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February 25, 2025

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Dear Mr. Hendricks and Ms. Nielsen:

**C-746-S&T LANDFILLS FOURTH QUARTER CALENDAR YEAR 2024
(OCTOBER–DECEMBER) COMPLIANCE MONITORING REPORT, PADUCAH
GASEOUS DIFFUSION PLANT, PADUCAH, KENTUCKY, FRNP-RPT-0351/V4,
PERMIT NUMBER SW07300014, SW07300015, SW07300045, AGENCY INTEREST ID
NO. 3059**

The subject report for the fourth 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 fourth 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 sodium in MW372 and MW373, as well as calcium, conductivity, dissolved solids, and sulfate in MW373. These statistical exceedances are Type 2 Exceedances—Source Unknown. Continued evaluation of calcium, conductivity, dissolved solids, sodium, and sulfate levels through future quarterly monitoring events is recommended. This report also serves as the statistical exceedance notification for the fourth

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 me at (270) 217-2029.

Sincerely,

**APRIL
LADD**

April Ladd
Paducah Site Lead
Portsmouth/Paducah Project Office

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Enclosure:

C-746-S&T Landfills Fourth Quarter Calendar Year 2024 (October–December) Compliance Monitoring Report, Paducah Gaseous Diffusion Plant, Paducah, Kentucky, FRNP-RPT-0351/V4

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



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

Date Issued—February 2025

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>
<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 Fourth Quarter Calendar Year 2024 (October–December) 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 (screened in the UCRS), which had insufficient amounts of water to obtain samples.

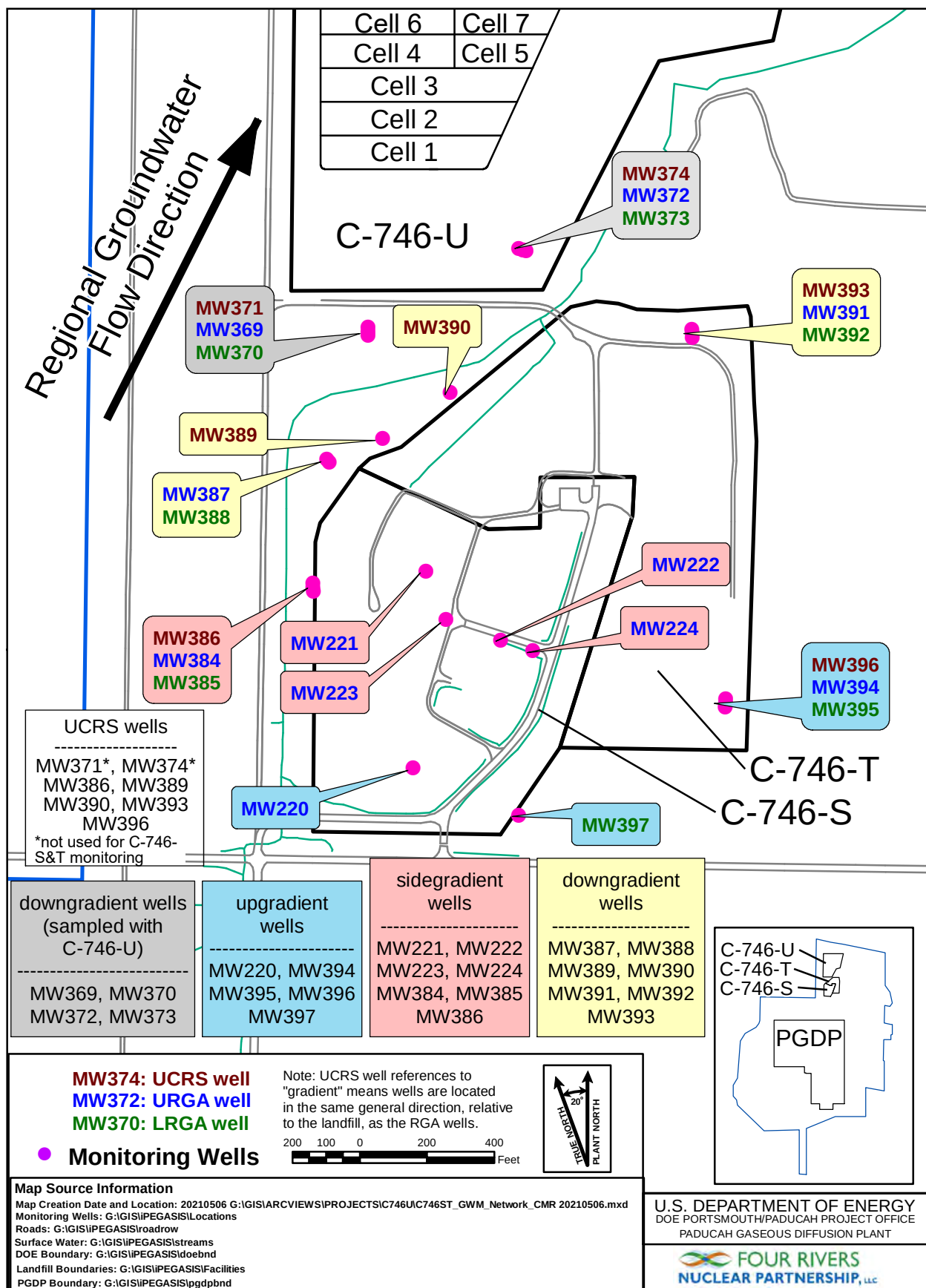


Figure 1. C-746-S&T Landfills Groundwater Monitoring Well Network

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 fourth 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 fourth quarter 2024 was conducted on October 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 October 22, 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 October 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 October 2024 was 2.47×10^{-4} ft/ft, while the gradient beneath the C-746-S&T Landfills was approximately 1.55×10^{-3} 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 2.64 to 4.51 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 November 19, 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 November 6, 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.

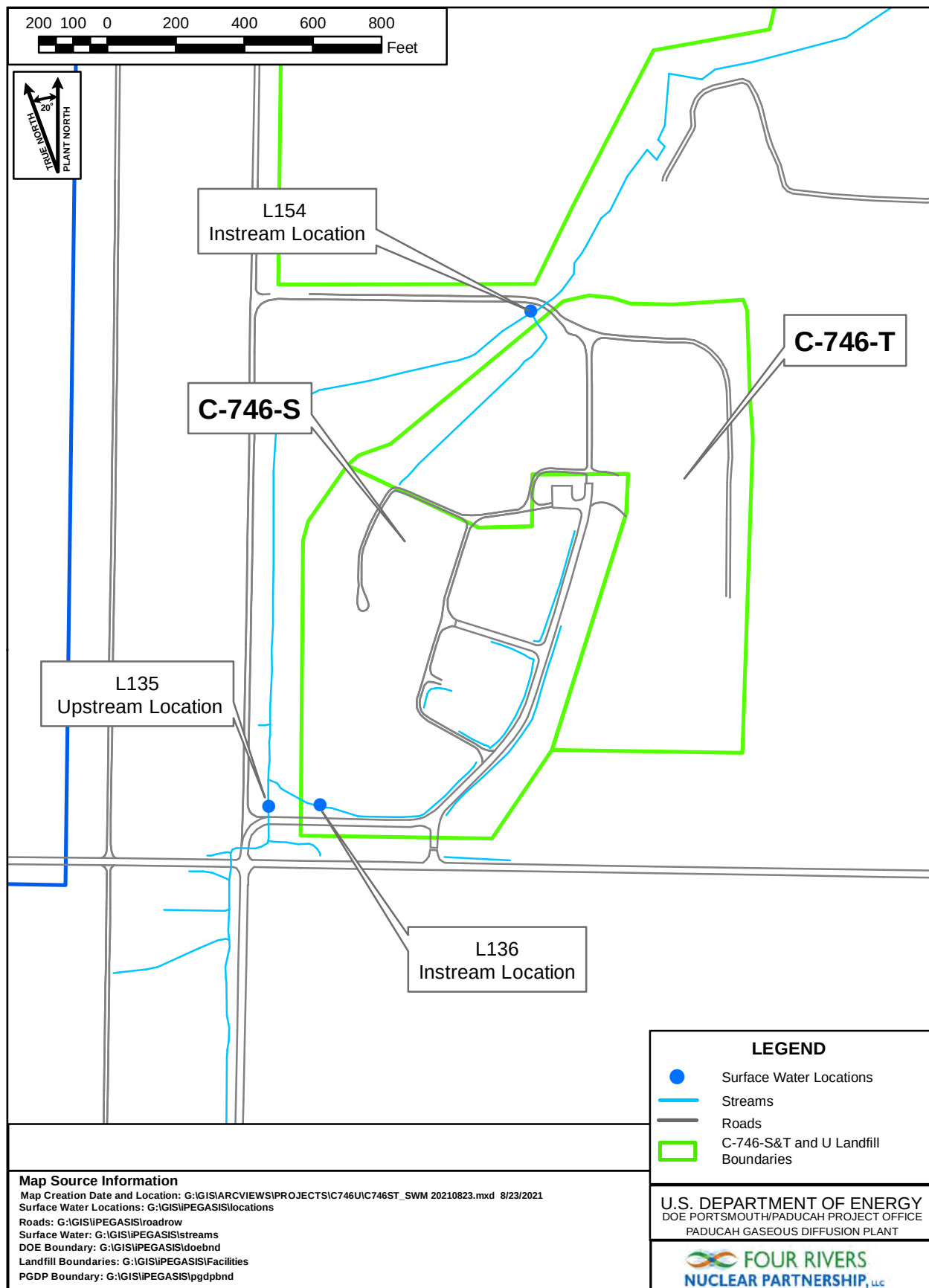


Figure 2. C-746-S&T Landfill Surface Water Monitoring Locations

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 fourth 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

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.

Table 2. Exceedances of Statistically Derived Historical Background Concentrations

UCRS^a	URGA	LRGA
MW386: Oxidation-reduction potential ^b and thorium-230	MW220: Oxidation-reduction potential ^b	MW370: Oxidation-reduction potential ^b and sulfate
MW390: Oxidation-reduction potential ^b and technetium-99	MW221: Oxidation-reduction potential ^b	MW373: Calcium, conductivity, dissolved solids, magnesium, oxidation-reduction potential, ^b sodium, and sulfate
MW393: Oxidation-reduction potential ^b	MW222: Oxidation-reduction potential ^b	MW385: Oxidation-reduction potential, ^b sulfate, and technetium-99
MW396: Oxidation-reduction potential ^b	MW223: Oxidation-reduction potential ^b	MW388: Oxidation-reduction potential, ^b sulfate, and thorium-230
	MW224: Oxidation-reduction potential ^b	MW392: Oxidation-reduction potential ^b
	MW369: Oxidation-reduction potential ^b and technetium-99	MW395: Oxidation-reduction potential ^b and total organic halides (TOX)
	MW372: Calcium, conductivity, dissolved solids, magnesium, oxidation-reduction potential, ^b sodium, sulfate, and technetium-99	MW397: Oxidation-reduction potential ^b

¹ The UTL comparison for pH uses a two-sided test, both UTL and LTL.

**Table 2. Exceedances of Statistically Derived Historical Background Concentrations
(Continued)**

UCRS ^a	URGA	LRGA
	MW384: Oxidation-reduction potential, ^b sulfate, and technetium-99	
	MW387: Magnesium, oxidation-reduction potential, ^b sulfate, technetium-99, and thorium-230	
	MW391: Oxidation-reduction potential ^b	
	MW394: 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, sulfate, technetium-99, and thorium-230	MW388: Sulfate and thorium-230

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 21 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
C-746-S&T Landfills	MW369	Technetium-99	8	0.05	0.138	10	No Trend
	MW370	Sulfate	8	0.05	0.548	0	No Trend
	MW372	Calcium	8	0.05	0.054	14	No Trend
		Conductivity	8	0.05	0.13	12	No Trend
		Dissolved Solids	8	0.05	0.054	15	No Trend
		Magnesium	8	0.05	0.36	4	No Trend
		Sodium	8	0.05	0.031	17	Increasing
		Sulfate	8	0.05	0.274	6	No Trend
		Technetium-99	8	0.05	0.452	2	No Trend
	MW373	Calcium	8	0.05	0.007	20	Increasing
		Conductivity	8	0.05	0.002	22	Increasing
		Dissolved Solids	8	0.05	0	26	Increasing
		Magnesium	8	0.05	0.054	15	No Trend
		Sodium	8	0.05	0.002	22	Increasing
		Sulfate	8	0.05	0.002	22	Increasing
	MW387	Magnesium	8	0.05	0.119	-9	No Trend
		Sulfate	8	0.05	0.138	-11	No Trend
		Technetium-99	8	0.05	0.36	-4	No Trend
		Thorium-230	8	0.05	0.36	-4	No Trend
	MW388	Sulfate	8	0.05	0.089	-12	No Trend
		Thorium-230	8	0.05	0.452	-2	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.

NOTE: Statistics were generated using ProUCL.

Six of the 21 preliminary Type 2 exceedances in downgradient wells had an increasing trend. Specifically, the Mann-Kendall statistical test indicates increasing trends for sodium in URGA well MW372 and calcium, conductivity, dissolved solids, sodium, and sulfate in LRGA well MW373. It should be noted that over the past eight quarters concentrations of calcium, conductivity, dissolved solids, sodium, and sulfate in URGA well MW372 are consistently lower than those shown in collocated LRGA well MW373. Since calcium, conductivity, dissolved solids, 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 in MW372/MW373 should be considered Type 2 exceedances—sources undetermined. Evaluation of calcium, conductivity, dissolved solids, 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 identified one downgradient UCRS well exceeding both the historical and current backgrounds (Table 5).

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

UCRS
MW390: Oxidation-reduction potential and technetium-99

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

All MCL and UTL exceedances reported for this quarter, except for sodium in both MW372 and MW373, as well as conductivity, dissolved solids, and sulfate in MW373, were evaluated and considered to be Type 1 exceedances—not attributable to the C-746-S&T Landfills.

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2. DATA EVALUATION/STATISTICAL SYNOPSIS

The statistical analyses conducted on the fourth 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	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, 27 parameters, including those with MCLs, required statistical analysis in the UCRS. During the fourth quarter, oxidation-reduction potential, technetium-99, and thorium-230 concentrations exceeded the respective historical UTL and are listed in Table 2. Oxidation-reduction potential and technetium-99 exceeded the current background UTL in downgradient UCRS well MW390 and are included in Table 5.

