1,3-Dichloropropene	U	1 ug/L	1	4/11/2024	SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5 ug/L	5	4/11/2024	SW846-8260D	=
Trichloroethene		1.1 ug/L	1	4/11/2024	SW846-8260D	=
Trichlorofluoromethane	U	1 ug/L	1	4/11/2024	SW846-8260D	=
Vinyl acetate	U	5 ug/L	5	4/11/2024	SW846-8260D	=
Vinyl chloride	U	1 ug/L	1	4/11/2024	SW846-8260D	UJ
Dissolved Solids		459 mg/L	10	4/11/2024	EPA-160.1	=
Iodide	U	0.5 mg/L	0.5	4/11/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	U	20 mg/L	20	4/11/2024	EPA-410.4	=
Cyanide	U	0.2 mg/L	0.2	4/11/2024	SW846-9012B	=
Total Organic Halides (TOX)	J	6.5 ug/L	10	4/11/2024	SW846-9020B	=
Total Organic Carbon (TOC)	J	0.955 mg/L	2	4/11/2024	SW846-9060A	=

**Paducah OREIS
GROUNDWATER MONITORING REPORT**

Facility: C-746-S&T Landfill **County:** McCracken **Permit #:** SW07300014,SW07300015,SW07300045

Sampling Point: MW373 DOWN **RGA Type:** LRGA **Period:** 2nd Quarter 2024

AKGWA Well Tag #: 8004-4792 **SAMPLE ID:** MW373UG3-24 **Sample Type:** REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide	W	0.437	mg/L	0.4	4/10/2024			SW846-9056A	=
Chloride	J	30.8	mg/L	4	4/10/2024			SW846-9056A	=
Fluoride	J	0.214	mg/L	4	4/10/2024			SW846-9056A	=
Nitrate as Nitrogen	JW	0.53	mg/L	10	4/10/2024			SW846-9056A	=
Sulfate		192	mg/L	8	4/10/2024			SW846-9056A	=
Barometric Pressure Reading		29.81	Inches/Hg		4/10/2024				X
Conductivity		930	µmhos/cm		4/10/2024				X
Depth to Water		36.86	ft		4/10/2024				X
Dissolved Oxygen		2.61	mg/L		4/10/2024				X
Eh (approx)		383	mV		4/10/2024				X
pH		6.02	Std Unit		4/10/2024				X
Temperature		61.4	deg F		4/10/2024				X
Turbidity		2.33	NTU		4/10/2024				X
Aluminum	U	0.05	mg/L	0.05	4/10/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	4/10/2024			SW846-6020B	=
Arsenic	U	0.005	mg/L	0.005	4/10/2024			SW846-6020B	=
Barium	B	0.0326	mg/L	0.004	4/10/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	4/10/2024			SW846-6020B	=
Boron		2.15	mg/L	0.3	4/10/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	4/10/2024			SW846-6020B	=
Calcium		83.5	mg/L	4	4/10/2024			SW846-6020B	=
Chromium	U	0.01	mg/L	0.01	4/10/2024			SW846-6020B	=
Cobalt	J	0.000462	mg/L	0.001	4/10/2024			SW846-6020B	J
Copper	J	0.000655	mg/L	0.002	4/10/2024			SW846-6020B	J
Iron	J	0.0751	mg/L	0.1	4/10/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	4/10/2024			SW846-6020B	=
Magnesium		29.3	mg/L	0.03	4/10/2024			SW846-6020B	=
Manganese		0.0719	mg/L	0.005	4/10/2024			SW846-6020B	=
Molybdenum	U	0.001	mg/L	0.001	4/10/2024			SW846-6020B	=
Nickel		0.00203	mg/L	0.002	4/10/2024			SW846-6020B	J
Potassium		2.57	mg/L	0.3	4/10/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	4/10/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	4/10/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	4/10/2024			SW846-6020B	=
Sodium		68.1	mg/L	5	4/10/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	4/10/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	4/10/2024			SW846-6020B	=
Uranium	J	0.000076	mg/L	0.0002	4/10/2024			SW846-6020B	=
Vanadium	BJ	0.00596	mg/L	0.02	4/10/2024			SW846-6020B	U
Zinc	U	0.02	mg/L	0.02	4/10/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	4/10/2024			SW846-7470A	=
Barium, Dissolved		0.0359	mg/L	0.004	4/10/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	4/10/2024			SW846-6020B	UJ
Uranium, Dissolved	J	0.00008	mg/L	0.0002	4/10/2024			SW846-6020B	J
PCB-1016	U	0.117	ug/L	0.117	4/10/2024			SW846-8082A	=

PCB-1221	U	0.117	ug/L	0.117	4/10/2024			SW846-8082A	=
PCB-1232	U	0.117	ug/L	0.117	4/10/2024			SW846-8082A	=
PCB-1242	U	0.117	ug/L	0.117	4/10/2024			SW846-8082A	=
PCB-1248	U	0.117	ug/L	0.117	4/10/2024			SW846-8082A	=
PCB-1254	U	0.117	ug/L	0.117	4/10/2024			SW846-8082A	=
PCB-1260	U	0.117	ug/L	0.117	4/10/2024			SW846-8082A	UJ
PCB-1268	U	0.117	ug/L	0.117	4/10/2024			SW846-8082A	=
Polychlorinated biphenyl	U	0.117	ug/L	0.117	4/10/2024			SW846-8082A	UJ
Radium-226	U	0.52	pCi/L	1.27	4/10/2024	0.972	0.973	AN-1418	=
Radium-228	U	1.37	pCi/L	4.1	4/10/2024	2.33	2.36	EPA-904.0-M	=
Strontium-90	U	0	pCi/L	5.72	4/10/2024	3.04	3.04	EPA-905.0-M	=
Tritium	U	14.2	pCi/L	226	4/10/2024	126	126	EPA-906.0-M	=
Technetium-99	U	2.12	pCi/L	20.2	4/10/2024	11.4	11.4	HASL 300, Tc-02-RC M	=
Thorium-230	U	-0.152	pCi/L	2.04	4/10/2024	0.873	0.873	HASL 300, Th-01-RC M	=
Thorium-232	U	0.136	pCi/L	1.06	4/10/2024	0.591	0.592	HASL 300, Th-01-RC M	=
Alpha activity	U	1.99	pCi/L	7.31	4/10/2024	3.87	3.89	SW846-9310	=
Beta activity		11.8	pCi/L	8.75	4/10/2024	6.08	6.39	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.0194	ug/L	0.0194	4/10/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	4/10/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	4/10/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	4/10/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	4/10/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	4/10/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	4/10/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	4/10/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	4/10/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	4/10/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	4/10/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	4/10/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	4/10/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	4/10/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	4/10/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	4/10/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	4/10/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	4/10/2024			SW846-8260D	=
Acrylonitrile	U	5	ug/L	5	4/10/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	4/10/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	4/10/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	4/10/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	4/10/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	4/10/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	4/10/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	4/10/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	4/10/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	4/10/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	4/10/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	4/10/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	4/10/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	4/10/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	4/10/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	4/10/2024			SW846-8260D	=

Ethylbenzene	U	1 ug/L	1	4/10/2024	SW846-8260D	=
Iodomethane	U	5 ug/L	5	4/10/2024	SW846-8260D	=
Methylene chloride	U	5 ug/L	5	4/10/2024	SW846-8260D	=
Styrene	U	1 ug/L	1	4/10/2024	SW846-8260D	=
Tetrachloroethene	U	1 ug/L	1	4/10/2024	SW846-8260D	=
Toluene	U	1 ug/L	1	4/10/2024	SW846-8260D	=
Total Xylene	U	3 ug/L	3	4/10/2024	SW846-8260D	=
trans-1,2-Dichloroethene	U	1 ug/L	1	4/10/2024	SW846-8260D	=
trans-1,3-Dichloropropene	U	1 ug/L	1	4/10/2024	SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5 ug/L	5	4/10/2024	SW846-8260D	=
Trichloroethene		2.77 ug/L	1	4/10/2024	SW846-8260D	=
Trichlorofluoromethane	U	1 ug/L	1	4/10/2024	SW846-8260D	=
Vinyl acetate	U	5 ug/L	5	4/10/2024	SW846-8260D	=
Vinyl chloride	U	1 ug/L	1	4/10/2024	SW846-8260D	UJ
Dissolved Solids	*	550 mg/L	10	4/10/2024	EPA-160.1	=
Iodide	U	0.5 mg/L	0.5	4/10/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	U	20 mg/L	20	4/10/2024	EPA-410.4	=
Cyanide	U	0.2 mg/L	0.2	4/10/2024	SW846-9012B	=
Total Organic Halides (TOX)	J	5.44 ug/L	10	4/10/2024	SW846-9020B	=
Total Organic Carbon (TOC)	J	1.48 mg/L	2	4/10/2024	SW846-9060A	=

**Paducah OREIS
GROUNDWATER MONITORING REPORT**

Facility: C-746-S&T Landfill **County:** McCracken **Permit #:** SW07300014,SW07300015,SW07300045
Sampling Point: MW384 **SIDE:** **RGA Type:** URGA **Period:** 2nd Quarter 2024
AKGWA Well Tag #: 8004-4809 **SAMPLE ID:** MW384SG3-24 **Sample Type:** REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide	J	0.284	mg/L	0.4	4/15/2024			SW846-9056A	=
Chloride	JW	20.2	mg/L	250	4/15/2024			SW846-9056A	=
Fluoride	J	0.194	mg/L	4	4/15/2024			SW846-9056A	=
Nitrate as Nitrogen	J	0.76	mg/L	10	4/15/2024			SW846-9056A	=
Sulfate		17.4	mg/L	0.4	4/15/2024			SW846-9056A	=
Barometric Pressure Reading		29.94	Inches/Hg		4/15/2024				X
Conductivity		349	µmhos/cm		4/15/2024				X
Depth to Water		42.5	ft		4/15/2024				X
Dissolved Oxygen		6.6	mg/L		4/15/2024				X
Eh (approx)		392	mV		4/15/2024				X
pH		5.96	Std Unit		4/15/2024				X
Temperature		63.5	deg F		4/15/2024				X
Turbidity		0	NTU		4/15/2024				X
Aluminum	U	0.05	mg/L	0.05	4/15/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	4/15/2024			SW846-6020B	=
Arsenic	U	0.005	mg/L	0.005	4/15/2024			SW846-6020B	=
Barium		0.195	mg/L	0.004	4/15/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	4/15/2024			SW846-6020B	=
Boron		0.0606	mg/L	0.015	4/15/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	4/15/2024			SW846-6020B	=
Calcium		22.3	mg/L	0.2	4/15/2024			SW846-6020B	=
Chromium	U	0.01	mg/L	0.01	4/15/2024			SW846-6020B	=
Cobalt	U	0.001	mg/L	0.001	4/15/2024			SW846-6020B	=
Copper	J	0.00107	mg/L	0.002	4/15/2024			SW846-6020B	J
Iron	J	0.0514	mg/L	0.1	4/15/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	4/15/2024			SW846-6020B	=
Magnesium		9.02	mg/L	0.03	4/15/2024			SW846-6020B	=
Manganese	U	0.005	mg/L	0.005	4/15/2024			SW846-6020B	=
Molybdenum	U	0.001	mg/L	0.001	4/15/2024			SW846-6020B	=
Nickel	U	0.002	mg/L	0.002	4/15/2024			SW846-6020B	=
Potassium		1.35	mg/L	0.3	4/15/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	4/15/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	4/15/2024			SW846-6020B	=
Silver	J	0.000316	mg/L	0.001	4/15/2024			SW846-6020B	=
Sodium		40.2	mg/L	0.25	4/15/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	4/15/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	4/15/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	4/15/2024			SW846-6020B	UJ
Vanadium	U	0.02	mg/L	0.02	4/15/2024			SW846-6020B	=
Zinc	U	0.02	mg/L	0.02	4/15/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	4/15/2024			SW846-7470A	=
Barium, Dissolved		0.189	mg/L	0.004	4/15/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	4/15/2024			SW846-6020B	UJ
Uranium, Dissolved	U	0.0002	mg/L	0.0002	4/15/2024			SW846-6020B	UJ
Radium-226	U	0.272	pCi/L	0.956	4/15/2024	0.61	0.611	AN-1418	=

Strontium-90	U	0.473	pCi/L	4.33	4/15/2024	2.3	2.3	EPA-905.0-M	UJ
Tritium	U	-48.8	pCi/L	204	4/15/2024	93.7	93.7	EPA-906.0-M	=
Technetium-99		27.1	pCi/L	21.9	4/15/2024	14	14.4	HASL 300, Tc-02-RC M	=
Thorium-230	U	0.0473	pCi/L	1.86	4/15/2024	0.857	0.859	HASL 300, Th-01-RC M	=
Alpha activity	U	1.82	pCi/L	9.96	4/15/2024	5.03	5.04	SW846-9310	=
Beta activity	U	4.46	pCi/L	12.8	4/15/2024	7.46	7.5	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.0194	ug/L	0.0194	4/15/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	4/15/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	4/15/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	4/15/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	4/15/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	4/15/2024			SW846-8260D	=
Acrylonitrile	U	5	ug/L	5	4/15/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	4/15/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Ethylbenzene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	4/15/2024			SW846-8260D	=
Methylene chloride	U	5	ug/L	5	4/15/2024			SW846-8260D	=
Styrene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Toluene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Total Xylene	U	3	ug/L	3	4/15/2024			SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	4/15/2024			SW846-8260D	=
Trichloroethene	J	0.54	ug/L	1	4/15/2024			SW846-8260D	=
Trichlorofluoromethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=

Vinyl acetate	U	5 ug/L	5	4/15/2024	SW846-8260D	UJ
Vinyl chloride	U	1 ug/L	1	4/15/2024	SW846-8260D	UJ
Dissolved Solids		194 mg/L	10	4/15/2024	EPA-160.1	=
Iodide	U	0.5 mg/L	0.5	4/15/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	U	20 mg/L	20	4/15/2024	EPA-410.4	=
Cyanide	UN	0.2 mg/L	0.2	4/15/2024	SW846-9012B	=
Total Organic Halides (TOX)	J	7.24 ug/L	10	4/15/2024	SW846-9020B	=
Total Organic Carbon (TOC)	J	1.05 mg/L	2	4/15/2024	SW846-9060A	=

**Paducah OREIS
GROUNDWATER MONITORING REPORT**

Facility: C-746-S&T Landfill **County:** McCracken **Permit #:** SW07300014,SW07300015,SW07300045

Sampling Point: MW385 **SIDE:** **RGA Type:** LRGA **Period:** 2nd Quarter 2024

AKGWA Well Tag #: 8004-4810 **SAMPLE ID:** MW385SG3-24 **Sample Type:** REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide	U	0.8	mg/L	0.8	4/15/2024			SW846-9056A	=
Chloride	JW	21.1	mg/L	250	4/15/2024			SW846-9056A	=
Fluoride	J	0.192	mg/L	4	4/15/2024			SW846-9056A	=
Nitrate as Nitrogen	HJ	0.732	mg/L	10	4/15/2024			SW846-9056A	J
Sulfate	W	19.5	mg/L	0.4	4/15/2024			SW846-9056A	J
Barometric Pressure Reading		29.94	Inches/Hg		4/15/2024				X
Conductivity		406	µmhos/cm		4/15/2024				X
Depth to Water		42.88	ft		4/15/2024				X
Dissolved Oxygen		1.87	mg/L		4/15/2024				X
Eh (approx)		360	mV		4/15/2024				X
pH		6.19	Std Unit		4/15/2024				X
Temperature		63	deg F		4/15/2024				X
Turbidity		0	NTU		4/15/2024				X
Aluminum	U	0.05	mg/L	0.05	4/15/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	4/15/2024			SW846-6020B	=
Arsenic	U	0.005	mg/L	0.005	4/15/2024			SW846-6020B	=
Barium		0.208	mg/L	0.004	4/15/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	4/15/2024			SW846-6020B	=
Boron		0.0484	mg/L	0.015	4/15/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	4/15/2024			SW846-6020B	=
Calcium		31.8	mg/L	0.2	4/15/2024			SW846-6020B	=
Chromium	U	0.01	mg/L	0.01	4/15/2024			SW846-6020B	=
Cobalt	J	0.000394	mg/L	0.001	4/15/2024			SW846-6020B	J
Copper	J	0.00085	mg/L	0.002	4/15/2024			SW846-6020B	J
Iron	U	0.1	mg/L	0.1	4/15/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	4/15/2024			SW846-6020B	=
Magnesium		12.6	mg/L	0.03	4/15/2024			SW846-6020B	=
Manganese	J	0.00172	mg/L	0.005	4/15/2024			SW846-6020B	J
Molybdenum	J	0.000285	mg/L	0.001	4/15/2024			SW846-6020B	=
Nickel	J	0.000817	mg/L	0.002	4/15/2024			SW846-6020B	J
Potassium		1.7	mg/L	0.3	4/15/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	4/15/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	4/15/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	4/15/2024			SW846-6020B	=
Sodium		34.1	mg/L	0.25	4/15/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	4/15/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	4/15/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	4/15/2024			SW846-6020B	UJ
Vanadium	U	0.02	mg/L	0.02	4/15/2024			SW846-6020B	=
Zinc	U	0.02	mg/L	0.02	4/15/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	4/15/2024			SW846-7470A	=
Barium, Dissolved		0.207	mg/L	0.004	4/15/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	4/15/2024			SW846-6020B	UJ
Uranium, Dissolved	U	0.0002	mg/L	0.0002	4/15/2024			SW846-6020B	UJ
Radium-226		1.05	pCi/L	0.964	4/15/2024	1.04	1.05	AN-1418	=

Strontium-90	U	-0.731	pCi/L	3.33	4/15/2024	1.52	1.52	EPA-905.0-M	UJ
Tritium	U	30.7	pCi/L	208	4/15/2024	111	111	EPA-906.0-M	=
Technetium-99		30.7	pCi/L	22.2	4/15/2024	14.4	14.8	HASL 300, Tc-02-RC M	=
Thorium-230	U	0.667	pCi/L	1.55	4/15/2024	1.01	1.02	HASL 300, Th-01-RC M	=
Alpha activity	U	6.58	pCi/L	6.97	4/15/2024	5.07	5.2	SW846-9310	=
Beta activity		24.3	pCi/L	9.2	4/15/2024	7.58	8.61	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.0191	ug/L	0.0191	4/15/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	4/15/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	4/15/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	4/15/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	4/15/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	4/15/2024			SW846-8260D	=
Acrylonitrile	U	5	ug/L	5	4/15/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	4/15/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Ethylbenzene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	4/15/2024			SW846-8260D	=
Methylene chloride	U	5	ug/L	5	4/15/2024			SW846-8260D	=
Styrene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Toluene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Total Xylene	U	3	ug/L	3	4/15/2024			SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	4/15/2024			SW846-8260D	=
Trichloroethene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Trichlorofluoromethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=

Vinyl acetate	U	5 ug/L	5	4/15/2024	SW846-8260D	UJ
Vinyl chloride	U	1 ug/L	1	4/15/2024	SW846-8260D	UJ
Dissolved Solids		213 mg/L	10	4/15/2024	EPA-160.1	=
Iodide	U	0.5 mg/L	0.5	4/15/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	J	11.6 mg/L	20	4/15/2024	EPA-410.4	=
Cyanide	UN	0.2 mg/L	0.2	4/15/2024	SW846-9012B	UJ
Total Organic Halides (TOX)	J	9.3 ug/L	10	4/15/2024	SW846-9020B	=
Total Organic Carbon (TOC)	J	0.9 mg/L	2	4/15/2024	SW846-9060A	=

**Paducah OREIS
GROUNDWATER MONITORING REPORT**

Facility: C-746-S&T Landfill **County:** McCracken **Permit #:** SW07300014,SW07300015,SW07300045

Sampling Point: MW386 **SIDE:** **RGA Type:** UCRS **Period:** 2nd Quarter 2024

AKGWA Well Tag #: 8004-4804 **SAMPLE ID:** MW386SG3-24 **Sample Type:** REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide	J	0.112	mg/L	0.2	4/15/2024			SW846-9056A	=
Chloride	JW	9.83	mg/L	250	4/15/2024			SW846-9056A	=
Fluoride	J	0.808	mg/L	4	4/15/2024			SW846-9056A	=
Nitrate as Nitrogen	J	0.13	mg/L	10	4/15/2024			SW846-9056A	=
Sulfate		45.1	mg/L	1.6	4/15/2024			SW846-9056A	=
Barometric Pressure Reading		29.95	Inches/Hg		4/15/2024				X
Conductivity		539	µmhos/cm		4/15/2024				X
Depth to Water		21.79	ft		4/15/2024				X
Dissolved Oxygen		3.71	mg/L		4/15/2024				X
Eh (approx)		373	mV		4/15/2024				X
pH		5.84	Std Unit		4/15/2024				X
Temperature		65.9	deg F		4/15/2024				X
Turbidity		0	NTU		4/15/2024				X
Aluminum	U	0.05	mg/L	0.05	4/15/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	4/15/2024			SW846-6020B	=
Arsenic	U	0.005	mg/L	0.005	4/15/2024			SW846-6020B	=
Barium		0.127	mg/L	0.004	4/15/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	4/15/2024			SW846-6020B	=
Boron	J	0.0104	mg/L	0.015	4/15/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	4/15/2024			SW846-6020B	=
Calcium		20.2	mg/L	0.2	4/15/2024			SW846-6020B	=
Chromium	U	0.01	mg/L	0.01	4/15/2024			SW846-6020B	=
Cobalt	J	0.000424	mg/L	0.001	4/15/2024			SW846-6020B	J
Copper	J	0.00112	mg/L	0.002	4/15/2024			SW846-6020B	J
Iron		0.124	mg/L	0.1	4/15/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	4/15/2024			SW846-6020B	=
Magnesium		8.29	mg/L	0.03	4/15/2024			SW846-6020B	=
Manganese		0.0411	mg/L	0.005	4/15/2024			SW846-6020B	J
Molybdenum	J	0.000619	mg/L	0.001	4/15/2024			SW846-6020B	=
Nickel	J	0.000669	mg/L	0.002	4/15/2024			SW846-6020B	J
Potassium	J	0.277	mg/L	0.3	4/15/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	4/15/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	4/15/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	4/15/2024			SW846-6020B	=
Sodium		99.7	mg/L	2.5	4/15/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	4/15/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	4/15/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	4/15/2024			SW846-6020B	UJ
Vanadium	U	0.02	mg/L	0.02	4/15/2024			SW846-6020B	=
Zinc	U	0.02	mg/L	0.02	4/15/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	4/15/2024			SW846-7470A	=
Barium, Dissolved		0.121	mg/L	0.004	4/15/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	4/15/2024			SW846-6020B	UJ
Uranium, Dissolved	U	0.0002	mg/L	0.0002	4/15/2024			SW846-6020B	UJ
Radium-226	U	0.555	pCi/L	1.24	4/15/2024	0.889	0.89	AN-1418	=

Strontium-90	U	-1.36	pCi/L	5.66	4/15/2024	2.86	2.86	EPA-905.0-M	UJ
Tritium	U	-9.32	pCi/L	206	4/15/2024	102	102	EPA-906.0-M	=
Technetium-99	U	-1.56	pCi/L	22.2	4/15/2024	12.3	12.3	HASL 300, Tc-02-RC M	=
Thorium-230	U	-0.465	pCi/L	1.63	4/15/2024	0.432	0.433	HASL 300, Th-01-RC M	UJ
Alpha activity	U	10.2	pCi/L	10.5	4/15/2024	7.3	7.51	SW846-9310	=
Beta activity	U	6.41	pCi/L	9.56	4/15/2024	5.91	6.01	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.0194	ug/L	0.0194	4/15/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	4/15/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	4/15/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	4/15/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	4/15/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	4/15/2024			SW846-8260D	=
Acrylonitrile	U	5	ug/L	5	4/15/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	4/15/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Ethylbenzene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	4/15/2024			SW846-8260D	=
Methylene chloride	U	5	ug/L	5	4/15/2024			SW846-8260D	=
Styrene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Toluene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Total Xylene	U	3	ug/L	3	4/15/2024			SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	4/15/2024			SW846-8260D	=
Trichloroethene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Trichlorofluoromethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=

Vinyl acetate	U	5 ug/L	5	4/15/2024	SW846-8260D	UJ
Vinyl chloride	U	1 ug/L	1	4/15/2024	SW846-8260D	UJ
Dissolved Solids		353 mg/L	10	4/15/2024	EPA-160.1	=
Iodide	U	0.5 mg/L	0.5	4/15/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)		23.2 mg/L	20	4/15/2024	EPA-410.4	=
Cyanide	UN	0.2 mg/L	0.2	4/15/2024	SW846-9012B	=
Total Organic Halides (TOX)		118 ug/L	10	4/15/2024	SW846-9020B	=
Total Organic Carbon (TOC)		4.4 mg/L	2	4/15/2024	SW846-9060A	=

**Paducah OREIS
GROUNDWATER MONITORING REPORT**

Facility: C-746-S&T Landfill **County:** McCracken **Permit #:** SW07300014,SW07300015,SW07300045
Sampling Point: MW387 DOWN **RGA Type:** URGA **Period:** 2nd Quarter 2024
AKGWA Well Tag #: 8004-4815 **SAMPLE ID:** MW387SG3-24 **Sample Type:** REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide	J	0.391	mg/L	0.4	4/15/2024			SW846-9056A	=
Chloride	JW	36.2	mg/L	250	4/15/2024			SW846-9056A	=
Fluoride	J	0.983	mg/L	4	4/15/2024			SW846-9056A	=
Nitrate as Nitrogen	J	0.801	mg/L	10	4/15/2024			SW846-9056A	=
Sulfate		24.6	mg/L	0.8	4/15/2024			SW846-9056A	=
Barometric Pressure Reading		29.94	Inches/Hg		4/15/2024				X
Conductivity		516	µmhos/cm		4/15/2024				X
Depth to Water		40.73	ft		4/15/2024				X
Dissolved Oxygen		4.46	mg/L		4/15/2024				X
Eh (approx)		381	mV		4/15/2024				X
pH		6.17	Std Unit		4/15/2024				X
Temperature		61.6	deg F		4/15/2024				X
Turbidity		2.22	NTU		4/15/2024				X
Aluminum		0.0501	mg/L	0.05	4/15/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	4/15/2024			SW846-6020B	=
Arsenic	U	0.005	mg/L	0.005	4/15/2024			SW846-6020B	=
Barium		0.0953	mg/L	0.004	4/15/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	4/15/2024			SW846-6020B	=
Boron		0.036	mg/L	0.015	4/15/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	4/15/2024			SW846-6020B	=
Calcium		37.4	mg/L	0.2	4/15/2024			SW846-6020B	=
Chromium	J	0.00418	mg/L	0.01	4/15/2024			SW846-6020B	=
Cobalt	U	0.001	mg/L	0.001	4/15/2024			SW846-6020B	=
Copper	J	0.0014	mg/L	0.002	4/15/2024			SW846-6020B	J
Iron		0.177	mg/L	0.1	4/15/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	4/15/2024			SW846-6020B	=
Magnesium		16.5	mg/L	0.03	4/15/2024			SW846-6020B	=
Manganese		0.00797	mg/L	0.005	4/15/2024			SW846-6020B	J
Molybdenum	U	0.001	mg/L	0.001	4/15/2024			SW846-6020B	=
Nickel	U	0.002	mg/L	0.002	4/15/2024			SW846-6020B	=
Potassium		1.78	mg/L	0.3	4/15/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	4/15/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	4/15/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	4/15/2024			SW846-6020B	=
Sodium		49.4	mg/L	0.25	4/15/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	4/15/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	4/15/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	4/15/2024			SW846-6020B	UJ
Vanadium	U	0.02	mg/L	0.02	4/15/2024			SW846-6020B	=
Zinc	J	0.00591	mg/L	0.02	4/15/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	4/15/2024			SW846-7470A	=
Barium, Dissolved		0.0953	mg/L	0.004	4/15/2024			SW846-6020B	J
Chromium, Dissolved	J	0.00402	mg/L	0.01	4/15/2024			SW846-6020B	J
Uranium, Dissolved	U	0.0002	mg/L	0.0002	4/15/2024			SW846-6020B	UJ
Radium-226	U	0.183	pCi/L	1.12	4/15/2024	0.669	0.669	AN-1418	=

Strontium-90	U	1.62	pCi/L	7.07	4/15/2024	3.95	3.96	EPA-905.0-M	UJ
Tritium	U	-34.6	pCi/L	204	4/15/2024	96.6	96.7	EPA-906.0-M	=
Technetium-99		36.3	pCi/L	23.1	4/15/2024	15.3	15.8	HASL 300, Tc-02-RC M	=
Thorium-230	U	0.558	pCi/L	1.51	4/15/2024	0.934	0.942	HASL 300, Th-01-RC M	=
Alpha activity	U	5.4	pCi/L	7.99	4/15/2024	5.21	5.29	SW846-9310	=
Beta activity		32.1	pCi/L	9.87	4/15/2024	8.57	10	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.0189	ug/L	0.0189	4/15/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	4/15/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	4/15/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	4/15/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	4/15/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	4/15/2024			SW846-8260D	=
Acrylonitrile	U	5	ug/L	5	4/15/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	4/15/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Ethylbenzene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	4/15/2024			SW846-8260D	=
Methylene chloride	U	5	ug/L	5	4/15/2024			SW846-8260D	=
Styrene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Toluene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Total Xylene	U	3	ug/L	3	4/15/2024			SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	4/15/2024			SW846-8260D	=
Trichloroethene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Trichlorofluoromethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=

Vinyl acetate	U	5 ug/L	5	4/15/2024	SW846-8260D	UJ
Vinyl chloride	U	1 ug/L	1	4/15/2024	SW846-8260D	UJ
Dissolved Solids		283 mg/L	10	4/15/2024	EPA-160.1	=
Iodide	U	0.5 mg/L	0.5	4/15/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	J	9.23 mg/L	20	4/15/2024	EPA-410.4	=
Cyanide	UN	0.2 mg/L	0.2	4/15/2024	SW846-9012B	=
Total Organic Halides (TOX)	J	8.66 ug/L	10	4/15/2024	SW846-9020B	=
Total Organic Carbon (TOC)	J	1.05 mg/L	2	4/15/2024	SW846-9060A	=

**Paducah OREIS
GROUNDWATER MONITORING REPORT**

Facility: C-746-S&T Landfill **County:** McCracken **Permit #:** SW07300014,SW07300015,SW07300045
Sampling Point: MW388 DOWN **RGA Type:** LRGA **Period:** 2nd Quarter 2024
AKGWA Well Tag #: 8004-4816 **SAMPLE ID:** MW388SG3-24 **Sample Type:** REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide	J	0.373	mg/L	0.4	4/15/2024			SW846-9056A	=
Chloride	JW	34.4	mg/L	250	4/15/2024			SW846-9056A	=
Fluoride	J	0.25	mg/L	4	4/15/2024			SW846-9056A	=
Nitrate as Nitrogen	J	0.896	mg/L	10	4/15/2024			SW846-9056A	=
Sulfate		17.4	mg/L	0.4	4/15/2024			SW846-9056A	=
Barometric Pressure Reading		29.94	Inches/Hg		4/15/2024				X
Conductivity		389	µmhos/cm		4/15/2024				X
Depth to Water		40.69	ft		4/15/2024				X
Dissolved Oxygen		5.16	mg/L		4/15/2024				X
Eh (approx)		385	mV		4/15/2024				X
pH		5.98	Std Unit		4/15/2024				X
Temperature		61.3	deg F		4/15/2024				X
Turbidity		0	NTU		4/15/2024				X
Aluminum	J	0.0241	mg/L	0.05	4/15/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	4/15/2024			SW846-6020B	=
Arsenic	U	0.005	mg/L	0.005	4/15/2024			SW846-6020B	=
Barium		0.184	mg/L	0.004	4/15/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	4/15/2024			SW846-6020B	=
Boron		0.0257	mg/L	0.015	4/15/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	4/15/2024			SW846-6020B	=
Calcium		23.4	mg/L	0.2	4/15/2024			SW846-6020B	=
Chromium	U	0.01	mg/L	0.01	4/15/2024			SW846-6020B	=
Cobalt	U	0.001	mg/L	0.001	4/15/2024			SW846-6020B	=
Copper	J	0.00127	mg/L	0.002	4/15/2024			SW846-6020B	J
Iron		0.106	mg/L	0.1	4/15/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	4/15/2024			SW846-6020B	=
Magnesium		9.84	mg/L	0.03	4/15/2024			SW846-6020B	=
Manganese	U	0.005	mg/L	0.005	4/15/2024			SW846-6020B	=
Molybdenum	U	0.001	mg/L	0.001	4/15/2024			SW846-6020B	=
Nickel	U	0.002	mg/L	0.002	4/15/2024			SW846-6020B	=
Potassium		1.66	mg/L	0.3	4/15/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	4/15/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	4/15/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	4/15/2024			SW846-6020B	=
Sodium		41.9	mg/L	0.25	4/15/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	4/15/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	4/15/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	4/15/2024			SW846-6020B	UJ
Vanadium	U	0.02	mg/L	0.02	4/15/2024			SW846-6020B	=
Zinc	J	0.00353	mg/L	0.02	4/15/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	4/15/2024			SW846-7470A	=
Barium, Dissolved		0.184	mg/L	0.004	4/15/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	4/15/2024			SW846-6020B	UJ
Uranium, Dissolved	U	0.0002	mg/L	0.0002	4/15/2024			SW846-6020B	UJ
Radium-226		1.62	pCi/L	1.23	4/15/2024	1.36	1.36	AN-1418	=

Strontium-90	U	-0.985	pCi/L	3.96	4/15/2024	1.75	1.75	EPA-905.0-M	UJ
Tritium	U	-25.3	pCi/L	208	4/15/2024	100	100	EPA-906.0-M	=
Technetium-99	U	9.53	pCi/L	22.7	4/15/2024	13.3	13.4	HASL 300, Tc-02-RC M	=
Thorium-230	U	-0.479	pCi/L	1.73	4/15/2024	0.462	0.463	HASL 300, Th-01-RC M	=
Alpha activity	U	0.809	pCi/L	8.37	4/15/2024	4.07	4.08	SW846-9310	=
Beta activity	U	8.06	pCi/L	10.8	4/15/2024	6.73	6.86	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.0193	ug/L	0.0193	4/15/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	4/15/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	4/15/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	4/15/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	4/15/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	4/15/2024			SW846-8260D	=
Acrylonitrile	U	5	ug/L	5	4/15/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	4/15/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Ethylbenzene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	4/15/2024			SW846-8260D	=
Methylene chloride	U	5	ug/L	5	4/15/2024			SW846-8260D	=
Styrene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Toluene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Total Xylene	U	3	ug/L	3	4/15/2024			SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	4/15/2024			SW846-8260D	=
Trichloroethene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Trichlorofluoromethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=

Vinyl acetate	U	5 ug/L	5	4/15/2024	SW846-8260D	UJ
Vinyl chloride	U	1 ug/L	1	4/15/2024	SW846-8260D	UJ
Dissolved Solids		207 mg/L	10	4/15/2024	EPA-160.1	=
Iodide	U	0.5 mg/L	0.5	4/15/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	U	20 mg/L	20	4/15/2024	EPA-410.4	=
Cyanide	UN	0.2 mg/L	0.2	4/15/2024	SW846-9012B	=
Total Organic Halides (TOX)	J	6.18 ug/L	10	4/15/2024	SW846-9020B	=
Total Organic Carbon (TOC)	J	0.839 mg/L	2	4/15/2024	SW846-9060A	=

**Paducah OREIS
GROUNDWATER MONITORING REPORT**

Facility: C-746-S&T Landfill **County:** McCracken **Permit #:** SW07300014,SW07300015,SW07300045
Sampling Point: MW391 DOWN **RGA Type:** URGA **Period:** 2nd Quarter 2024
AKGWA Well Tag #: 8004-4805 **SAMPLE ID:** MW391SG3-24 **Sample Type:** REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide		0.569	mg/L	0.2	4/16/2024			SW846-9056A	=
Chloride	JW	43.1	mg/L	250	4/16/2024			SW846-9056A	=
Fluoride	J	0.188	mg/L	4	4/16/2024			SW846-9056A	=
Nitrate as Nitrogen	J	1.22	mg/L	10	4/16/2024			SW846-9056A	=
Sulfate	W	12	mg/L	0.4	4/16/2024			SW846-9056A	=
Barometric Pressure Reading		29.95	Inches/Hg		4/16/2024				X
Conductivity		399	µmhos/cm		4/16/2024				X
Depth to Water		43.94	ft		4/16/2024				X
Dissolved Oxygen		4.69	mg/L		4/16/2024				X
Eh (approx)		398	mV		4/16/2024				X
pH		5.94	Std Unit		4/16/2024				X
Temperature		63.7	deg F		4/16/2024				X
Turbidity		3.08	NTU		4/16/2024				X
Aluminum	J	0.022	mg/L	0.05	4/16/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	4/16/2024			SW846-6020B	=
Arsenic	U	0.005	mg/L	0.005	4/16/2024			SW846-6020B	=
Barium		0.224	mg/L	0.004	4/16/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	4/16/2024			SW846-6020B	=
Boron		0.0288	mg/L	0.015	4/16/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	4/16/2024			SW846-6020B	=
Calcium		26.3	mg/L	0.2	4/16/2024			SW846-6020B	=
Chromium	U	0.01	mg/L	0.01	4/16/2024			SW846-6020B	=
Cobalt	U	0.001	mg/L	0.001	4/16/2024			SW846-6020B	=
Copper	J	0.000769	mg/L	0.002	4/16/2024			SW846-6020B	J
Iron		0.118	mg/L	0.1	4/16/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	4/16/2024			SW846-6020B	=
Magnesium		11.2	mg/L	0.03	4/16/2024			SW846-6020B	=
Manganese	J	0.00206	mg/L	0.005	4/16/2024			SW846-6020B	J
Molybdenum	U	0.001	mg/L	0.001	4/16/2024			SW846-6020B	=
Nickel	U	0.002	mg/L	0.002	4/16/2024			SW846-6020B	=
Potassium		1.54	mg/L	0.3	4/16/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	4/16/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	4/16/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	4/16/2024			SW846-6020B	=
Sodium		33.8	mg/L	0.25	4/16/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	4/16/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	4/16/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	4/16/2024			SW846-6020B	=
Vanadium	BJ	0.00826	mg/L	0.02	4/16/2024			SW846-6020B	U
Zinc	U	0.02	mg/L	0.02	4/16/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	4/16/2024			SW846-7470A	=
Barium, Dissolved		0.215	mg/L	0.004	4/16/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	4/16/2024			SW846-6020B	UJ
Uranium, Dissolved	U	0.0002	mg/L	0.0002	4/16/2024			SW846-6020B	UJ
Radium-226	U	0.208	pCi/L	1.12	4/16/2024	0.705	0.705	AN-1418	=

Strontium-90	U	0.678	pCi/L	1.95	4/16/2024	1.1	1.11	EPA-905.0-M	=
Tritium	U	90.4	pCi/L	235	4/16/2024	137	138	EPA-906.0-M	=
Technetium-99	U	9.04	pCi/L	19.5	4/16/2024	11.5	11.5	HASL 300, Tc-02-RC M	=
Thorium-230	U	0.366	pCi/L	1.72	4/16/2024	0.946	0.951	HASL 300, Th-01-RC M	=
Alpha activity	U	3.03	pCi/L	6.33	4/16/2024	3.79	3.83	SW846-9310	=
Beta activity		13.4	pCi/L	8.44	4/16/2024	6.14	6.54	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.0191	ug/L	0.0191	4/16/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	4/16/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	4/16/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	4/16/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	4/16/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	4/16/2024			SW846-8260D	=
Acrylonitrile	U	5	ug/L	5	4/16/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	4/16/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Ethylbenzene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	4/16/2024			SW846-8260D	=
Methylene chloride	BJ	1.13	ug/L	5	4/16/2024			SW846-8260D	U
Styrene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Toluene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Total Xylene	U	3	ug/L	3	4/16/2024			SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	4/16/2024			SW846-8260D	=
Trichloroethene	J	0.4	ug/L	1	4/16/2024			SW846-8260D	=
Trichlorofluoromethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=

Vinyl acetate	U	5 ug/L	5	4/16/2024	SW846-8260D	=
Vinyl chloride	U	1 ug/L	1	4/16/2024	SW846-8260D	=
Dissolved Solids		192 mg/L	10	4/16/2024	EPA-160.1	=
Iodide	U	0.5 mg/L	0.5	4/16/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	J	9.23 mg/L	20	4/16/2024	EPA-410.4	=
Cyanide	U	0.2 mg/L	0.2	4/16/2024	SW846-9012B	=
Total Organic Halides (TOX)	U	10 ug/L	10	4/16/2024	SW846-9020B	=
Total Organic Carbon (TOC)	J	0.632 mg/L	2	4/16/2024	SW846-9060A	=

**Paducah OREIS
GROUNDWATER MONITORING REPORT**

Facility: C-746-S&T Landfill **County:** McCracken **Permit #:** SW07300014,SW07300015,SW07300045
Sampling Point: MW392 DOWN **RGA Type:** LRGA **Period:** 2nd Quarter 2024
AKGWA Well Tag #: 8004-4806 **SAMPLE ID:** MW392SG3-24 **Sample Type:** REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide		0.663	mg/L	0.2	4/16/2024			SW846-9056A	=
Chloride	JW	41.3	mg/L	250	4/16/2024			SW846-9056A	=
Fluoride	J	0.259	mg/L	4	4/16/2024			SW846-9056A	=
Nitrate as Nitrogen	HJ	0.715	mg/L	10	4/16/2024			SW846-9056A	J
Sulfate	W	7.81	mg/L	0.4	4/16/2024			SW846-9056A	=
Barometric Pressure Reading		29.91	Inches/Hg		4/16/2024				X
Conductivity		338	µmhos/cm		4/16/2024				X
Depth to Water		43.1	ft		4/16/2024				X
Dissolved Oxygen		1.33	mg/L		4/16/2024				X
Eh (approx)		413	mV		4/16/2024				X
pH		5.91	Std Unit		4/16/2024				X
Temperature		66.4	deg F		4/16/2024				X
Turbidity		2.22	NTU		4/16/2024				X
Aluminum	U	0.05	mg/L	0.05	4/16/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	4/16/2024			SW846-6020B	=
Arsenic	U	0.005	mg/L	0.005	4/16/2024			SW846-6020B	=
Barium		0.309	mg/L	0.004	4/16/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	4/16/2024			SW846-6020B	=
Boron		0.0222	mg/L	0.015	4/16/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	4/16/2024			SW846-6020B	=
Calcium		23.5	mg/L	0.2	4/16/2024			SW846-6020B	=
Chromium	U	0.01	mg/L	0.01	4/16/2024			SW846-6020B	=
Cobalt	J	0.000754	mg/L	0.001	4/16/2024			SW846-6020B	J
Copper	J	0.00104	mg/L	0.002	4/16/2024			SW846-6020B	J
Iron		0.173	mg/L	0.1	4/16/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	4/16/2024			SW846-6020B	=
Magnesium		10.3	mg/L	0.03	4/16/2024			SW846-6020B	=
Manganese		0.32	mg/L	0.005	4/16/2024			SW846-6020B	=
Molybdenum	J	0.000213	mg/L	0.001	4/16/2024			SW846-6020B	=
Nickel		0.00232	mg/L	0.002	4/16/2024			SW846-6020B	J
Potassium		2.18	mg/L	0.3	4/16/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	4/16/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	4/16/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	4/16/2024			SW846-6020B	=
Sodium		24.4	mg/L	0.25	4/16/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	4/16/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	4/16/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	4/16/2024			SW846-6020B	=
Vanadium	BJ	0.0099	mg/L	0.02	4/16/2024			SW846-6020B	U
Zinc	U	0.02	mg/L	0.02	4/16/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	4/16/2024			SW846-7470A	=
Barium, Dissolved		0.305	mg/L	0.004	4/16/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	4/16/2024			SW846-6020B	UJ
Uranium, Dissolved	J	0.000077	mg/L	0.0002	4/16/2024			SW846-6020B	UJ
Radium-226		1.63	pCi/L	1.06	4/16/2024	1.32	1.33	AN-1418	=

Strontium-90	U	-0.806	pCi/L	3.69	4/16/2024	1.76	1.76	EPA-905.0-M	=
Tritium	U	39.1	pCi/L	235	4/16/2024	133	133	EPA-906.0-M	=
Technetium-99	U	6.07	pCi/L	19.8	4/16/2024	11.5	11.5	HASL 300, Tc-02-RC M	=
Thorium-230	U	-0.165	pCi/L	1.57	4/16/2024	0.601	0.601	HASL 300, Th-01-RC M	=
Alpha activity	U	2.99	pCi/L	5.43	4/16/2024	3.45	3.49	SW846-9310	=
Beta activity	U	5.13	pCi/L	9.61	4/16/2024	5.75	5.82	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.0189	ug/L	0.0189	4/16/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	4/16/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	4/16/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	4/16/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	4/16/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	4/16/2024			SW846-8260D	=
Acrylonitrile	U	5	ug/L	5	4/16/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	4/16/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
cis-1,2-Dichloroethene	J	0.35	ug/L	1	4/16/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Ethylbenzene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	4/16/2024			SW846-8260D	=
Methylene chloride	BJ	1.23	ug/L	5	4/16/2024			SW846-8260D	U
Styrene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Toluene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Total Xylene	U	3	ug/L	3	4/16/2024			SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	4/16/2024			SW846-8260D	=
Trichloroethene		2.61	ug/L	1	4/16/2024			SW846-8260D	=
Trichlorofluoromethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=

Vinyl acetate	U	5 ug/L	5	4/16/2024	SW846-8260D	=
Vinyl chloride	U	1 ug/L	1	4/16/2024	SW846-8260D	=
Dissolved Solids		172 mg/L	10	4/16/2024	EPA-160.1	=
Iodide	U	0.5 mg/L	0.5	4/16/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	J	13.9 mg/L	20	4/16/2024	EPA-410.4	=
Cyanide	U	0.2 mg/L	0.2	4/16/2024	SW846-9012B	=
Total Organic Halides (TOX)	U	10 ug/L	10	4/16/2024	SW846-9020B	=
Total Organic Carbon (TOC)	J	0.545 mg/L	2	4/16/2024	SW846-9060A	=

**Paducah OREIS
GROUNDWATER MONITORING REPORT**

Facility: C-746-S&T Landfill **County:** McCracken **Permit #:** SW07300014,SW07300015,SW07300045
Sampling Point: MW393 DOWN **RGA Type:** UCRS **Period:** 2nd Quarter 2024
AKGWA Well Tag #: 8004-4807 **SAMPLE ID:** MW393SG3-24 **Sample Type:** REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide	J	0.15	mg/L	0.4	4/16/2024			SW846-9056A	=
Chloride	JW	9.08	mg/L	250	4/16/2024			SW846-9056A	=
Fluoride	J	0.269	mg/L	4	4/16/2024			SW846-9056A	=
Nitrate as Nitrogen	J	0.258	mg/L	10	4/16/2024			SW846-9056A	=
Sulfate	W	23.7	mg/L	0.8	4/16/2024			SW846-9056A	=
Barometric Pressure Reading		29.89	Inches/Hg		4/16/2024				X
Conductivity		480	µmhos/cm		4/16/2024				X
Depth to Water		29.46	ft		4/16/2024				X
Dissolved Oxygen		1.03	mg/L		4/16/2024				X
Eh (approx)		226	mV		4/16/2024				X
pH		6.22	Std Unit		4/16/2024				X
Temperature		63.7	deg F		4/16/2024				X
Turbidity		14.04	NTU		4/16/2024				X
Aluminum	J	0.0288	mg/L	0.05	4/16/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	4/16/2024			SW846-6020B	=
Arsenic		0.00528	mg/L	0.005	4/16/2024			SW846-6020B	=
Barium		0.105	mg/L	0.004	4/16/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	4/16/2024			SW846-6020B	=
Boron		0.0201	mg/L	0.015	4/16/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	4/16/2024			SW846-6020B	=
Calcium		17.1	mg/L	0.2	4/16/2024			SW846-6020B	=
Chromium	U	0.01	mg/L	0.01	4/16/2024			SW846-6020B	=
Cobalt	U	0.001	mg/L	0.001	4/16/2024			SW846-6020B	=
Copper	J	0.00052	mg/L	0.002	4/16/2024			SW846-6020B	J
Iron		1.15	mg/L	0.1	4/16/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	4/16/2024			SW846-6020B	=
Magnesium		4.44	mg/L	0.03	4/16/2024			SW846-6020B	=
Manganese		0.0294	mg/L	0.005	4/16/2024			SW846-6020B	J
Molybdenum	J	0.000503	mg/L	0.001	4/16/2024			SW846-6020B	=
Nickel	U	0.002	mg/L	0.002	4/16/2024			SW846-6020B	=
Potassium		0.539	mg/L	0.3	4/16/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	4/16/2024			SW846-6020B	=
Selenium	J	0.0021	mg/L	0.005	4/16/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	4/16/2024			SW846-6020B	=
Sodium		85.6	mg/L	2.5	4/16/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	4/16/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	4/16/2024			SW846-6020B	=
Uranium	J	0.000135	mg/L	0.0002	4/16/2024			SW846-6020B	U
Vanadium	BJ	0.0151	mg/L	0.02	4/16/2024			SW846-6020B	U
Zinc	U	0.02	mg/L	0.02	4/16/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	4/16/2024			SW846-7470A	=
Barium, Dissolved		0.0609	mg/L	0.004	4/16/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	4/16/2024			SW846-6020B	UJ
Uranium, Dissolved	J	0.000098	mg/L	0.0002	4/16/2024			SW846-6020B	J
Radium-226	U	0.823	pCi/L	1.08	4/16/2024	0.977	0.978	AN-1418	=

Strontium-90	U	-0.399	pCi/L	6.65	4/16/2024	3.34	3.34	EPA-905.0-M	=
Tritium	U	-51.5	pCi/L	234	4/16/2024	125	125	EPA-906.0-M	=
Technetium-99	U	-5.61	pCi/L	19.7	4/16/2024	10.5	10.5	HASL 300, Tc-02-RC M	=
Thorium-230	U	0.658	pCi/L	1.54	4/16/2024	0.997	1.01	HASL 300, Th-01-RC M	=
Alpha activity	U	2.65	pCi/L	8.49	4/16/2024	4.65	4.68	SW846-9310	=
Beta activity	U	3.86	pCi/L	9.1	4/16/2024	5.32	5.36	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.0192	ug/L	0.0192	4/16/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	4/16/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	4/16/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	4/16/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	4/16/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	4/16/2024			SW846-8260D	=
Acrylonitrile	U	5	ug/L	5	4/16/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	4/16/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Ethylbenzene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	4/16/2024			SW846-8260D	=
Methylene chloride	BJ	1.3	ug/L	5	4/16/2024			SW846-8260D	U
Styrene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Toluene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Total Xylene	U	3	ug/L	3	4/16/2024			SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	4/16/2024			SW846-8260D	=
Trichloroethene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Trichlorofluoromethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=

Vinyl acetate	U	5 ug/L	5	4/16/2024	SW846-8260D	=
Vinyl chloride	U	1 ug/L	1	4/16/2024	SW846-8260D	=
Dissolved Solids		278 mg/L	10	4/16/2024	EPA-160.1	=
Iodide	U	0.5 mg/L	0.5	4/16/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	J	11.6 mg/L	20	4/16/2024	EPA-410.4	=
Cyanide	U	0.2 mg/L	0.2	4/16/2024	SW846-9012B	=
Total Organic Halides (TOX)		18.6 ug/L	10	4/16/2024	SW846-9020B	=
Total Organic Carbon (TOC)		2.61 mg/L	2	4/16/2024	SW846-9060A	=

**Paducah OREIS
GROUNDWATER MONITORING REPORT**

Facility: C-746-S&T Landfill **County:** McCracken **Permit #:** SW07300014,SW07300015,SW07300045
Sampling Point: MW394 UP **RGA Type:** URGA **Period:** 2nd Quarter 2024
AKGWA Well Tag #: 8004-4802 **SAMPLE ID:** MW394SG3-24 **Sample Type:** REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide		0.68	mg/L	0.2	4/16/2024			SW846-9056A	=
Chloride	JW	44.1	mg/L	250	4/16/2024			SW846-9056A	=
Fluoride	J	0.179	mg/L	4	4/16/2024			SW846-9056A	=
Nitrate as Nitrogen	J	1.15	mg/L	10	4/16/2024			SW846-9056A	=
Sulfate	W	12	mg/L	0.4	4/16/2024			SW846-9056A	=
Barometric Pressure Reading		29.95	Inches/Hg		4/16/2024				X
Conductivity		414	µmhos/cm		4/16/2024				X
Depth to Water		55.62	ft		4/16/2024				X
Dissolved Oxygen		5.97	mg/L		4/16/2024				X
Eh (approx)		412	mV		4/16/2024				X
pH		5.8	Std Unit		4/16/2024				X
Temperature		63.1	deg F		4/16/2024				X
Turbidity		2.1	NTU		4/16/2024				X
Aluminum	U	0.05	mg/L	0.05	4/16/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	4/16/2024			SW846-6020B	=
Arsenic	U	0.005	mg/L	0.005	4/16/2024			SW846-6020B	=
Barium		0.248	mg/L	0.004	4/16/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	4/16/2024			SW846-6020B	=
Boron		0.0206	mg/L	0.015	4/16/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	4/16/2024			SW846-6020B	=
Calcium		27.9	mg/L	0.2	4/16/2024			SW846-6020B	=
Chromium	U	0.01	mg/L	0.01	4/16/2024			SW846-6020B	=
Cobalt	U	0.001	mg/L	0.001	4/16/2024			SW846-6020B	=
Copper	J	0.00148	mg/L	0.002	4/16/2024			SW846-6020B	J
Iron	J	0.0637	mg/L	0.1	4/16/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	4/16/2024			SW846-6020B	=
Magnesium		11.6	mg/L	0.03	4/16/2024			SW846-6020B	=
Manganese	U	0.005	mg/L	0.005	4/16/2024			SW846-6020B	=
Molybdenum	U	0.001	mg/L	0.001	4/16/2024			SW846-6020B	=
Nickel		0.00399	mg/L	0.002	4/16/2024			SW846-6020B	J
Potassium		1.28	mg/L	0.3	4/16/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	4/16/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	4/16/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	4/16/2024			SW846-6020B	=
Sodium		34.1	mg/L	0.25	4/16/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	4/16/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	4/16/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	4/16/2024			SW846-6020B	=
Vanadium	BJ	0.0113	mg/L	0.02	4/16/2024			SW846-6020B	U
Zinc	U	0.02	mg/L	0.02	4/16/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	4/16/2024			SW846-7470A	=
Barium, Dissolved		0.234	mg/L	0.004	4/16/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	4/16/2024			SW846-6020B	UJ
Uranium, Dissolved	U	0.0002	mg/L	0.0002	4/16/2024			SW846-6020B	UJ
Radium-226	U	-0.0239	pCi/L	0.832	4/16/2024	0.393	0.393	AN-1418	=

Strontium-90	U	3.08	pCi/L	4.92	4/16/2024	2.99	3.03	EPA-905.0-M	=
Tritium	U	62.6	pCi/L	234	4/16/2024	135	135	EPA-906.0-M	=
Technetium-99	U	5.85	pCi/L	19.7	4/16/2024	11.4	11.4	HASL 300, Tc-02-RC M	=
Thorium-230	U	-0.012	pCi/L	1.58	4/16/2024	0.701	0.702	HASL 300, Th-01-RC M	=
Alpha activity	U	1.2	pCi/L	6.74	4/16/2024	3.32	3.33	SW846-9310	=
Beta activity	U	7.19	pCi/L	9.68	4/16/2024	6.03	6.15	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.0192	ug/L	0.0192	4/16/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	4/16/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	4/16/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	4/16/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	4/16/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	4/16/2024			SW846-8260D	=
Acrylonitrile	U	5	ug/L	5	4/16/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	4/16/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Ethylbenzene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	4/16/2024			SW846-8260D	=
Methylene chloride	BJ	1.18	ug/L	5	4/16/2024			SW846-8260D	U
Styrene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Toluene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Total Xylene	U	3	ug/L	3	4/16/2024			SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	4/16/2024			SW846-8260D	=
Trichloroethene		2.81	ug/L	1	4/16/2024			SW846-8260D	=
Trichlorofluoromethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=

Vinyl acetate	U	5 ug/L	5	4/16/2024	SW846-8260D	=
Vinyl chloride	U	1 ug/L	1	4/16/2024	SW846-8260D	=
Dissolved Solids		192 mg/L	10	4/16/2024	EPA-160.1	=
Iodide	U	0.5 mg/L	0.5	4/16/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)		79 mg/L	20	4/16/2024	EPA-410.4	=
Cyanide	U	0.2 mg/L	0.2	4/16/2024	SW846-9012B	=
Total Organic Halides (TOX)	J	7.38 ug/L	10	4/16/2024	SW846-9020B	=
Total Organic Carbon (TOC)	J	0.683 mg/L	2	4/16/2024	SW846-9060A	=

**Paducah OREIS
GROUNDWATER MONITORING REPORT**

Facility: C-746-S&T Landfill **County:** McCracken **Permit #:** SW07300014,SW07300015,SW07300045
Sampling Point: MW395 UP **RGA Type:** LRGA **Period:** 2nd Quarter 2024
AKGWA Well Tag #: 8004-4801 **SAMPLE ID:** MW395SG3-24 **Sample Type:** REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide		0.712	mg/L	0.2	4/16/2024			SW846-9056A	=
Chloride	JW	46.4	mg/L	250	4/16/2024			SW846-9056A	J
Fluoride	J	0.155	mg/L	4	4/16/2024			SW846-9056A	=
Nitrate as Nitrogen	J	1.31	mg/L	10	4/16/2024			SW846-9056A	=
Sulfate	W	11.3	mg/L	0.4	4/16/2024			SW846-9056A	=
Barometric Pressure Reading		29.95	Inches/Hg		4/16/2024				X
Conductivity		401	µmhos/cm		4/16/2024				X
Depth to Water		56.29	ft		4/16/2024				X
Dissolved Oxygen		5.26	mg/L		4/16/2024				X
Eh (approx)		399	mV		4/16/2024				X
pH		5.84	Std Unit		4/16/2024				X
Temperature		64.7	deg F		4/16/2024				X
Turbidity		2.3	NTU		4/16/2024				X
Aluminum	U	0.05	mg/L	0.05	4/16/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	4/16/2024			SW846-6020B	=
Arsenic	J	0.00209	mg/L	0.005	4/16/2024			SW846-6020B	=
Barium		0.261	mg/L	0.004	4/16/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	4/16/2024			SW846-6020B	=
Boron		0.0205	mg/L	0.015	4/16/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	4/16/2024			SW846-6020B	=
Calcium		27.8	mg/L	0.2	4/16/2024			SW846-6020B	=
Chromium	U	0.01	mg/L	0.01	4/16/2024			SW846-6020B	=
Cobalt	U	0.001	mg/L	0.001	4/16/2024			SW846-6020B	=
Copper	J	0.00114	mg/L	0.002	4/16/2024			SW846-6020B	J
Iron	J	0.0449	mg/L	0.1	4/16/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	4/16/2024			SW846-6020B	=
Magnesium		11.6	mg/L	0.03	4/16/2024			SW846-6020B	=
Manganese	J	0.0018	mg/L	0.005	4/16/2024			SW846-6020B	J
Molybdenum	U	0.001	mg/L	0.001	4/16/2024			SW846-6020B	=
Nickel	J	0.000804	mg/L	0.002	4/16/2024			SW846-6020B	J
Potassium		1.61	mg/L	0.3	4/16/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	4/16/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	4/16/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	4/16/2024			SW846-6020B	=
Sodium		31.4	mg/L	0.25	4/16/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	4/16/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	4/16/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	4/16/2024			SW846-6020B	=
Vanadium	BJ	0.0124	mg/L	0.02	4/16/2024			SW846-6020B	U
Zinc	U	0.02	mg/L	0.02	4/16/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	4/16/2024			SW846-7470A	=
Barium, Dissolved		0.26	mg/L	0.004	4/16/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	4/16/2024			SW846-6020B	UJ
Uranium, Dissolved	U	0.0002	mg/L	0.0002	4/16/2024			SW846-6020B	UJ
Radium-226	U	0.737	pCi/L	0.96	4/16/2024	0.984	0.985	AN-1418	=

Strontium-90	U	-0.381	pCi/L	4.77	4/16/2024	2.51	2.51	EPA-905.0-M	=
Tritium	U	101	pCi/L	235	4/16/2024	138	139	EPA-906.0-M	=
Technetium-99	U	2.17	pCi/L	19.6	4/16/2024	11	11	HASL 300, Tc-02-RC M	=
Thorium-230	U	-0.0866	pCi/L	1.54	4/16/2024	0.649	0.65	HASL 300, Th-01-RC M	=
Alpha activity	U	1.2	pCi/L	6.75	4/16/2024	3.33	3.33	SW846-9310	=
Beta activity	U	5.31	pCi/L	8.7	4/16/2024	5.3	5.37	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.0191	ug/L	0.0191	4/16/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	4/16/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	4/16/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	4/16/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	4/16/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	4/16/2024			SW846-8260D	=
Acrylonitrile	U	5	ug/L	5	4/16/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	4/16/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Ethylbenzene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	4/16/2024			SW846-8260D	=
Methylene chloride	BJ	1.3	ug/L	5	4/16/2024			SW846-8260D	U
Styrene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Toluene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Total Xylene	U	3	ug/L	3	4/16/2024			SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	4/16/2024			SW846-8260D	=
Trichloroethene		4.99	ug/L	1	4/16/2024			SW846-8260D	=
Trichlorofluoromethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=

Vinyl acetate	U	5 ug/L	5	4/16/2024	SW846-8260D	=
Vinyl chloride	U	1 ug/L	1	4/16/2024	SW846-8260D	=
Dissolved Solids		202 mg/L	10	4/16/2024	EPA-160.1	=
Iodide	U	0.5 mg/L	0.5	4/16/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	J	16.2 mg/L	20	4/16/2024	EPA-410.4	=
Cyanide	U	0.2 mg/L	0.2	4/16/2024	SW846-9012B	=
Total Organic Halides (TOX)		18.7 ug/L	10	4/16/2024	SW846-9020B	=
Total Organic Carbon (TOC)	J	0.698 mg/L	2	4/16/2024	SW846-9060A	=

**Paducah OREIS
GROUNDWATER MONITORING REPORT**

Facility: C-746-S&T Landfill **County:** McCracken **Permit #:** SW07300014,SW07300015,SW07300045
Sampling Point: MW396 UP **RGA Type:** UCRS **Period:** 2nd Quarter 2024
AKGWA Well Tag #: 8004-4803 **SAMPLE ID:** MW396SG3-24 **Sample Type:** REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide		0.807	mg/L	0.4	4/16/2024			SW846-9056A	=
Chloride	JW	55.8	mg/L	250	4/16/2024			SW846-9056A	=
Fluoride	J	0.641	mg/L	4	4/16/2024			SW846-9056A	=
Nitrate as Nitrogen	J	0.282	mg/L	10	4/16/2024			SW846-9056A	=
Sulfate	W	28.9	mg/L	0.8	4/16/2024			SW846-9056A	=
Barometric Pressure Reading		29.95	Inches/Hg		4/16/2024				X
Conductivity		713	µmhos/cm		4/16/2024				X
Depth to Water		11.24	ft		4/16/2024				X
Dissolved Oxygen		1	mg/L		4/16/2024				X
Eh (approx)		353	mV		4/16/2024				X
pH		6.3	Std Unit		4/16/2024				X
Temperature		62.6	deg F		4/16/2024				X
Turbidity		2.16	NTU		4/16/2024				X
Aluminum	U	0.05	mg/L	0.05	4/16/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	4/16/2024			SW846-6020B	=
Arsenic	J	0.00224	mg/L	0.005	4/16/2024			SW846-6020B	=
Barium		0.381	mg/L	0.004	4/16/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	4/16/2024			SW846-6020B	=
Boron	J	0.00773	mg/L	0.015	4/16/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	4/16/2024			SW846-6020B	=
Calcium		34.3	mg/L	0.2	4/16/2024			SW846-6020B	=
Chromium	U	0.01	mg/L	0.01	4/16/2024			SW846-6020B	=
Cobalt	U	0.001	mg/L	0.001	4/16/2024			SW846-6020B	=
Copper	J	0.000975	mg/L	0.002	4/16/2024			SW846-6020B	J
Iron		0.169	mg/L	0.1	4/16/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	4/16/2024			SW846-6020B	=
Magnesium		15	mg/L	0.03	4/16/2024			SW846-6020B	=
Manganese		0.012	mg/L	0.005	4/16/2024			SW846-6020B	J
Molybdenum	J	0.00036	mg/L	0.001	4/16/2024			SW846-6020B	=
Nickel	U	0.002	mg/L	0.002	4/16/2024			SW846-6020B	=
Potassium		0.93	mg/L	0.3	4/16/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	4/16/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	4/16/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	4/16/2024			SW846-6020B	=
Sodium		97.8	mg/L	2.5	4/16/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	4/16/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	4/16/2024			SW846-6020B	=
Uranium	J	0.000068	mg/L	0.0002	4/16/2024			SW846-6020B	=
Vanadium	BJ	0.0109	mg/L	0.02	4/16/2024			SW846-6020B	U
Zinc	U	0.02	mg/L	0.02	4/16/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	4/16/2024			SW846-7470A	=
Barium, Dissolved		0.362	mg/L	0.004	4/16/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	4/16/2024			SW846-6020B	UJ
Uranium, Dissolved	U	0.0002	mg/L	0.0002	4/16/2024			SW846-6020B	UJ
Radium-226	U	0.254	pCi/L	1.2	4/16/2024	0.802	0.802	AN-1418	=

Strontium-90	U	1.85	pCi/L	2.24	4/16/2024	1.44	1.46	EPA-905.0-M	=
Tritium	U	32.1	pCi/L	234	4/16/2024	132	132	EPA-906.0-M	=
Technetium-99	U	-3.78	pCi/L	19.7	4/16/2024	10.6	10.6	HASL 300, Tc-02-RC M	=
Thorium-230	U	0.871	pCi/L	1.54	4/16/2024	1.08	1.09	HASL 300, Th-01-RC M	=
Alpha activity	U	7.64	pCi/L	9.26	4/16/2024	6.26	6.39	SW846-9310	=
Beta activity	U	6.85	pCi/L	8.85	4/16/2024	5.6	5.72	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.019	ug/L	0.019	4/16/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	4/16/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	4/16/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	4/16/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	4/16/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	4/16/2024			SW846-8260D	=
Acrylonitrile	U	5	ug/L	5	4/16/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	4/16/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Ethylbenzene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	4/16/2024			SW846-8260D	=
Methylene chloride	BJ	1.18	ug/L	5	4/16/2024			SW846-8260D	U
Styrene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Toluene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Total Xylene	U	3	ug/L	3	4/16/2024			SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	4/16/2024			SW846-8260D	=
Trichloroethene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Trichlorofluoromethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=

Vinyl acetate	U	5 ug/L	5	4/16/2024	SW846-8260D	=
Vinyl chloride	U	1 ug/L	1	4/16/2024	SW846-8260D	=
Dissolved Solids		403 mg/L	10	4/16/2024	EPA-160.1	=
Iodide	U	0.5 mg/L	0.5	4/16/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)		23.2 mg/L	20	4/16/2024	EPA-410.4	=
Cyanide	U	0.2 mg/L	0.2	4/16/2024	SW846-9012B	=
Total Organic Halides (TOX)		64.8 ug/L	10	4/16/2024	SW846-9020B	=
Total Organic Carbon (TOC)		4.22 mg/L	2	4/16/2024	SW846-9060A	=