2.1.2 Upper Regional Gravel Aquifer

In this quarter, 26 parameters, including those with MCLs, required statistical analysis in the URGA. During the fourth quarter, calcium, conductivity, dissolved solids, magnesium, oxidation-reduction potential, sodium, sulfate, technetium-99, and thorium-230 displayed concentrations that exceeded their respective historical UTLs and are listed in Table 2. Calcium, conductivity, dissolved solids, magnesium, sodium, sulfate, technetium-99, and thorium-230 exceeded the current background UTL in downgradient URGA wells and are included in Table 3.

2.1.3 Lower Regional Gravel Aquifer

In this quarter, 26 parameters, including those with MCLs, required statistical analysis in the LRGA. During the fourth quarter, calcium, conductivity, dissolved solids, magnesium, oxidation-reduction potential, sodium, sulfate, technetium-99, thorium-230, and TOX displayed concentrations that exceeded their respective historical UTL and are listed in Table 2. Calcium, conductivity, dissolved solids, magnesium, sodium, sulfate, and thorium-230 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 for groundwater 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.

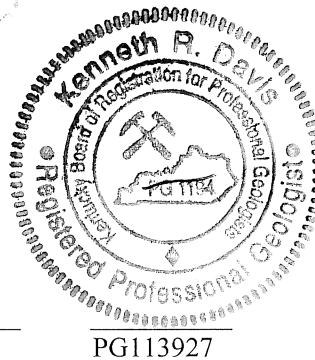
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3. PROFESSIONAL GEOLOGIST AUTHORIZATION

DOCUMENT IDENTIFICATION: *C-746-S&T Landfills Fourth Quarter Calendar Year 2024
(October–December) Compliance Monitoring Report, Paducah
Gaseous Diffusion Plant, Paducah, Kentucky
(FRNP-RPT-0351/V4)*

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

Kenneth R. Davis
Kenneth R. Davis



PG 113927
KD 2/18/2025

February 18, 2025
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 4th Qtr. CY 2024

Please check the following as applicable:

_____ Characterization X Quarterly _____ Semiannual _____ Annual _____ Assessment

Please check applicable submittal(s): X Groundwater X Surface Water
_____ Leachate X Methane Monitoring

This form is to be utilized by those sites required by regulation (Kentucky Waste Management Regulations-401 *KAR* 48:300 and 45:160) or by statute (Kentucky Revised 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: October 2024
Methane: November 2024
Sampling Date: Surface Water: November 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
Street City/State Zip

LABORATORY RECORD #3

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

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

Mailing Address: N/A
Street City/State Zip

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APPENDIX C
GROUNDWATER SAMPLE ANALYSES
AND LABORATORY REPORTS

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Paducah OREIS
GROUNDWATER MONITORING REPORT

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

Sampling Point: MW220 UP **RGA Type:** URGa **Period:** 4th Quarter 2024

AKGWA Well Tag #: 8000-5201 **SAMPLE ID:** MW220SG1-25 **Sample Type:** REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide		0.212	mg/L	0.2	10/14/2024			SW846-9056A	=
Chloride	J	17.6	mg/L	250	10/14/2024			SW846-9056A	=
Fluoride	J	0.236	mg/L	4	10/14/2024			SW846-9056A	=
Nitrate as Nitrogen	HJ	0.871	mg/L	10	10/14/2024			SW846-9056A	J
Sulfate		16.6	mg/L	0.4	10/14/2024			SW846-9056A	=
Barometric Pressure Reading		30.2	Inches/Hg		10/14/2024				X
Conductivity		342	µmhos/cm		10/14/2024				X
Depth to Water		58.88	ft		10/14/2024				X
Dissolved Oxygen		5.9	mg/L		10/14/2024				X
Eh (approx)		500	mV		10/14/2024				X
pH		6.07	Std Unit		10/14/2024				X
Temperature		61	deg F		10/14/2024				X
Turbidity		3.76	NTU		10/14/2024				X
Aluminum	U	0.05	mg/L	0.05	10/14/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	10/14/2024			SW846-6020B	=
Arsenic	U	0.005	mg/L	0.005	10/14/2024			SW846-6020B	=
Barium		0.186	mg/L	0.004	10/14/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	10/14/2024			SW846-6020B	=
Boron	J	0.00883	mg/L	0.015	10/14/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	10/14/2024			SW846-6020B	=
Calcium		20.5	mg/L	0.2	10/14/2024			SW846-6020B	=
Chromium	J	0.00365	mg/L	0.01	10/14/2024			SW846-6020B	=
Cobalt	U	0.001	mg/L	0.001	10/14/2024			SW846-6020B	=
Copper	J	0.000974	mg/L	0.002	10/14/2024			SW846-6020B	=
Iron	U	0.1	mg/L	0.1	10/14/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	10/14/2024			SW846-6020B	=
Magnesium		8.55	mg/L	0.03	10/14/2024			SW846-6020B	=
Manganese	U	0.005	mg/L	0.005	10/14/2024			SW846-6020B	=
Molybdenum	J	0.000657	mg/L	0.001	10/14/2024			SW846-6020B	=
Nickel		0.00583	mg/L	0.002	10/14/2024			SW846-6020B	=
Potassium		2	mg/L	0.3	10/14/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	10/14/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	10/14/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	10/14/2024			SW846-6020B	=
Sodium		36.9	mg/L	0.25	10/14/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	10/14/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	10/14/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	10/14/2024			SW846-6020B	=
Vanadium	U	0.02	mg/L	0.02	10/14/2024			SW846-6020B	=
Zinc	J	0.00355	mg/L	0.02	10/14/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	10/14/2024			SW846-7470A	=
Barium, Dissolved		0.183	mg/L	0.004	10/14/2024			SW846-6020B	J
Chromium, Dissolved	J	0.00359	mg/L	0.01	10/14/2024			SW846-6020B	J
Uranium, Dissolved	U	0.0002	mg/L	0.0002	10/14/2024			SW846-6020B	UJ
PCB-1016	U	0.0872	ug/L	0.0872	10/14/2024			SW846-8082A	UJ

PCB-1221	U	0.0872	ug/L	0.0872	10/14/2024			SW846-8082A	=
PCB-1232	U	0.0872	ug/L	0.0872	10/14/2024			SW846-8082A	=
PCB-1242	U	0.0872	ug/L	0.0872	10/14/2024			SW846-8082A	=
PCB-1248	U	0.0872	ug/L	0.0872	10/14/2024			SW846-8082A	=
PCB-1254	U	0.0872	ug/L	0.0872	10/14/2024			SW846-8082A	=
PCB-1260	U	0.0872	ug/L	0.0872	10/14/2024			SW846-8082A	UJ
PCB-1268	U	0.0872	ug/L	0.0872	10/14/2024			SW846-8082A	=
Polychlorinated biphenyl	U	0.0872	ug/L	0.0872	10/14/2024			SW846-8082A	UJ
Radium-226	U	0.336	pCi/L	1.9	10/14/2024	1.05	1.05	AN-1418	=
Strontium-90	U	-1.1	pCi/L	4.01	10/14/2024	1.87	1.87	EPA-905.0-M	=
Tritium	U	53.6	pCi/L	225	10/14/2024	130	130	EPA-906.0-M	=
Technetium-99	U	14.8	pCi/L	20.6	10/14/2024	12.4	12.5	HASL 300, Tc-02-RC M	UJ
Thorium-230	U	0.746	pCi/L	2.49	10/14/2024	1.43	1.44	HASL 300, Th-01-RC M	=
Alpha activity	U	-0.991	pCi/L	7.23	10/14/2024	2.71	2.71	SW846-9310	=
Beta activity		10.6	pCi/L	10.3	10/14/2024	6.73	6.96	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.0194	ug/L	0.0194	10/14/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	10/14/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	10/14/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	10/14/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	10/14/2024			SW846-8260D	=
Acetone	BJ	3.95	ug/L	5	10/14/2024			SW846-8260D	U
Acrolein	U	5	ug/L	5	10/14/2024			SW846-8260D	=
Acrylonitrile	U	5	ug/L	5	10/14/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	10/14/2024			SW846-8260D	=
Carbon tetrachloride	UY2	1	ug/L	1	10/14/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	10/14/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Ethylbenzene	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	10/14/2024			SW846-8260D	=
Methylene chloride	U	5	ug/L	5	10/14/2024			SW846-8260D	=

Styrene	U	1 ug/L	1	10/14/2024	SW846-8260D	=
Tetrachloroethene	UY1	1 ug/L	1	10/14/2024	SW846-8260D	=
Toluene	U	1 ug/L	1	10/14/2024	SW846-8260D	=
Total Xylene	U	3 ug/L	3	10/14/2024	SW846-8260D	=
trans-1,2-Dichloroethene	U	1 ug/L	1	10/14/2024	SW846-8260D	=
trans-1,3-Dichloropropene	U	1 ug/L	1	10/14/2024	SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5 ug/L	5	10/14/2024	SW846-8260D	=
Trichloroethene	U	1 ug/L	1	10/14/2024	SW846-8260D	=
Trichlorofluoromethane	U	1 ug/L	1	10/14/2024	SW846-8260D	=
Vinyl acetate	U	5 ug/L	5	10/14/2024	SW846-8260D	=
Vinyl chloride	U	1 ug/L	1	10/14/2024	SW846-8260D	=
Dissolved Solids		181 mg/L	10	10/14/2024	EPA-160.1	=
Iodide	U	0.5 mg/L	0.5	10/14/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	U	20 mg/L	20	10/14/2024	EPA-410.4	=
Cyanide	UN	0.2 mg/L	0.2	10/14/2024	SW846-9012B	=
Total Organic Halides (TOX)	U	10 ug/L	10	10/14/2024	SW846-9020B	=
Total Organic Carbon (TOC)	J	1.29 mg/L	2	10/14/2024	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:** URGAs **Period:** 4th Quarter 2024

AKGWA Well Tag #: 8000-5202 **SAMPLE ID:** MW221SG1-25 **Sample Type:** REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide		0.5	mg/L	0.2	10/14/2024			SW846-9056A	=
Chloride	J	32.6	mg/L	250	10/14/2024			SW846-9056A	=
Fluoride	J	0.256	mg/L	4	10/14/2024			SW846-9056A	=
Nitrate as Nitrogen	HJ	1.11	mg/L	10	10/14/2024			SW846-9056A	J
Sulfate		13.7	mg/L	0.4	10/14/2024			SW846-9056A	=
Barometric Pressure Reading		30.19	Inches/Hg		10/14/2024				X
Conductivity		391	µmhos/cm		10/14/2024				X
Depth to Water		68.56	ft		10/14/2024				X
Dissolved Oxygen		5.46	mg/L		10/14/2024				X
Eh (approx)		552	mV		10/14/2024				X
pH		5.4	Std Unit		10/14/2024				X
Temperature		60.2	deg F		10/14/2024				X
Turbidity		4.19	NTU		10/14/2024				X
Aluminum	U	0.05	mg/L	0.05	10/14/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	10/14/2024			SW846-6020B	=
Arsenic	U	0.005	mg/L	0.005	10/14/2024			SW846-6020B	=
Barium		0.19	mg/L	0.004	10/14/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	10/14/2024			SW846-6020B	=
Boron	J	0.0147	mg/L	0.015	10/14/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	10/14/2024			SW846-6020B	=
Calcium		20.2	mg/L	0.2	10/14/2024			SW846-6020B	=
Chromium	U	0.01	mg/L	0.01	10/14/2024			SW846-6020B	=
Cobalt	U	0.001	mg/L	0.001	10/14/2024			SW846-6020B	=
Copper	J	0.00171	mg/L	0.002	10/14/2024			SW846-6020B	=
Iron	U	0.1	mg/L	0.1	10/14/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	10/14/2024			SW846-6020B	=
Magnesium		8.9	mg/L	0.03	10/14/2024			SW846-6020B	=
Manganese	U	0.005	mg/L	0.005	10/14/2024			SW846-6020B	=
Molybdenum		0.00216	mg/L	0.001	10/14/2024			SW846-6020B	=
Nickel		0.0138	mg/L	0.002	10/14/2024			SW846-6020B	=
Potassium		1.19	mg/L	0.3	10/14/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	10/14/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	10/14/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	10/14/2024			SW846-6020B	=
Sodium		45.6	mg/L	0.25	10/14/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	10/14/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	10/14/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	10/14/2024			SW846-6020B	=
Vanadium	U	0.02	mg/L	0.02	10/14/2024			SW846-6020B	=
Zinc	J	0.0179	mg/L	0.02	10/14/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	10/14/2024			SW846-7470A	=
Barium, Dissolved		0.18	mg/L	0.004	10/14/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	10/14/2024			SW846-6020B	UJ
Uranium, Dissolved	U	0.0002	mg/L	0.0002	10/14/2024			SW846-6020B	UJ
PCB-1016	U	0.0863	ug/L	0.0863	10/14/2024			SW846-8082A	UJ

PCB-1221	U	0.0863	ug/L	0.0863	10/14/2024			SW846-8082A	=
PCB-1232	U	0.0863	ug/L	0.0863	10/14/2024			SW846-8082A	=
PCB-1242	U	0.0863	ug/L	0.0863	10/14/2024			SW846-8082A	=
PCB-1248	U	0.0863	ug/L	0.0863	10/14/2024			SW846-8082A	=
PCB-1254	U	0.0863	ug/L	0.0863	10/14/2024			SW846-8082A	=
PCB-1260	U	0.0863	ug/L	0.0863	10/14/2024			SW846-8082A	UJ
PCB-1268	U	0.0863	ug/L	0.0863	10/14/2024			SW846-8082A	=
Polychlorinated biphenyl	U	0.0863	ug/L	0.0863	10/14/2024			SW846-8082A	UJ
Radium-226	U	0.462	pCi/L	0.607	10/14/2024	0.447	0.448	AN-1418	=
Strontium-90	U	-0.256	pCi/L	2.92	10/14/2024	1.46	1.46	EPA-905.0-M	=
Tritium	U	-11.7	pCi/L	227	10/14/2024	128	128	EPA-906.0-M	=
Technetium-99	U	2.74	pCi/L	20.4	10/14/2024	11.9	11.9	HASL 300, Tc-02-RC M	UJ
Thorium-230	U	-0.0117	pCi/L	2.51	10/14/2024	1.14	1.14	HASL 300, Th-01-RC M	=
Alpha activity	U	-0.0476	pCi/L	7.75	10/14/2024	3.39	3.39	SW846-9310	=
Beta activity	U	3.13	pCi/L	8.95	10/14/2024	5.13	5.16	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.0191	ug/L	0.0191	10/14/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	10/14/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	10/14/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	10/14/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	10/14/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	10/14/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	10/14/2024			SW846-8260D	=
Acrylonitrile	U	5	ug/L	5	10/14/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	10/14/2024			SW846-8260D	=
Carbon tetrachloride	UY2	1	ug/L	1	10/14/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	10/14/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Ethylbenzene	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	10/14/2024			SW846-8260D	=
Methylene chloride	U	5	ug/L	5	10/14/2024			SW846-8260D	=

Styrene	U	1 ug/L	1	10/14/2024	SW846-8260D	=
Tetrachloroethene	UY1	1 ug/L	1	10/14/2024	SW846-8260D	=
Toluene	U	1 ug/L	1	10/14/2024	SW846-8260D	=
Total Xylene	U	3 ug/L	3	10/14/2024	SW846-8260D	=
trans-1,2-Dichloroethene	U	1 ug/L	1	10/14/2024	SW846-8260D	=
trans-1,3-Dichloropropene	U	1 ug/L	1	10/14/2024	SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5 ug/L	5	10/14/2024	SW846-8260D	=
Trichloroethene	U	1 ug/L	1	10/14/2024	SW846-8260D	=
Trichlorofluoromethane	U	1 ug/L	1	10/14/2024	SW846-8260D	=
Vinyl acetate	U	5 ug/L	5	10/14/2024	SW846-8260D	=
Vinyl chloride	U	1 ug/L	1	10/14/2024	SW846-8260D	=
Dissolved Solids		207 mg/L	10	10/14/2024	EPA-160.1	=
Iodide	U	0.5 mg/L	0.5	10/14/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	U	20 mg/L	20	10/14/2024	EPA-410.4	=
Cyanide	UN	0.2 mg/L	0.2	10/14/2024	SW846-9012B	=
Total Organic Halides (TOX)	J	7.6 ug/L	10	10/14/2024	SW846-9020B	=
Total Organic Carbon (TOC)	J	1.21 mg/L	2	10/14/2024	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:** 4th Quarter 2024

AKGWA Well Tag #: 8000-5242 **SAMPLE ID:** MW222SG1-25 **Sample Type:** REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide		0.409	mg/L	0.2	10/14/2024			SW846-9056A	=
Chloride	J	29.3	mg/L	250	10/14/2024			SW846-9056A	=
Fluoride	J	0.301	mg/L	4	10/14/2024			SW846-9056A	=
Nitrate as Nitrogen	HJ	0.956	mg/L	10	10/14/2024			SW846-9056A	J
Sulfate		11	mg/L	0.4	10/14/2024			SW846-9056A	=
Barometric Pressure Reading		30.2	Inches/Hg		10/14/2024				X
Conductivity		344	µmhos/cm		10/14/2024				X
Depth to Water		72.56	ft		10/14/2024				X
Dissolved Oxygen		3.9	mg/L		10/14/2024				X
Eh (approx)		475	mV		10/14/2024				X
pH		6.16	Std Unit		10/14/2024				X
Temperature		61.7	deg F		10/14/2024				X
Turbidity		3.8	NTU		10/14/2024				X
Aluminum	U	0.05	mg/L	0.05	10/14/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	10/14/2024			SW846-6020B	=
Arsenic	U	0.005	mg/L	0.005	10/14/2024			SW846-6020B	=
Barium		0.226	mg/L	0.004	10/14/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	10/14/2024			SW846-6020B	=
Boron	J	0.00798	mg/L	0.015	10/14/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	10/14/2024			SW846-6020B	=
Calcium		16.5	mg/L	0.2	10/14/2024			SW846-6020B	=
Chromium	U	0.01	mg/L	0.01	10/14/2024			SW846-6020B	=
Cobalt	J	0.000349	mg/L	0.001	10/14/2024			SW846-6020B	=
Copper	J	0.00103	mg/L	0.002	10/14/2024			SW846-6020B	=
Iron	U	0.1	mg/L	0.1	10/14/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	10/14/2024			SW846-6020B	=
Magnesium		7.26	mg/L	0.03	10/14/2024			SW846-6020B	=
Manganese	J	0.00308	mg/L	0.005	10/14/2024			SW846-6020B	=
Molybdenum		0.00192	mg/L	0.001	10/14/2024			SW846-6020B	=
Nickel		0.0179	mg/L	0.002	10/14/2024			SW846-6020B	=
Potassium		0.674	mg/L	0.3	10/14/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	10/14/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	10/14/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	10/14/2024			SW846-6020B	=
Sodium		41.3	mg/L	0.25	10/14/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	10/14/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	10/14/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	10/14/2024			SW846-6020B	=
Vanadium	U	0.02	mg/L	0.02	10/14/2024			SW846-6020B	=
Zinc	J	0.00773	mg/L	0.02	10/14/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	10/14/2024			SW846-7470A	=
Barium, Dissolved		0.231	mg/L	0.004	10/14/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	10/14/2024			SW846-6020B	UJ
Uranium, Dissolved	U	0.0002	mg/L	0.0002	10/14/2024			SW846-6020B	UJ
PCB-1016	U	0.0981	ug/L	0.0981	10/14/2024			SW846-8082A	UJ

PCB-1221	U	0.0981	ug/L	0.0981	10/14/2024			SW846-8082A	=
PCB-1232	U	0.0981	ug/L	0.0981	10/14/2024			SW846-8082A	=
PCB-1242	U	0.0981	ug/L	0.0981	10/14/2024			SW846-8082A	=
PCB-1248	U	0.0981	ug/L	0.0981	10/14/2024			SW846-8082A	=
PCB-1254	U	0.0981	ug/L	0.0981	10/14/2024			SW846-8082A	=
PCB-1260	U	0.0981	ug/L	0.0981	10/14/2024			SW846-8082A	UJ
PCB-1268	U	0.0981	ug/L	0.0981	10/14/2024			SW846-8082A	=
Polychlorinated biphenyl	U	0.0981	ug/L	0.0981	10/14/2024			SW846-8082A	UJ
Radium-226	U	0.907	pCi/L	1.31	10/14/2024	1.24	1.24	AN-1418	=
Strontium-90	U	0.455	pCi/L	2.62	10/14/2024	1.4	1.4	EPA-905.0-M	=
Tritium	U	-64.8	pCi/L	226	10/14/2024	124	124	EPA-906.0-M	=
Technetium-99	U	-2.88	pCi/L	20.5	10/14/2024	11.8	11.8	HASL 300, Tc-02-RC M	UJ
Thorium-230	U	0.796	pCi/L	2.04	10/14/2024	1.25	1.26	HASL 300, Th-01-RC M	=
Alpha activity	U	0.223	pCi/L	9.32	10/14/2024	4.4	4.4	SW846-9310	=
Beta activity	U	7.63	pCi/L	9.52	10/14/2024	6.02	6.15	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.0191	ug/L	0.0191	10/14/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	10/14/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	10/14/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	10/14/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	10/14/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	10/14/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	10/14/2024			SW846-8260D	=
Acrylonitrile	U	5	ug/L	5	10/14/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	10/14/2024			SW846-8260D	=
Carbon tetrachloride	UY2	1	ug/L	1	10/14/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	10/14/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Ethylbenzene	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	10/14/2024			SW846-8260D	=
Methylene chloride	U	5	ug/L	5	10/14/2024			SW846-8260D	=

Styrene	U	1 ug/L	1	10/14/2024	SW846-8260D	=
Tetrachloroethene	UY1	1 ug/L	1	10/14/2024	SW846-8260D	=
Toluene	U	1 ug/L	1	10/14/2024	SW846-8260D	=
Total Xylene	U	3 ug/L	3	10/14/2024	SW846-8260D	=
trans-1,2-Dichloroethene	U	1 ug/L	1	10/14/2024	SW846-8260D	=
trans-1,3-Dichloropropene	U	1 ug/L	1	10/14/2024	SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5 ug/L	5	10/14/2024	SW846-8260D	=
Trichloroethene	U	1 ug/L	1	10/14/2024	SW846-8260D	=
Trichlorofluoromethane	U	1 ug/L	1	10/14/2024	SW846-8260D	=
Vinyl acetate	U	5 ug/L	5	10/14/2024	SW846-8260D	=
Vinyl chloride	U	1 ug/L	1	10/14/2024	SW846-8260D	=
Dissolved Solids		190 mg/L	10	10/14/2024	EPA-160.1	=
Iodide	U	0.5 mg/L	0.5	10/14/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	U	20 mg/L	20	10/14/2024	EPA-410.4	=
Cyanide	UN	0.2 mg/L	0.2	10/14/2024	SW846-9012B	=
Total Organic Halides (TOX)	U	10 ug/L	10	10/14/2024	SW846-9020B	=
Total Organic Carbon (TOC)	J	1.11 mg/L	2	10/14/2024	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:** 4th Quarter 2024

AKGWA Well Tag #: 8000-5243 **SAMPLE ID:** MW223SG1-25 **Sample Type:** REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide		0.532	mg/L	0.2	10/14/2024			SW846-9056A	=
Chloride	J	32.9	mg/L	250	10/14/2024			SW846-9056A	=
Fluoride	J	0.258	mg/L	4	10/14/2024			SW846-9056A	=
Nitrate as Nitrogen	HJ	0.916	mg/L	10	10/14/2024			SW846-9056A	J
Sulfate		13.5	mg/L	0.4	10/14/2024			SW846-9056A	=
Barometric Pressure Reading		30.19	Inches/Hg		10/14/2024				X
Conductivity		393	µmhos/cm		10/14/2024				X
Depth to Water		71.53	ft		10/14/2024				X
Dissolved Oxygen		2.4	mg/L		10/14/2024				X
Eh (approx)		517	mV		10/14/2024				X
pH		6.13	Std Unit		10/14/2024				X
Temperature		61.6	deg F		10/14/2024				X
Turbidity		4.39	NTU		10/14/2024				X
Aluminum	U	0.05	mg/L	0.05	10/14/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	10/14/2024			SW846-6020B	=
Arsenic	U	0.005	mg/L	0.005	10/14/2024			SW846-6020B	=
Barium		0.236	mg/L	0.004	10/14/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	10/14/2024			SW846-6020B	=
Boron	J	0.00797	mg/L	0.015	10/14/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	10/14/2024			SW846-6020B	=
Calcium		21.4	mg/L	0.2	10/14/2024			SW846-6020B	=
Chromium		0.0159	mg/L	0.01	10/14/2024			SW846-6020B	=
Cobalt		0.00292	mg/L	0.001	10/14/2024			SW846-6020B	=
Copper	J	0.00136	mg/L	0.002	10/14/2024			SW846-6020B	=
Iron	J	0.096	mg/L	0.1	10/14/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	10/14/2024			SW846-6020B	=
Magnesium		8.91	mg/L	0.03	10/14/2024			SW846-6020B	=
Manganese		0.0231	mg/L	0.005	10/14/2024			SW846-6020B	=
Molybdenum		0.00377	mg/L	0.001	10/14/2024			SW846-6020B	=
Nickel		0.6	mg/L	0.002	10/14/2024			SW846-6020B	=
Potassium		1.39	mg/L	0.3	10/14/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	10/14/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	10/14/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	10/14/2024			SW846-6020B	=
Sodium		43.2	mg/L	0.25	10/14/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	10/14/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	10/14/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	10/14/2024			SW846-6020B	=
Vanadium	U	0.02	mg/L	0.02	10/14/2024			SW846-6020B	=
Zinc	J	0.00659	mg/L	0.02	10/14/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	10/14/2024			SW846-7470A	=
Barium, Dissolved		0.232	mg/L	0.004	10/14/2024			SW846-6020B	J
Chromium, Dissolved		0.0117	mg/L	0.01	10/14/2024			SW846-6020B	J
Uranium, Dissolved	U	0.0002	mg/L	0.0002	10/14/2024			SW846-6020B	UJ
PCB-1016	U	0.0872	ug/L	0.0872	10/14/2024			SW846-8082A	UJ

PCB-1221	U	0.0872	ug/L	0.0872	10/14/2024			SW846-8082A	=
PCB-1232	U	0.0872	ug/L	0.0872	10/14/2024			SW846-8082A	=
PCB-1242	U	0.0872	ug/L	0.0872	10/14/2024			SW846-8082A	=
PCB-1248	U	0.0872	ug/L	0.0872	10/14/2024			SW846-8082A	=
PCB-1254	U	0.0872	ug/L	0.0872	10/14/2024			SW846-8082A	=
PCB-1260	U	0.0872	ug/L	0.0872	10/14/2024			SW846-8082A	UJ
PCB-1268	U	0.0872	ug/L	0.0872	10/14/2024			SW846-8082A	=
Polychlorinated biphenyl	U	0.0872	ug/L	0.0872	10/14/2024			SW846-8082A	UJ
Radium-226	U	0.391	pCi/L	1.79	10/14/2024	1.04	1.04	AN-1418	=
Strontium-90	U	-0.367	pCi/L	3.47	10/14/2024	1.76	1.76	EPA-905.0-M	=
Tritium	U	48.1	pCi/L	230	10/14/2024	133	133	EPA-906.0-M	=
Technetium-99	U	6.45	pCi/L	20.5	10/14/2024	12.1	12.1	HASL 300, Tc-02-RC M	UJ
Thorium-230	U	0.168	pCi/L	2.3	10/14/2024	1.12	1.13	HASL 300, Th-01-RC M	=
Alpha activity	U	-1.45	pCi/L	7.61	10/14/2024	2.87	2.88	SW846-9310	=
Beta activity	U	8.25	pCi/L	9.52	10/14/2024	6.05	6.2	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.019	ug/L	0.019	10/14/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	10/14/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	10/14/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	10/14/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	10/14/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	10/14/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	10/14/2024			SW846-8260D	=
Acrylonitrile	U	5	ug/L	5	10/14/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	10/14/2024			SW846-8260D	=
Carbon tetrachloride	UY2	1	ug/L	1	10/14/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	10/14/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Ethylbenzene	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	10/14/2024			SW846-8260D	=
Methylene chloride	U	5	ug/L	5	10/14/2024			SW846-8260D	=