**Paducah OREIS
GROUNDWATER MONITORING REPORT**

Facility: C-746-S&T Landfill **County:** McCracken **Permit #:** SW07300014,SW07300015,SW07300045
Sampling Point: MW397 UP **RGA Type:** LRGA **Period:** 2nd Quarter 2024
AKGWA Well Tag #: 8004-4817 **SAMPLE ID:** MW397SG3-24 **Sample Type:** REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide		0.445	mg/L	0.2	4/15/2024			SW846-9056A	=
Chloride	JW	33.2	mg/L	250	4/15/2024			SW846-9056A	J
Fluoride	J	0.169	mg/L	4	4/15/2024			SW846-9056A	=
Nitrate as Nitrogen	J	1.04	mg/L	10	4/15/2024			SW846-9056A	=
Sulfate		11.7	mg/L	0.4	4/15/2024			SW846-9056A	=
Barometric Pressure Reading		29.94	Inches/Hg		4/15/2024				X
Conductivity		314	µmhos/cm		4/15/2024				X
Depth to Water		64.18	ft		4/15/2024				X
Dissolved Oxygen		6	mg/L		4/15/2024				X
Eh (approx)		374	mV		4/15/2024				X
pH		5.95	Std Unit		4/15/2024				X
Temperature		63.7	deg F		4/15/2024				X
Turbidity		1.04	NTU		4/15/2024				X
Aluminum	J	0.0429	mg/L	0.05	4/15/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	4/15/2024			SW846-6020B	=
Arsenic	U	0.005	mg/L	0.005	4/15/2024			SW846-6020B	=
Barium		0.13	mg/L	0.004	4/15/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	4/15/2024			SW846-6020B	=
Boron	J	0.00887	mg/L	0.015	4/15/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	4/15/2024			SW846-6020B	=
Calcium		18.9	mg/L	0.2	4/15/2024			SW846-6020B	=
Chromium	U	0.01	mg/L	0.01	4/15/2024			SW846-6020B	=
Cobalt	U	0.001	mg/L	0.001	4/15/2024			SW846-6020B	=
Copper	J	0.000798	mg/L	0.002	4/15/2024			SW846-6020B	J
Iron	J	0.0833	mg/L	0.1	4/15/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	4/15/2024			SW846-6020B	=
Magnesium		7.73	mg/L	0.03	4/15/2024			SW846-6020B	=
Manganese	J	0.00199	mg/L	0.005	4/15/2024			SW846-6020B	J
Molybdenum	U	0.001	mg/L	0.001	4/15/2024			SW846-6020B	=
Nickel	U	0.002	mg/L	0.002	4/15/2024			SW846-6020B	=
Potassium		1.83	mg/L	0.3	4/15/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	4/15/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	4/15/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	4/15/2024			SW846-6020B	=
Sodium		31.9	mg/L	0.25	4/15/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	4/15/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	4/15/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	4/15/2024			SW846-6020B	UJ
Vanadium	U	0.02	mg/L	0.02	4/15/2024			SW846-6020B	=
Zinc	U	0.02	mg/L	0.02	4/15/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	4/15/2024			SW846-7470A	=
Barium, Dissolved		0.125	mg/L	0.004	4/15/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	4/15/2024			SW846-6020B	UJ
Uranium, Dissolved	U	0.0002	mg/L	0.0002	4/15/2024			SW846-6020B	UJ
Radium-226	U	0.611	pCi/L	0.962	4/15/2024	0.851	0.852	AN-1418	=

Strontium-90	U	-3.74	pCi/L	7.58	4/15/2024	3.63	3.63	EPA-905.0-M	UJ
Tritium	U	-13.3	pCi/L	206	4/15/2024	102	102	EPA-906.0-M	=
Technetium-99	U	5.18	pCi/L	21.5	4/15/2024	12.4	12.4	HASL 300, Tc-02-RC M	=
Thorium-230	U	0.0888	pCi/L	1.47	4/15/2024	0.706	0.709	HASL 300, Th-01-RC M	=
Alpha activity	U	3.51	pCi/L	7.99	4/15/2024	4.69	4.73	SW846-9310	=
Beta activity	U	5.46	pCi/L	10.1	4/15/2024	6.07	6.14	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.019	ug/L	0.019	4/15/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	4/15/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	4/15/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	4/15/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	4/15/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	4/15/2024			SW846-8260D	=
Acrylonitrile	U	5	ug/L	5	4/15/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	4/15/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Ethylbenzene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	4/15/2024			SW846-8260D	=
Methylene chloride	U	5	ug/L	5	4/15/2024			SW846-8260D	=
Styrene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Toluene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Total Xylene	U	3	ug/L	3	4/15/2024			SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	4/15/2024			SW846-8260D	=
Trichloroethene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Trichlorofluoromethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=

Vinyl acetate	U	5 ug/L	5	4/15/2024	SW846-8260D	UJ
Vinyl chloride	U	1 ug/L	1	4/15/2024	SW846-8260D	UJ
Dissolved Solids		166 mg/L	10	4/15/2024	EPA-160.1	=
Iodide	U	0.5 mg/L	0.5	4/15/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	J	16.2 mg/L	20	4/15/2024	EPA-410.4	=
Cyanide	UN	0.2 mg/L	0.2	4/15/2024	SW846-9012B	=
Total Organic Halides (TOX)	J	8.18 ug/L	10	4/15/2024	SW846-9020B	=
Total Organic Carbon (TOC)	J	0.537 mg/L	2	4/15/2024	SW846-9060A	=

**Paducah OREIS
GROUNDWATER MONITORING REPORT**

Facility: C-746-S&T Landfill

County: McCracken

Permit #: SW07300014,SW07300015,SW07300045

Sampling Point: QC

Period: 2nd Quarter 2024

AKGWA Well Tag #: N/A

SAMPLE ID: FB1SG3-24

Sample Type: FB

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Aluminum	U	0.05	mg/L	0.05	4/11/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	4/11/2024			SW846-6020B	=
Arsenic	U	0.005	mg/L	0.005	4/11/2024			SW846-6020B	=
Barium	U	0.004	mg/L	0.004	4/11/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	4/11/2024			SW846-6020B	=
Boron	U	0.015	mg/L	0.015	4/11/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	4/11/2024			SW846-6020B	=
Calcium	U	0.2	mg/L	0.2	4/11/2024			SW846-6020B	=
Chromium	U	0.01	mg/L	0.01	4/11/2024			SW846-6020B	=
Cobalt	U	0.001	mg/L	0.001	4/11/2024			SW846-6020B	=
Copper	U	0.002	mg/L	0.002	4/11/2024			SW846-6020B	=
Iron	U	0.1	mg/L	0.1	4/11/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	4/11/2024			SW846-6020B	=
Magnesium	U	0.03	mg/L	0.03	4/11/2024			SW846-6020B	=
Manganese	U	0.005	mg/L	0.005	4/11/2024			SW846-6020B	=
Molybdenum	U	0.001	mg/L	0.001	4/11/2024			SW846-6020B	=
Nickel	U	0.002	mg/L	0.002	4/11/2024			SW846-6020B	=
Potassium	UNW	0.3	mg/L	0.3	4/11/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	4/11/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	4/11/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	4/11/2024			SW846-6020B	=
Sodium	J	0.102	mg/L	0.25	4/11/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	4/11/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	4/11/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	4/11/2024			SW846-6020B	=
Vanadium	J	0.00691	mg/L	0.02	4/11/2024			SW846-6020B	=
Zinc	U	0.02	mg/L	0.02	4/11/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	4/11/2024			SW846-7470A	=
Radium-226	U	0.288	pCi/L	1.73	4/11/2024	1.04	1.04	AN-1418	=
Strontium-90	U	0.0973	pCi/L	7.65	4/11/2024	4.04	4.04	EPA-905.0-M	=
Tritium	U	-64.7	pCi/L	226	4/11/2024	105	105	EPA-906.0-M	=
Technetium-99	U	5.07	pCi/L	19.7	4/11/2024	11.4	11.4	HASL 300, Tc-02-RC M	=
Thorium-230	U	0.317	pCi/L	1.78	4/11/2024	0.951	0.955	HASL 300, Th-01-RC M	=
Alpha activity	U	-1.13	pCi/L	6.71	4/11/2024	2.13	2.14	SW846-9310	=
Beta activity	U	-0.966	pCi/L	8.48	4/11/2024	4.22	4.22	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.0192	ug/L	0.0192	4/11/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	4/11/2024			SW846-8260D	=

1,2-Dichloroethane	U	1 ug/L	1	4/11/2024	SW846-8260D	=
1,2-Dichloropropane	U	1 ug/L	1	4/11/2024	SW846-8260D	=
1,4-Dichlorobenzene	U	1 ug/L	1	4/11/2024	SW846-8260D	=
2-Butanone		91.5 ug/L	5	4/11/2024	SW846-8260D	=
2-Hexanone		19.2 ug/L	5	4/11/2024	SW846-8260D	=
4-Methyl-2-pentanone	U	5 ug/L	5	4/11/2024	SW846-8260D	=
Acetone		33.2 ug/L	5	4/11/2024	SW846-8260D	=
Acrolein	U	5 ug/L	5	4/11/2024	SW846-8260D	=
Acrylonitrile	U	5 ug/L	5	4/11/2024	SW846-8260D	=
Benzene	U	1 ug/L	1	4/11/2024	SW846-8260D	=
Bromochloromethane	U	1 ug/L	1	4/11/2024	SW846-8260D	=
Bromodichloromethane	U	1 ug/L	1	4/11/2024	SW846-8260D	=
Bromoform	U	1 ug/L	1	4/11/2024	SW846-8260D	=
Bromomethane	U	1 ug/L	1	4/11/2024	SW846-8260D	=
Carbon disulfide	U	5 ug/L	5	4/11/2024	SW846-8260D	=
Carbon tetrachloride	U	1 ug/L	1	4/11/2024	SW846-8260D	UJ
Chlorobenzene	U	1 ug/L	1	4/11/2024	SW846-8260D	=
Chloroethane	U	1 ug/L	1	4/11/2024	SW846-8260D	=
Chloroform	U	1 ug/L	1	4/11/2024	SW846-8260D	=
Chloromethane	U	1 ug/L	1	4/11/2024	SW846-8260D	=
cis-1,2-Dichloroethene	U	1 ug/L	1	4/11/2024	SW846-8260D	=
cis-1,3-Dichloropropene	U	1 ug/L	1	4/11/2024	SW846-8260D	=
Dibromochloromethane	U	1 ug/L	1	4/11/2024	SW846-8260D	=
Dibromomethane	U	1 ug/L	1	4/11/2024	SW846-8260D	=
Ethylbenzene	U	1 ug/L	1	4/11/2024	SW846-8260D	=
Iodomethane	U	5 ug/L	5	4/11/2024	SW846-8260D	=
Methylene chloride	U	5 ug/L	5	4/11/2024	SW846-8260D	=
Styrene	U	1 ug/L	1	4/11/2024	SW846-8260D	=
Tetrachloroethene	U	1 ug/L	1	4/11/2024	SW846-8260D	=
Toluene	U	1 ug/L	1	4/11/2024	SW846-8260D	=
Total Xylene	U	3 ug/L	3	4/11/2024	SW846-8260D	=
trans-1,2-Dichloroethene	U	1 ug/L	1	4/11/2024	SW846-8260D	=
trans-1,3-Dichloropropene	U	1 ug/L	1	4/11/2024	SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5 ug/L	5	4/11/2024	SW846-8260D	=
Trichloroethene	U	1 ug/L	1	4/11/2024	SW846-8260D	=
Trichlorofluoromethane	U	1 ug/L	1	4/11/2024	SW846-8260D	=
Vinyl acetate	U	5 ug/L	5	4/11/2024	SW846-8260D	=
Vinyl chloride	U	1 ug/L	1	4/11/2024	SW846-8260D	=
Iodide	U	0.5 mg/L	0.5	4/11/2024	EPA-300.0	=

**Paducah OREIS
GROUNDWATER MONITORING REPORT**

Facility: C-746-S&T Landfill **County:** McCracken **Permit #:** SW07300014,SW07300015,SW07300045

Sampling Point: QC **Period:** 2nd Quarter 2024

AKGWA Well Tag #: N/A **SAMPLE ID:** RI1SG3-24 **Sample Type:** RI

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Aluminum	U	0.05	mg/L	0.05	4/11/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	4/11/2024			SW846-6020B	=
Arsenic	U	0.005	mg/L	0.005	4/11/2024			SW846-6020B	=
Barium	U	0.004	mg/L	0.004	4/11/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	4/11/2024			SW846-6020B	=
Boron	U	0.015	mg/L	0.015	4/11/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	4/11/2024			SW846-6020B	=
Calcium	U	0.2	mg/L	0.2	4/11/2024			SW846-6020B	=
Chromium	U	0.01	mg/L	0.01	4/11/2024			SW846-6020B	=
Cobalt	U	0.001	mg/L	0.001	4/11/2024			SW846-6020B	=
Copper	J	0.000348	mg/L	0.002	4/11/2024			SW846-6020B	J
Iron	U	0.1	mg/L	0.1	4/11/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	4/11/2024			SW846-6020B	=
Magnesium	U	0.03	mg/L	0.03	4/11/2024			SW846-6020B	=
Manganese	U	0.005	mg/L	0.005	4/11/2024			SW846-6020B	=
Molybdenum	U	0.001	mg/L	0.001	4/11/2024			SW846-6020B	=
Nickel	U	0.002	mg/L	0.002	4/11/2024			SW846-6020B	=
Potassium	UNW	0.3	mg/L	0.3	4/11/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	4/11/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	4/11/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	4/11/2024			SW846-6020B	=
Sodium	U	0.25	mg/L	0.25	4/11/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	4/11/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	4/11/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	4/11/2024			SW846-6020B	=
Vanadium	J	0.00647	mg/L	0.02	4/11/2024			SW846-6020B	=
Zinc	U	0.02	mg/L	0.02	4/11/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	4/11/2024			SW846-7470A	=
Radium-226	U	0.122	pCi/L	0.963	4/11/2024	0.534	0.534	AN-1418	=
Strontium-90	U	2.85	pCi/L	5.54	4/11/2024	3.3	3.33	EPA-905.0-M	=
Tritium	U	-20.7	pCi/L	225	4/11/2024	113	113	EPA-906.0-M	=
Technetium-99	U	5.8	pCi/L	20.4	4/11/2024	11.8	11.8	HASL 300, Tc-02-RC M	=
Thorium-230	U	0.35	pCi/L	2.06	4/11/2024	1.09	1.1	HASL 300, Th-01-RC M	=
Alpha activity	U	0.787	pCi/L	8.15	4/11/2024	3.88	3.88	SW846-9310	=
Beta activity	U	-8.08	pCi/L	12.2	4/11/2024	5.72	5.72	SW846-9310	UJ
1,2-Dibromo-3-chloropropane	U	0.0187	ug/L	0.0187	4/11/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	4/11/2024			SW846-8260D	=

1,2-Dichloroethane	U	1 ug/L	1	4/11/2024	SW846-8260D	=
1,2-Dichloropropane	U	1 ug/L	1	4/11/2024	SW846-8260D	=
1,4-Dichlorobenzene	U	1 ug/L	1	4/11/2024	SW846-8260D	=
2-Butanone	U	5 ug/L	5	4/11/2024	SW846-8260D	=
2-Hexanone	U	5 ug/L	5	4/11/2024	SW846-8260D	=
4-Methyl-2-pentanone	U	5 ug/L	5	4/11/2024	SW846-8260D	=
Acetone	U	5 ug/L	5	4/11/2024	SW846-8260D	=
Acrolein	U	5 ug/L	5	4/11/2024	SW846-8260D	=
Acrylonitrile	U	5 ug/L	5	4/11/2024	SW846-8260D	=
Benzene	U	1 ug/L	1	4/11/2024	SW846-8260D	=
Bromochloromethane	U	1 ug/L	1	4/11/2024	SW846-8260D	=
Bromodichloromethane	U	1 ug/L	1	4/11/2024	SW846-8260D	=
Bromoform	U	1 ug/L	1	4/11/2024	SW846-8260D	=
Bromomethane	U	1 ug/L	1	4/11/2024	SW846-8260D	=
Carbon disulfide	U	5 ug/L	5	4/11/2024	SW846-8260D	=
Carbon tetrachloride	U	1 ug/L	1	4/11/2024	SW846-8260D	UJ
Chlorobenzene	U	1 ug/L	1	4/11/2024	SW846-8260D	=
Chloroethane	U	1 ug/L	1	4/11/2024	SW846-8260D	=
Chloroform	U	1 ug/L	1	4/11/2024	SW846-8260D	=
Chloromethane	U	1 ug/L	1	4/11/2024	SW846-8260D	=
cis-1,2-Dichloroethene	U	1 ug/L	1	4/11/2024	SW846-8260D	=
cis-1,3-Dichloropropene	U	1 ug/L	1	4/11/2024	SW846-8260D	=
Dibromochloromethane	U	1 ug/L	1	4/11/2024	SW846-8260D	=
Dibromomethane	U	1 ug/L	1	4/11/2024	SW846-8260D	=
Ethylbenzene	U	1 ug/L	1	4/11/2024	SW846-8260D	=
Iodomethane	U	5 ug/L	5	4/11/2024	SW846-8260D	=
Methylene chloride	U	5 ug/L	5	4/11/2024	SW846-8260D	=
Styrene	U	1 ug/L	1	4/11/2024	SW846-8260D	=
Tetrachloroethene	U	1 ug/L	1	4/11/2024	SW846-8260D	=
Toluene	U	1 ug/L	1	4/11/2024	SW846-8260D	=
Total Xylene	U	3 ug/L	3	4/11/2024	SW846-8260D	=
trans-1,2-Dichloroethene	U	1 ug/L	1	4/11/2024	SW846-8260D	=
trans-1,3-Dichloropropene	U	1 ug/L	1	4/11/2024	SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5 ug/L	5	4/11/2024	SW846-8260D	=
Trichloroethene	U	1 ug/L	1	4/11/2024	SW846-8260D	=
Trichlorofluoromethane	U	1 ug/L	1	4/11/2024	SW846-8260D	=
Vinyl acetate	U	5 ug/L	5	4/11/2024	SW846-8260D	=
Vinyl chloride	U	1 ug/L	1	4/11/2024	SW846-8260D	=
Iodide	U	0.5 mg/L	0.5	4/11/2024	EPA-300.0	=

**Paducah OREIS
GROUNDWATER MONITORING REPORT**

Facility: C-746-S&T Landfill

County: McCracken

Permit #: SW07300014,SW07300015,SW07300045

Sampling Point: QC

Period: 2nd Quarter 2024

AKGWA Well Tag #: N/A

SAMPLE ID: TB1SG3-24

Sample Type: TB

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
1,2-Dibromo-3-chloropropane	U	0.0191	ug/L	0.0191	4/11/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	4/11/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	4/11/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	4/11/2024			SW846-8260D	=
Acetone	J	2.11	ug/L	5	4/11/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	4/11/2024			SW846-8260D	=
Acrylonitrile	U	5	ug/L	5	4/11/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	4/11/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	4/11/2024			SW846-8260D	UJ
Chlorobenzene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Ethylbenzene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	4/11/2024			SW846-8260D	=
Methylene chloride	U	5	ug/L	5	4/11/2024			SW846-8260D	=
Styrene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Toluene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
Total Xylene	U	3	ug/L	3	4/11/2024			SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	4/11/2024			SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	4/11/2024			SW846-8260D	=
Trichloroethene	U	1	ug/L	1	4/11/2024			SW846-8260D	=

Trichlorofluoromethane	U	1 ug/L	1	4/11/2024	SW846-8260D	=
Vinyl acetate	U	5 ug/L	5	4/11/2024	SW846-8260D	=
Vinyl chloride	U	1 ug/L	1	4/11/2024	SW846-8260D	=

**Paducah OREIS
GROUNDWATER MONITORING REPORT**

Facility: C-746-S&T Landfill

County: McCracken

Permit #: SW07300014,SW07300015,SW07300045

Sampling Point: QC

Period: 2nd Quarter 2024

AKGWA Well Tag #: N/A

SAMPLE ID: TB2SG3-24

Sample Type: 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	4/15/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	4/15/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	4/15/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	4/15/2024			SW846-8260D	=
Acetone	J	2.47	ug/L	5	4/15/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	4/15/2024			SW846-8260D	=
Acrylonitrile	U	5	ug/L	5	4/15/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	4/15/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Ethylbenzene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	4/15/2024			SW846-8260D	=
Methylene chloride	U	5	ug/L	5	4/15/2024			SW846-8260D	=
Styrene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Toluene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
Total Xylene	U	3	ug/L	3	4/15/2024			SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	4/15/2024			SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	4/15/2024			SW846-8260D	=
Trichloroethene	U	1	ug/L	1	4/15/2024			SW846-8260D	=

Trichlorofluoromethane	U	1 ug/L	1	4/15/2024	SW846-8260D	=
Vinyl acetate	U	5 ug/L	5	4/15/2024	SW846-8260D	UJ
Vinyl chloride	U	1 ug/L	1	4/15/2024	SW846-8260D	UJ

**Paducah OREIS
GROUNDWATER MONITORING REPORT**

Facility: C-746-S&T Landfill

County: McCracken

Permit #: SW07300014,SW07300015,SW07300045

Sampling Point: QC

Period: 2nd Quarter 2024

AKGWA Well Tag #: N/A

SAMPLE ID: TB3SG3-24

Sample Type: TB

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
1,2-Dibromo-3-chloropropane	U	0.0189	ug/L	0.0189	4/16/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	4/16/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	4/16/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	4/16/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	4/16/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	4/16/2024			SW846-8260D	=
Acrylonitrile	U	5	ug/L	5	4/16/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	4/16/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Ethylbenzene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	4/16/2024			SW846-8260D	=
Methylene chloride	BJ	1.21	ug/L	5	4/16/2024			SW846-8260D	U
Styrene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Toluene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
Total Xylene	U	3	ug/L	3	4/16/2024			SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	4/16/2024			SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	4/16/2024			SW846-8260D	=
Trichloroethene	U	1	ug/L	1	4/16/2024			SW846-8260D	=

Trichlorofluoromethane	U	1 ug/L	1	4/16/2024	SW846-8260D	=
Vinyl acetate	U	5 ug/L	5	4/16/2024	SW846-8260D	=
Vinyl chloride	U	1 ug/L	1	4/16/2024	SW846-8260D	=

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

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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: July 24, 2024

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

Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW220SG3-24 Project: FRNP00511
Sample ID: 662789001 Client ID: FRNP005
Matrix: WG
Collect Date: 11-APR-24 12:51
Receive Date: 12-APR-24
Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
504.1/8011 Analysis of EDB/DBCP												
8011, VOA Compounds Liquid "As Received"												
1,2-Dibromo-3-chloropropane	U	0.0192	0.00863	0.0192	ug/L	0.958	1	LOF	04/15/24	1613	2596326	1
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	0.749	0.330	2.00	mg/L		1	RM3	04/13/24	1610	2596331	2
Flow Injection Analysis												
9012B, Total Cyanide "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	04/16/24	1137	2596738	3
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens	U	10.0	3.33	10.0	ug/L		1	RMJ	04/27/24	0141	2603958	4
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	04/22/24	1950	2600800	5
SW846 9056A Anions (5) "As Received"												
Chloride	JW	17.7	0.134	250	mg/L		2	CH6	04/12/24	1943	2596205	6
Nitrate-N	J	0.956	0.0660	10.0	mg/L		2					
Bromide	J	0.183	0.0670	0.200	mg/L		1	CH6	04/12/24	1142	2596205	7
Fluoride	J	0.277	0.0330	4.00	mg/L		1					
Sulfate	W	18.6	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	04/18/24	1006	2597854	8
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	05/04/24	1024	2596480	9
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	05/03/24	2206	2596480	10
Antimony	U	0.00300	0.00100	0.00300	mg/L	1.00	1					
Arsenic	U	0.00500	0.00200	0.00500	mg/L	1.00	1					
Barium		0.193	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					
Boron	J	0.00794	0.00520	0.0150	mg/L	1.00	1					
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1					

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Report Date: July 24, 2024

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

Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW220SG3-24
Sample ID: 662789001

Project: FRNP00511
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Calcium		23.3	0.0800	0.200	mg/L	1.00	1					
Chromium	J	0.00640	0.00300	0.0100	mg/L	1.00	1					
Cobalt	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Copper		0.00351	0.000300	0.00200	mg/L	1.00	1					
Iron	J	0.0410	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Magnesium		9.96	0.0100	0.0300	mg/L	1.00	1					
Manganese	J	0.00187	0.00100	0.00500	mg/L	1.00	1					
Molybdenum	J	0.000804	0.000200	0.00100	mg/L	1.00	1					
Nickel		0.00562	0.000600	0.00200	mg/L	1.00	1					
Potassium	NW	4.61	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		43.4	0.0800	0.250	mg/L	1.00	1					
Thallium	U	0.00200	0.000600	0.00200	mg/L	1.00	1					
Vanadium	J	0.00598	0.00330	0.0200	mg/L	1.00	1					
Zinc	J	0.00720	0.00330	0.0200	mg/L	1.00	1					
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	PRB	05/05/24	1509	2596480	11
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		198	2.38	10.0	mg/L			KLP1	04/18/24	1534	2599126	12
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD	U	20.0	8.95	20.0	mg/L		1	JW2	04/12/24	1625	2596434	13
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	AXH5	04/15/24	1533	2597329	14
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					

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Certificate of Analysis

Report Date: July 24, 2024

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

Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW220SG3-24
Sample ID: 662789001

Project: FRNP00511
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time Batch	Method
Volatile Organics											
8260D, Volatiles- full suite "As Received"											
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	J	2.19	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				
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				

GEL LABORATORIES LLC

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

Certificate of Analysis

Report Date: July 24, 2024

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

Contact: Kevil, Kentucky 42053
Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW220SG3-24
Sample ID: 662789001

Project: FRNP00511
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
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	04/16/24	1040	2596737
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	04/17/24	1150	2597851
SW846 8011 PREP	8011 Prep	LOF	04/15/24	1331	2596324
SW846 3005A	ICP-MS 3005A PREP	SD	04/16/24	0825	2596479

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	EPA 160.1	
13	EPA 410.4	
14	SW846 8260D	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011, VOA Compounds Liquid "As Received"	8.04 ug/L	6.85	117	(56%-149%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	50.6 ug/L	50.0	101	(74%-123%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	52.2 ug/L	50.0	104	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	51.2 ug/L	50.0	102	(77%-121%)

Notes:

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Certificate of Analysis

Report Date: July 24, 2024

Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road
Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW220SG3-24 Project: FRNP00511
Sample ID: 662789001 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
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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: July 24, 2024

Company : Four Rivers Nuclear Partnership, LLC
 Address : 5600 Hobbs Road
 Kevil, Kentucky 42053
 Contact: Ms. Jaime Morrow
 Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW220SG3-24	Project: FRNP00511
Sample ID: 662789002	Client ID: FRNP005
Matrix: WG	
Collect Date: 11-APR-24 12:51	
Receive Date: 12-APR-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		0.189	0.000670	0.00400	mg/L	1.00	1	PRB	05/03/24	2231	2596480	1
Chromium	J	0.00587	0.00300	0.0100	mg/L	1.00	1					
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	PRB	05/04/24	1144	2596480	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 160	Laboratory Filtration	EXF1	04/12/24	1350	2596377
SW846 3005A	ICP-MS 3005A PREP	SD	04/16/24	0825	2596479

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3005A/6020B	
2	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-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW221DSG3-24 Project: FRNP00511
Sample ID: 662789003 Client ID: FRNP005
Matrix: WG
Collect Date: 11-APR-24 08:13
Receive Date: 12-APR-24
Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
504.1/8011 Analysis of EDB/DBCP												
8011, VOA Compounds Liquid "As Received"												
1,2-Dibromo-3-chloropropane	U	0.0192	0.00864	0.0192	ug/L	0.960	1	LOF	04/15/24	1727	2596326	1
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	0.692	0.330	2.00	mg/L		1	RM3	04/13/24	1748	2596331	2
Flow Injection Analysis												
9012B, Total Cyanide "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	04/16/24	1140	2596738	3
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens		18.8	3.33	10.0	ug/L		1	RMJ	04/27/24	0259	2603958	4
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	04/22/24	2029	2600800	5
SW846 9056A Anions (5) "As Received"												
Chloride	JW	34.8	0.268	250	mg/L		4	CH6	04/13/24	0052	2596205	6
Nitrate-N	J	0.946	0.132	10.0	mg/L		4					
Bromide		0.457	0.0670	0.200	mg/L		1	CH6	04/12/24	1213	2596205	7
Fluoride	J	0.271	0.0330	4.00	mg/L		1					
Sulfate	W	15.7	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	04/18/24	1014	2597854	8
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Aluminum	U	0.0500	0.0193	0.0500	mg/L	1.00	1	PRB	05/03/24	2249	2596480	9
Antimony	U	0.00300	0.00100	0.00300	mg/L	1.00	1					
Arsenic	U	0.00500	0.00200	0.00500	mg/L	1.00	1					
Barium		0.200	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					
Boron		0.0223	0.00520	0.0150	mg/L	1.00	1					
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Calcium		21.3	0.0800	0.200	mg/L	1.00	1					
Chromium	J	0.00406	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-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW221DSG3-24
Sample ID: 662789003

Project: FRNP00511
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Cobalt	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Copper	J	0.000990	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					
Magnesium		9.82	0.0100	0.0300	mg/L	1.00	1					
Manganese	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Molybdenum		0.00408	0.000200	0.00100	mg/L	1.00	1					
Nickel		0.00972	0.000600	0.00200	mg/L	1.00	1					
Potassium	NW	2.08	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		49.3	0.0800	0.250	mg/L	1.00	1					
Thallium	U	0.00200	0.000600	0.00200	mg/L	1.00	1					
Vanadium	J	0.00539	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	05/15/24	1630	2611780	10
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	PRB	05/04/24	1152	2596480	11
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		212	2.38	10.0	mg/L			KLP1	04/18/24	1534	2599126	12
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD	U	20.0	8.95	20.0	mg/L		1	JW2	04/12/24	1625	2596434	13
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	AXH5	04/15/24	1739	2597329	14
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					

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

Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW221DSG3-24
Sample ID: 662789003

Project: FRNP00511
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time Batch	Method
Volatile Organics											
8260D, Volatiles- full suite "As Received"											
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				
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				

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Report Date: July 24, 2024

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

Contact: Kevil, Kentucky 42053
Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW221DSG3-24
Sample ID: 662789003

Project: FRNP00511
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
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	SD	04/16/24	0825	2596479
SW846 3005A	ICP-MS 3005A PREP	AB5	05/15/24	0815	2611779
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	04/17/24	1150	2597851
SW846 8011 PREP	8011 Prep	LOF	04/15/24	1331	2596324
SW846 9010C Distillation	SW846 9010C Prep	ES2	04/16/24	1040	2596737

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	EPA 160.1	
13	EPA 410.4	
14	SW846 8260D	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011, VOA Compounds Liquid "As Received"	6.91 ug/L	6.85	101	(56%-149%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	51.3 ug/L	50.0	103	(74%-123%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	52.9 ug/L	50.0	106	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	51.2 ug/L	50.0	102	(77%-121%)

Notes:

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Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road
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Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW221DSG3-24
Sample ID: 662789003

Project: FRNP00511
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
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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: July 24, 2024

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

Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW221DSG3-24 Project: FRNP00511
Sample ID: 662789004 Client ID: FRNP005
Matrix: WG
Collect Date: 11-APR-24 08:13
Receive Date: 12-APR-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"												
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	PRB	05/04/24	1154	2596480	1
Barium		0.198	0.000670	0.00400	mg/L	1.00	1	PRB	05/03/24	2253	2596480	2
Chromium	J	0.00362	0.00300	0.0100	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	04/16/24	0825	2596479
EPA 160	Laboratory Filtration	EXF1	04/12/24	1350	2596377

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3005A/6020B	
2	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-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW221SG3-24 Project: FRNP00511
Sample ID: 662789005 Client ID: FRNP005
Matrix: WG
Collect Date: 11-APR-24 08:13
Receive Date: 12-APR-24
Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
504.1/8011 Analysis of EDB/DBCP												
8011, VOA Compounds Liquid "As Received"												
1,2-Dibromo-3-chloropropane	U	0.0191	0.00859	0.0191	ug/L	0.954	1	LOF	04/15/24	1752	2596326	2
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	0.715	0.330	2.00	mg/L		1	RM3	04/13/24	1821	2596331	3
Flow Injection Analysis												
9012B, Total Cyanide "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	04/16/24	1141	2596738	4
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens		13.9	3.33	10.0	ug/L		1	RMJ	04/30/24	0119	2604481	5
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	04/22/24	2042	2600800	6
SW846 9056A Anions (5) "As Received"												
Fluoride	J	0.276	0.0330	4.00	mg/L		1	CH6	04/12/24	1244	2596205	7
Sulfate	W	15.7	0.133	0.400	mg/L		1					
Bromide	J	0.426	0.268	0.800	mg/L		4	CH6	04/13/24	0123	2596205	8
Chloride	JW	35.5	0.268	250	mg/L		4					
Nitrate-N	J	0.950	0.132	10.0	mg/L		4					
Mercury Analysis-CVAA												
7470, Mercury Liquid "As Received"												
Mercury	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	JP2	04/18/24	1016	2597854	9
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	PRB	05/04/24	1156	2596480	10
Aluminum	U	0.0500	0.0193	0.0500	mg/L	1.00	1	PRB	05/03/24	2257	2596480	11
Antimony	U	0.00300	0.00100	0.00300	mg/L	1.00	1					
Arsenic	U	0.00500	0.00200	0.00500	mg/L	1.00	1					
Barium		0.196	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					
Boron		0.0222	0.00520	0.0150	mg/L	1.00	1					
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Calcium		20.9	0.0800	0.200	mg/L	1.00	1					

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Address : 5600 Hobbs Road

Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW221SG3-24
Sample ID: 662789005

Project: FRNP00511
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Chromium	J	0.00391	0.00300	0.0100	mg/L	1.00	1					
Cobalt	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Copper	J	0.000883	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					
Magnesium		9.66	0.0100	0.0300	mg/L	1.00	1					
Manganese	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Molybdenum		0.00369	0.000200	0.00100	mg/L	1.00	1					
Nickel		0.0110	0.000600	0.00200	mg/L	1.00	1					
Potassium	NW	2.03	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		48.3	0.0800	0.250	mg/L	1.00	1					
Thallium	U	0.00200	0.000600	0.00200	mg/L	1.00	1					
Vanadium	J	0.00581	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	05/15/24	1643	2611780	12
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		214	2.38	10.0	mg/L			KLP1	04/18/24	1534	2599126	13
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD	U	20.0	8.95	20.0	mg/L		1	JW2	04/12/24	1625	2596434	14
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	AXH5	04/15/24	1805	2597329	15
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					

GEL LABORATORIES LLC

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

Certificate of Analysis

Report Date: July 24, 2024

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

Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW221SG3-24
Sample ID: 662789005

Project: FRNP00511
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time Batch	Method
Volatile Organics											
8260D, Volatiles- full suite "As Received"											
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				
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				

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Report Date: July 24, 2024

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

 Kevil, Kentucky 42053
 Contact: Ms. Jaime Morrow
 Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW221SG3-24	Project: FRNP00511
Sample ID: 662789005	Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
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	SD	04/16/24	0825	2596479
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	04/17/24	1150	2597851
SW846 8011 PREP	8011 Prep	LOF	04/15/24	1331	2596324
SW846 3005A	ICP-MS 3005A PREP	AB5	05/15/24	0815	2611779
SW846 9010C Distillation	SW846 9010C Prep	ES2	04/16/24	1040	2596737

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	EPA 160.1	
14	EPA 410.4	
15	SW846 8260D	

Surrogate/Tracer	Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene		8011, VOA Compounds Liquid "As Received"	5.81 ug/L	6.81	85	(56%-149%)
Bromofluorobenzene		8260D, Volatiles- full suite "As Received"	50.5 ug/L	50.0	101	(74%-123%)
1,2-Dichloroethane-d4		8260D, Volatiles- full suite "As Received"	53.1 ug/L	50.0	106	(76%-127%)
Toluene-d8		8260D, Volatiles- full suite "As Received"	50.9 ug/L	50.0	102	(77%-121%)

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Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road
Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID:	MW221SG3-24	Project:	FRNP00511
Sample ID:	662789005	Client ID:	FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
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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: July 24, 2024

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

Contact: Kevil, Kentucky 42053
Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW221SG3-24 Project: FRNP00511
Sample ID: 662789006 Client ID: FRNP005
Matrix: WG
Collect Date: 11-APR-24 08:13
Receive Date: 12-APR-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"												
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	PRB	05/04/24	1158	2596480	1
Barium		0.198	0.000670	0.00400	mg/L	1.00	1	PRB	05/03/24	2300	2596480	2
Chromium	J	0.00371	0.00300	0.0100	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	04/16/24	0825	2596479
EPA 160	Laboratory Filtration	EXF1	04/12/24	1350	2596377

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3005A/6020B	
2	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: July 24, 2024

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

Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW222SG3-24 Project: FRNP00511
Sample ID: 662789007 Client ID: FRNP005
Matrix: WG
Collect Date: 11-APR-24 10:00
Receive Date: 12-APR-24
Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
504.1/8011 Analysis of EDB/DBCP												
8011, VOA Compounds Liquid "As Received"												
1,2-Dibromo-3-chloropropane	U	0.0191	0.00858	0.0191	ug/L	0.953	1	LOF	04/15/24	1816	2596326	1
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	0.765	0.330	2.00	mg/L		1	RM3	04/13/24	1854	2596331	3
Flow Injection Analysis												
9012B, Total Cyanide "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	04/16/24	1142	2596738	4
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens	J	4.08	3.33	10.0	ug/L		1	RMJ	04/27/24	0401	2603958	5
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	04/22/24	2054	2600800	6
SW846 9056A Anions (5) "As Received"												
Bromide	J	0.410	0.268	0.800	mg/L		4	CH6	04/13/24	0154	2596205	7
Chloride	JW	34.5	0.268	250	mg/L		4					
Nitrate-N	J	0.906	0.132	10.0	mg/L		4					
Fluoride	J	0.326	0.0330	4.00	mg/L		1	CH6	04/12/24	1314	2596205	8
Sulfate	W	13.4	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	04/18/24	1021	2597854	9
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	05/15/24	1645	2611780	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	05/03/24	2311	2596480	11
Antimony	U	0.00300	0.00100	0.00300	mg/L	1.00	1					
Arsenic	U	0.00500	0.00200	0.00500	mg/L	1.00	1					
Barium		0.266	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					
Boron	J	0.00889	0.00520	0.0150	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-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW222SG3-24
Sample ID: 662789007

Project: FRNP00511
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Calcium		21.4	0.0800	0.200	mg/L	1.00	1					
Chromium	J	0.00574	0.00300	0.0100	mg/L	1.00	1					
Cobalt	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Copper	J	0.000996	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					
Magnesium		9.73	0.0100	0.0300	mg/L	1.00	1					
Manganese	J	0.00196	0.00100	0.00500	mg/L	1.00	1					
Molybdenum		0.00727	0.000200	0.00100	mg/L	1.00	1					
Nickel		0.0221	0.000600	0.00200	mg/L	1.00	1					
Potassium	NW	0.562	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		47.6	0.0800	0.250	mg/L	1.00	1					
Thallium	U	0.00200	0.000600	0.00200	mg/L	1.00	1					
Vanadium	J	0.00553	0.00330	0.0200	mg/L	1.00	1					
Zinc	U	0.0200	0.00330	0.0200	mg/L	1.00	1					
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	PRB	05/04/24	1203	2596480	12
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		210	2.38	10.0	mg/L			KLP1	04/18/24	1534	2599126	13
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD	U	20.0	8.95	20.0	mg/L		1	JW2	04/12/24	1625	2596434	14
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	AXH5	04/15/24	1831	2597329	15
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					

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

Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW222SG3-24
Sample ID: 662789007

Project: FRNP00511
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time Batch	Method
Volatile Organics											
8260D, Volatiles- full suite "As Received"											
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				
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				

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Report Date: July 24, 2024

Company : Four Rivers Nuclear Partnership, LLC
 Address : 5600 Hobbs Road
 Kevil, Kentucky 42053
 Contact: Ms. Jaime Morrow
 Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW222SG3-24	Project: FRNP00511
Sample ID: 662789007	Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
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	04/16/24	1040	2596737
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	04/17/24	1150	2597851
SW846 3005A	ICP-MS 3005A PREP	AB5	05/15/24	0815	2611779
SW846 3005A	ICP-MS 3005A PREP	SD	04/16/24	0825	2596479
SW846 8011 PREP	8011 Prep	LOF	04/15/24	1331	2596324

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	EPA 160.1	
14	EPA 410.4	
15	SW846 8260D	

Surrogate/Tracer	Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene		8011, VOA Compounds Liquid "As Received"	6.06 ug/L	6.81	89	(56%-149%)
Bromofluorobenzene		8260D, Volatiles- full suite "As Received"	50.3 ug/L	50.0	101	(74%-123%)
1,2-Dichloroethane-d4		8260D, Volatiles- full suite "As Received"	53.8 ug/L	50.0	108	(76%-127%)
Toluene-d8		8260D, Volatiles- full suite "As Received"	51.4 ug/L	50.0	103	(77%-121%)

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Certificate of Analysis

Report Date: July 24, 2024

Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road
Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID:	MW222SG3-24	Project:	FRNP00511
Sample ID:	662789007	Client ID:	FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
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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: July 24, 2024

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

Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW222SG3-24 Project: FRNP00511
Sample ID: 662789008 Client ID: FRNP005
Matrix: WG
Collect Date: 11-APR-24 10:00
Receive Date: 12-APR-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"												
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	PRB	05/04/24	1205	2596480	1
Barium		0.261	0.000670	0.00400	mg/L	1.00	1	PRB	05/03/24	2315	2596480	2
Chromium	J	0.00543	0.00300	0.0100	mg/L	1.00	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 160	Laboratory Filtration	EXF1	04/12/24	1350	2596377
SW846 3005A	ICP-MS 3005A PREP	SD	04/16/24	0825	2596479

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3005A/6020B	
2	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: July 24, 2024

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

Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW223SG3-24 Project: FRNP00511
Sample ID: 662789009 Client ID: FRNP005
Matrix: WG
Collect Date: 11-APR-24 09:17
Receive Date: 12-APR-24
Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
504.1/8011 Analysis of EDB/DBCP												
8011, VOA Compounds Liquid "As Received"												
1,2-Dibromo-3-chloropropane	U	0.0194	0.00874	0.0194	ug/L	0.971	1	LOF	04/15/24	1841	2596326	1
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	0.669	0.330	2.00	mg/L		1	RM3	04/13/24	1926	2596331	2
Flow Injection Analysis												
9012B, Total Cyanide "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	04/16/24	1143	2596738	3
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens	U	10.0	3.33	10.0	ug/L		1	RMJ	04/27/24	0428	2603958	4
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	04/22/24	2133	2600800	5
SW846 9056A Anions (5) "As Received"												
Chloride	JW	35.6	0.335	250	mg/L		5	CH6	04/13/24	0357	2596205	6
Nitrate-N	J	0.892	0.165	10.0	mg/L		5					
Bromide		0.427	0.0670	0.200	mg/L		1	CH6	04/12/24	1345	2596205	7
Fluoride	J	0.283	0.0330	4.00	mg/L		1					
Sulfate	W	14.5	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	04/18/24	1022	2597854	8
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	PRB	05/04/24	1207	2596480	9
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	05/15/24	1647	2611780	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	05/03/24	2319	2596480	11
Antimony	U	0.00300	0.00100	0.00300	mg/L	1.00	1					
Arsenic	U	0.00500	0.00200	0.00500	mg/L	1.00	1					
Barium		0.236	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					
Boron	J	0.00766	0.00520	0.0150	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-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW223SG3-24
Sample ID: 662789009

Project: FRNP00511
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Calcium		21.5	0.0800	0.200	mg/L	1.00	1					
Chromium		0.0164	0.00300	0.0100	mg/L	1.00	1					
Cobalt		0.00455	0.000300	0.00100	mg/L	1.00	1					
Copper	J	0.00104	0.000300	0.00200	mg/L	1.00	1					
Iron		0.217	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Magnesium		9.54	0.0100	0.0300	mg/L	1.00	1					
Manganese		0.0912	0.00100	0.00500	mg/L	1.00	1					
Molybdenum		0.00302	0.000200	0.00100	mg/L	1.00	1					
Nickel		0.636	0.000600	0.00200	mg/L	1.00	1					
Potassium	NW	1.18	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		45.5	0.0800	0.250	mg/L	1.00	1					
Thallium	U	0.00200	0.000600	0.00200	mg/L	1.00	1					
Vanadium	J	0.00612	0.00330	0.0200	mg/L	1.00	1					
Zinc	U	0.0200	0.00330	0.0200	mg/L	1.00	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		210	2.38	10.0	mg/L			KLP1	04/18/24	1534	2599126	12
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD	U	20.0	8.95	20.0	mg/L		1	JW2	04/12/24	1625	2596434	13
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	AXH5	04/15/24	1857	2597329	14
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					

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

Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW223SG3-24
Sample ID: 662789009

Project: FRNP00511
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time Batch	Method
Volatile Organics											
8260D, Volatiles- full suite "As Received"											
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				
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				

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Report Date: July 24, 2024

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

Contact: Kevil, Kentucky 42053
Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW223SG3-24
Sample ID: 662789009

Project: FRNP00511
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
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	LOF	04/15/24	1331	2596324
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	04/17/24	1150	2597851
SW846 3005A	ICP-MS 3005A PREP	SD	04/16/24	0825	2596479
SW846 3005A	ICP-MS 3005A PREP	AB5	05/15/24	0815	2611779
SW846 9010C Distillation	SW846 9010C Prep	ES2	04/16/24	1040	2596737

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	EPA 160.1	
13	EPA 410.4	
14	SW846 8260D	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011, VOA Compounds Liquid "As Received"	7.57 ug/L	6.94	109	(56%-149%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	49.7 ug/L	50.0	99	(74%-123%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	53.1 ug/L	50.0	106	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	51.4 ug/L	50.0	103	(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-S&T Landfill Quarterly(SG24-03)

Client Sample ID:	MW223SG3-24	Project:	FRNP00511
Sample ID:	662789009	Client ID:	FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
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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: July 24, 2024

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

Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW223SG3-24 Project: FRNP00511
Sample ID: 662789010 Client ID: FRNP005
Matrix: WG
Collect Date: 11-APR-24 09:17
Receive Date: 12-APR-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"												
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	PRB	05/04/24	1208	2596480	1
Barium		0.239	0.000670	0.00400	mg/L	1.00	1	PRB	05/03/24	2322	2596480	2
Chromium	J	0.00983	0.00300	0.0100	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	04/16/24	0825	2596479
EPA 160	Laboratory Filtration	EXF1	04/12/24	1350	2596377

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3005A/6020B	
2	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: July 24, 2024

Company : Four Rivers Nuclear Partnership, LLC
 Address : 5600 Hobbs Road
 Kevil, Kentucky 42053
 Contact: Ms. Jaime Morrow
 Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW224SG3-24	Project: FRNP00511
Sample ID: 662789011	Client ID: FRNP005
Matrix: WG	
Collect Date: 11-APR-24 10:44	
Receive Date: 12-APR-24	
Collector: Client	

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
504.1/8011 Analysis of EDB/DBCP												
8011, VOA Compounds Liquid "As Received"												
1,2-Dibromo-3-chloropropane	U	0.0192	0.00862	0.0192	ug/L	0.958	1	LOF	04/15/24	1905	2596326	1
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	1.19	0.330	2.00	mg/L		1	RM3	04/13/24	2019	2596331	2
Flow Injection Analysis												
9012B, Total Cyanide "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	04/16/24	1144	2596738	3
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens		22.5	3.33	10.0	ug/L		1	RMJ	04/30/24	0311	2604481	4
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	04/22/24	2146	2600800	5
SW846 9056A Anions (5) "As Received"												
Chloride	JW	19.1	0.268	250	mg/L		4	CH6	04/13/24	0530	2596205	6
Nitrate-N	J	0.671	0.132	10.0	mg/L		4					
Bromide	U	0.200	0.0670	0.200	mg/L		1	CH6	04/12/24	1416	2596205	7
Fluoride	J	0.356	0.0330	4.00	mg/L		1					
Sulfate	W	18.3	0.133	0.400	mg/L		1					
Mercury Analysis-CVAA												
7470, Mercury Liquid "As Received"												
Mercury		0.000385	0.0000670	0.000200	mg/L	1.00	1	JP2	04/18/24	1024	2597854	8
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Sodium		61.3	0.800	2.50	mg/L	1.00	10	PRB	05/15/24	1558	2596480	9
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	PRB	05/04/24	1210	2596480	10
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	05/15/24	1649	2611780	11
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	05/03/24	2326	2596480	12
Antimony	U	0.00300	0.00100	0.00300	mg/L	1.00	1					
Arsenic	U	0.00500	0.00200	0.00500	mg/L	1.00	1					
Barium		0.231	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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Certificate of Analysis

Report Date: July 24, 2024

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

Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW224SG3-24
Sample ID: 662789011

Project: FRNP00511
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Boron		0.0223	0.00520	0.0150	mg/L	1.00	1					
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Calcium		24.5	0.0800	0.200	mg/L	1.00	1					
Chromium	J	0.00575	0.00300	0.0100	mg/L	1.00	1					
Cobalt	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Copper	J	0.00179	0.000300	0.00200	mg/L	1.00	1					
Iron	J	0.0646	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Magnesium		11.2	0.0100	0.0300	mg/L	1.00	1					
Manganese		0.00637	0.00100	0.00500	mg/L	1.00	1					
Molybdenum		0.00134	0.000200	0.00100	mg/L	1.00	1					
Nickel		0.0124	0.000600	0.00200	mg/L	1.00	1					
Potassium	NW	0.910	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					
Vanadium	J	0.00541	0.00330	0.0200	mg/L	1.00	1					
Zinc	U	0.0200	0.00330	0.0200	mg/L	1.00	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		266	2.38	10.0	mg/L			KLP1	04/18/24	1534	2599126	13
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD	U	20.0	8.95	20.0	mg/L		1	JW2	04/12/24	1625	2596434	14
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	AXH5	04/15/24	1923	2597329	15
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					

GEL LABORATORIES LLC

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Certificate of Analysis

Report Date: July 24, 2024

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

Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW224SG3-24
Sample ID: 662789011

Project: FRNP00511
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time Batch	Method
Volatile Organics											
8260D, Volatiles- full suite "As Received"											
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				
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				

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Report Date: July 24, 2024

Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road
Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW224SG3-24 Project: FRNP00511
Sample ID: 662789011 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
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	AB5	05/15/24	0815	2611779
SW846 8011 PREP	8011 Prep	LOF	04/15/24	1331	2596324
SW846 9010C Distillation	SW846 9010C Prep	ES2	04/16/24	1040	2596737
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	04/17/24	1150	2597851
SW846 3005A	ICP-MS 3005A PREP	SD	04/16/24	0825	2596479

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	EPA 160.1	
14	EPA 410.4	
15	SW846 8260D	

Surrogate/Tracer	Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene		8011, VOA Compounds Liquid "As Received"	7.45 ug/L	6.84	109	(56%-149%)
Bromofluorobenzene		8260D, Volatiles- full suite "As Received"	50.8 ug/L	50.0	102	(74%-123%)
1,2-Dichloroethane-d4		8260D, Volatiles- full suite "As Received"	53.0 ug/L	50.0	106	(76%-127%)
Toluene-d8		8260D, Volatiles- full suite "As Received"	51.2 ug/L	50.0	102	(77%-121%)

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Report Date: July 24, 2024

Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road
Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID:	MW224SG3-24	Project:	FRNP00511
Sample ID:	662789011	Client ID:	FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
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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: July 24, 2024

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

Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW224SG3-24 Project: FRNP00511
Sample ID: 662789012 Client ID: FRNP005
Matrix: WG
Collect Date: 11-APR-24 10:44
Receive Date: 12-APR-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		0.230	0.000670	0.00400	mg/L	1.00	1	PRB	05/03/24	2330	2596480	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	PRB	05/04/24	1212	2596480	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-MS 3005A PREP	SD	04/16/24	0825	2596479
EPA 160	Laboratory Filtration	EXF1	04/12/24	1350	2596377

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3005A/6020B	
2	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: July 24, 2024

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

Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: FB1SG3-24 Project: FRNP00511
Sample ID: 662789013 Client ID: FRNP005
Matrix: WATER
Collect Date: 11-APR-24 08:15
Receive Date: 12-APR-24
Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
504.1/8011 Analysis of EDB/DBCP												
8011, VOA Compounds Liquid "As Received"												
1,2-Dibromo-3-chloropropane	U	0.0192	0.00863	0.0192	ug/L	0.959	1	LOF	04/15/24	2019	2596326	1
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	04/22/24	2159	2600800	2
Mercury Analysis-CVAA												
7470, Mercury Liquid "As Received"												
Mercury	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	JP2	04/18/24	1026	2597854	3
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	05/04/24	1016	2596480	4
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	05/03/24	2333	2596480	5
Antimony	U	0.00300	0.00100	0.00300	mg/L	1.00	1					
Arsenic	U	0.00500	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					
Boron	U	0.0150	0.00520	0.0150	mg/L	1.00	1					
Cadmium	U	0.00100	0.000300	0.00100	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					
Magnesium	U	0.0300	0.0100	0.0300	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	UNW	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					
Sodium	J	0.102	0.0800	0.250	mg/L	1.00	1					
Thallium	U	0.00200	0.000600	0.00200	mg/L	1.00	1					
Vanadium	J	0.00691	0.00330	0.0200	mg/L	1.00	1					

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Certificate of Analysis

Report Date: July 24, 2024

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

Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: FB1SG3-24
Sample ID: 662789013

Project: FRNP00511
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Zinc	U	0.0200	0.00330	0.0200	mg/L	1.00	1					
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	PRB	05/04/24	1214	2596480	6
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	AXH5	04/15/24	1950	2597329	7
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		91.5	1.67	5.00	ug/L		1					
2-Hexanone		19.2	1.67	5.00	ug/L		1					
4-Methyl-2-pentanone	U	5.00	1.67	5.00	ug/L		1					
Acetone		33.2	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					

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

Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: FB1SG3-24
Sample ID: 662789013

Project: FRNP00511
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
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	LOF	04/15/24	1331	2596324
SW846 3005A	ICP-MS 3005A PREP	SD	04/16/24	0825	2596479
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	04/17/24	1150	2597851

The following Analytical Methods were performed:

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

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011, VOA Compounds Liquid "As Received"	7.53 ug/L	6.85	110	(56%-149%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	50.1 ug/L	50.0	100	(74%-123%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	52.2 ug/L	50.0	104	(76%-127%)

GEL LABORATORIES LLC

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Certificate of Analysis

Report Date: July 24, 2024

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

Contact: Kevil, Kentucky 42053
Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: FB1SG3-24
Sample ID: 662789013

Project: FRNP00511
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time Batch	Method
Toluene-d8	8260D,	Volatiles- full suite "As Received"			50.8 ug/L		50.0		102		(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: July 24, 2024

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

Contact: Kevil, Kentucky 42053
Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: RI1SG3-24 Project: FRNP00511
Sample ID: 662789014 Client ID: FRNP005
Matrix: WATER
Collect Date: 11-APR-24 07:15
Receive Date: 12-APR-24
Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
504.1/8011 Analysis of EDB/DBCP												
8011, VOA Compounds Liquid "As Received"												
1,2-Dibromo-3-chloropropane	U	0.0187	0.00842	0.0187	ug/L	0.936	1	LOF	04/15/24	2043	2596326	1
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	04/22/24	2212	2600800	2
Mercury Analysis-CVAA												
7470, Mercury Liquid "As Received"												
Mercury	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	JP2	04/18/24	1027	2597854	3
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	PRB	05/04/24	1216	2596480	4
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	05/04/24	1018	2596480	5
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	05/03/24	2337	2596480	6
Antimony	U	0.00300	0.00100	0.00300	mg/L	1.00	1					
Arsenic	U	0.00500	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					
Boron	U	0.0150	0.00520	0.0150	mg/L	1.00	1					
Cadmium	U	0.00100	0.000300	0.00100	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	J	0.000348	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					
Magnesium	U	0.0300	0.0100	0.0300	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	UNW	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					
Sodium	U	0.250	0.0800	0.250	mg/L	1.00	1					
Thallium	U	0.00200	0.000600	0.00200	mg/L	1.00	1					

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Certificate of Analysis

Report Date: July 24, 2024

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

Contact: Kevil, Kentucky 42053
Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: RI1SG3-24
Sample ID: 662789014

Project: FRNP00511
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Vanadium	J	0.00647	0.00330	0.0200	mg/L	1.00	1					
Zinc	U	0.0200	0.00330	0.0200	mg/L	1.00	1					
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	AXH5	04/15/24	2016	2597329	7
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					

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Certificate of Analysis

Report Date: July 24, 2024

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

Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: RI1SG3-24
Sample ID: 662789014

Project: FRNP00511
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
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	LOF	04/15/24	1331	2596324
SW846 3005A	ICP-MS 3005A PREP	SD	04/16/24	0825	2596479
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	04/17/24	1150	2597851

The following Analytical Methods were performed:

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

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011, VOA Compounds Liquid "As Received"	7.49 ug/L	6.68	112	(56%-149%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	49.8 ug/L	50.0	100	(74%-123%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	51.1 ug/L	50.0	102	(76%-127%)

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Certificate of Analysis

Report Date: July 24, 2024

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

Contact: Kevil, Kentucky 42053
Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: RI1SG3-24
Sample ID: 662789014

Project: FRNP00511
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time Batch	Method
Toluene-d8	8260D,	Volatiles- full suite "As Received"			50.9 ug/L		50.0		102		(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: July 24, 2024

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

Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: TB1SG3-24 Project: FRNP00511
Sample ID: 662789015 Client ID: FRNP005
Matrix: WATER
Collect Date: 11-APR-24 07:10
Receive Date: 12-APR-24
Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
504.1/8011 Analysis of EDB/DBCP												
8011, VOA Compounds Liquid "As Received"												
1,2-Dibromo-3-chloropropane	U	0.0191	0.00858	0.0191	ug/L	0.953	1	LOF	04/15/24	2108	2596326	1
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	AXH5	04/15/24	2041	2597329	2
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	J	2.11	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: July 24, 2024

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

 Kevil, Kentucky 42053
 Contact: Ms. Jaime Morrow
 Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: TB1SG3-24	Project: FRNP00511
Sample ID: 662789015	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	LOF	04/15/24	1331	2596324

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 Compounds Liquid "As Received"	7.27 ug/L	6.81	107	(56%-149%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	49.4 ug/L	50.0	99	(74%-123%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	52.2 ug/L	50.0	104	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	51.7 ug/L	50.0	103	(77%-121%)

Notes:

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Certificate of Analysis

Report Date: July 24, 2024

Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road
Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: TB1SG3-24
Sample ID: 662789015

Project: FRNP00511
Client ID: FRNP005

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

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

Kevil, Kentucky 42053

Report Date: July 24, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW220SG3-24
Sample ID: 662789001
Matrix: WG
Collect Date: 11-APR-24
Receive Date: 12-APR-24
Collector: Client

Project: FRNP00511
Client ID: FRNP005

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
<i>AlphaSpec Ra226, Liquid "As Received"</i>														
Radium-226	U	0.334	+/-0.604	0.741	+/-0.605	5.00	pCi/L			CM4	05/06/24	1116	2604290	1
<i>Th-01-RC M, Th Isotopes, Liquid "As Received"</i>														
Thorium-230	U	0.226	+/-0.874	1.69	+/-0.877	50.0	pCi/L			CM4	05/02/24	1642	2604291	2
Rad Gas Flow Proportional Counting														
<i>905.0 Mod, Sr90, liquid "As Received"</i>														
Strontium-90	U	-0.722	+/-2.27	4.59	+/-2.27	8.00	pCi/L			JE1	04/30/24	1440	2596778	3
<i>9310,Alpha/Beta Activity, liquid "As Received"</i>														
Alpha	U	-0.800	+/-4.57	10.4	+/-4.57	15.0	pCi/L			HH3	04/25/24	1855	2596841	4
Beta		29.5	+/-9.07	11.5	+/-10.3	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
<i>906.0 Mod, Tritium Dist, Liquid "As Received"</i>														
Tritium	U	-54.2	+/-108	227	+/-108	300	pCi/L			HB2	05/09/24	2242	2602404	5
<i>Tc-02-RC-MOD, Tc99, Liquid "As Received"</i>														
Technetium-99	U	16.4	+/-12.4	20.2	+/-12.5	25.0	pCi/L			GS3	05/08/24	1918	2602400	6

The following Analytical Methods were performed

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

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Barium-133 Tracer	AlphaSpec Ra226, Liquid "As Received"	2604290	99.3	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2604291	81	(30%-110%)
Strontium Carrier	905.0 Mod, Sr90, liquid "As Received"	2596778	80.6	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2602400	98.7	(30%-110%)

GEL LABORATORIES LLC

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Certificate of Analysis

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

Kevil, Kentucky 42053

Report Date: July 24, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW220SG3-24

Project: FRNP00511

Sample ID: 662789001

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

Mtd.: Method

DL: Detection Limit

PF: Prep Factor

Lc/LC: Critical Level

RL: Reporting Limit

MDA: Minimum Detectable Activity

TPU: Total Propagated Uncertainty

MDC: Minimum Detectable Concentration

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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: July 24, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW221DSG3-24

Project: FRNP00511

Sample ID: 662789003

Client ID: FRNP005

Matrix: WG

Collect Date: 11-APR-24

Receive Date: 12-APR-24

Collector: Client

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
<i>AlphaSpec Ra226, Liquid "As Received"</i>														
Radium-226	U	0.662	+/-0.527	0.669	+/-0.529	5.00	pCi/L			CM4	05/04/24	1011	2604290	1
<i>Th-01-RC M, Th Isotopes, Liquid "As Received"</i>														
Thorium-230	U	1.40	+/-1.41	1.89	+/-1.44	50.0	pCi/L			CM4	05/02/24	1642	2604291	2
Rad Gas Flow Proportional Counting														
<i>905.0 Mod, Sr90, liquid "As Received"</i>														
Strontium-90	U	-0.912	+/-2.13	4.29	+/-2.13	8.00	pCi/L			JE1	04/30/24	1441	2596778	3
<i>9310,Alpha/Beta Activity, liquid "As Received"</i>														
Alpha	U	7.38	+/-5.78	7.99	+/-5.90	15.0	pCi/L			HH3	04/25/24	1855	2596841	4
Beta	U	5.11	+/-5.52	9.03	+/-5.60	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
<i>906.0 Mod, Tritium Dist, Liquid "As Received"</i>														
Tritium	U	46.8	+/-124	227	+/-125	300	pCi/L			HB2	05/09/24	2303	2602404	5
<i>Tc-02-RC-MOD, Tc99, Liquid "As Received"</i>														
Technetium-99	U	15.7	+/-12.5	20.4	+/-12.6	25.0	pCi/L			GS3	05/08/24	1930	2602400	6

The following Analytical Methods were performed

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

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Barium-133 Tracer	AlphaSpec Ra226, Liquid "As Received"	2604290	97.5	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2604291	75.9	(30%-110%)
Strontium Carrier	905.0 Mod, Sr90, liquid "As Received"	2596778	93.3	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2602400	97.6	(30%-110%)

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Certificate of Analysis

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

Kevil, Kentucky 42053

Report Date: July 24, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW221DSG3-24

Project: FRNP00511

Sample ID: 662789003

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

Mtd.: Method

DL: Detection Limit

PF: Prep Factor

Lc/LC: Critical Level

RL: Reporting Limit

MDA: Minimum Detectable Activity

TPU: Total Propagated Uncertainty

MDC: Minimum Detectable Concentration

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Report Date: July 24, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW221SG3-24

Project: FRNP00511

Sample ID: 662789005

Client ID: FRNP005

Matrix: WG

Collect Date: 11-APR-24

Receive Date: 12-APR-24

Collector: Client

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
<i>AlphaSpec Ra226, Liquid "As Received"</i>														
Radium-226	U	0.437	+/-0.454	0.628	+/-0.455	5.00	pCi/L			CM4	05/04/24	1011	2604290	1
<i>Th-01-RC M, Th Isotopes, Liquid "As Received"</i>														
Thorium-230	U	-0.442	+/-0.515	1.84	+/-0.516	50.0	pCi/L			CM4	05/02/24	1642	2604291	2
Rad Gas Flow Proportional Counting														
<i>905.0 Mod, Sr90, liquid "As Received"</i>														
Strontium-90	U	3.32	+/-2.77	4.42	+/-2.82	8.00	pCi/L			JE1	04/30/24	1441	2596778	3
<i>9310,Alpha/Beta Activity, liquid "As Received"</i>														
Alpha	U	3.68	+/-4.42	7.21	+/-4.46	15.0	pCi/L			HH3	04/25/24	1855	2596841	4
Beta	U	4.43	+/-9.32	16.2	+/-9.35	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
<i>906.0 Mod, Tritium Dist, Liquid "As Received"</i>														
Tritium	U	-86.8	+/-103	229	+/-103	300	pCi/L			HB2	05/09/24	2325	2602404	5
<i>Tc-02-RC-MOD, Tc99, Liquid "As Received"</i>														
Technetium-99	U	18.5	+/-12.7	20.4	+/-12.8	25.0	pCi/L			GS3	05/08/24	1941	2602400	6

The following Analytical Methods were performed

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

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Barium-133 Tracer	AlphaSpec Ra226, Liquid "As Received"	2604290	95	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2604291	74.9	(30%-110%)
Strontium Carrier	905.0 Mod, Sr90, liquid "As Received"	2596778	80.6	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2602400	97.5	(30%-110%)

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Kevil, Kentucky 42053

Report Date: July 24, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW221SG3-24

Project: FRNP00511

Sample ID: 662789005

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

Mtd.: Method

DL: Detection Limit

PF: Prep Factor

Lc/LC: Critical Level

RL: Reporting Limit

MDA: Minimum Detectable Activity

TPU: Total Propagated Uncertainty

MDC: Minimum Detectable Concentration

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Certificate of Analysis

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Report Date: July 24, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW222SG3-24

Project: FRNP00511

Sample ID: 662789007

Client ID: FRNP005

Matrix: WG

Collect Date: 11-APR-24

Receive Date: 12-APR-24

Collector: Client

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
<i>AlphaSpec Ra226, Liquid "As Received"</i>														
Radium-226	U	0.472	+/-0.719	0.950	+/-0.720	5.00	pCi/L			CM4	05/06/24	1116	2604290	1
<i>Th-01-RC M, Th Isotopes, Liquid "As Received"</i>														
Thorium-230	U	0.169	+/-0.875	1.76	+/-0.877	50.0	pCi/L			CM4	05/02/24	1642	2604291	2
Rad Gas Flow Proportional Counting														
<i>905.0 Mod, Sr90, liquid "As Received"</i>														
Strontium-90	U	-1.64	+/-3.70	7.54	+/-3.70	8.00	pCi/L			JE1	04/30/24	1440	2596778	3
<i>9310,Alpha/Beta Activity, liquid "As Received"</i>														
Alpha	U	-0.996	+/-2.41	7.36	+/-2.41	15.0	pCi/L			HH3	04/25/24	1855	2596841	4
Beta	U	2.04	+/-4.36	7.85	+/-4.37	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
<i>906.0 Mod, Tritium Dist, Liquid "As Received"</i>														
Tritium	U	-76.5	+/-104	228	+/-104	300	pCi/L			HB2	05/09/24	2347	2602404	5
<i>Tc-02-RC-MOD, Tc99, Liquid "As Received"</i>														
Technetium-99	U	4.89	+/-12.0	20.9	+/-12.0	25.0	pCi/L			GS3	05/08/24	1953	2602400	6

The following Analytical Methods were performed

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

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Barium-133 Tracer	AlphaSpec Ra226, Liquid "As Received"	2604290	94.6	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2604291	81.6	(30%-110%)
Strontium Carrier	905.0 Mod, Sr90, liquid "As Received"	2596778	40.3	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2602400	95.3	(30%-110%)

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Certificate of Analysis

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Report Date: July 24, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW222SG3-24

Project: FRNP00511

Sample ID: 662789007

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

Mtd.: Method

DL: Detection Limit

PF: Prep Factor

Lc/LC: Critical Level

RL: Reporting Limit

MDA: Minimum Detectable Activity

TPU: Total Propagated Uncertainty

MDC: Minimum Detectable Concentration

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Certificate of Analysis

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Kevil, Kentucky 42053

Report Date: July 24, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW223SG3-24