Styrene	U	1 ug/L	1	10/14/2024	SW846-8260D	=
Tetrachloroethene	UY1	1 ug/L	1	10/14/2024	SW846-8260D	=
Toluene	U	1 ug/L	1	10/14/2024	SW846-8260D	=
Total Xylene	U	3 ug/L	3	10/14/2024	SW846-8260D	=
trans-1,2-Dichloroethene	U	1 ug/L	1	10/14/2024	SW846-8260D	=
trans-1,3-Dichloropropene	U	1 ug/L	1	10/14/2024	SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5 ug/L	5	10/14/2024	SW846-8260D	=
Trichloroethene	U	1 ug/L	1	10/14/2024	SW846-8260D	=
Trichlorofluoromethane	U	1 ug/L	1	10/14/2024	SW846-8260D	=
Vinyl acetate	U	5 ug/L	5	10/14/2024	SW846-8260D	=
Vinyl chloride	U	1 ug/L	1	10/14/2024	SW846-8260D	=
Dissolved Solids		216 mg/L	10	10/14/2024	EPA-160.1	=
Iodide	U	0.5 mg/L	0.5	10/14/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	U	20 mg/L	20	10/14/2024	EPA-410.4	=
Cyanide	UN	0.2 mg/L	0.2	10/14/2024	SW846-9012B	=
Total Organic Halides (TOX)	U	10 ug/L	10	10/14/2024	SW846-9020B	=
Total Organic Carbon (TOC)	J	1.17 mg/L	2	10/14/2024	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:** 4th Quarter 2024

AKGWA Well Tag #: 8000-5244 **SAMPLE ID:** MW224SG1-25 **Sample Type:** REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide	J	0.352	mg/L	0.8	10/14/2024			SW846-9056A	=
Chloride	J	20.9	mg/L	250	10/14/2024			SW846-9056A	=
Fluoride	J	0.336	mg/L	4	10/14/2024			SW846-9056A	=
Nitrate as Nitrogen	HJ	0.726	mg/L	10	10/14/2024			SW846-9056A	J
Sulfate		17	mg/L	0.4	10/14/2024			SW846-9056A	=
Barometric Pressure Reading		30.2	Inches/Hg		10/14/2024				X
Conductivity		451	µmhos/cm		10/14/2024				X
Depth to Water		72.85	ft		10/14/2024				X
Dissolved Oxygen		2.77	mg/L		10/14/2024				X
Eh (approx)		493	mV		10/14/2024				X
pH		6.1	Std Unit		10/14/2024				X
Temperature		61.8	deg F		10/14/2024				X
Turbidity		3.77	NTU		10/14/2024				X
Aluminum	U	0.05	mg/L	0.05	10/14/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	10/14/2024			SW846-6020B	=
Arsenic	U	0.005	mg/L	0.005	10/14/2024			SW846-6020B	=
Barium		0.223	mg/L	0.004	10/14/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	10/14/2024			SW846-6020B	=
Boron		0.0223	mg/L	0.015	10/14/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	10/14/2024			SW846-6020B	=
Calcium		23.2	mg/L	0.2	10/14/2024			SW846-6020B	=
Chromium	U	0.01	mg/L	0.01	10/14/2024			SW846-6020B	=
Cobalt	U	0.001	mg/L	0.001	10/14/2024			SW846-6020B	=
Copper	J	0.000982	mg/L	0.002	10/14/2024			SW846-6020B	=
Iron	U	0.1	mg/L	0.1	10/14/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	10/14/2024			SW846-6020B	=
Magnesium		10	mg/L	0.03	10/14/2024			SW846-6020B	=
Manganese	J	0.00323	mg/L	0.005	10/14/2024			SW846-6020B	=
Molybdenum	J	0.000972	mg/L	0.001	10/14/2024			SW846-6020B	=
Nickel		0.00896	mg/L	0.002	10/14/2024			SW846-6020B	=
Potassium		1.09	mg/L	0.3	10/14/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	10/14/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	10/14/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	10/14/2024			SW846-6020B	=
Sodium		55.9	mg/L	2.5	10/14/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	10/14/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	10/14/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	10/14/2024			SW846-6020B	=
Vanadium	U	0.02	mg/L	0.02	10/14/2024			SW846-6020B	=
Zinc	J	0.00374	mg/L	0.02	10/14/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	10/14/2024			SW846-7470A	=
Barium, Dissolved		0.217	mg/L	0.004	10/14/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	10/14/2024			SW846-6020B	UJ
Uranium, Dissolved	U	0.0002	mg/L	0.0002	10/14/2024			SW846-6020B	UJ
PCB-1016	U	0.0853	ug/L	0.0853	10/14/2024			SW846-8082A	UJ

PCB-1221	U	0.0853	ug/L	0.0853	10/14/2024			SW846-8082A	=
PCB-1232	U	0.0853	ug/L	0.0853	10/14/2024			SW846-8082A	=
PCB-1242	U	0.0853	ug/L	0.0853	10/14/2024			SW846-8082A	=
PCB-1248	U	0.0853	ug/L	0.0853	10/14/2024			SW846-8082A	=
PCB-1254	U	0.0853	ug/L	0.0853	10/14/2024			SW846-8082A	=
PCB-1260	U	0.0853	ug/L	0.0853	10/14/2024			SW846-8082A	UJ
PCB-1268	U	0.0853	ug/L	0.0853	10/14/2024			SW846-8082A	=
Polychlorinated biphenyl	U	0.0853	ug/L	0.0853	10/14/2024			SW846-8082A	UJ
Radium-226	U	0.511	pCi/L	1.46	10/14/2024	1.03	1.03	AN-1418	=
Strontium-90	U	-0.654	pCi/L	3.29	10/14/2024	1.58	1.58	EPA-905.0-M	=
Tritium	U	13.3	pCi/L	224	10/14/2024	127	128	EPA-906.0-M	=
Technetium-99	U	6.41	pCi/L	20.2	10/14/2024	11.9	11.9	HASL 300, Tc-02-RC M	UJ
Thorium-230	U	1.33	pCi/L	2.01	10/14/2024	1.41	1.43	HASL 300, Th-01-RC M	=
Alpha activity	U	0.365	pCi/L	7.17	10/14/2024	3.24	3.24	SW846-9310	=
Beta activity	U	2.35	pCi/L	14.4	10/14/2024	8.13	8.14	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.0188	ug/L	0.0188	10/14/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	10/14/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	10/14/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	10/14/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	10/14/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	10/14/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	10/14/2024			SW846-8260D	=
Acrylonitrile	U	5	ug/L	5	10/14/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	10/14/2024			SW846-8260D	=
Carbon tetrachloride	UY2	1	ug/L	1	10/14/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	10/14/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Ethylbenzene	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	10/14/2024			SW846-8260D	=
Methylene chloride	U	5	ug/L	5	10/14/2024			SW846-8260D	=

Styrene	U	1 ug/L	1	10/14/2024	SW846-8260D	=
Tetrachloroethene	UY1	1 ug/L	1	10/14/2024	SW846-8260D	=
Toluene	U	1 ug/L	1	10/14/2024	SW846-8260D	=
Total Xylene	U	3 ug/L	3	10/14/2024	SW846-8260D	=
trans-1,2-Dichloroethene	U	1 ug/L	1	10/14/2024	SW846-8260D	=
trans-1,3-Dichloropropene	U	1 ug/L	1	10/14/2024	SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5 ug/L	5	10/14/2024	SW846-8260D	=
Trichloroethene	U	1 ug/L	1	10/14/2024	SW846-8260D	=
Trichlorofluoromethane	U	1 ug/L	1	10/14/2024	SW846-8260D	=
Vinyl acetate	U	5 ug/L	5	10/14/2024	SW846-8260D	=
Vinyl chloride	U	1 ug/L	1	10/14/2024	SW846-8260D	=
Dissolved Solids		247 mg/L	10	10/14/2024	EPA-160.1	=
Iodide	U	0.5 mg/L	0.5	10/14/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	J	10 mg/L	20	10/14/2024	EPA-410.4	=
Cyanide	UN	0.2 mg/L	0.2	10/14/2024	SW846-9012B	=
Total Organic Halides (TOX)		10.4 ug/L	10	10/14/2024	SW846-9020B	=
Total Organic Carbon (TOC)	J	1.48 mg/L	2	10/14/2024	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:** 4th Quarter 2024
AKGWA Well Tag #: 8004-4820 **SAMPLE ID:** MW369UG1-25 Sample Type: REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide	J	0.411	mg/L	0.8	10/10/2024			SW846-9056A	=
Chloride	J	28.5	mg/L	250	10/10/2024			SW846-9056A	=
Fluoride	J	0.197	mg/L	4	10/10/2024			SW846-9056A	=
Nitrate as Nitrogen	J	1.05	mg/L	10	10/10/2024			SW846-9056A	=
Sulfate		8.91	mg/L	0.4	10/10/2024			SW846-9056A	=
Barometric Pressure Reading		30.14	Inches/Hg		10/10/2024				X
Conductivity		408	µmhos/cm		10/10/2024				X
Depth to Water		41.09	ft		10/10/2024				X
Dissolved Oxygen		3.44	mg/L		10/10/2024				X
Eh (approx)		469	mV		10/10/2024				X
pH		5.99	Std Unit		10/10/2024				X
Temperature		62.1	deg F		10/10/2024				X
Turbidity		2.16	NTU		10/10/2024				X
Aluminum	J	0.0452	mg/L	0.05	10/10/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	10/10/2024			SW846-6020B	=
Arsenic	U	0.005	mg/L	0.005	10/10/2024			SW846-6020B	=
Barium		0.341	mg/L	0.004	10/10/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	10/10/2024			SW846-6020B	=
Boron		0.0186	mg/L	0.015	10/10/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	10/10/2024			SW846-6020B	=
Calcium		15.5	mg/L	0.2	10/10/2024			SW846-6020B	=
Chromium	U	0.01	mg/L	0.01	10/10/2024			SW846-6020B	=
Cobalt		0.00421	mg/L	0.001	10/10/2024			SW846-6020B	=
Copper	J	0.00133	mg/L	0.002	10/10/2024			SW846-6020B	=
Iron	J	0.0662	mg/L	0.1	10/10/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	10/10/2024			SW846-6020B	=
Magnesium		6.34	mg/L	0.03	10/10/2024			SW846-6020B	=
Manganese	J	0.00193	mg/L	0.005	10/10/2024			SW846-6020B	=
Molybdenum	J	0.000207	mg/L	0.001	10/10/2024			SW846-6020B	=
Nickel		0.00344	mg/L	0.002	10/10/2024			SW846-6020B	=
Potassium		0.575	mg/L	0.3	10/10/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	10/10/2024			SW846-6020B	=
Selenium	J	0.00381	mg/L	0.005	10/10/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	10/10/2024			SW846-6020B	=
Sodium		44.5	mg/L	0.25	10/10/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	10/10/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	10/10/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	10/10/2024			SW846-6020B	=
Vanadium	BJ	0.00431	mg/L	0.02	10/10/2024			SW846-6020B	U
Zinc	J	0.00376	mg/L	0.02	10/10/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	10/10/2024			SW846-7470A	=
Barium, Dissolved		0.348	mg/L	0.004	10/10/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	10/10/2024			SW846-6020B	UJ
Uranium, Dissolved	U	0.0002	mg/L	0.0002	10/10/2024			SW846-6020B	UJ
PCB-1016	U	0.0974	ug/L	0.0974	10/10/2024			SW846-8082A	=

PCB-1221	U	0.0974	ug/L	0.0974	10/10/2024			SW846-8082A	=
PCB-1232	U	0.0974	ug/L	0.0974	10/10/2024			SW846-8082A	=
PCB-1242	U	0.0974	ug/L	0.0974	10/10/2024			SW846-8082A	=
PCB-1248	U	0.0974	ug/L	0.0974	10/10/2024			SW846-8082A	=
PCB-1254	U	0.0974	ug/L	0.0974	10/10/2024			SW846-8082A	=
PCB-1260	U	0.0974	ug/L	0.0974	10/10/2024			SW846-8082A	UJ
PCB-1268	U	0.0974	ug/L	0.0974	10/10/2024			SW846-8082A	=
Polychlorinated biphenyl	U	0.0974	ug/L	0.0974	10/10/2024			SW846-8082A	UJ
Radium-226	U	0.541	pCi/L	0.769	10/10/2024	0.534	0.535	AN-1418	=
Radium-228	U	1.71	pCi/L	4.89	10/10/2024	2.79	2.83	EPA-904.0-M	=
Strontium-90	U	-0.594	pCi/L	3.97	10/10/2024	1.89	1.89	EPA-905.0-M	=
Tritium	U	152	pCi/L	293	10/10/2024	174	177	EPA-906.0-M	=
Technetium-99		83.8	pCi/L	15.3	10/10/2024	12.5	15.6	HASL 300, Tc-02-RC M	=
Thorium-230	U	0.812	pCi/L	1.86	10/10/2024	1.16	1.17	HASL 300, Th-01-RC M	=
Thorium-232	U	0.104	pCi/L	1.04	10/10/2024	0.554	0.554	HASL 300, Th-01-RC M	=
Alpha activity	U	-1.2	pCi/L	7.03	10/10/2024	1.86	1.87	SW846-9310	=
Beta activity		41	pCi/L	9.97	10/10/2024	9.45	11.6	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.0194	ug/L	0.0194	10/10/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	10/10/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	10/10/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	10/10/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	10/10/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	10/10/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	10/10/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	10/10/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	10/10/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	10/10/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	10/10/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	10/10/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	10/10/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	10/10/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	10/10/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	10/10/2024			SW846-8260D	=
Acetone	BJ	2.31	ug/L	5	10/10/2024			SW846-8260D	U
Acrolein	U	5	ug/L	5	10/10/2024			SW846-8260D	=
Acrylonitrile	U	5	ug/L	5	10/10/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	10/10/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	10/10/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	10/10/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	10/10/2024			SW846-8260D	UJ
Bromomethane	U	1	ug/L	1	10/10/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	10/10/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	10/10/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	10/10/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	10/10/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	10/10/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	10/10/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	10/10/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	10/10/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	10/10/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	10/10/2024			SW846-8260D	=

Ethylbenzene	U	1 ug/L	1	10/10/2024	SW846-8260D	=
Iodomethane	U	5 ug/L	5	10/10/2024	SW846-8260D	=
Methylene chloride	U	5 ug/L	5	10/10/2024	SW846-8260D	=
Styrene	U	1 ug/L	1	10/10/2024	SW846-8260D	=
Tetrachloroethene	U	1 ug/L	1	10/10/2024	SW846-8260D	=
Toluene	U	1 ug/L	1	10/10/2024	SW846-8260D	=
Total Xylene	U	3 ug/L	3	10/10/2024	SW846-8260D	=
trans-1,2-Dichloroethene	U	1 ug/L	1	10/10/2024	SW846-8260D	=
trans-1,3-Dichloropropene	U	1 ug/L	1	10/10/2024	SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5 ug/L	5	10/10/2024	SW846-8260D	=
Trichloroethene	J	0.95 ug/L	1	10/10/2024	SW846-8260D	=
Trichlorofluoromethane	U	1 ug/L	1	10/10/2024	SW846-8260D	=
Vinyl acetate	U	5 ug/L	5	10/10/2024	SW846-8260D	=
Vinyl chloride	U	1 ug/L	1	10/10/2024	SW846-8260D	UJ
Dissolved Solids	*	178 mg/L	10	10/10/2024	EPA-160.1	=
Iodide	U	0.5 mg/L	0.5	10/10/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	J	9.81 mg/L	20	10/10/2024	EPA-410.4	=
Cyanide	U	0.2 mg/L	0.2	10/10/2024	SW846-9012B	=
Total Organic Halides (TOX)		15 ug/L	10	10/10/2024	SW846-9020B	=
Total Organic Carbon (TOC)	J	1.27 mg/L	2	10/10/2024	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:** 4th Quarter 2024

AKGWA Well Tag #: 8004-4818 **SAMPLE ID:** MW370UG1-25 Sample Type: REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide	J	0.612	mg/L	1	10/10/2024			SW846-9056A	=
Chloride	J	42	mg/L	250	10/10/2024			SW846-9056A	=
Fluoride	J	0.177	mg/L	4	10/10/2024			SW846-9056A	=
Nitrate as Nitrogen	J	1.1	mg/L	10	10/10/2024			SW846-9056A	=
Sulfate		19.5	mg/L	2	10/10/2024			SW846-9056A	=
Barometric Pressure Reading		30.16	Inches/Hg		10/10/2024				X
Conductivity		499	µmhos/cm		10/10/2024				X
Depth to Water		41.97	ft		10/10/2024				X
Dissolved Oxygen		4.3	mg/L		10/10/2024				X
Eh (approx)		496	mV		10/10/2024				X
pH		5.98	Std Unit		10/10/2024				X
Temperature		62.9	deg F		10/10/2024				X
Turbidity		1.1	NTU		10/10/2024				X
Aluminum	U	0.05	mg/L	0.05	10/10/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	10/10/2024			SW846-6020B	=
Arsenic	U	0.005	mg/L	0.005	10/10/2024			SW846-6020B	=
Barium		0.216	mg/L	0.004	10/10/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	10/10/2024			SW846-6020B	=
Boron		0.0926	mg/L	0.015	10/10/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	10/10/2024			SW846-6020B	=
Calcium		28.5	mg/L	0.2	10/10/2024			SW846-6020B	=
Chromium	U	0.01	mg/L	0.01	10/10/2024			SW846-6020B	=
Cobalt	U	0.001	mg/L	0.001	10/10/2024			SW846-6020B	=
Copper	J	0.000576	mg/L	0.002	10/10/2024			SW846-6020B	=
Iron	J	0.0375	mg/L	0.1	10/10/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	10/10/2024			SW846-6020B	=
Magnesium		12.1	mg/L	0.03	10/10/2024			SW846-6020B	=
Manganese	J	0.00216	mg/L	0.005	10/10/2024			SW846-6020B	=
Molybdenum	U	0.001	mg/L	0.001	10/10/2024			SW846-6020B	=
Nickel	U	0.002	mg/L	0.002	10/10/2024			SW846-6020B	=
Potassium		2.46	mg/L	0.3	10/10/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	10/10/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	10/10/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	10/10/2024			SW846-6020B	=
Sodium		42.6	mg/L	0.25	10/10/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	10/10/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	10/10/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	10/10/2024			SW846-6020B	=
Vanadium	BJ	0.00337	mg/L	0.02	10/10/2024			SW846-6020B	U
Zinc	U	0.02	mg/L	0.02	10/10/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	10/10/2024			SW846-7470A	=
Barium, Dissolved		0.204	mg/L	0.004	10/10/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	10/10/2024			SW846-6020B	UJ
Uranium, Dissolved	U	0.0002	mg/L	0.0002	10/10/2024			SW846-6020B	UJ
PCB-1016	U	0.0993	ug/L	0.0993	10/10/2024			SW846-8082A	=

PCB-1221	U	0.0993	ug/L	0.0993	10/10/2024			SW846-8082A	=
PCB-1232	U	0.0993	ug/L	0.0993	10/10/2024			SW846-8082A	=
PCB-1242	U	0.0993	ug/L	0.0993	10/10/2024			SW846-8082A	=
PCB-1248	U	0.0993	ug/L	0.0993	10/10/2024			SW846-8082A	=
PCB-1254	U	0.0993	ug/L	0.0993	10/10/2024			SW846-8082A	=
PCB-1260	U	0.0993	ug/L	0.0993	10/10/2024			SW846-8082A	UJ
PCB-1268	U	0.0993	ug/L	0.0993	10/10/2024			SW846-8082A	=
Polychlorinated biphenyl	U	0.0993	ug/L	0.0993	10/10/2024			SW846-8082A	UJ
Radium-226	U	0.566	pCi/L	0.638	10/10/2024	0.56	0.561	AN-1418	=
Radium-228	U	1.9	pCi/L	4.07	10/10/2024	2.4	2.44	EPA-904.0-M	=
Strontium-90	U	-1.44	pCi/L	4.01	10/10/2024	1.75	1.75	EPA-905.0-M	=
Tritium	U	226	pCi/L	292	10/10/2024	178	183	EPA-906.0-M	=
Technetium-99		20.6	pCi/L	15	10/10/2024	9.58	9.86	HASL 300, Tc-02-RC M	=
Thorium-230	U	0.264	pCi/L	1.97	10/10/2024	1.02	1.02	HASL 300, Th-01-RC M	=
Thorium-232	U	0.338	pCi/L	0.873	10/10/2024	0.654	0.655	HASL 300, Th-01-RC M	=
Alpha activity	U	4.4	pCi/L	6.54	10/10/2024	4.28	4.34	SW846-9310	=
Beta activity		14.3	pCi/L	7.94	10/10/2024	5.92	6.37	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.0192	ug/L	0.0192	10/10/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	10/10/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	10/10/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	10/10/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	10/10/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	10/10/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	10/10/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	10/10/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	10/10/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	10/10/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	10/10/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	10/10/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	10/10/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	10/10/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	10/10/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	10/10/2024			SW846-8260D	=
Acetone	BJ	2.38	ug/L	5	10/10/2024			SW846-8260D	U
Acrolein	U	5	ug/L	5	10/10/2024			SW846-8260D	=
Acrylonitrile	U	5	ug/L	5	10/10/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	10/10/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	10/10/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	10/10/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	10/10/2024			SW846-8260D	UJ
Bromomethane	U	1	ug/L	1	10/10/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	10/10/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	10/10/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	10/10/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	10/10/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	10/10/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	10/10/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	10/10/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	10/10/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	10/10/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	10/10/2024			SW846-8260D	=

Ethylbenzene	U	1 ug/L	1	10/10/2024	SW846-8260D	=
Iodomethane	U	5 ug/L	5	10/10/2024	SW846-8260D	=
Methylene chloride	U	5 ug/L	5	10/10/2024	SW846-8260D	=
Styrene	U	1 ug/L	1	10/10/2024	SW846-8260D	=
Tetrachloroethene	U	1 ug/L	1	10/10/2024	SW846-8260D	=
Toluene	U	1 ug/L	1	10/10/2024	SW846-8260D	=
Total Xylene	U	3 ug/L	3	10/10/2024	SW846-8260D	=
trans-1,2-Dichloroethene	U	1 ug/L	1	10/10/2024	SW846-8260D	=
trans-1,3-Dichloropropene	U	1 ug/L	1	10/10/2024	SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5 ug/L	5	10/10/2024	SW846-8260D	=
Trichloroethene		1.96 ug/L	1	10/10/2024	SW846-8260D	=
Trichlorofluoromethane	U	1 ug/L	1	10/10/2024	SW846-8260D	=
Vinyl acetate	U	5 ug/L	5	10/10/2024	SW846-8260D	=
Vinyl chloride	U	1 ug/L	1	10/10/2024	SW846-8260D	UJ
Dissolved Solids	*	221 mg/L	10	10/10/2024	EPA-160.1	=
Iodide	U	0.5 mg/L	0.5	10/10/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	U	20 mg/L	20	10/10/2024	EPA-410.4	=
Cyanide	U	0.2 mg/L	0.2	10/10/2024	SW846-9012B	=
Total Organic Halides (TOX)	H	10.3 ug/L	10	10/10/2024	SW846-9020B	J
Total Organic Carbon (TOC)	J	1.35 mg/L	2	10/10/2024	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:** URG **Period:** 4th Quarter 2024

AKGWA Well Tag #: 8004-4808 **SAMPLE ID:** MW372UG1-25 **Sample Type:** REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide	J	0.577	mg/L	0.8	10/10/2024			SW846-9056A	=
Chloride	J	38.2	mg/L	250	10/10/2024			SW846-9056A	=
Fluoride	J	0.198	mg/L	4	10/10/2024			SW846-9056A	=
Nitrate as Nitrogen	J	0.982	mg/L	10	10/10/2024			SW846-9056A	=
Sulfate		146	mg/L	4	10/10/2024			SW846-9056A	=
Barometric Pressure Reading		30.18	Inches/Hg		10/10/2024				X
Conductivity		791	µmhos/cm		10/10/2024				X
Depth to Water		36.26	ft		10/10/2024				X
Dissolved Oxygen		2.2	mg/L		10/10/2024				X
Eh (approx)		456	mV		10/10/2024				X
pH		6.09	Std Unit		10/10/2024				X
Temperature		63.7	deg F		10/10/2024				X
Turbidity		0	NTU		10/10/2024				X
Aluminum	U	0.05	mg/L	0.05	10/10/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	10/10/2024			SW846-6020B	=
Arsenic	U	0.005	mg/L	0.005	10/10/2024			SW846-6020B	=
Barium		0.0493	mg/L	0.004	10/10/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	10/10/2024			SW846-6020B	=
Boron		1.14	mg/L	0.15	10/10/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	10/10/2024			SW846-6020B	=
Calcium		64.5	mg/L	2	10/10/2024			SW846-6020B	=
Chromium	U	0.01	mg/L	0.01	10/10/2024			SW846-6020B	=
Cobalt	U	0.001	mg/L	0.001	10/10/2024			SW846-6020B	=
Copper	J	0.000605	mg/L	0.002	10/10/2024			SW846-6020B	=
Iron	J	0.0512	mg/L	0.1	10/10/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	10/10/2024			SW846-6020B	=
Magnesium		22.4	mg/L	0.03	10/10/2024			SW846-6020B	=
Manganese	J	0.00123	mg/L	0.005	10/10/2024			SW846-6020B	=
Molybdenum	U	0.001	mg/L	0.001	10/10/2024			SW846-6020B	=
Nickel	J	0.000627	mg/L	0.002	10/10/2024			SW846-6020B	=
Potassium		2	mg/L	0.3	10/10/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	10/10/2024			SW846-6020B	=
Selenium	J	0.00246	mg/L	0.005	10/10/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	10/10/2024			SW846-6020B	=
Sodium		61.2	mg/L	2.5	10/10/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	10/10/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	10/10/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	10/10/2024			SW846-6020B	=
Vanadium	U	0.02	mg/L	0.02	10/10/2024			SW846-6020B	=
Zinc	U	0.02	mg/L	0.02	10/10/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	10/10/2024			SW846-7470A	=
Barium, Dissolved		0.0486	mg/L	0.004	10/10/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	10/10/2024			SW846-6020B	UJ
Uranium, Dissolved	U	0.0002	mg/L	0.0002	10/10/2024			SW846-6020B	UJ
PCB-1016	U	0.0988	ug/L	0.0988	10/10/2024			SW846-8082A	=

PCB-1221	U	0.0988	ug/L	0.0988	10/10/2024			SW846-8082A	=
PCB-1232	U	0.0988	ug/L	0.0988	10/10/2024			SW846-8082A	=
PCB-1242	U	0.0988	ug/L	0.0988	10/10/2024			SW846-8082A	=
PCB-1248	U	0.0988	ug/L	0.0988	10/10/2024			SW846-8082A	=
PCB-1254	U	0.0988	ug/L	0.0988	10/10/2024			SW846-8082A	=
PCB-1260	U	0.0988	ug/L	0.0988	10/10/2024			SW846-8082A	UJ
PCB-1268	U	0.0988	ug/L	0.0988	10/10/2024			SW846-8082A	=
Polychlorinated biphenyl	U	0.0988	ug/L	0.0988	10/10/2024			SW846-8082A	UJ
Radium-226	U	0.218	pCi/L	0.718	10/10/2024	0.415	0.416	AN-1418	=
Radium-228	U	3.07	pCi/L	4.8	10/10/2024	2.94	3.04	EPA-904.0-M	=
Strontium-90	U	-0.641	pCi/L	4.11	10/10/2024	2	2	EPA-905.0-M	=
Tritium	U	-23.4	pCi/L	291	10/10/2024	162	162	EPA-906.0-M	=
Technetium-99		92	pCi/L	15.1	10/10/2024	12.7	16.4	HASL 300, Tc-02-RC M	=
Thorium-230	U	1.22	pCi/L	2.05	10/10/2024	1.37	1.38	HASL 300, Th-01-RC M	=
Thorium-232	U	-0.085	pCi/L	1.51	10/10/2024	0.622	0.622	HASL 300, Th-01-RC M	=
Alpha activity	U	7.84	pCi/L	11.4	10/10/2024	7.41	7.52	SW846-9310	=
Beta activity		48.5	pCi/L	9.08	10/10/2024	9.83	12.7	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.0189	ug/L	0.0189	10/10/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	10/10/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	10/10/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	10/10/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	10/10/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	10/10/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	10/10/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	10/10/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	10/10/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	10/10/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	10/10/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	10/10/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	10/10/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	10/10/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	10/10/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	10/10/2024			SW846-8260D	=
Acetone	BJ	2.05	ug/L	5	10/10/2024			SW846-8260D	U
Acrolein	U	5	ug/L	5	10/10/2024			SW846-8260D	=
Acrylonitrile	U	5	ug/L	5	10/10/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	10/10/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	10/10/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	10/10/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	10/10/2024			SW846-8260D	UJ
Bromomethane	U	1	ug/L	1	10/10/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	10/10/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	10/10/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	10/10/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	10/10/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	10/10/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	10/10/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	10/10/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	10/10/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	10/10/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	10/10/2024			SW846-8260D	=