Project: FRNP00511

Sample ID: 662789009

Client ID: FRNP005

Matrix: WG

Collect Date: 11-APR-24

Receive Date: 12-APR-24

Collector: Client

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
<i>AlphaSpec Ra226, Liquid "As Received"</i>														
Radium-226	U	0.316	+/-0.392	0.567	+/-0.392	5.00	pCi/L			CM4	05/04/24	0921	2604290	1
<i>Th-01-RC M, Th Isotopes, Liquid "As Received"</i>														
Thorium-230	U	-0.317	+/-0.699	1.95	+/-0.700	50.0	pCi/L			CM4	05/02/24	1642	2604291	2
Rad Gas Flow Proportional Counting														
<i>905.0 Mod, Sr90, liquid "As Received"</i>														
Strontium-90	U	-0.311	+/-2.35	4.87	+/-2.35	8.00	pCi/L			JE1	04/30/24	1441	2596778	3
<i>9310, Alpha/Beta Activity, liquid "As Received"</i>														
Alpha	U	2.00	+/-4.25	8.16	+/-4.26	15.0	pCi/L			HH3	04/25/24	1855	2596841	4
Beta	U	1.99	+/-4.48	8.05	+/-4.49	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
<i>906.0 Mod, Tritium Dist, Liquid "As Received"</i>														
Tritium	U	21.5	+/-121	228	+/-121	300	pCi/L			HB2	05/10/24	0008	2602404	5
<i>Tc-02-RC-MOD, Tc99, Liquid "As Received"</i>														
Technetium-99	U	6.56	+/-12.1	20.8	+/-12.1	25.0	pCi/L			GS3	05/08/24	2004	2602400	6

The following Analytical Methods were performed

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

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Barium-133 Tracer	AlphaSpec Ra226, Liquid "As Received"	2604290	99.1	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2604291	75.9	(30%-110%)
Strontium Carrier	905.0 Mod, Sr90, liquid "As Received"	2596778	59.4	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2602400	95.6	(30%-110%)

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Certificate of Analysis

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Kevil, Kentucky 42053

Report Date: July 24, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW223SG3-24

Project: FRNP00511

Sample ID: 662789009

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

Mtd.: Method

DL: Detection Limit

PF: Prep Factor

Lc/LC: Critical Level

RL: Reporting Limit

MDA: Minimum Detectable Activity

TPU: Total Propagated Uncertainty

MDC: Minimum Detectable Concentration

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Certificate of Analysis

Company : Four Rivers Nuclear Partnership,
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5600 Hobbs Road

Kevil, Kentucky 42053

Report Date: July 24, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW224SG3-24

Project: FRNP00511

Sample ID: 662789011

Client ID: FRNP005

Matrix: WG

Collect Date: 11-APR-24

Receive Date: 12-APR-24

Collector: Client

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
<i>AlphaSpec Ra226, Liquid "As Received"</i>														
Radium-226	U	0.959	+/-0.934	1.03	+/-0.936	5.00	pCi/L			CM4	05/06/24	1116	2604290	1
<i>Th-01-RC M, Th Isotopes, Liquid "As Received"</i>														
Thorium-230	U	-0.136	+/-0.710	1.79	+/-0.711	50.0	pCi/L			CM4	05/02/24	1642	2604291	2
Rad Gas Flow Proportional Counting														
<i>905.0 Mod, Sr90, liquid "As Received"</i>														
Strontium-90	U	0.289	+/-1.76	3.42	+/-1.76	8.00	pCi/L			JE1	04/30/24	1441	2596778	3
<i>9310, Alpha/Beta Activity, liquid "As Received"</i>														
Alpha	U	0.885	+/-4.69	9.67	+/-4.70	15.0	pCi/L			HH3	05/02/24	1238	2596841	4
Beta	U	7.62	+/-9.02	15.2	+/-9.12	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
<i>906.0 Mod, Tritium Dist, Liquid "As Received"</i>														
Tritium	U	5.53	+/-119	229	+/-119	300	pCi/L			HB2	05/10/24	0030	2602404	5
<i>Tc-02-RC-MOD, Tc99, Liquid "As Received"</i>														
Technetium-99	U	4.67	+/-11.5	20.1	+/-11.5	25.0	pCi/L			GS3	05/08/24	2016	2602400	6

The following Analytical Methods were performed

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

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Barium-133 Tracer	AlphaSpec Ra226, Liquid "As Received"	2604290	98.6	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2604291	83.6	(30%-110%)
Strontium Carrier	905.0 Mod, Sr90, liquid "As Received"	2596778	80.6	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2602400	99	(30%-110%)

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Report Date: July 24, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW224SG3-24

Project: FRNP00511

Sample ID: 662789011

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

Mtd.: Method

DL: Detection Limit

PF: Prep Factor

Lc/LC: Critical Level

RL: Reporting Limit

MDA: Minimum Detectable Activity

TPU: Total Propagated Uncertainty

MDC: Minimum Detectable Concentration

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Report Date: July 24, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: FB1SG3-24

Project: FRNP00511

Sample ID: 662789013

Client ID: FRNP005

Matrix: WATER

Collect Date: 11-APR-24

Receive Date: 12-APR-24

Collector: Client

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
<i>AlphaSpec Ra226, Liquid "As Received"</i>														
Radium-226	U	0.288	+/-1.04	1.73	+/-1.04	5.00	pCi/L			CM4	05/04/24	0921	2604290	1
<i>Th-01-RC M, Th Isotopes, Liquid "As Received"</i>														
Thorium-230	U	0.317	+/-0.951	1.78	+/-0.955	50.0	pCi/L			CM4	05/02/24	1642	2604291	2
Rad Gas Flow Proportional Counting														
<i>905.0 Mod, Sr90, liquid "As Received"</i>														
Strontium-90	U	0.0973	+/-4.04	7.65	+/-4.04	8.00	pCi/L			JE1	04/30/24	1441	2596778	3
<i>9310, Alpha/Beta Activity, liquid "As Received"</i>														
Alpha	U	-1.13	+/-2.13	6.71	+/-2.14	15.0	pCi/L			HH3	04/25/24	1855	2596841	4
Beta	U	-0.966	+/-4.22	8.48	+/-4.22	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
<i>906.0 Mod, Tritium Dist, Liquid "As Received"</i>														
Tritium	U	-64.7	+/-105	226	+/-105	300	pCi/L			HB2	05/10/24	0052	2602404	5
<i>Tc-02-RC-MOD, Tc99, Liquid "As Received"</i>														
Technetium-99	U	5.07	+/-11.4	19.7	+/-11.4	25.0	pCi/L			GS3	05/08/24	2028	2602400	6

The following Analytical Methods were performed

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

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Barium-133 Tracer	AlphaSpec Ra226, Liquid "As Received"	2604290	101	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2604291	86.8	(30%-110%)
Strontium Carrier	905.0 Mod, Sr90, liquid "As Received"	2596778	48.8	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2602400	101	(30%-110%)

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Report Date: July 24, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: FB1SG3-24

Project: FRNP00511

Sample ID: 662789013

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

Mtd.: Method

DL: Detection Limit

PF: Prep Factor

Lc/LC: Critical Level

RL: Reporting Limit

MDA: Minimum Detectable Activity

TPU: Total Propagated Uncertainty

MDC: Minimum Detectable Concentration

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Certificate of Analysis

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Report Date: July 24, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: RI1SG3-24

Project: FRNP00511

Sample ID: 662789014

Client ID: FRNP005

Matrix: WATER

Collect Date: 11-APR-24

Receive Date: 12-APR-24

Collector: Client

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
<i>AlphaSpec Ra226, Liquid "As Received"</i>														
Radium-226	U	0.122	+/-0.534	0.963	+/-0.534	5.00	pCi/L			CM4	05/06/24	1116	2604290	1
<i>Th-01-RC M, Th Isotopes, Liquid "As Received"</i>														
Thorium-230	U	0.350	+/-1.09	2.06	+/-1.10	50.0	pCi/L			CM4	05/02/24	1642	2604291	2
Rad Gas Flow Proportional Counting														
<i>905.0 Mod, Sr90, liquid "As Received"</i>														
Strontium-90	U	2.85	+/-3.30	5.54	+/-3.33	8.00	pCi/L			JE1	04/30/24	1441	2596778	3
<i>9310,Alpha/Beta Activity, liquid "As Received"</i>														
Alpha	U	0.787	+/-3.88	8.15	+/-3.88	15.0	pCi/L			HH3	04/25/24	1855	2596841	4
Beta	U	-8.08	+/-5.72	12.2	+/-5.72	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
<i>906.0 Mod, Tritium Dist, Liquid "As Received"</i>														
Tritium	U	-20.7	+/-113	225	+/-113	300	pCi/L			HB2	05/10/24	0113	2602404	5
<i>Tc-02-RC-MOD, Tc99, Liquid "As Received"</i>														
Technetium-99	U	5.80	+/-11.8	20.4	+/-11.8	25.0	pCi/L			GS3	05/08/24	2039	2602400	6

The following Analytical Methods were performed

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

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Barium-133 Tracer	AlphaSpec Ra226, Liquid "As Received"	2604290	93.8	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2604291	75.5	(30%-110%)
Strontium Carrier	905.0 Mod, Sr90, liquid "As Received"	2596778	59.4	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2602400	97.8	(30%-110%)

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Certificate of Analysis

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

Kevil, Kentucky 42053

Report Date: July 24, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: RI1SG3-24

Project: FRNP00511

Sample ID: 662789014

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

Mtd.: Method

DL: Detection Limit

PF: Prep Factor

Lc/LC: Critical Level

RL: Reporting Limit

MDA: Minimum Detectable Activity

TPU: Total Propagated Uncertainty

MDC: Minimum Detectable Concentration

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ATTACHMENT C2

GEL LABORATORIES CERTIFICATE OF ANALYSIS

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Certificate of Analysis

Report Date: July 24, 2024

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

Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW384SG3-24 Project: FRNP00511
Sample ID: 663164001 Client ID: FRNP005
Matrix: WG
Collect Date: 15-APR-24 09:59
Receive Date: 16-APR-24
Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
504.1/8011 Analysis of EDB/DBCP												
8011, VOA Compounds Liquid "As Received"												
1,2-Dibromo-3-chloropropane	U	0.0194	0.00872	0.0194	ug/L	0.969	1	BM1	04/17/24	1450	2597808	1
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	1.05	0.330	2.00	mg/L		1	RM3	04/17/24	1644	2598429	2
Flow Injection Analysis												
9012B, Total Cyanide "As Received"												
Cyanide, Total	UN	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	04/24/24	0732	2600000	3
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens	J	7.24	3.33	10.0	ug/L		1	RMJ	04/30/24	0346	2604481	4
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	04/22/24	2250	2600801	5
SW846 9056A Anions (5) "As Received"												
Fluoride	J	0.194	0.0330	4.00	mg/L		1	CH6	04/16/24	1159	2597656	6
Sulfate		17.4	0.133	0.400	mg/L		1					
Chloride	JW	20.2	0.268	250	mg/L		4	CH6	04/16/24	1604	2597656	7
Bromide	J	0.284	0.134	0.400	mg/L		2	CH6	04/16/24	1533	2597656	8
Nitrate-N	J	0.760	0.0660	10.0	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	04/18/24	1032	2597854	9
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Aluminum	U	0.0500	0.0193	0.0500	mg/L	1.00	1	PRB	05/01/24	2058	2597858	10
Antimony	U	0.00300	0.00100	0.00300	mg/L	1.00	1					
Arsenic	U	0.00500	0.00200	0.00500	mg/L	1.00	1					
Barium		0.195	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					
Boron		0.0606	0.00520	0.0150	mg/L	1.00	1					
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Calcium		22.3	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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Report Date: July 24, 2024

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

Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW384SG3-24
Sample ID: 663164001

Project: FRNP00511
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Cobalt	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Copper	J	0.00107	0.000300	0.00200	mg/L	1.00	1					
Iron	J	0.0514	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Magnesium		9.02	0.0100	0.0300	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		1.35	0.0800	0.300	mg/L	1.00	1					
Selenium	U	0.00500	0.00150	0.00500	mg/L	1.00	1					
Silver	J	0.000316	0.000300	0.00100	mg/L	1.00	1					
Sodium		40.2	0.0800	0.250	mg/L	1.00	1					
Thallium	U	0.00200	0.000600	0.00200	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					
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	05/02/24	0127	2597858	11
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	PRB	05/02/24	1225	2597858	12
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		194	2.38	10.0	mg/L			ES2	04/22/24	1116	2600231	13
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD	U	20.0	8.95	20.0	mg/L		1	HH2	04/22/24	1039	2599104	14
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	KP2	04/17/24	1527	2598484	15
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					

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Report Date: July 24, 2024

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

 Kevil, Kentucky 42053
 Contact: Ms. Jaime Morrow
 Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW384SG3-24	Project: FRNP00511
Sample ID: 663164001	Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
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	04/23/24	1020	2599999
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	04/17/24	1150	2597851
SW846 8011 PREP	8011 Prep	LOF	04/17/24	1317	2597806
SW846 3005A	ICP-MS 3005A PREP	SD	04/18/24	0805	2597857

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 9056A	
9	SW846 7470A	
10	SW846 3005A/6020B	
11	SW846 3005A/6020B	
12	SW846 3005A/6020B	
13	EPA 160.1	
14	EPA 410.4	
15	SW846 8260D	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011, VOA Compounds Liquid "As Received"	7.10 ug/L	6.92	103	(56%-149%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	50.0 ug/L	50.0	100	(74%-123%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	51.6 ug/L	50.0	103	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	48.9 ug/L	50.0	98	(77%-121%)

Notes:

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

Contact: Kevil, Kentucky 42053
Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW384SG3-24
Sample ID: 663164001

Project: FRNP00511
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
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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: July 24, 2024

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

Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW384SG3-24 Project: FRNP00511
Sample ID: 663164002 Client ID: FRNP005
Matrix: WG
Collect Date: 15-APR-24 09:59
Receive Date: 16-APR-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		0.189	0.000670	0.00400	mg/L	1.00	1	BAJ	04/26/24	1823	2598465	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	JD2	04/17/24	1355	2598239
SW846 3005A	ICP-MS 3005A PREP	SD	04/19/24	0810	2598463

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: July 24, 2024

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

Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW385SG3-24 Project: FRNP00511
Sample ID: 663164003 Client ID: FRNP005
Matrix: WG
Collect Date: 15-APR-24 10:43
Receive Date: 17-APR-24
Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
504.1/8011 Analysis of EDB/DBCP												
8011, VOA Compounds Liquid "As Received"												
1,2-Dibromo-3-chloropropane	U	0.0191	0.00860	0.0191	ug/L	0.956	1	BM1	04/17/24	1514	2597808	1
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	0.900	0.330	2.00	mg/L		1	RM3	04/17/24	1717	2598429	2
Flow Injection Analysis												
9012B, Total Cyanide "As Received"												
Cyanide, Total	UN	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	04/24/24	0733	2600000	3
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens	J	9.30	3.33	10.0	ug/L		1	RMJ	04/30/24	0211	2604481	4
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	04/22/24	2303	2600801	5
SW846 9056A Anions (5) "As Received"												
Bromide	U	0.800	0.268	0.800	mg/L		4	CH6	04/18/24	0758	2598315	6
Chloride	JW	21.1	0.268	250	mg/L		4					
Nitrate-N	HJ	0.732	0.132	10.0	mg/L		4					
Fluoride	J	0.192	0.0330	4.00	mg/L		1	CH6	04/17/24	1455	2598315	7
Sulfate	W	19.5	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	04/19/24	1106	2598918	8
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Aluminum	U	0.0500	0.0193	0.0500	mg/L	1.00	1	PRB	05/01/24	2101	2597858	9
Antimony	U	0.00300	0.00100	0.00300	mg/L	1.00	1					
Arsenic	U	0.00500	0.00200	0.00500	mg/L	1.00	1					
Barium		0.208	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					
Boron		0.0484	0.00520	0.0150	mg/L	1.00	1					
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Calcium		31.8	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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Report Date: July 24, 2024

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

Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW385SG3-24
Sample ID: 663164003

Project: FRNP00511
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Cobalt	J	0.000394	0.000300	0.00100	mg/L	1.00	1					
Copper	J	0.000850	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					
Magnesium		12.6	0.0100	0.0300	mg/L	1.00	1					
Manganese	J	0.00172	0.00100	0.00500	mg/L	1.00	1					
Molybdenum	J	0.000285	0.000200	0.00100	mg/L	1.00	1					
Nickel	J	0.000817	0.000600	0.00200	mg/L	1.00	1					
Potassium		1.70	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		34.1	0.0800	0.250	mg/L	1.00	1					
Thallium	U	0.00200	0.000600	0.00200	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					
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	05/02/24	0129	2597858	10
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	PRB	05/02/24	1226	2597858	11
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		213	2.38	10.0	mg/L			ES2	04/22/24	1116	2600231	12
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD	J	11.6	8.95	20.0	mg/L		1	HH2	04/22/24	1039	2599104	13
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	KP2	04/17/24	1553	2598484	14
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					

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Certificate of Analysis

Report Date: July 24, 2024

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

Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW385SG3-24
Sample ID: 663164003

Project: FRNP00511
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time Batch	Method
Volatile Organics											
8260D, Volatiles- full suite "As Received"											
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				
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				

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Certificate of Analysis

Report Date: July 24, 2024

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

Contact: Kevil, Kentucky 42053
Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW385SG3-24
Sample ID: 663164003

Project: FRNP00511
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
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	SD	04/18/24	0805	2597857
SW846 8011 PREP	8011 Prep	LOF	04/17/24	1317	2597806
SW846 9010C Distillation	SW846 9010C Prep	ES2	04/23/24	1020	2599999
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	04/18/24	1215	2598917

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	EPA 160.1	
13	EPA 410.4	
14	SW846 8260D	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011, VOA Compounds Liquid "As Received"	6.35 ug/L	6.83	93	(56%-149%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	50.5 ug/L	50.0	101	(74%-123%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	50.7 ug/L	50.0	101	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	49.0 ug/L	50.0	98	(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-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW385SG3-24
Sample ID: 663164003

Project: FRNP00511
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
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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: July 24, 2024

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

Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW385SG3-24 Project: FRNP00511
Sample ID: 663164004 Client ID: FRNP005
Matrix: WG
Collect Date: 15-APR-24 10:43
Receive Date: 17-APR-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		0.207	0.000670	0.00400	mg/L	1.00	1	BAJ	04/26/24	1826	2598465	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	JD2	04/17/24	1355	2598239
SW846 3005A	ICP-MS 3005A PREP	SD	04/19/24	0810	2598463

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: July 24, 2024

Company : Four Rivers Nuclear Partnership, LLC
 Address : 5600 Hobbs Road
 Kevil, Kentucky 42053
 Contact: Ms. Jaime Morrow
 Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW386SG3-24	Project: FRNP00511
Sample ID: 663164005	Client ID: FRNP005
Matrix: WG	
Collect Date: 15-APR-24 12:21	
Receive Date: 16-APR-24	
Collector: Client	

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
504.1/8011 Analysis of EDB/DBCP												
8011, VOA Compounds Liquid "As Received"												
1,2-Dibromo-3-chloropropane	U	0.0194	0.00871	0.0194	ug/L	0.968	1	BM1	04/17/24	1628	2597808	2
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average		4.40	0.330	2.00	mg/L		1	RM3	04/17/24	1855	2598429	3
Flow Injection Analysis												
9012B, Total Cyanide "As Received"												
Cyanide, Total	UN	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	04/24/24	0736	2600000	4
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens		118	3.33	10.0	ug/L		1	RMJ	04/30/24	0438	2604481	5
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	04/23/24	0007	2600801	6
SW846 9056A Anions (5) "As Received"												
Sulfate		45.1	0.532	1.60	mg/L		4	CH6	04/16/24	1841	2597656	7
Bromide	J	0.112	0.0670	0.200	mg/L		1	CH6	04/16/24	1229	2597656	8
Fluoride	J	0.808	0.0330	4.00	mg/L		1					
Chloride	JW	9.83	0.134	250	mg/L		2	CH6	04/16/24	1810	2597656	9
Nitrate-N	J	0.130	0.0660	10.0	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	04/18/24	1034	2597854	10
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Aluminum	U	0.0500	0.0193	0.0500	mg/L	1.00	1	PRB	05/01/24	2127	2597858	11
Antimony	U	0.00300	0.00100	0.00300	mg/L	1.00	1					
Arsenic	U	0.00500	0.00200	0.00500	mg/L	1.00	1					
Barium		0.127	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					
Boron	J	0.0104	0.00520	0.0150	mg/L	1.00	1					
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Calcium		20.2	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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Report Date: July 24, 2024

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

Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW386SG3-24
Sample ID: 663164005

Project: FRNP00511
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Cobalt	J	0.000424	0.000300	0.00100	mg/L	1.00	1					
Copper	J	0.00112	0.000300	0.00200	mg/L	1.00	1					
Iron		0.124	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Magnesium		8.29	0.0100	0.0300	mg/L	1.00	1					
Manganese		0.0411	0.00100	0.00500	mg/L	1.00	1					
Molybdenum	J	0.000619	0.000200	0.00100	mg/L	1.00	1					
Nickel	J	0.000669	0.000600	0.00200	mg/L	1.00	1					
Potassium	J	0.277	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					
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					
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	PRB	05/02/24	1239	2597858	12
Sodium		99.7	0.800	2.50	mg/L	1.00	10	PRB	05/02/24	0814	2597858	13
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	05/02/24	0142	2597858	14
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		353	2.38	10.0	mg/L			ES2	04/22/24	1116	2600231	15
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD		23.2	8.95	20.0	mg/L		1	HH2	04/22/24	1039	2599104	16
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	KP2	04/17/24	1618	2598484	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					

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Certificate of Analysis

Report Date: July 24, 2024

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

Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW386SG3-24
Sample ID: 663164005

Project: FRNP00511
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time Batch	Method
Volatile Organics											
8260D, Volatiles- full suite "As Received"											
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				
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				

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

Contact: Kevil, Kentucky 42053
Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW386SG3-24 Project: FRNP00511
Sample ID: 663164005 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
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	04/17/24	1150	2597851
SW846 9010C Distillation	SW846 9010C Prep	ES2	04/23/24	1020	2599999
SW846 8011 PREP	8011 Prep	LOF	04/17/24	1317	2597806
SW846 3005A	ICP-MS 3005A PREP	SD	04/18/24	0805	2597857

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	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 Compounds Liquid "As Received"	6.36 ug/L	6.91	92	(56%-149%)
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"	51.4 ug/L	50.0	103	(76%-127%)

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Report Date: July 24, 2024

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

Contact: Kevil, Kentucky 42053
Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW386SG3-24
Sample ID: 663164005

Project: FRNP00511
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time Batch	Method
Toluene-d8	8260D,	Volatiles- full suite "As Received"			48.9 ug/L		50.0		98		(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: July 24, 2024

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

Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW386SG3-24 Project: FRNP00511
Sample ID: 663164006 Client ID: FRNP005
Matrix: WG
Collect Date: 15-APR-24 12:21
Receive Date: 16-APR-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		0.121	0.000670	0.00400	mg/L	1.00	1	BAJ	04/26/24	1846	2598465	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	JD2	04/17/24	1355	2598239
SW846 3005A	ICP-MS 3005A PREP	SD	04/19/24	0810	2598463

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: July 24, 2024

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

Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW387SG3-24 Project: FRNP00511
Sample ID: 663164007 Client ID: FRNP005
Matrix: WG
Collect Date: 15-APR-24 08:35
Receive Date: 16-APR-24
Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
504.1/8011 Analysis of EDB/DBCP												
8011, VOA Compounds Liquid "As Received"												
1,2-Dibromo-3-chloropropane	U	0.0189	0.00852	0.0189	ug/L	0.947	1	BM1	04/17/24	1653	2597808	2
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	1.05	0.330	2.00	mg/L		1	RM3	04/17/24	1928	2598429	3
Flow Injection Analysis												
9012B, Total Cyanide "As Received"												
Cyanide, Total	UN	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	04/24/24	0737	2600000	4
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens	J	8.66	3.33	10.0	ug/L		1	RMJ	04/30/24	0508	2604481	5
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	04/23/24	0020	2600801	6
SW846 9056A Anions (5) "As Received"												
Chloride	JW	36.2	0.335	250	mg/L		5	CH6	04/16/24	1942	2597656	7
Bromide	J	0.391	0.134	0.400	mg/L		2	CH6	04/16/24	1911	2597656	8
Nitrate-N	J	0.801	0.0660	10.0	mg/L		2					
Sulfate		24.6	0.266	0.800	mg/L		2					
Fluoride	J	0.983	0.0330	4.00	mg/L		1	CH6	04/16/24	1300	2597656	9
Mercury Analysis-CVAA												
7470, Mercury Liquid "As Received"												
Mercury	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	JP2	04/18/24	1035	2597854	10
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Aluminum		0.0501	0.0193	0.0500	mg/L	1.00	1	PRB	05/01/24	2130	2597858	11
Antimony	U	0.00300	0.00100	0.00300	mg/L	1.00	1					
Arsenic	U	0.00500	0.00200	0.00500	mg/L	1.00	1					
Barium		0.0953	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					
Boron		0.0360	0.00520	0.0150	mg/L	1.00	1					
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Calcium		37.4	0.0800	0.200	mg/L	1.00	1					
Chromium	J	0.00418	0.00300	0.0100	mg/L	1.00	1					

GEL LABORATORIES LLC

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Certificate of Analysis

Report Date: July 24, 2024

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

Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW387SG3-24
Sample ID: 663164007

Project: FRNP00511
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Cobalt	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Copper	J	0.00140	0.000300	0.00200	mg/L	1.00	1					
Iron		0.177	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Magnesium		16.5	0.0100	0.0300	mg/L	1.00	1					
Manganese		0.00797	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		1.78	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		49.4	0.0800	0.250	mg/L	1.00	1					
Thallium	U	0.00200	0.000600	0.00200	mg/L	1.00	1					
Vanadium	U	0.0200	0.00330	0.0200	mg/L	1.00	1					
Zinc	J	0.00591	0.00330	0.0200	mg/L	1.00	1					
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	PRB	05/02/24	1241	2597858	12
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	05/02/24	0144	2597858	13
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		283	2.38	10.0	mg/L			ES2	04/22/24	1116	2600231	14
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD	J	9.23	8.95	20.0	mg/L		1	HH2	04/22/24	1039	2599104	15
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	KP2	04/17/24	1644	2598484	16
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					

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Address : 5600 Hobbs Road

Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW387SG3-24
Sample ID: 663164007

Project: FRNP00511
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time Batch	Method
Volatile Organics											
8260D, Volatiles- full suite "As Received"											
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				
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				

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

Contact: Kevil, Kentucky 42053
Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW387SG3-24 Project: FRNP00511
Sample ID: 663164007 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
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	04/23/24	1020	2599999
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	04/17/24	1150	2597851
SW846 8011 PREP	8011 Prep	LOF	04/17/24	1317	2597806
SW846 3005A	ICP-MS 3005A PREP	SD	04/18/24	0805	2597857

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	EPA 160.1	
15	EPA 410.4	
16	SW846 8260D	

Surrogate/Tracer	Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene		8011, VOA Compounds Liquid "As Received"	6.62 ug/L	6.76	98	(56%-149%)
Bromofluorobenzene		8260D, Volatiles- full suite "As Received"	50.9 ug/L	50.0	102	(74%-123%)
1,2-Dichloroethane-d4		8260D, Volatiles- full suite "As Received"	51.7 ug/L	50.0	103	(76%-127%)
Toluene-d8		8260D, Volatiles- full suite "As Received"	49.3 ug/L	50.0	99	(77%-121%)

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Address : 5600 Hobbs Road
Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID:	MW387SG3-24	Project:	FRNP00511
Sample ID:	663164007	Client ID:	FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
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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: July 24, 2024

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

Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW387SG3-24 Project: FRNP00511
Sample ID: 663164008 Client ID: FRNP005
Matrix: WG
Collect Date: 15-APR-24 08:35
Receive Date: 16-APR-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		0.0953	0.000670	0.00400	mg/L	1.00	1	BAJ	04/26/24	1849	2598465	1
Chromium	J	0.00402	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	JD2	04/17/24	1355	2598239
SW846 3005A	ICP-MS 3005A PREP	SD	04/19/24	0810	2598463

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: July 24, 2024

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

Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW388SG3-24 Project: FRNP00511
Sample ID: 663164009 Client ID: FRNP005
Matrix: WG
Collect Date: 15-APR-24 09:17
Receive Date: 16-APR-24
Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
504.1/8011 Analysis of EDB/DBCP												
8011, VOA Compounds Liquid "As Received"												
1,2-Dibromo-3-chloropropane	U	0.0193	0.00868	0.0193	ug/L	0.964	1	BM1	04/17/24	1717	2597808	1
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	0.839	0.330	2.00	mg/L		1	RM3	04/17/24	2000	2598429	3
Flow Injection Analysis												
9012B, Total Cyanide "As Received"												
Cyanide, Total	UN	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	04/24/24	0738	2600000	4
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens	J	6.18	3.33	10.0	ug/L		1	RMJ	05/04/24	0147	2606558	5
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	04/23/24	0033	2600801	6
SW846 9056A Anions (5) "As Received"												
Bromide	J	0.373	0.134	0.400	mg/L		2	CH6	04/16/24	2013	2597656	7
Nitrate-N	J	0.896	0.0660	10.0	mg/L		2					
Fluoride	J	0.250	0.0330	4.00	mg/L		1	CH6	04/16/24	1330	2597656	8
Sulfate		17.4	0.133	0.400	mg/L		1					
Chloride	JW	34.4	0.335	250	mg/L		5	CH6	04/16/24	2044	2597656	9
Mercury Analysis-CVAA												
7470, Mercury Liquid "As Received"												
Mercury	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	JP2	04/18/24	1040	2597854	10
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	05/02/24	0145	2597858	11
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Aluminum	J	0.0241	0.0193	0.0500	mg/L	1.00	1	PRB	05/01/24	2134	2597858	12
Antimony	U	0.00300	0.00100	0.00300	mg/L	1.00	1					
Arsenic	U	0.00500	0.00200	0.00500	mg/L	1.00	1					
Barium		0.184	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					
Boron		0.0257	0.00520	0.0150	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-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW388SG3-24
Sample ID: 663164009

Project: FRNP00511
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Calcium		23.4	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	0.00127	0.000300	0.00200	mg/L	1.00	1					
Iron		0.106	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Magnesium		9.84	0.0100	0.0300	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		1.66	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		41.9	0.0800	0.250	mg/L	1.00	1					
Thallium	U	0.00200	0.000600	0.00200	mg/L	1.00	1					
Vanadium	U	0.0200	0.00330	0.0200	mg/L	1.00	1					
Zinc	J	0.00353	0.00330	0.0200	mg/L	1.00	1					
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	PRB	05/02/24	1242	2597858	13
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		207	2.38	10.0	mg/L			ES2	04/22/24	1116	2600231	14
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD	U	20.0	8.95	20.0	mg/L		1	HH2	04/22/24	1039	2599104	15
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	KP2	04/17/24	1709	2598484	16
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					

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Address : 5600 Hobbs Road

Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW388SG3-24

Project: FRNP00511

Sample ID: 663164009

Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time Batch	Method
Volatile Organics											
8260D, Volatiles- full suite "As Received"											
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				
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				

GEL LABORATORIES LLC

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

Certificate of Analysis

Report Date: July 24, 2024

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

Contact: Kevil, Kentucky 42053
Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW388SG3-24
Sample ID: 663164009

Project: FRNP00511
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
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	SD	04/18/24	0805	2597857
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	04/17/24	1150	2597851
SW846 9010C Distillation	SW846 9010C Prep	ES2	04/23/24	1020	2599999
SW846 8011 PREP	8011 Prep	LOF	04/17/24	1317	2597806

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	EPA 160.1	
15	EPA 410.4	
16	SW846 8260D	

Surrogate/Tracer	Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene		8011, VOA Compounds Liquid "As Received"	6.86 ug/L	6.89	100	(56%-149%)
Bromofluorobenzene		8260D, Volatiles- full suite "As Received"	50.3 ug/L	50.0	101	(74%-123%)
1,2-Dichloroethane-d4		8260D, Volatiles- full suite "As Received"	50.9 ug/L	50.0	102	(76%-127%)
Toluene-d8		8260D, Volatiles- full suite "As Received"	49.6 ug/L	50.0	99	(77%-121%)

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Report Date: July 24, 2024

Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road
Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW388SG3-24 Project: FRNP00511
Sample ID: 663164009 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
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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: July 24, 2024

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

Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW388SG3-24 Project: FRNP00511
Sample ID: 663164010 Client ID: FRNP005
Matrix: WG
Collect Date: 15-APR-24 09:17
Receive Date: 16-APR-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		0.184	0.000670	0.00400	mg/L	1.00	1	BAJ	04/26/24	1851	2598465	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	04/19/24	0810	2598463
EPA 160	Laboratory Filtration	JD2	04/17/24	1355	2598239

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: July 24, 2024

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

Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW397SG3-24 Project: FRNP00511
Sample ID: 663164011 Client ID: FRNP005
Matrix: WG
Collect Date: 15-APR-24 13:11
Receive Date: 16-APR-24
Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
504.1/8011 Analysis of EDB/DBCP												
8011, VOA Compounds Liquid "As Received"												
1,2-Dibromo-3-chloropropane	U	0.0190	0.00854	0.0190	ug/L	0.949	1	BM1	04/17/24	1742	2597808	1
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	0.537	0.330	2.00	mg/L		1	RM3	04/17/24	2053	2598429	3
Flow Injection Analysis												
9012B, Total Cyanide "As Received"												
Cyanide, Total	UN	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	04/24/24	0739	2600000	4
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens	J	8.18	3.33	10.0	ug/L		1	RMJ	05/07/24	2343	2606558	5
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	04/23/24	0046	2600801	6
SW846 9056A Anions (5) "As Received"												
Bromide		0.445	0.0670	0.200	mg/L		1	CH6	04/16/24	1401	2597656	7
Fluoride	J	0.169	0.0330	4.00	mg/L		1					
Sulfate		11.7	0.133	0.400	mg/L		1					
Chloride	JW	33.2	0.335	250	mg/L		5	CH6	04/16/24	2247	2597656	8
Nitrate-N	J	1.04	0.0660	10.0	mg/L		2	CH6	04/16/24	2115	2597656	9
Mercury Analysis-CVAA												
7470, Mercury Liquid "As Received"												
Mercury	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	JP2	04/18/24	1042	2597854	10
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	05/02/24	0147	2597858	11
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	PRB	05/02/24	1244	2597858	12
Aluminum	J	0.0429	0.0193	0.0500	mg/L	1.00	1	PRB	05/01/24	2138	2597858	13
Antimony	U	0.00300	0.00100	0.00300	mg/L	1.00	1					
Arsenic	U	0.00500	0.00200	0.00500	mg/L	1.00	1					
Barium		0.130	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					
Boron	J	0.00887	0.00520	0.0150	mg/L	1.00	1					

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Report Date: July 24, 2024

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

Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW397SG3-24
Sample ID: 663164011

Project: FRNP00511
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Calcium		18.9	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	0.000798	0.000300	0.00200	mg/L	1.00	1					
Iron	J	0.0833	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Magnesium		7.73	0.0100	0.0300	mg/L	1.00	1					
Manganese	J	0.00199	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		1.83	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		31.9	0.0800	0.250	mg/L	1.00	1					
Thallium	U	0.00200	0.000600	0.00200	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					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		166	2.38	10.0	mg/L			ES2	04/22/24	1116	2600231	14
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD	J	16.2	8.95	20.0	mg/L		1	HH2	04/22/24	1039	2599104	15
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	KP2	04/17/24	1734	2598484	16
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					

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Report Date: July 24, 2024

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

Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW397SG3-24
Sample ID: 663164011

Project: FRNP00511
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time Batch	Method
Volatile Organics											
8260D, Volatiles- full suite "As Received"											
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				
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				

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Report Date: July 24, 2024

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

 Kevil, Kentucky 42053
 Contact: Ms. Jaime Morrow
 Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW397SG3-24	Project: FRNP00511
Sample ID: 663164011	Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
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	04/17/24	1150	2597851
SW846 8011 PREP	8011 Prep	LOF	04/17/24	1317	2597806
SW846 9010C Distillation	SW846 9010C Prep	ES2	04/23/24	1020	2599999
SW846 3005A	ICP-MS 3005A PREP	SD	04/18/24	0805	2597857

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	EPA 160.1	
15	EPA 410.4	
16	SW846 8260D	

Surrogate/Tracer	Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene		8011, VOA Compounds Liquid "As Received"	6.78 ug/L	6.78	100	(56%-149%)
Bromofluorobenzene		8260D, Volatiles- full suite "As Received"	50.9 ug/L	50.0	102	(74%-123%)
1,2-Dichloroethane-d4		8260D, Volatiles- full suite "As Received"	51.0 ug/L	50.0	102	(76%-127%)
Toluene-d8		8260D, Volatiles- full suite "As Received"	49.3 ug/L	50.0	99	(77%-121%)

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Certificate of Analysis

Report Date: July 24, 2024

Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road
Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID:	MW397SG3-24	Project:	FRNP00511
Sample ID:	663164011	Client ID:	FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
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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: July 24, 2024

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

Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW397SG3-24 Project: FRNP00511
Sample ID: 663164012 Client ID: FRNP005
Matrix: WG
Collect Date: 15-APR-24 13:11
Receive Date: 16-APR-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		0.125	0.000670	0.00400	mg/L	1.00	1	BAJ	04/26/24	1854	2598465	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	04/19/24	0810	2598463
EPA 160	Laboratory Filtration	JD2	04/17/24	1355	2598239

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: July 24, 2024

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

Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: TB2SG3-24 Project: FRNP00511
Sample ID: 663164013 Client ID: FRNP005
Matrix: WATER
Collect Date: 15-APR-24 07:15
Receive Date: 16-APR-24
Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
504.1/8011 Analysis of EDB/DBCP												
8011, VOA Compounds Liquid "As Received"												
1,2-Dibromo-3-chloropropane	U	0.0192	0.00862	0.0192	ug/L	0.958	1	BM1	04/17/24	1855	2597808	2
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	KP2	04/17/24	1502	2598484	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	J	2.47	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: July 24, 2024

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

Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: TB2SG3-24
Sample ID: 663164013

Project: FRNP00511
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	LOF	04/17/24	1317	2597806

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 Compounds Liquid "As Received"	6.69 ug/L	6.84	98	(56%-149%)
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"	52.5 ug/L	50.0	105	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	49.0 ug/L	50.0	98	(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-S&T Landfill Quarterly(SG24-03)

Client Sample ID: TB2SG3-24
Sample ID: 663164013

Project: FRNP00511
Client ID: FRNP005

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

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

Kevil, Kentucky 42053

Report Date: July 24, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW384SG3-24
Sample ID: 663164001
Matrix: WG
Collect Date: 15-APR-24
Receive Date: 16-APR-24
Collector: Client

Project: FRNP00511
Client ID: FRNP005

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
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Rad Alpha Spec Analysis

AlphaSpec Ra226, Liquid "As Received"

Radium-226	U	0.272	+/-0.610	0.956	+/-0.611	5.00	pCi/L			CM4	05/06/24	1116	2604290	1
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Th-01-RC M, Th Isotopes, Liquid "As Received"

Thorium-230	U	0.0473	+/-0.857	1.86	+/-0.859	50.0	pCi/L			CM4	05/02/24	1642	2604291	2
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Rad Gas Flow Proportional Counting

905.0 Mod, Sr90, liquid "As Received"

Strontium-90	U	0.473	+/-2.30	4.33	+/-2.30	8.00	pCi/L			JE1	04/23/24	1317	2600063	3
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9310,Alpha/Beta Activity, liquid "As Received"

Alpha	U	1.82	+/-5.03	9.96	+/-5.04	15.0	pCi/L			HH3	04/24/24	1455	2600091	4
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Beta	U	4.46	+/-7.46	12.8	+/-7.50	50.0	pCi/L							
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Rad Liquid Scintillation Analysis

906.0 Mod, Tritium Dist, Liquid "As Received"

Tritium	U	-48.8	+/-93.7	204	+/-93.7	300	pCi/L			HB2	05/07/24	2332	2601918	5
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Tc-02-RC-MOD, Tc99, Liquid "As Received"

Technetium-99		27.1	+/-14.0	21.9	+/-14.4	25.0	pCi/L			GS3	05/07/24	2206	2602105	6
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The following Analytical Methods were performed

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

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Barium-133 Tracer	AlphaSpec Ra226, Liquid "As Received"	2604290	97.8	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2604291	73.2	(30%-110%)
Strontium Carrier	905.0 Mod, Sr90, liquid "As Received"	2600063	80.6	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2602105	99.1	(30%-110%)

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Report Date: July 24, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW384SG3-24

Project: FRNP00511

Sample ID: 663164001

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

Mtd.: Method

DL: Detection Limit

PF: Prep Factor

Lc/LC: Critical Level

RL: Reporting Limit

MDA: Minimum Detectable Activity

TPU: Total Propagated Uncertainty

MDC: Minimum Detectable Concentration

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Certificate of Analysis

Company : Four Rivers Nuclear Partnership,
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Kevil, Kentucky 42053

Report Date: July 24, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW385SG3-24

Project: FRNP00511

Sample ID: 663164003

Client ID: FRNP005

Matrix: WG

Collect Date: 15-APR-24

Receive Date: 17-APR-24

Collector: Client

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
<i>AlphaSpec Ra226, Liquid "As Received"</i>														
Radium-226		1.05	+/-1.04	0.964	+/-1.05	5.00	pCi/L			CM4	05/06/24	1110	2604310	1
<i>Th-01-RC M, Th Isotopes, Liquid "As Received"</i>														
Thorium-230	U	0.667	+/-1.01	1.55	+/-1.02	50.0	pCi/L			CM4	05/02/24	1855	2604311	2
Rad Gas Flow Proportional Counting														
<i>905.0 Mod, Sr90, liquid "As Received"</i>														
Strontium-90	U	-0.731	+/-1.52	3.33	+/-1.52	8.00	pCi/L			JE1	04/23/24	1317	2600063	3
<i>9310, Alpha/Beta Activity, liquid "As Received"</i>														
Alpha	U	6.58	+/-5.07	6.97	+/-5.20	15.0	pCi/L			HH3	04/24/24	1029	2600091	4
Beta		24.3	+/-7.58	9.20	+/-8.61	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
<i>906.0 Mod, Tritium Dist, Liquid "As Received"</i>														
Tritium	U	30.7	+/-111	208	+/-111	300	pCi/L			HB2	05/07/24	2354	2601918	5
<i>Tc-02-RC-MOD, Tc99, Liquid "As Received"</i>														
Technetium-99		30.7	+/-14.4	22.2	+/-14.8	25.0	pCi/L			GS3	05/07/24	2218	2602105	6

The following Analytical Methods were performed

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

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Barium-133 Tracer	AlphaSpec Ra226, Liquid "As Received"	2604310	101	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2604311	87.3	(30%-110%)
Strontium Carrier	905.0 Mod, Sr90, liquid "As Received"	2600063	89.1	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2602105	96.4	(30%-110%)

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Certificate of Analysis

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Kevil, Kentucky 42053

Report Date: July 24, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW385SG3-24

Project: FRNP00511

Sample ID: 663164003

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

Mtd.: Method

DL: Detection Limit

PF: Prep Factor

Lc/LC: Critical Level

RL: Reporting Limit

MDA: Minimum Detectable Activity

TPU: Total Propagated Uncertainty

MDC: Minimum Detectable Concentration

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Certificate of Analysis

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 5600 Hobbs Road

Kevil, Kentucky 42053

Report Date: July 24, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW386SG3-24

Project: FRNP00511

Sample ID: 663164005

Client ID: FRNP005

Matrix: WG

Collect Date: 15-APR-24

Receive Date: 16-APR-24

Collector: Client

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
<i>AlphaSpec Ra226, Liquid "As Received"</i>														
Radium-226	U	0.555	+/-0.889	1.24	+/-0.890	5.00	pCi/L			CM4	05/06/24	1110	2604310	1
<i>Th-01-RC M, Th Isotopes, Liquid "As Received"</i>														
Thorium-230	U	-0.465	+/-0.432	1.63	+/-0.433	50.0	pCi/L			CM4	05/02/24	1856	2604311	2
Rad Gas Flow Proportional Counting														
<i>905.0 Mod, Sr90, liquid "As Received"</i>														
Strontium-90	U	-1.36	+/-2.86	5.66	+/-2.86	8.00	pCi/L			JE1	04/23/24	1556	2600063	3
<i>9310, Alpha/Beta Activity, liquid "As Received"</i>														
Alpha	U	10.2	+/-7.30	10.5	+/-7.51	15.0	pCi/L			HH3	04/24/24	1029	2600091	4
Beta	U	6.41	+/-5.91	9.56	+/-6.01	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
<i>906.0 Mod, Tritium Dist, Liquid "As Received"</i>														
Tritium	U	-9.32	+/-102	206	+/-102	300	pCi/L			HB2	05/08/24	0016	2601918	5
<i>Tc-02-RC-MOD, Tc99, Liquid "As Received"</i>														
Technetium-99	U	-1.56	+/-12.3	22.2	+/-12.3	25.0	pCi/L			GS3	05/07/24	2229	2602105	6

The following Analytical Methods were performed

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

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Barium-133 Tracer	AlphaSpec Ra226, Liquid "As Received"	2604310	98.3	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2604311	90.2	(30%-110%)
Strontium Carrier	905.0 Mod, Sr90, liquid "As Received"	2600063	84.8	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2602105	96.1	(30%-110%)

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Report Date: July 24, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW386SG3-24

Project: FRNP00511

Sample ID: 663164005

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

Mtd.: Method

DL: Detection Limit

PF: Prep Factor

Lc/LC: Critical Level

RL: Reporting Limit

MDA: Minimum Detectable Activity

TPU: Total Propagated Uncertainty

MDC: Minimum Detectable Concentration

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Certificate of Analysis

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Kevil, Kentucky 42053

Report Date: July 24, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW387SG3-24

Project: FRNP00511

Sample ID: 663164007

Client ID: FRNP005

Matrix: WG

Collect Date: 15-APR-24

Receive Date: 16-APR-24

Collector: Client

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
<i>AlphaSpec Ra226, Liquid "As Received"</i>														
Radium-226	U	0.183	+/-0.669	1.12	+/-0.669	5.00	pCi/L			CM4	05/06/24	1110	2604310	1
<i>Th-01-RC M, Th Isotopes, Liquid "As Received"</i>														
Thorium-230	U	0.558	+/-0.934	1.51	+/-0.942	50.0	pCi/L			CM4	05/02/24	1856	2604311	2
Rad Gas Flow Proportional Counting														
<i>905.0 Mod, Sr90, liquid "As Received"</i>														
Strontium-90	U	1.62	+/-3.95	7.07	+/-3.96	8.00	pCi/L			JE1	04/23/24	1318	2600063	3
<i>9310,Alpha/Beta Activity, liquid "As Received"</i>														
Alpha	U	5.40	+/-5.21	7.99	+/-5.29	15.0	pCi/L			HH3	04/24/24	1029	2600091	4
Beta		32.1	+/-8.57	9.87	+/-10.0	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
<i>906.0 Mod, Tritium Dist, Liquid "As Received"</i>														
Tritium	U	-34.6	+/-96.6	204	+/-96.7	300	pCi/L			HB2	05/08/24	0037	2601918	5
<i>Tc-02-RC-MOD, Tc99, Liquid "As Received"</i>														
Technetium-99		36.3	+/-15.3	23.1	+/-15.8	25.0	pCi/L			GS3	05/07/24	2241	2602105	6

The following Analytical Methods were performed

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

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Barium-133 Tracer	AlphaSpec Ra226, Liquid "As Received"	2604310	100	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2604311	90	(30%-110%)
Strontium Carrier	905.0 Mod, Sr90, liquid "As Received"	2600063	61.5	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2602105	94.5	(30%-110%)

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Report Date: July 24, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW387SG3-24

Project: FRNP00511

Sample ID: 663164007

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

Mtd.: Method

DL: Detection Limit

PF: Prep Factor

Lc/LC: Critical Level

RL: Reporting Limit

MDA: Minimum Detectable Activity

TPU: Total Propagated Uncertainty

MDC: Minimum Detectable Concentration

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Report Date: July 24, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW388SG3-24

Project: FRNP00511

Sample ID: 663164009

Client ID: FRNP005

Matrix: WG

Collect Date: 15-APR-24

Receive Date: 16-APR-24

Collector: Client

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
<i>AlphaSpec Ra226, Liquid "As Received"</i>														
Radium-226		1.62	+/-1.36	1.23	+/-1.36	5.00	pCi/L			CM4	05/06/24	1110	2604310	1
<i>Th-01-RC M, Th Isotopes, Liquid "As Received"</i>														
Thorium-230	U	-0.479	+/-0.462	1.73	+/-0.463	50.0	pCi/L			CM4	05/02/24	1856	2604311	2
Rad Gas Flow Proportional Counting														
<i>905.0 Mod, Sr90, liquid "As Received"</i>														
Strontium-90	U	-0.985	+/-1.75	3.96	+/-1.75	8.00	pCi/L			JE1	04/23/24	1318	2600063	3
<i>9310, Alpha/Beta Activity, liquid "As Received"</i>														
Alpha	U	0.809	+/-4.07	8.37	+/-4.08	15.0	pCi/L			HH3	04/24/24	1029	2600091	4
Beta	U	8.06	+/-6.73	10.8	+/-6.86	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
<i>906.0 Mod, Tritium Dist, Liquid "As Received"</i>														
Tritium	U	-25.3	+/-100	208	+/-100	300	pCi/L			HB2	05/08/24	0059	2601918	5
<i>Tc-02-RC-MOD, Tc99, Liquid "As Received"</i>														
Technetium-99	U	9.53	+/-13.3	22.7	+/-13.4	25.0	pCi/L			GS3	05/07/24	2252	2602105	6

The following Analytical Methods were performed

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

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Barium-133 Tracer	AlphaSpec Ra226, Liquid "As Received"	2604310	98.3	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2604311	84.2	(30%-110%)
Strontium Carrier	905.0 Mod, Sr90, liquid "As Received"	2600063	70	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2602105	94.6	(30%-110%)

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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: July 24, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW388SG3-24

Project: FRNP00511

Sample ID: 663164009

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

Mtd.: Method

DL: Detection Limit

PF: Prep Factor

Lc/LC: Critical Level

RL: Reporting Limit

MDA: Minimum Detectable Activity

TPU: Total Propagated Uncertainty

MDC: Minimum Detectable Concentration

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 5600 Hobbs Road

Kevil, Kentucky 42053

Report Date: July 24, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW397SG3-24

Project: FRNP00511

Sample ID: 663164011

Client ID: FRNP005

Matrix: WG

Collect Date: 15-APR-24

Receive Date: 16-APR-24

Collector: Client

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
<i>AlphaSpec Ra226, Liquid "As Received"</i>														
Radium-226	U	0.611	+/-0.851	0.962	+/-0.852	5.00	pCi/L			CM4	05/06/24	1110	2604310	1
<i>Th-01-RC M, Th Isotopes, Liquid "As Received"</i>														
Thorium-230	U	0.0888	+/-0.706	1.47	+/-0.709	50.0	pCi/L			CM4	05/02/24	1856	2604311	2
Rad Gas Flow Proportional Counting														
<i>905.0 Mod, Sr90, liquid "As Received"</i>														
Strontium-90	U	-3.74	+/-3.63	7.58	+/-3.63	8.00	pCi/L			JE1	04/23/24	1318	2600063	3
<i>9310, Alpha/Beta Activity, liquid "As Received"</i>														
Alpha	U	3.51	+/-4.69	7.99	+/-4.73	15.0	pCi/L			HH3	04/24/24	1029	2600091	4
Beta	U	5.46	+/-6.07	10.1	+/-6.14	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
<i>906.0 Mod, Tritium Dist, Liquid "As Received"</i>														
Tritium	U	-13.3	+/-102	206	+/-102	300	pCi/L			HB2	05/08/24	0120	2601918	5
<i>Tc-02-RC-MOD, Tc99, Liquid "As Received"</i>														
Technetium-99	U	5.18	+/-12.4	21.5	+/-12.4	25.0	pCi/L			GS3	05/07/24	2304	2602105	6

The following Analytical Methods were performed

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

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Barium-133 Tracer	AlphaSpec Ra226, Liquid "As Received"	2604310	97.8	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2604311	87.2	(30%-110%)
Strontium Carrier	905.0 Mod, Sr90, liquid "As Received"	2600063	57.3	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2602105	98.9	(30%-110%)

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Company : Four Rivers Nuclear Partnership,
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5600 Hobbs Road

Kevil, Kentucky 42053

Report Date: July 24, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW397SG3-24

Project: FRNP00511

Sample ID: 663164011

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

Mtd.: Method

DL: Detection Limit

PF: Prep Factor

Lc/LC: Critical Level

RL: Reporting Limit

MDA: Minimum Detectable Activity

TPU: Total Propagated Uncertainty

MDC: Minimum Detectable Concentration

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ATTACHMENT C3

GEL LABORATORIES CERTIFICATE OF ANALYSIS

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Certificate of Analysis

Report Date: July 24, 2024

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

Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW391SG3-24 Project: FRNP00511
Sample ID: 663373001 Client ID: FRNP005
Matrix: WG
Collect Date: 16-APR-24 10:55
Receive Date: 17-APR-24
Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
504.1/8011 Analysis of EDB/DBCP												
8011, VOA Compounds Liquid "As Received"												
1,2-Dibromo-3-chloropropane	U	0.0191	0.00860	0.0191	ug/L	0.956	1	LOF	04/20/24	1526	2598487	2
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	0.632	0.330	2.00	mg/L		1	RM3	04/17/24	2301	2598429	3
Flow Injection Analysis												
9012B, Total Cyanide "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	04/19/24	0956	2598857	4
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens	U	10.0	3.33	10.0	ug/L		1	RMJ	05/11/24	0223	2609207	5
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	04/23/24	0059	2600801	6
SW846 9056A Anions (5) "As Received"												
Bromide		0.569	0.0670	0.200	mg/L		1	CH6	04/17/24	1526	2598315	7
Fluoride	J	0.188	0.0330	4.00	mg/L		1					
Sulfate	W	12.0	0.133	0.400	mg/L		1					
Chloride	JW	43.1	0.335	250	mg/L		5	CH6	04/17/24	1938	2598315	8
Nitrate-N	J	1.22	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	04/22/24	1106	2599420	9
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	05/10/24	1804	2598627	10
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Aluminum	J	0.0220	0.0193	0.0500	mg/L	1.00	1	PRB	05/11/24	1025	2598627	11
Antimony	U	0.00300	0.00100	0.00300	mg/L	1.00	1					
Arsenic	U	0.00500	0.00200	0.00500	mg/L	1.00	1					
Barium		0.224	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					
Boron		0.0288	0.00520	0.0150	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-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW391SG3-24
Sample ID: 663373001

Project: FRNP00511
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Calcium		26.3	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	0.000769	0.000300	0.00200	mg/L	1.00	1					
Iron		0.118	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Magnesium		11.2	0.0100	0.0300	mg/L	1.00	1					
Manganese	J	0.00206	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		1.54	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		33.8	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	BJ	0.00826	0.00330	0.0200	mg/L	1.00	1					
Zinc	U	0.0200	0.00330	0.0200	mg/L	1.00	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		192	2.38	10.0	mg/L			ES2	04/22/24	1116	2600231	12
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD	J	9.23	8.95	20.0	mg/L		1	HH2	04/22/24	1039	2599104	13
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	JB6	04/18/24	1435	2599223	14
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					

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Report Date: July 24, 2024

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

Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW391SG3-24
Sample ID: 663373001

Project: FRNP00511
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time Batch	Method
Volatile Organics											
8260D, Volatiles- full suite "As Received"											
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				
Methylene chloride	BJ	1.13	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	0.400	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				

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Company : Four Rivers Nuclear Partnership, LLC
 Address : 5600 Hobbs Road
 Kevil, Kentucky 42053
 Contact: Ms. Jaime Morrow
 Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW391SG3-24	Project: FRNP00511
Sample ID: 663373001	Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
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	04/18/24	1241	2598856
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	04/19/24	1145	2599414
SW846 8011 PREP	8011 Prep	LOF	04/20/24	1240	2598486
SW846 3005A	ICP-MS 3005A PREP	SD	04/19/24	0810	2598625

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	EPA 160.1	
13	EPA 410.4	
14	SW846 8260D	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011, VOA Compounds Liquid "As Received"	6.78 ug/L	6.83	99	(56%-149%)
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"	51.5 ug/L	50.0	103	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	54.8 ug/L	50.0	110	(77%-121%)

Notes:

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Certificate of Analysis

Report Date: July 24, 2024

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

Contact: Kevil, Kentucky 42053
Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW391SG3-24
Sample ID: 663373001

Project: FRNP00511
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
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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: July 24, 2024

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

 Kevil, Kentucky 42053
 Contact: Ms. Jaime Morrow
 Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW391SG3-24	Project: FRNP00511
Sample ID: 663373002	Client ID: FRNP005
Matrix: WG	
Collect Date: 16-APR-24 10:55	
Receive Date: 17-APR-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	PRB	05/11/24	1028	2598627	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	04/19/24	0810	2598625
EPA 160	Laboratory Filtration	JD2	04/17/24	1619	2598379

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: July 24, 2024

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

Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW392SG3-24 Project: FRNP00511
Sample ID: 663373003 Client ID: FRNP005
Matrix: WG
Collect Date: 16-APR-24 12:32
Receive Date: 17-APR-24
Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
504.1/8011 Analysis of EDB/DBCP												
8011, VOA Compounds Liquid "As Received"												
1,2-Dibromo-3-chloropropane	U	0.0189	0.00852	0.0189	ug/L	0.947	1	LOF	04/20/24	1556	2598487	1
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	0.545	0.330	2.00	mg/L		1	RM3	04/17/24	2334	2598429	3
Flow Injection Analysis												
9012B, Total Cyanide "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	04/19/24	0957	2598857	4
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens	U	10.0	3.33	10.0	ug/L		1	RMJ	05/11/24	0642	2609207	5
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	04/23/24	0112	2600801	6
SW846 9056A Anions (5) "As Received"												
Bromide		0.663	0.0670	0.200	mg/L		1	CH6	04/17/24	1556	2598315	7
Fluoride	J	0.259	0.0330	4.00	mg/L		1					
Sulfate	W	7.81	0.133	0.400	mg/L		1					
Nitrate-N	HJ	0.715	0.165	10.0	mg/L		5	CH6	04/18/24	1510	2598315	8
Chloride	JW	41.3	0.670	250	mg/L		10	CH6	04/17/24	2009	2598315	9
Mercury Analysis-CVAA												
7470, Mercury Liquid "As Received"												
Mercury	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	JP2	04/22/24	1108	2599420	10
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Aluminum	U	0.0500	0.0193	0.0500	mg/L	1.00	1	PRB	05/11/24	1032	2598627	11
Antimony	U	0.00300	0.00100	0.00300	mg/L	1.00	1					
Arsenic	U	0.00500	0.00200	0.00500	mg/L	1.00	1					
Barium		0.309	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					
Boron		0.0222	0.00520	0.0150	mg/L	1.00	1					
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Calcium		23.5	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: July 24, 2024

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

Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW392SG3-24
Sample ID: 663373003

Project: FRNP00511
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Cobalt	J	0.000754	0.000300	0.00100	mg/L	1.00	1					
Copper	J	0.00104	0.000300	0.00200	mg/L	1.00	1					
Iron		0.173	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Magnesium		10.3	0.0100	0.0300	mg/L	1.00	1					
Manganese		0.320	0.00100	0.00500	mg/L	1.00	1					
Molybdenum	J	0.000213	0.000200	0.00100	mg/L	1.00	1					
Nickel		0.00232	0.000600	0.00200	mg/L	1.00	1					
Potassium		2.18	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		24.4	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	BJ	0.00990	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	05/10/24	1806	2598627	12
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		172	2.38	10.0	mg/L			ES2	04/22/24	1116	2600231	13
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD	J	13.9	8.95	20.0	mg/L		1	HH2	04/22/24	1039	2599104	14
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	JB6	04/18/24	1504	2599223	15
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					

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Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW392SG3-24
Sample ID: 663373003

Project: FRNP00511
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time Batch	Method
Volatile Organics											
8260D, Volatiles- full suite "As Received"											
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				
Methylene chloride	BJ	1.23	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		2.61	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	J	0.350	0.333	1.00	ug/L		1				
cis-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1				

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

Contact: Kevil, Kentucky 42053
Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW392SG3-24 Project: FRNP00511
Sample ID: 663373003 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
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	04/19/24	1145	2599414
SW846 3005A	ICP-MS 3005A PREP	SD	04/19/24	0810	2598625
SW846 8011 PREP	8011 Prep	LOF	04/20/24	1240	2598486
SW846 9010C Distillation	SW846 9010C Prep	ES2	04/18/24	1241	2598856

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	EPA 160.1	
14	EPA 410.4	
15	SW846 8260D	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011, VOA Compounds Liquid "As Received"	6.51 ug/L	6.76	96	(56%-149%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	50.0 ug/L	50.0	100	(74%-123%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	49.7 ug/L	50.0	99	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	52.9 ug/L	50.0	106	(77%-121%)

Notes:

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Report Date: July 24, 2024

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

Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW392SG3-24 Project: FRNP00511
Sample ID: 663373004 Client ID: FRNP005
Matrix: WG
Collect Date: 16-APR-24 12:32
Receive Date: 17-APR-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		0.305	0.000670	0.00400	mg/L	1.00	1	PRB	05/11/24	1036	2598627	1
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					
Uranium	J	0.0000770	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	04/19/24	0810	2598625
EPA 160	Laboratory Filtration	JD2	04/17/24	1619	2598379

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: July 24, 2024

Company : Four Rivers Nuclear Partnership, LLC
 Address : 5600 Hobbs Road
 Kevil, Kentucky 42053
 Contact: Ms. Jaime Morrow
 Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW393SG3-24	Project: FRNP00511
Sample ID: 663373005	Client ID: FRNP005
Matrix: WG	
Collect Date: 16-APR-24 13:13	
Receive Date: 17-APR-24	
Collector: Client	

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
504.1/8011 Analysis of EDB/DBCP												
8011, VOA Compounds Liquid "As Received"												
1,2-Dibromo-3-chloropropane	U	0.0192	0.00862	0.0192	ug/L	0.958	1	LOF	04/20/24	1626	2598487	1
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average		2.61	0.330	2.00	mg/L		1	RM3	04/18/24	0006	2598429	3
Flow Injection Analysis												
9012B, Total Cyanide "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	04/19/24	0958	2598857	4
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens		18.6	3.33	10.0	ug/L		1	RMJ	05/11/24	0346	2609207	5
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	04/23/24	0125	2600801	6
SW846 9056A Anions (5) "As Received"												
Chloride	JW	9.08	0.0670	250	mg/L		1	CH6	04/17/24	1627	2598315	7
Fluoride	J	0.269	0.0330	4.00	mg/L		1					
Bromide	J	0.150	0.134	0.400	mg/L		2	CH6	04/17/24	2040	2598315	8
Nitrate-N	J	0.258	0.0660	10.0	mg/L		2					
Sulfate	W	23.7	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	04/22/24	1109	2599420	9
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	05/10/24	1808	2598627	10
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Sodium		85.6	0.800	2.50	mg/L	1.00	10	PRB	05/11/24	1043	2598627	11
Aluminum	J	0.0288	0.0193	0.0500	mg/L	1.00	1	PRB	05/11/24	1039	2598627	12
Antimony	U	0.00300	0.00100	0.00300	mg/L	1.00	1					
Arsenic		0.00528	0.00200	0.00500	mg/L	1.00	1					
Barium		0.105	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					
Boron		0.0201	0.00520	0.0150	mg/L	1.00	1					

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Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW393SG3-24
Sample ID: 663373005

Project: FRNP00511
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Calcium		17.1	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	0.000520	0.000300	0.00200	mg/L	1.00	1					
Iron		1.15	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Magnesium		4.44	0.0100	0.0300	mg/L	1.00	1					
Manganese		0.0294	0.00100	0.00500	mg/L	1.00	1					
Molybdenum	J	0.000503	0.000200	0.00100	mg/L	1.00	1					
Nickel	U	0.00200	0.000600	0.00200	mg/L	1.00	1					
Potassium		0.539	0.0800	0.300	mg/L	1.00	1					
Selenium	J	0.00210	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	J	0.000135	0.0000670	0.000200	mg/L	1.00	1					
Vanadium	BJ	0.0151	0.00330	0.0200	mg/L	1.00	1					
Zinc	U	0.0200	0.00330	0.0200	mg/L	1.00	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		278	2.38	10.0	mg/L			ES2	04/22/24	1116	2600231	13
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD	J	11.6	8.95	20.0	mg/L		1	HH2	04/22/24	1039	2599104	14
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	JB6	04/18/24	1532	2599223	15
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					

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Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW393SG3-24
Sample ID: 663373005

Project: FRNP00511
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time Batch	Method
Volatile Organics											
8260D, Volatiles- full suite "As Received"											
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				
Methylene chloride	BJ	1.30	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				

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Certificate of Analysis

Report Date: July 24, 2024

Company : Four Rivers Nuclear Partnership, LLC
 Address : 5600 Hobbs Road
 Kevil, Kentucky 42053
 Contact: Ms. Jaime Morrow
 Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW393SG3-24	Project: FRNP00511
Sample ID: 663373005	Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
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	04/19/24	1145	2599414
SW846 3005A	ICP-MS 3005A PREP	SD	04/19/24	0810	2598625
SW846 9010C Distillation	SW846 9010C Prep	ES2	04/18/24	1241	2598856
SW846 8011 PREP	8011 Prep	LOF	04/20/24	1240	2598486

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	EPA 160.1	
14	EPA 410.4	
15	SW846 8260D	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011, VOA Compounds Liquid "As Received"	6.76 ug/L	6.84	99	(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"	51.6 ug/L	50.0	103	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	52.4 ug/L	50.0	105	(77%-121%)

Notes:

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Certificate of Analysis

Report Date: July 24, 2024

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

Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW393SG3-24 Project: FRNP00511
Sample ID: 663373006 Client ID: FRNP005
Matrix: WG
Collect Date: 16-APR-24 13:13
Receive Date: 17-APR-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		0.0609	0.000670	0.00400	mg/L	1.00	1	PRB	05/11/24	1054	2598627	1
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					
Uranium	J	0.0000980	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	04/19/24	0810	2598625
EPA 160	Laboratory Filtration	JD2	04/17/24	1619	2598379

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: July 24, 2024

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

Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW394SG3-24 Project: FRNP00511
Sample ID: 663373007 Client ID: FRNP005
Matrix: WG
Collect Date: 16-APR-24 08:31
Receive Date: 17-APR-24
Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
504.1/8011 Analysis of EDB/DBCP												
8011, VOA Compounds Liquid "As Received"												
1,2-Dibromo-3-chloropropane	U	0.0192	0.00863	0.0192	ug/L	0.958	1	LOF	04/20/24	1656	2598487	2
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	0.683	0.330	2.00	mg/L		1	RM3	04/18/24	0039	2598429	3
Flow Injection Analysis												
9012B, Total Cyanide "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	04/19/24	0959	2598857	4
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens	J	7.38	3.33	10.0	ug/L		1	RMJ	05/11/24	0420	2609207	5
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	04/23/24	0137	2600801	6
SW846 9056A Anions (5) "As Received"												
Chloride	JW	44.1	0.670	250	mg/L		10	CH6	04/18/24	0524	2598315	7
Bromide		0.680	0.0670	0.200	mg/L		1	CH6	04/17/24	1658	2598315	8
Fluoride	J	0.179	0.0330	4.00	mg/L		1					
Sulfate	W	12.0	0.133	0.400	mg/L		1					
Nitrate-N	J	1.15	0.132	10.0	mg/L		4	CH6	04/17/24	2110	2598315	9
Mercury Analysis-CVAA												
7470, Mercury Liquid "As Received"												
Mercury	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	JP2	04/22/24	1114	2599420	10
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Aluminum	U	0.0500	0.0193	0.0500	mg/L	1.00	1	PRB	05/11/24	1058	2598627	11
Antimony	U	0.00300	0.00100	0.00300	mg/L	1.00	1					
Arsenic	U	0.00500	0.00200	0.00500	mg/L	1.00	1					
Barium		0.248	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					
Boron		0.0206	0.00520	0.0150	mg/L	1.00	1					
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Calcium		27.9	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: July 24, 2024

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

Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW394SG3-24
Sample ID: 663373007

Project: FRNP00511
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Cobalt	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Copper	J	0.00148	0.000300	0.00200	mg/L	1.00	1					
Iron	J	0.0637	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Magnesium		11.6	0.0100	0.0300	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		0.00399	0.000600	0.00200	mg/L	1.00	1					
Potassium		1.28	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					
Sodium		34.1	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	BJ	0.0113	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	05/10/24	1810	2598627	12
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		192	2.38	10.0	mg/L			ES2	04/22/24	1116	2600231	13
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD		79.0	8.95	20.0	mg/L		1	HH2	04/22/24	1039	2599104	14
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	JB6	04/18/24	1601	2599223	15
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					

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

Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW394SG3-24
Sample ID: 663373007

Project: FRNP00511
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst Date	Time Batch	Method
Volatile Organics										
8260D, Volatiles- full suite "As Received"										
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			
Methylene chloride	BJ	1.18	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		2.81	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			

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

Contact: Kevil, Kentucky 42053
Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW394SG3-24 Project: FRNP00511
Sample ID: 663373007 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
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	04/18/24	1241	2598856
SW846 3005A	ICP-MS 3005A PREP	SD	04/19/24	0810	2598625
SW846 8011 PREP	8011 Prep	LOF	04/20/24	1240	2598486
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	04/19/24	1145	2599414

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	EPA 160.1	
14	EPA 410.4	
15	SW846 8260D	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011, VOA Compounds Liquid "As Received"	6.45 ug/L	6.85	94	(56%-149%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	50.5 ug/L	50.0	101	(74%-123%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	50.7 ug/L	50.0	101	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	54.3 ug/L	50.0	109	(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-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW394SG3-24 Project: FRNP00511
Sample ID: 663373007 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
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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: July 24, 2024

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

Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW394SG3-24 Project: FRNP00511
Sample ID: 663373008 Client ID: FRNP005
Matrix: WG
Collect Date: 16-APR-24 08:31
Receive Date: 17-APR-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		0.234	0.000670	0.00400	mg/L	1.00	1	PRB	05/11/24	1101	2598627	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	JD2	04/17/24	1619	2598379
SW846 3005A	ICP-MS 3005A PREP	SD	04/19/24	0810	2598625

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: July 24, 2024

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

Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW395SG3-24 Project: FRNP00511
Sample ID: 663373009 Client ID: FRNP005
Matrix: WG
Collect Date: 16-APR-24 09:18
Receive Date: 17-APR-24
Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
504.1/8011 Analysis of EDB/DBCP												
8011, VOA Compounds Liquid "As Received"												
1,2-Dibromo-3-chloropropane	U	0.0191	0.00859	0.0191	ug/L	0.954	1	LOF	04/20/24	1727	2598487	1
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	0.698	0.330	2.00	mg/L		1	RM3	04/18/24	0237	2598429	3
Flow Injection Analysis												
9012B, Total Cyanide "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	04/19/24	1000	2598857	4
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens		18.7	3.33	10.0	ug/L		1	RMJ	05/11/24	0118	2609207	5
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	04/23/24	0216	2600801	6
SW846 9056A Anions (5) "As Received"												
Chloride	JW	46.4	0.670	250	mg/L		10	CH6	04/18/24	0931	2598315	7
Bromide		0.712	0.0670	0.200	mg/L		1	CH6	04/17/24	1836	2598315	8
Fluoride	J	0.155	0.0330	4.00	mg/L		1					
Sulfate	W	11.3	0.133	0.400	mg/L		1					
Nitrate-N	J	1.31	0.132	10.0	mg/L		4	CH6	04/17/24	2141	2598315	9
Mercury Analysis-CVAA												
7470, Mercury Liquid "As Received"												
Mercury	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	JP2	04/22/24	1116	2599420	10
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	05/10/24	1816	2598627	11
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	05/11/24	1105	2598627	12
Antimony	U	0.00300	0.00100	0.00300	mg/L	1.00	1					
Arsenic	J	0.00209	0.00200	0.00500	mg/L	1.00	1					
Barium		0.261	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					
Boron		0.0205	0.00520	0.0150	mg/L	1.00	1					
Cadmium	U	0.00100	0.000300	0.00100	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: July 24, 2024

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

Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW395SG3-24
Sample ID: 663373009

Project: FRNP00511
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Calcium		27.8	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	0.00114	0.000300	0.00200	mg/L	1.00	1					
Iron	J	0.0449	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Magnesium		11.6	0.0100	0.0300	mg/L	1.00	1					
Manganese	J	0.00180	0.00100	0.00500	mg/L	1.00	1					
Molybdenum	U	0.00100	0.000200	0.00100	mg/L	1.00	1					
Nickel	J	0.000804	0.000600	0.00200	mg/L	1.00	1					
Potassium		1.61	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		31.4	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	BJ	0.0124	0.00330	0.0200	mg/L	1.00	1					
Zinc	U	0.0200	0.00330	0.0200	mg/L	1.00	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		202	2.38	10.0	mg/L			ES2	04/22/24	1116	2600231	13
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD	J	16.2	8.95	20.0	mg/L		1	HH2	04/22/24	1039	2599104	14
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	JB6	04/18/24	1629	2599223	15
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					

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Address : 5600 Hobbs Road

Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW395SG3-24
Sample ID: 663373009

Project: FRNP00511
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time Batch	Method
Volatile Organics											
8260D, Volatiles- full suite "As Received"											
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				
Methylene chloride	BJ	1.30	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		4.99	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				

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

 Kevil, Kentucky 42053
 Contact: Ms. Jaime Morrow
 Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW395SG3-24	Project: FRNP00511
Sample ID: 663373009	Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
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	SD	04/19/24	0810	2598625
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	04/19/24	1145	2599414
SW846 9010C Distillation	SW846 9010C Prep	ES2	04/18/24	1241	2598856
SW846 8011 PREP	8011 Prep	LOF	04/20/24	1240	2598486

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	EPA 160.1	
14	EPA 410.4	
15	SW846 8260D	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011, VOA Compounds Liquid "As Received"	6.09 ug/L	6.81	89	(56%-149%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	50.3 ug/L	50.0	101	(74%-123%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	51.8 ug/L	50.0	104	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	53.9 ug/L	50.0	108	(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-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW395SG3-24 Project: FRNP00511
Sample ID: 663373009 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
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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: July 24, 2024

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

Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW395SG3-24 Project: FRNP00511
Sample ID: 663373010 Client ID: FRNP005
Matrix: WG
Collect Date: 16-APR-24 09:18
Receive Date: 17-APR-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		0.260	0.000670	0.00400	mg/L	1.00	1	PRB	05/11/24	1134	2598627	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	JD2	04/17/24	1619	2598379
SW846 3005A	ICP-MS 3005A PREP	SD	04/19/24	0810	2598625

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: July 24, 2024

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

Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW396SG3-24 Project: FRNP00511
Sample ID: 663373011 Client ID: FRNP005
Matrix: WG
Collect Date: 16-APR-24 10:10
Receive Date: 17-APR-24
Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
504.1/8011 Analysis of EDB/DBCP												
8011, VOA Compounds Liquid "As Received"												
1,2-Dibromo-3-chloropropane	U	0.0190	0.00853	0.0190	ug/L	0.948	1	LOF	04/20/24	1857	2598487	1
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average		4.22	0.330	2.00	mg/L		1	RM3	04/18/24	0112	2598429	3
Flow Injection Analysis												
9012B, Total Cyanide "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	04/19/24	1003	2598857	4
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens		64.8	3.33	10.0	ug/L		1	RMJ	05/11/24	0518	2609207	5
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	04/23/24	0255	2600801	6
SW846 9056A Anions (5) "As Received"												
Fluoride	J	0.641	0.0330	4.00	mg/L		1	CH6	04/17/24	1907	2598315	7
Chloride	JW	55.8	0.670	250	mg/L		10	CH6	04/18/24	1103	2598315	8
Bromide		0.807	0.134	0.400	mg/L		2	CH6	04/17/24	2212	2598315	9
Nitrate-N	J	0.282	0.0660	10.0	mg/L		2					
Sulfate	W	28.9	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	04/22/24	1124	2599420	10
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Aluminum	U	0.0500	0.0193	0.0500	mg/L	1.00	1	PRB	05/11/24	1156	2598627	11
Antimony	U	0.00300	0.00100	0.00300	mg/L	1.00	1					
Arsenic	J	0.00224	0.00200	0.00500	mg/L	1.00	1					
Barium		0.381	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					
Boron	J	0.00773	0.00520	0.0150	mg/L	1.00	1					
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Calcium		34.3	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-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW396SG3-24
Sample ID: 663373011

Project: FRNP00511
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Cobalt	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Copper	J	0.000975	0.000300	0.00200	mg/L	1.00	1					
Iron		0.169	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Magnesium		15.0	0.0100	0.0300	mg/L	1.00	1					
Manganese		0.0120	0.00100	0.00500	mg/L	1.00	1					
Molybdenum	J	0.000360	0.000200	0.00100	mg/L	1.00	1					
Nickel	U	0.00200	0.000600	0.00200	mg/L	1.00	1					
Potassium		0.930	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	J	0.0000680	0.0000670	0.000200	mg/L	1.00	1					
Vanadium	BJ	0.0109	0.00330	0.0200	mg/L	1.00	1					
Zinc	U	0.0200	0.00330	0.0200	mg/L	1.00	1					
Sodium		97.8	0.800	2.50	mg/L	1.00	10	PRB	05/11/24	1200	2598627	12
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	05/10/24	1825	2598627	13
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		403	2.38	10.0	mg/L			ES2	04/22/24	1116	2600231	14
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD		23.2	8.95	20.0	mg/L		1	HH2	04/22/24	1039	2599104	15
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	JB6	04/18/24	1657	2599223	16
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					

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Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW396SG3-24
Sample ID: 663373011

Project: FRNP00511
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time Batch	Method
Volatile Organics											
8260D, Volatiles- full suite "As Received"											
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				
Methylene chloride	BJ	1.18	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				

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Certificate of Analysis

Report Date: July 24, 2024

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

Contact: Kevil, Kentucky 42053
Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW396SG3-24
Sample ID: 663373011

Project: FRNP00511
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
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	04/18/24	1241	2598856
SW846 3005A	ICP-MS 3005A PREP	SD	04/19/24	0810	2598625
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	04/19/24	1145	2599414
SW846 8011 PREP	8011 Prep	LOF	04/20/24	1240	2598486

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	EPA 160.1	
15	EPA 410.4	
16	SW846 8260D	

Surrogate/Tracer	Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene		8011, VOA Compounds Liquid "As Received"	6.44 ug/L	6.77	95	(56%-149%)
Bromofluorobenzene		8260D, Volatiles- full suite "As Received"	47.9 ug/L	50.0	96	(74%-123%)
1,2-Dichloroethane-d4		8260D, Volatiles- full suite "As Received"	52.9 ug/L	50.0	106	(76%-127%)
Toluene-d8		8260D, Volatiles- full suite "As Received"	50.6 ug/L	50.0	101	(77%-121%)

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

Contact: Kevil, Kentucky 42053
Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW396SG3-24
Sample ID: 663373011

Project: FRNP00511
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
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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: July 24, 2024

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

Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW396SG3-24 Project: FRNP00511
Sample ID: 663373012 Client ID: FRNP005
Matrix: WG
Collect Date: 16-APR-24 10:10
Receive Date: 17-APR-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		0.362	0.000670	0.00400	mg/L	1.00	1	PRB	05/11/24	1203	2598627	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	04/19/24	0810	2598625
EPA 160	Laboratory Filtration	JD2	04/17/24	1619	2598379

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: July 24, 2024

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

Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: TB3SG3-24 Project: FRNP00511
Sample ID: 663373013 Client ID: FRNP005
Matrix: WATER
Collect Date: 16-APR-24 07:10
Receive Date: 17-APR-24
Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
504.1/8011 Analysis of EDB/DBCP												
8011, VOA Compounds Liquid "As Received"												
1,2-Dibromo-3-chloropropane	U	0.0189	0.00851	0.0189	ug/L	0.946	1	LOF	04/20/24	1927	2598487	2
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	JB6	04/18/24	1407	2599223	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

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

Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: TB3SG3-24
Sample ID: 663373013

Project: FRNP00511
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	BJ	1.21	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	LOF	04/20/24	1240	2598486

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 Compounds Liquid "As Received"	6.55 ug/L	6.76	97	(56%-149%)
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"	51.1 ug/L	50.0	102	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	53.7 ug/L	50.0	107	(77%-121%)

Notes:

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Certificate of Analysis

Report Date: July 24, 2024

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

Contact: Kevil, Kentucky 42053
Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: TB3SG3-24
Sample ID: 663373013

Project: FRNP00511
Client ID: FRNP005

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

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

Kevil, Kentucky 42053

Report Date: July 24, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW391SG3-24
Sample ID: 663373001
Matrix: WG
Collect Date: 16-APR-24
Receive Date: 17-APR-24
Collector: Client

Project: FRNP00511
Client ID: FRNP005

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
<i>AlphaSpec Ra226, Liquid "As Received"</i>														
Radium-226	U	0.208	+/-0.705	1.12	+/-0.705	5.00	pCi/L			CM4	05/06/24	1110	2604310	1
<i>Th-01-RC M, Th Isotopes, Liquid "As Received"</i>														
Thorium-230	U	0.366	+/-0.946	1.72	+/-0.951	50.0	pCi/L			CM4	05/02/24	1856	2604311	2
Rad Gas Flow Proportional Counting														
<i>905.0 Mod, Sr90, liquid "As Received"</i>														
Strontium-90	U	0.678	+/-1.10	1.95	+/-1.11	8.00	pCi/L			JE1	05/08/24	1344	2603511	3
<i>9310,Alpha/Beta Activity, liquid "As Received"</i>														
Alpha	U	3.03	+/-3.79	6.33	+/-3.83	15.0	pCi/L			HH3	05/07/24	1814	2607542	4
Beta		13.4	+/-6.14	8.44	+/-6.54	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
<i>906.0 Mod, Tritium Dist, Liquid "As Received"</i>														
Tritium	U	90.4	+/-137	235	+/-138	300	pCi/L			HB2	05/10/24	2148	2602453	5
<i>Tc-02-RC-MOD, Tc99, Liquid "As Received"</i>														
Technetium-99	U	9.04	+/-11.5	19.5	+/-11.5	25.0	pCi/L			GS3	05/09/24	1045	2602462	6

The following Analytical Methods were performed

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

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Barium-133 Tracer	AlphaSpec Ra226, Liquid "As Received"	2604310	99	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2604311	82.2	(30%-110%)
Strontium Carrier	905.0 Mod, Sr90, liquid "As Received"	2603511	85.7	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2602462	99.6	(30%-110%)

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Kevil, Kentucky 42053

Report Date: July 24, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW391SG3-24

Project: FRNP00511

Sample ID: 663373001

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

Mtd.: Method

DL: Detection Limit

PF: Prep Factor

Lc/LC: Critical Level

RL: Reporting Limit

MDA: Minimum Detectable Activity

TPU: Total Propagated Uncertainty

MDC: Minimum Detectable Concentration

GEL LABORATORIES LLC

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Certificate of Analysis

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5600 Hobbs Road

Kevil, Kentucky 42053

Report Date: July 24, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW392SG3-24

Project: FRNP00511

Sample ID: 663373003

Client ID: FRNP005

Matrix: WG

Collect Date: 16-APR-24

Receive Date: 17-APR-24

Collector: Client

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
<i>AlphaSpec Ra226, Liquid "As Received"</i>														
Radium-226		1.63	+/-1.32	1.06	+/-1.33	5.00	pCi/L			CM4	05/06/24	1110	2604310	1
<i>Th-01-RC M, Th Isotopes, Liquid "As Received"</i>														
Thorium-230	U	-0.165	+/-0.601	1.57	+/-0.601	50.0	pCi/L			CM4	05/02/24	1856	2604311	2
Rad Gas Flow Proportional Counting														
<i>905.0 Mod, Sr90, liquid "As Received"</i>														
Strontium-90	U	-0.806	+/-1.76	3.69	+/-1.76	8.00	pCi/L			JE1	05/03/24	1325	2603511	3
<i>9310, Alpha/Beta Activity, liquid "As Received"</i>														
Alpha	U	2.99	+/-3.45	5.43	+/-3.49	15.0	pCi/L			HH3	05/07/24	1814	2607542	4
Beta	U	5.13	+/-5.75	9.61	+/-5.82	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
<i>906.0 Mod, Tritium Dist, Liquid "As Received"</i>														
Tritium	U	39.1	+/-133	235	+/-133	300	pCi/L			HB2	05/10/24	2220	2602453	5
<i>Tc-02-RC-MOD, Tc99, Liquid "As Received"</i>														
Technetium-99	U	6.07	+/-11.5	19.8	+/-11.5	25.0	pCi/L			GS3	05/09/24	1056	2602462	6

The following Analytical Methods were performed

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

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Barium-133 Tracer	AlphaSpec Ra226, Liquid "As Received"	2604310	99.1	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2604311	85.4	(30%-110%)
Strontium Carrier	905.0 Mod, Sr90, liquid "As Received"	2603511	92.7	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2602462	98	(30%-110%)

GEL LABORATORIES LLC

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Report Date: July 24, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW392SG3-24

Project: FRNP00511

Sample ID: 663373003

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

Mtd.: Method

DL: Detection Limit

PF: Prep Factor

Lc/LC: Critical Level

RL: Reporting Limit

MDA: Minimum Detectable Activity

TPU: Total Propagated Uncertainty

MDC: Minimum Detectable Concentration

GEL LABORATORIES LLC

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Kevil, Kentucky 42053

Report Date: July 24, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW393SG3-24

Project: FRNP00511

Sample ID: 663373005

Client ID: FRNP005

Matrix: WG

Collect Date: 16-APR-24

Receive Date: 17-APR-24

Collector: Client

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
<i>AlphaSpec Ra226, Liquid "As Received"</i>														
Radium-226	U	0.823	+/-0.977	1.08	+/-0.978	5.00	pCi/L			CM4	05/06/24	1110	2604310	1
<i>Th-01-RC M, Th Isotopes, Liquid "As Received"</i>														
Thorium-230	U	0.658	+/-0.997	1.54	+/-1.01	50.0	pCi/L			CM4	05/02/24	1856	2604311	2
Rad Gas Flow Proportional Counting														
<i>905.0 Mod, Sr90, liquid "As Received"</i>														
Strontium-90	U	-0.399	+/-3.34	6.65	+/-3.34	8.00	pCi/L			JE1	05/03/24	1325	2603511	3
<i>9310, Alpha/Beta Activity, liquid "As Received"</i>														
Alpha	U	2.65	+/-4.65	8.49	+/-4.68	15.0	pCi/L			HH3	05/07/24	1814	2607542	4
Beta	U	3.86	+/-5.32	9.10	+/-5.36	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
<i>906.0 Mod, Tritium Dist, Liquid "As Received"</i>														
Tritium	U	-51.5	+/-125	234	+/-125	300	pCi/L			HB2	05/10/24	2252	2602453	5
<i>Tc-02-RC-MOD, Tc99, Liquid "As Received"</i>														
Technetium-99	U	-5.61	+/-10.5	19.7	+/-10.5	25.0	pCi/L			GS3	05/09/24	1108	2602462	6

The following Analytical Methods were performed

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

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Barium-133 Tracer	AlphaSpec Ra226, Liquid "As Received"	2604310	96.7	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2604311	87.6	(30%-110%)
Strontium Carrier	905.0 Mod, Sr90, liquid "As Received"	2603511	53.3	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2602462	98.2	(30%-110%)

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Report Date: July 24, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW393SG3-24

Project: FRNP00511

Sample ID: 663373005

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

Mtd.: Method

DL: Detection Limit

PF: Prep Factor

Lc/LC: Critical Level

RL: Reporting Limit

MDA: Minimum Detectable Activity

TPU: Total Propagated Uncertainty

MDC: Minimum Detectable Concentration

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: July 24, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW394SG3-24

Project: FRNP00511

Sample ID: 663373007

Client ID: FRNP005

Matrix: WG

Collect Date: 16-APR-24

Receive Date: 17-APR-24

Collector: Client

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
<i>AlphaSpec Ra226, Liquid "As Received"</i>														
Radium-226	U	-0.0239	+/-0.393	0.832	+/-0.393	5.00	pCi/L			CM4	05/06/24	1110	2604310	1
<i>Th-01-RC M, Th Isotopes, Liquid "As Received"</i>														
Thorium-230	U	-0.0120	+/-0.701	1.58	+/-0.702	50.0	pCi/L			CM4	05/02/24	1856	2604311	2
Rad Gas Flow Proportional Counting														
<i>905.0 Mod, Sr90, liquid "As Received"</i>														
Strontium-90	U	3.08	+/-2.99	4.92	+/-3.03	8.00	pCi/L			JE1	05/03/24	1326	2603511	3
<i>9310, Alpha/Beta Activity, liquid "As Received"</i>														
Alpha	U	1.20	+/-3.32	6.74	+/-3.33	15.0	pCi/L			HH3	05/07/24	1814	2607542	4
Beta	U	7.19	+/-6.03	9.68	+/-6.15	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
<i>906.0 Mod, Tritium Dist, Liquid "As Received"</i>														
Tritium	U	62.6	+/-135	234	+/-135	300	pCi/L			HB2	05/10/24	2324	2602453	5
<i>Tc-02-RC-MOD, Tc99, Liquid "As Received"</i>														
Technetium-99	U	5.85	+/-11.4	19.7	+/-11.4	25.0	pCi/L			GS3	05/09/24	1120	2602462	6

The following Analytical Methods were performed

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

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Barium-133 Tracer	AlphaSpec Ra226, Liquid "As Received"	2604310	99.3	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2604311	87.7	(30%-110%)
Strontium Carrier	905.0 Mod, Sr90, liquid "As Received"	2603511	92.7	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2602462	98.4	(30%-110%)

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Report Date: July 24, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW394SG3-24

Project: FRNP00511

Sample ID: 663373007

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

Mtd.: Method

DL: Detection Limit

PF: Prep Factor

Lc/LC: Critical Level

RL: Reporting Limit

MDA: Minimum Detectable Activity

TPU: Total Propagated Uncertainty

MDC: Minimum Detectable Concentration

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Report Date: July 24, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW395SG3-24

Project: FRNP00511

Sample ID: 663373009

Client ID: FRNP005

Matrix: WG

Collect Date: 16-APR-24

Receive Date: 17-APR-24

Collector: Client

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
<i>AlphaSpec Ra226, Liquid "As Received"</i>														
Radium-226	U	0.737	+/-0.984	0.960	+/-0.985	5.00	pCi/L			CM4	05/06/24	1110	2604310	1
<i>Th-01-RC M, Th Isotopes, Liquid "As Received"</i>														
Thorium-230	U	-0.0866	+/-0.649	1.54	+/-0.650	50.0	pCi/L			CM4	05/02/24	1856	2604311	2
Rad Gas Flow Proportional Counting														
<i>905.0 Mod, Sr90, liquid "As Received"</i>														
Strontium-90	U	-0.381	+/-2.51	4.77	+/-2.51	8.00	pCi/L			JE1	05/03/24	1326	2603511	3
<i>9310,Alpha/Beta Activity, liquid "As Received"</i>														
Alpha	U	1.20	+/-3.33	6.75	+/-3.33	15.0	pCi/L			HH3	05/07/24	1814	2607542	4
Beta	U	5.31	+/-5.30	8.70	+/-5.37	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
<i>906.0 Mod, Tritium Dist, Liquid "As Received"</i>														
Tritium	U	101	+/-138	235	+/-139	300	pCi/L			HB2	05/10/24	2355	2602453	5
<i>Tc-02-RC-MOD, Tc99, Liquid "As Received"</i>														
Technetium-99	U	2.17	+/-11.0	19.6	+/-11.0	25.0	pCi/L			GS3	05/09/24	1131	2602462	6

The following Analytical Methods were performed

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

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Barium-133 Tracer	AlphaSpec Ra226, Liquid "As Received"	2604310	97.4	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2604311	91.5	(30%-110%)
Strontium Carrier	905.0 Mod, Sr90, liquid "As Received"	2603511	95	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2602462	98.9	(30%-110%)

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Report Date: July 24, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW395SG3-24

Project: FRNP00511

Sample ID: 663373009

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:

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Column headers are defined as follows:

DF: Dilution Factor

Mtd.: Method

DL: Detection Limit

PF: Prep Factor

Lc/LC: Critical Level

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MDA: Minimum Detectable Activity

TPU: Total Propagated Uncertainty

MDC: Minimum Detectable Concentration

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Report Date: July 24, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW396SG3-24

Project: FRNP00511

Sample ID: 663373011

Client ID: FRNP005

Matrix: WG

Collect Date: 16-APR-24

Receive Date: 17-APR-24

Collector: Client

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
<i>AlphaSpec Ra226, Liquid "As Received"</i>														
Radium-226	U	0.254	+/-0.802	1.20	+/-0.802	5.00	pCi/L			CM4	05/06/24	1102	2604310	1
<i>Th-01-RC M, Th Isotopes, Liquid "As Received"</i>														
Thorium-230	U	0.871	+/-1.08	1.54	+/-1.09	50.0	pCi/L			CM4	05/02/24	1856	2604311	2
Rad Gas Flow Proportional Counting														
<i>905.0 Mod, Sr90, liquid "As Received"</i>														
Strontium-90	U	1.85	+/-1.44	2.24	+/-1.46	8.00	pCi/L			JE1	05/08/24	1344	2603511	3
<i>9310, Alpha/Beta Activity, liquid "As Received"</i>														
Alpha	U	7.64	+/-6.26	9.26	+/-6.39	15.0	pCi/L			HH3	05/07/24	1814	2607542	4
Beta	U	6.85	+/-5.60	8.85	+/-5.72	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
<i>906.0 Mod, Tritium Dist, Liquid "As Received"</i>														
Tritium	U	32.1	+/-132	234	+/-132	300	pCi/L			HB2	05/11/24	0027	2602453	5
<i>Tc-02-RC-MOD, Tc99, Liquid "As Received"</i>														
Technetium-99	U	-3.78	+/-10.6	19.7	+/-10.6	25.0	pCi/L			GS3	05/09/24	1143	2602462	6

The following Analytical Methods were performed

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

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Barium-133 Tracer	AlphaSpec Ra226, Liquid "As Received"	2604310	99.4	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2604311	86.5	(30%-110%)
Strontium Carrier	905.0 Mod, Sr90, liquid "As Received"	2603511	83.4	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2602462	98.8	(30%-110%)

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Report Date: July 24, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-03)

Client Sample ID: MW396SG3-24

Project: FRNP00511

Sample ID: 663373011

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

Mtd.: Method

DL: Detection Limit

PF: Prep Factor

Lc/LC: Critical Level

RL: Reporting Limit

MDA: Minimum Detectable Activity

TPU: Total Propagated Uncertainty

MDC: Minimum Detectable Concentration

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ATTACHMENT C4

GEL LABORATORIES CERTIFICATE OF ANALYSIS

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Certificate of Analysis

Report Date: July 24, 2024

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

Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-03)

Client Sample ID: MW369UG3-24 Project: FRNP00507
Sample ID: 662538001 Client ID: FRNP005
Matrix: WG
Collect Date: 10-APR-24 07:50
Receive Date: 11-APR-24
Collector: Client

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	0.0193	0.00867	0.0193	ug/L	0.963	1	LOF	04/13/24	1551	2596320	1
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	0.829	0.330	2.00	mg/L		1	RM3	04/12/24	2131	2596321	2
Flow Injection Analysis												
9012B, Cyanide, Total "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	04/16/24	0836	2596007	3
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens	J	8.20	3.33	10.0	ug/L		1	RMJ	04/25/24	0122	2599514	4
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	04/22/24	1742	2600800	5
SW846 9056A Anions (5 elements) "As Received"												
Chloride	JW	27.2	0.670	250	mg/L		10	CH6	04/12/24	0428	2595422	6
Nitrate-N	J	0.924	0.0660	10.0	mg/L		2	CH6	04/12/24	0601	2595422	7
Bromide		0.374	0.0670	0.200	mg/L		1	CH6	04/11/24	2116	2595422	8
Fluoride	J	0.276	0.0330	4.00	mg/L		1					
Sulfate		7.81	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	04/22/24	1056	2599420	9
Metals Analysis-ICP-MS												
6020, Metals (15+ elements) "As Received"												
Aluminum		0.0791	0.0193	0.0500	mg/L	1.00	1	PRB	05/03/24	1951	2595947	10
Antimony	U	0.00300	0.00100	0.00300	mg/L	1.00	1					
Arsenic	J	0.00206	0.00200	0.00500	mg/L	1.00	1					
Barium	B	0.349	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					
Boron		0.0153	0.00520	0.0150	mg/L	1.00	1					
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Calcium		14.9	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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Address : 5600 Hobbs Road

Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-03)

Client Sample ID: MW369UG3-24
Sample ID: 662538001

Project: FRNP00507
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		0.00409	0.000300	0.00100	mg/L	1.00	1					
Copper	J	0.00140	0.000300	0.00200	mg/L	1.00	1					
Iron		0.122	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Magnesium		6.41	0.0100	0.0300	mg/L	1.00	1					
Manganese		0.00554	0.00100	0.00500	mg/L	1.00	1					
Molybdenum	U	0.00100	0.000200	0.00100	mg/L	1.00	1					
Nickel		0.00298	0.000600	0.00200	mg/L	1.00	1					
Potassium		0.492	0.0800	0.300	mg/L	1.00	1					
Selenium	J	0.00271	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					
Vanadium	BJ	0.00897	0.00330	0.0200	mg/L	1.00	1					
Zinc	U	0.0200	0.00330	0.0200	mg/L	1.00	1					
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	PRB	05/04/24	1101	2595947	11
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	05/04/24	0947	2595947	12
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Semi-Volatiles-PCB												
8082A, PCB Liquids "As Received"												
Aroclor-1016	U	0.116	0.0388	0.116	ug/L	0.00116	1	JXM	04/30/24	1407	2604219	13
Aroclor-1221	U	0.116	0.0388	0.116	ug/L	0.00116	1					
Aroclor-1232	U	0.116	0.0388	0.116	ug/L	0.00116	1					
Aroclor-1242	U	0.116	0.0388	0.116	ug/L	0.00116	1					
Aroclor-1248	U	0.116	0.0388	0.116	ug/L	0.00116	1					
Aroclor-1254	U	0.116	0.0388	0.116	ug/L	0.00116	1					
Aroclor-1260	U	0.116	0.0388	0.116	ug/L	0.00116	1					
Aroclor-1268	U	0.116	0.0388	0.116	ug/L	0.00116	1					
Aroclor-Total	U	0.116	0.0388	0.116	ug/L	0.00116	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids	*	186	2.38	10.0	mg/L			ES2	04/17/24	1116	2598030	14
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(UG24-03)

Client Sample ID: MW369UG3-24
Sample ID: 662538001

Project: FRNP00507
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	04/12/24	1526	2596273	15
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	KP2	04/14/24	2211	2596435	16
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: July 24, 2024

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

Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-03)

Client Sample ID: MW369UG3-24
Sample ID: 662538001

Project: FRNP00507
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	0.960	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	04/19/24	1145	2599414
SW846 8011 PREP	8011 Prep	LOF	04/13/24	1246	2596319
SW846 3535A	SW3535A PCB SPE Extraction	DXF4	04/30/24	0520	2604218
SW846 3005A	ICP-MS 3005A PREP	AB5	04/15/24	1510	2595946
SW846 9010C Distillation	SW846 9010C Prep	ES2	04/12/24	1139	2596006

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Address : 5600 Hobbs Road

Contact: Kevil, Kentucky 42053
Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-03)

Client Sample ID: MW369UG3-24
Sample ID: 662538001

Project: FRNP00507
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time Batch	Method
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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 9056A		
9	SW846 7470A		
10	SW846 3005A/6020B		
11	SW846 3005A/6020B		
12	SW846 3005A/6020B		
13	SW846 3535A/8082A		
14	EPA 160.1		
15	EPA 410.4		
16	SW846 8260D		

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011 VOA- 1,2-Dibromo-3-chloropropane "As Received"	6.95 ug/L	6.88	101	(56%-149%)
Decachlorobiphenyl	8082A, PCB Liquids "As Received"	0.138 ug/L	0.233	59	(30%-135%)
4cmx	8082A, PCB Liquids "As Received"	0.137 ug/L	0.233	59	(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"	53.9 ug/L	50.0	108	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	51.3 ug/L	50.0	103	(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
Address : 5600 Hobbs Road

Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-03)

Client Sample ID: MW369UG3-24 Project: FRNP00507
Sample ID: 662538002 Client ID: FRNP005
Matrix: WG
Collect Date: 10-APR-24 07:50
Receive Date: 11-APR-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		0.371	0.000670	0.00400	mg/L	1.00	1	BAJ	04/24/24	2045	2596135	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	04/15/24	0800	2596134
EPA 160	Laboratory Filtration	JD2	04/12/24	0743	2595964

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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Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-03)

Client Sample ID: MW370UG3-24 Project: FRNP00507
Sample ID: 662538003 Client ID: FRNP005
Matrix: WG
Collect Date: 10-APR-24 08:35
Receive Date: 11-APR-24
Collector: Client

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	0.0191	0.00860	0.0191	ug/L	0.956	1	LOF	04/13/24	1615	2596320	1
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	0.928	0.330	2.00	mg/L		1	RM3	04/12/24	2204	2596321	2
Flow Injection Analysis												
9012B, Cyanide, Total "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	04/16/24	0837	2596007	3
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens		10.6	3.33	10.0	ug/L		1	RMJ	04/25/24	0228	2599514	4
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	04/22/24	1755	2600800	5
SW846 9056A Anions (5 elements) "As Received"												
Fluoride	J	0.225	0.0330	4.00	mg/L		1	CH6	04/11/24	1128	2595422	6
Bromide		0.540	0.134	0.400	mg/L		2	CH6	04/11/24	1810	2595422	7
Nitrate-N	J	0.962	0.0660	10.0	mg/L		2					
Sulfate		19.7	0.266	0.800	mg/L		2					
Chloride	JW	40.9	0.670	250	mg/L		10	CH6	04/11/24	1535	2595422	8
Mercury Analysis-CVAA												
7470, Mercury Liquid "As Received"												
Mercury	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	JP2	04/22/24	1058	2599420	9
Metals Analysis-ICP-MS												
6020, Metals (15+ elements) "As Received"												
Aluminum	U	0.0500	0.0193	0.0500	mg/L	1.00	1	PRB	05/03/24	1954	2595947	10
Antimony	U	0.00300	0.00100	0.00300	mg/L	1.00	1					
Arsenic	U	0.00500	0.00200	0.00500	mg/L	1.00	1					
Barium	B	0.221	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					
Boron		0.105	0.00520	0.0150	mg/L	1.00	1					
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Calcium		28.4	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(UG24-03)

Client Sample ID: MW370UG3-24
Sample ID: 662538003

Project: FRNP00507
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	0.00117	0.000300	0.00200	mg/L	1.00	1					
Iron	J	0.0363	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Magnesium		12.3	0.0100	0.0300	mg/L	1.00	1					
Manganese	J	0.00124	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		2.28	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					
Sodium		43.9	0.0800	0.250	mg/L	1.00	1					
Thallium	U	0.00200	0.000600	0.00200	mg/L	1.00	1					
Vanadium	BJ	0.00456	0.00330	0.0200	mg/L	1.00	1					
Zinc	U	0.0200	0.00330	0.0200	mg/L	1.00	1					
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	PRB	05/04/24	1103	2595947	11
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	05/04/24	0949	2595947	12
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Semi-Volatiles-PCB												
8082A, PCB Liquids "As Received"												
Aroclor-1016	U	0.100	0.0333	0.100	ug/L	0.00100	1	JXM	04/30/24	1418	2604219	13
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	*	232	2.38	10.0	mg/L			ES2	04/17/24	1116	2598030	14
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(UG24-03)

Client Sample ID: MW370UG3-24
Sample ID: 662538003

Project: FRNP00507
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	18.7	8.95	20.0	mg/L		1	HH2 04/11/24	1527	2595583	15
Volatile Organics											
8260D, Volatiles- full suite "As Received"											
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	KP2 04/14/24	2237	2596435	16
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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Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-03)

Client Sample ID: MW370UG3-24
Sample ID: 662538003

Project: FRNP00507
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time Batch	Method
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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 9056A		
9	SW846 7470A		
10	SW846 3005A/6020B		
11	SW846 3005A/6020B		
12	SW846 3005A/6020B		
13	SW846 3535A/8082A		
14	EPA 160.1		
15	EPA 410.4		
16	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	6.83	94	(56%-149%)
Decachlorobiphenyl	8082A, PCB Liquids "As Received"	0.122 ug/L	0.200	61	(30%-135%)
4cmx	8082A, PCB Liquids "As Received"	0.121 ug/L	0.200	61	(26%-108%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	51.4 ug/L	50.0	103	(74%-123%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	53.9 ug/L	50.0	108	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	50.9 ug/L	50.0	102	(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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Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-03)

Client Sample ID: MW370UG3-24 Project: FRNP00507
Sample ID: 662538004 Client ID: FRNP005
Matrix: WG
Collect Date: 10-APR-24 08:35
Receive Date: 11-APR-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		0.227	0.000670	0.00400	mg/L	1.00	1	BAJ	04/24/24	2048	2596135	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	04/15/24	0800	2596134
EPA 160	Laboratory Filtration	JD2	04/12/24	0743	2595964

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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Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-03)

Client Sample ID: MW371UG3-24 Project: FRNP00507
Sample ID: 662538005 Client ID: FRNP005
Matrix: WG
Collect Date: 10-APR-24 09:38
Receive Date: 11-APR-24
Collector: Client

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	0.0196	0.00880	0.0196	ug/L	0.978	1	LOF	04/13/24	1729	2596320	1
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	1.97	0.330	2.00	mg/L		1	RM3	04/13/24	0002	2596321	2
Flow Injection Analysis												
9012B, Cyanide, Total "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	04/16/24	0840	2596007	3
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens	J	5.26	3.33	10.0	ug/L		1	RMJ	04/25/24	0317	2599514	4
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	04/22/24	1859	2600800	5
SW846 9056A Anions (5 elements) "As Received"												
Bromide	UW	0.200	0.0670	0.200	mg/L		1	CH6	04/11/24	1730	2595764	6
Chloride	J	3.95	0.0670	250	mg/L		1					
Fluoride	J	0.317	0.0330	4.00	mg/L		1					
Nitrate-N	UW	10.0	0.0330	10.0	mg/L		1					
Sulfate		9.92	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	04/18/24	0956	2597854	7
Metals Analysis-ICP-MS												
6020, Metals (15+ elements) "As Received"												
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	05/04/24	1003	2595947	8
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Uranium		0.00235	0.0000670	0.000200	mg/L	1.00	1	PRB	05/04/24	1115	2595947	9
Aluminum		0.117	0.0193	0.0500	mg/L	1.00	1	PRB	05/03/24	2020	2595947	10
Antimony	U	0.00300	0.00100	0.00300	mg/L	1.00	1					
Arsenic	U	0.00500	0.00200	0.00500	mg/L	1.00	1					
Barium	B	0.199	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					
Boron	U	0.0150	0.00520	0.0150	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: July 24, 2024

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

Contact: Kevil, Kentucky 42053
Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-03)

Client Sample ID: MW371UG3-24
Sample ID: 662538005

Project: FRNP00507
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	0.000834	0.000300	0.00200	mg/L	1.00	1					
Iron		0.108	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Magnesium		19.0	0.0100	0.0300	mg/L	1.00	1					
Manganese	J	0.00453	0.00100	0.00500	mg/L	1.00	1					
Molybdenum	J	0.000374	0.000200	0.00100	mg/L	1.00	1					
Nickel	J	0.00145	0.000600	0.00200	mg/L	1.00	1					
Potassium		0.347	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					
Vanadium	BJ	0.00667	0.00330	0.0200	mg/L	1.00	1					
Zinc	J	0.00332	0.00330	0.0200	mg/L	1.00	1					
Calcium		56.2	0.800	2.00	mg/L	1.00	10	PRB	05/04/24	2217	2595947	11
Sodium		88.5	0.800	2.50	mg/L	1.00	10					
Semi-Volatiles-PCB												
8082A, PCB Liquids "As Received"												
Aroclor-1016	U	0.110	0.0366	0.110	ug/L	0.00110	1	JXM	04/30/24	1451	2604219	12
Aroclor-1221	U	0.110	0.0366	0.110	ug/L	0.00110	1					
Aroclor-1232	U	0.110	0.0366	0.110	ug/L	0.00110	1					
Aroclor-1242	U	0.110	0.0366	0.110	ug/L	0.00110	1					
Aroclor-1248	U	0.110	0.0366	0.110	ug/L	0.00110	1					
Aroclor-1254	U	0.110	0.0366	0.110	ug/L	0.00110	1					
Aroclor-1260	U	0.110	0.0366	0.110	ug/L	0.00110	1					
Aroclor-1268	U	0.110	0.0366	0.110	ug/L	0.00110	1					
Aroclor-Total	U	0.110	0.0366	0.110	ug/L	0.00110	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids	*	398	2.38	10.0	mg/L			ES2	04/17/24	1116	2598030	13
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(UG24-03)

Client Sample ID: MW371UG3-24
 Sample ID: 662538005

Project: FRNP00507
 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	04/12/24	1526	2596273	14
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	KP2	04/14/24	2302	2596435	15
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: Kevil, Kentucky 42053
Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-03)

Client Sample ID: MW371UG3-24
Sample ID: 662538005

Project: FRNP00507
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time Batch	Method
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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 7470A		
8	SW846 3005A/6020B		
9	SW846 3005A/6020B		
10	SW846 3005A/6020B		
11	SW846 3005A/6020B		
12	SW846 3535A/8082A		
13	EPA 160.1		
14	EPA 410.4		
15	SW846 8260D		

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011 VOA- 1,2-Dibromo-3-chloropropane "As Received"	6.93 ug/L	6.99	99	(56%-149%)
Decachlorobiphenyl	8082A, PCB Liquids "As Received"	0.0982 ug/L	0.220	45	(30%-135%)
4cmx	8082A, PCB Liquids "As Received"	0.174 ug/L	0.220	79	(26%-108%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	50.6 ug/L	50.0	101	(74%-123%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	54.0 ug/L	50.0	108	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	50.0 ug/L	50.0	100	(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
Address : 5600 Hobbs Road

Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-03)

Client Sample ID: MW371UG3-24 Project: FRNP00507
Sample ID: 662538006 Client ID: FRNP005
Matrix: WG
Collect Date: 10-APR-24 09:38
Receive Date: 11-APR-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	BAJ	04/24/24	2108	2596135	1
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					
Uranium		0.00226	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	04/15/24	0800	2596134
EPA 160	Laboratory Filtration	JD2	04/12/24	0743	2595964

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: July 24, 2024

Company : Four Rivers Nuclear Partnership, LLC
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Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-03)

Client Sample ID: MW373UG3-24 Project: FRNP00507
Sample ID: 662538009 Client ID: FRNP005
Matrix: WG
Collect Date: 10-APR-24 11:08
Receive Date: 11-APR-24
Collector: Client

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	0.0194	0.00875	0.0194	ug/L	0.972	1	LOF	04/13/24	1754	2596320	1
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	1.48	0.330	2.00	mg/L		1	RM3	04/13/24	0034	2596321	2
Flow Injection Analysis												
9012B, Cyanide, Total "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	04/16/24	0841	2596007	3
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens	J	5.44	3.33	10.0	ug/L		1	RMJ	04/26/24	0003	2601759	4
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	04/22/24	1912	2600800	5
SW846 9056A Anions (5 elements) "As Received"												
Bromide	W	0.437	0.134	0.400	mg/L		2	CH6	04/11/24	1933	2595764	6
Nitrate-N	JW	0.530	0.0660	10.0	mg/L		2					
Chloride	J	30.8	1.34	250	mg/L		20	CH6	04/11/24	2004	2595764	7
Sulfate		192	2.66	8.00	mg/L		20					
Fluoride	J	0.214	0.0330	4.00	mg/L		1	CH6	04/11/24	1801	2595764	8
Mercury Analysis-CVAA												
7470, Mercury Liquid "As Received"												
Mercury	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	JP2	04/18/24	1001	2597854	9
Metals Analysis-ICP-MS												
6020, Metals (15+ elements) "As Received"												
Uranium	J	0.0000760	0.0000670	0.000200	mg/L	1.00	1	PRB	05/04/24	1117	2595947	10
Boron		2.15	0.104	0.300	mg/L	1.00	20	PRB	05/04/24	2220	2595947	11
Calcium		83.5	1.60	4.00	mg/L	1.00	20					
Sodium		68.1	1.60	5.00	mg/L	1.00	20					
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	05/04/24	1005	2595947	12
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	05/03/24	2024	2595947	13
Antimony	U	0.00300	0.00100	0.00300	mg/L	1.00	1					
Arsenic	U	0.00500	0.00200	0.00500	mg/L	1.00	1					

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Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-03)

Client Sample ID: MW373UG3-24 Project: FRNP00507
Sample ID: 662538009 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	B	0.0326	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					
Cobalt	J	0.000462	0.000300	0.00100	mg/L	1.00	1					
Copper	J	0.000655	0.000300	0.00200	mg/L	1.00	1					
Iron	J	0.0751	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Magnesium		29.3	0.0100	0.0300	mg/L	1.00	1					
Manganese		0.0719	0.00100	0.00500	mg/L	1.00	1					
Molybdenum	U	0.00100	0.000200	0.00100	mg/L	1.00	1					
Nickel		0.00203	0.000600	0.00200	mg/L	1.00	1					
Potassium		2.57	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					
Vanadium	BJ	0.00596	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	0.117	0.0388	0.117	ug/L	0.00117	1	JXM	04/30/24	1502	2604219	14
Aroclor-1221	U	0.117	0.0388	0.117	ug/L	0.00117	1					
Aroclor-1232	U	0.117	0.0388	0.117	ug/L	0.00117	1					
Aroclor-1242	U	0.117	0.0388	0.117	ug/L	0.00117	1					
Aroclor-1248	U	0.117	0.0388	0.117	ug/L	0.00117	1					
Aroclor-1254	U	0.117	0.0388	0.117	ug/L	0.00117	1					
Aroclor-1260	U	0.117	0.0388	0.117	ug/L	0.00117	1					
Aroclor-1268	U	0.117	0.0388	0.117	ug/L	0.00117	1					
Aroclor-Total	U	0.117	0.0388	0.117	ug/L	0.00117	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids	*	550	2.38	10.0	mg/L			ES2	04/17/24	1116	2598030	15
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												

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Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-03)

Client Sample ID: MW373UG3-24
Sample ID: 662538009

Project: FRNP00507
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	04/12/24	1526	2596273	16
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	KP2	04/14/24	2328	2596435	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(UG24-03)

Client Sample ID: MW373UG3-24

Project: FRNP00507

Sample ID: 662538009

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		2.77	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	04/12/24	1139	2596006
SW846 3535A	SW3535A PCB SPE Extraction	DXF4	04/30/24	0520	2604218
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	04/17/24	1150	2597851
SW846 3005A	ICP-MS 3005A PREP	AB5	04/15/24	1510	2595946
SW846 8011 PREP	8011 Prep	LOF	04/13/24	1246	2596319

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Certificate of Analysis

Report Date: July 24, 2024

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

Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-03)

Client Sample ID: MW373UG3-24	Project: FRNP00507
Sample ID: 662538009	Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time Batch	Method
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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 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"	7.35 ug/L	6.95	106	(56%-149%)
Decachlorobiphenyl	8082A, PCB Liquids "As Received"	0.117 ug/L	0.233	50	(30%-135%)
4cmx	8082A, PCB Liquids "As Received"	0.115 ug/L	0.233	49	(26%-108%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	50.6 ug/L	50.0	101	(74%-123%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	53.5 ug/L	50.0	107	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	49.5 ug/L	50.0	99	(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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Report Date: July 24, 2024

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

Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow

Project: C-746-U Landfill Quarterly(UG24-03)

Client Sample ID:	MW373UG3-24	Project:	FRNP00507
Sample ID:	662538010	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	10-APR-24 11:08		
Receive Date:	11-APR-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		0.0359	0.000670	0.00400	mg/L	1.00	1	BAJ	04/24/24	2110	2596135	1
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					
Uranium	J	0.0000800	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	04/15/24	0800	2596134
EPA 160	Laboratory Filtration	JD2	04/12/24	0743	2595964

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: July 24, 2024

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

Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-03)

Client Sample ID: MW374UG3-24 Project: FRNP00507
Sample ID: 662538011 Client ID: FRNP005
Matrix: WG
Collect Date: 10-APR-24 12:27
Receive Date: 11-APR-24
Collector: Client

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	0.0190	0.00853	0.0190	ug/L	0.948	1	LOF	04/13/24	1819	2596320	1
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average		2.46	0.330	2.00	mg/L		1	RM3	04/13/24	0107	2596321	2
Flow Injection Analysis												
9012B, Cyanide, Total "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	04/16/24	0842	2596007	3
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens		16.9	3.33	10.0	ug/L		1	RMJ	04/25/24	0438	2599514	4
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	04/22/24	1924	2600800	5
SW846 9056A Anions (5 elements) "As Received"												
Fluoride	J	0.270	0.0330	4.00	mg/L		1	CH6	04/11/24	1159	2595422	6
Sulfate		17.6	0.133	0.400	mg/L		1					
Chloride	JW	41.5	0.670	250	mg/L		10	CH6	04/11/24	2044	2595422	7
Bromide		0.424	0.134	0.400	mg/L		2	CH6	04/11/24	2147	2595422	8
Nitrate-N	J	0.571	0.0660	10.0	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	04/18/24	1003	2597854	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	05/04/24	1007	2595947	10
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Uranium		0.000430	0.0000670	0.000200	mg/L	1.00	1	PRB	05/04/24	1119	2595947	11
Sodium		121	0.800	2.50	mg/L	1.00	10	PRB	05/04/24	2224	2595947	12
Aluminum	J	0.0265	0.0193	0.0500	mg/L	1.00	1	PRB	05/03/24	2027	2595947	13
Antimony	U	0.00300	0.00100	0.00300	mg/L	1.00	1					
Arsenic	U	0.00500	0.00200	0.00500	mg/L	1.00	1					
Barium	B	0.135	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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Certificate of Analysis

Report Date: July 24, 2024

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

Contact: Kevil, Kentucky 42053
Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-03)

Client Sample ID: MW374UG3-24 Project: FRNP00507
Sample ID: 662538011 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"												
Boron		0.0399	0.00520	0.0150	mg/L	1.00	1					
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Calcium		23.7	0.0800	0.200	mg/L	1.00	1					
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					
Cobalt	J	0.000460	0.000300	0.00100	mg/L	1.00	1					
Copper	J	0.000426	0.000300	0.00200	mg/L	1.00	1					
Iron		0.268	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Magnesium		5.39	0.0100	0.0300	mg/L	1.00	1					
Manganese		0.129	0.00100	0.00500	mg/L	1.00	1					
Molybdenum	J	0.000243	0.000200	0.00100	mg/L	1.00	1					
Nickel	U	0.00200	0.000600	0.00200	mg/L	1.00	1					
Potassium		0.404	0.0800	0.300	mg/L	1.00	1					
Selenium		0.00720	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					
Vanadium	BJ	0.00424	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	0.111	0.0370	0.111	ug/L	0.00111	1	JXM	04/30/24	1513	2604219	14
Aroclor-1221	U	0.111	0.0370	0.111	ug/L	0.00111	1					
Aroclor-1232	U	0.111	0.0370	0.111	ug/L	0.00111	1					
Aroclor-1242	U	0.111	0.0370	0.111	ug/L	0.00111	1					
Aroclor-1248	U	0.111	0.0370	0.111	ug/L	0.00111	1					
Aroclor-1254	U	0.111	0.0370	0.111	ug/L	0.00111	1					
Aroclor-1260	U	0.111	0.0370	0.111	ug/L	0.00111	1					
Aroclor-1268	U	0.111	0.0370	0.111	ug/L	0.00111	1					
Aroclor-Total	U	0.111	0.0370	0.111	ug/L	0.00111	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids	*	359	2.38	10.0	mg/L		ES2	04/17/24	1116	2598030		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(UG24-03)

Client Sample ID: MW374UG3-24
Sample ID: 662538011

Project: FRNP00507
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	04/12/24	1139	2596006
SW846 8011 PREP	8011 Prep	LOF	04/13/24	1246	2596319
SW846 3535A	SW3535A PCB SPE Extraction	DXF4	04/30/24	0520	2604218
SW846 3005A	ICP-MS 3005A PREP	AB5	04/15/24	1510	2595946
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	04/17/24	1150	2597851

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Certificate of Analysis

Report Date: July 24, 2024

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

Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-03)

Client Sample ID: MW374UG3-24	Project: FRNP00507
Sample ID: 662538011	Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
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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 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"	6.53 ug/L	6.77	97	(56%-149%)
Decachlorobiphenyl	8082A, PCB Liquids "As Received"	0.109 ug/L	0.222	49	(30%-135%)
4cmx	8082A, PCB Liquids "As Received"	0.138 ug/L	0.222	62	(26%-108%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	50.0 ug/L	50.0	100	(74%-123%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	52.8 ug/L	50.0	106	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	49.0 ug/L	50.0	98	(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: July 24, 2024

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

Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-03)

Client Sample ID: MW374UG3-24 Project: FRNP00507
Sample ID: 662538012 Client ID: FRNP005
Matrix: WG
Collect Date: 10-APR-24 12:27
Receive Date: 11-APR-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		0.145	0.000670	0.00400	mg/L	1.00	1	BAJ	04/24/24	2113	2596135	1
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					
Uranium		0.000419	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	04/15/24	0800	2596134
EPA 160	Laboratory Filtration	JD2	04/12/24	0743	2595964

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: July 24, 2024

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

Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-03)

Client Sample ID: MW375UG3-24	Project: FRNP00507
Sample ID: 662538013	Client ID: FRNP005
Matrix: WG	
Collect Date: 10-APR-24 13:22	
Receive Date: 11-APR-24	
Collector: Client	

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	0.0190	0.00857	0.0190	ug/L	0.952	1	LOF	04/13/24	1933	2596320	1
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	0.775	0.330	2.00	mg/L		1	RM3	04/13/24	0140	2596321	2
Flow Injection Analysis												
9012B, Cyanide, Total "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	04/16/24	0843	2596007	3
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens	J	7.32	3.33	10.0	ug/L		1	RMJ	04/25/24	0506	2599514	4
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	04/22/24	1937	2600800	5
SW846 9056A Anions (5 elements) "As Received"												
Nitrate-N	J	0.843	0.0660	10.0	mg/L		2	CH6	04/11/24	2319	2595422	6
Sulfate		22.1	0.266	0.800	mg/L		2					
Bromide	U	0.200	0.0670	0.200	mg/L		1	CH6	04/11/24	1229	2595422	7
Chloride	JW	3.23	0.0670	250	mg/L		1					
Fluoride	J	0.387	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	04/18/24	1004	2597854	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	05/04/24	1008	2595947	9
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	PRB	05/04/24	1121	2595947	10
Sodium		50.7	0.800	2.50	mg/L	1.00	10	PRB	05/04/24	2228	2595947	11
Aluminum	J	0.0451	0.0193	0.0500	mg/L	1.00	1	PRB	05/03/24	2031	2595947	12
Antimony	U	0.00300	0.00100	0.00300	mg/L	1.00	1					
Arsenic	U	0.00500	0.00200	0.00500	mg/L	1.00	1					
Barium	B	0.163	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

Contact: Kevil, Kentucky 42053
Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-03)

Client Sample ID: MW375UG3-24 Project: FRNP00507
Sample ID: 662538013 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"												
Boron	J	0.0115	0.00520	0.0150	mg/L	1.00	1					
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Calcium		13.0	0.0800	0.200	mg/L	1.00	1					
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					
Cobalt	J	0.000419	0.000300	0.00100	mg/L	1.00	1					
Copper	J	0.000612	0.000300	0.00200	mg/L	1.00	1					
Iron	J	0.0846	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Magnesium		4.84	0.0100	0.0300	mg/L	1.00	1					
Manganese		0.0124	0.00100	0.00500	mg/L	1.00	1					
Molybdenum	U	0.00100	0.000200	0.00100	mg/L	1.00	1					
Nickel	J	0.00120	0.000600	0.00200	mg/L	1.00	1					
Potassium	J	0.248	0.0800	0.300	mg/L	1.00	1					
Selenium	J	0.00171	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					
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					
Semi-Volatiles-PCB												
8082A, PCB Liquids "As Received"												
Aroclor-1016	U	0.109	0.0362	0.109	ug/L	0.00109	1	JXM	04/30/24	1524	2604219	13
Aroclor-1221	U	0.109	0.0362	0.109	ug/L	0.00109	1					
Aroclor-1232	U	0.109	0.0362	0.109	ug/L	0.00109	1					
Aroclor-1242	U	0.109	0.0362	0.109	ug/L	0.00109	1					
Aroclor-1248	U	0.109	0.0362	0.109	ug/L	0.00109	1					
Aroclor-1254	U	0.109	0.0362	0.109	ug/L	0.00109	1					
Aroclor-1260	U	0.109	0.0362	0.109	ug/L	0.00109	1					
Aroclor-1268	U	0.109	0.0362	0.109	ug/L	0.00109	1					
Aroclor-Total	U	0.109	0.0362	0.109	ug/L	0.00109	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids	*	180	2.38	10.0	mg/L			ES2	04/17/24	1116	2598030	14
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: July 24, 2024

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

Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow

Project: C-746-U Landfill Quarterly(UG24-03)

Client Sample ID: MW375UG3-24

Project: FRNP00507

Sample ID: 662538013

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	14.1	8.95	20.0	mg/L		1	HH2	04/11/24	1527	2595583	15
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	KP2	04/15/24	0018	2596435	16
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: July 24, 2024

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

Contact: Kevil, Kentucky 42053
Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-03)

Client Sample ID: MW375UG3-24
Sample ID: 662538013

Project: FRNP00507
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time Batch	Method
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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 3535A/8082A		
14	EPA 160.1		
15	EPA 410.4		
16	SW846 8260D		

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011 VOA- 1,2-Dibromo-3-chloropropane "As Received"	6.92 ug/L	6.80	102	(56%-149%)
Decachlorobiphenyl	8082A, PCB Liquids "As Received"	0.117 ug/L	0.217	54	(30%-135%)
4cmx	8082A, PCB Liquids "As Received"	0.148 ug/L	0.217	68	(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"	52.9 ug/L	50.0	106	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	50.1 ug/L	50.0	100	(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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Report Date: July 24, 2024

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

Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-03)

Client Sample ID: MW375UG3-24 Project: FRNP00507
Sample ID: 662538014 Client ID: FRNP005
Matrix: WG
Collect Date: 10-APR-24 13:22
Receive Date: 11-APR-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		0.171	0.000670	0.00400	mg/L	1.00	1	BAJ	04/24/24	2116	2596135	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	JD2	04/12/24	0743	2595964
SW846 3005A	ICP-MS 3005A PREP	SD	04/15/24	0800	2596134

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: July 24, 2024

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

Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-03)

Client Sample ID: TB3UG3-24 Project: FRNP00507
Sample ID: 662538015 Client ID: FRNP005
Matrix: WATER
Collect Date: 10-APR-24 07:00
Receive Date: 11-APR-24
Collector: Client

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	0.0191	0.00860	0.0191	ug/L	0.956	1	LOF	04/13/24	1958	2596320	1
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	KP2	04/14/24	2146	2596435	2
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	J	2.51	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: July 24, 2024

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

Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-03)

Client Sample ID: TB3UG3-24	Project: FRNP00507
Sample ID: 662538015	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	LOF	04/13/24	1246	2596319

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"	6.74 ug/L	6.83	99	(56%-149%)
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"	52.6 ug/L	50.0	105	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	49.9 ug/L	50.0	100	(77%-121%)

Notes:

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Certificate of Analysis

Report Date: July 24, 2024

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

Contact: Kevil, Kentucky 42053
Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-03)

Client Sample ID: TB3UG3-24
Sample ID: 662538015

Project: FRNP00507
Client ID: FRNP005

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

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

Kevil, Kentucky 42053

Report Date: July 24, 2024

Contact: Ms. Jaime Morrow

Project: C-746-U Landfill Quarterly(UG24-03)

Client Sample ID: MW369UG3-24
Sample ID: 662538001
Matrix: WG
Collect Date: 10-APR-24
Receive Date: 11-APR-24
Collector: Client

Project: FRNP00507
Client ID: FRNP005

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
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Rad Alpha Spec Analysis

AN-1418 AlphaSpec Ra226, Liquid "As Received"

Radium-226	U	0.384	+/-0.798	1.18	+/-0.799	5.00	pCi/L			CM4	05/06/24	1110	2604286	1
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Th-01-RC M, Th Isotopes, Liquid "As Received"

Thorium-230	U	0.507	+/-0.831	1.37	+/-0.837	50.0	pCi/L			CM4	05/02/24	1635	2604288	2
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Thorium-232	U	0.255	+/-0.544	0.813	+/-0.545		pCi/L							
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Rad Gas Flow Proportional Counting

904.0Mod, Ra228, Liquid "As Received"

Radium-228	U	1.63	+/-2.02	3.43	+/-2.06	4.99	pCi/L			KP1	04/19/24	1133	2596025	3
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905.0Mod, Sr90, liquid "As Received"

Strontium-90	U	0.714	+/-4.06	7.36	+/-4.06	8.00	pCi/L			JE1	04/30/24	1224	2596776	4
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9310, Alpha/Beta Activity, liquid "As Received"

Alpha	U	1.96	+/-3.32	6.06	+/-3.33	15.0	pCi/L			HH3	04/25/24	0721	2596839	5
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Beta		33.2	+/-8.43	9.32	+/-10.1	50.0	pCi/L							
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Rad Liquid Scintillation Analysis

906.0M, Tritium Dist, Liquid "As Received"

Tritium	U	32.9	+/-129	228	+/-129	300	pCi/L			HB2	05/09/24	0231	2602397	6
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Tc-02-RC-MOD, Tc99, Liquid "As Received"

Technetium-99		70.9	+/-16.0	20.5	+/-17.9	25.0	pCi/L			GS3	05/08/24	1809	2602400	7
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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"	2604286	102	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2604288	88.9	(30%-110%)
Barium-133 Tracer	904.0Mod, Ra228, Liquid "As Received"	2596025	86.4	(30%-110%)
Strontium Carrier	905.0Mod, Sr90, liquid "As Received"	2596776	61.5	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2602400	96.9	(30%-110%)

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Kevil, Kentucky 42053

Report Date: July 24, 2024

Contact: Ms. Jaime Morrow

Project: C-746-U Landfill Quarterly(UG24-03)

Client Sample ID: MW369UG3-24

Project: FRNP00507

Sample ID: 662538001

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

Mtd.: Method

DL: Detection Limit

PF: Prep Factor

Lc/LC: Critical Level

RL: Reporting Limit

MDA: Minimum Detectable Activity

TPU: Total Propagated Uncertainty

MDC: Minimum Detectable Concentration

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Kevil, Kentucky 42053

Report Date: July 24, 2024

Contact: Ms. Jaime Morrow

Project: C-746-U Landfill Quarterly(UG24-03)

Client Sample ID: MW370UG3-24

Project: FRNP00507

Sample ID: 662538003

Client ID: FRNP005

Matrix: WG

Collect Date: 10-APR-24

Receive Date: 11-APR-24

Collector: Client

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
<i>AN-1418 AlphaSpec Ra226, Liquid "As Received"</i>														
Radium-226	U	0.852	+/-1.16	1.23	+/-1.16	5.00	pCi/L			CM4	05/06/24	1116	2604290	1
<i>Th-01-RC M, Th Isotopes, Liquid "As Received"</i>														
Thorium-230	U	0.804	+/-1.22	1.88	+/-1.23	50.0	pCi/L			CM4	05/02/24	1641	2604291	2
Thorium-232	U	0.476	+/-0.853	0.988	+/-0.856		pCi/L							
Rad Gas Flow Proportional Counting														
<i>904.0Mod, Ra228, Liquid "As Received"</i>														
Radium-228	U	1.14	+/-2.11	3.79	+/-2.13	4.99	pCi/L			KP1	04/19/24	1133	2596025	3
<i>905.0Mod, Sr90, liquid "As Received"</i>														
Strontium-90	U	-1.41	+/-1.89	4.01	+/-1.89	8.00	pCi/L			JE1	04/30/24	1224	2596776	4
<i>9310, Alpha/Beta Activity, liquid "As Received"</i>														
Alpha	U	2.93	+/-3.86	6.51	+/-3.89	15.0	pCi/L			HH3	04/25/24	0721	2596839	5
Beta		13.2	+/-6.67	9.60	+/-7.02	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
<i>906.0M, Tritium Dist, Liquid "As Received"</i>														
Tritium	U	81.4	+/-132	228	+/-133	300	pCi/L			HB2	05/09/24	0303	2602397	6
<i>Tc-02-RC-MOD, Tc99, Liquid "As Received"</i>														
Technetium-99		22.9	+/-12.9	20.2	+/-13.1	25.0	pCi/L			GS3	05/08/24	1820	2602400	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"	2604290	96.6	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2604291	71.2	(30%-110%)
Barium-133 Tracer	904.0Mod, Ra228, Liquid "As Received"	2596025	76.7	(30%-110%)
Strontium Carrier	905.0Mod, Sr90, liquid "As Received"	2596776	95.4	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2602400	98.5	(30%-110%)

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: July 24, 2024

Contact: Ms. Jaime Morrow

Project: C-746-U Landfill Quarterly(UG24-03)

Client Sample ID: MW370UG3-24

Project: FRNP00507

Sample ID: 662538003

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

Mtd.: Method

DL: Detection Limit

PF: Prep Factor

Lc/LC: Critical Level

RL: Reporting Limit

MDA: Minimum Detectable Activity

TPU: Total Propagated Uncertainty

MDC: Minimum Detectable Concentration

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Certificate of Analysis

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

Kevil, Kentucky 42053

Report Date: July 24, 2024

Contact: Ms. Jaime Morrow

Project: C-746-U Landfill Quarterly(UG24-03)

Client Sample ID: MW371UG3-24

Project: FRNP00507

Sample ID: 662538005

Client ID: FRNP005

Matrix: WG

Collect Date: 10-APR-24

Receive Date: 11-APR-24

Collector: Client

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
<i>AN-1418 AlphaSpec Ra226, Liquid "As Received"</i>														
Radium-226	U	0.804	+/-1.17	1.45	+/-1.17	5.00	pCi/L			CM4	05/06/24	1531	2604290	1
<i>Th-01-RC M, Th Isotopes, Liquid "As Received"</i>														
Thorium-230	U	1.02	+/-1.10	1.55	+/-1.12	50.0	pCi/L			CM4	05/02/24	1641	2604291	2
Thorium-232	U	-0.0217	+/-0.372	0.762	+/-0.373		pCi/L							
Rad Gas Flow Proportional Counting														
<i>904.0Mod, Ra228, Liquid "As Received"</i>														
Radium-228	U	1.50	+/-2.54	4.45	+/-2.56	4.99	pCi/L			KP1	04/19/24	1133	2596025	3
<i>905.0Mod, Sr90, liquid "As Received"</i>														
Strontium-90	U	-0.0152	+/-2.49	4.77	+/-2.49	8.00	pCi/L			JE1	04/30/24	1224	2596776	4
<i>9310, Alpha/Beta Activity, liquid "As Received"</i>														
Alpha		11.5	+/-6.94	9.02	+/-7.20	15.0	pCi/L			HH3	04/25/24	0721	2596839	5
Beta	U	7.53	+/-5.66	8.84	+/-5.81	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
<i>906.0M, Tritium Dist, Liquid "As Received"</i>														
Tritium	U	56.8	+/-131	229	+/-132	300	pCi/L			HB2	05/09/24	0335	2602397	6
<i>Tc-02-RC-MOD, Tc99, Liquid "As Received"</i>														
Technetium-99	U	6.12	+/-11.8	20.3	+/-11.8	25.0	pCi/L			GS3	05/08/24	1832	2602400	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"	2604290	97.1	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2604291	97.5	(30%-110%)
Barium-133 Tracer	904.0Mod, Ra228, Liquid "As Received"	2596025	82.1	(30%-110%)
Strontium Carrier	905.0Mod, Sr90, liquid "As Received"	2596776	82.7	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2602400	98.1	(30%-110%)