Ethylbenzene	U	1 ug/L	1	10/10/2024	SW846-8260D	=
Iodomethane	U	5 ug/L	5	10/10/2024	SW846-8260D	=
Methylene chloride	U	5 ug/L	5	10/10/2024	SW846-8260D	=
Styrene	U	1 ug/L	1	10/10/2024	SW846-8260D	=
Tetrachloroethene	U	1 ug/L	1	10/10/2024	SW846-8260D	=
Toluene	U	1 ug/L	1	10/10/2024	SW846-8260D	=
Total Xylene	U	3 ug/L	3	10/10/2024	SW846-8260D	=
trans-1,2-Dichloroethene	U	1 ug/L	1	10/10/2024	SW846-8260D	=
trans-1,3-Dichloropropene	U	1 ug/L	1	10/10/2024	SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5 ug/L	5	10/10/2024	SW846-8260D	=
Trichloroethene	J	0.88 ug/L	1	10/10/2024	SW846-8260D	=
Trichlorofluoromethane	U	1 ug/L	1	10/10/2024	SW846-8260D	=
Vinyl acetate	U	5 ug/L	5	10/10/2024	SW846-8260D	=
Vinyl chloride	U	1 ug/L	1	10/10/2024	SW846-8260D	UJ
Dissolved Solids	*	442 mg/L	10	10/10/2024	EPA-160.1	=
Iodide	U	0.5 mg/L	0.5	10/10/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	J	9.81 mg/L	20	10/10/2024	EPA-410.4	=
Cyanide	U	0.2 mg/L	0.2	10/10/2024	SW846-9012B	=
Total Organic Halides (TOX)	HJ	8.14 ug/L	10	10/10/2024	SW846-9020B	J
Total Organic Carbon (TOC)	J	1.44 mg/L	2	10/10/2024	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:** 4th Quarter 2024

AKGWA Well Tag #: 8004-4792 **SAMPLE ID:** MW373UG1-25 Sample Type: REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide	J	0.506	mg/L	0.8	10/10/2024			SW846-9056A	=
Chloride	J	30.2	mg/L	4	10/10/2024			SW846-9056A	=
Fluoride	J	0.177	mg/L	4	10/10/2024			SW846-9056A	=
Nitrate as Nitrogen	J	0.635	mg/L	10	10/10/2024			SW846-9056A	=
Sulfate		201	mg/L	8	10/10/2024			SW846-9056A	=
Barometric Pressure Reading		30.18	Inches/Hg		10/10/2024				X
Conductivity		946	µmhos/cm		10/10/2024				X
Depth to Water		36.59	ft		10/10/2024				X
Dissolved Oxygen		1.52	mg/L		10/10/2024				X
Eh (approx)		478	mV		10/10/2024				X
pH		5.96	Std Unit		10/10/2024				X
Temperature		64.5	deg F		10/10/2024				X
Turbidity		0	NTU		10/10/2024				X
Aluminum	U	0.05	mg/L	0.05	10/10/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	10/10/2024			SW846-6020B	=
Arsenic	U	0.005	mg/L	0.005	10/10/2024			SW846-6020B	=
Barium		0.0297	mg/L	0.004	10/10/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	10/10/2024			SW846-6020B	=
Boron		2.17	mg/L	0.3	10/10/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	10/10/2024			SW846-6020B	=
Calcium		81.3	mg/L	4	10/10/2024			SW846-6020B	=
Chromium	U	0.01	mg/L	0.01	10/10/2024			SW846-6020B	=
Cobalt	U	0.001	mg/L	0.001	10/10/2024			SW846-6020B	=
Copper	J	0.00057	mg/L	0.002	10/10/2024			SW846-6020B	=
Iron	J	0.0493	mg/L	0.1	10/10/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	10/10/2024			SW846-6020B	=
Magnesium		29.1	mg/L	0.03	10/10/2024			SW846-6020B	=
Manganese		0.0263	mg/L	0.005	10/10/2024			SW846-6020B	=
Molybdenum	U	0.001	mg/L	0.001	10/10/2024			SW846-6020B	=
Nickel	J	0.00112	mg/L	0.002	10/10/2024			SW846-6020B	=
Potassium		2.66	mg/L	0.3	10/10/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	10/10/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	10/10/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	10/10/2024			SW846-6020B	=
Sodium		67.2	mg/L	5	10/10/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	10/10/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	10/10/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	10/10/2024			SW846-6020B	=
Vanadium	U	0.02	mg/L	0.02	10/10/2024			SW846-6020B	=
Zinc	U	0.02	mg/L	0.02	10/10/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	10/10/2024			SW846-7470A	=
Barium, Dissolved		0.0293	mg/L	0.004	10/10/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	10/10/2024			SW846-6020B	UJ
Uranium, Dissolved	U	0.0002	mg/L	0.0002	10/10/2024			SW846-6020B	UJ
PCB-1016	U	0.0982	ug/L	0.0982	10/10/2024			SW846-8082A	=

PCB-1221	U	0.0982	ug/L	0.0982	10/10/2024			SW846-8082A	=
PCB-1232	U	0.0982	ug/L	0.0982	10/10/2024			SW846-8082A	=
PCB-1242	U	0.0982	ug/L	0.0982	10/10/2024			SW846-8082A	=
PCB-1248	U	0.0982	ug/L	0.0982	10/10/2024			SW846-8082A	=
PCB-1254	U	0.0982	ug/L	0.0982	10/10/2024			SW846-8082A	=
PCB-1260	U	0.0982	ug/L	0.0982	10/10/2024			SW846-8082A	UJ
PCB-1268	U	0.0982	ug/L	0.0982	10/10/2024			SW846-8082A	=
Polychlorinated biphenyl	U	0.0982	ug/L	0.0982	10/10/2024			SW846-8082A	UJ
Radium-226	U	0.328	pCi/L	0.802	10/10/2024	0.488	0.488	AN-1418	=
Radium-228	U	2.8	pCi/L	4.61	10/10/2024	2.8	2.89	EPA-904.0-M	=
Strontium-90	U	-1.47	pCi/L	4.59	10/10/2024	2.19	2.19	EPA-905.0-M	=
Tritium	U	153	pCi/L	295	10/10/2024	176	178	EPA-906.0-M	=
Technetium-99	U	12.8	pCi/L	15.3	10/10/2024	9.36	9.47	HASL 300, Tc-02-RC M	=
Thorium-230	U	1.19	pCi/L	1.93	10/10/2024	1.3	1.32	HASL 300, Th-01-RC M	=
Thorium-232	U	-0.139	pCi/L	1.18	10/10/2024	0.42	0.421	HASL 300, Th-01-RC M	=
Alpha activity	U	4.37	pCi/L	9.72	10/10/2024	5.71	5.75	SW846-9310	=
Beta activity	U	8.19	pCi/L	9.97	10/10/2024	6.33	6.47	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.019	ug/L	0.019	10/10/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	10/10/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	10/10/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	10/10/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	10/10/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	10/10/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	10/10/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	10/10/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	10/10/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	10/10/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	10/10/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	10/10/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	10/10/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	10/10/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	10/10/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	10/10/2024			SW846-8260D	=
Acetone	BJ	2.21	ug/L	5	10/10/2024			SW846-8260D	U
Acrolein	U	5	ug/L	5	10/10/2024			SW846-8260D	=
Acrylonitrile	U	5	ug/L	5	10/10/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	10/10/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	10/10/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	10/10/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	10/10/2024			SW846-8260D	UJ
Bromomethane	U	1	ug/L	1	10/10/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	10/10/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	10/10/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	10/10/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	10/10/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	10/10/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	10/10/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	10/10/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	10/10/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	10/10/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	10/10/2024			SW846-8260D	=

Ethylbenzene	U	1 ug/L	1	10/10/2024	SW846-8260D	=
Iodomethane	U	5 ug/L	5	10/10/2024	SW846-8260D	=
Methylene chloride	U	5 ug/L	5	10/10/2024	SW846-8260D	=
Styrene	U	1 ug/L	1	10/10/2024	SW846-8260D	=
Tetrachloroethene	U	1 ug/L	1	10/10/2024	SW846-8260D	=
Toluene	U	1 ug/L	1	10/10/2024	SW846-8260D	=
Total Xylene	U	3 ug/L	3	10/10/2024	SW846-8260D	=
trans-1,2-Dichloroethene	U	1 ug/L	1	10/10/2024	SW846-8260D	=
trans-1,3-Dichloropropene	U	1 ug/L	1	10/10/2024	SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5 ug/L	5	10/10/2024	SW846-8260D	=
Trichloroethene		2.48 ug/L	1	10/10/2024	SW846-8260D	=
Trichlorofluoromethane	U	1 ug/L	1	10/10/2024	SW846-8260D	=
Vinyl acetate	U	5 ug/L	5	10/10/2024	SW846-8260D	=
Vinyl chloride	U	1 ug/L	1	10/10/2024	SW846-8260D	UJ
Dissolved Solids	*	552 mg/L	10	10/10/2024	EPA-160.1	=
Iodide	U	0.5 mg/L	0.5	10/10/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	U	20 mg/L	20	10/10/2024	EPA-410.4	=
Cyanide	U	0.2 mg/L	0.2	10/10/2024	SW846-9012B	=
Total Organic Halides (TOX)	H	11.8 ug/L	10	10/10/2024	SW846-9020B	J
Total Organic Carbon (TOC)	J	1.99 mg/L	2	10/10/2024	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:** 4th Quarter 2024

AKGWA Well Tag #: 8004-4809 **SAMPLE ID:** MW384SG1-25 **Sample Type:** REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide	J	0.314	mg/L	0.8	10/14/2024			SW846-9056A	=
Chloride	J	21.3	mg/L	250	10/14/2024			SW846-9056A	=
Fluoride	J	0.201	mg/L	4	10/14/2024			SW846-9056A	=
Nitrate as Nitrogen	HJ	0.762	mg/L	10	10/14/2024			SW846-9056A	J
Sulfate		18	mg/L	0.4	10/14/2024			SW846-9056A	=
Barometric Pressure Reading		30.2	Inches/Hg		10/14/2024				X
Conductivity		384	µmhos/cm		10/14/2024				X
Depth to Water		42.19	ft		10/14/2024				X
Dissolved Oxygen		6	mg/L		10/14/2024				X
Eh (approx)		551	mV		10/14/2024				X
pH		6.07	Std Unit		10/14/2024				X
Temperature		63.2	deg F		10/14/2024				X
Turbidity		3.69	NTU		10/14/2024				X
Aluminum	U	0.05	mg/L	0.05	10/14/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	10/14/2024			SW846-6020B	=
Arsenic	U	0.005	mg/L	0.005	10/14/2024			SW846-6020B	=
Barium		0.193	mg/L	0.004	10/14/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	10/14/2024			SW846-6020B	=
Boron		0.0564	mg/L	0.015	10/14/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	10/14/2024			SW846-6020B	=
Calcium		21.7	mg/L	0.2	10/14/2024			SW846-6020B	=
Chromium	U	0.01	mg/L	0.01	10/14/2024			SW846-6020B	=
Cobalt	U	0.001	mg/L	0.001	10/14/2024			SW846-6020B	=
Copper	J	0.000968	mg/L	0.002	10/14/2024			SW846-6020B	=
Iron	U	0.1	mg/L	0.1	10/14/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	10/14/2024			SW846-6020B	=
Magnesium		9.03	mg/L	0.03	10/14/2024			SW846-6020B	=
Manganese	U	0.005	mg/L	0.005	10/14/2024			SW846-6020B	=
Molybdenum	U	0.001	mg/L	0.001	10/14/2024			SW846-6020B	=
Nickel	U	0.002	mg/L	0.002	10/14/2024			SW846-6020B	=
Potassium		1.3	mg/L	0.3	10/14/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	10/14/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	10/14/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	10/14/2024			SW846-6020B	=
Sodium		41	mg/L	0.25	10/14/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	10/14/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	10/14/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	10/14/2024			SW846-6020B	=
Vanadium	U	0.02	mg/L	0.02	10/14/2024			SW846-6020B	=
Zinc	J	0.00424	mg/L	0.02	10/14/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	10/14/2024			SW846-7470A	=
Barium, Dissolved		0.193	mg/L	0.004	10/14/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	10/14/2024			SW846-6020B	UJ
Uranium, Dissolved	U	0.0002	mg/L	0.0002	10/14/2024			SW846-6020B	UJ
PCB-1016	U	0.0849	ug/L	0.0849	10/14/2024			SW846-8082A	UJ

PCB-1221	U	0.0849	ug/L	0.0849	10/14/2024			SW846-8082A	=
PCB-1232	U	0.0849	ug/L	0.0849	10/14/2024			SW846-8082A	=
PCB-1242	U	0.0849	ug/L	0.0849	10/14/2024			SW846-8082A	=
PCB-1248	U	0.0849	ug/L	0.0849	10/14/2024			SW846-8082A	=
PCB-1254	U	0.0849	ug/L	0.0849	10/14/2024			SW846-8082A	=
PCB-1260	U	0.0849	ug/L	0.0849	10/14/2024			SW846-8082A	UJ
PCB-1268	U	0.0849	ug/L	0.0849	10/14/2024			SW846-8082A	=
Polychlorinated biphenyl	U	0.0849	ug/L	0.0849	10/14/2024			SW846-8082A	UJ
Radium-226	U	0.118	pCi/L	1.66	10/14/2024	0.826	0.826	AN-1418	=
Strontium-90	U	-1.17	pCi/L	3.37	10/14/2024	1.61	1.61	EPA-905.0-M	=
Tritium	U	146	pCi/L	228	10/14/2024	137	140	EPA-906.0-M	=
Technetium-99		35.1	pCi/L	21.2	10/14/2024	13.3	13.9	HASL 300, Tc-02-RC M	J
Thorium-230	U	0.338	pCi/L	1.96	10/14/2024	1.04	1.05	HASL 300, Th-01-RC M	=
Alpha activity	U	-2.27	pCi/L	7.71	10/14/2024	2.45	2.46	SW846-9310	=
Beta activity		20.2	pCi/L	9.66	10/14/2024	7.44	8.14	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.0191	ug/L	0.0191	10/14/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	10/14/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	10/14/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	10/14/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	10/14/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	10/14/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	10/14/2024			SW846-8260D	=
Acrylonitrile	U	5	ug/L	5	10/14/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	10/14/2024			SW846-8260D	=
Carbon tetrachloride	UY2	1	ug/L	1	10/14/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	10/14/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Ethylbenzene	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	10/14/2024			SW846-8260D	=
Methylene chloride	U	5	ug/L	5	10/14/2024			SW846-8260D	=