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Certificate of Analysis

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

Kevil, Kentucky 42053

Report Date: July 24, 2024

Contact: Ms. Jaime Morrow

Project: C-746-U Landfill Quarterly(UG24-03)

Client Sample ID: MW371UG3-24

Project: FRNP00507

Sample ID: 662538005

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

Mtd.: Method

DL: Detection Limit

PF: Prep Factor

Lc/LC: Critical Level

RL: Reporting Limit

MDA: Minimum Detectable Activity

TPU: Total Propagated Uncertainty

MDC: Minimum Detectable Concentration

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Certificate of Analysis

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

Kevil, Kentucky 42053

Report Date: July 24, 2024

Contact: Ms. Jaime Morrow

Project: C-746-U Landfill Quarterly(UG24-03)

Client Sample ID: MW373UG3-24

Project: FRNP00507

Sample ID: 662538009

Client ID: FRNP005

Matrix: WG

Collect Date: 10-APR-24

Receive Date: 11-APR-24

Collector: Client

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
<i>AN-1418 AlphaSpec Ra226, Liquid "As Received"</i>														
Radium-226	U	0.520	+/-0.972	1.27	+/-0.973	5.00	pCi/L			CM4	05/06/24	1116	2604290	1
<i>Th-01-RC M, Th Isotopes, Liquid "As Received"</i>														
Thorium-230	U	-0.152	+/-0.873	2.04	+/-0.873	50.0	pCi/L			CM4	05/02/24	1642	2604291	2
Thorium-232	U	0.136	+/-0.591	1.06	+/-0.592		pCi/L							
Rad Gas Flow Proportional Counting														
<i>904.0Mod, Ra228, Liquid "As Received"</i>														
Radium-228	U	1.37	+/-2.33	4.10	+/-2.36	4.99	pCi/L			KP1	04/19/24	1133	2596025	3
<i>905.0Mod, Sr90, liquid "As Received"</i>														
Strontium-90	U	0.000	+/-3.04	5.72	+/-3.04	8.00	pCi/L			JE1	04/30/24	1224	2596776	4
<i>9310, Alpha/Beta Activity, liquid "As Received"</i>														
Alpha	U	1.99	+/-3.87	7.31	+/-3.89	15.0	pCi/L			HH3	04/25/24	0721	2596839	5
Beta		11.8	+/-6.08	8.75	+/-6.39	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
<i>906.0M, Tritium Dist, Liquid "As Received"</i>														
Tritium	U	14.2	+/-126	226	+/-126	300	pCi/L			HB2	05/09/24	0406	2602397	6
<i>Tc-02-RC-MOD, Tc99, Liquid "As Received"</i>														
Technetium-99	U	2.12	+/-11.4	20.2	+/-11.4	25.0	pCi/L			GS3	05/08/24	1843	2602400	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"	2604290	96.3	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2604291	85.3	(30%-110%)
Barium-133 Tracer	904.0Mod, Ra228, Liquid "As Received"	2596025	84.4	(30%-110%)
Strontium Carrier	905.0Mod, Sr90, liquid "As Received"	2596776	76.4	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2602400	98.5	(30%-110%)

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Certificate of Analysis

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

Kevil, Kentucky 42053

Report Date: July 24, 2024

Contact: Ms. Jaime Morrow

Project: C-746-U Landfill Quarterly(UG24-03)

Client Sample ID: MW373UG3-24

Project: FRNP00507

Sample ID: 662538009

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

Mtd.: Method

DL: Detection Limit

PF: Prep Factor

Lc/LC: Critical Level

RL: Reporting Limit

MDA: Minimum Detectable Activity

TPU: Total Propagated Uncertainty

MDC: Minimum Detectable Concentration

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Certificate of Analysis

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

Kevil, Kentucky 42053

Report Date: July 24, 2024

Contact: Ms. Jaime Morrow

Project: C-746-U Landfill Quarterly(UG24-03)

Client Sample ID: MW374UG3-24

Project: FRNP00507

Sample ID: 662538011

Client ID: FRNP005

Matrix: WG

Collect Date: 10-APR-24

Receive Date: 11-APR-24

Collector: Client

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
<i>AN-1418 AlphaSpec Ra226, Liquid "As Received"</i>														
Radium-226	U	0.808	+/-1.20	1.54	+/-1.20	5.00	pCi/L			CM4	05/06/24	1116	2604290	1
<i>Th-01-RC M, Th Isotopes, Liquid "As Received"</i>														
Thorium-230	U	0.0143	+/-0.770	1.68	+/-0.771	50.0	pCi/L			CM4	05/02/24	1642	2604291	2
Thorium-232	U	0.166	+/-0.528	0.774	+/-0.529		pCi/L							
Rad Gas Flow Proportional Counting														
<i>904.0Mod, Ra228, Liquid "As Received"</i>														
Radium-228		4.72	+/-2.67	3.79	+/-2.93	4.99	pCi/L			KP1	04/19/24	1133	2596025	3
<i>905.0Mod, Sr90, liquid "As Received"</i>														
Strontium-90	U	0.0269	+/-2.52	4.81	+/-2.52	8.00	pCi/L			JE1	04/30/24	1224	2596776	4
<i>9310, Alpha/Beta Activity, liquid "As Received"</i>														
Alpha		8.22	+/-5.57	6.77	+/-5.73	15.0	pCi/L			HH3	04/25/24	0721	2596839	5
Beta	U	9.10	+/-6.11	9.35	+/-6.29	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
<i>906.0M, Tritium Dist, Liquid "As Received"</i>														
Tritium	U	8.54	+/-126	227	+/-126	300	pCi/L			HB2	05/09/24	0438	2602397	6
<i>Tc-02-RC-MOD, Tc99, Liquid "As Received"</i>														
Technetium-99	U	3.02	+/-11.3	20.0	+/-11.3	25.0	pCi/L			GS3	05/08/24	1855	2602400	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"	2604290	94.2	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2604291	95.8	(30%-110%)
Barium-133 Tracer	904.0Mod, Ra228, Liquid "As Received"	2596025	80.8	(30%-110%)
Strontium Carrier	905.0Mod, Sr90, liquid "As Received"	2596776	80.6	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2602400	99.5	(30%-110%)

GEL LABORATORIES LLC

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Certificate of Analysis

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

Kevil, Kentucky 42053

Report Date: July 24, 2024

Contact: Ms. Jaime Morrow

Project: C-746-U Landfill Quarterly(UG24-03)

Client Sample ID: MW374UG3-24

Project: FRNP00507

Sample ID: 662538011

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

Mtd.: Method

DL: Detection Limit

PF: Prep Factor

Lc/LC: Critical Level

RL: Reporting Limit

MDA: Minimum Detectable Activity

TPU: Total Propagated Uncertainty

MDC: Minimum Detectable Concentration

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: July 24, 2024

Contact: Ms. Jaime Morrow

Project: C-746-U Landfill Quarterly(UG24-03)

Client Sample ID: MW375UG3-24

Project: FRNP00507

Sample ID: 662538013

Client ID: FRNP005

Matrix: WG

Collect Date: 10-APR-24

Receive Date: 11-APR-24

Collector: Client

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
<i>AN-1418 AlphaSpec Ra226, Liquid "As Received"</i>														
Radium-226	U	0.708	+/-0.827	0.878	+/-0.828	5.00	pCi/L			CM4	05/06/24	1116	2604290	1
<i>Th-01-RC M, Th Isotopes, Liquid "As Received"</i>														
Thorium-230	U	1.39	+/-1.25	1.58	+/-1.28	50.0	pCi/L			CM4	05/02/24	1642	2604291	2
Thorium-232	U	0.130	+/-0.570	1.02	+/-0.571		pCi/L							
Rad Gas Flow Proportional Counting														
<i>904.0Mod, Ra228, Liquid "As Received"</i>														
Radium-228	U	3.88	+/-2.68	4.04	+/-2.86	4.99	pCi/L			KP1	04/19/24	1133	2596025	3
<i>905.0Mod, Sr90, liquid "As Received"</i>														
Strontium-90	U	-0.334	+/-1.71	3.69	+/-1.71	8.00	pCi/L			JE1	04/30/24	1224	2596776	4
<i>9310, Alpha/Beta Activity, liquid "As Received"</i>														
Alpha	U	5.86	+/-6.33	10.3	+/-6.40	15.0	pCi/L			HH3	04/25/24	0721	2596839	5
Beta	U	3.01	+/-5.40	9.43	+/-5.43	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
<i>906.0M, Tritium Dist, Liquid "As Received"</i>														
Tritium	U	-31.6	+/-123	226	+/-123	300	pCi/L			HB2	05/09/24	0510	2602397	6
<i>Tc-02-RC-MOD, Tc99, Liquid "As Received"</i>														
Technetium-99	U	5.66	+/-11.5	19.9	+/-11.5	25.0	pCi/L			GS3	05/08/24	1907	2602400	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"	2604290	94.9	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2604291	88.4	(30%-110%)
Barium-133 Tracer	904.0Mod, Ra228, Liquid "As Received"	2596025	76.3	(30%-110%)
Strontium Carrier	905.0Mod, Sr90, liquid "As Received"	2596776	72.1	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2602400	99.5	(30%-110%)

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: July 24, 2024

Contact: Ms. Jaime Morrow

Project: C-746-U Landfill Quarterly(UG24-03)

Client Sample ID: MW375UG3-24

Project: FRNP00507

Sample ID: 662538013

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

Mtd.: Method

DL: Detection Limit

PF: Prep Factor

Lc/LC: Critical Level

RL: Reporting Limit

MDA: Minimum Detectable Activity

TPU: Total Propagated Uncertainty

MDC: Minimum Detectable Concentration

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ATTACHMENT C5

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: July 31, 2024

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

Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-03)

Client Sample ID: MW372UG3-24R	Project: FRNP00507
Sample ID: 662795001	Client ID: FRNP005
Matrix: WG	
Collect Date: 11-APR-24 13:46	
Receive Date: 13-APR-24	
Collector: Client	

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	0.0191	0.00861	0.0191	ug/L	0.957	1	LOF	04/15/24	2132	2596326	2
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	0.955	0.330	2.00	mg/L		1	RM3	04/17/24	1612	2598429	3
Flow Injection Analysis												
9012B, Cyanide, Total "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	04/16/24	1145	2596738	4
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens	J	6.50	3.33	10.0	ug/L		1	RMJ	05/04/24	0012	2606558	5
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	04/23/24	1434	2601456	6
SW846 9056A Anions (5 elements) "As Received"												
Chloride	J	38.7	0.670	250	mg/L		10	CH6	04/14/24	0528	2596629	7
Sulfate		140	1.33	4.00	mg/L		10					
Bromide		0.744	0.0670	0.200	mg/L		1	CH6	04/13/24	1159	2596629	8
Fluoride	J	0.242	0.0330	4.00	mg/L		1					
Nitrate-N	J	0.871	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	04/18/24	1029	2597854	9
Metals Analysis-ICP-MS												
6020, Metals (15+ elements) "As Received"												
Aluminum	U	0.0500	0.0193	0.0500	mg/L	1.00	1	PRB	05/08/24	0755	2597151	10
Antimony	U	0.00300	0.00100	0.00300	mg/L	1.00	1					
Barium		0.0527	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					
Cobalt	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Copper	J	0.000670	0.000300	0.00200	mg/L	1.00	1					
Iron	J	0.0797	0.0330	0.100	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: July 31, 2024

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

Contact: Kevil, Kentucky 42053
Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-03)

Client Sample ID: MW372UG3-24R
Sample ID: 662795001

Project: FRNP00507
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	B	22.5	0.0100	0.0300	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		2.14	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	BJ	0.00419	0.00330	0.0200	mg/L	1.00	1					
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	PRB	05/08/24	1259	2597151	11
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	05/08/24	1458	2597151	12
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Arsenic	U	0.00500	0.00200	0.00500	mg/L	1.00	1	PRB	05/07/24	1836	2597151	13
Manganese	J	0.00137	0.00100	0.00500	mg/L	1.00	1					
Selenium	J	0.00212	0.00150	0.00500	mg/L	1.00	1					
Zinc	U	0.0200	0.00330	0.0200	mg/L	1.00	1					
Boron		1.14	0.0520	0.150	mg/L	1.00	10	PRB	05/08/24	1114	2597151	14
Calcium		65.3	0.800	2.00	mg/L	1.00	10					
Sodium		61.2	0.800	2.50	mg/L	1.00	10					
Semi-Volatiles-PCB												
8082A, PCB Liquids "As Received"												
Aroclor-1016	U	0.118	0.0391	0.118	ug/L	0.00118	1	NS2	04/29/24	2322	2603248	15
Aroclor-1221	U	0.118	0.0391	0.118	ug/L	0.00118	1					
Aroclor-1232	U	0.118	0.0391	0.118	ug/L	0.00118	1					
Aroclor-1242	U	0.118	0.0391	0.118	ug/L	0.00118	1					
Aroclor-1248	U	0.118	0.0391	0.118	ug/L	0.00118	1					
Aroclor-1254	U	0.118	0.0391	0.118	ug/L	0.00118	1					
Aroclor-1260	U	0.118	0.0391	0.118	ug/L	0.00118	1					
Aroclor-1268	U	0.118	0.0391	0.118	ug/L	0.00118	1					
Aroclor-Total	U	0.118	0.0391	0.118	ug/L	0.00118	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		459	2.38	10.0	mg/L			KLP1	04/18/24	1534	2599126	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(UG24-03)

Client Sample ID: MW372UG3-24R
Sample ID: 662795001

Project: FRNP00507
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	04/16/24	1508	2597597	17
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	PXY1	04/16/24	1326	2597630	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: July 31, 2024

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

Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-03)

Client Sample ID: MW372UG3-24R	Project: FRNP00507
Sample ID: 662795001	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		1.10	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	LOF	04/15/24	1331	2596324
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	04/17/24	1150	2597851
SW846 3535A	SW3535A PCB SPE Extraction	LW1	04/29/24	0525	2603247
SW846 9010C Distillation	SW846 9010C Prep	ES2	04/16/24	1040	2596737
SW846 3005A	ICP-MS 3005A PREP	SD	04/17/24	0815	2597149

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Contact: Kevil, Kentucky 42053
Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-03)

Client Sample ID: MW372UG3-24R
Sample ID: 662795001

Project: FRNP00507
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
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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"	7.31 ug/L	6.84	107	(56%-149%)
Decachlorobiphenyl	8082A, PCB Liquids "As Received"	0.146 ug/L	0.235	62	(30%-135%)
4cmx	8082A, PCB Liquids "As Received"	0.155 ug/L	0.235	66	(26%-108%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	54.5 ug/L	50.0	109	(74%-123%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	52.3 ug/L	50.0	105	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	50.5 ug/L	50.0	101	(77%-121%)

Notes:

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Contact: Kevil, Kentucky 42053
Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-03)

Client Sample ID: MW372UG3-24R
Sample ID: 662795001

Project: FRNP00507
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
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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: July 31, 2024

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

Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-03)

Client Sample ID: MW372UG3-24R Project: FRNP00507
Sample ID: 662795002 Client ID: FRNP005
Matrix: WG
Collect Date: 11-APR-24 13:46
Receive Date: 13-APR-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"												
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	PRB	05/08/24	1308	2597151	1
Barium		0.0533	0.000670	0.00400	mg/L	1.00	1	PRB	05/08/24	0813	2597151	2
Chromium	U	0.0100	0.00300	0.0100	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	04/17/24	0815	2597149
EPA 160	Laboratory Filtration	JD2	04/15/24	1104	2596889

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3005A/6020B	
2	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: July 31, 2024

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

Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-03)

Client Sample ID: TB4UG3-24	Project: FRNP00507
Sample ID: 662795003	Client ID: FRNP005
Matrix: WATER	
Collect Date: 11-APR-24 11:25	
Receive Date: 13-APR-24	
Collector: Client	

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	0.0188	0.00844	0.0188	ug/L	0.938	1	LOF	04/15/24	2157	2596326	1
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	PXY1	04/16/24	1352	2597630	2
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	BJ	1.93	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(UG24-03)

Client Sample ID: TB4UG3-24
Sample ID: 662795003

Project: FRNP00507
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	LOF	04/15/24	1331	2596324

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"	7.99 ug/L	6.70	119	(56%-149%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	55.0 ug/L	50.0	110	(74%-123%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	52.3 ug/L	50.0	105	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	50.6 ug/L	50.0	101	(77%-121%)

Notes:

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Contact: Kevil, Kentucky 42053
Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-03)

Client Sample ID: TB4UG3-24
Sample ID: 662795003

Project: FRNP00507
Client ID: FRNP005

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

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Address : LLC
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Kevil, Kentucky 42053

Report Date: July 31, 2024

Contact: Ms. Jaime Morrow

Project: C-746-U Landfill Quarterly(UG24-03)

Client Sample ID: MW372UG3-24R
Sample ID: 662795001
Matrix: WG
Collect Date: 11-APR-24
Receive Date: 13-APR-24
Collector: Client

Project: FRNP00507
Client ID: FRNP005

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
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Rad Alpha Spec Analysis

AN-1418 AlphaSpec Ra226, Liquid "As Received"

Radium-226	U	0.0405	+/-0.261	0.535	+/-0.261	5.00	pCi/L			CM4	05/04/24	0921	2604290	1
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Th-01-RC M, Th Isotopes, Liquid "As Received"

Thorium-230	U	0.108	+/-0.864	1.80	+/-0.866	50.0	pCi/L			CM4	05/02/24	1642	2604291	2
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Thorium-232	U	-0.0218	+/-0.428	0.861	+/-0.429		pCi/L							
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Rad Gas Flow Proportional Counting

904.0Mod, Ra228, Liquid "As Received"

Radium-228	U	0.973	+/-1.80	3.22	+/-1.82	4.99	pCi/L			KP1	04/19/24	0951	2597115	3
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905.0Mod, Sr90, liquid "As Received"

Strontium-90	U	2.81	+/-3.71	6.31	+/-3.73	8.00	pCi/L			JE1	04/30/24	1440	2596778	4
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9310, Alpha/Beta Activity, liquid "As Received"

Alpha	U	3.78	+/-4.83	8.09	+/-4.87	15.0	pCi/L			HH3	04/25/24	1409	2596851	5
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Beta		37.6	+/-8.93	9.26	+/-10.9	50.0	pCi/L							
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Rad Liquid Scintillation Analysis

906.0M, Tritium Dist, Liquid "As Received"

Tritium	U	11.5	+/-120	229	+/-120	300	pCi/L			HB2	05/10/24	0135	2602404	6
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Tc-02-RC-MOD, Tc99, Liquid "As Received"

Technetium-99		61.5	+/-15.2	19.9	+/-16.6	25.0	pCi/L			GS3	05/09/24	1021	2602462	7
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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"	2604290	99.3	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2604291	82.8	(30%-110%)
Barium-133 Tracer	904.0Mod, Ra228, Liquid "As Received"	2597115	87.9	(30%-110%)
Strontium Carrier	905.0Mod, Sr90, liquid "As Received"	2596778	78.5	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2602462	97.3	(30%-110%)

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: July 31, 2024

Contact: Ms. Jaime Morrow

Project: C-746-U Landfill Quarterly(UG24-03)

Client Sample ID: MW372UG3-24R

Project: FRNP00507

Sample ID: 662795001

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

Mtd.: Method

DL: Detection Limit

PF: Prep Factor

Lc/LC: Critical Level

RL: Reporting Limit

MDA: Minimum Detectable Activity

TPU: Total Propagated Uncertainty

MDC: Minimum Detectable Concentration

APPENDIX D
STATISTICAL ANALYSES AND
QUALIFICATION STATEMENT

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GROUNDWATER STATISTICAL COMMENTS

Introduction

The statistical analyses conducted on the second quarter 2024 groundwater data collected from the C-746-S&T Landfills monitoring wells (MWs) were performed in accordance with Permit GSTR0003, 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).

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 second quarter 2024 data used to conduct the statistical analyses were collected in April 2024. The statistical analyses for this report first used data from the initial 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 compliance well that 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. For parameters with no established MCL and for 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 for pH. 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
MW220	BG	URGA
MW221	SG	URGA
MW222	SG	URGA
MW223	SG	URGA
MW224	SG	URGA
MW369	TW	URGA
MW370	TW	LRGA
MW372	TW	URGA
MW373	TW	LRGA
MW384	SG	URGA
MW385	SG	LRGA
MW386 ^a	SG	UCRS
MW387	TW	URGA
MW388	TW	LRGA
MW389 ^{a,b}	TW	UCRS
MW390 ^{a,b}	TW	UCRS
MW391	TW	URGA
MW392	TW	LRGA
MW393 ^a	TW	UCRS
MW394	BG	URGA
MW395	BG	LRGA
MW396 ^a	BG	UCRS
MW397	BG	LRGA

^a The gradients in UCRS wells are downward. The UCRS wells identified as up-, side-, or downgradient are those wells located in the same general direction as the RGA wells considered to be up-, side-, or downgradient.

^b Well was dry this quarter and a groundwater sample could not be collected.

BG: upgradient or background wells

TW: compliance 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. 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, 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. Statistical analyses are performed on the last eight quarters of 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 (or is below the LTL for pH), the well has a statistically significant difference in concentration compared to the 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).
 - 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 $CV \leq 1.0$, 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 (or is below the LTL for pH), then there is statistically significant evidence that the well concentration exceeds the historical background.

Type of Data Used

Exhibit D.1 presents the background wells (identified as “BG”), the compliance or test wells (identified as “TW”), and the sidegradient wells (identified as “SG”) for the C-746-S&T Residential and Inert Landfills. 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, second quarter 2024. The observations are representative of the current quarter data. Historical background data are presented in Attachment D1. The sampling dates associated with background data are listed next to the result in Attachment D1. 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. A result has been considered a nondetect if it has a “U” validation code.

¹ For pH, two-sided TLs (upper and lower) were calculated with an adjusted K factor using the following equations.

$$\begin{aligned} \text{upper TL} &= X + (K \times S) \\ \text{lower TL} &= X - (K \times S) \end{aligned}$$

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
<i>cis</i> -1,2-Dichloroethene
Cobalt
Conductivity
Copper
Dissolved Oxygen
Dissolved Solids
Iron
Magnesium
Manganese
Molybdenum
Nickel
Oxidation-Reduction Potential ¹
pH ²
Potassium
Radium-226
Sodium
Sulfate
Technetium-99
Total Organic Carbon (TOC)
Total Organic Halides (TOX)
Vanadium
Zinc

¹Oxidation-Reduction Potential calibrated as Eh.

² 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	3	3	0	No
1,1,2,2-Tetrachloroethane	3	3	0	No
1,1,2-Trichloroethane	3	3	0	No
1,1-Dichloroethane	3	3	0	No
1,2,3-Trichloropropane	3	3	0	No
1,2-Dibromo-3-chloropropane	3	3	0	No
1,2-Dibromoethane	3	3	0	No
1,2-Dichlorobenzene	3	3	0	No
1,2-Dichloropropane	3	3	0	No
2-Butanone	3	3	0	No
2-Hexanone	3	3	0	No
4-Methyl-2-pentanone	3	3	0	No
Acetone	3	3	0	No
Acrolein	3	3	0	No
Acrylonitrile	3	3	0	No
Aluminum	3	2	1	Yes
Antimony	3	3	0	No
Beryllium	3	3	0	No
Boron	3	0	3	Yes
Bromide	3	0	3	Yes
Bromochloromethane	3	3	0	No
Bromodichloromethane	3	3	0	No
Bromoform	3	3	0	No
Bromomethane	3	3	0	No
Calcium	3	0	3	Yes
Carbon disulfide	3	3	0	No
COD	3	0	3	Yes
Chloride	3	0	3	Yes
Chlorobenzene	3	3	0	No
Chloroethane	3	3	0	No
Chloroform	3	3	0	No
Chloromethane	3	3	0	No
<i>cis</i> -1,2-Dichloroethene	3	3	0	No
<i>cis</i> -1,3-Dichloropropene	3	3	0	No
Cobalt	3	2	1	Yes
Conductivity	3	0	3	Yes
Copper	3	0	3	Yes
Cyanide	3	3	0	No
Dibromochloromethane	3	3	0	No
Dibromomethane	3	3	0	No
Dimethylbenzene, Total	3	3	0	No
Dissolved Oxygen	3	0	3	Yes
Dissolved Solids	3	0	3	Yes
Ethylbenzene	3	3	0	No
Iodide	3	3	0	No

Exhibit D.3. Summary of Censored and Uncensored Data—UCRS (Continued)

Parameters	Observations	Censored Observation	Uncensored Observation	Statistical Analysis?
Iodomethane	3	3	0	No
Iron	3	0	3	Yes
Magnesium	3	0	3	Yes
Manganese	3	0	3	Yes
Methylene chloride	3	3	0	No
Molybdenum	3	0	3	Yes
Nickel	3	2	1	Yes
Oxidation-Reduction Potential	3	0	3	Yes
pH	3	0	3	Yes
Potassium	3	0	3	Yes
Radium-226	3	3	0	No
Rhodium	3	3	0	No
Sodium	3	0	3	Yes
Styrene	3	3	0	No
Sulfate	3	0	3	Yes
Tantalum	3	3	0	No
Technetium-99	3	3	0	No
Tetrachloroethene	3	3	0	No
Thallium	3	3	0	No
Thorium-230	3	3	0	No
Toluene	3	3	0	No
TOC	3	0	3	Yes
TOX	3	0	3	Yes
trans-1,2-Dichloroethene	3	3	0	No
trans-1,3-Dichloropropene	3	3	0	No
trans-1,4-Dichloro-2-Butene	3	3	0	No
Trichlorofluoromethane	3	3	0	No
Vanadium	3	3	0	No
Vinyl Acetate	3	3	0	No
Zinc	3	3	0	No

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	11	11	0	No
1,1,2,2-Tetrachloroethane	11	11	0	No
1,1,2-Trichloroethane	11	11	0	No
1,1-Dichloroethane	11	11	0	No
1,2,3-Trichloropropane	11	11	0	No
1,2-Dibromo-3-chloropropane	11	11	0	No
1,2-Dibromoethane	11	11	0	No
1,2-Dichlorobenzene	11	11	0	No
1,2-Dichloropropane	11	11	0	No
2-Butanone	11	11	0	No
2-Hexanone	11	11	0	No
4-Methyl-2-pentanone	11	11	0	No
Acetone	11	10	1	Yes
Acrolein	11	11	0	No
Acrylonitrile	11	11	0	No
Aluminum	11	8	3	Yes
Antimony	11	11	0	No
Beryllium	11	11	0	No
Boron	11	0	11	Yes
Bromide	11	1	10	Yes
Bromochloromethane	11	11	0	No
Bromodichloromethane	11	11	0	No
Bromoform	11	11	0	No
Bromomethane	11	11	0	No
Calcium	11	0	11	Yes
Carbon disulfide	11	11	0	No
COD	11	8	3	Yes
Chloride	11	0	11	Yes
Chlorobenzene	11	11	0	No
Chloroethane	11	11	0	No
Chloroform	11	11	0	No
Chloromethane	11	11	0	No
<i>cis</i> -1,2-Dichloroethene	11	11	0	No
<i>cis</i> -1,3-Dichloropropene	11	11	0	No
Cobalt	11	9	2	Yes
Conductivity	11	0	11	Yes
Copper	11	0	11	Yes
Cyanide	11	11	0	No
Dibromochloromethane	11	11	0	No
Dibromomethane	11	11	0	No
Dimethylbenzene, Total	11	11	0	No
Dissolved Oxygen	11	0	11	Yes
Dissolved Solids	11	0	11	Yes
Ethylbenzene	11	11	0	No
Iodide	11	11	0	No

Exhibit D.4. Summary of Censored and Uncensored Data—URGA (Continued)

Parameters	Observations	Censored Observation	Uncensored Observation	Statistical Analysis?
Iodomethane	11	11	0	No
Iron	11	2	9	Yes
Magnesium	11	0	11	Yes
Manganese	11	3	8	Yes
Methylene chloride	11	11	0	No
Molybdenum	11	6	5	Yes
Nickel	11	4	7	Yes
Oxidation-Reduction Potential	11	0	11	Yes
pH	11	0	11	Yes
Potassium	11	0	11	Yes
Radium-226	11	11	0	No
Rhodium	11	11	0	No
Sodium	11	0	11	Yes
Styrene	11	11	0	No
Sulfate	11	0	11	Yes
Tantalum	11	11	0	No
Technetium-99	11	7	4	Yes
Tetrachloroethene	11	11	0	No
Thallium	11	11	0	No
Thorium-230	11	11	0	No
Toluene	11	11	0	No
TOC	11	0	11	Yes
TOX	11	3	8	Yes
trans-1,2-Dichloroethene	11	11	0	No
trans-1,3-Dichloropropene	11	11	0	No
trans-1,4-Dichloro-2-Butene	11	11	0	No
Trichlorofluoromethane	11	11	0	No
Vanadium	11	6	5	Yes
Vinyl Acetate	11	11	0	No
Zinc	11	9	2	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	7	7	0	No
1,1,2,2-Tetrachloroethane	7	7	0	No
1,1,2-Trichloroethane	7	7	0	No
1,1-Dichloroethane	7	7	0	No
1,2,3-Trichloropropane	7	7	0	No
1,2-Dibromo-3-chloropropane	7	7	0	No
1,2-Dibromoethane	7	7	0	No
1,2-Dichlorobenzene	7	7	0	No
1,2-Dichloropropane	7	7	0	No
2-Butanone	7	7	0	No
2-Hexanone	7	7	0	No
4-Methyl-2-pentanone	7	7	0	No
Acetone	7	7	0	No
Acrolein	7	7	0	No
Acrylonitrile	7	7	0	No
Aluminum	7	5	2	Yes
Antimony	7	7	0	No
Beryllium	7	7	0	No
Boron	7	0	7	Yes
Bromide	7	1	6	Yes
Bromochloromethane	7	7	0	No
Bromodichloromethane	7	7	0	No
Bromoform	7	7	0	No
Bromomethane	7	7	0	No
Calcium	7	0	7	Yes
Carbon disulfide	7	7	0	No
COD	7	2	5	Yes
Chloride	7	0	7	Yes
Chlorobenzene	7	7	0	No
Chloroethane	7	7	0	No
Chloroform	7	7	0	No
Chloromethane	7	7	0	No
cis-1,2-Dichloroethene	7	6	1	Yes
cis-1,3-Dichloropropene	7	7	0	No
Cobalt	7	4	3	Yes
Conductivity	7	0	7	Yes
Copper	7	0	7	Yes
Cyanide	7	7	0	No
Dibromochloromethane	7	7	0	No
Dibromomethane	7	7	0	No
Dimethylbenzene, Total	7	7	0	No
Dissolved Oxygen	7	0	7	Yes
Dissolved Solids	7	0	7	Yes
Ethylbenzene	7	7	0	No
Iodide	7	7	0	No
Iodomethane	7	7	0	No
Iron	7	1	6	Yes
Magnesium	7	0	7	Yes

Exhibit D.5. Summary of Censored and Uncensored Data—LRGA (Continued)

Parameters	Observations	Censored Observation	Uncensored Observation	Statistical Analysis?
Manganese	7	1	6	Yes
Methylene chloride	7	7	0	No
Molybdenum	7	5	2	Yes
Nickel	7	3	4	Yes
Oxidation-Reduction Potential	7	0	7	Yes
pH	7	0	7	Yes
Potassium	7	0	7	Yes
Radium-226	7	4	3	Yes
Rhodium	7	7	0	No
Sodium	7	0	7	Yes
Styrene	7	7	0	No
Sulfate	7	0	7	Yes
Tantalum	7	7	0	No
Technetium-99	7	5	2	Yes
Tetrachloroethene	7	7	0	No
Thallium	7	7	0	No
Thorium-230	7	7	0	No
Toluene	7	7	0	No
TOC	7	0	7	Yes
TOX	7	1	6	Yes
trans-1,2-Dichloroethene	7	7	0	No
trans-1,3-Dichloropropene	7	7	0	No
trans-1,4-Dichloro-2-Butene	7	7	0	No
Trichlorofluoromethane	7	7	0	No
Vanadium	7	7	0	No
Vinyl Acetate	7	7	0	No
Zinc	7	6	1	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 tests that were calculated using historical background and presented in Attachment D1. For the UCRS, URGA, and LRGA, the test was applied to 23, 27, and 27 parameters, respectively, including those listed in bold print in Exhibits D.3, D.4, and D.5. A summary of exceedances when compared to statistically derived historical background by well number is shown in Exhibit D.6.

UCRS

This quarter's results identified exceedances of historical background upper tolerance limit (UTL) for oxidation-reduction potential.

URGA

This quarter's results identified exceedances of historical background UTL for calcium, COD, conductivity, dissolved solids, magnesium, oxidation-reduction potential, sodium, sulfate, and technetium-99.

LRGA

This quarter's results identified exceedances of historical background UTL for calcium, conductivity, dissolved solids, magnesium, oxidation-reduction potential, radium-226, sodium, and sulfate.

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 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
MW386: Oxidation-reduction potential*	MW220: Sulfate	MW370: Oxidation-reduction potential* and sulfate
MW393: Oxidation-reduction potential*	MW224: Sodium and sulfate	MW373: Calcium, conductivity, dissolved solids, magnesium, oxidation-reduction potential,* sodium, and sulfate
MW396: Oxidation-reduction potential*	MW369: Technetium-99	MW385: Oxidation-reduction potential,* radium-226, and sulfate
	MW372: Calcium, conductivity, dissolved solids, magnesium, sodium, sulfate, and technetium-99	MW388: Oxidation-reduction potential,* radium-226, and sulfate
	MW384: Sulfate	MW392: Oxidation-reduction potential* and radium-226
	MW387: Magnesium, sulfate, and technetium-99	
	MW394: COD and oxidation-reduction potential*	MW395: Oxidation-reduction potential*
		MW397: 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	0.57	No exceedance of statistically derived historical background concentration.
Boron	Tolerance Interval	1.28	No exceedance of statistically derived historical background concentration.
Bromide	Tolerance Interval	0.24	No exceedance of statistically derived historical background concentration.
Calcium	Tolerance Interval	0.20	No exceedance of statistically derived historical background concentration.
Chloride	Tolerance Interval	0.05	No exceedance of statistically derived historical background concentration.
Cobalt	Tolerance Interval	1.34	No exceedance of statistically derived historical background concentration.
COD	Tolerance Interval	0.02	No exceedance of statistically derived historical background concentration.
Conductivity	Tolerance Interval	0.12	No exceedance of statistically derived historical background concentration.
Copper	Tolerance Interval	0.48	No exceedance of statistically derived historical background concentration.
Dissolved Oxygen	Tolerance Interval	1.20	No exceedance of statistically derived historical background concentration.
Dissolved Solids	Tolerance Interval	0.19	No exceedance of statistically derived historical background concentration.
Iron	Tolerance Interval	0.48	No exceedance of statistically derived historical background concentration.
Magnesium	Tolerance Interval	0.20	No exceedance of statistically derived historical background concentration.
Manganese	Tolerance Interval	0.46	No exceedance of statistically derived historical background concentration.
Molybdenum	Tolerance Interval	1.51	No exceedance of statistically derived historical background concentration.
Nickel	Tolerance Interval	1.27	No exceedance of statistically derived historical background concentration.
Oxidation-Reduction Potential ^b	Tolerance Interval	4.77	Current results exceed statistically derived historical background concentration in MW386, MW393, and MW396.
pH	Tolerance Interval	0.05	No exceedance of statistically derived historical background concentration.
Potassium	Tolerance Interval	0.28	No exceedance of statistically derived historical background concentration.
Sodium	Tolerance Interval	0.30	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
Sulfate	Tolerance Interval	0.40	No exceedance of statistically derived historical background concentration.
TOC	Tolerance Interval	0.47	No exceedance of statistically derived historical background concentration.
TOX	Tolerance Interval	0.38	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	0.10	No exceedance of statistically derived historical background concentration.
Aluminum	Tolerance Interval	0.28	No exceedance of statistically derived historical background concentration.
Boron	Tolerance Interval	1.45	No exceedance of statistically derived historical background concentration.
Bromide	Tolerance Interval	0.00	No exceedance of statistically derived historical background concentration.
Calcium	Tolerance Interval	0.17	Current results exceed statistically derived historical background concentrations in MW372.
Chloride	Tolerance Interval	0.23	No exceedance of statistically derived historical background concentration.
Cobalt	Tolerance Interval	2.44	No exceedance of statistically derived historical background concentration.
COD	Tolerance Interval	0.00	Current results exceed statistically derived historical background concentration in MW394.
Conductivity	Tolerance Interval	0.28	Current results exceed statistically derived historical background concentration in MW372.
Copper	Tolerance Interval	0.43	No exceedance of statistically derived historical background concentration.
Dissolved Oxygen	Tolerance Interval	0.50	No exceedance of statistically derived historical background concentration.
Dissolved Solids	Tolerance Interval	0.12	Current results exceed statistically derived historical background concentration in MW372.
Iron	Tolerance Interval	1.17	No exceedance of statistically derived historical background concentration.
Magnesium	Tolerance Interval	0.16	Current results exceed statistically derived historical background concentration in MW372 and MW387.
Manganese	Tolerance Interval	2.16	No exceedance of statistically derived historical background concentration.
Molybdenum	Tolerance Interval	1.26	No exceedance of statistically derived historical background concentration.
Nickel	Tolerance Interval	1.79	No exceedance of statistically derived historical background concentration.
Oxidation-Reduction Potential ^b	Tolerance Interval	0.48	Current results exceed statistically derived historical background concentration in MW394.
pH	Tolerance Interval	0.05	No exceedance of statistically derived historical background concentration.
Potassium	Tolerance Interval	1.40	No exceedance of statistically derived historical background concentration.
Sodium	Tolerance Interval	0.24	Current results exceed statistically derived historical background concentration in MW224 and MW372.

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	0.25	Current results exceed statistically derived historical background concentration in MW220, MW224, MW372, MW384, and MW387.
Technetium-99	Tolerance Interval	0.99	Current results exceed statistically derived historical background concentration in MW369, MW372, and MW387.
TOC	Tolerance Interval	0.49	No exceedance of statistically derived historical background concentration.
TOX	Tolerance Interval	2.57	No exceedance of statistically derived historical background concentration.
Vanadium	Tolerance Interval	0.08	No exceedance of statistically derived historical background concentration.
Zinc	Tolerance Interval	0.72	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.

^c Tolerance interval was calculated based on an MCL exceedance.

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	0.86	No exceedance of statistically derived historical background concentration.
Boron	Tolerance Interval	1.24	No exceedance of statistically derived historical background concentration.
Bromide	Tolerance Interval	0.00	No exceedance of statistically derived historical background concentration.
Calcium	Tolerance Interval	0.50	Current results exceed statistically derived historical background concentration in MW373.
Chloride	Tolerance Interval	0.22	No exceedance of statistically derived historical background concentration.
<i>cis</i> -1,2-Dichloroethene	Tolerance Interval	0.00	No exceedance of statistically derived historical background concentration.
Cobalt	Tolerance Interval	1.51	No exceedance of statistically derived historical background concentration.
COD	Tolerance Interval	0.04	No exceedance of statistically derived historical background concentration.
Conductivity	Tolerance Interval	0.14	Current results exceed statistically derived historical background concentration in MW373.
Copper	Tolerance Interval	0.47	No exceedance of statistically derived historical background concentration.
Dissolved Oxygen	Tolerance Interval	0.52	No exceedance of statistically derived historical background concentration.
Dissolved Solids	Tolerance Interval	0.16	Current results exceed statistically derived historical background concentration in MW373.
Iron	Tolerance Interval	1.29	No exceedance of statistically derived historical background concentration.
Magnesium	Tolerance Interval	0.51	Current results exceed statistically derived historical background concentration in MW373.
Manganese	Tolerance Interval	1.49	No exceedance of statistically derived historical background concentration.
Molybdenum	Tolerance Interval	1.45	No exceedance of statistically derived historical background concentration.
Nickel	Tolerance Interval	1.09	No exceedance of statistically derived historical background concentration.
Oxidation-Reduction Potential ^b	Tolerance Interval	0.33	Current results exceed statistically derived historical background concentration in MW370, MW373, MW385, MW388, MW392, MW395, and MW397.
pH	Tolerance Interval	0.04	No exceedance of statistically derived historical background concentration.
Potassium	Tolerance Interval	0.40	No exceedance of statistically derived historical background concentration.
Radium-226	Tolerance Interval	10.7	Current results exceed statistically derived historical background concentration in MW385, MW388, and MW392.

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
Sodium	Tolerance Interval	0.47	Current results exceed statistically derived historical background concentration in MW373.
Sulfate	Tolerance Interval	0.20	Current results exceed statistically derived historical background concentration in MW370, MW373, MW385, and MW388.
Technetium-99	Tolerance Interval	0.80	No exceedance of statistically derived historical background concentration.
TOC	Tolerance Interval	0.55	No exceedance of statistically derived historical background concentration.
TOX	Tolerance Interval	0.59	No exceedance of statistically derived historical background concentration.
Zinc	Tolerance Interval	0.76	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.

^c Tolerance interval was calculated based on an MCL exceedance.

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 one-sided TL calculated using the most recent eight quarters of data and are presented in Attachment D2. For the UCRS, URGA, and LRGA, the test was applied to 1, 9, and 8 parameters, respectively, because these parameter concentrations exceeded the historical background TL.

For downgradient wells only, a summary of instances where concentrations exceeded the TL calculated using current background data is shown in Exhibit D.10.

UCRS

Because gradients in the UCRS are downward (vertical), there are no hydrogeologically downgradient UCRS wells. It should be noted, however, that no exceedances of current background were identified in UCRS wells this quarter.

URGA

This quarter's results identified current background exceedances in downgradient wells for calcium, conductivity, dissolved solids, magnesium, sodium, sulfate, and technetium-99.

LRGA

This quarter's results identified current background exceedances in downgradient wells for calcium, conductivity, dissolved solids, magnesium, radium-226, sodium, and sulfate.

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.11, Exhibit D.12, and Exhibit D.13, respectively.

Exhibit D.10. Summary of Exceedances (Downgradient Wells) of the TL Calculated Using Current Background Concentrations

URGA	LRGA
MW369: Technetium-99	MW370: Sulfate
MW372: Calcium, conductivity, dissolved solids, magnesium, sodium, sulfate, and technetium-99	MW373: Calcium, conductivity, dissolved solids, magnesium, sodium, and sulfate
MW387: Magnesium and technetium-99	MW388: Radium-226 and sulfate
	MW392: Radium-226

Exhibit D.11. Test Summaries for Qualified Parameters for Current Background—UCRS

Parameter	Performed Test	CV Normality Test^a	Results of Tolerance Interval Test Conducted
Oxidation-Reduction Potential ^b	Tolerance Interval	0.19	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.

^a If CV > 1.0, used log-transformed data.

^b Oxidation-Reduction Potential calibrated as Eh.

Exhibit D.12. Test Summaries for Qualified Parameters for Current Background—URGA

Parameter	Performed Test	CV Normality Test^a	Results of Tolerance Interval Test Conducted
Calcium	Tolerance Interval	0.14	MW372 exceeded the upper TL, which is evidence of elevated concentration with respect to current background data.
COD	Tolerance Interval	0.11	MW394 exceeded the upper TL, which is evidence of elevated concentration with respect to current background data.
Conductivity	Tolerance Interval	0.10	MW372 exceeded the upper TL, which is evidence of elevated concentration with respect to current background data.
Dissolved Solids	Tolerance Interval	0.12	MW372 exceeded the upper TL, which is evidence of elevated concentration with respect to current background data.
Magnesium	Tolerance Interval	0.14	MW372 and MW387 exceeded the upper TL, which is evidence of elevated concentration with respect to current background data.
Oxidation-Reduction Potential ^b	Tolerance Interval	0.11	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.
Sodium	Tolerance Interval	0.15	MW224 and MW372 exceeded the upper TL, which is evidence of elevated concentration with respect to current background data.
Sulfate	Tolerance Interval	0.26	MW372 exceeded the upper TL, which is evidence of elevated concentration with respect to current background data.
Technetium-99	Tolerance Interval	0.61	MW369, MW372, and MW387 exceeded the upper TL, which is evidence of elevated concentration with respect to current background data.

CV: coefficient of variation

^a If CV > 1.0, used log-transformed data.

^b Oxidation-Reduction Potential calibrated as Eh.

Exhibit D.13. Test Summaries for Qualified Parameters for Current Background—LRGA

Parameter	Performed Test	CV Normality Test^a	Results of Tolerance Interval Test Conducted
Calcium	Tolerance Interval	0.19	MW373 exceeded the upper TL, which is evidence of elevated concentration with respect to current background data.
Conductivity	Tolerance Interval	0.10	MW373 exceeded the upper TL, which is evidence of elevated concentration with respect to current background data.
Dissolved Solids	Tolerance Interval	0.13	MW373 exceeded the upper TL, which is evidence of elevated concentration with respect to current background data.
Magnesium	Tolerance Interval	0.19	MW373 exceeded the upper TL, which is evidence of elevated concentration with respect to current background data.
Oxidation-Reduction Potential ^b	Tolerance Interval	0.21	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.
Radium-226	Tolerance Interval	0.67	MW385, MW388, and MW392 exceeded the upper TL, which is evidence of elevated concentration with respect to current background data.
Sodium	Tolerance Interval	0.06	MW373 exceeded the upper TL, which is evidence of elevated concentration with respect to current background data.
Sulfate	Tolerance Interval	0.03	MW370, MW373, MW385, and MW388 exceeded the upper TL, which is evidence of elevated concentration with respect to current background data.

^a If CV > 1.0, used log-transformed data.

^b Oxidation-Reduction Potential calibrated as Eh.

ATTACHMENT D1

**COMPARISON OF CURRENT DATA TO
ONE-SIDED UPPER TOLERANCE INTERVAL TEST
CALCULATED USING
HISTORICAL BACKGROUND DATA**

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C-746-S/T Second 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= 0.320 S= 0.182 CV(1)=0.567 K factor**= 3.188 TL(1)= 9.00E-01 LL(1)=N/A

Statistics-Transformed Background Data X= -1.259 S= 0.503 CV(2)=-0.400 K factor**= 3.188 TL(2)= 3.45E-01 LL(2)=N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW396	
Date Collected	Result	LN(Result)
8/13/2002	3.93E-01	-9.34E-01
9/16/2002	2.00E-01	-1.61E+00
10/16/2002	2.00E-01	-1.61E+00
1/13/2003	5.01E-01	-6.91E-01
4/8/2003	2.00E-01	-1.61E+00
7/16/2003	2.00E-01	-1.61E+00
10/14/2003	2.00E-01	-1.61E+00
1/14/2004	6.68E-01	-4.03E-01

Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient
MW390	Downgradient

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)
MW386	Sidegradient	No	5.00E-02	N/A	-3.00E+00	N/A
MW393	Downgradient	Yes	2.88E-02	NO	-3.55E+00	N/A
MW396	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-S/T Second 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= 0.833 CV(1)=1.282 K factor**= 3.188 TL(1)= 3.31E+00 LL(1)=N/A

Statistics-Transformed Background Data X= -1.034 S= 1.066 CV(2)=-1.031 K factor**= 3.188 TL(2)= 2.36E+00 LL(2)=N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW396	
Date Collected	Result	LN(Result)
8/13/2002	2.00E+00	6.93E-01
9/16/2002	2.00E+00	6.93E-01
10/16/2002	2.00E-01	-1.61E+00
1/13/2003	2.00E-01	-1.61E+00
4/8/2003	2.00E-01	-1.61E+00
7/16/2003	2.00E-01	-1.61E+00
10/14/2003	2.00E-01	-1.61E+00
1/14/2004	2.00E-01	-1.61E+00

Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient
MW390	Downgradient

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)
MW386	Sidegradient	Yes	1.04E-02	N/A	-4.57E+00	NO
MW393	Downgradient	Yes	2.01E-02	N/A	-3.91E+00	NO
MW396	Upgradient	Yes	7.73E-03	N/A	-4.86E+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-S/T Second 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= 1.388 S= 0.327 CV(1)=0.236 K factor**= 3.188 TL(1)= 2.43E+00 LL(1)=N/A

Statistics-Transformed Background Data X= 0.301 S= 0.252 CV(2)=0.838 K factor**= 3.188 TL(2)= 1.10E+00 LL(2)=N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW396	
Date Collected	Result	LN(Result)
8/13/2002	1.50E+00	4.05E-01
9/16/2002	1.60E+00	4.70E-01
10/16/2002	1.60E+00	4.70E-01
1/13/2003	1.00E+00	0.00E+00
4/8/2003	1.00E+00	0.00E+00
7/16/2003	1.00E+00	0.00E+00
10/14/2003	1.70E+00	5.31E-01
1/14/2004	1.70E+00	5.31E-01

Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient
MW390	Downgradient

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)
MW386	Sidegradient	Yes	1.12E-01	NO	-2.19E+00	N/A
MW393	Downgradient	Yes	1.50E-01	NO	-1.90E+00	N/A
MW396	Upgradient	Yes	8.07E-01	NO	-2.14E-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-S/T Second Quarter 2024 Statistical Analysis Historical Background Comparison

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= 41.825 S= 8.445 CV(1)=0.202 **K factor**= 3.188** TL(1)= 6.87E+01 LL(1)=N/A

Statistics-Transformed Background Data X= 3.711 S= 0.241 CV(2)=0.065 **K factor**= 3.188** TL(2)= 4.48E+00 LL(2)=N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW396	
Date Collected	Result	LN(Result)
8/13/2002	3.84E+01	3.65E+00
9/16/2002	4.29E+01	3.76E+00
10/16/2002	4.02E+01	3.69E+00
1/13/2003	4.67E+01	3.84E+00
4/8/2003	4.98E+01	3.91E+00
7/16/2003	4.33E+01	3.77E+00
10/14/2003	4.97E+01	3.91E+00
1/14/2004	2.36E+01	3.16E+00

Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient
MW390	Downgradient

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)
MW386	Sidegradient	Yes	2.02E+01	NO	3.01E+00	N/A
MW393	Downgradient	Yes	1.71E+01	NO	2.84E+00	N/A
MW396	Upgradient	Yes	3.43E+01	NO	3.54E+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-S/T Second Quarter 2024 Statistical Analysis Historical Background Comparison

Chemical Oxygen Demand (COD)

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= 35.375 S= 0.744 CV(1)=0.021 K factor**= 3.188 TL(1)= 3.77E+01 LL(1)=N/A

Statistics-Transformed Background Data X= 3.566 S= 0.021 CV(2)=0.006 K factor**= 3.188 TL(2)= 3.63E+00 LL(2)=N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number: MW396		
Date Collected	Result	LN(Result)
8/13/2002	3.60E+01	3.58E+00
9/16/2002	3.50E+01	3.56E+00
10/16/2002	3.70E+01	3.61E+00
1/13/2003	3.50E+01	3.56E+00
4/8/2003	3.50E+01	3.56E+00
7/16/2003	3.50E+01	3.56E+00
10/14/2003	3.50E+01	3.56E+00
1/14/2004	3.50E+01	3.56E+00

Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient
MW390	Downgradient

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)
MW386	Sidegradient	Yes	2.32E+01	NO	3.14E+00	N/A
MW393	Downgradient	Yes	1.16E+01	NO	2.45E+00	N/A
MW396	Upgradient	Yes	2.32E+01	NO	3.14E+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-S/T Second Quarter 2024 Statistical Analysis Historical Background Comparison

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= 101.725 S= 5.245 CV(1)=0.052 **K factor**= 3.188** TL(1)= 1.18E+02 LL(1)=N/A

Statistics-Transformed Background Data X= 4.621 S= 0.053 CV(2)=0.011 **K factor**= 3.188** TL(2)= 4.79E+00 LL(2)=N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW396	
Date Collected	Result	LN(Result)
8/13/2002	9.16E+01	4.52E+00
9/16/2002	9.83E+01	4.59E+00
10/16/2002	1.01E+02	4.62E+00
1/13/2003	1.08E+02	4.68E+00
4/8/2003	1.01E+02	4.61E+00
7/16/2003	1.03E+02	4.63E+00
10/14/2003	1.07E+02	4.67E+00
1/14/2004	1.04E+02	4.65E+00

Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient
MW390	Downgradient

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)
MW386	Sidegradient	Yes	9.83E+00	NO	2.29E+00	N/A
MW393	Downgradient	Yes	9.08E+00	NO	2.21E+00	N/A
MW396	Upgradient	Yes	5.58E+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-S/T Second 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= 0.008 S= 0.011 CV(1)=1.340 **K factor**= 3.188** TL(1)= 4.18E-02 LL(1)=N/A

Statistics-Transformed Background Data X= -5.645 S= 1.339 CV(2)=-0.237 **K factor**= 3.188** TL(2)= -1.38E+00 LL(2)=N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW396	
Date Collected	Result	LN(Result)
8/13/2002	2.50E-02	-3.69E+00
9/16/2002	2.50E-02	-3.69E+00
10/16/2002	1.00E-03	-6.91E+00
1/13/2003	3.24E-03	-5.73E+00
4/8/2003	4.36E-03	-5.44E+00
7/16/2003	2.76E-03	-5.89E+00
10/14/2003	1.00E-03	-6.91E+00
1/14/2004	1.00E-03	-6.91E+00

Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient
MW390	Downgradient

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)
MW386	Sidegradient	Yes	4.24E-04	N/A	-7.77E+00	NO
MW393	Downgradient	No	1.00E-03	N/A	-6.91E+00	N/A
MW396	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, $S = [\text{Sum}([(background\ result-X)^2]/[\text{count of background results} - 1])]^{0.5}$

TL Upper Tolerance Limit, $TL = X + (K * S)$, LL Lower Tolerance Limit, $LL = X - (K * S)$

X Mean, $X = (\text{sum of background results})/(\text{count of background results})$

** 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-S/T Second 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= 922.500 S= 107.616 CV(1)=0.117 **K factor**= 3.188** TL(1)= 1.27E+03 LL(1)=N/A

Statistics-Transformed Background Data X= 6.822 S= 0.111 CV(2)=0.016 **K factor**= 3.188** TL(2)= 7.17E+00 LL(2)=N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW396	
Date Collected	Result	LN(Result)
8/13/2002	7.84E+02	6.66E+00
9/30/2002	8.71E+02	6.77E+00
10/16/2002	8.68E+02	6.77E+00
1/13/2003	9.12E+02	6.82E+00
4/8/2003	9.42E+02	6.85E+00
7/16/2003	9.10E+02	6.81E+00
10/14/2003	9.35E+02	6.84E+00
1/14/2004	1.16E+03	7.05E+00

Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient
MW390	Downgradient

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)
MW386	Sidegradient	Yes	5.39E+02	NO	6.29E+00	N/A
MW393	Downgradient	Yes	4.80E+02	NO	6.17E+00	N/A
MW396	Upgradient	Yes	7.13E+02	NO	6.57E+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-S/T Second 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= 0.028 S= 0.014 CV(1)=0.481 K factor**= 3.188 TL(1)= 7.16E-02 LL(1)=N/A

Statistics-Transformed Background Data X= -3.650 S= 0.414 CV(2)=-0.113 K factor**= 3.188 TL(2)= -2.33E+00 LL(2)=N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW396	
Date Collected	Result	LN(Result)
8/13/2002	5.00E-02	-3.00E+00
9/16/2002	5.00E-02	-3.00E+00
10/16/2002	2.60E-02	-3.65E+00
1/13/2003	2.00E-02	-3.91E+00
4/8/2003	2.00E-02	-3.91E+00
7/16/2003	2.00E-02	-3.91E+00
10/14/2003	2.00E-02	-3.91E+00
1/14/2004	2.00E-02	-3.91E+00

Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient
MW390	Downgradient

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)
MW386	Sidegradient	Yes	1.12E-03	NO	-6.79E+00	N/A
MW393	Downgradient	Yes	5.20E-04	NO	-7.56E+00	N/A
MW396	Upgradient	Yes	9.75E-04	NO	-6.93E+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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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= 1.395 S= 1.677 CV(1)=1.202 K factor**= 3.188 TL(1)= 6.74E+00 LL(1)=N/A

Statistics-Transformed Background Data X= -0.043 S= 0.814 CV(2)=-18.867 K factor**= 3.188 TL(2)= 2.55E+00 LL(2)=N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW396	
Date Collected	Result	LN(Result)
8/13/2002	5.45E+00	1.70E+00
9/16/2002	4.00E-01	-9.16E-01
10/16/2002	5.40E-01	-6.16E-01
1/13/2003	7.20E-01	-3.29E-01
4/8/2003	6.90E-01	-3.71E-01
7/16/2003	1.10E+00	9.53E-02
10/14/2003	7.10E-01	-3.42E-01
1/14/2004	1.55E+00	4.38E-01

Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient
MW390	Downgradient

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)
MW386	Sidegradient	Yes	3.71E+00	N/A	1.31E+00	NO
MW393	Downgradient	Yes	1.03E+00	N/A	2.96E-02	NO
MW396	Upgradient	Yes	1.00E+00	N/A	0.00E+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.

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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= 550.375 S= 104.330 CV(1)=0.190 **K factor**= 3.188** TL(1)= 8.83E+02 LL(1)=N/A

Statistics-Transformed Background Data X= 6.298 S= 0.162 CV(2)=0.026 **K factor**= 3.188** TL(2)= 6.82E+00 LL(2)=N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW396	
Date Collected	Result	LN(Result)
8/13/2002	5.02E+02	6.22E+00
9/16/2002	5.06E+02	6.23E+00
10/16/2002	5.43E+02	6.30E+00
1/13/2003	5.21E+02	6.26E+00
4/8/2003	5.04E+02	6.22E+00
7/16/2003	5.32E+02	6.28E+00
10/14/2003	4.90E+02	6.19E+00
1/14/2004	8.05E+02	6.69E+00

Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient
MW390	Downgradient

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)
MW386	Sidegradient	Yes	3.53E+02	NO	5.87E+00	N/A
MW393	Downgradient	Yes	2.78E+02	NO	5.63E+00	N/A
MW396	Upgradient	Yes	4.03E+02	NO	6.00E+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-S/T Second 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= 7.796 S= 3.723 CV(1)=0.478 K factor**= 3.188 TL(1)= 1.97E+01 LL(1)=N/A

Statistics-Transformed Background Data X= 1.880 S= 0.723 CV(2)=0.384 K factor**= 3.188 TL(2)= 4.18E+00 LL(2)=N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW396	
Date Collected	Result	LN(Result)
8/13/2002	1.80E+00	5.88E-01
9/16/2002	9.53E+00	2.25E+00
10/16/2002	7.43E+00	2.01E+00
1/13/2003	9.93E+00	2.30E+00
4/8/2003	1.02E+01	2.32E+00
7/16/2003	9.16E+00	2.21E+00
10/14/2003	1.19E+01	2.48E+00
1/14/2004	2.42E+00	8.84E-01

Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient
MW390	Downgradient

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)
MW386	Sidegradient	Yes	1.24E-01	NO	-2.09E+00	N/A
MW393	Downgradient	Yes	1.15E+00	NO	1.40E-01	N/A
MW396	Upgradient	Yes	1.69E-01	NO	-1.78E+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-S/T Second 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= 16.876 S= 3.313 CV(1)=0.196 K factor**= 3.188 TL(1)= 2.74E+01 LL(1)=N/A

Statistics-Transformed Background Data X= 2.804 S= 0.240 CV(2)=0.086 K factor**= 3.188 TL(2)= 3.57E+00 LL(2)=N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW396	
Date Collected	Result	LN(Result)
8/13/2002	1.55E+01	2.74E+00
9/16/2002	1.73E+01	2.85E+00
10/16/2002	1.78E+01	2.88E+00
1/13/2003	1.92E+01	2.95E+00
4/8/2003	1.78E+01	2.88E+00
7/16/2003	1.78E+01	2.88E+00
10/14/2003	2.02E+01	3.01E+00
1/14/2004	9.41E+00	2.24E+00

Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient
MW390	Downgradient

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)
MW386	Sidegradient	Yes	8.29E+00	NO	2.12E+00	N/A
MW393	Downgradient	Yes	4.44E+00	NO	1.49E+00	N/A
MW396	Upgradient	Yes	1.50E+01	NO	2.71E+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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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= 0.774 S= 0.353 CV(1)=0.456 **K factor**= 3.188** TL(1)= 1.90E+00 LL(1)=N/A

Statistics-Transformed Background Data X= -0.566 S= 1.192 CV(2)=-2.105 **K factor**= 3.188** TL(2)= 3.23E+00 LL(2)=N/A

Historical Background Data from Upgradient Wells with Transformed Result

Dry/Partially Dry Wells

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Well Number:	MW396	
Date Collected	Result	LN(Result)
8/13/2002	5.70E-01	-5.62E-01
9/16/2002	6.47E-01	-4.35E-01
10/16/2002	8.80E-01	-1.28E-01
1/13/2003	1.13E+00	1.24E-01
4/8/2003	9.65E-01	-3.56E-02
7/16/2003	9.83E-01	-1.71E-02
10/14/2003	9.84E-01	-1.61E-02
1/14/2004	3.14E-02	-3.46E+00

Well No.	Gradient
MW389	Downgradient
MW390	Downgradient

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW386	Sidegradient	Yes	4.11E-02	NO	-3.19E+00	N/A
MW393	Downgradient	Yes	2.94E-02	NO	-3.53E+00	N/A
MW396	Upgradient	Yes	1.20E-02	NO	-4.42E+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, $S = [\text{Sum}([(background\ result-X)^2]/[\text{count of background results} - 1])]^{0.5}$

TL Upper Tolerance Limit, $TL = X + (K * S)$, LL Lower Tolerance Limit, $LL = X - (K * S)$

X Mean, $X = (\text{sum of background results})/(\text{count of background results})$

** 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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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= 0.007 S= 0.011 CV(1)=1.507 **K factor**= 3.188** TL(1)= 4.22E-02 LL(1)=N/A

Statistics-Transformed Background Data X= -5.928 S= 1.420 CV(2)=-0.240 **K factor**= 3.188** TL(2)= -1.40E+00 LL(2)=N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW396	
Date Collected	Result	LN(Result)
8/13/2002	2.50E-02	-3.69E+00
9/16/2002	2.50E-02	-3.69E+00
10/16/2002	1.00E-03	-6.91E+00
1/13/2003	1.28E-03	-6.66E+00
4/8/2003	2.71E-03	-5.91E+00
7/16/2003	1.17E-03	-6.75E+00
10/14/2003	1.00E-03	-6.91E+00
1/14/2004	1.00E-03	-6.91E+00

Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient
MW390	Downgradient

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)
MW386	Sidegradient	Yes	6.19E-04	N/A	-7.39E+00	NO
MW393	Downgradient	Yes	5.03E-04	N/A	-7.59E+00	NO
MW396	Upgradient	Yes	3.60E-04	N/A	-7.93E+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.*

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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= 0.016 S= 0.021 CV(1)=1.272 K factor**= 3.188 TL(1)= 8.26E-02 LL(1)=N/A

Statistics-Transformed Background Data X= -4.706 S= 1.057 CV(2)=-0.225 K factor**= 3.188 TL(2)= -1.34E+00 LL(2)=N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW396	
Date Collected	Result	LN(Result)
8/13/2002	5.00E-02	-3.00E+00
9/16/2002	5.00E-02	-3.00E+00
10/16/2002	5.00E-03	-5.30E+00
1/13/2003	5.00E-03	-5.30E+00
4/8/2003	5.71E-03	-5.17E+00
7/16/2003	5.00E-03	-5.30E+00
10/14/2003	5.00E-03	-5.30E+00
1/14/2004	5.00E-03	-5.30E+00

Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient
MW390	Downgradient

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)
MW386	Sidegradient	Yes	6.69E-04	N/A	-7.31E+00	NO
MW393	Downgradient	No	2.00E-03	N/A	-6.21E+00	N/A
MW396	Upgradient	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.

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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= 13.000 S= 61.952 CV(1)=4.766 **K factor**= 3.188** TL(1)= 2.11E+02 LL(1)=N/A

Statistics-Transformed Background Data X= 4.364 S= 0.333 CV(2)=0.076 **K factor**= 3.188** TL(2)= 4.74E+00 LL(2)=N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW396	
Date Collected	Result	LN(Result)
8/13/2002	6.00E+01	4.09E+00
4/8/2003	7.10E+01	4.26E+00
7/16/2003	-5.60E+01	#Func!
10/14/2003	-5.40E+01	#Func!
1/14/2004	-2.20E+01	#Func!
4/12/2004	-6.00E+00	#Func!
7/20/2004	-3.00E+00	#Func!
10/12/2004	1.14E+02	4.74E+00

Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient
MW390	Downgradient

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)
MW386	Sidegradient	Yes	3.73E+02	N/A	5.92E+00	YES
MW393	Downgradient	Yes	2.26E+02	N/A	5.42E+00	YES
MW396	Upgradient	Yes	3.53E+02	N/A	5.87E+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

MW386
MW393
MW396

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, $S = [\text{Sum}([(background\ result - X)^2]/[\text{count of background results} - 1])]^{0.5}$

TL Upper Tolerance Limit, $TL = X + (K * S)$, LL Lower Tolerance Limit, $LL = X - (K * S)$

X Mean, $X = (\text{sum of background results})/(\text{count of background results})$

** 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

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= 6.460 S= 0.350 CV(1)=0.054 K factor**= 3.736 TL(1)= 7.77E+00 LL(1)=5.15E+00

Statistics-Transformed Background Data X= 1.864 S= 0.054 CV(2)=0.029 K factor**= 3.736 TL(2)= 2.07E+00 LL(2)=1.66E+00

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW396	
Date Collected	Result	LN(Result)
8/13/2002	6.17E+00	1.82E+00
9/16/2002	6.40E+00	1.86E+00
10/16/2002	5.90E+00	1.77E+00
1/13/2003	6.40E+00	1.86E+00
4/8/2003	6.65E+00	1.89E+00
7/16/2003	6.40E+00	1.86E+00
10/14/2003	6.71E+00	1.90E+00
1/14/2004	7.05E+00	1.95E+00

Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient
MW390	Downgradient

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)?
MW386	Sidegradient	Yes	5.84E+00	NO	1.76E+00	N/A
MW393	Downgradient	Yes	6.22E+00	NO	1.83E+00	N/A
MW396	Upgradient	Yes	6.30E+00	NO	1.84E+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, $S = [\text{Sum}([(background\ result-X)^2]/[\text{count of background results} - 1])]^{0.5}$

TL Upper Tolerance Limit, $TL = X + (K * S)$, LL Lower Tolerance Limit, $LL = X - (K * S)$

X Mean, $X = (\text{sum of background results})/(\text{count of background results})$

** 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

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= 1.411 S= 0.399 CV(1)=0.282 K factor**= 3.188 TL(1)= 2.68E+00 LL(1)=N/A

Statistics-Transformed Background Data X= 0.311 S= 0.271 CV(2)=0.870 K factor**= 3.188 TL(2)= 1.18E+00 LL(2)=N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW396	
Date Collected	Result	LN(Result)
8/13/2002	2.00E+00	6.93E-01
9/16/2002	2.00E+00	6.93E-01
10/16/2002	9.78E-01	-2.22E-02
1/13/2003	1.08E+00	7.70E-02
4/8/2003	1.12E+00	1.13E-01
7/16/2003	1.38E+00	3.22E-01
10/14/2003	1.24E+00	2.15E-01
1/14/2004	1.49E+00	3.99E-01

Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient
MW390	Downgradient

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)
MW386	Sidegradient	Yes	2.77E-01	NO	-1.28E+00	N/A
MW393	Downgradient	Yes	5.39E-01	NO	-6.18E-01	N/A
MW396	Upgradient	Yes	9.30E-01	NO	-7.26E-02	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, $S = [\text{Sum}([(background\ result-X)^2]/[\text{count of background results} - 1])]^{0.5}$
- TL Upper Tolerance Limit, $TL = X + (K * S)$, LL Lower Tolerance Limit, $LL = X - (K * S)$
- X Mean, $X = (\text{sum of background results})/(\text{count of background results})$

** 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

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= 106.825 S= 32.041 CV(1)=0.300 K factor**= 3.188 TL(1)= 2.09E+02 LL(1)=N/A

Statistics-Transformed Background Data X= 4.595 S= 0.492 CV(2)=0.107 K factor**= 3.188 TL(2)= 6.16E+00 LL(2)=N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW396	
Date Collected	Result	LN(Result)
8/13/2002	1.15E+02	4.74E+00
9/16/2002	1.16E+02	4.75E+00
10/16/2002	1.17E+02	4.76E+00
1/13/2003	1.22E+02	4.80E+00
4/8/2003	1.06E+02	4.66E+00
7/16/2003	1.17E+02	4.76E+00
10/14/2003	1.32E+02	4.88E+00
1/14/2004	2.96E+01	3.39E+00

Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient
MW390	Downgradient

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)
MW386	Sidegradient	Yes	9.97E+01	NO	4.60E+00	N/A
MW393	Downgradient	Yes	8.56E+01	NO	4.45E+00	N/A
MW396	Upgradient	Yes	9.78E+01	NO	4.58E+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-S/T Second 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= 22.463 S= 8.876 CV(1)=0.395 K factor**= 3.188 TL(1)= 5.08E+01 LL(1)=N/A

Statistics-Transformed Background Data X= 3.054 S= 0.351 CV(2)=0.115 K factor**= 3.188 TL(2)= 4.17E+00 LL(2)=N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW396	
Date Collected	Result	LN(Result)
8/13/2002	4.19E+01	3.74E+00
9/16/2002	2.63E+01	3.27E+00
10/16/2002	2.06E+01	3.03E+00
1/13/2003	1.66E+01	2.81E+00
4/8/2003	2.39E+01	3.17E+00
7/16/2003	1.88E+01	2.93E+00
10/14/2003	1.29E+01	2.56E+00
1/14/2004	1.87E+01	2.93E+00

Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient
MW390	Downgradient

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)
MW386	Sidegradient	Yes	4.51E+01	NO	3.81E+00	N/A
MW393	Downgradient	Yes	2.37E+01	NO	3.17E+00	N/A
MW396	Upgradient	Yes	2.89E+01	NO	3.36E+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

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= 9.988 S= 4.696 CV(1)=0.470 K factor**= 3.188 TL(1)= 2.50E+01 LL(1)=N/A

Statistics-Transformed Background Data X= 2.210 S= 0.454 CV(2)=0.205 K factor**= 3.188 TL(2)= 3.66E+00 LL(2)=N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW396	
Date Collected	Result	LN(Result)
8/13/2002	1.90E+01	2.94E+00
9/16/2002	1.46E+01	2.68E+00
10/16/2002	1.04E+01	2.34E+00
1/13/2003	4.40E+00	1.48E+00
4/8/2003	7.00E+00	1.95E+00
7/16/2003	7.30E+00	1.99E+00
10/14/2003	9.10E+00	2.21E+00
1/14/2004	8.10E+00	2.09E+00

Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient
MW390	Downgradient

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)
MW386	Sidegradient	Yes	4.40E+00	NO	1.48E+00	N/A
MW393	Downgradient	Yes	2.61E+00	NO	9.59E-01	N/A
MW396	Upgradient	Yes	4.22E+00	NO	1.44E+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.*

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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= 142.650 S= 53.533 CV(1)=0.375 **K factor**= 3.188** TL(1)= 3.13E+02 LL(1)=N/A

Statistics-Transformed Background Data X= 4.896 S= 0.390 CV(2)=0.080 **K factor**= 3.188** TL(2)= 6.14E+00 LL(2)=N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW396	
Date Collected	Result	LN(Result)
8/13/2002	1.93E+02	5.26E+00
9/16/2002	1.90E+02	5.25E+00
10/16/2002	2.21E+02	5.40E+00
1/13/2003	1.06E+02	4.66E+00
4/8/2003	7.78E+01	4.35E+00
7/16/2003	1.22E+02	4.80E+00
10/14/2003	8.64E+01	4.46E+00
1/14/2004	1.45E+02	4.98E+00

Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient
MW390	Downgradient

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)
MW386	Sidegradient	Yes	1.18E+02	NO	4.77E+00	N/A
MW393	Downgradient	Yes	1.86E+01	NO	2.92E+00	N/A
MW396	Upgradient	Yes	6.48E+01	NO	4.17E+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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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= 10.250 S= 1.000 CV(1)=0.098 K factor**= 2.523 TL(1)= 1.28E+01 LL(1)=N/A

Statistics-Transformed Background Data X= 2.324 S= 0.084 CV(2)=0.036 K factor**= 2.523 TL(2)= 2.54E+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: MW220

Date Collected	Result	LN(Result)
10/14/2002	1.00E+01	2.30E+00
1/15/2003	1.00E+01	2.30E+00
4/10/2003	1.00E+01	2.30E+00
7/14/2003	1.00E+01	2.30E+00
10/13/2003	1.00E+01	2.30E+00
4/13/2004	1.00E+01	2.30E+00
7/21/2004	1.00E+01	2.30E+00
10/11/2004	1.00E+01	2.30E+00

Well Number: MW394

Date Collected	Result	LN(Result)
8/13/2002	1.00E+01	2.30E+00
9/30/2002	1.00E+01	2.30E+00
10/16/2002	1.00E+01	2.30E+00
1/13/2003	1.00E+01	2.30E+00
4/10/2003	1.00E+01	2.30E+00
7/16/2003	1.00E+01	2.30E+00
10/14/2003	1.40E+01	2.64E+00
4/12/2004	1.00E+01	2.30E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW220	Upgradient	Yes	2.19E+00	NO	7.84E-01	N/A
MW221	Sidegradient	No	5.00E+00	N/A	1.61E+00	N/A
MW222	Sidegradient	No	5.00E+00	N/A	1.61E+00	N/A
MW223	Sidegradient	No	5.00E+00	N/A	1.61E+00	N/A
MW224	Sidegradient	No	5.00E+00	N/A	1.61E+00	N/A
MW369	Downgradient	No	5.00E+00	N/A	1.61E+00	N/A
MW372	Downgradient	No	5.00E+00	N/A	1.61E+00	N/A
MW384	Sidegradient	No	5.00E+00	N/A	1.61E+00	N/A
MW387	Downgradient	No	5.00E+00	N/A	1.61E+00	N/A
MW391	Downgradient	No	5.00E+00	N/A	1.61E+00	N/A
MW394	Upgradient	No	5.00E+00	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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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= 0.221 S= 0.061 CV(1)=0.277 K factor**= 2.523 TL(1)= 3.76E-01 LL(1)=N/A

Statistics-Transformed Background Data X= -1.534 S= 0.212 CV(2)=-0.138 K factor**= 2.523 TL(2)= -9.99E-01 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: MW220

Date Collected	Result	LN(Result)
10/14/2002	2.00E-01	-1.61E+00
1/15/2003	2.00E-01	-1.61E+00
4/10/2003	2.00E-01	-1.61E+00
7/14/2003	2.00E-01	-1.61E+00
10/13/2003	4.27E-01	-8.51E-01
1/13/2004	3.09E-01	-1.17E+00
4/13/2004	2.00E-01	-1.61E+00
7/21/2004	2.02E-01	-1.60E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW220	Upgradient	No	5.00E-02	N/A	-3.00E+00	N/A
MW221	Sidegradient	No	5.00E-02	N/A	-3.00E+00	N/A
MW222	Sidegradient	No	5.00E-02	N/A	-3.00E+00	N/A
MW223	Sidegradient	No	5.00E-02	N/A	-3.00E+00	N/A
MW224	Sidegradient	No	5.00E-02	N/A	-3.00E+00	N/A
MW369	Downgradient	Yes	7.91E-02	NO	-2.54E+00	N/A
MW372	Downgradient	No	5.00E-02	N/A	-3.00E+00	N/A
MW384	Sidegradient	No	5.00E-02	N/A	-3.00E+00	N/A
MW387	Downgradient	Yes	5.01E-02	NO	-2.99E+00	N/A
MW391	Downgradient	Yes	2.20E-02	NO	-3.82E+00	N/A
MW394	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.

Well Number: MW394

Date Collected	Result	LN(Result)
8/13/2002	2.00E-01	-1.61E+00
9/16/2002	2.00E-01	-1.61E+00
10/16/2002	2.00E-01	-1.61E+00
1/13/2003	2.00E-01	-1.61E+00
4/10/2003	2.00E-01	-1.61E+00
7/16/2003	2.00E-01	-1.61E+00
10/14/2003	2.00E-01	-1.61E+00
1/13/2004	2.00E-01	-1.61E+00

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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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= 0.425 S= 0.615 CV(1)=1.447 K factor**= 2.523 TL(1)= 1.98E+00 LL(1)=N/A

Statistics-Transformed Background Data X= -1.322 S= 0.786 CV(2)=-0.595 K factor**= 2.523 TL(2)= 6.63E-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: MW220

Date Collected	Result	LN(Result)
10/14/2002	2.00E-01	-1.61E+00
1/15/2003	2.00E-01	-1.61E+00
4/10/2003	2.00E-01	-1.61E+00
7/14/2003	2.00E-01	-1.61E+00
10/13/2003	2.00E-01	-1.61E+00
1/13/2004	2.00E-01	-1.61E+00
4/13/2004	2.00E-01	-1.61E+00
7/21/2004	2.00E-01	-1.61E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW220	Upgradient	Yes	7.94E-03	N/A	-4.84E+00	NO
MW221	Sidegradient	Yes	2.23E-02	N/A	-3.80E+00	NO
MW222	Sidegradient	Yes	8.89E-03	N/A	-4.72E+00	NO
MW223	Sidegradient	Yes	7.66E-03	N/A	-4.87E+00	NO
MW224	Sidegradient	Yes	2.23E-02	N/A	-3.80E+00	NO
MW369	Downgradient	Yes	1.53E-02	N/A	-4.18E+00	NO
MW372	Downgradient	Yes	1.14E+00	N/A	1.31E-01	NO
MW384	Sidegradient	Yes	6.06E-02	N/A	-2.80E+00	NO
MW387	Downgradient	Yes	3.60E-02	N/A	-3.32E+00	NO
MW391	Downgradient	Yes	2.88E-02	N/A	-3.55E+00	NO
MW394	Upgradient	Yes	2.06E-02	N/A	-3.88E+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-S/T Second 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

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Well Number: MW220

Date Collected	Result	LN(Result)
10/14/2002	1.00E+00	0.00E+00
1/15/2003	1.00E+00	0.00E+00
4/10/2003	1.00E+00	0.00E+00
7/14/2003	1.00E+00	0.00E+00
10/13/2003	1.00E+00	0.00E+00
1/13/2004	1.00E+00	0.00E+00
4/13/2004	1.00E+00	0.00E+00
7/21/2004	1.00E+00	0.00E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW220	Upgradient	Yes	1.83E-01	NO	-1.70E+00	N/A
MW221	Sidegradient	Yes	4.57E-01	NO	-7.83E-01	N/A
MW222	Sidegradient	Yes	4.10E-01	NO	-8.92E-01	N/A
MW223	Sidegradient	Yes	4.27E-01	NO	-8.51E-01	N/A
MW224	Sidegradient	No	2.00E-01	N/A	-1.61E+00	N/A
MW369	Downgradient	Yes	3.74E-01	NO	-9.83E-01	N/A
MW372	Downgradient	Yes	7.44E-01	NO	-2.96E-01	N/A
MW384	Sidegradient	Yes	2.84E-01	NO	-1.26E+00	N/A
MW387	Downgradient	Yes	3.91E-01	NO	-9.39E-01	N/A
MW391	Downgradient	Yes	5.69E-01	NO	-5.64E-01	N/A
MW394	Upgradient	Yes	6.80E-01	NO	-3.86E-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.

Well Number: MW394

Date Collected	Result	LN(Result)
8/13/2002	1.00E+00	0.00E+00
9/16/2002	1.00E+00	0.00E+00
10/16/2002	1.00E+00	0.00E+00
1/13/2003	1.00E+00	0.00E+00
4/10/2003	1.00E+00	0.00E+00
7/16/2003	1.00E+00	0.00E+00
10/14/2003	1.00E+00	0.00E+00
1/13/2004	1.00E+00	0.00E+00

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-S/T Second 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= 27.638 S= 4.743 CV(1)=0.172 K factor**= 2.523 TL(1)= 3.96E+01 LL(1)=N/A

Statistics-Transformed Background Data X= 3.304 S= 0.183 CV(2)=0.055 K factor**= 2.523 TL(2)= 3.76E+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: MW220

Date Collected	Result	LN(Result)
10/14/2002	2.36E+01	3.16E+00
1/15/2003	2.59E+01	3.25E+00
4/10/2003	3.04E+01	3.41E+00
7/14/2003	3.39E+01	3.52E+00
10/13/2003	2.13E+01	3.06E+00
1/13/2004	2.03E+01	3.01E+00
4/13/2004	2.38E+01	3.17E+00
7/21/2004	1.90E+01	2.94E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW220	Upgradient	Yes	2.33E+01	NO	3.15E+00	N/A
MW221	Sidegradient	Yes	2.13E+01	NO	3.06E+00	N/A
MW222	Sidegradient	Yes	2.14E+01	NO	3.06E+00	N/A
MW223	Sidegradient	Yes	2.15E+01	NO	3.07E+00	N/A
MW224	Sidegradient	Yes	2.45E+01	NO	3.20E+00	N/A
MW369	Downgradient	Yes	1.49E+01	NO	2.70E+00	N/A
MW372	Downgradient	Yes	6.53E+01	YES	4.18E+00	N/A
MW384	Sidegradient	Yes	2.23E+01	NO	3.10E+00	N/A
MW387	Downgradient	Yes	3.74E+01	NO	3.62E+00	N/A
MW391	Downgradient	Yes	2.63E+01	NO	3.27E+00	N/A
MW394	Upgradient	Yes	2.79E+01	NO	3.33E+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.

Well Number: MW394

Date Collected	Result	LN(Result)
8/13/2002	2.95E+01	3.38E+00
9/16/2002	2.99E+01	3.40E+00
10/16/2002	3.12E+01	3.44E+00
1/13/2003	3.07E+01	3.42E+00
4/10/2003	3.44E+01	3.54E+00
7/16/2003	2.96E+01	3.39E+00
10/14/2003	3.03E+01	3.41E+00
1/13/2004	2.84E+01	3.35E+00

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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Chemical Oxygen Demand (COD) UNITS: mg/L URG

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= 35.000	S= 0.000	CV(1)=0.000	K factor**= 2.523	TL(1)= 3.50E+01	LL(1)=N/A
Statistics-Transformed Background Data	X= 3.555	S= 0.000	CV(2)=0.000	K factor**= 2.523	TL(2)= 3.56E+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: MW220

Date Collected	Result	LN(Result)
10/14/2002	3.50E+01	3.56E+00
1/15/2003	3.50E+01	3.56E+00
4/10/2003	3.50E+01	3.56E+00
7/14/2003	3.50E+01	3.56E+00
10/13/2003	3.50E+01	3.56E+00
1/13/2004	3.50E+01	3.56E+00
4/13/2004	3.50E+01	3.56E+00
7/21/2004	3.50E+01	3.56E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW220	Upgradient	No	2.00E+01	N/A	3.00E+00	N/A
MW221	Sidegradient	No	2.00E+01	N/A	3.00E+00	N/A
MW222	Sidegradient	No	2.00E+01	N/A	3.00E+00	N/A
MW223	Sidegradient	No	2.00E+01	N/A	3.00E+00	N/A
MW224	Sidegradient	No	2.00E+01	N/A	3.00E+00	N/A
MW369	Downgradient	No	2.00E+01	N/A	3.00E+00	N/A
MW372	Downgradient	No	2.00E+01	N/A	3.00E+00	N/A
MW384	Sidegradient	No	2.00E+01	N/A	3.00E+00	N/A
MW387	Downgradient	Yes	9.23E+00	NO	2.22E+00	N/A
MW391	Downgradient	Yes	9.23E+00	NO	2.22E+00	N/A
MW394	Upgradient	Yes	7.90E+01	YES	4.37E+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.

Well Number: MW394

Date Collected	Result	LN(Result)
8/13/2002	3.50E+01	3.56E+00
9/16/2002	3.50E+01	3.56E+00
10/16/2002	3.50E+01	3.56E+00
1/13/2003	3.50E+01	3.56E+00
4/10/2003	3.50E+01	3.56E+00
7/16/2003	3.50E+01	3.56E+00
10/14/2003	3.50E+01	3.56E+00
1/13/2004	3.50E+01	3.56E+00

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

MW394

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

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= 49.044 S= 11.278 CV(1)=0.230 **K factor**= 2.523** TL(1)= 7.75E+01 LL(1)=N/A

Statistics-Transformed Background Data X= 3.866 S= 0.244 CV(2)=0.063 **K factor**= 2.523** TL(2)= 4.48E+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: MW220

Date Collected	Result	LN(Result)
10/14/2002	4.46E+01	3.80E+00
1/15/2003	4.32E+01	3.77E+00
4/10/2003	3.15E+01	3.45E+00
7/14/2003	3.08E+01	3.43E+00
10/13/2003	4.09E+01	3.71E+00
1/13/2004	4.08E+01	3.71E+00
4/13/2004	3.75E+01	3.62E+00
7/21/2004	4.08E+01	3.71E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW220	Upgradient	Yes	1.77E+01	NO	2.87E+00	N/A
MW221	Sidegradient	Yes	3.55E+01	NO	3.57E+00	N/A
MW222	Sidegradient	Yes	3.45E+01	NO	3.54E+00	N/A
MW223	Sidegradient	Yes	3.56E+01	NO	3.57E+00	N/A
MW224	Sidegradient	Yes	1.91E+01	NO	2.95E+00	N/A
MW369	Downgradient	Yes	2.72E+01	NO	3.30E+00	N/A
MW372	Downgradient	Yes	3.87E+01	NO	3.66E+00	N/A
MW384	Sidegradient	Yes	2.02E+01	NO	3.01E+00	N/A
MW387	Downgradient	Yes	3.62E+01	NO	3.59E+00	N/A
MW391	Downgradient	Yes	4.31E+01	NO	3.76E+00	N/A
MW394	Upgradient	Yes	4.41E+01	NO	3.79E+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.

Well Number: MW394

Date Collected	Result	LN(Result)
8/13/2002	6.04E+01	4.10E+00
9/16/2002	6.03E+01	4.10E+00
10/16/2002	5.80E+01	4.06E+00
1/13/2003	6.07E+01	4.11E+00
4/10/2003	6.29E+01	4.14E+00
7/16/2003	5.81E+01	4.06E+00
10/14/2003	5.82E+01	4.06E+00
1/13/2004	5.60E+01	4.03E+00

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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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= 0.016 S= 0.040 CV(1)=2.440 K factor**= 2.523 TL(1)= 1.16E-01 LL(1)=N/A

Statistics-Transformed Background Data X= -5.582 S= 1.573 CV(2)=-0.282 K factor**= 2.523 TL(2)= -1.61E+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: MW220

Date Collected	Result	LN(Result)
10/14/2002	4.10E-03	-5.50E+00
1/15/2003	4.96E-03	-5.31E+00
4/10/2003	2.89E-03	-5.85E+00
7/14/2003	1.61E-01	-1.83E+00
10/13/2003	2.26E-02	-3.79E+00
1/13/2004	4.64E-03	-5.37E+00
4/13/2004	1.00E-03	-6.91E+00
7/21/2004	2.64E-03	-5.94E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW220	Upgradient	No	1.00E-03	N/A	-6.91E+00	N/A
MW221	Sidegradient	No	1.00E-03	N/A	-6.91E+00	N/A
MW222	Sidegradient	No	1.00E-03	N/A	-6.91E+00	N/A
MW223	Sidegradient	Yes	4.55E-03	N/A	-5.39E+00	NO
MW224	Sidegradient	No	1.00E-03	N/A	-6.91E+00	N/A
MW369	Downgradient	Yes	4.09E-03	N/A	-5.50E+00	NO
MW372	Downgradient	No	1.00E-03	N/A	-6.91E+00	N/A
MW384	Sidegradient	No	1.00E-03	N/A	-6.91E+00	N/A
MW387	Downgradient	No	1.00E-03	N/A	-6.91E+00	N/A
MW391	Downgradient	No	1.00E-03	N/A	-6.91E+00	N/A
MW394	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.

Well Number: MW394

Date Collected	Result	LN(Result)
8/13/2002	2.50E-02	-3.69E+00
9/16/2002	2.50E-02	-3.69E+00
10/16/2002	1.00E-03	-6.91E+00
1/13/2003	1.00E-03	-6.91E+00
4/10/2003	1.00E-03	-6.91E+00
7/16/2003	1.00E-03	-6.91E+00
10/14/2003	1.00E-03	-6.91E+00
1/13/2004	1.00E-03	-6.91E+00

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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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= 382.132 S= 107.134 CV(1)=0.280 **K factor**= 2.523** TL(1)= 6.52E+02 LL(1)=N/A

Statistics-Transformed Background Data X= 5.716 S= 1.164 CV(2)=0.204 **K factor**= 2.523** TL(2)= 8.65E+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: MW220

Date Collected	Result	LN(Result)
10/14/2002	3.68E+02	5.91E+00
1/15/2003	4.33E+02	6.07E+00
4/10/2003	4.89E+02	6.19E+00
7/14/2003	4.30E+02	6.06E+00
10/13/2003	3.46E+02	5.85E+00
1/13/2004	3.65E+02	5.90E+00
4/13/2004	4.16E+02	6.03E+00
7/21/2004	3.53E+02	5.87E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW220	Upgradient	Yes	3.78E+02	NO	5.93E+00	N/A
MW221	Sidegradient	Yes	3.98E+02	NO	5.99E+00	N/A
MW222	Sidegradient	Yes	3.91E+02	NO	5.97E+00	N/A
MW223	Sidegradient	Yes	3.93E+02	NO	5.97E+00	N/A
MW224	Sidegradient	Yes	4.60E+02	NO	6.13E+00	N/A
MW369	Downgradient	Yes	3.47E+02	NO	5.85E+00	N/A
MW372	Downgradient	Yes	7.58E+02	YES	6.63E+00	N/A
MW384	Sidegradient	Yes	3.49E+02	NO	5.86E+00	N/A
MW387	Downgradient	Yes	5.16E+02	NO	6.25E+00	N/A
MW391	Downgradient	Yes	3.99E+02	NO	5.99E+00	N/A
MW394	Upgradient	Yes	4.14E+02	NO	6.03E+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.

Well Number: MW394

Date Collected	Result	LN(Result)
8/13/2002	4.06E+02	6.01E+00
9/16/2002	4.18E+02	6.04E+00
10/16/2002	4.11E+02	6.02E+00
1/13/2003	4.22E+02	6.05E+00
4/10/2003	4.20E+02	6.04E+00
7/16/2003	4.38E+02	6.08E+00
10/14/2003	3.91E+00	1.36E+00
1/13/2004	3.95E+02	5.98E+00

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-S/T Second 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= 0.024 S= 0.010 CV(1)=0.429 K factor**= 2.523 TL(1)= 4.96E-02 LL(1)=N/A

Statistics-Transformed Background Data X= -3.794 S= 0.312 CV(2)=-0.082 K factor**= 2.523 TL(2)= -3.01E+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: MW220

Date Collected	Result	LN(Result)
10/14/2002	2.11E-02	-3.86E+00
1/15/2003	2.00E-02	-3.91E+00
4/10/2003	2.00E-02	-3.91E+00
7/14/2003	2.00E-02	-3.91E+00
10/13/2003	2.00E-02	-3.91E+00
1/13/2004	2.00E-02	-3.91E+00
4/13/2004	2.00E-02	-3.91E+00
7/21/2004	2.00E-02	-3.91E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW220	Upgradient	Yes	3.51E-03	NO	-5.65E+00	N/A
MW221	Sidegradient	Yes	9.90E-04	NO	-6.92E+00	N/A
MW222	Sidegradient	Yes	9.96E-04	NO	-6.91E+00	N/A
MW223	Sidegradient	Yes	1.04E-03	NO	-6.87E+00	N/A
MW224	Sidegradient	Yes	1.79E-03	NO	-6.33E+00	N/A
MW369	Downgradient	Yes	1.40E-03	NO	-6.57E+00	N/A
MW372	Downgradient	Yes	6.70E-04	NO	-7.31E+00	N/A
MW384	Sidegradient	Yes	1.07E-03	NO	-6.84E+00	N/A
MW387	Downgradient	Yes	1.40E-03	NO	-6.57E+00	N/A
MW391	Downgradient	Yes	7.69E-04	NO	-7.17E+00	N/A
MW394	Upgradient	Yes	1.48E-03	NO	-6.52E+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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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= 3.784 S= 1.887 CV(1)=0.499 K factor**= 2.523 TL(1)= 8.54E+00 LL(1)=N/A

Statistics-Transformed Background Data X= 1.182 S= 0.612 CV(2)=0.518 K factor**= 2.523 TL(2)= 2.73E+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: MW220

Date Collected	Result	LN(Result)
10/14/2002	6.79E+00	1.92E+00
1/15/2003	7.25E+00	1.98E+00
4/10/2003	3.60E+00	1.28E+00
7/14/2003	9.40E-01	-6.19E-02
10/13/2003	1.65E+00	5.01E-01
1/13/2004	3.48E+00	1.25E+00
4/13/2004	1.05E+00	4.88E-02
7/21/2004	4.46E+00	1.50E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW220	Upgradient	Yes	5.17E+00	NO	1.64E+00	N/A
MW221	Sidegradient	Yes	5.55E+00	NO	1.71E+00	N/A
MW222	Sidegradient	Yes	4.54E+00	NO	1.51E+00	N/A
MW223	Sidegradient	Yes	3.69E+00	NO	1.31E+00	N/A
MW224	Sidegradient	Yes	2.99E+00	NO	1.10E+00	N/A
MW369	Downgradient	Yes	2.39E+00	NO	8.71E-01	N/A
MW372	Downgradient	Yes	2.12E+00	NO	7.51E-01	N/A
MW384	Sidegradient	Yes	6.60E+00	NO	1.89E+00	N/A
MW387	Downgradient	Yes	4.46E+00	NO	1.50E+00	N/A
MW391	Downgradient	Yes	4.69E+00	NO	1.55E+00	N/A
MW394	Upgradient	Yes	5.97E+00	NO	1.79E+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.

Well Number: MW394

Date Collected	Result	LN(Result)
8/13/2002	6.09E+00	1.81E+00
9/16/2002	3.85E+00	1.35E+00
10/16/2002	5.11E+00	1.63E+00
1/13/2003	3.83E+00	1.34E+00
4/10/2003	4.15E+00	1.42E+00
7/16/2003	1.83E+00	6.04E-01
10/14/2003	3.33E+00	1.20E+00
1/13/2004	3.14E+00	1.14E+00

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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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= 232.688 S= 27.490 CV(1)=0.118 **K factor**= 2.523** TL(1)= 3.02E+02 LL(1)=N/A

Statistics-Transformed Background Data X= 5.443 S= 0.118 CV(2)=0.022 **K factor**= 2.523** TL(2)= 5.74E+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: MW220

Date Collected	Result	LN(Result)
10/14/2002	2.08E+02	5.34E+00
1/15/2003	2.57E+02	5.55E+00
4/10/2003	2.88E+02	5.66E+00
7/14/2003	2.62E+02	5.57E+00
10/13/2003	1.97E+02	5.28E+00
1/13/2004	1.98E+02	5.29E+00
4/13/2004	2.45E+02	5.50E+00
7/21/2004	2.04E+02	5.32E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW220	Upgradient	Yes	1.98E+02	NO	5.29E+00	N/A
MW221	Sidegradient	Yes	2.14E+02	NO	5.37E+00	N/A
MW222	Sidegradient	Yes	2.10E+02	NO	5.35E+00	N/A
MW223	Sidegradient	Yes	2.10E+02	NO	5.35E+00	N/A
MW224	Sidegradient	Yes	2.66E+02	NO	5.58E+00	N/A
MW369	Downgradient	Yes	1.86E+02	NO	5.23E+00	N/A
MW372	Downgradient	Yes	4.59E+02	YES	6.13E+00	N/A
MW384	Sidegradient	Yes	1.94E+02	NO	5.27E+00	N/A
MW387	Downgradient	Yes	2.83E+02	NO	5.65E+00	N/A
MW391	Downgradient	Yes	1.92E+02	NO	5.26E+00	N/A
MW394	Upgradient	Yes	1.92E+02	NO	5.26E+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.

Well Number: MW394

Date Collected	Result	LN(Result)
8/13/2002	2.47E+02	5.51E+00
9/16/2002	2.59E+02	5.56E+00
10/16/2002	2.01E+02	5.30E+00
1/13/2003	2.28E+02	5.43E+00
4/10/2003	2.49E+02	5.52E+00
7/16/2003	2.40E+02	5.48E+00
10/14/2003	2.30E+02	5.44E+00
1/13/2004	2.10E+02	5.35E+00

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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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= 0.897 S= 1.050 CV(1)=1.170 K factor**= 2.523 TL(1)= 3.55E+00 LL(1)=N/A

Statistics-Transformed Background Data X= -0.565 S= 0.951 CV(2)=-1.683 K factor**= 2.523 TL(2)= 1.83E+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: MW220

Date Collected	Result	LN(Result)
10/14/2002	2.00E-01	-1.61E+00
1/15/2003	2.00E-01	-1.61E+00
4/10/2003	4.29E-01	-8.46E-01
7/14/2003	4.33E+00	1.47E+00
10/13/2003	1.81E+00	5.93E-01
1/13/2004	7.93E-01	-2.32E-01
4/13/2004	1.30E-01	-2.04E+00
7/21/2004	3.82E-01	-9.62E-01

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW220	Upgradient	Yes	4.10E-02	N/A	-3.19E+00	NO
MW221	Sidegradient	No	1.00E-01	N/A	-2.30E+00	N/A
MW222	Sidegradient	No	1.00E-01	N/A	-2.30E+00	N/A
MW223	Sidegradient	Yes	2.17E-01	N/A	-1.53E+00	NO
MW224	Sidegradient	Yes	6.46E-02	N/A	-2.74E+00	NO
MW369	Downgradient	Yes	1.22E-01	N/A	-2.10E+00	NO
MW372	Downgradient	Yes	7.97E-02	N/A	-2.53E+00	NO
MW384	Sidegradient	Yes	5.14E-02	N/A	-2.97E+00	NO
MW387	Downgradient	Yes	1.77E-01	N/A	-1.73E+00	NO
MW391	Downgradient	Yes	1.18E-01	N/A	-2.14E+00	NO
MW394	Upgradient	Yes	6.37E-02	N/A	-2.75E+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.

Well Number: MW394

Date Collected	Result	LN(Result)
8/13/2002	1.34E+00	2.93E-01
9/16/2002	3.28E-01	-1.11E+00
10/16/2002	1.38E+00	3.22E-01
1/13/2003	1.30E+00	2.62E-01
4/10/2003	4.94E-01	-7.05E-01
7/16/2003	6.20E-01	-4.78E-01
10/14/2003	3.70E-01	-9.94E-01
1/13/2004	2.51E-01	-1.38E+00

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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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= 10.796 S= 1.703 CV(1)=0.158 **K factor**= 2.523** TL(1)= 1.51E+01 LL(1)=N/A

Statistics-Transformed Background Data X= 2.368 S= 0.158 CV(2)=0.067 **K factor**= 2.523** TL(2)= 2.77E+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: MW220

Date Collected	Result	LN(Result)
10/14/2002	9.16E+00	2.21E+00
1/15/2003	1.00E+01	2.30E+00
4/10/2003	1.08E+01	2.38E+00
7/14/2003	1.47E+01	2.69E+00
10/13/2003	9.03E+00	2.20E+00
1/13/2004	8.49E+00	2.14E+00
4/13/2004	9.70E+00	2.27E+00
7/21/2004	8.06E+00	2.09E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW220	Upgradient	Yes	9.96E+00	NO	2.30E+00	N/A
MW221	Sidegradient	Yes	9.82E+00	NO	2.28E+00	N/A
MW222	Sidegradient	Yes	9.73E+00	NO	2.28E+00	N/A
MW223	Sidegradient	Yes	9.54E+00	NO	2.26E+00	N/A
MW224	Sidegradient	Yes	1.12E+01	NO	2.42E+00	N/A
MW369	Downgradient	Yes	6.41E+00	NO	1.86E+00	N/A
MW372	Downgradient	Yes	2.25E+01	YES	3.11E+00	N/A
MW384	Sidegradient	Yes	9.02E+00	NO	2.20E+00	N/A
MW387	Downgradient	Yes	1.65E+01	YES	2.80E+00	N/A
MW391	Downgradient	Yes	1.12E+01	NO	2.42E+00	N/A
MW394	Upgradient	Yes	1.16E+01	NO	2.45E+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.

Well Number: MW394

Date Collected	Result	LN(Result)
8/13/2002	1.18E+01	2.47E+00
9/16/2002	1.21E+01	2.49E+00
10/16/2002	1.13E+01	2.42E+00
1/13/2003	1.03E+01	2.33E+00
4/10/2003	1.17E+01	2.46E+00
7/16/2003	1.20E+01	2.48E+00
10/14/2003	1.22E+01	2.50E+00
1/13/2004	1.14E+01	2.43E+00

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
MW387

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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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= 0.287 S= 0.619 CV(1)=2.156 K factor**= 2.523 TL(1)= 1.85E+00 LL(1)=N/A

Statistics-Transformed Background Data X= -2.455 S= 1.619 CV(2)=-0.659 K factor**= 2.523 TL(2)= 1.63E+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: MW220

Date Collected	Result	LN(Result)
10/14/2002	3.06E-02	-3.49E+00
1/15/2003	2.91E-02	-3.54E+00
4/10/2003	1.37E-02	-4.29E+00
7/14/2003	2.54E+00	9.32E-01
10/13/2003	3.78E-01	-9.73E-01
1/13/2004	1.59E-01	-1.84E+00
4/13/2004	7.07E-03	-4.95E+00
7/21/2004	8.41E-02	-2.48E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW220	Upgradient	Yes	1.87E-03	N/A	-6.28E+00	NO
MW221	Sidegradient	No	5.00E-03	N/A	-5.30E+00	N/A
MW222	Sidegradient	Yes	1.96E-03	N/A	-6.23E+00	NO
MW223	Sidegradient	Yes	9.12E-02	N/A	-2.39E+00	NO
MW224	Sidegradient	Yes	6.37E-03	N/A	-5.06E+00	NO
MW369	Downgradient	Yes	5.54E-03	N/A	-5.20E+00	NO
MW372	Downgradient	Yes	1.37E-03	N/A	-6.59E+00	NO
MW384	Sidegradient	No	5.00E-03	N/A	-5.30E+00	N/A
MW387	Downgradient	Yes	7.97E-03	N/A	-4.83E+00	NO
MW391	Downgradient	Yes	2.06E-03	N/A	-6.19E+00	NO
MW394	Upgradient	No	5.00E-03	N/A	-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.

Well Number: MW394

Date Collected	Result	LN(Result)
8/13/2002	5.42E-01	-6.12E-01
9/16/2002	1.55E-01	-1.86E+00
10/16/2002	1.03E-01	-2.27E+00
1/13/2003	1.28E-01	-2.06E+00
4/10/2003	5.00E-03	-5.30E+00
7/16/2003	2.72E-01	-1.30E+00
10/14/2003	7.95E-02	-2.53E+00
1/13/2004	6.58E-02	-2.72E+00

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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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= 0.006 S= 0.008 CV(1)=1.261 K factor**= 2.523 TL(1)= 2.64E-02 LL(1)=N/A

Statistics-Transformed Background Data X= -5.747 S= 1.205 CV(2)=-0.210 K factor**= 2.523 TL(2)= -2.71E+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: MW220

Date Collected	Result	LN(Result)
10/14/2002	5.58E-03	-5.19E+00
1/15/2003	9.83E-03	-4.62E+00
4/10/2003	1.09E-02	-4.52E+00
7/14/2003	2.45E-03	-6.01E+00
10/13/2003	5.66E-03	-5.17E+00
1/13/2004	5.72E-03	-5.16E+00
4/13/2004	1.00E-03	-6.91E+00
7/21/2004	3.92E-03	-5.54E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW220	Upgradient	Yes	8.04E-04	N/A	-7.13E+00	NO
MW221	Sidegradient	Yes	4.08E-03	N/A	-5.50E+00	NO
MW222	Sidegradient	Yes	7.27E-03	N/A	-4.92E+00	NO
MW223	Sidegradient	Yes	3.02E-03	N/A	-5.80E+00	NO
MW224	Sidegradient	Yes	1.34E-03	N/A	-6.62E+00	NO
MW369	Downgradient	No	1.00E-03	N/A	-6.91E+00	N/A
MW372	Downgradient	No	1.00E-03	N/A	-6.91E+00	N/A
MW384	Sidegradient	No	1.00E-03	N/A	-6.91E+00	N/A
MW387	Downgradient	No	1.00E-03	N/A	-6.91E+00	N/A
MW391	Downgradient	No	1.00E-03	N/A	-6.91E+00	N/A
MW394	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.

Well Number: MW394

Date Collected	Result	LN(Result)
8/13/2002	2.50E-02	-3.69E+00
9/16/2002	2.50E-02	-3.69E+00
10/16/2002	1.00E-03	-6.91E+00
1/13/2003	1.00E-03	-6.91E+00
4/10/2003	1.00E-03	-6.91E+00
7/16/2003	1.00E-03	-6.91E+00
10/14/2003	1.00E-03	-6.91E+00
1/13/2004	1.00E-03	-6.91E+00

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-S/T Second 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= 0.127 S= 0.228 CV(1)=1.790 K factor**= 2.523 TL(1)= 7.01E-01 LL(1)=N/A

Statistics-Transformed Background Data X= -3.617 S= 1.837 CV(2)=-0.508 K factor**= 2.523 TL(2)= 1.02E+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: MW220

Date Collected	Result	LN(Result)
10/14/2002	4.18E-01	-8.72E-01
1/15/2003	7.38E-01	-3.04E-01
4/10/2003	5.44E-01	-6.09E-01
7/14/2003	1.06E-01	-2.24E+00
10/13/2003	5.29E-02	-2.94E+00
1/13/2004	2.09E-02	-3.87E+00
4/13/2004	5.00E-03	-5.30E+00
7/21/2004	1.92E-02	-3.95E+00

Well Number: MW394

Date Collected	Result	LN(Result)
8/13/2002	5.00E-02	-3.00E+00
9/16/2002	5.00E-02	-3.00E+00
10/16/2002	5.00E-03	-5.30E+00
1/13/2003	5.00E-03	-5.30E+00
4/10/2003	5.00E-03	-5.30E+00
7/16/2003	5.00E-03	-5.30E+00
10/14/2003	5.00E-03	-5.30E+00
1/13/2004	5.00E-03	-5.30E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW220	Upgradient	Yes	5.62E-03	N/A	-5.18E+00	NO
MW221	Sidegradient	Yes	1.10E-02	N/A	-4.51E+00	NO
MW222	Sidegradient	Yes	2.21E-02	N/A	-3.81E+00	NO
MW223	Sidegradient	Yes	6.36E-01	N/A	-4.53E-01	NO
MW224	Sidegradient	Yes	1.24E-02	N/A	-4.39E+00	NO
MW369	Downgradient	Yes	2.98E-03	N/A	-5.82E+00	NO
MW372	Downgradient	No	2.00E-03	N/A	-6.21E+00	N/A
MW384	Sidegradient	No	2.00E-03	N/A	-6.21E+00	N/A
MW387	Downgradient	No	2.00E-03	N/A	-6.21E+00	N/A
MW391	Downgradient	No	2.00E-03	N/A	-6.21E+00	N/A
MW394	Upgradient	Yes	3.99E-03	N/A	-5.52E+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.

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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= 179.872 S= 86.318 CV(1)=0.480 **K factor**= 2.523** TL(1)= 3.98E+02 LL(1)=N/A

Statistics-Transformed Background Data X= 4.861 S= 1.252 CV(2)=0.258 **K factor**= 2.523** TL(2)= 8.02E+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: MW220

Date Collected	Result	LN(Result)
10/14/2002	2.05E+02	5.32E+00
1/15/2003	1.95E+00	6.68E-01
4/10/2003	2.03E+02	5.31E+00
7/14/2003	3.00E+01	3.40E+00
10/13/2003	1.07E+02	4.67E+00
1/13/2004	2.95E+02	5.69E+00
4/13/2004	1.90E+02	5.25E+00
7/21/2004	3.19E+02	5.77E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW220	Upgradient	Yes	3.66E+02	NO	5.90E+00	N/A
MW221	Sidegradient	Yes	3.94E+02	NO	5.98E+00	N/A
MW222	Sidegradient	Yes	3.85E+02	NO	5.95E+00	N/A
MW223	Sidegradient	Yes	3.93E+02	NO	5.97E+00	N/A
MW224	Sidegradient	Yes	3.87E+02	NO	5.96E+00	N/A
MW369	Downgradient	Yes	3.12E+02	NO	5.74E+00	N/A
MW372	Downgradient	Yes	3.81E+02	NO	5.94E+00	N/A
MW384	Sidegradient	Yes	3.92E+02	NO	5.97E+00	N/A
MW387	Downgradient	Yes	3.81E+02	NO	5.94E+00	N/A
MW391	Downgradient	Yes	3.98E+02	NO	5.99E+00	N/A
MW394	Upgradient	Yes	4.12E+02	YES	6.02E+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.

Well Number: MW394

Date Collected	Result	LN(Result)
8/13/2002	9.00E+01	4.50E+00
9/16/2002	2.40E+02	5.48E+00
10/16/2002	1.85E+02	5.22E+00
1/13/2003	2.20E+02	5.39E+00
4/10/2003	1.96E+02	5.28E+00
7/16/2003	1.72E+02	5.15E+00
10/14/2003	1.75E+02	5.16E+00
1/13/2004	2.49E+02	5.52E+00

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

MW394

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= 6.138 S= 0.282 CV(1)=0.046 **K factor**= 2.904** TL(1)= 6.96E+00 LL(1)=5.32E+00

Statistics-Transformed Background Data X= 1.813 S= 0.047 CV(2)=0.026 **K factor**= 2.904** TL(2)= 1.95E+00 LL(2)=1.68E+00

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: MW220

Date Collected	Result	LN(Result)
10/14/2002	6.04E+00	1.80E+00
1/15/2003	6.31E+00	1.84E+00
4/10/2003	6.50E+00	1.87E+00
7/14/2003	6.30E+00	1.84E+00
10/13/2003	6.34E+00	1.85E+00
1/13/2004	6.33E+00	1.85E+00
4/13/2004	6.30E+00	1.84E+00
7/21/2004	5.90E+00	1.77E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)? Result <LL(1)?	LN(Result)	LN(Result) >TL(2)? LN(Result) <LL(2)?
MW220	Upgradient	Yes	6.06E+00	NO	1.80E+00	N/A
MW221	Sidegradient	Yes	5.92E+00	NO	1.78E+00	N/A
MW222	Sidegradient	Yes	6.01E+00	NO	1.79E+00	N/A
MW223	Sidegradient	Yes	5.97E+00	NO	1.79E+00	N/A
MW224	Sidegradient	Yes	6.01E+00	NO	1.79E+00	N/A
MW369	Downgradient	Yes	5.89E+00	NO	1.77E+00	N/A
MW372	Downgradient	Yes	6.05E+00	NO	1.80E+00	N/A
MW384	Sidegradient	Yes	5.96E+00	NO	1.79E+00	N/A
MW387	Downgradient	Yes	6.17E+00	NO	1.82E+00	N/A
MW391	Downgradient	Yes	5.94E+00	NO	1.78E+00	N/A
MW394	Upgradient	Yes	5.80E+00	NO	1.76E+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.

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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= 6.654 S= 9.310 CV(1)=1.399 **K factor**= 2.523** TL(1)= 3.01E+01 LL(1)=N/A

Statistics-Transformed Background Data X= 1.130 S= 1.208 CV(2)=1.069 **K factor**= 2.523** TL(2)= 4.18E+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: MW220

Date Collected	Result	LN(Result)
10/14/2002	6.70E+00	1.90E+00
1/15/2003	2.97E+01	3.39E+00
4/10/2003	2.49E+01	3.21E+00
7/14/2003	1.13E+00	1.22E-01
10/13/2003	3.43E+00	1.23E+00
1/13/2004	6.71E+00	1.90E+00
4/13/2004	1.93E+01	2.96E+00
7/21/2004	3.97E+00	1.38E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW220	Upgradient	Yes	4.61E+00	N/A	1.53E+00	NO
MW221	Sidegradient	Yes	2.08E+00	N/A	7.32E-01	NO
MW222	Sidegradient	Yes	5.62E-01	N/A	-5.76E-01	NO
MW223	Sidegradient	Yes	1.18E+00	N/A	1.66E-01	NO
MW224	Sidegradient	Yes	9.10E-01	N/A	-9.43E-02	NO
MW369	Downgradient	Yes	4.92E-01	N/A	-7.09E-01	NO
MW372	Downgradient	Yes	2.14E+00	N/A	7.61E-01	NO
MW384	Sidegradient	Yes	1.35E+00	N/A	3.00E-01	NO
MW387	Downgradient	Yes	1.78E+00	N/A	5.77E-01	NO
MW391	Downgradient	Yes	1.54E+00	N/A	4.32E-01	NO
MW394	Upgradient	Yes	1.28E+00	N/A	2.47E-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.

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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= 36.363 S= 8.666 CV(1)=0.238 K factor**= 2.523 TL(1)= 5.82E+01 LL(1)=N/A

Statistics-Transformed Background Data X= 3.570 S= 0.222 CV(2)=0.062 K factor**= 2.523 TL(2)= 4.13E+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: MW220

Date Collected	Result	LN(Result)
10/14/2002	3.54E+01	3.57E+00
1/15/2003	4.06E+01	3.70E+00
4/10/2003	5.10E+01	3.93E+00
7/14/2003	5.82E+01	4.06E+00
10/13/2003	3.81E+01	3.64E+00
1/13/2004	3.70E+01	3.61E+00
4/13/2004	4.32E+01	3.77E+00
7/21/2004	3.38E+01	3.52E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW220	Upgradient	Yes	4.34E+01	NO	3.77E+00	N/A
MW221	Sidegradient	Yes	4.93E+01	NO	3.90E+00	N/A
MW222	Sidegradient	Yes	4.76E+01	NO	3.86E+00	N/A
MW223	Sidegradient	Yes	4.55E+01	NO	3.82E+00	N/A
MW224	Sidegradient	Yes	6.13E+01	YES	4.12E+00	N/A
MW369	Downgradient	Yes	4.78E+01	NO	3.87E+00	N/A
MW372	Downgradient	Yes	6.12E+01	YES	4.11E+00	N/A
MW384	Sidegradient	Yes	4.02E+01	NO	3.69E+00	N/A
MW387	Downgradient	Yes	4.94E+01	NO	3.90E+00	N/A
MW391	Downgradient	Yes	3.38E+01	NO	3.52E+00	N/A
MW394	Upgradient	Yes	3.41E+01	NO	3.53E+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.

Well Number: MW394

Date Collected	Result	LN(Result)
8/13/2002	3.29E+01	3.49E+00
9/16/2002	2.99E+01	3.40E+00
10/16/2002	2.90E+01	3.37E+00
1/13/2003	2.71E+01	3.30E+00
4/10/2003	2.48E+01	3.21E+00
7/16/2003	3.56E+01	3.57E+00
10/14/2003	3.39E+01	3.52E+00
1/13/2004	3.13E+01	3.44E+00

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

- MW224
- 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= 9.354 S= 9.280 CV(1)=0.992 K factor**= 2.523 TL(1)= 3.28E+01 LL(1)=N/A

Statistics-Transformed Background Data X= 2.270 S= 0.849 CV(2)=0.374 K factor**= 2.523 TL(2)= 3.26E+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).

#Because the natural log was not possible for all background values, the TL was considered equal to the maximum background value.

Well Number: MW220

Date Collected	Result	LN(Result)
10/14/2002	1.97E+01	2.98E+00
1/15/2003	2.61E+01	3.26E+00
4/10/2003	3.56E+00	1.27E+00
7/14/2003	0.00E+00	#Func!
10/13/2003	2.10E+01	3.04E+00
1/13/2004	6.32E+00	1.84E+00
4/13/2004	3.00E+00	1.10E+00
7/21/2004	1.46E+01	2.68E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW220	Upgradient	No	1.64E+01	N/A	2.80E+00	N/A
MW221	Sidegradient	No	1.85E+01	N/A	2.92E+00	N/A
MW222	Sidegradient	No	4.89E+00	N/A	1.59E+00	N/A
MW223	Sidegradient	No	6.56E+00	N/A	1.88E+00	N/A
MW224	Sidegradient	No	4.67E+00	N/A	1.54E+00	N/A
MW369	Downgradient	Yes	7.09E+01	YES	4.26E+00	N/A
MW372	Downgradient	Yes	6.15E+01	YES	4.12E+00	N/A
MW384	Sidegradient	Yes	2.71E+01	NO	3.30E+00	N/A
MW387	Downgradient	Yes	3.63E+01	YES	3.59E+00	N/A
MW391	Downgradient	No	9.04E+00	N/A	2.20E+00	N/A
MW394	Upgradient	No	5.85E+00	N/A	1.77E+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.

Well Number: MW394

Date Collected	Result	LN(Result)
8/13/2002	1.40E+01	2.64E+00
9/16/2002	5.45E+00	1.70E+00
10/16/2002	2.49E+00	9.12E-01
1/13/2003	1.83E+01	2.91E+00
4/10/2003	-1.45E+00	#Func!
7/16/2003	-1.71E+00	#Func!
10/14/2003	1.83E+01	2.91E+00
1/13/2004	0.00E+00	#Func!

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

- MW369
- MW372
- MW387

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= 1.494 S= 0.737 CV(1)=0.493 **K factor**= 2.523** TL(1)= 3.35E+00 LL(1)=N/A

Statistics-Transformed Background Data X= 0.315 S= 0.402 CV(2)=1.279 **K factor**= 2.523** TL(2)= 1.33E+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: MW220

Date Collected	Result	LN(Result)
10/14/2002	1.00E+00	0.00E+00
1/15/2003	1.10E+00	9.53E-02
4/10/2003	1.00E+00	0.00E+00
7/14/2003	3.30E+00	1.19E+00
10/13/2003	1.80E+00	5.88E-01
1/13/2004	1.00E+00	0.00E+00
4/13/2004	2.00E+00	6.93E-01
7/21/2004	3.10E+00	1.13E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW220	Upgradient	Yes	7.49E-01	NO	-2.89E-01	N/A
MW221	Sidegradient	Yes	7.15E-01	NO	-3.35E-01	N/A
MW222	Sidegradient	Yes	7.65E-01	NO	-2.68E-01	N/A
MW223	Sidegradient	Yes	6.69E-01	NO	-4.02E-01	N/A
MW224	Sidegradient	Yes	1.19E+00	NO	1.74E-01	N/A
MW369	Downgradient	Yes	8.29E-01	NO	-1.88E-01	N/A
MW372	Downgradient	Yes	9.55E-01	NO	-4.60E-02	N/A
MW384	Sidegradient	Yes	1.05E+00	NO	4.88E-02	N/A
MW387	Downgradient	Yes	1.05E+00	NO	4.88E-02	N/A
MW391	Downgradient	Yes	6.32E-01	NO	-4.59E-01	N/A
MW394	Upgradient	Yes	6.83E-01	NO	-3.81E-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.

Well Number: MW394

Date Collected	Result	LN(Result)
8/13/2002	1.30E+00	2.62E-01
9/16/2002	1.00E+00	0.00E+00
10/16/2002	1.00E+00	0.00E+00
1/13/2003	1.60E+00	4.70E-01
4/10/2003	1.00E+00	0.00E+00
7/16/2003	1.40E+00	3.36E-01
10/14/2003	1.30E+00	2.62E-01
1/13/2004	1.00E+00	0.00E+00

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= 63.475 S= 163.135 CV(1)=2.570 **K factor**= 2.523** TL(1)= 4.75E+02 LL(1)=N/A

Statistics-Transformed Background Data X= 3.103 S= 1.145 CV(2)=0.369 **K factor**= 2.523** TL(2)= 5.99E+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: MW220

Date Collected	Result	LN(Result)
10/14/2002	5.00E+01	3.91E+00
1/15/2003	1.00E+01	2.30E+00
4/10/2003	1.00E+01	2.30E+00
7/14/2003	1.00E+01	2.30E+00
10/13/2003	1.00E+01	2.30E+00
1/13/2004	1.00E+01	2.30E+00
4/13/2004	1.00E+01	2.30E+00
7/21/2004	1.00E+01	2.30E+00

Well Number: MW394

Date Collected	Result	LN(Result)
8/13/2002	5.00E+01	3.91E+00
9/16/2002	6.72E+02	6.51E+00
10/16/2002	5.00E+01	3.91E+00
1/13/2003	3.61E+01	3.59E+00
4/10/2003	1.00E+01	2.30E+00
7/16/2003	4.27E+01	3.75E+00
10/14/2003	2.20E+01	3.09E+00
1/13/2004	1.28E+01	2.55E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW220	Upgradient	No	1.00E+01	N/A	2.30E+00	N/A
MW221	Sidegradient	Yes	1.88E+01	N/A	2.93E+00	NO
MW222	Sidegradient	Yes	4.08E+00	N/A	1.41E+00	NO
MW223	Sidegradient	No	1.00E+01	N/A	2.30E+00	N/A
MW224	Sidegradient	Yes	2.25E+01	N/A	3.11E+00	NO
MW369	Downgradient	Yes	8.20E+00	N/A	2.10E+00	NO
MW372	Downgradient	Yes	6.50E+00	N/A	1.87E+00	NO
MW384	Sidegradient	Yes	7.24E+00	N/A	1.98E+00	NO
MW387	Downgradient	Yes	8.66E+00	N/A	2.16E+00	NO
MW391	Downgradient	No	1.00E+01	N/A	2.30E+00	N/A
MW394	Upgradient	Yes	7.38E+00	N/A	2.00E+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.

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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= 0.021 S= 0.002 CV(1)=0.083 K factor**= 2.523 TL(1)= 2.49E-02 LL(1)=N/A

Statistics-Transformed Background Data X= -3.884 S= 0.076 CV(2)=-0.020 K factor**= 2.523 TL(2)= -3.69E+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: MW220

Date Collected	Result	LN(Result)
10/14/2002	2.00E-02	-3.91E+00
1/15/2003	2.00E-02	-3.91E+00
4/10/2003	2.00E-02	-3.91E+00
7/14/2003	2.00E-02	-3.91E+00
10/13/2003	2.00E-02	-3.91E+00
1/13/2004	2.00E-02	-3.91E+00
4/13/2004	2.00E-02	-3.91E+00
7/21/2004	2.00E-02	-3.91E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW220	Upgradient	Yes	5.98E-03	NO	-5.12E+00	N/A
MW221	Sidegradient	Yes	5.81E-03	NO	-5.15E+00	N/A
MW222	Sidegradient	Yes	5.53E-03	NO	-5.20E+00	N/A
MW223	Sidegradient	Yes	6.12E-03	NO	-5.10E+00	N/A
MW224	Sidegradient	Yes	5.41E-03	NO	-5.22E+00	N/A
MW369	Downgradient	No	8.97E-03	N/A	-4.71E+00	N/A
MW372	Downgradient	No	4.19E-03	N/A	-5.48E+00	N/A
MW384	Sidegradient	No	2.00E-02	N/A	-3.91E+00	N/A
MW387	Downgradient	No	2.00E-02	N/A	-3.91E+00	N/A
MW391	Downgradient	No	8.26E-03	N/A	-4.80E+00	N/A
MW394	Upgradient	No	1.13E-02	N/A	-4.48E+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.

Well Number: MW394

Date Collected	Result	LN(Result)
8/13/2002	2.50E-02	-3.69E+00
9/16/2002	2.50E-02	-3.69E+00
10/16/2002	2.00E-02	-3.91E+00
1/13/2003	2.00E-02	-3.91E+00
4/10/2003	2.00E-02	-3.91E+00
7/16/2003	2.00E-02	-3.91E+00
10/14/2003	2.00E-02	-3.91E+00
1/13/2004	2.00E-02	-3.91E+00

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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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= 0.036 S= 0.026 CV(1)=0.722 K factor**= 2.523 TL(1)= 1.01E-01 LL(1)=N/A

Statistics-Transformed Background Data X= -3.485 S= 0.525 CV(2)=-0.151 K factor**= 2.523 TL(2)= -2.16E+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: MW220

Date Collected	Result	LN(Result)
10/14/2002	2.50E-02	-3.69E+00
1/15/2003	3.50E-02	-3.35E+00
4/10/2003	3.50E-02	-3.35E+00
7/14/2003	3.89E-02	-3.25E+00
10/13/2003	2.60E-02	-3.65E+00
1/13/2004	2.00E-02	-3.91E+00
4/13/2004	2.00E-02	-3.91E+00
7/21/2004	2.00E-02	-3.91E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW220	Upgradient	Yes	7.20E-03	NO	-4.93E+00	N/A
MW221	Sidegradient	No	2.00E-02	N/A	-3.91E+00	N/A
MW222	Sidegradient	No	2.00E-02	N/A	-3.91E+00	N/A
MW223	Sidegradient	No	2.00E-02	N/A	-3.91E+00	N/A
MW224	Sidegradient	No	2.00E-02	N/A	-3.91E+00	N/A
MW369	Downgradient	No	2.00E-02	N/A	-3.91E+00	N/A
MW372	Downgradient	No	2.00E-02	N/A	-3.91E+00	N/A
MW384	Sidegradient	No	2.00E-02	N/A	-3.91E+00	N/A
MW387	Downgradient	Yes	5.91E-03	NO	-5.13E+00	N/A
MW391	Downgradient	No	2.00E-02	N/A	-3.91E+00	N/A
MW394	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.

Well Number: MW394

Date Collected	Result	LN(Result)
8/13/2002	1.00E-01	-2.30E+00
9/16/2002	1.00E-01	-2.30E+00
10/16/2002	2.50E-02	-3.69E+00
1/13/2003	3.50E-02	-3.35E+00
4/10/2003	3.50E-02	-3.35E+00
7/16/2003	2.00E-02	-3.91E+00
10/14/2003	2.00E-02	-3.91E+00
1/13/2004	2.00E-02	-3.91E+00

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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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= 0.258 S= 0.221 CV(1)=0.856 K factor**= 2.523 TL(1)= 8.15E-01 LL(1)=N/A

Statistics-Transformed Background Data X= -2.266 S= 2.485 CV(2)=-1.097 K factor**= 2.523 TL(2)= 4.00E+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: MW395

Date Collected	Result	LN(Result)
8/13/2002	2.00E-01	-1.61E+00
9/16/2002	2.00E-01	-1.61E+00
10/16/2002	2.00E-04	-8.52E+00
1/13/2003	7.37E-01	-3.05E-01
4/10/2003	2.00E-01	-1.61E+00
7/16/2003	2.00E-01	-1.61E+00
10/14/2003	2.00E-01	-1.61E+00
1/13/2004	2.00E-01	-1.61E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW370	Downgradient	No	5.00E-02	N/A	-3.00E+00	N/A
MW373	Downgradient	No	5.00E-02	N/A	-3.00E+00	N/A
MW385	Sidegradient	No	5.00E-02	N/A	-3.00E+00	N/A
MW388	Downgradient	Yes	2.41E-02	NO	-3.73E+00	N/A
MW392	Downgradient	No	5.00E-02	N/A	-3.00E+00	N/A
MW395	Upgradient	No	5.00E-02	N/A	-3.00E+00	N/A
MW397	Upgradient	Yes	4.29E-02	NO	-3.15E+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.

Well Number: MW397

Date Collected	Result	LN(Result)
8/13/2002	8.24E-01	-1.94E-01
9/16/2002	2.00E-01	-1.61E+00
10/17/2002	2.00E-04	-8.52E+00
1/13/2003	3.63E-01	-1.01E+00
4/8/2003	2.00E-01	-1.61E+00
7/16/2003	2.00E-01	-1.61E+00
10/14/2003	2.00E-01	-1.61E+00
1/13/2004	2.00E-01	-1.61E+00

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-S/T Second 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= 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

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: MW395

Date Collected	Result	LN(Result)
8/13/2002	2.00E+00	6.93E-01
9/16/2002	2.00E+00	6.93E-01
10/16/2002	2.00E-01	-1.61E+00
1/13/2003	2.00E-01	-1.61E+00
4/10/2003	2.00E-01	-1.61E+00
7/16/2003	2.00E-01	-1.61E+00
10/14/2003	2.00E-01	-1.61E+00
1/13/2004	2.00E-01	-1.61E+00

Well Number: MW397

Date Collected	Result	LN(Result)
8/13/2002	2.00E+00	6.93E-01
9/16/2002	2.00E+00	6.93E-01
10/17/2002	2.00E-01	-1.61E+00
1/13/2003	2.00E-01	-1.61E+00
4/8/2003	2.00E-01	-1.61E+00
7/16/2003	2.00E-01	-1.61E+00
10/14/2003	2.00E-01	-1.61E+00
1/13/2004	2.00E-01	-1.61E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW370	Downgradient	Yes	1.05E-01	N/A	-2.25E+00	NO
MW373	Downgradient	Yes	2.15E+00	N/A	7.65E-01	NO
MW385	Sidegradient	Yes	4.84E-02	N/A	-3.03E+00	NO
MW388	Downgradient	Yes	2.57E-02	N/A	-3.66E+00	NO
MW392	Downgradient	Yes	2.22E-02	N/A	-3.81E+00	NO
MW395	Upgradient	Yes	2.05E-02	N/A	-3.89E+00	NO
MW397	Upgradient	Yes	8.87E-03	N/A	-4.73E+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-S/T Second 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

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Well Number: MW395

Date Collected	Result	LN(Result)
8/13/2002	1.00E+00	0.00E+00
9/16/2002	1.00E+00	0.00E+00
10/16/2002	1.00E+00	0.00E+00
1/13/2003	1.00E+00	0.00E+00
4/10/2003	1.00E+00	0.00E+00
7/16/2003	1.00E+00	0.00E+00
10/14/2003	1.00E+00	0.00E+00
1/13/2004	1.00E+00	0.00E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW370	Downgradient	Yes	5.40E-01	NO	-6.16E-01	N/A
MW373	Downgradient	Yes	4.37E-01	NO	-8.28E-01	N/A
MW385	Sidegradient	No	8.00E-01	N/A	-2.23E-01	N/A
MW388	Downgradient	Yes	3.73E-01	NO	-9.86E-01	N/A
MW392	Downgradient	Yes	6.63E-01	NO	-4.11E-01	N/A
MW395	Upgradient	Yes	7.12E-01	NO	-3.40E-01	N/A
MW397	Upgradient	Yes	4.45E-01	NO	-8.10E-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.

Well Number: MW397

Date Collected	Result	LN(Result)
8/13/2002	1.00E+00	0.00E+00
9/16/2002	1.00E+00	0.00E+00
10/17/2002	1.00E+00	0.00E+00
1/13/2003	1.00E+00	0.00E+00
4/8/2003	1.00E+00	0.00E+00
7/16/2003	1.00E+00	0.00E+00
10/14/2003	1.00E+00	0.00E+00
1/13/2004	1.00E+00	0.00E+00

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-S/T Second 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= 23.103 S= 11.538 CV(1)=0.499 **K factor**= 2.523** TL(1)= 5.22E+01 LL(1)=N/A

Statistics-Transformed Background Data X= 2.357 S= 2.411 CV(2)=1.023 **K factor**= 2.523** TL(2)= 8.44E+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: MW395

Date Collected	Result	LN(Result)
8/13/2002	3.22E+01	3.47E+00
9/16/2002	3.30E+01	3.50E+00
10/16/2002	2.95E-02	-3.52E+00
1/13/2003	3.21E+01	3.47E+00
4/10/2003	4.02E+01	3.69E+00
7/16/2003	3.24E+01	3.48E+00
10/14/2003	3.39E+01	3.52E+00
1/13/2004	3.12E+01	3.44E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW370	Downgradient	Yes	2.84E+01	NO	3.35E+00	N/A
MW373	Downgradient	Yes	8.35E+01	YES	4.42E+00	N/A
MW385	Sidegradient	Yes	3.18E+01	NO	3.46E+00	N/A
MW388	Downgradient	Yes	2.34E+01	NO	3.15E+00	N/A
MW392	Downgradient	Yes	2.35E+01	NO	3.16E+00	N/A
MW395	Upgradient	Yes	2.78E+01	NO	3.33E+00	N/A
MW397	Upgradient	Yes	1.89E+01	NO	2.94E+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.

Well Number: MW397

Date Collected	Result	LN(Result)
8/13/2002	1.94E+01	2.97E+00
9/16/2002	1.90E+01	2.94E+00
10/17/2002	1.79E-02	-4.02E+00
1/13/2003	1.78E+01	2.88E+00
4/8/2003	2.03E+01	3.01E+00
7/16/2003	1.94E+01	2.97E+00
10/14/2003	1.99E+01	2.99E+00
1/13/2004	1.88E+01	2.93E+00

Conclusion of Statistical Analysis on Historical Data

Wells with Exceedances

The test well(s) listed exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to historical background data.

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-S/T Second 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= 35.313	S= 1.250	CV(1)=0.035	K factor**= 2.523	TL(1)= 3.85E+01	LL(1)=N/A
Statistics-Transformed Background Data	X= 3.564	S= 0.033	CV(2)=0.009	K factor**= 2.523	TL(2)= 3.65E+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: MW395

Date Collected	Result	LN(Result)
8/13/2002	3.50E+01	3.56E+00
9/16/2002	3.50E+01	3.56E+00
10/16/2002	3.50E+01	3.56E+00
1/13/2003	3.50E+01	3.56E+00
4/10/2003	3.50E+01	3.56E+00
7/16/2003	3.50E+01	3.56E+00
10/14/2003	3.50E+01	3.56E+00
1/13/2004	3.50E+01	3.56E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW370	Downgradient	Yes	1.87E+01	NO	2.93E+00	N/A
MW373	Downgradient	No	2.00E+01	N/A	3.00E+00	N/A
MW385	Sidegradient	Yes	1.16E+01	NO	2.45E+00	N/A
MW388	Downgradient	No	2.00E+01	N/A	3.00E+00	N/A
MW392	Downgradient	Yes	1.39E+01	NO	2.63E+00	N/A
MW395	Upgradient	Yes	1.62E+01	NO	2.79E+00	N/A
MW397	Upgradient	Yes	1.62E+01	NO	2.79E+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.