Styrene	U	1 ug/L	1	10/14/2024	SW846-8260D	=
Tetrachloroethene	UY1	1 ug/L	1	10/14/2024	SW846-8260D	=
Toluene	U	1 ug/L	1	10/14/2024	SW846-8260D	=
Total Xylene	U	3 ug/L	3	10/14/2024	SW846-8260D	=
trans-1,2-Dichloroethene	U	1 ug/L	1	10/14/2024	SW846-8260D	=
trans-1,3-Dichloropropene	U	1 ug/L	1	10/14/2024	SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5 ug/L	5	10/14/2024	SW846-8260D	=
Trichloroethene	J	0.49 ug/L	1	10/14/2024	SW846-8260D	=
Trichlorofluoromethane	U	1 ug/L	1	10/14/2024	SW846-8260D	=
Vinyl acetate	U	5 ug/L	5	10/14/2024	SW846-8260D	=
Vinyl chloride	U	1 ug/L	1	10/14/2024	SW846-8260D	=
Dissolved Solids		184 mg/L	10	10/14/2024	EPA-160.1	=
Iodide	U	0.5 mg/L	0.5	10/14/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	U	20 mg/L	20	10/14/2024	EPA-410.4	=
Cyanide	UN	0.2 mg/L	0.2	10/14/2024	SW846-9012B	=
Total Organic Halides (TOX)	J	8.4 ug/L	10	10/14/2024	SW846-9020B	=
Total Organic Carbon (TOC)	J	1.34 mg/L	2	10/14/2024	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:** 4th Quarter 2024

AKGWA Well Tag #: 8004-4810 **SAMPLE ID:** MW385SG1-25 **Sample Type:** REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide	J	0.335	mg/L	0.8	10/14/2024			SW846-9056A	=
Chloride	J	21.7	mg/L	250	10/14/2024			SW846-9056A	=
Fluoride	J	0.198	mg/L	4	10/14/2024			SW846-9056A	=
Nitrate as Nitrogen	HJ	0.64	mg/L	10	10/14/2024			SW846-9056A	J
Sulfate		19.6	mg/L	0.4	10/14/2024			SW846-9056A	=
Barometric Pressure Reading		30.18	Inches/Hg		10/14/2024				X
Conductivity		420	µmhos/cm		10/14/2024				X
Depth to Water		42.58	ft		10/14/2024				X
Dissolved Oxygen		2.69	mg/L		10/14/2024				X
Eh (approx)		508	mV		10/14/2024				X
pH		6.26	Std Unit		10/14/2024				X
Temperature		62.8	deg F		10/14/2024				X
Turbidity		5.94	NTU		10/14/2024				X
Aluminum	U	0.05	mg/L	0.05	10/14/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	10/14/2024			SW846-6020B	=
Arsenic	U	0.005	mg/L	0.005	10/14/2024			SW846-6020B	=
Barium		0.203	mg/L	0.004	10/14/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	10/14/2024			SW846-6020B	=
Boron		0.0595	mg/L	0.015	10/14/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	10/14/2024			SW846-6020B	=
Calcium		29.1	mg/L	0.2	10/14/2024			SW846-6020B	=
Chromium	U	0.01	mg/L	0.01	10/14/2024			SW846-6020B	=
Cobalt	J	0.00046	mg/L	0.001	10/14/2024			SW846-6020B	=
Copper	J	0.000831	mg/L	0.002	10/14/2024			SW846-6020B	=
Iron	U	0.1	mg/L	0.1	10/14/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	10/14/2024			SW846-6020B	=
Magnesium		11.8	mg/L	0.03	10/14/2024			SW846-6020B	=
Manganese	J	0.00449	mg/L	0.005	10/14/2024			SW846-6020B	=
Molybdenum	J	0.000203	mg/L	0.001	10/14/2024			SW846-6020B	=
Nickel	J	0.000857	mg/L	0.002	10/14/2024			SW846-6020B	=
Potassium		1.62	mg/L	0.3	10/14/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	10/14/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	10/14/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	10/14/2024			SW846-6020B	=
Sodium		37.2	mg/L	0.25	10/14/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	10/14/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	10/14/2024			SW846-6020B	=
Uranium	J	0.000082	mg/L	0.0002	10/14/2024			SW846-6020B	=
Vanadium	U	0.02	mg/L	0.02	10/14/2024			SW846-6020B	=
Zinc	J	0.00341	mg/L	0.02	10/14/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	10/14/2024			SW846-7470A	=
Barium, Dissolved		0.204	mg/L	0.004	10/14/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	10/14/2024			SW846-6020B	UJ
Uranium, Dissolved	J	0.000081	mg/L	0.0002	10/14/2024			SW846-6020B	J
PCB-1016	U	0.1	ug/L	0.1	10/14/2024			SW846-8082A	UJ

PCB-1221	U	0.1	ug/L	0.1	10/14/2024			SW846-8082A	=
PCB-1232	U	0.1	ug/L	0.1	10/14/2024			SW846-8082A	=
PCB-1242	U	0.1	ug/L	0.1	10/14/2024			SW846-8082A	=
PCB-1248	U	0.1	ug/L	0.1	10/14/2024			SW846-8082A	=
PCB-1254	U	0.1	ug/L	0.1	10/14/2024			SW846-8082A	=
PCB-1260	U	0.1	ug/L	0.1	10/14/2024			SW846-8082A	UJ
PCB-1268	U	0.1	ug/L	0.1	10/14/2024			SW846-8082A	=
Polychlorinated biphenyl	U	0.1	ug/L	0.1	10/14/2024			SW846-8082A	UJ
Radium-226	U	0.268	pCi/L	0.505	10/14/2024	0.336	0.336	AN-1418	=
Strontium-90	U	1.45	pCi/L	3.61	10/14/2024	2.1	2.11	EPA-905.0-M	=
Tritium	U	-61.1	pCi/L	233	10/14/2024	128	128	EPA-906.0-M	=
Technetium-99		40.9	pCi/L	20.4	10/14/2024	13	13.8	HASL 300, Tc-02-RC M	J
Thorium-230	U	-0.0861	pCi/L	2.56	10/14/2024	1.13	1.13	HASL 300, Th-01-RC M	=
Alpha activity	U	-0.862	pCi/L	8.9	10/14/2024	3.87	3.88	SW846-9310	=
Beta activity		24	pCi/L	9.95	10/14/2024	7.9	8.82	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.0191	ug/L	0.0191	10/14/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	10/14/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	10/14/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	10/14/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	10/14/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	10/14/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	10/14/2024			SW846-8260D	=
Acrylonitrile	U	5	ug/L	5	10/14/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	10/14/2024			SW846-8260D	=
Carbon tetrachloride	UY2	1	ug/L	1	10/14/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	10/14/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Ethylbenzene	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	10/14/2024			SW846-8260D	=
Methylene chloride	U	5	ug/L	5	10/14/2024			SW846-8260D	=

Styrene	U	1 ug/L	1	10/14/2024	SW846-8260D	=
Tetrachloroethene	UY1	1 ug/L	1	10/14/2024	SW846-8260D	=
Toluene	U	1 ug/L	1	10/14/2024	SW846-8260D	=
Total Xylene	U	3 ug/L	3	10/14/2024	SW846-8260D	=
trans-1,2-Dichloroethene	U	1 ug/L	1	10/14/2024	SW846-8260D	=
trans-1,3-Dichloropropene	U	1 ug/L	1	10/14/2024	SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5 ug/L	5	10/14/2024	SW846-8260D	=
Trichloroethene	U	1 ug/L	1	10/14/2024	SW846-8260D	=
Trichlorofluoromethane	U	1 ug/L	1	10/14/2024	SW846-8260D	=
Vinyl acetate	U	5 ug/L	5	10/14/2024	SW846-8260D	=
Vinyl chloride	U	1 ug/L	1	10/14/2024	SW846-8260D	=
Dissolved Solids		204 mg/L	10	10/14/2024	EPA-160.1	=
Iodide	U	0.5 mg/L	0.5	10/14/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	U	20 mg/L	20	10/14/2024	EPA-410.4	=
Cyanide	UN	0.2 mg/L	0.2	10/14/2024	SW846-9012B	=
Total Organic Halides (TOX)	J	5.36 ug/L	10	10/14/2024	SW846-9020B	=
Total Organic Carbon (TOC)	J	1.42 mg/L	2	10/14/2024	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:** 4th Quarter 2024

AKGWA Well Tag #: 8004-4804 **SAMPLE ID:** MW386DSG1-25 **Sample Type:** FR

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide	J	0.131	mg/L	0.2	10/16/2024			SW846-9056A	=
Chloride	JW	9.22	mg/L	250	10/16/2024			SW846-9056A	=
Fluoride	J	0.886	mg/L	4	10/16/2024			SW846-9056A	=
Nitrate as Nitrogen	U	10	mg/L	10	10/16/2024			SW846-9056A	=
Sulfate		30.6	mg/L	0.8	10/16/2024			SW846-9056A	=
Aluminum	U	0.05	mg/L	0.05	10/16/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	10/16/2024			SW846-6020B	=
Arsenic	J	0.00343	mg/L	0.005	10/16/2024			SW846-6020B	=
Barium		0.181	mg/L	0.004	10/16/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	10/16/2024			SW846-6020B	=
Boron		0.0316	mg/L	0.015	10/16/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	10/16/2024			SW846-6020B	=
Calcium		19.3	mg/L	0.2	10/16/2024			SW846-6020B	=
Chromium	U	0.01	mg/L	0.01	10/16/2024			SW846-6020B	=
Cobalt		0.0125	mg/L	0.001	10/16/2024			SW846-6020B	=
Copper	J	0.000828	mg/L	0.002	10/16/2024			SW846-6020B	=
Iron		1.17	mg/L	0.1	10/16/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	10/16/2024			SW846-6020B	=
Magnesium		8.46	mg/L	0.03	10/16/2024			SW846-6020B	=
Manganese		1.12	mg/L	0.1	10/16/2024			SW846-6020B	=
Molybdenum		0.00101	mg/L	0.001	10/16/2024			SW846-6020B	=
Nickel		0.0026	mg/L	0.002	10/16/2024			SW846-6020B	=
Potassium		0.3	mg/L	0.3	10/16/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	10/16/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	10/16/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	10/16/2024			SW846-6020B	=
Sodium		124	mg/L	5	10/16/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	10/16/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	10/16/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	10/16/2024			SW846-6020B	=
Vanadium	BJ	0.00824	mg/L	0.02	10/16/2024			SW846-6020B	U
Zinc	U	0.02	mg/L	0.02	10/16/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	10/16/2024			SW846-7470A	=
Barium, Dissolved		0.115	mg/L	0.004	10/16/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	10/16/2024			SW846-6020B	UJ
Uranium, Dissolved	U	0.0002	mg/L	0.0002	10/16/2024			SW846-6020B	UJ
PCB-1016	U	0.101	ug/L	0.101	10/16/2024			SW846-8082A	=
PCB-1221	U	0.101	ug/L	0.101	10/16/2024			SW846-8082A	=
PCB-1232	U	0.101	ug/L	0.101	10/16/2024			SW846-8082A	=
PCB-1242	U	0.101	ug/L	0.101	10/16/2024			SW846-8082A	=
PCB-1248	U	0.101	ug/L	0.101	10/16/2024			SW846-8082A	=
PCB-1254	U	0.101	ug/L	0.101	10/16/2024			SW846-8082A	=
PCB-1260	U	0.101	ug/L	0.101	10/16/2024			SW846-8082A	=
PCB-1268	U	0.101	ug/L	0.101	10/16/2024			SW846-8082A	=
Polychlorinated biphenyl	U	0.101	ug/L	0.101	10/16/2024			SW846-8082A	=

Radium-226	U	0.204	pCi/L	0.83	10/16/2024	0.502	0.502	AN-1418	=
Strontium-90	U	0.576	pCi/L	3.96	10/16/2024	2.11	2.11	EPA-905.0-M	=
Tritium	U	79	pCi/L	232	10/16/2024	135	136	EPA-906.0-M	=
Technetium-99	U	-4.64	pCi/L	16.9	10/16/2024	9.14	9.14	HASL 300, Tc-02-RC M	=
Thorium-230		4.21	pCi/L	1.53	10/16/2024	1.74	1.8	HASL 300, Th-01-RC M	J
Alpha activity	U	4.39	pCi/L	9.56	10/16/2024	5.64	5.69	SW846-9310	=
Beta activity	U	6.06	pCi/L	9.08	10/16/2024	5.62	5.71	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.0189	ug/L	0.0189	10/16/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	10/16/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	10/16/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	10/16/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	10/16/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	10/16/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	10/16/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	10/16/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	10/16/2024			SW846-8260D	=
Acrylonitrile	U	5	ug/L	5	10/16/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	10/16/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	10/16/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Ethylbenzene	UY2	1	ug/L	1	10/16/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	10/16/2024			SW846-8260D	=
Methylene chloride	U	5	ug/L	5	10/16/2024			SW846-8260D	=
Styrene	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Toluene	UY2	1	ug/L	1	10/16/2024			SW846-8260D	=
Total Xylene	UY2	3	ug/L	3	10/16/2024			SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	10/16/2024			SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	10/16/2024			SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	10/16/2024			SW846-8260D	=
Trichloroethene	U	1	ug/L	1	10/16/2024			SW846-8260D	=