Well Number: MW397

Date Collected	Result	LN(Result)
8/13/2002	4.00E+01	3.69E+00
9/16/2002	3.50E+01	3.56E+00
10/17/2002	3.50E+01	3.56E+00
1/13/2003	3.50E+01	3.56E+00
4/8/2003	3.50E+01	3.56E+00
7/16/2003	3.50E+01	3.56E+00
10/14/2003	3.50E+01	3.56E+00
1/13/2004	3.50E+01	3.56E+00

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, $S = [\text{Sum}([(background\ result-X)^2]/[\text{count of background results} - 1])]^{0.5}$
 TL Upper Tolerance Limit, $TL = X + (K * S)$, LL Lower Tolerance Limit, $LL = X - (K * S)$
 X Mean, $X = (\text{sum of background results})/(\text{count of background results})$

** 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-S/T Second 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= 51.844 S= 11.652 CV(1)=0.225 K factor**= 2.523 TL(1)= 8.12E+01 LL(1)=N/A

Statistics-Transformed Background Data X= 3.924 S= 0.229 CV(2)=0.058 K factor**= 2.523 TL(2)= 4.50E+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: MW395

Date Collected	Result	LN(Result)
8/13/2002	6.22E+01	4.13E+00
9/16/2002	6.47E+01	4.17E+00
10/16/2002	6.22E+01	4.13E+00
1/13/2003	6.35E+01	4.15E+00
4/10/2003	6.41E+01	4.16E+00
7/16/2003	6.40E+01	4.16E+00
10/14/2003	6.32E+01	4.15E+00
1/13/2004	6.06E+01	4.10E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW370	Downgradient	Yes	4.09E+01	NO	3.71E+00	N/A
MW373	Downgradient	Yes	3.08E+01	NO	3.43E+00	N/A
MW385	Sidegradient	Yes	2.11E+01	NO	3.05E+00	N/A
MW388	Downgradient	Yes	3.44E+01	NO	3.54E+00	N/A
MW392	Downgradient	Yes	4.13E+01	NO	3.72E+00	N/A
MW395	Upgradient	Yes	4.64E+01	NO	3.84E+00	N/A
MW397	Upgradient	Yes	3.32E+01	NO	3.50E+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.

Well Number: MW397

Date Collected	Result	LN(Result)
8/13/2002	3.89E+01	3.66E+00
9/16/2002	3.98E+01	3.68E+00
10/17/2002	3.93E+01	3.67E+00
1/13/2003	4.05E+01	3.70E+00
4/8/2003	4.21E+01	3.74E+00
7/16/2003	4.20E+01	3.74E+00
10/14/2003	4.08E+01	3.71E+00
1/13/2004	4.16E+01	3.73E+00

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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cis-1,2-Dichloroethene

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= 5.000 S= 0.000 CV(1)=0.000 K factor**= 2.523 TL(1)= 5.00E+00 LL(1)=N/A

Statistics-Transformed Background Data X= 1.609 S= 0.000 CV(2)=0.000 K factor**= 2.523 TL(2)= 1.61E+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: MW395

Date Collected	Result	LN(Result)
8/13/2002	5.00E+00	1.61E+00
9/30/2002	5.00E+00	1.61E+00
10/16/2002	5.00E+00	1.61E+00
1/13/2003	5.00E+00	1.61E+00
4/10/2003	5.00E+00	1.61E+00
7/16/2003	5.00E+00	1.61E+00
10/14/2003	5.00E+00	1.61E+00
1/13/2004	5.00E+00	1.61E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW370	Downgradient	No	1.00E+00	N/A	0.00E+00	N/A
MW373	Downgradient	No	1.00E+00	N/A	0.00E+00	N/A
MW385	Sidegradient	No	1.00E+00	N/A	0.00E+00	N/A
MW388	Downgradient	No	1.00E+00	N/A	0.00E+00	N/A
MW392	Downgradient	Yes	3.50E-01	NO	-1.05E+00	N/A
MW395	Upgradient	No	1.00E+00	N/A	0.00E+00	N/A
MW397	Upgradient	No	1.00E+00	N/A	0.00E+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.

Well Number: MW397

Date Collected	Result	LN(Result)
8/13/2002	5.00E+00	1.61E+00
9/30/2002	5.00E+00	1.61E+00
10/17/2002	5.00E+00	1.61E+00
1/13/2003	5.00E+00	1.61E+00
4/8/2003	5.00E+00	1.61E+00
7/16/2003	5.00E+00	1.61E+00
10/14/2003	5.00E+00	1.61E+00
1/13/2004	5.00E+00	1.61E+00

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-S/T Second 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= 0.007 S= 0.011 CV(1)=1.515 K factor**= 2.523 TL(1)= 3.41E-02 LL(1)=N/A

Statistics-Transformed Background Data X= -6.053 S= 1.416 CV(2)=-0.234 K factor**= 2.523 TL(2)= -2.48E+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: MW395

Date Collected	Result	LN(Result)
8/13/2002	2.50E-02	-3.69E+00
9/16/2002	2.50E-02	-3.69E+00
10/16/2002	1.00E-03	-6.91E+00
1/13/2003	1.48E-03	-6.52E+00
4/10/2003	1.51E-03	-6.50E+00
7/16/2003	1.00E-03	-6.91E+00
10/14/2003	1.00E-03	-6.91E+00
1/13/2004	1.00E-03	-6.91E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW370	Downgradient	No	1.00E-03	N/A	-6.91E+00	N/A
MW373	Downgradient	Yes	4.62E-04	N/A	-7.68E+00	NO
MW385	Sidegradient	Yes	3.94E-04	N/A	-7.84E+00	NO
MW388	Downgradient	No	1.00E-03	N/A	-6.91E+00	N/A
MW392	Downgradient	Yes	7.54E-04	N/A	-7.19E+00	NO
MW395	Upgradient	No	1.00E-03	N/A	-6.91E+00	N/A
MW397	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.

Well Number: MW397

Date Collected	Result	LN(Result)
8/13/2002	2.50E-02	-3.69E+00
9/16/2002	2.50E-02	-3.69E+00
10/17/2002	1.00E-03	-6.91E+00
1/13/2003	1.00E-03	-6.91E+00
4/8/2003	1.00E-03	-6.91E+00
7/16/2003	1.00E-03	-6.91E+00
10/14/2003	1.00E-03	-6.91E+00
1/13/2004	1.00E-03	-6.91E+00

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, $S = [\text{Sum}([(background\ result-X)^2]/[\text{count of background results} - 1])]^{0.5}$
 TL Upper Tolerance Limit, $TL = X + (K * S)$, LL Lower Tolerance Limit, $LL = X - (K * S)$
 X Mean, $X = (\text{sum of background results})/(\text{count of background results})$

** 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-S/T Second 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= 377.875 S= 52.101 CV(1)=0.138 K factor**= 2.523 TL(1)= 5.09E+02 LL(1)=N/A

Statistics-Transformed Background Data X= 5.926 S= 0.136 CV(2)=0.023 K factor**= 2.523 TL(2)= 6.27E+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: MW395

Date Collected	Result	LN(Result)
8/13/2002	4.05E+02	6.00E+00
9/16/2002	4.01E+02	5.99E+00
10/16/2002	3.92E+02	5.97E+00
1/13/2003	4.04E+02	6.00E+00
4/10/2003	4.88E+02	6.19E+00
7/16/2003	4.50E+02	6.11E+00
10/14/2003	4.10E+02	6.02E+00
1/13/2004	4.13E+02	6.02E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW370	Downgradient	Yes	4.09E+02	NO	6.01E+00	N/A
MW373	Downgradient	Yes	9.30E+02	YES	6.84E+00	N/A
MW385	Sidegradient	Yes	4.06E+02	NO	6.01E+00	N/A
MW388	Downgradient	Yes	3.89E+02	NO	5.96E+00	N/A
MW392	Downgradient	Yes	3.38E+02	NO	5.82E+00	N/A
MW395	Upgradient	Yes	4.01E+02	NO	5.99E+00	N/A
MW397	Upgradient	Yes	3.14E+02	NO	5.75E+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.

Well Number: MW397

Date Collected	Result	LN(Result)
8/13/2002	3.22E+02	5.77E+00
9/16/2002	3.15E+02	5.75E+00
10/17/2002	3.17E+02	5.76E+00
1/13/2003	3.20E+02	5.77E+00
4/8/2003	3.90E+02	5.97E+00
7/16/2003	3.54E+02	5.87E+00
10/14/2003	3.31E+02	5.80E+00
1/13/2004	3.34E+02	5.81E+00

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-S/T Second 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= 0.028 S= 0.013 CV(1)=0.474 K factor**= 2.523 TL(1)= 6.15E-02 LL(1)=N/A

Statistics-Transformed Background Data X= -3.662 S= 0.406 CV(2)=-0.111 K factor**= 2.523 TL(2)= -2.64E+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: MW395

Date Collected	Result	LN(Result)
8/13/2002	5.00E-02	-3.00E+00
9/16/2002	5.00E-02	-3.00E+00
10/16/2002	2.81E-02	-3.57E+00
1/13/2003	2.00E-02	-3.91E+00
4/10/2003	2.00E-02	-3.91E+00
7/16/2003	2.00E-02	-3.91E+00
10/14/2003	2.00E-02	-3.91E+00
1/13/2004	2.00E-02	-3.91E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW370	Downgradient	Yes	1.17E-03	NO	-6.75E+00	N/A
MW373	Downgradient	Yes	6.55E-04	NO	-7.33E+00	N/A
MW385	Sidegradient	Yes	8.50E-04	NO	-7.07E+00	N/A
MW388	Downgradient	Yes	1.27E-03	NO	-6.67E+00	N/A
MW392	Downgradient	Yes	1.04E-03	NO	-6.87E+00	N/A
MW395	Upgradient	Yes	1.14E-03	NO	-6.78E+00	N/A
MW397	Upgradient	Yes	7.98E-04	NO	-7.13E+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.

Well Number: MW397

Date Collected	Result	LN(Result)
8/13/2002	5.00E-02	-3.00E+00
9/16/2002	5.00E-02	-3.00E+00
10/17/2002	2.00E-02	-3.91E+00
1/13/2003	2.00E-02	-3.91E+00
4/8/2003	2.00E-02	-3.91E+00
7/16/2003	2.00E-02	-3.91E+00
10/14/2003	2.00E-02	-3.91E+00
1/13/2004	2.00E-02	-3.91E+00

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-S/T Second 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= 4.678 S= 2.431 CV(1)=0.520 **K factor**= 2.523** TL(1)= 1.08E+01 LL(1)=N/A

Statistics-Transformed Background Data X= 1.414 S= 0.550 CV(2)=0.389 **K factor**= 2.523** TL(2)= 2.80E+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: MW395

Date Collected	Result	LN(Result)
8/13/2002	7.29E+00	1.99E+00
9/30/2002	4.03E+00	1.39E+00
10/16/2002	3.85E+00	1.35E+00
1/13/2003	2.36E+00	8.59E-01
4/10/2003	1.14E+00	1.31E-01
7/16/2003	1.76E+00	5.65E-01
10/14/2003	4.05E+00	1.40E+00
1/13/2004	4.26E+00	1.45E+00

Well Number: MW397

Date Collected	Result	LN(Result)
8/13/2002	1.16E+01	2.45E+00
9/16/2002	5.86E+00	1.77E+00
10/17/2002	5.94E+00	1.78E+00
1/13/2003	4.66E+00	1.54E+00
4/8/2003	3.77E+00	1.33E+00
7/16/2003	3.47E+00	1.24E+00
10/14/2003	5.34E+00	1.68E+00
1/13/2004	5.51E+00	1.71E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW370	Downgradient	Yes	3.09E+00	NO	1.13E+00	N/A
MW373	Downgradient	Yes	2.61E+00	NO	9.59E-01	N/A
MW385	Sidegradient	Yes	1.87E+00	NO	6.26E-01	N/A
MW388	Downgradient	Yes	5.16E+00	NO	1.64E+00	N/A
MW392	Downgradient	Yes	1.33E+00	NO	2.85E-01	N/A
MW395	Upgradient	Yes	5.26E+00	NO	1.66E+00	N/A
MW397	Upgradient	Yes	6.00E+00	NO	1.79E+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-S/T Second 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= 219.250 S= 34.107 CV(1)=0.156 **K factor**= 2.523** TL(1)= 3.05E+02 LL(1)=N/A

Statistics-Transformed Background Data X= 5.379 S= 0.152 CV(2)=0.028 **K factor**= 2.523** TL(2)= 5.76E+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: MW395

Date Collected	Result	LN(Result)
8/13/2002	2.49E+02	5.52E+00
9/16/2002	2.72E+02	5.61E+00
10/16/2002	2.55E+02	5.54E+00
1/13/2003	2.11E+02	5.35E+00
4/10/2003	2.89E+02	5.67E+00
7/16/2003	2.36E+02	5.46E+00
10/14/2003	2.24E+02	5.41E+00
1/13/2004	2.35E+02	5.46E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW370	Downgradient	Yes	2.32E+02	NO	5.45E+00	N/A
MW373	Downgradient	Yes	5.50E+02	YES	6.31E+00	N/A
MW385	Sidegradient	Yes	2.13E+02	NO	5.36E+00	N/A
MW388	Downgradient	Yes	2.07E+02	NO	5.33E+00	N/A
MW392	Downgradient	Yes	1.72E+02	NO	5.15E+00	N/A
MW395	Upgradient	Yes	2.02E+02	NO	5.31E+00	N/A
MW397	Upgradient	Yes	1.66E+02	NO	5.11E+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.

Well Number: MW397

Date Collected	Result	LN(Result)
8/13/2002	1.87E+02	5.23E+00
9/16/2002	1.97E+02	5.28E+00
10/17/2002	1.83E+02	5.21E+00
1/13/2003	1.82E+02	5.20E+00
4/8/2003	2.17E+02	5.38E+00
7/16/2003	1.96E+02	5.28E+00
10/14/2003	1.98E+02	5.29E+00
1/13/2004	1.77E+02	5.18E+00

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-S/T Second 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= 0.400 S= 0.514 CV(1)=1.286 K factor**= 2.523 TL(1)= 1.70E+00 LL(1)=N/A

Statistics-Transformed Background Data X= -2.197 S= 2.634 CV(2)=-1.199 K factor**= 2.523 TL(2)= 4.45E+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: MW395

Date Collected	Result	LN(Result)
8/13/2002	2.94E-01	-1.22E+00
9/16/2002	2.00E-01	-1.61E+00
10/16/2002	2.00E-04	-8.52E+00
1/13/2003	1.33E+00	2.85E-01
4/10/2003	1.31E+00	2.70E-01
7/16/2003	2.00E-01	-1.61E+00
10/14/2003	1.00E-01	-2.30E+00
1/13/2004	1.00E-01	-2.30E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW370	Downgradient	Yes	3.63E-02	N/A	-3.32E+00	NO
MW373	Downgradient	Yes	7.51E-02	N/A	-2.59E+00	NO
MW385	Sidegradient	No	1.00E-01	N/A	-2.30E+00	N/A
MW388	Downgradient	Yes	1.06E-01	N/A	-2.24E+00	NO
MW392	Downgradient	Yes	1.73E-01	N/A	-1.75E+00	NO
MW395	Upgradient	Yes	4.49E-02	N/A	-3.10E+00	NO
MW397	Upgradient	Yes	8.33E-02	N/A	-2.49E+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.

Well Number: MW397

Date Collected	Result	LN(Result)
8/13/2002	1.58E+00	4.57E-01
9/16/2002	2.32E-01	-1.46E+00
10/17/2002	2.00E-04	-8.52E+00
1/13/2003	4.53E-01	-7.92E-01
4/8/2003	2.00E-01	-1.61E+00
7/16/2003	2.00E-01	-1.61E+00
10/14/2003	1.00E-01	-2.30E+00
1/13/2004	1.00E-01	-2.30E+00

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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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= 9.102 S= 4.685 CV(1)=0.515 **K factor**= 2.523** TL(1)= 2.09E+01 LL(1)=N/A

Statistics-Transformed Background Data X= 1.423 S= 2.408 CV(2)=1.692 **K factor**= 2.523** TL(2)= 7.50E+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: MW395

Date Collected	Result	LN(Result)
8/13/2002	1.25E+01	2.53E+00
9/16/2002	1.30E+01	2.56E+00
10/16/2002	1.27E-02	-4.37E+00
1/13/2003	1.12E+01	2.42E+00
4/10/2003	1.75E+01	2.86E+00
7/16/2003	1.29E+01	2.56E+00
10/14/2003	1.34E+01	2.60E+00
1/13/2004	1.24E+01	2.52E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW370	Downgradient	Yes	1.23E+01	NO	2.51E+00	N/A
MW373	Downgradient	Yes	2.93E+01	YES	3.38E+00	N/A
MW385	Sidegradient	Yes	1.26E+01	NO	2.53E+00	N/A
MW388	Downgradient	Yes	9.84E+00	NO	2.29E+00	N/A
MW392	Downgradient	Yes	1.03E+01	NO	2.33E+00	N/A
MW395	Upgradient	Yes	1.16E+01	NO	2.45E+00	N/A
MW397	Upgradient	Yes	7.73E+00	NO	2.05E+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.

Well Number: MW397

Date Collected	Result	LN(Result)
8/13/2002	7.83E+00	2.06E+00
9/16/2002	7.64E+00	2.03E+00
10/17/2002	6.58E-03	-5.02E+00
1/13/2003	6.69E+00	1.90E+00
4/8/2003	7.28E+00	1.99E+00
7/16/2003	7.82E+00	2.06E+00
10/14/2003	7.94E+00	2.07E+00
1/13/2004	7.51E+00	2.02E+00

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.

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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= 0.131 S= 0.195 CV(1)=1.487 K factor**= 2.523 TL(1)= 6.24E-01 LL(1)=N/A

Statistics-Transformed Background Data X= -3.104 S= 1.529 CV(2)=-0.493 K factor**= 2.523 TL(2)= 7.55E-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: MW395

Date Collected	Result	LN(Result)
8/13/2002	3.61E-01	-1.02E+00
9/16/2002	2.80E-02	-3.58E+00
10/16/2002	2.60E-02	-3.65E+00
1/13/2003	7.13E-02	-2.64E+00
4/10/2003	6.29E-01	-4.64E-01
7/16/2003	2.97E-01	-1.21E+00
10/14/2003	1.98E-02	-3.92E+00
1/13/2004	1.26E-02	-4.37E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW370	Downgradient	Yes	1.24E-03	N/A	-6.69E+00	NO
MW373	Downgradient	Yes	7.19E-02	N/A	-2.63E+00	NO
MW385	Sidegradient	Yes	1.72E-03	N/A	-6.37E+00	NO
MW388	Downgradient	No	5.00E-03	N/A	-5.30E+00	N/A
MW392	Downgradient	Yes	3.20E-01	N/A	-1.14E+00	NO
MW395	Upgradient	Yes	1.80E-03	N/A	-6.32E+00	NO
MW397	Upgradient	Yes	1.99E-03	N/A	-6.22E+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.

Well Number: MW397

Date Collected	Result	LN(Result)
8/13/2002	4.66E-01	-7.64E-01
9/16/2002	7.70E-02	-2.56E+00
10/17/2002	2.80E-02	-3.58E+00
1/13/2003	1.64E-02	-4.11E+00
4/8/2003	4.07E-02	-3.20E+00
7/16/2003	1.67E-02	-4.09E+00
10/14/2003	5.55E-03	-5.19E+00
1/13/2004	5.00E-03	-5.30E+00

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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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= 0.007 S= 0.011 CV(1)=1.451 K factor**= 2.523 TL(1)= 3.41E-02 LL(1)=N/A

Statistics-Transformed Background Data X= -5.990 S= 1.443 CV(2)=-0.241 K factor**= 2.523 TL(2)= -2.35E+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: MW395

Date Collected	Result	LN(Result)
8/13/2002	2.50E-02	-3.69E+00
9/16/2002	2.50E-02	-3.69E+00
10/16/2002	1.00E-03	-6.91E+00
1/13/2003	6.09E-03	-5.10E+00
4/10/2003	1.00E-03	-6.91E+00
7/16/2003	1.00E-03	-6.91E+00
10/14/2003	1.00E-03	-6.91E+00
1/13/2004	1.00E-03	-6.91E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW370	Downgradient	No	1.00E-03	N/A	-6.91E+00	N/A
MW373	Downgradient	No	1.00E-03	N/A	-6.91E+00	N/A
MW385	Sidegradient	Yes	2.85E-04	N/A	-8.16E+00	NO
MW388	Downgradient	No	1.00E-03	N/A	-6.91E+00	N/A
MW392	Downgradient	Yes	2.13E-04	N/A	-8.45E+00	NO
MW395	Upgradient	No	1.00E-03	N/A	-6.91E+00	N/A
MW397	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.

Well Number: MW397

Date Collected	Result	LN(Result)
8/13/2002	2.50E-02	-3.69E+00
9/16/2002	2.50E-02	-3.69E+00
10/17/2002	1.00E-03	-6.91E+00
1/13/2003	1.00E-03	-6.91E+00
4/8/2003	1.00E-03	-6.91E+00
7/16/2003	1.00E-03	-6.91E+00
10/14/2003	1.00E-03	-6.91E+00
1/13/2004	1.00E-03	-6.91E+00

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, $S = [\text{Sum}([(background\ result-X)^2]/[\text{count of background results} - 1])]^{0.5}$

TL Upper Tolerance Limit, $TL = X + (K * S)$, LL Lower Tolerance Limit, $LL = X - (K * S)$

X Mean, $X = (\text{sum of background results})/(\text{count of background results})$

** 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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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= 0.018 S= 0.020 CV(1)=1.089 K factor**= 2.523 TL(1)= 6.83E-02 LL(1)=N/A

Statistics-Transformed Background Data X= -4.540 S= 1.020 CV(2)=-0.225 K factor**= 2.523 TL(2)= -1.97E+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: MW395

Date Collected	Result	LN(Result)
8/13/2002	5.00E-02	-3.00E+00
9/16/2002	5.00E-02	-3.00E+00
10/16/2002	7.02E-03	-4.96E+00
1/13/2003	2.90E-02	-3.54E+00
4/10/2003	9.10E-03	-4.70E+00
7/16/2003	6.27E-03	-5.07E+00
10/14/2003	5.00E-03	-5.30E+00
1/13/2004	5.00E-03	-5.30E+00

Well Number: MW397

Date Collected	Result	LN(Result)
8/13/2002	5.00E-02	-3.00E+00
9/16/2002	5.00E-02	-3.00E+00
10/17/2002	5.00E-03	-5.30E+00
1/13/2003	5.02E-03	-5.29E+00
4/8/2003	5.00E-03	-5.30E+00
7/16/2003	5.00E-03	-5.30E+00
10/14/2003	5.00E-03	-5.30E+00
1/13/2004	5.00E-03	-5.30E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW370	Downgradient	No	2.00E-03	N/A	-6.21E+00	N/A
MW373	Downgradient	Yes	2.03E-03	N/A	-6.20E+00	NO
MW385	Sidegradient	Yes	8.17E-04	N/A	-7.11E+00	NO
MW388	Downgradient	No	2.00E-03	N/A	-6.21E+00	N/A
MW392	Downgradient	Yes	2.32E-03	N/A	-6.07E+00	NO
MW395	Upgradient	Yes	8.04E-04	N/A	-7.13E+00	NO
MW397	Upgradient	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.

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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= 157.250 S= 52.376 CV(1)=0.333 **K factor**= 2.523** TL(1)= 2.89E+02 LL(1)=N/A

Statistics-Transformed Background Data X= 5.003 S= 0.348 CV(2)=0.069 **K factor**= 2.523** TL(2)= 5.88E+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: MW395

Date Collected	Result	LN(Result)
8/13/2002	8.00E+01	4.38E+00
9/16/2002	1.45E+02	4.98E+00
10/16/2002	1.25E+02	4.83E+00
1/13/2003	8.50E+01	4.44E+00
4/10/2003	1.59E+02	5.07E+00
7/16/2003	9.80E+01	4.58E+00
10/14/2003	1.38E+02	4.93E+00
1/13/2004	2.33E+02	5.45E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW370	Downgradient	Yes	3.45E+02	YES	5.84E+00	N/A
MW373	Downgradient	Yes	3.83E+02	YES	5.95E+00	N/A
MW385	Sidegradient	Yes	3.60E+02	YES	5.89E+00	N/A
MW388	Downgradient	Yes	3.85E+02	YES	5.95E+00	N/A
MW392	Downgradient	Yes	4.13E+02	YES	6.02E+00	N/A
MW395	Upgradient	Yes	3.99E+02	YES	5.99E+00	N/A
MW397	Upgradient	Yes	3.74E+02	YES	5.92E+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.

Well Number: MW397

Date Collected	Result	LN(Result)
8/13/2002	1.15E+02	4.74E+00
9/30/2002	1.40E+02	4.94E+00
10/17/2002	1.85E+02	5.22E+00
1/13/2003	2.30E+02	5.44E+00
4/8/2003	1.55E+02	5.04E+00
7/16/2003	1.88E+02	5.24E+00
10/14/2003	1.87E+02	5.23E+00
1/13/2004	2.53E+02	5.53E+00

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
MW373
MW385
MW388
MW392
MW395
MW397

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

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= 6.048 S= 0.248 CV(1)=0.041 **K factor**= 2.904** TL(1)= 6.77E+00 LL(1)=5.33E+00

Statistics-Transformed Background Data X= 1.799 S= 0.042 CV(2)=0.023 **K factor**= 2.904** TL(2)= 1.92E+00 LL(2)=1.68E+00

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: MW395

Date Collected	Result	LN(Result)
8/13/2002	5.80E+00	1.76E+00
9/16/2002	6.00E+00	1.79E+00
10/16/2002	5.47E+00	1.70E+00
1/13/2003	6.00E+00	1.79E+00
4/10/2003	6.18E+00	1.82E+00
7/16/2003	6.00E+00	1.79E+00
10/14/2003	6.31E+00	1.84E+00
1/13/2004	6.24E+00	1.83E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)? Result <LL(1)?	LN(Result)	LN(Result) >TL(2)? LN(Result) <LL(2)?
MW370	Downgradient	Yes	5.93E+00	NO	1.78E+00	N/A
MW373	Downgradient	Yes	6.02E+00	NO	1.80E+00	N/A
MW385	Sidegradient	Yes	6.19E+00	NO	1.82E+00	N/A
MW388	Downgradient	Yes	5.98E+00	NO	1.79E+00	N/A
MW392	Downgradient	Yes	5.91E+00	NO	1.78E+00	N/A
MW395	Upgradient	Yes	5.84E+00	NO	1.76E+00	N/A
MW397	Upgradient	Yes	5.95E+00	NO	1.78E+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.

Well Number: MW397

Date Collected	Result	LN(Result)
8/13/2002	5.84E+00	1.76E+00
9/30/2002	6.00E+00	1.79E+00
10/17/2002	5.75E+00	1.75E+00
1/13/2003	6.00E+00	1.79E+00
4/8/2003	6.30E+00	1.84E+00
7/16/2003	6.20E+00	1.82E+00
10/14/2003	6.36E+00	1.85E+00
1/13/2004	6.32E+00	1.84E+00

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

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= 1.590 S= 0.642 CV(1)=0.404 **K factor**= 2.523** TL(1)= 3.21E+00 LL(1)=N/A

Statistics-Transformed Background Data X= -0.306 S= 2.457 CV(2)=-8.028 **K factor**= 2.523** TL(2)= 5.89E+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: MW395

Date Collected	Result	LN(Result)
8/13/2002	2.00E+00	6.93E-01
9/16/2002	2.00E+00	6.93E-01
10/16/2002	1.29E-03	-6.65E+00
1/13/2003	1.51E+00	4.12E-01
4/10/2003	1.67E+00	5.13E-01
7/16/2003	1.73E+00	5.48E-01
10/14/2003	1.70E+00	5.31E-01
1/13/2004	1.58E+00	4.57E-01

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW370	Downgradient	Yes	2.28E+00	NO	8.24E-01	N/A
MW373	Downgradient	Yes	2.57E+00	NO	9.44E-01	N/A
MW385	Sidegradient	Yes	1.70E+00	NO	5.31E-01	N/A
MW388	Downgradient	Yes	1.66E+00	NO	5.07E-01	N/A
MW392	Downgradient	Yes	2.18E+00	NO	7.79E-01	N/A
MW395	Upgradient	Yes	1.61E+00	NO	4.76E-01	N/A
MW397	Upgradient	Yes	1.83E+00	NO	6.04E-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.

Well Number: MW397

Date Collected	Result	LN(Result)
8/13/2002	2.03E+00	7.08E-01
9/16/2002	2.00E+00	6.93E-01
10/17/2002	1.45E-03	-6.54E+00
1/13/2003	1.69E+00	5.25E-01
4/8/2003	1.73E+00	5.48E-01
7/16/2003	2.00E+00	6.93E-01
10/14/2003	1.92E+00	6.52E-01
1/13/2004	1.87E+00	6.26E-01

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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Radium-226

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= 0.039 S= 0.419 CV(1)=10.740 K factor**= 2.523 TL(1)= 1.10E+00 LL(1)=N/A

Statistics-Transformed Background Data X= -1.695 S= 1.043 CV(2)=-0.615 K factor**= 2.523 TL(2)= -4.14E-01 LL(2)=N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number: MW395

Date Collected	Result	LN(Result)
10/16/2002	6.61E-01	-4.14E-01
1/13/2003	-8.39E-01	#Func!
10/14/2003	2.66E-02	-3.63E+00
1/13/2004	-7.77E-02	#Func!
4/12/2004	-1.15E-01	#Func!
7/20/2004	1.05E-01	-2.25E+00
10/12/2004	4.08E-01	-8.96E-01
1/18/2005	5.64E-02	-2.88E+00

Well Number: MW397

Date Collected	Result	LN(Result)
10/17/2002	5.76E-01	-5.52E-01
1/13/2003	-8.41E-01	#Func!
10/14/2003	-1.79E-01	#Func!
1/13/2004	-5.64E-02	#Func!
4/12/2004	1.74E-01	-1.75E+00
7/21/2004	2.27E-01	-1.48E+00
10/12/2004	3.79E-01	-9.70E-01
1/20/2005	1.19E-01	-2.13E+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)
MW370	Downgradient	No	8.52E-01	N/A	-1.60E-01	N/A
MW373	Downgradient	No	5.20E-01	N/A	-6.54E-01	N/A
MW385	Sidegradient	Yes	1.05E+00	N/A	4.88E-02	YES
MW388	Downgradient	Yes	1.62E+00	N/A	4.82E-01	YES
MW392	Downgradient	Yes	1.63E+00	N/A	4.89E-01	YES
MW395	Upgradient	No	7.37E-01	N/A	-3.05E-01	N/A
MW397	Upgradient	No	6.11E-01	N/A	-4.93E-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

- MW385
- MW388
- MW392

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-S/T Second 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= 29.560 S= 13.894 CV(1)=0.470 **K factor**= 2.523** TL(1)= 6.46E+01 LL(1)=N/A

Statistics-Transformed Background Data X= 2.615 S= 2.411 CV(2)=0.922 **K factor**= 2.523** TL(2)= 8.70E+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: MW395

Date Collected	Result	LN(Result)
8/13/2002	2.70E+01	3.30E+00
9/16/2002	2.72E+01	3.30E+00
10/16/2002	2.53E-02	-3.68E+00
1/13/2003	2.26E+01	3.12E+00
4/10/2003	5.39E+01	3.99E+00
7/16/2003	3.00E+01	3.40E+00
10/14/2003	2.91E+01	3.37E+00
1/13/2004	2.64E+01	3.27E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW370	Downgradient	Yes	4.39E+01	NO	3.78E+00	N/A
MW373	Downgradient	Yes	6.81E+01	YES	4.22E+00	N/A
MW385	Sidegradient	Yes	3.41E+01	NO	3.53E+00	N/A
MW388	Downgradient	Yes	4.19E+01	NO	3.74E+00	N/A
MW392	Downgradient	Yes	2.44E+01	NO	3.19E+00	N/A
MW395	Upgradient	Yes	3.14E+01	NO	3.45E+00	N/A
MW397	Upgradient	Yes	3.19E+01	NO	3.46E+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.

Well Number: MW397

Date Collected	Result	LN(Result)
8/13/2002	3.52E+01	3.56E+00
9/16/2002	3.43E+01	3.54E+00
10/17/2002	3.36E-02	-3.39E+00
1/13/2003	3.13E+01	3.44E+00
4/8/2003	4.61E+01	3.83E+00
7/16/2003	3.84E+01	3.65E+00
10/14/2003	3.71E+01	3.61E+00
1/13/2004	3.43E+01	3.54E+00

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.

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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= 10.756 S= 2.147 CV(1)=0.200 K factor**= 2.523 TL(1)= 1.62E+01 LL(1)=N/A

Statistics-Transformed Background Data X= 2.356 S= 0.203 CV(2)=0.086 K factor**= 2.523 TL(2)= 2.87E+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: MW395

Date Collected	Result	LN(Result)
8/13/2002	1.03E+01	2.33E+00
9/16/2002	9.10E+00	2.21E+00
10/16/2002	8.80E+00	2.17E+00
1/13/2003	9.00E+00	2.20E+00
4/10/2003	8.30E+00	2.12E+00
7/16/2003	8.20E+00	2.10E+00
10/14/2003	8.30E+00	2.12E+00
1/13/2004	8.20E+00	2.10E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW370	Downgradient	Yes	1.97E+01	YES	2.98E+00	N/A
MW373	Downgradient	Yes	1.92E+02	YES	5.26E+00	N/A
MW385	Sidegradient	Yes	1.95E+01	YES	2.97E+00	N/A
MW388	Downgradient	Yes	1.74E+01	YES	2.86E+00	N/A
MW392	Downgradient	Yes	7.81E+00	NO	2.06E+00	N/A
MW395	Upgradient	Yes	1.13E+01	NO	2.42E+00	N/A
MW397	Upgradient	Yes	1.17E+01	NO	2.46E+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.

Well Number: MW397

Date Collected	Result	LN(Result)
8/13/2002	1.40E+01	2.64E+00
9/16/2002	1.28E+01	2.55E+00
10/17/2002	1.23E+01	2.51E+00
1/13/2003	1.27E+01	2.54E+00
4/8/2003	1.28E+01	2.55E+00
7/16/2003	1.31E+01	2.57E+00
10/14/2003	1.21E+01	2.49E+00
1/13/2004	1.21E+01	2.49E+00

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
- MW373
- MW385
- MW388

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

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= 11.359 S= 9.138 CV(1)=0.805 K factor**= 2.523 TL(1)= 3.44E+01 LL(1)=N/A

Statistics-Transformed Background Data X= 2.398 S= 0.859 CV(2)=0.358 K factor**= 2.523 TL(2)= 3.25E+00 LL(2)=N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number: MW395		
Date Collected	Result	LN(Result)
8/13/2002	2.08E+01	3.03E+00
9/16/2002	1.62E+01	2.79E+00
10/16/2002	8.28E+00	2.11E+00
1/13/2003	1.30E+01	2.56E+00
4/10/2003	-9.37E+00	#Func!
7/16/2003	8.26E-01	-1.91E-01
10/14/2003	1.41E+01	2.65E+00
1/13/2004	0.00E+00	#Func!

Well Number: MW397		
Date Collected	Result	LN(Result)
8/13/2002	6.06E+00	1.80E+00
9/16/2002	1.73E+01	2.85E+00
10/17/2002	2.57E+01	3.25E+00
1/13/2003	2.09E+01	3.04E+00
4/8/2003	2.01E+01	3.00E+00
7/16/2003	9.20E+00	2.22E+00
10/14/2003	1.01E+01	2.31E+00
1/13/2004	8.54E+00	2.14E+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)
MW370	Downgradient	Yes	2.29E+01	NO	3.13E+00	N/A
MW373	Downgradient	No	2.12E+00	N/A	7.51E-01	N/A
MW385	Sidegradient	Yes	3.07E+01	NO	3.42E+00	N/A
MW388	Downgradient	No	9.53E+00	N/A	2.25E+00	N/A
MW392	Downgradient	No	6.07E+00	N/A	1.80E+00	N/A
MW395	Upgradient	No	2.17E+00	N/A	7.75E-01	N/A
MW397	Upgradient	No	5.18E+00	N/A	1.64E+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

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= 1.544 S= 0.856 CV(1)=0.554 **K factor**= 2.523** TL(1)= 3.70E+00 LL(1)=N/A

Statistics-Transformed Background Data X= 0.325 S= 0.452 CV(2)=1.393 **K factor**= 2.523** TL(2)= 1.46E+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: MW395

Date Collected	Result	LN(Result)
8/13/2002	1.60E+00	4.70E-01
9/16/2002	1.10E+00	9.53E-02
10/16/2002	1.00E+00	0.00E+00
1/13/2003	2.00E+00	6.93E-01
4/10/2003	3.40E+00	1.22E+00
7/16/2003	2.00E+00	6.93E-01
10/14/2003	1.00E+00	0.00E+00
1/13/2004	1.00E+00	0.00E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW370	Downgradient	Yes	9.28E-01	NO	-7.47E-02	N/A
MW373	Downgradient	Yes	1.48E+00	NO	3.92E-01	N/A
MW385	Sidegradient	Yes	9.00E-01	NO	-1.05E-01	N/A
MW388	Downgradient	Yes	8.39E-01	NO	-1.76E-01	N/A
MW392	Downgradient	Yes	5.45E-01	NO	-6.07E-01	N/A
MW395	Upgradient	Yes	6.98E-01	NO	-3.60E-01	N/A
MW397	Upgradient	Yes	5.37E-01	NO	-6.22E-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.

Well Number: MW397

Date Collected	Result	LN(Result)
8/13/2002	1.00E+00	0.00E+00
9/16/2002	1.00E+00	0.00E+00
10/17/2002	1.00E+00	0.00E+00
1/13/2003	3.60E+00	1.28E+00
4/8/2003	1.90E+00	6.42E-01
7/16/2003	1.10E+00	9.53E-02
10/14/2003	1.00E+00	0.00E+00
1/13/2004	1.00E+00	0.00E+00

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

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= 31.513 S= 18.609 CV(1)=0.591 **K factor**= 2.523** TL(1)= 7.85E+01 LL(1)=N/A

Statistics-Transformed Background Data X= 3.240 S= 0.707 CV(2)=0.218 **K factor**= 2.523** TL(2)= 5.02E+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: MW395

Date Collected	Result	LN(Result)
8/13/2002	5.00E+01	3.91E+00
9/16/2002	5.00E+01	3.91E+00
10/16/2002	5.00E+01	3.91E+00
1/13/2003	1.83E+01	2.91E+00
4/10/2003	5.12E+01	3.94E+00
7/16/2003	4.26E+01	3.75E+00
10/14/2003	1.23E+01	2.51E+00
1/13/2004	1.00E+01	2.30E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW370	Downgradient	Yes	1.06E+01	NO	2.36E+00	N/A
MW373	Downgradient	Yes	5.44E+00	NO	1.69E+00	N/A
MW385	Sidegradient	Yes	9.30E+00	NO	2.23E+00	N/A
MW388	Downgradient	Yes	6.18E+00	NO	1.82E+00	N/A
MW392	Downgradient	No	1.00E+01	N/A	2.30E+00	N/A
MW395	Upgradient	Yes	1.87E+01	NO	2.93E+00	N/A
MW397	Upgradient	Yes	8.18E+00	NO	2.10E+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.

Well Number: MW397

Date Collected	Result	LN(Result)
8/13/2002	5.00E+01	3.91E+00
9/16/2002	5.00E+01	3.91E+00
10/17/2002	5.00E+01	3.91E+00
1/13/2003	1.20E+01	2.48E+00
4/8/2003	1.99E+01	2.99E+00
7/16/2003	1.79E+01	2.88E+00
10/14/2003	1.00E+01	2.30E+00
1/13/2004	1.00E+01	2.30E+00

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-S/T Second 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= 0.044 S= 0.034 CV(1)=0.760 K factor**= 2.523 TL(1)= 1.29E-01 LL(1)=N/A

Statistics-Transformed Background Data X= -3.342 S= 0.659 CV(2)=-0.197 K factor**= 2.523 TL(2)= -1.68E+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: MW395

Date Collected	Result	LN(Result)
8/13/2002	1.00E-01	-2.30E+00
9/16/2002	1.00E-01	-2.30E+00
10/16/2002	2.50E-02	-3.69E+00
1/13/2003	3.50E-02	-3.35E+00
4/10/2003	3.50E-02	-3.35E+00
7/16/2003	2.00E-02	-3.91E+00
10/14/2003	2.00E-02	-3.91E+00
1/13/2004	2.00E-02	-3.91E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW370	Downgradient	No	2.00E-02	N/A	-3.91E+00	N/A
MW373	Downgradient	No	2.00E-02	N/A	-3.91E+00	N/A
MW385	Sidegradient	No	2.00E-02	N/A	-3.91E+00	N/A
MW388	Downgradient	Yes	3.53E-03	NO	-5.65E+00	N/A
MW392	Downgradient	No	2.00E-02	N/A	-3.91E+00	N/A
MW395	Upgradient	No	2.00E-02	N/A	-3.91E+00	N/A
MW397	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.

Well Number: MW397

Date Collected	Result	LN(Result)
8/13/2002	1.00E-01	-2.30E+00
9/16/2002	1.00E-01	-2.30E+00
10/17/2002	2.50E-02	-3.69E+00
1/13/2003	3.50E-02	-3.35E+00
4/8/2003	3.50E-02	-3.35E+00
7/16/2003	2.00E-02	-3.91E+00
10/14/2003	2.00E-02	-3.91E+00
1/13/2004	2.00E-02	-3.91E+00

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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ATTACHMENT D2

**COMPARISON OF CURRENT DATA TO
ONE-SIDED UPPER TOLERANCE INTERVAL TEST
CALCULATED USING
CURRENT BACKGROUND DATA**

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C-746-S/T Second 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= 288.875	S= 55.955	CV(1)=0.194	K factor**= 3.188	TL(1)= 4.67E+02	LL(1)=N/A
Statistics-Transformed Background Data	X= 5.650	S= 0.192	CV(2)=0.034	K factor**= 3.188	TL(2)= 6.26E+00	LL(2)=N/A

Current 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: MW396

Date Collected	Result	LN(Result)
4/19/2022	3.36E+02	5.82E+00
7/20/2022	3.83E+02	5.95E+00
10/17/2022	2.17E+02	5.38E+00
1/25/2023	2.40E+02	5.48E+00
4/27/2023	2.50E+02	5.52E+00
7/27/2023	3.15E+02	5.75E+00
10/18/2023	2.62E+02	5.57E+00
1/30/2024	3.08E+02	5.73E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW386	Sidegradient	Yes	3.73E+02	NO	5.92E+00	N/A
MW393	Downgradient	Yes	2.26E+02	NO	5.42E+00	N/A
MW396	Upgradient	Yes	3.53E+02	NO	5.87E+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, $S = \sqrt{[\text{Sum } ((\text{background result}-X)^2)/(\text{count of background results} - 1)]}^{0.5}$

TL Upper Tolerance Limit, $TL = X + (K * S)$, LL Lower Tolerance Limit, $LL = X - (K * S)$

X Mean, $X = (\text{sum of background results})/(\text{count of background results})$

** 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-S/T Second 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= 24.881 S= 3.370 CV(1)=0.135 K factor**= 2.523 TL(1)= 3.34E+01 LL(1)=N/A

Statistics-Transformed Background Data X= 3.205 S= 0.140 CV(2)=0.044 K factor**= 2.523 TL(2)= 3.56E+00 LL(2)=N/A

Current 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: MW220

Date Collected	Result	LN(Result)
4/13/2022	2.91E+01	3.37E+00
7/18/2022	2.04E+01	3.02E+00
10/18/2022	2.05E+01	3.02E+00
1/23/2023	2.01E+01	3.00E+00
5/1/2023	2.82E+01	3.34E+00
7/28/2023	2.21E+01	3.10E+00
10/16/2023	2.16E+01	3.07E+00
1/29/2024	2.02E+01	3.01E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW372	Downgradient	Yes	6.53E+01	YES	4.18E+00	N/A

Well Number: MW394

Date Collected	Result	LN(Result)
4/19/2022	2.82E+01	3.34E+00
7/20/2022	2.61E+01	3.26E+00
10/17/2022	2.66E+01	3.28E+00
1/25/2023	2.69E+01	3.29E+00
4/27/2023	2.69E+01	3.29E+00
7/27/2023	2.65E+01	3.28E+00
10/17/2023	2.79E+01	3.33E+00
1/30/2024	2.68E+01	3.29E+00

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

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-S/T Second Quarter 2024 Statistical Analysis Current Background Comparison

Chemical Oxygen Demand (COD)

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= 20.044 S= 2.290 CV(1)=0.114 K factor**= 2.523 TL(1)= 2.58E+01 LL(1)=N/A

Statistics-Transformed Background Data X= 2.991 S= 0.128 CV(2)=0.043 K factor**= 2.523 TL(2)= 3.31E+00 LL(2)=N/A

Current Background Data from Upgradient Wells with Transformed Result

Well Number: MW220

Date Collected	Result	LN(Result)
4/13/2022	2.00E+01	3.00E+00
7/18/2022	2.00E+01	3.00E+00
10/18/2022	1.30E+01	2.56E+00
1/23/2023	2.00E+01	3.00E+00
5/1/2023	2.00E+01	3.00E+00
7/31/2023	2.00E+01	3.00E+00
10/16/2023	2.00E+01	3.00E+00
1/29/2024	2.00E+01	3.00E+00

Well Number: MW394

Date Collected	Result	LN(Result)
4/19/2022	2.40E+01	3.18E+00
7/20/2022	2.00E+01	3.00E+00
10/17/2022	2.37E+01	3.17E+00
1/25/2023	2.00E+01	3.00E+00
4/27/2023	2.00E+01	3.00E+00
7/27/2023	2.00E+01	3.00E+00
10/17/2023	2.00E+01	3.00E+00
1/30/2024	2.00E+01	3.00E+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)
MW394	Upgradient	Yes	7.90E+01	YES	4.37E+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

MW394

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, $S = [\text{Sum}([(background\ result-X)^2]/[\text{count of background results} - 1])]^{0.5}$

TL Upper Tolerance Limit, $TL = X + (K * S)$, LL Lower Tolerance Limit, $LL = X - (K * S)$

X Mean, $X = (\text{sum of background results})/(\text{count of background results})$

** 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-S/T Second 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= 383.438 S= 38.816 CV(1)=0.101 K factor**= 2.523 TL(1)= 4.81E+02 LL(1)=N/A

Statistics-Transformed Background Data X= 5.944 S= 0.104 CV(2)=0.017 K factor**= 2.523 TL(2)= 6.21E+00 LL(2)=N/A

Current 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: MW220

Date Collected	Result	LN(Result)
4/13/2022	4.36E+02	6.08E+00
7/18/2022	3.50E+02	5.86E+00
10/18/2022	3.32E+02	5.81E+00
1/23/2023	3.34E+02	5.81E+00
5/1/2023	4.20E+02	6.04E+00
7/31/2023	3.54E+02	5.87E+00
10/16/2023	3.23E+02	5.78E+00
1/29/2024	3.31E+02	5.80E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW372	Downgradient	Yes	7.58E+02	YES	6.63E+00	N/A

Well Number: MW394

Date Collected	Result	LN(Result)
4/19/2022	4.13E+02	6.02E+00
7/20/2022	3.87E+02	5.96E+00
10/17/2022	4.17E+02	6.03E+00
1/25/2023	4.04E+02	6.00E+00
4/27/2023	4.09E+02	6.01E+00
7/27/2023	4.15E+02	6.03E+00
10/17/2023	4.03E+02	6.00E+00
1/30/2024	4.07E+02	6.01E+00

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

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-S/T Second 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= 191.375 S= 23.303 CV(1)=0.122 **K factor**= 2.523** TL(1)= 2.50E+02 LL(1)=N/A

Statistics-Transformed Background Data X= 5.248 S= 0.118 CV(2)=0.022 **K factor**= 2.523** TL(2)= 5.54E+00 LL(2)=N/A

Current 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: MW220

Date Collected	Result	LN(Result)
4/13/2022	2.36E+02	5.46E+00
7/18/2022	1.64E+02	5.10E+00
10/18/2022	1.79E+02	5.19E+00
1/23/2023	1.72E+02	5.15E+00
5/1/2023	2.02E+02	5.31E+00
7/31/2023	1.76E+02	5.17E+00
10/16/2023	1.58E+02	5.06E+00
1/29/2024	1.90E+02	5.25E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW372	Downgradient	Yes	4.59E+02	YES	6.13E+00	N/A

Well Number: MW394

Date Collected	Result	LN(Result)
4/19/2022	2.43E+02	5.49E+00
7/20/2022	1.93E+02	5.26E+00
10/17/2022	1.98E+02	5.29E+00
1/25/2023	1.84E+02	5.21E+00
4/27/2023	1.96E+02	5.28E+00
7/27/2023	2.01E+02	5.30E+00
10/17/2023	1.70E+02	5.14E+00
1/30/2024	2.00E+02	5.30E+00

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

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-S/T Second 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= 10.379 S= 1.504 CV(1)=0.145 K factor**= 2.523 TL(1)= 1.42E+01 LL(1)=N/A

Statistics-Transformed Background Data X= 2.329 S= 0.151 CV(2)=0.065 K factor**= 2.523 TL(2)= 2.71E+00 LL(2)=N/A

Current 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: MW220

Date Collected	Result	LN(Result)
4/13/2022	1.21E+01	2.49E+00
7/18/2022	8.67E+00	2.16E+00
10/18/2022	8.36E+00	2.12E+00
1/23/2023	8.28E+00	2.11E+00
5/1/2023	1.19E+01	2.48E+00
7/28/2023	8.97E+00	2.19E+00
10/16/2023	8.85E+00	2.18E+00
1/29/2024	8.23E+00	2.11E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW372	Downgradient	Yes	2.25E+01	YES	3.11E+00	N/A
MW387	Downgradient	Yes	1.65E+01	YES	2.80E+00	N/A

Well Number: MW394

Date Collected	Result	LN(Result)
4/19/2022	1.18E+01	2.47E+00
7/20/2022	1.17E+01	2.46E+00
10/17/2022	1.12E+01	2.42E+00
1/25/2023	1.14E+01	2.43E+00
4/27/2023	1.13E+01	2.42E+00
7/27/2023	1.07E+01	2.37E+00
10/17/2023	1.16E+01	2.45E+00
1/30/2024	1.10E+01	2.40E+00

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

MW372
MW387

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-S/T Second 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= 435.500 S= 49.717 CV(1)=0.114 **K factor**= 2.523** TL(1)= 5.61E+02 LL(1)=N/A

Statistics-Transformed Background Data X= 6.070 S= 0.116 CV(2)=0.019 **K factor**= 2.523** TL(2)= 6.36E+00 LL(2)=N/A

Current Background Data from Upgradient Wells with Transformed Result
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Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Well Number: MW220

Date Collected	Result	LN(Result)
4/13/2022	4.12E+02	6.02E+00
7/18/2022	4.11E+02	6.02E+00
10/18/2022	3.98E+02	5.99E+00
1/23/2023	3.66E+02	5.90E+00
5/1/2023	4.77E+02	6.17E+00
7/31/2023	3.77E+02	5.93E+00
10/16/2023	4.06E+02	6.01E+00
1/29/2024	4.63E+02	6.14E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW394	Upgradient	Yes	4.12E+02	NO	6.02E+00	N/A

Well Number: MW394

Date Collected	Result	LN(Result)
4/19/2022	4.32E+02	6.07E+00
7/20/2022	4.87E+02	6.19E+00
10/17/2022	3.46E+02	5.85E+00
1/25/2023	4.69E+02	6.15E+00
4/27/2023	4.51E+02	6.11E+00
7/27/2023	4.94E+02	6.20E+00
10/17/2023	4.61E+02	6.13E+00
1/30/2024	5.18E+02	6.25E+00

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, $S = \sqrt{[\text{Sum} ((\text{background result}-X)^2)/[\text{count of background results} -1]]}^{0.5}$

TL Upper Tolerance Limit, $TL = X + (K * S)$, LL Lower Tolerance Limit, $LL = X - (K * S)$

X Mean, $X = (\text{sum of background results})/(\text{count of background results})$

** 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-S/T Second Quarter 2024 Statistical Analysis Current Background Comparison

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 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= 36.994 S= 5.503 CV(1)=0.149 K factor**= 2.523 TL(1)= 5.09E+01 LL(1)=N/A

Statistics-Transformed Background Data X= 3.602 S= 0.134 CV(2)=0.037 K factor**= 2.523 TL(2)= 3.94E+00 LL(2)=N/A

Current 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: MW220

Date Collected	Result	LN(Result)
4/13/2022	4.62E+01	3.83E+00
7/18/2022	3.81E+01	3.64E+00
10/18/2022	3.72E+01	3.62E+00
1/23/2023	3.77E+01	3.63E+00
5/1/2023	5.30E+01	3.97E+00
7/28/2023	3.85E+01	3.65E+00
10/16/2023	3.72E+01	3.62E+00
1/29/2024	3.58E+01	3.58E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW224	Sidegradient	Yes	6.13E+01	YES	4.12E+00	N/A
MW372	Downgradient	Yes	6.12E+01	YES	4.11E+00	N/A

Well Number: MW394

Date Collected	Result	LN(Result)
4/19/2022	3.53E+01	3.56E+00
7/20/2022	3.41E+01	3.53E+00
10/17/2022	3.37E+01	3.52E+00
1/25/2023	3.40E+01	3.53E+00
4/27/2023	3.32E+01	3.50E+00
7/27/2023	3.18E+01	3.46E+00
10/17/2023	3.45E+01	3.54E+00
1/30/2024	3.16E+01	3.45E+00

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

MW224
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-S/T Second 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= 14.925 S= 3.852 CV(1)=0.258 K factor**= 2.523 TL(1)= 2.46E+01 LL(1)=N/A

Statistics-Transformed Background Data X= 2.675 S= 0.236 CV(2)=0.088 K factor**= 2.523 TL(2)= 3.27E+00 LL(2)=N/A

Current 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: MW220

Date Collected	Result	LN(Result)
4/13/2022	2.49E+01	3.21E+00
7/18/2022	1.85E+01	2.92E+00
10/18/2022	1.57E+01	2.75E+00
1/23/2023	1.64E+01	2.80E+00
5/1/2023	2.00E+01	3.00E+00
7/31/2023	1.78E+01	2.88E+00
10/16/2023	1.55E+01	2.74E+00
1/29/2024	1.47E+01	2.69E+00

Well Number: MW394

Date Collected	Result	LN(Result)
4/19/2022	1.17E+01	2.46E+00
7/20/2022	1.22E+01	2.50E+00
10/17/2022	1.21E+01	2.49E+00
1/25/2023	1.21E+01	2.49E+00
4/27/2023	1.17E+01	2.46E+00
7/27/2023	1.22E+01	2.50E+00
10/17/2023	1.17E+01	2.46E+00
1/30/2024	1.16E+01	2.45E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW220	Upgradient	Yes	1.86E+01	NO	2.92E+00	N/A
MW224	Sidegradient	Yes	1.83E+01	NO	2.91E+00	N/A
MW372	Downgradient	Yes	1.40E+02	YES	4.94E+00	N/A
MW384	Sidegradient	Yes	1.74E+01	NO	2.86E+00	N/A
MW387	Downgradient	Yes	2.46E+01	NO	3.20E+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

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-S/T Second 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= 22.425 S= 4.365 CV(1)=0.195 K factor**= 2.523 TL(1)= 3.34E+01 LL(1)=N/A

Statistics-Transformed Background Data X= 3.092 S= 0.197 CV(2)=0.064 K factor**= 2.523 TL(2)= 3.59E+00 LL(2)=N/A

Current 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: MW395

Date Collected	Result	LN(Result)
4/19/2022	2.64E+01	3.27E+00
7/20/2022	2.49E+01	3.21E+00
10/17/2022	2.69E+01	3.29E+00
1/25/2023	2.69E+01	3.29E+00
4/27/2023	2.71E+01	3.30E+00
7/27/2023	2.62E+01	3.27E+00
10/18/2023	2.78E+01	3.33E+00
1/30/2024	2.66E+01	3.28E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW373	Downgradient	Yes	8.35E+01	YES	4.42E+00	N/A

Well Number: MW397

Date Collected	Result	LN(Result)
4/19/2022	1.85E+01	2.92E+00
7/18/2022	1.85E+01	2.92E+00
10/18/2022	1.87E+01	2.93E+00
1/23/2023	1.81E+01	2.90E+00
5/1/2023	1.87E+01	2.93E+00
7/27/2023	1.76E+01	2.87E+00
10/16/2023	1.86E+01	2.92E+00
1/30/2024	1.73E+01	2.85E+00

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

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-S/T Second Quarter 2024 Statistical Analysis Current 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 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= 353.875 S= 35.955 CV(1)=0.102 **K factor**= 2.523** TL(1)= 4.45E+02 LL(1)=N/A

Statistics-Transformed Background Data X= 5.864 S= 0.102 CV(2)=0.017 **K factor**= 2.523** TL(2)= 6.12E+00 LL(2)=N/A

Current 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: MW395

Date Collected	Result	LN(Result)
4/19/2022	3.83E+02	5.95E+00
7/20/2022	3.80E+02	5.94E+00
10/17/2022	3.88E+02	5.96E+00
1/25/2023	3.93E+02	5.97E+00
4/27/2023	4.05E+02	6.00E+00
7/27/2023	3.85E+02	5.95E+00
10/18/2023	3.83E+02	5.95E+00
1/30/2024	3.88E+02	5.96E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW373	Downgradient	Yes	9.30E+02	YES	6.84E+00	N/A

Well Number: MW397

Date Collected	Result	LN(Result)
4/19/2022	3.26E+02	5.79E+00
7/18/2022	3.20E+02	5.77E+00
10/18/2022	3.24E+02	5.78E+00
1/23/2023	3.22E+02	5.77E+00
5/1/2023	3.20E+02	5.77E+00
7/27/2023	3.19E+02	5.77E+00
10/16/2023	3.09E+02	5.73E+00
1/30/2024	3.17E+02	5.76E+00

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

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-S/T Second Quarter 2024 Statistical Analysis Current 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 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= 174.813 S= 23.572 CV(1)=0.135 **K factor**= 2.523** TL(1)= 2.34E+02 LL(1)=N/A

Statistics-Transformed Background Data X= 5.155 S= 0.139 CV(2)=0.027 **K factor**= 2.523** TL(2)= 5.51E+00 LL(2)=N/A

Current 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: MW395

Date Collected	Result	LN(Result)
4/19/2022	2.10E+02	5.35E+00
7/20/2022	1.99E+02	5.29E+00
10/17/2022	1.96E+02	5.28E+00
1/25/2023	1.80E+02	5.19E+00
4/27/2023	1.94E+02	5.27E+00
7/27/2023	1.88E+02	5.24E+00
10/18/2023	1.76E+02	5.17E+00
1/30/2024	2.07E+02	5.33E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW373	Downgradient	Yes	5.50E+02	YES	6.31E+00	N/A

Well Number: MW397

Date Collected	Result	LN(Result)
4/19/2022	1.80E+02	5.19E+00
7/18/2022	1.46E+02	4.98E+00
10/18/2022	1.57E+02	5.06E+00
1/23/2023	1.58E+02	5.06E+00
5/1/2023	1.28E+02	4.85E+00
7/27/2023	1.52E+02	5.02E+00
10/16/2023	1.65E+02	5.11E+00
1/30/2024	1.61E+02	5.08E+00

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

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-S/T Second Quarter 2024 Statistical Analysis Current 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 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= 9.403 S= 1.817 CV(1)=0.193 K factor**= 2.523 TL(1)= 1.40E+01 LL(1)=N/A

Statistics-Transformed Background Data X= 2.223 S= 0.196 CV(2)=0.088 K factor**= 2.523 TL(2)= 2.72E+00 LL(2)=N/A

Current 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: MW395

Date Collected	Result	LN(Result)
4/19/2022	1.10E+01	2.40E+00
7/20/2022	1.12E+01	2.42E+00
10/17/2022	1.13E+01	2.42E+00
1/25/2023	1.14E+01	2.43E+00
4/27/2023	1.14E+01	2.43E+00
7/27/2023	1.05E+01	2.35E+00
10/18/2023	1.15E+01	2.44E+00
1/30/2024	1.08E+01	2.38E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW373	Downgradient	Yes	2.93E+01	YES	3.38E+00	N/A

Well Number: MW397

Date Collected	Result	LN(Result)
4/19/2022	7.79E+00	2.05E+00
7/18/2022	7.71E+00	2.04E+00
10/18/2022	7.84E+00	2.06E+00
1/23/2023	7.66E+00	2.04E+00
5/1/2023	7.95E+00	2.07E+00
7/27/2023	7.07E+00	1.96E+00
10/16/2023	7.83E+00	2.06E+00
1/30/2024	7.49E+00	2.01E+00

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

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, $S = [\text{Sum}([(background\ result-X)^2]/[\text{count of background results} - 1])]^{0.5}$

TL Upper Tolerance Limit, $TL = X + (K * S)$, LL Lower Tolerance Limit, $LL = X - (K * S)$

X Mean, $X = (\text{sum of background results})/(\text{count of background results})$

** 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-S/T Second Quarter 2024 Statistical Analysis Current Background Comparison

Radium-226

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= 0.284 S= 0.191 CV(1)=0.672 K factor**= 2.523 TL(1)= 7.64E-01 LL(1)=N/A

Statistics-Transformed Background Data X= -1.219 S= 0.514 CV(2)=-0.421 K factor**= 2.523 TL(2)= -3.12E-01 LL(2)=N/A

Current Background Data from Upgradient Wells with Transformed Result

Well Number: MW395

Date Collected	Result	LN(Result)
4/19/2022	2.35E-01	-1.45E+00
7/20/2022	4.22E-01	-8.63E-01
10/17/2022	3.06E-01	-1.18E+00
1/25/2023	3.49E-01	-1.05E+00
4/27/2023	2.36E-01	-1.44E+00
7/27/2023	3.24E-01	-1.13E+00
10/18/2023	3.33E-01	-1.10E+00
1/30/2024	3.26E-01	-1.12E+00

Well Number: MW397

Date Collected	Result	LN(Result)
4/19/2022	7.32E-01	-3.12E-01
7/18/2022	8.05E-02	-2.52E+00
10/18/2022	-3.26E-02	#Func!
1/23/2023	1.88E-01	-1.67E+00
5/1/2023	2.11E-01	-1.56E+00
7/27/2023	-4.09E-02	#Func!
10/16/2023	4.02E-01	-9.11E-01
1/30/2024	4.68E-01	-7.59E-01

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)
MW385	Sidegradient	Yes	1.05E+00	YES	4.88E-02	N/A
MW388	Downgradient	Yes	1.62E+00	YES	4.82E-01	N/A
MW392	Downgradient	Yes	1.63E+00	YES	4.89E-01	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

- MW385
- MW388
- MW392

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-S/T Second Quarter 2024 Statistical Analysis Current 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 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= 31.656 S= 1.862 CV(1)=0.059 K factor**= 2.523 TL(1)= 3.64E+01 LL(1)=N/A

Statistics-Transformed Background Data X= 3.453 S= 0.059 CV(2)=0.017 K factor**= 2.523 TL(2)= 3.60E+00 LL(2)=N/A

Current 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: MW395

Date Collected	Result	LN(Result)
4/19/2022	3.14E+01	3.45E+00
7/20/2022	3.09E+01	3.43E+00
10/17/2022	3.20E+01	3.47E+00
1/25/2023	3.24E+01	3.48E+00
4/27/2023	3.10E+01	3.43E+00
7/27/2023	2.85E+01	3.35E+00
10/18/2023	3.06E+01	3.42E+00
1/30/2024	2.92E+01	3.37E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW373	Downgradient	Yes	6.81E+01	YES	4.22E+00	N/A

Well Number: MW397

Date Collected	Result	LN(Result)
4/19/2022	3.36E+01	3.51E+00
7/18/2022	3.34E+01	3.51E+00
10/18/2022	3.32E+01	3.50E+00
1/23/2023	3.31E+01	3.50E+00
5/1/2023	3.57E+01	3.58E+00
7/27/2023	3.00E+01	3.40E+00
10/16/2023	3.15E+01	3.45E+00
1/30/2024	3.00E+01	3.40E+00

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

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-S/T Second Quarter 2024 Statistical Analysis Current 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 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= 11.625 S= 0.349 CV(1)=0.030 K factor**= 2.523 TL(1)= 1.25E+01 LL(1)=N/A

Statistics-Transformed Background Data X= 2.453 S= 0.030 CV(2)=0.012 K factor**= 2.523 TL(2)= 2.53E+00 LL(2)=N/A

Current 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: MW395

Date Collected	Result	LN(Result)
4/19/2022	1.16E+01	2.45E+00
7/20/2022	1.19E+01	2.48E+00
10/17/2022	1.17E+01	2.46E+00
1/25/2023	1.17E+01	2.46E+00
4/27/2023	1.10E+01	2.40E+00
7/27/2023	1.15E+01	2.44E+00
10/18/2023	1.10E+01	2.40E+00
1/30/2024	1.12E+01	2.42E+00

Well Number: MW397

Date Collected	Result	LN(Result)
4/19/2022	1.18E+01	2.47E+00
7/18/2022	1.19E+01	2.48E+00
10/18/2022	1.14E+01	2.43E+00
1/23/2023	1.20E+01	2.48E+00
5/1/2023	1.21E+01	2.49E+00
7/27/2023	1.21E+01	2.49E+00
10/16/2023	1.15E+01	2.44E+00
1/30/2024	1.16E+01	2.45E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW370	Downgradient	Yes	1.97E+01	YES	2.98E+00	N/A
MW373	Downgradient	Yes	1.92E+02	YES	5.26E+00	N/A
MW385	Sidegradient	Yes	1.95E+01	YES	2.97E+00	N/A
MW388	Downgradient	Yes	1.74E+01	YES	2.86E+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

- MW370
- MW373
- MW385
- MW388

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, $S = [\text{Sum}([(background\ result-X)^2]/[\text{count of background results} - 1])]^{0.5}$

TL Upper Tolerance Limit, $TL = X + (K * S)$, LL Lower Tolerance Limit, $LL = X - (K * S)$

X Mean, $X = (\text{sum of background results})/(\text{count of background results})$

** 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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July 22, 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 second 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

Whenever monitoring wells (MWs) are sampled, 401 KAR 48:300, Section 11, requires determination of groundwater flow rate and direction of flow in the uppermost aquifer. The uppermost aquifer below the C-746-S&T Landfills 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 second quarter 2024 and to determine the groundwater flow rate and direction.

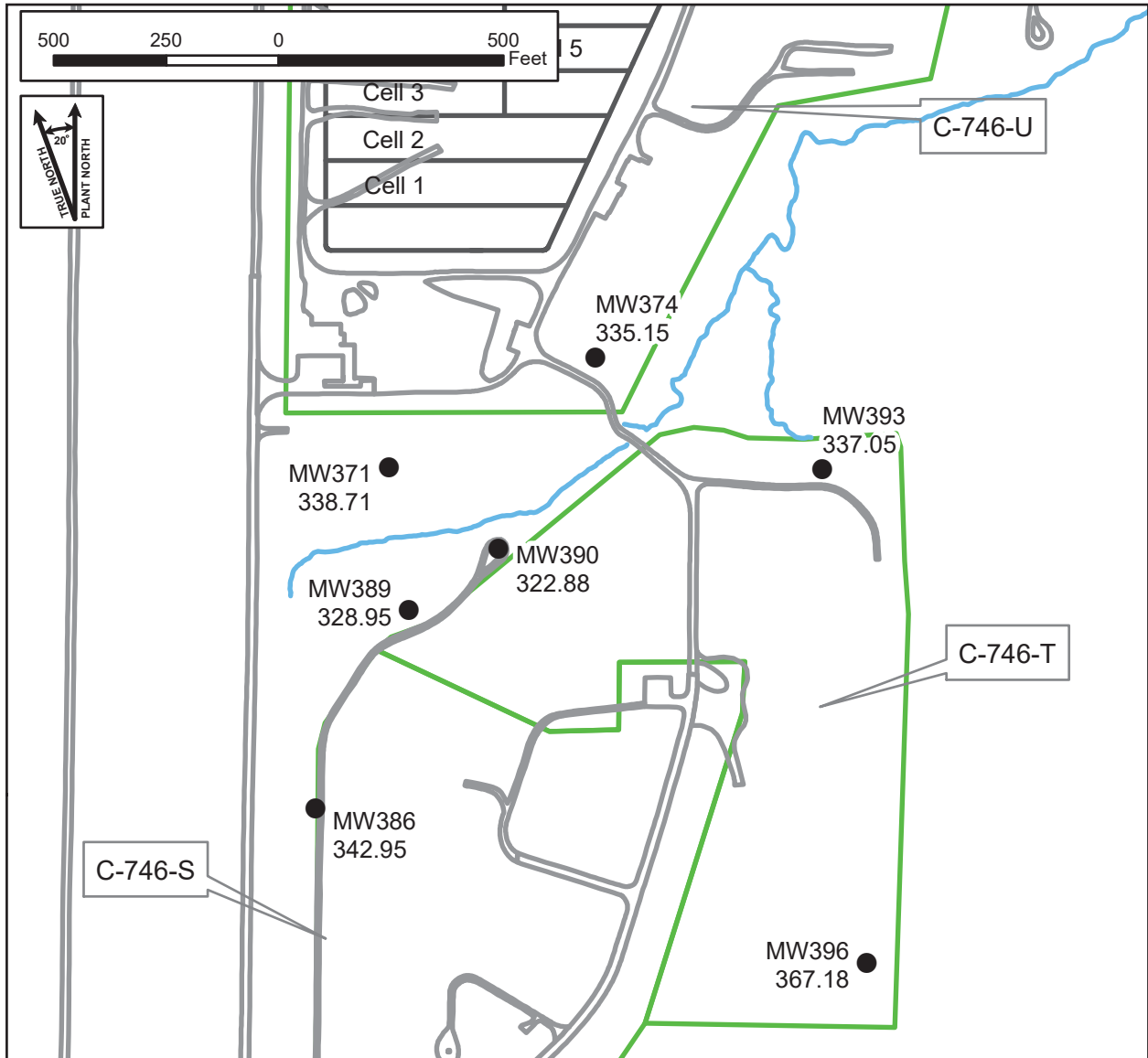
Water levels during this reporting period were measured on April 23-24, 2024. As shown on Figure E.1, MW389, screened in the Upper Continental Recharge System (UCRS), is usually dry, while other UCRS wells have recordable water levels. During this reporting period, MW389 had sufficient water for a water level measurement.

The UCRS has a strong vertical hydraulic gradient; therefore, the limited number of available UCRS wells, screened over different elevations, is not sufficient for mapping the potentiometric surface. Figure E.1 shows the location of UCRS MWs. The Upper Regional Gravel Aquifer (URGA) and Lower Regional Gravel Aquifer (LRGA) data were corrected for barometric pressure, if necessary, and converted to elevations to plot the potentiometric surface of the RGA, as a whole, as shown on Table E.1. Figure E.2 is a composite or average map of the URGA and LRGA elevations where well clusters exist. The contour lines are placed based on the average water level elevations of the clusters.¹ During April, RGA groundwater flow was directed inward and then northeast towards the Ohio River. Based on the site potentiometric map (Figure E.2), the hydraulic gradient beneath the landfill, as measured along the defined groundwater flow directions, is 7.19×10^{-4} ft/ft. Additional water level measurements in April (Figure E.3) document the vicinity groundwater hydraulic gradient for the RGA to be 2.05×10^{-4} ft/ft, northeastward. 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. 073-00045NWC1 and range from 4.25×10^2 to 7.25×10^2 ft/day (1.50×10^{-1} to 2.56×10^{-1} cm/s). RGA effective porosity is assumed to be 25%. Vicinity and site flow velocities were calculated using the low and high values for hydraulic conductivity, as shown in Table E.3.

Regional groundwater flow near the C-746-S&T Landfills typically trends northeastward toward the Ohio River. As demonstrated on the potentiometric map for April 2024, RGA groundwater flow from the landfill area was directed to the north.

¹ Additional water level measurements, in wells at the C-746-U Landfill and in wells of the surrounding region (MW98, MW100, MW125, MW139, MW165A, MW173, MW193, MW197, and MW200), were used to contour the RGA potentiometric surface.



Geological conditions in the UCRS indicate that permeable zones are discontinuous across the plant site. In the vicinity of the C-746-S&T Landfills, one of the wells (MW389) is often dry (or has a low water level that prevents sample collection), while others have recordable water levels. The UCRS contains a strong vertical gradient; therefore, the limited number of UCRS wells is not sufficient to map the potentiometric surface.

Legend	
●	Monitoring Wells
— (blue)	Streams
— (grey)	Roads
□ (green)	C-746-S&T and U Landfill Boundaries

Map Source Information
 Map Location/Date: G:\GIS\ARCVIEWS\PROJECTS\Quarterly Landfill Reports\ST landfill E.1 432024.mxd
 Monitoring Wells: G:\GIS\PEGASIS.gdb\locations
 Roads: G:\GIS\PEGASIS.gdb\roadrow
 Landfill Boundary: G:\GIS\PEGASIS.gdb\Facilities_1
 U Landfill Phases: G:\GIS\SHAPES\BOUNDS\c746u phases.shp
 Streams: G:\GIS\PEGASIS.gdb\streams

U.S. DEPARTMENT OF ENERGY
 DOE PORTSMOUTH/PADUCAH PROJECT OFFICE
 PADUCAH GASEOUS DIFFUSION PLANT

Figure E.1. Potentiometric Measurements of the Upper Continental Recharge System at the C-746-S&T Landfills, April 23, 2024

Table E.1. C-746-S&T Landfills Second Quarter 2024 (April) Water Levels

C-746-S&T Landfills (April 2024) Water Levels										
Date	Time	Well	Formation	Datum Elev (ft amsl)	BP (in Hg)	Delta BP (ft H2O)	Raw Data		*Corrected Data	
							DTW (ft)	Elev (ft amsl)	DTW (ft)	Elev (ft amsl)
4/23/2024	14:49	MW220	URGA	382.01	29.97	0.00	59.12	322.89	59.12	322.89
4/23/2024	15:05	MW221	URGA	391.38	29.94	0.03	68.68	322.70	68.71	322.67
4/23/2024	14:58	MW222	URGA	395.27	29.94	0.03	72.45	322.82	72.48	322.79
4/23/2024	15:02	MW223	URGA	394.38	29.94	0.03	71.58	322.80	71.61	322.77
4/23/2024	14:56	MW224	URGA	395.69	29.94	0.03	72.92	322.77	72.95	322.74
4/23/2024	14:53	MW225	URGA	385.73	29.94	0.03	62.90	322.83	62.93	322.80
4/23/2024	15:12	MW353	LRGA	375.05	29.94	0.03	51.98	323.07	52.01	323.04
4/24/2024	9:06	MW369	URGA	364.23	30.13	-0.18	41.46	322.77	41.28	322.95
4/24/2024	9:07	MW370	LRGA	365.12	30.13	-0.18	42.35	322.77	42.17	322.95
4/23/2024	14:20	MW371	UCRS	364.64	29.97	0.00	25.93	338.71	25.93	338.71
4/23/2024	14:15	MW372	URGA	359.42	29.97	0.00	36.44	322.98	36.44	322.98
4/23/2024	14:13	MW373	LRGA	359.73	29.97	0.00	36.76	322.97	36.76	322.97
4/23/2024	14:14	MW374	UCRS	359.44	29.97	0.00	24.29	335.15	24.29	335.15
4/23/2024	14:47	MW384	URGA	365.29	29.97	0.00	42.34	322.95	42.34	322.95
4/23/2024	14:45	MW385	LRGA	365.74	29.97	0.00	42.71	323.03	42.71	323.03
4/23/2024	14:46	MW386	UCRS	365.32	29.97	0.00	22.37	342.95	22.37	342.95
4/23/2024	14:42	MW387	URGA	363.48	29.97	0.00	40.53	322.95	40.53	322.95
4/23/2024	14:43	MW388	LRGA	363.45	29.97	0.00	40.50	322.95	40.50	322.95
4/23/2024	14:39	MW389	UCRS	364.11	29.97	0.00	35.16	328.95	35.16	328.95
4/23/2024	14:37	MW390	UCRS	360.39	29.97	0.00	37.51	322.88	37.51	322.88
4/23/2024	14:23	MW391	URGA	366.67	29.97	0.00	43.78	322.89	43.78	322.89
4/23/2024	14:21	MW392	LRGA	365.85	29.97	0.00	42.98	322.87	42.98	322.87
4/23/2024	14:22	MW393	UCRS	366.62	29.97	0.00	29.57	337.05	29.57	337.05
4/24/2024	9:13	MW394	URGA	378.46	30.13	-0.18	55.68	322.78	55.50	322.96
4/24/2024	9:14	MW395	LRGA	379.12	30.13	-0.18	56.31	322.81	56.13	322.99
4/23/2024	14:31	MW396	UCRS	378.75	29.97	0.00	11.57	367.18	11.57	367.18
4/23/2024	14:35	MW397	LRGA	387.00	29.97	0.00	63.67	323.33	63.67	323.33
4/23/2024	14:26	MW418	URGA	367.21	29.97	0.00	44.23	322.98	44.23	322.98
4/23/2024	14:27	MW419	LRGA	367.05	29.97	0.00	44.08	322.97	44.08	322.97
Reference Barometric Pressure					29.97					
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										

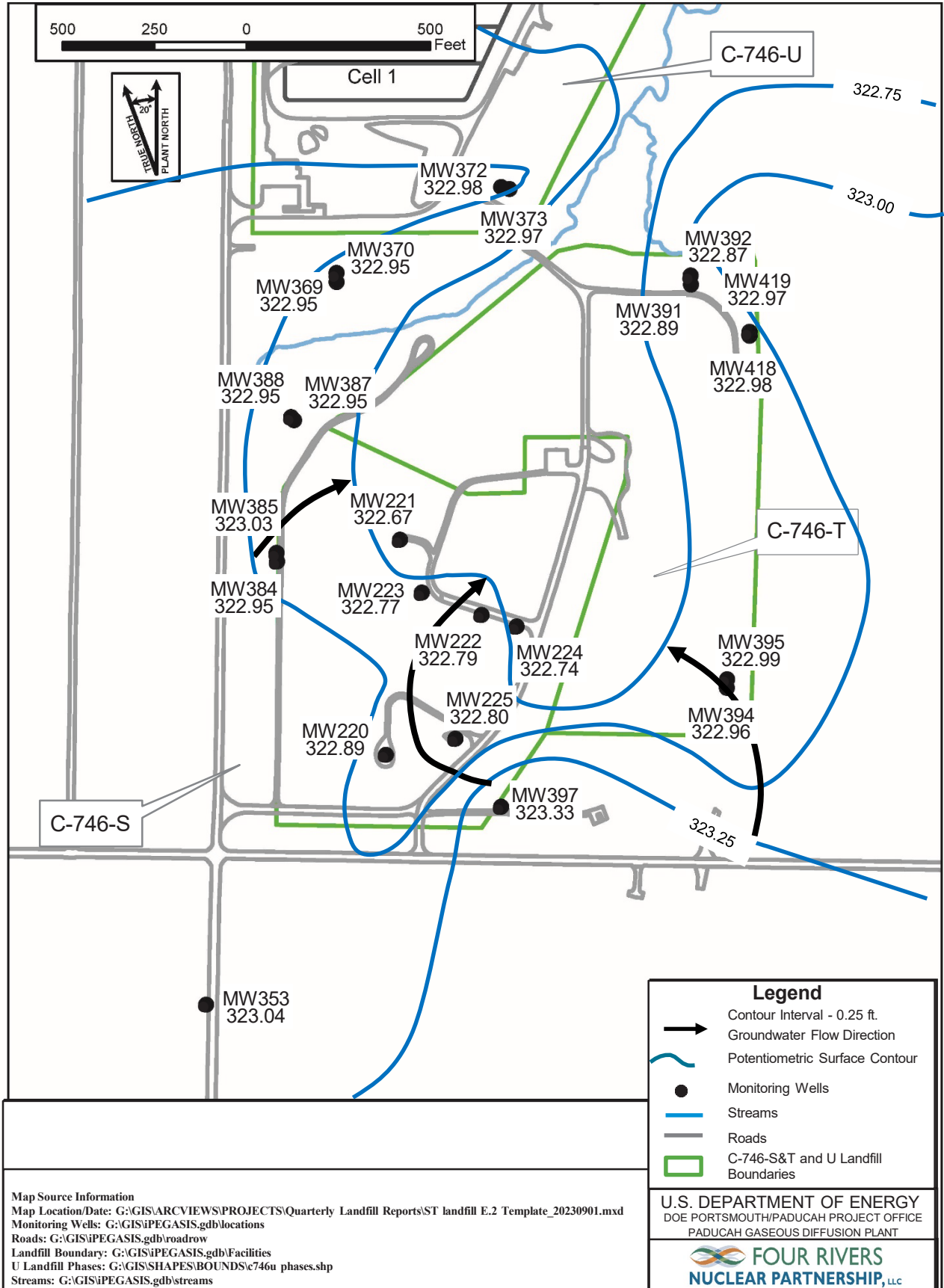


Figure E.2. Composite Potentiometric Surface of the Regional Gravel Aquifer at the C-746-S&T Landfills, April 23-24, 2024

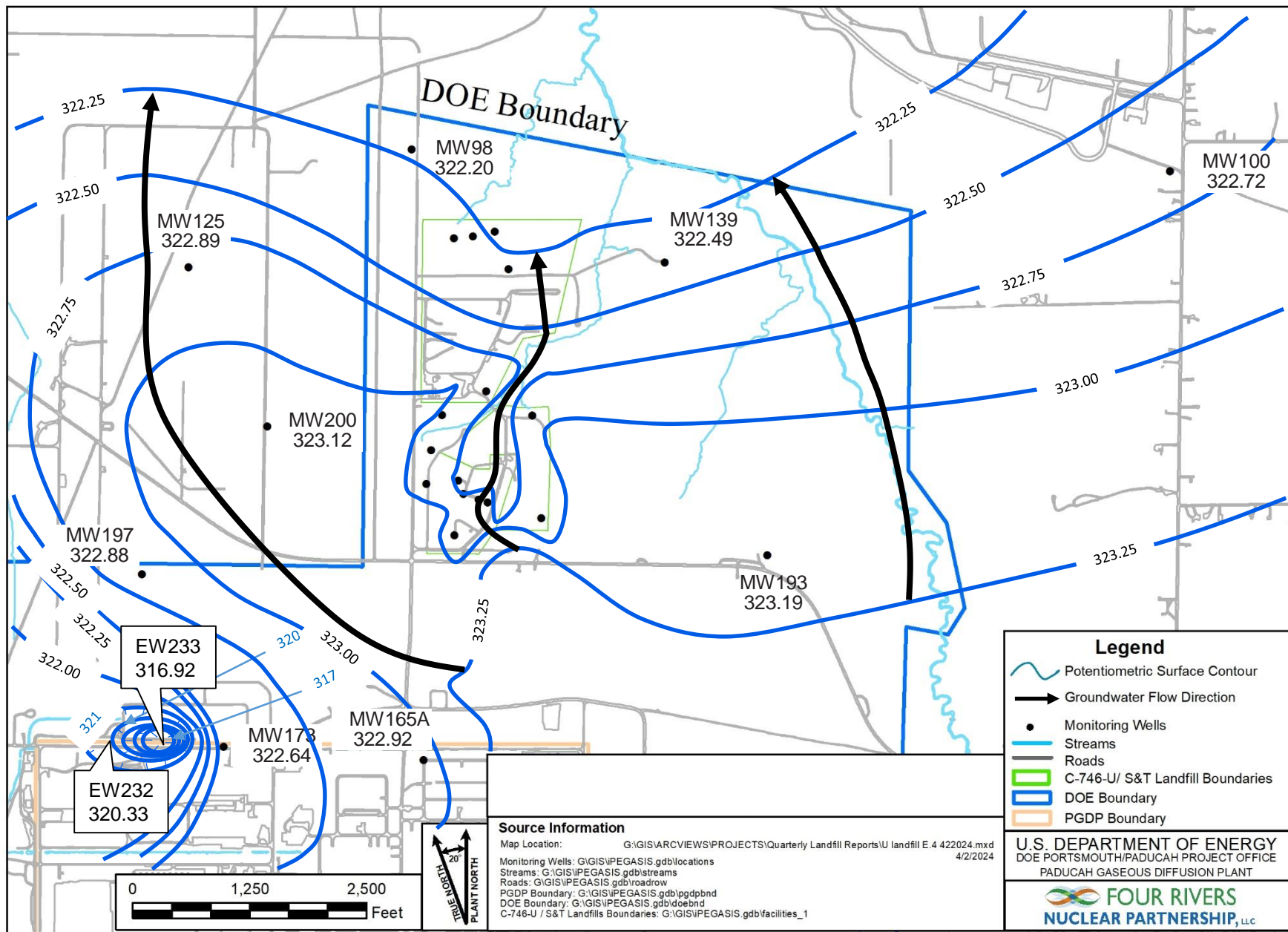


Figure E.3. Vicinity Potentiometric Surface of the Regional Gravel Aquifer, April 23, 2024

Table E.2. C-746-S&T Landfills Hydraulic Gradients

	ft/ft
Beneath Landfill Mound	7.19×10^{-4}
Vicinity	2.05×10^{-4}

Table E.3. C-746-S&T Landfills 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
<u>Beneath Landfill Mound</u>					
7.25×10^2	2.56×10^{-1}	5.21×10^{-1}	1.84×10^{-4}	2.08	7.36×10^{-4}
4.25×10^2	1.50×10^{-1}	3.05×10^{-2}	1.08×10^{-4}	1.22	4.31×10^{-4}
<u>Vicinity</u>					
7.25×10^2	2.56×10^{-1}	1.49×10^{-1}	5.26×10^{-5}	5.96×10^{-1}	2.10×10^{-4}
4.25×10^2	1.50×10^{-1}	8.7×10^{-2}	3.08×10^{-5}	3.49×10^{-1}	1.23×10^{-4}

APPENDIX F
NOTIFICATIONS

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NOTIFICATIONS

In accordance with 401 *KAR* 48:300 § 7, the notification for parameters that exceed (or do not exceed) the maximum contaminant level (MCL) has been submitted to the Kentucky Division of Waste Management. The parameters 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 second quarter 2024 groundwater data collected from the C-746-S&T Landfills 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.

	<u>Parameter</u>	<u>Monitoring Well</u>
Upper Continental Recharge System	None	
Upper Regional Gravel Aquifer	Sodium Technetium-99	MW224, MW372 MW369, MW372, MW387
Lower Regional Gravel Aquifer	Radium-226 Sodium	MW385, MW388, MW392 MW373

NOTE: Although technetium-99 is not cited in 40 *CFR* § 302.4, Appendix A, this radionuclide is being reported along with the parameters of this regulation.

5/20/2024

**Four Rivers Nuclear Partnership, LLC
PROJECT ENVIRONMENTAL MEASUREMENTS SYSTEM
C-746-S&T LANDFILLS
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-S&T Landfills

Groundwater Flow System	UCRS					URGA										LRGA							
	S	D	D	U	U	S	S	S	S	S	D	D	D	D	U	U	S	D	D	D	D	U	U
Monitoring Well	386	389	390	393	396	221	222	223	224	384	369	372	387	391	220	394	385	370	373	388	392	395	397
ACETONE																							
Quarter 3, 2003							*					*											
Quarter 4, 2003											*								*				
Quarter 1, 2005									*														
Quarter 4, 2019															*								
ALPHA ACTIVITY																							
Quarter 4, 2002				■	■								■										
Quarter 4, 2008											■												
Quarter 4, 2010											■												
ALUMINUM																							
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 4, 2008							*	*			*	*	*	*									
Quarter 1, 2009			*				*	*			*	*	*	*									
Quarter 1, 2010			*				*	*			*	*	*	*									
Quarter 2, 2010			*				*	*			*	*	*	*									
Quarter 3, 2010			*				*	*			*	*	*	*		*		*		*			
Quarter 1, 2011							*	*			*	*	*	*				*		*			
Quarter 2, 2011			*				*	*			*	*	*	*									
Quarter 2, 2012			*				*	*			*	*	*	*									
Quarter 3, 2012							*	*			*	*	*	*									
Quarter 1, 2013							*	*			*	*	*	*									
Quarter 3, 2013			*				*	*			*	*	*	*									
Quarter 1, 2014							*	*			*	*	*	*									
Quarter 2, 2014							*	*			*	*	*	*									
Quarter 4, 2014			*				*	*			*	*	*	*									
Quarter 1, 2016							*	*			*	*	*	*									
Quarter 2, 2016							*	*			*	*	*	*		*							
Quarter 1, 2017							*	*			*	*	*	*									
Quarter 4, 2017							*	*			*	*	*	*									*
Quarter 1, 2018							*	*			*	*	*	*									
Quarter 1, 2020							*	*			*	*	*	*									
BARIUM																							
Quarter 3, 2003							■	■															
Quarter 4, 2003							■	■															
BETA ACTIVITY																							
Quarter 4, 2002													■										
Quarter 1, 2003													■										

Chart of MCL and Historical UTL Exceedances for the C-746-S&T Landfills (Continued)

Groundwater Flow System	UCRS					URGA										LRGA							
	S	D	D	U	U	S	S	S	S	S	D	D	D	D	U	U	S	D	D	D	D	U	U
Monitoring Well	386	389	390	393	396	221	222	223	224	384	369	372	387	391	220	394	385	370	373	388	392	395	397
BETA ACTIVITY																							
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 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										■		■	■					■		■			
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			■							■		■						■		■			

Chart of MCL and Historical UTL Exceedances for the C-746-S&T Landfills (Continued)

Groundwater Flow System	UCRS					URGA										LRGA							
	S	D	D	U	U	S	S	S	S	S	S	D	D	D	U	U	S	D	D	D	U	U	
Monitoring Well	386	389	390	393	396	221	222	223	224	384	369	372	387	391	220	394	385	370	373	388	392	395	397
BETA ACTIVITY																							
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												■	■						■	■	■		
BROMIDE																							
Quarter 1, 2003			*																				
Quarter 4, 2003			*																				
Quarter 1, 2004			*																				
Quarter 2, 2004			*																				
Quarter 3, 2004			*																				
Quarter 4, 2004			*																				
Quarter 1, 2005			*																				
Quarter 3, 2006			*																				
CALCIUM																							
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 1, 2011												*	*						*				
Quarter 2, 2011												*	*	*					*				
Quarter 3, 2011												*	*						*				
Quarter 4, 2011												*	*						*				
Quarter 1, 2012												*	*						*				
Quarter 2, 2012												*	*						*				
Quarter 3, 2012												*	*						*				

Chart of MCL and Historical UTL Exceedances for the C-746-S&T Landfills (Continued)

Groundwater Flow System	UCRS					URGA										LRGA							
	S	D	D	D	U	S	S	S	S	S	S	D	D	D	U	U	S	D	D	D	U	U	
Monitoring Well	386	389	390	393	396	221	222	223	224	384	369	372	387	391	220	394	385	370	373	388	392	395	397
CALCIUM																							
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												*						*	*				
Quarter 2, 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												*	*					*	*				
Quarter 2, 2024												*	*					*	*				
CARBON DISULFIDE																							
Quarter 4, 2010												*											
Quarter 1, 2011												*										*	
Quarter 2, 2017												*	*					*	*				
CHEMICAL OXYGEN DEMAND																							
Quarter 1, 2003				*																			
Quarter 2, 2003				*																			
Quarter 3, 2003				*			*			*													
Quarter 4, 2003				*																			
Quarter 1, 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	*																						

Chart of MCL and Historical UTL Exceedances for the C-746-S&T Landfills (Continued)

Groundwater Flow System	UCRS					URGA										LRGA							
	S	D	D	D	U	S	S	S	S	S	D	D	D	D	U	U	S	D	D	D	U	U	
Monitoring Well	386	389	390	393	396	221	222	223	224	384	369	372	387	391	220	394	385	370	373	388	392	395	397
CHEMICAL OXYGEN DEMAND																							
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 3, 2011	*																						
Quarter 4, 2011	*																						
Quarter 1, 2012	*																						
Quarter 1, 2013	*																						
Quarter 3, 2013	*																						
Quarter 3, 2014	*								*			*						*					
Quarter 4, 2014							*																
Quarter 2, 2015															*								
Quarter 3, 2015															*								
Quarter 3, 2016			*								*												
Quarter 4, 2016																	*						
Quarter 2, 2017							*																
Quarter 3, 2017	*														*								
Quarter 4, 2017						*																	
Quarter 2, 2018													*									*	
Quarter 3, 2018												*											
Quarter 4, 2018													*									*	
Quarter 2, 2019					*						*	*						*					
Quarter 3, 2019										*	*	*						*			*	*	
Quarter 4, 2019	*			*			*		*	*	*				*						*	*	
Quarter 1, 2020				*			*		*											*			
Quarter 2, 2020															*								
Quarter 4, 2020																*							
Quarter 1, 2021												*											
Quarter 2, 2021						*									*								
Quarter 4, 2021	*																						
Quarter 1, 2022						*	*	*					*	*				*	*				
Quarter 2, 2022						*							*							*	*		
Quarter 4, 2022	*																						
Quarter 1, 2023																	*						
Quarter 2, 2023				*								*											
Quarter 2, 2024															*								
CHLORIDE																							
Quarter 1, 2003			*																				
Quarter 4, 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			*																				

Chart of MCL and Historical UTL Exceedances for the C-746-S&T Landfills (Continued)

Groundwater Flow System	UCRS					URGA										LRGA							
	S	D	D	U	U	S	S	S	S	S	D	D	D	U	U	S	D	D	D	U	U		
Monitoring Well	386	389	390	393	396	221	222	223	224	384	369	372	387	391	220	394	385	370	373	388	392	395	397
CHLORIDE																							
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 3, 2012			*																				
Quarter 3, 2013			*																				
Quarter 4, 2013			*																				
Quarter 4, 2014			*																				
Quarter 2, 2019																					*		
CHROMIUM																							
Quarter 4, 2002									■														
Quarter 1, 2003									■														■
Quarter 2, 2003								■	■														
Quarter 3, 2009							■																
Quarter 1, 2019							■																
COBALT																							
Quarter 3, 2003								*															
CONDUCTIVITY																							
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 1, 2011										*								*	*				
Quarter 2, 2011										*								*	*				
Quarter 3, 2011										*								*	*				
Quarter 4, 2011										*								*	*				
Quarter 1, 2012										*	*							*	*				
Quarter 2, 2012										*	*							*	*				
Quarter 3, 2012										*	*							*	*				

Chart of MCL and Historical UTL Exceedances for the C-746-S&T Landfills (Continued)

Groundwater Flow System	UCRS					URGA										LRGA							
	S	D	D	D	U	S	S	S	S	S	D	D	D	U	U	S	D	D	D	U	U		
Monitoring Well	386	389	390	393	396	221	222	223	224	384	369	372	387	391	220	394	385	370	373	388	392	395	397
CONDUCTIVITY																							
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											*							*					
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											*							*					
Quarter 2, 2024											*							*					
DISSOLVED OXYGEN																							
Quarter 3, 2006			*					*															
DISSOLVED SOLIDS																							
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											*	*						*					

Chart of MCL and Historical UTL Exceedances for the C-746-S&T Landfills (Continued)

Groundwater Flow System	UCRS					URGA										LRGA							
	S	D	D	U	U	S	S	S	S	S	S	D	D	D	U	U	S	D	D	D	U	U	
Monitoring Well	386	389	390	393	396	221	222	223	224	384	369	372	387	391	220	394	385	370	373	388	392	395	397
DISSOLVED SOLIDS																							
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									*		*	*						*	*				
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 2, 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											*	*	*					*	*				
Quarter 2, 2024											*	*	*					*	*				
IODIDE																							
Quarter 4, 2002																						*	
Quarter 2, 2003							*																
Quarter 3, 2003													*										
Quarter 1, 2004				*																			
Quarter 3, 2010																					*		
Quarter 2, 2013										*													

Chart of MCL and Historical UTL Exceedances for the C-746-S&T Landfills (Continued)

Groundwater Flow System	UCRS					URGA										LRGA							
	S	D	D	D	U	S	S	S	S	S	D	D	D	D	U	U	S	D	D	D	U	U	
Monitoring Well	386	389	390	393	396	221	222	223	224	384	369	372	387	391	220	394	385	370	373	388	392	395	397
IRON																							
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 1, 2006							*						*										
Quarter 2, 2006												*											
Quarter 3, 2006											*												
Quarter 1, 2007											*	*											
Quarter 2, 2007											*												
Quarter 2, 2008												*											
Quarter 3, 2008												*											
MAGNESIUM																							
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 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																		*	*				

Chart of MCL and Historical UTL Exceedances for the C-746-S&T Landfills (Continued)

Groundwater Flow System	UCRS					URGA										LRGA							
	S	D	D	D	U	S	S	S	S	S	S	D	D	D	U	U	S	D	D	D	U	U	
Monitoring Well	386	389	390	393	396	221	222	223	224	384	369	372	387	391	220	394	385	370	373	388	392	395	397
MAGNESIUM																							
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 4, 2022												*	*							*			
Quarter 1, 2023												*	*							*			
Quarter 2, 2023												*	*							*			
Quarter 3, 2023												*	*							*			
Quarter 4, 2023												*	*							*			
Quarter 1, 2024												*	*							*			
Quarter 2, 2024												*	*							*			
MANGANESE																							
Quarter 4, 2002																							*
Quarter 3, 2003								*	*														
Quarter 4, 2003								*	*														
Quarter 1, 2004								*															
Quarter 2, 2004								*															
Quarter 4, 2004								*	*														
Quarter 1, 2005								*															
Quarter 3, 2005																							*
Quarter 3, 2009		*																					
Quarter 1, 2022		*																					
OXIDATION-REDUCTION POTENTIAL																							
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 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		*		*	*			*	*	*	*	*					*	*	*	*	*	*	*

Chart of MCL and Historical UTL Exceedances for the C-746-S&T Landfills (Continued)

Groundwater Flow System	UCRS					URGA										LRGA							
	S	D	D	U	U	S	S	S	S	S	D	D	D	D	U	U	S	D	D	D	U	U	
Monitoring Well	386	389	390	393	396	221	222	223	224	384	369	372	387	391	220	394	385	370	373	388	392	395	397
OXIDATION-REDUCTION POTENTIAL																							
Quarter 1, 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	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
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	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Quarter 2, 2024	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
PCB-1016																							
Quarter 4, 2003							*	*	*	*	*						*						
Quarter 3, 2004											*												
Quarter 3, 2005							*				*												
Quarter 1, 2006											*												
Quarter 2, 2006											*												
Quarter 4, 2006											*												
Quarter 1, 2007											*	*											
Quarter 2, 2007											*	*											
Quarter 3, 2007											*	*											
Quarter 2, 2008											*	*											
Quarter 3, 2008											*	*											
Quarter 4, 2008											*	*											

Chart of MCL and Historical UTL Exceedances for the C-746-S&T Landfills (Continued)

Groundwater Flow System	UCRS					URGA										LRGA							
	S	D	D	U	U	S	S	S	S	S	D	D	D	U	U	S	D	D	D	U	U		
Monitoring Well	386	389	390	393	396	221	222	223	224	384	369	372	387	391	220	394	385	370	373	388	392	395	397
PCB-1016																							
Quarter 1, 2009											*												
Quarter 2, 2009											*												
Quarter 3, 2009											*												
Quarter 4, 2009											*												
Quarter 1, 2010											*												
Quarter 2, 2010											*												
Quarter 3, 2010											*												
Quarter 4, 2010											*												
PCB-1232																							
Quarter 1, 2011											*												
PCB-1248																							
Quarter 2, 2008											*												
PCB-1260																							
Quarter 2, 2006																		*					
pH																							
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 4, 2005										*								*					
Quarter 1, 2006																		*					
Quarter 2, 2006																		*					
Quarter 3, 2006																		*					
Quarter 3, 2007																		*					
Quarter 4, 2007																		*					
Quarter 4, 2008																		*					
Quarter 1, 2009																		*					
Quarter 1, 2011											*							*					
Quarter 2, 2011											*							*					
Quarter 3, 2011											*							*					
Quarter 1, 2012													*					*					
Quarter 1, 2013										*		*						*					
Quarter 4, 2014																		*			*		
Quarter 2, 2016																		*	*				
POTASSIUM																							
Quarter 4, 2002																		*	*				
Quarter 3, 2004																		*	*				
Quarter 2, 2005																		*	*				
Quarter 3, 2005																		*	*				
Quarter 4, 2005																		*	*				
Quarter 2, 2006																		*	*				
Quarter 3, 2006																		*	*				
Quarter 4, 2006																		*	*				
Quarter 4, 2008																		*	*				
Quarter 3, 2012																		*	*				
Quarter 1, 2013																		*	*				
Quarter 2, 2013																		*	*				
Quarter 3, 2013																		*	*				
RADIUM-226																							
Quarter 4, 2002			*									*	*								*		
Quarter 2, 2004																			*				
Quarter 2, 2005									*														
Quarter 1, 2009											*												
Quarter 3, 2014									*		*												
Quarter 4, 2014			*							*	*							*	*				
Quarter 1, 2015			*				*			*	*							*	*				
Quarter 2, 2015			*				*		*	*	*							*	*				
Quarter 3, 2015			*				*		*	*	*							*	*				

Chart of MCL and Historical UTL Exceedances for the C-746-S&T Landfills (Continued)

Groundwater Flow System	UCRS					URGA										LRGA							
	S	D	D	D	U	S	S	S	S	S	D	D	D	D	U	U	S	D	D	D	U	U	
Monitoring Well	386	389	390	393	396	221	222	223	224	384	369	372	387	391	220	394	385	370	373	388	392	395	397
RADIUM-226																							
Quarter 4, 2015					*	*									*	*					*	*	
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 4, 2018													*					*	*		*	*	
Quarter 1, 2020																		*	*		*	*	
Quarter 2, 2020															*								
Quarter 2, 2024																		*		*	*	*	
RADIUM-228																							
Quarter 2, 2005							■				■												
Quarter 3, 2005			■																				
Quarter 4, 2005							■		■														
Quarter 1, 2006							■																
SELENIUM																							
Quarter 4, 2002			■		■																		
Quarter 1, 2003					■																		■
Quarter 2, 2003			■																				
Quarter 3, 2003			■		■																		
Quarter 4, 2003			■																				
SODIUM																							
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 3, 2008										*	*		*										
Quarter 4, 2008									*	*													
Quarter 1, 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 4, 2011										*	*								*				
Quarter 1, 2012										*	*								*				
Quarter 3, 2012										*	*		*						*				
Quarter 4, 2012										*	*		*						*				

Chart of MCL and Historical UTL Exceedances for the C-746-S&T Landfills (Continued)

Groundwater Flow System	UCRS					URGA										LRGA							
	S	D	D	U	U	S	S	S	S	S	D	D	D	U	U	S	D	D	D	U	U		
Monitoring Well	386	389	390	393	396	221	222	223	224	384	369	372	387	391	220	394	385	370	373	388	392	395	397
SODIUM																							
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 2, 2016											*												
Quarter 3, 2016											*												*
Quarter 1, 2017										*	*	*	*					*					
Quarter 2, 2017									*	*	*	*											
Quarter 2, 2018												*											
Quarter 3, 2018													*										
Quarter 1, 2019												*											
Quarter 2, 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 4, 2023										*	*	*	*										
Quarter 1, 2024										*	*	*	*										
Quarter 2, 2024									*	*	*	*	*						*				
STRONTIUM-90																							
Quarter 2, 2003										■													
Quarter 1, 2004										■													
SULFATE																							
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		*							*	*	*	*					*	*	*	*	*		*

Chart of MCL and Historical UTL Exceedances for the C-746-S&T Landfills (Continued)

Groundwater Flow System	UCRS					URGA										LRGA							
	S	D	D	D	U	S	S	S	S	S	D	D	D	D	U	U	S	D	D	D	U	U	
Monitoring Well	386	389	390	393	396	221	222	223	224	384	369	372	387	391	220	394	385	370	373	388	392	395	397
SULFATE										*	*	*	*				*	*	*	*			
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										*	*	*	*	*	*		*	*	*	*			
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										*	*	*	*				*	*	*	*		*	
Quarter 2, 2024									*	*	*	*	*	*		*	*	*	*		*		
TECHNETIUM-99																							
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			*							*		*	*				*	*	*	*		*	

Chart of MCL and Historical UTL Exceedances for the C-746-S&T Landfills (Continued)

Groundwater Flow System	UCRS					URGA										LRGA							
	S	D	D	U		S	S	S	S	S	S	D	D	D	U	U	S	D	D	D	U	U	
Monitoring Well	386	389	390	393	396	221	222	223	224	384	369	372	387	391	220	394	385	370	373	388	392	395	397
TECHNETIUM-99																							
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			*							*	*	*					*	*	*	*			
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			*							*	*	*					*	*	*	*			

Chart of MCL and Historical UTL Exceedances for the C-746-S&T Landfills (Continued)

Groundwater Flow System	UCRS					URGA										LRGA							
	S	D	D	D	U	S	S	S	S	S	D	D	D	D	U	U	S	D	D	D	U	U	
Monitoring Well	386	389	390	393	396	221	222	223	224	384	369	372	387	391	220	394	385	370	373	388	392	395	397
TECHNETIUM-99																							
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										*	*	*	*										
Quarter 2, 2024										*	*	*	*										
THORIUM-230																							
Quarter 1, 2012	*								*					*									
Quarter 4, 2014	*		*																				
Quarter 3, 2015	*								*	*			*		*								
Quarter 1, 2017			*						*											*			
THORIUM-234																							
Quarter 2, 2003						*			*					*									
Quarter 4, 2007									*														
TOLUENE																							
Quarter 2, 2014										*	*		*										
TOTAL ORGANIC CARBON																							
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 4, 2006										*		*								*			
Quarter 1, 2007	*									*		*								*			
Quarter 3, 2007	*					*	*	*	*	*		*	*							*			
Quarter 2, 2011										*		*	*							*			
Quarter 3, 2012	*																						
Quarter 3, 2016																				*			
TOTAL ORGANIC HALIDES																							
Quarter 4, 2002																		*	*				*
Quarter 1, 2003				*														*	*				*
Quarter 3, 2003				*																			*
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 4, 2006	*																			*			
Quarter 1, 2007	*																						
Quarter 2, 2007	*																						
Quarter 3, 2007	*																						
Quarter 4, 2007	*																						*
Quarter 1, 2008	*																						
Quarter 4, 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	*																						

Chart of MCL and Historical UTL Exceedances for the C-746-S&T Landfills (Continued)

Groundwater Flow System	UCRS					URGA										LRGA							
	S	D	D	D	U	S	S	S	S	S	S	D	D	D	D	U	U	S	D	D	D	D	U
Monitoring Well	386	389	390	393	396	221	222	223	224	384	369	372	387	391	220	394	385	370	373	388	392	395	397
TOTAL ORGANIC HALIDES																							
Quarter 4, 2010	*																						
Quarter 1, 2011	*																						
Quarter 3, 2013																					*		
TRICHLOROETHENE																							
Quarter 4, 2002																							
Quarter 1, 2003																							
Quarter 2, 2003																							
Quarter 3, 2003																							
Quarter 4, 2003																							
Quarter 1, 2004																							
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Quarter 2, 2015																							
Quarter 3, 2015																							
Quarter 4, 2015																							
Quarter 1, 2016																							
Quarter 2, 2016																							
Quarter 3, 2016																							
Quarter 4, 2016																							

Chart of MCL and Historical UTL Exceedances for the C-746-S&T Landfills (Continued)

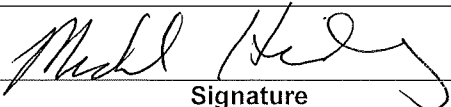
Groundwater Flow System	UCRS					URGA										LRGA							
	S	D	D	D	U	S	S	S	S	S	D	D	D	D	U	U	S	D	D	D	D	U	U
Monitoring Well	386	389	390	393	396	221	222	223	224	384	369	372	387	391	220	394	385	370	373	388	392	395	397
TRICHLOROETHENE																							
Quarter 1, 2017												■				■							
Quarter 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																							
TURBIDITY																							
Quarter 4, 2002																						*	
Quarter 1, 2003								*				*	*									*	
URANIUM																							
Quarter 4, 2002																			*	*			
Quarter 1, 2003																			*	*			
Quarter 4, 2003								*															
Quarter 1, 2004								*	*	*				*				*					
Quarter 4, 2004																		*					
Quarter 4, 2006																			*		*		
ZINC																							
Quarter 3, 2003																							
Quarter 4, 2003								*		*			*										
Quarter 4, 2004								*															
Quarter 4, 2007								*	*	*													
* Statistical test results indicate an elevated concentration (i.e., a statistically significant increase).																							
■ 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																							
S = Sidegradient; D = Downgradient; U = Upgradient																							

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APPENDIX H
METHANE MONITORING DATA

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CP3-WM-0017-F03 - C-746-S & T LANDFILL METHANE MONITORING REPORT

Date:	May 13, 2024	Time:	0900	Monitor:	Michael Hideg													
Weather Conditions: Mostly Sunny, Approximately 69° F, humidity: 78%																		
Monitoring Equipment: Multi RAE – Serial # 7970																		
Monitoring Location					Reading (% LEL)													
Ogden Landing Road Entrance	Checked at ground level				0													
North Landfill Gate	Checked at ground level				0													
West Side of Landfill: North 37° 07.652' West 88° 48.029'	Checked at ground level				0													
East Side of Landfill: North 37° 07.628' West 88° 47.798'	Checked at ground level				0													
Cell 1 Gas Vent (17)	1 0	2 0	3 0	4 0	5 0	6 0	7 0	8 0	9 0	10 0	11 0	12 0	13 0	14 0	15 0	16 0	17 0	0
Cell 2 Gas Vent (3)	1 0	2 0	3 0															0
Cell 3 Gas Vent (7)	1 0	2 0	3 0	4 0	5 0	6 0	7 0											0
Landfill Office	Checked at ground level															0		
Suspect or Problem Areas	None noted															N/A		
Remarks:																		
All gas vents checked 1" from opening.																		
Performed by:																		
				6/6/2024														
Signature				Date														

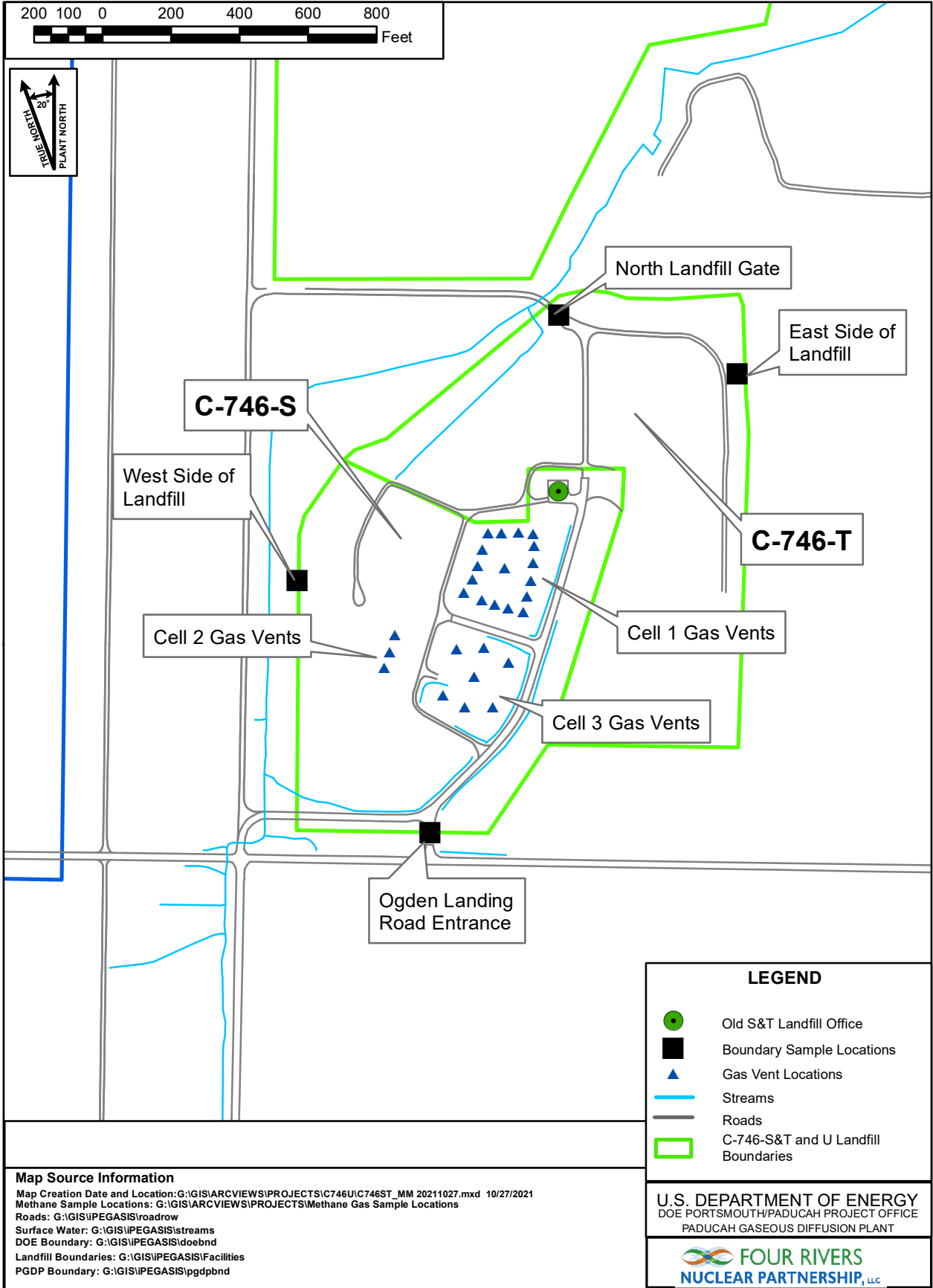


Figure H.1. C-746-S&T Landfill Methane Monitoring Locations

APPENDIX I

SURFACE WATER ANALYSES AND LABORATORY REPORTS

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**Paducah OREIS
SURFACE WATER MONITORING REPORT**

Facility: C-746-S&T Landfill **County:** McCracken **Permit #:** SW07300014,SW07300015,SW07300045
Sampling Point: L135 UPSTREAM **Period:** 2nd Quarter 2024
SAMPLE ID: L135SS3-24 **Sample Type:** REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Chloride		3.63	mg/L	0.2	4/10/2024			EPA-300.0	X
Sulfate		5.35	mg/L	0.4	4/10/2024			EPA-300.0	X
Conductivity		110	µmhos/cm		4/10/2024				X
pH		6.9	Std Unit		4/10/2024				X
Iron		7.45	mg/L	0.1	4/10/2024			EPA-200.8	X
Sodium		4.32	mg/L	0.25	4/10/2024			EPA-200.8	X
Uranium		0.00402	mg/L	0.0002	4/10/2024			EPA-200.8	X
Alpha activity		10.4	pCi/L	6.02	4/10/2024	6.07	6.32	SW846-9310	X
Beta activity		19.1	pCi/L	7.9	4/10/2024	6.62	7.32	SW846-9310	X
Dissolved Solids		241	mg/L	10	4/10/2024			EPA-160.1	X
Suspended Solids		85.8	mg/L	9.62	4/10/2024			EPA-160.2	X
Chemical Oxygen Demand (COD)		77.8	mg/L	20	4/10/2024			EPA-410.4	X
Total Solids		353	mg/L	10	4/10/2024			SM-2540B	X
Total Organic Carbon (TOC)		25.4	mg/L	5	4/10/2024			SW846-9060A	X

**Paducah OREIS
SURFACE WATER MONITORING REPORT**

Facility: C-746-S&T Landfill **County:** McCracken **Permit #:** SW07300014,SW07300015,SW07300045
Sampling Point: L136 INSTREAM **Period:** 2nd Quarter 2024
SAMPLE ID: L136SS3-24 **Sample Type:** REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Chloride		0.519	mg/L	0.2	4/10/2024			EPA-300.0	X
Sulfate		16.3	mg/L	0.4	4/10/2024			EPA-300.0	X
Conductivity		317	µmhos/cm		4/10/2024				X
pH		7.47	Std Unit		4/10/2024				X
Iron		0.286	mg/L	0.1	4/10/2024			EPA-200.8	X
Sodium		1.67	mg/L	0.25	4/10/2024			EPA-200.8	X
Uranium		0.00183	mg/L	0.0002	4/10/2024			EPA-200.8	X
Alpha activity	U	0.517	pCi/L	5.37	4/10/2024	2.21	2.21	SW846-9310	X
Beta activity	U	2.73	pCi/L	7.88	4/10/2024	4.49	4.51	SW846-9310	X
Dissolved Solids		199	mg/L	10	4/10/2024			EPA-160.1	X
Suspended Solids	J	2.4	mg/L	5	4/10/2024			EPA-160.2	X
Chemical Oxygen Demand (COD)		63.9	mg/L	20	4/10/2024			EPA-410.4	X
Total Solids		237	mg/L	10	4/10/2024			SM-2540B	X
Total Organic Carbon (TOC)		19.3	mg/L	2	4/10/2024			SW846-9060A	X

**Paducah OREIS
SURFACE WATER MONITORING REPORT**

Facility: C-746-S&T Landfill **County:** McCracken **Permit #:** SW07300014,SW07300015,SW07300045

Sampling Point: L154 INSTREAM **Period:** 2nd Quarter 2024

SAMPLE ID: L154US3-24 Sample Type: REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Chloride		4.91	mg/L	0.2	4/10/2024			EPA-300.0	X
Sulfate		5.81	mg/L	0.4	4/10/2024			EPA-300.0	X
Conductivity		158	µmhos/cm		4/10/2024				X
pH		7.16	Std Unit		4/10/2024				X
Iron		5.06	mg/L	0.1	4/10/2024			EPA-200.8	X
Sodium		5.46	mg/L	0.25	4/10/2024			EPA-200.8	X
Uranium		0.00301	mg/L	0.0002	4/10/2024			EPA-200.8	X
Alpha activity	U	3.45	pCi/L	9.3	4/10/2024	5.25	5.28	SW846-9310	X
Beta activity	U	7.04	pCi/L	13.9	4/10/2024	8.26	8.35	SW846-9310	X
Dissolved Solids		229	mg/L	10	4/10/2024			EPA-160.1	X
Suspended Solids		49.2	mg/L	10	4/10/2024			EPA-160.2	X
Chemical Oxygen Demand (COD)		75.5	mg/L	20	4/10/2024			EPA-410.4	X
Total Solids		286	mg/L	10	4/10/2024			SM-2540B	X
Total Organic Carbon (TOC)		27.6	mg/L	5	4/10/2024			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: July 24, 2024

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

Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Surface Water Quarterly(SS24-03)

Client Sample ID: L135SS3-24

Project: FRNP00515

Sample ID: 662792001

Client ID: FRNP005

Matrix: WS

Collect Date: 10-APR-24 14:08

Receive Date: 12-APR-24

Collector: Client

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		25.4	1.65	5.00	mg/L		5	RM3	04/15/24	1122	2596331	1
Ion Chromatography												
EPA 300.0 Anions (Chloride and Sulfate) "As Received"												
Chloride		3.63	0.0670	0.200	mg/L		1	CH6	04/13/24	1809	2596629	2
Sulfate		5.35	0.133	0.400	mg/L		1					
Metals Analysis-ICP-MS												
200.8/200.2 MIMICP Metals- Fe Na U "As Received"												
Sodium		4.32	0.0800	0.250	mg/L	1.00	1	RM4	05/01/24	1445	2596538	3
Iron		7.45	0.0330	0.100	mg/L	1.00	1	RM4	05/01/24	0514	2596538	4
Uranium		0.00402	0.0000670	0.000200	mg/L	1.00	1					
Solids Analysis												
EPA 160.1 Solids, Dissolved "As Received"												
Total Dissolved Solids		241	2.38	10.0	mg/L			ES2	04/17/24	1150	2598037	5
EPA 160.2 Total Suspended Liq "As Received"												
Total Suspended Solids		85.8	2.19	9.62	mg/L			ES2	04/17/24	0558	2598043	6
SM 2540 B Solids, Total "As Received"												
Total Solids		353	6.29	10.0	mg/L			ES2	04/17/24	1230	2598039	7
Spectrometric Analysis												
EPA 410.4 Chem. Oxygen Demand "As Received"												
COD		77.8	8.95	20.0	mg/L		1	JW2	04/12/24	1527	2596273	8

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	AB5	04/15/24	1530	2596537

GEL LABORATORIES LLC

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

Certificate of Analysis

Report Date: July 24, 2024

Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road
Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Surface Water Quarterly(SS24-03)

Client Sample ID: L135SS3-24 Project: FRNP00515
Sample ID: 662792001 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 200.8										
5	EPA 160.1										
6	EPA 160.2										
7	SM 2540B										
8	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: July 24, 2024

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

Kevil, Kentucky 42053

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Surface Water Quarterly(SS24-03)

Client Sample ID: L136SS3-24

Project: FRNP00515

Sample ID: 662792002

Client ID: FRNP005

Matrix: WS

Collect Date: 10-APR-24 14:18

Receive Date: 12-APR-24

Collector: Client

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		19.3	0.330	2.00	mg/L		1	RM3	04/13/24	2124	2596331	1
Ion Chromatography												
EPA 300.0 Anions (Chloride and Sulfate) "As Received"												
Chloride		0.519	0.0670	0.200	mg/L		1	CH6	04/13/24	1840	2596629	2
Sulfate		16.3	0.133	0.400	mg/L		1					
Metals Analysis-ICP-MS												
200.8/200.2 MIMICP Metals- Fe Na U "As Received"												
Sodium		1.67	0.0800	0.250	mg/L	1.00	1	RM4	05/01/24	1449	2596538	3
Iron		0.286	0.0330	0.100	mg/L	1.00	1	RM4	05/01/24	0517	2596538	4
Uranium		0.00183	0.0000670	0.000200	mg/L	1.00	1					
Solids Analysis												
EPA 160.1 Solids, Dissolved "As Received"												
Total Dissolved Solids		199	2.38	10.0	mg/L			ES2	04/17/24	1150	2598037	5
EPA 160.2 Total Suspended Liq "As Received"												
Total Suspended Solids	J	2.40	1.14	5.00	mg/L			ES2	04/17/24	0558	2598043	6
SM 2540 B Solids, Total "As Received"												
Total Solids		237	6.29	10.0	mg/L			ES2	04/17/24	1230	2598039	7
Spectrometric Analysis												
EPA 410.4 Chem. Oxygen Demand "As Received"												
COD		63.9	8.95	20.0	mg/L		1	JW2	04/12/24	1527	2596273	8

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	AB5	04/15/24	1530	2596537

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: July 24, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Surface Water Quarterly(SS24-03)

Client Sample ID: L135SS3-24
Sample ID: 662792001
Matrix: WS
Collect Date: 10-APR-24
Receive Date: 12-APR-24
Collector: Client

Project: FRNP00515
Client ID: FRNP005

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gas Flow Proportional Counting														
<i>GFPC, Gross A/B, liquid "As Received"</i>														
Alpha		10.4	+/-6.07	6.02	+/-6.32	15.0	pCi/L			HH3	05/02/24	1303	2596842	1
Beta		19.1	+/-6.62	7.90	+/-7.32	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: July 24, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Surface Water Quarterly(SS24-03)

Client Sample ID: L136SS3-24

Project: FRNP00515

Sample ID: 662792002

Client ID: FRNP005

Matrix: WS

Collect Date: 10-APR-24

Receive Date: 12-APR-24

Collector: Client

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gas Flow Proportional Counting														
<i>GFPC, Gross A/B, liquid "As Received"</i>														
Alpha	U	0.517	+/-2.21	5.37	+/-2.21	15.0	pCi/L			HH3	05/02/24	1303	2596842	1
Beta	U	2.73	+/-4.49	7.88	+/-4.51	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

ATTACHMENT I2

GEL LABORATORIES CERTIFICATE OF ANALYSIS

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Certificate of Analysis

Report Date: July 24, 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(US24-03)

Client Sample ID:	L150US3-24	Project:	FRNP00514
Sample ID:	662794001	Client ID:	FRNP005
Matrix:	WS		
Collect Date:	10-APR-24 13:34		
Receive Date:	12-APR-24		
Collector:	Client		

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		10.8	0.330	1.00	mg/L		1	RM3	04/13/24	2157	2596331	1
Ion Chromatography												
EPA 300.0 Anions (Chloride and Sulfate) "As Received"												
Chloride		12.5	0.335	1.00	mg/L		5	CH6	04/15/24	1427	2596629	2
Sulfate		53.2	0.665	2.00	mg/L		5					
Metals Analysis-ICP-MS												
200.8/200.2 MIMICP Metals- Fe Na U "As Received"												
Iron		0.244	0.0330	0.100	mg/L	1.00	1	RM4	05/01/24	0521	2596538	3
Uranium		0.00165	0.0000670	0.000200	mg/L	1.00	1					
Sodium		10.8	0.0800	0.250	mg/L	1.00	1	RM4	05/01/24	1453	2596538	4
Solids Analysis												
EPA 160.1 Solids, Dissolved "As Received"												
Total Dissolved Solids		224	2.38	10.0	mg/L			ES2	04/17/24	1150	2598037	5
EPA 160.2 Total Suspended Liq "As Received"												
Total Suspended Solids		5.80	1.14	5.00	mg/L			ES2	04/17/24	0545	2598041	6
SM 2540 B Solids, Total "As Received"												
Total Solids		243	6.29	10.0	mg/L			ES2	04/17/24	1230	2598039	7
Spectrometric Analysis												
EPA 410.4 Chem. Oxygen Demand "As Received"												
COD		33.7	8.95	20.0	mg/L		1	JW2	04/12/24	1527	2596273	8

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	AB5	04/15/24	1530	2596537

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Certificate of Analysis

Report Date: July 24, 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(US24-03)

Client Sample ID: L154US3-24

Project: FRNP00514

Sample ID: 662794002

Client ID: FRNP005

Matrix: WS

Collect Date: 10-APR-24 13:51

Receive Date: 12-APR-24

Collector: Client

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		27.6	1.65	5.00	mg/L		5	RM3	04/15/24	1154	2596331	1
Ion Chromatography												
EPA 300.0 Anions (Chloride and Sulfate) "As Received"												
Chloride		4.91	0.0670	0.200	mg/L		1	CH6	04/13/24	1941	2596629	2
Sulfate		5.81	0.133	0.400	mg/L		1					
Metals Analysis-ICP-MS												
200.8/200.2 MIMICP Metals- Fe Na U "As Received"												
Sodium		5.46	0.0800	0.250	mg/L	1.00	1	RM4	05/01/24	1456	2596538	3
Iron		5.06	0.0330	0.100	mg/L	1.00	1	RM4	05/01/24	0525	2596538	4
Uranium		0.00301	0.0000670	0.000200	mg/L	1.00	1					
Solids Analysis												
EPA 160.1 Solids, Dissolved "As Received"												
Total Dissolved Solids		229	2.38	10.0	mg/L			ES2	04/17/24	1150	2598037	5
EPA 160.2 Total Suspended Liq "As Received"												
Total Suspended Solids		49.2	2.28	10.0	mg/L			ES2	04/17/24	0545	2598041	6
SM 2540 B Solids, Total "As Received"												
Total Solids		286	6.29	10.0	mg/L			ES2	04/17/24	1230	2598039	7
Spectrometric Analysis												
EPA 410.4 Chem. Oxygen Demand "As Received"												
COD		75.5	8.95	20.0	mg/L		1	JW2	04/12/24	1527	2596273	8

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	AB5	04/15/24	1530	2596537

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Certificate of Analysis

Report Date: July 24, 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(US24-03)

Client Sample ID:	L351US3-24	Project:	FRNP00514
Sample ID:	662794003	Client ID:	FRNP005
Matrix:	WS		
Collect Date:	10-APR-24 13:15		
Receive Date:	12-APR-24		
Collector:	Client		

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		12.7	0.330	1.00	mg/L		1	RM3	04/13/24	2301	2596331	1
Ion Chromatography												
EPA 300.0 Anions (Chloride and Sulfate) "As Received"												
Chloride		3.33	0.0670	0.200	mg/L		1	CH6	04/13/24	2145	2596629	2
Sulfate		45.0	0.665	2.00	mg/L		5	CH6	04/15/24	1458	2596629	3
Metals Analysis-ICP-MS												
200.8/200.2 MIMICP Metals- Fe Na U "As Received"												
Sodium		3.99	0.0800	0.250	mg/L	1.00	1	RM4	05/01/24	1500	2596538	4
Iron		2.43	0.0330	0.100	mg/L	1.00	1	RM4	05/01/24	0528	2596538	5
Uranium		0.00300	0.0000670	0.000200	mg/L	1.00	1					
Solids Analysis												
EPA 160.1 Solids, Dissolved "As Received"												
Total Dissolved Solids		147	2.38	10.0	mg/L			ES2	04/17/24	1150	2598037	6
EPA 160.2 Total Suspended Liq "As Received"												
Total Suspended Solids		64.6	1.10	4.81	mg/L			ES2	04/17/24	0545	2598041	7
SM 2540 B Solids, Total "As Received"												
Total Solids		272	6.29	10.0	mg/L			ES2	04/17/24	1230	2598039	8
Spectrometric Analysis												
EPA 410.4 Chem. Oxygen Demand "As Received"												
COD		40.6	8.95	20.0	mg/L		1	JW2	04/12/24	1527	2596273	9

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	AB5	04/15/24	1530	2596537

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Certificate of Analysis

Report Date: July 24, 2024

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

Contact: Kevil, Kentucky 42053
Ms. Jaime Morrow
Project: C-746-U Landfill Surface Water Quarterly(US24-03)

Client Sample ID: L351US3-24
Sample ID: 662794003

Project: FRNP00514
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
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The following Analytical Methods were performed:

Method	Description	Analyst	Comments
1	SW846 9060A		
2	EPA 300.0		
3	EPA 300.0		
4	EPA 200.8		
5	EPA 200.8		
6	EPA 160.1		
7	EPA 160.2		
8	SM 2540B		
9	EPA 410.4		

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

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Address : LLC
5600 Hobbs Road

Kevil, Kentucky 42053

Report Date: July 24, 2024

Contact: Ms. Jaime Morrow

Project: C-746-U Landfill Surface Water Quarterly(US24-03)

Client Sample ID: L150US3-24
Sample ID: 662794001
Matrix: WS
Collect Date: 10-APR-24
Receive Date: 12-APR-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	U	1.03	+/-3.64	7.44	+/-3.64	15.0	pCi/L			HH3	04/25/24	1501	2596850	1
Beta	U	7.70	+/-6.02	9.51	+/-6.16	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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Company : Four Rivers Nuclear Partnership,
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5600 Hobbs Road

Kevil, Kentucky 42053

Report Date: July 24, 2024

Contact: Ms. Jaime Morrow

Project: C-746-U Landfill Surface Water Quarterly(US24-03)

Client Sample ID: L154US3-24

Project: FRNP00514

Sample ID: 662794002

Client ID: FRNP005

Matrix: WS

Collect Date: 10-APR-24

Receive Date: 12-APR-24

Collector: Client

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gas Flow Proportional Counting														
<i>GFPC, Gross A/B, liquid "As Received"</i>														
Alpha	U	3.45	+/-5.25	9.30	+/-5.28	15.0	pCi/L			HH3	05/02/24	1239	2596850	1
Beta	U	7.04	+/-8.26	13.9	+/-8.35	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: July 24, 2024

Contact: Ms. Jaime Morrow

Project: C-746-U Landfill Surface Water Quarterly(US24-03)

Client Sample ID: L351US3-24

Project: FRNP00514

Sample ID: 662794003

Client ID: FRNP005

Matrix: WS

Collect Date: 10-APR-24

Receive Date: 12-APR-24

Collector: Client

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gas Flow Proportional Counting														
<i>GFPC, Gross A/B, liquid "As Received"</i>														
Alpha	U	8.54	+/-6.49	9.49	+/-6.65	15.0	pCi/L			HH3	04/25/24	1501	2596850	1
Beta		16.2	+/-6.97	9.46	+/-7.48	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.

A blue ink signature of Mr. Trace McInturff, written over a horizontal line.

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-S&T Landfills**

	Temperature (°F)	Conductivity (µmhos/cm)	pH (Std. Unit)	Dissolved oxygen (mg/L)	Turbidity (NTU)		Temperature (°F)	Conductivity (µmhos/cm)	pH (Std. Unit)	Dissolved oxygen (mg/L)	Turbidity (NTU)
MW220											
Date Collected:4/11/24											
1244	60.5	377	6.18	5.52	1.01						
1247	60.5	377	6.09	5.22	1.21						
1250	60.6	378	6.06	5.17	1.11						
MW222											
Date Collected:4/11/24											
0953	60.3	388	6.19	5.36	1.46						
0956	60.4	390	6.06	4.63	1.01						
0959	60.5	391	6.01	4.54	1.09						
MW224											
Date Collected:4/11/24											
1037	60.7	456	6.05	4.00	1.16						
1040	60.8	459	6.01	3.05	1.00						
1043	60.9	460	6.01	2.99	1.09						
MW370											
Date Collected:4/10/24											
0828	61.6	345	5.95	2.89	4.60						
0831	61.6	400	5.94	3.03	3.86						
0834	61.5	409	5.93	3.09	2.97						
MW373											
Date Collected:4/10/24											
1101	61.7	918	6.21	4.22	3.44						
1104	61.4	925	6.11	2.70	2.87						
1107	61.4	930	6.02	2.61	2.33						
MW385											
Date Collected:4/15/24											
1036	62.7	413	6.30	2.06	0.00						
1039	62.9	409	6.22	1.94	0.00						
1042	63.0	406	6.19	1.87	0.00						
MW387											
Date Collected:4/15/24											
0828	62.3	520	6.30	4.63	2.96						
0831	62.1	517	6.19	4.50	2.56						
0834	61.6	516	6.17	4.46	2.22						
MW391											
Date Collected:4/16/24											
1048	64.1	413	6.18	5.67	3.43						
1051	63.2	401	6.01	4.90	3.30						
1054	63.7	399	5.94	4.69	3.08						
MW393											
Date Collected:4/16/24											
1306	65.0	469	6.38	3.81	13.17						
1309	64.0	477	6.30	1.11	13.84						
1312	63.7	480	6.22	1.03	14.04						
MW395											
Date Collected:4/16/24											
0911	62.8	403	5.88	5.68	4.84						
0914	64.0	400	5.84	5.18	2.59						
0917	64.7	401	5.84	5.26	2.30						
MW397											
Date Collected:4/15/24											
1304	66.5	379	6.36	3.53	1.56						
1307	64.6	323	5.99	6.10	1.26						
1310	63.7	314	5.95	6.00	1.04						
MW221											
Date Collected:4/11/24											
0806	59.5	396	6.08	6.44	6.36						
0809	59.6	397	5.99	5.61	2.64						
0812	59.6	398	5.92	5.55	2.71						
MW223											
Date Collected:4/11/24											
0910	60.1	392	6.22	6.10	2.39						
0913	60.1	393	6.00	3.75	2.26						
0916	60.0	393	5.97	3.69	2.17						
MW369											
Date Collected:4/10/24											
0743	60.8	347	5.93	3.78	4.74						
0746	60.7	346	5.90	2.44	4.81						
0749	60.7	347	5.89	2.39	4.64						
MW372											
Date Collected:4/11/24											
1339	61.6	754	6.10	2.84	1.36						
1342	61.5	757	6.06	2.20	1.11						
1345	61.5	758	6.05	2.12	1.04						
MW384											
Date Collected:4/15/24											
0952	63.8	352	6.04	6.91	2.28						
0955	63.6	349	6.01	6.69	0.00						
0958	63.5	349	5.96	6.60	0.00						
MW386											
Date Collected:4/15/24											
1214	66.1	540	5.95	4.71	0.00						
1217	66.7	538	5.88	3.77	0.00						
1220	65.9	539	5.84	3.71	0.00						
MW388											
Date Collected:4/15/24											
0910	61.7	391	6.20	6.07	1.54						
0913	61.2	388	5.99	5.19	0.00						
0916	61.3	389	5.98	5.16	0.00						
MW392											
Date Collected:4/16/24											
1225	65.6	336	6.06	1.99	2.37						
1228	66.4	339	5.99	1.44	2.33						
1231	66.4	338	5.91	1.33	2.22						
MW394											
Date Collected:4/16/24											
0824	62.1	420	5.92	6.11	2.40						
0827	62.7	416	5.84	6.10	2.33						
0830	63.1	414	5.80	5.97	2.10						
MW396											
Date Collected:4/16/24											
1003	65.2	705	6.30	2.28	2.69						
1006	63.4	712	6.32	1.06	2.37						
1009	62.6	713	6.30	1.00	2.16						

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