Trichlorofluoromethane	U	1 ug/L	1	10/16/2024	SW846-8260D	=
Vinyl acetate	U	5 ug/L	5	10/16/2024	SW846-8260D	=
Vinyl chloride	UY1	1 ug/L	1	10/16/2024	SW846-8260D	=
Dissolved Solids		401 mg/L	10	10/16/2024	EPA-160.1	=
Iodide	U	0.5 mg/L	0.5	10/16/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)		24.3 mg/L	20	10/16/2024	EPA-410.4	=
Cyanide	U	0.2 mg/L	0.2	10/16/2024	SW846-9012B	=
Total Organic Halides (TOX)	H	154 ug/L	10	10/16/2024	SW846-9020B	J
Total Organic Carbon (TOC)		7.96 mg/L	2	10/16/2024	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:** 4th Quarter 2024

AKGWA Well Tag #: 8004-4804 **SAMPLE ID:** MW386SG1-25 **Sample Type:** REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide	J	0.127	mg/L	0.2	10/16/2024			SW846-9056A	=
Chloride	JW	9.31	mg/L	250	10/16/2024			SW846-9056A	=
Fluoride	J	0.888	mg/L	4	10/16/2024			SW846-9056A	=
Nitrate as Nitrogen	U	10	mg/L	10	10/16/2024			SW846-9056A	=
Sulfate		32.1	mg/L	0.8	10/16/2024			SW846-9056A	=
Barometric Pressure Reading		30.47	Inches/Hg		10/16/2024				X
Conductivity		681	µmhos/cm		10/16/2024				X
Depth to Water		20.31	ft		10/16/2024				X
Dissolved Oxygen		1.34	mg/L		10/16/2024				X
Eh (approx)		220	mV		10/16/2024				X
pH		6.75	Std Unit		10/16/2024				X
Temperature		60.9	deg F		10/16/2024				X
Turbidity		0	NTU		10/16/2024				X
Aluminum	J	0.0291	mg/L	0.05	10/16/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	10/16/2024			SW846-6020B	=
Arsenic	J	0.00308	mg/L	0.005	10/16/2024			SW846-6020B	=
Barium		0.175	mg/L	0.004	10/16/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	10/16/2024			SW846-6020B	=
Boron		0.0287	mg/L	0.015	10/16/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	10/16/2024			SW846-6020B	=
Calcium		19.1	mg/L	0.2	10/16/2024			SW846-6020B	=
Chromium	U	0.01	mg/L	0.01	10/16/2024			SW846-6020B	=
Cobalt		0.0116	mg/L	0.001	10/16/2024			SW846-6020B	=
Copper	J	0.000601	mg/L	0.002	10/16/2024			SW846-6020B	=
Iron		1.19	mg/L	0.1	10/16/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	10/16/2024			SW846-6020B	=
Magnesium		8.28	mg/L	0.03	10/16/2024			SW846-6020B	=
Manganese		0.981	mg/L	0.005	10/16/2024			SW846-6020B	=
Molybdenum	J	0.00095	mg/L	0.001	10/16/2024			SW846-6020B	U
Nickel		0.00259	mg/L	0.002	10/16/2024			SW846-6020B	=
Potassium	J	0.296	mg/L	0.3	10/16/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	10/16/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	10/16/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	10/16/2024			SW846-6020B	=
Sodium		122	mg/L	5	10/16/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	10/16/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	10/16/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	10/16/2024			SW846-6020B	=
Vanadium	BJ	0.00882	mg/L	0.02	10/16/2024			SW846-6020B	U
Zinc	U	0.02	mg/L	0.02	10/16/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	10/16/2024			SW846-7470A	=
Barium, Dissolved		0.116	mg/L	0.004	10/16/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	10/16/2024			SW846-6020B	UJ
Uranium, Dissolved	U	0.0002	mg/L	0.0002	10/16/2024			SW846-6020B	UJ
PCB-1016	U	0.105	ug/L	0.105	10/16/2024			SW846-8082A	=

PCB-1221	U	0.105	ug/L	0.105	10/16/2024			SW846-8082A	=
PCB-1232	U	0.105	ug/L	0.105	10/16/2024			SW846-8082A	=
PCB-1242	U	0.105	ug/L	0.105	10/16/2024			SW846-8082A	=
PCB-1248	U	0.105	ug/L	0.105	10/16/2024			SW846-8082A	=
PCB-1254	U	0.105	ug/L	0.105	10/16/2024			SW846-8082A	=
PCB-1260	U	0.105	ug/L	0.105	10/16/2024			SW846-8082A	=
PCB-1268	U	0.105	ug/L	0.105	10/16/2024			SW846-8082A	=
Polychlorinated biphenyl	U	0.105	ug/L	0.105	10/16/2024			SW846-8082A	=
Radium-226	U	-0.0293	pCi/L	0.999	10/16/2024	0.422	0.422	AN-1418	=
Strontium-90	U	3.61	pCi/L	4.88	10/16/2024	3.08	3.13	EPA-905.0-M	=
Tritium	U	-3.9	pCi/L	231	10/16/2024	129	129	EPA-906.0-M	=
Technetium-99	U	-1.76	pCi/L	16.5	10/16/2024	9.11	9.11	HASL 300, Tc-02-RC M	=
Thorium-230		1.94	pCi/L	1.75	10/16/2024	1.38	1.4	HASL 300, Th-01-RC M	J
Alpha activity	U	0.447	pCi/L	10.2	10/16/2024	4.81	4.81	SW846-9310	=
Beta activity	U	2.96	pCi/L	9.29	10/16/2024	5.3	5.32	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.0189	ug/L	0.0189	10/16/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	10/16/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	10/16/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	10/16/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	10/16/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	10/16/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	10/16/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	10/16/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	10/16/2024			SW846-8260D	=
Acrylonitrile	U	5	ug/L	5	10/16/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	10/16/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	10/16/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Ethylbenzene	UY2	1	ug/L	1	10/16/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	10/16/2024			SW846-8260D	=
Methylene chloride	U	5	ug/L	5	10/16/2024			SW846-8260D	=

Styrene	U	1 ug/L	1	10/16/2024	SW846-8260D	=
Tetrachloroethene	U	1 ug/L	1	10/16/2024	SW846-8260D	=
Toluene	UY2	1 ug/L	1	10/16/2024	SW846-8260D	=
Total Xylene	UY2	3 ug/L	3	10/16/2024	SW846-8260D	=
trans-1,2-Dichloroethene	U	1 ug/L	1	10/16/2024	SW846-8260D	=
trans-1,3-Dichloropropene	U	1 ug/L	1	10/16/2024	SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5 ug/L	5	10/16/2024	SW846-8260D	=
Trichloroethene	U	1 ug/L	1	10/16/2024	SW846-8260D	=
Trichlorofluoromethane	U	1 ug/L	1	10/16/2024	SW846-8260D	=
Vinyl acetate	U	5 ug/L	5	10/16/2024	SW846-8260D	=
Vinyl chloride	UY1	1 ug/L	1	10/16/2024	SW846-8260D	=
Dissolved Solids		407 mg/L	10	10/16/2024	EPA-160.1	=
Iodide	U	0.5 mg/L	0.5	10/16/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)		24.3 mg/L	20	10/16/2024	EPA-410.4	=
Cyanide	U	0.2 mg/L	0.2	10/16/2024	SW846-9012B	=
Total Organic Halides (TOX)	H	173 ug/L	10	10/16/2024	SW846-9020B	J
Total Organic Carbon (TOC)		8.17 mg/L	2	10/16/2024	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:** URGAs **Period:** 4th Quarter 2024

AKGWA Well Tag #: 8004-4815 **SAMPLE ID:** MW387SG1-25 Sample Type: REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide	J	0.55	mg/L	0.8	10/16/2024			SW846-9056A	=
Chloride	JW	35.7	mg/L	250	10/16/2024			SW846-9056A	J
Fluoride	J	0.952	mg/L	4	10/16/2024			SW846-9056A	=
Nitrate as Nitrogen	J	0.931	mg/L	10	10/16/2024			SW846-9056A	=
Sulfate		25.3	mg/L	1.6	10/16/2024			SW846-9056A	=
Barometric Pressure Reading		30.45	Inches/Hg		10/16/2024				X
Conductivity		608	µmhos/cm		10/16/2024				X
Depth to Water		40.19	ft		10/16/2024				X
Dissolved Oxygen		4.63	mg/L		10/16/2024				X
Eh (approx)		454	mV		10/16/2024				X
pH		6.22	Std Unit		10/16/2024				X
Temperature		59.1	deg F		10/16/2024				X
Turbidity		0	NTU		10/16/2024				X
Aluminum	U	0.05	mg/L	0.05	10/16/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	10/16/2024			SW846-6020B	=
Arsenic	J	0.00205	mg/L	0.005	10/16/2024			SW846-6020B	=
Barium		0.0938	mg/L	0.004	10/16/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	10/16/2024			SW846-6020B	=
Boron		0.0406	mg/L	0.015	10/16/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	10/16/2024			SW846-6020B	=
Calcium		36.6	mg/L	0.2	10/16/2024			SW846-6020B	=
Chromium	J	0.00394	mg/L	0.01	10/16/2024			SW846-6020B	=
Cobalt	U	0.001	mg/L	0.001	10/16/2024			SW846-6020B	=
Copper	J	0.00114	mg/L	0.002	10/16/2024			SW846-6020B	=
Iron	J	0.0461	mg/L	0.1	10/16/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	10/16/2024			SW846-6020B	=
Magnesium		15.8	mg/L	0.03	10/16/2024			SW846-6020B	=
Manganese	J	0.00379	mg/L	0.005	10/16/2024			SW846-6020B	=
Molybdenum	U	0.001	mg/L	0.001	10/16/2024			SW846-6020B	=
Nickel	U	0.002	mg/L	0.002	10/16/2024			SW846-6020B	=
Potassium		1.76	mg/L	0.3	10/16/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	10/16/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	10/16/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	10/16/2024			SW846-6020B	=
Sodium		49.5	mg/L	5	10/16/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	10/16/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	10/16/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	10/16/2024			SW846-6020B	=
Vanadium	BJ	0.0059	mg/L	0.02	10/16/2024			SW846-6020B	U
Zinc	J	0.00333	mg/L	0.02	10/16/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	10/16/2024			SW846-7470A	=
Barium, Dissolved		0.0925	mg/L	0.004	10/16/2024			SW846-6020B	J
Chromium, Dissolved	J	0.00365	mg/L	0.01	10/16/2024			SW846-6020B	J
Uranium, Dissolved	U	0.0002	mg/L	0.0002	10/16/2024			SW846-6020B	UJ
PCB-1016	U	0.0909	ug/L	0.0909	10/16/2024			SW846-8082A	=

PCB-1221	U	0.0909	ug/L	0.0909	10/16/2024			SW846-8082A	=
PCB-1232	U	0.0909	ug/L	0.0909	10/16/2024			SW846-8082A	=
PCB-1242	U	0.0909	ug/L	0.0909	10/16/2024			SW846-8082A	=
PCB-1248	U	0.0909	ug/L	0.0909	10/16/2024			SW846-8082A	=
PCB-1254	U	0.0909	ug/L	0.0909	10/16/2024			SW846-8082A	=
PCB-1260	U	0.0909	ug/L	0.0909	10/16/2024			SW846-8082A	=
PCB-1268	U	0.0909	ug/L	0.0909	10/16/2024			SW846-8082A	=
Polychlorinated biphenyl	U	0.0909	ug/L	0.0909	10/16/2024			SW846-8082A	=
Radium-226	U	0.635	pCi/L	1.05	10/16/2024	0.752	0.753	AN-1418	=
Strontium-90	U	-1.48	pCi/L	3.01	10/16/2024	1.17	1.17	EPA-905.0-M	=
Tritium	U	102	pCi/L	227	10/16/2024	134	135	EPA-906.0-M	=
Technetium-99		154	pCi/L	14.1	10/16/2024	15.7	23.3	HASL 300, Tc-02-RC M	=
Thorium-230		1.92	pCi/L	1.83	10/16/2024	1.42	1.44	HASL 300, Th-01-RC M	=
Alpha activity	U	-3.88	pCi/L	10.1	10/16/2024	3.21	3.22	SW846-9310	UJ
Beta activity		27.5	pCi/L	9.06	10/16/2024	7.96	9.13	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.0191	ug/L	0.0191	10/16/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	10/16/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	10/16/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	10/16/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	10/16/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	10/16/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	10/16/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	10/16/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	10/16/2024			SW846-8260D	=
Acrylonitrile	U	5	ug/L	5	10/16/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	10/16/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	10/16/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Ethylbenzene	UY2	1	ug/L	1	10/16/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	10/16/2024			SW846-8260D	=
Methylene chloride	U	5	ug/L	5	10/16/2024			SW846-8260D	=

Styrene	U	1 ug/L	1	10/16/2024	SW846-8260D	=
Tetrachloroethene	U	1 ug/L	1	10/16/2024	SW846-8260D	=
Toluene	UY2	1 ug/L	1	10/16/2024	SW846-8260D	=
Total Xylene	UY2	3 ug/L	3	10/16/2024	SW846-8260D	=
trans-1,2-Dichloroethene	U	1 ug/L	1	10/16/2024	SW846-8260D	=
trans-1,3-Dichloropropene	U	1 ug/L	1	10/16/2024	SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5 ug/L	5	10/16/2024	SW846-8260D	=
Trichloroethene	U	1 ug/L	1	10/16/2024	SW846-8260D	=
Trichlorofluoromethane	U	1 ug/L	1	10/16/2024	SW846-8260D	=
Vinyl acetate	U	5 ug/L	5	10/16/2024	SW846-8260D	=
Vinyl chloride	UY1	1 ug/L	1	10/16/2024	SW846-8260D	=
Dissolved Solids		290 mg/L	10	10/16/2024	EPA-160.1	=
Iodide	U	0.5 mg/L	0.5	10/16/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	U	20 mg/L	20	10/16/2024	EPA-410.4	=
Cyanide	U	0.2 mg/L	0.2	10/16/2024	SW846-9012B	=
Total Organic Halides (TOX)	HJ	8.32 ug/L	10	10/16/2024	SW846-9020B	J
Total Organic Carbon (TOC)	J	1.51 mg/L	2	10/16/2024	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:** 4th Quarter 2024
AKGWA Well Tag #: 8004-4816 **SAMPLE ID:** MW388SG1-25 Sample Type: REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide	J	0.461	mg/L	0.8	10/16/2024			SW846-9056A	=
Chloride	JW	33.2	mg/L	250	10/16/2024			SW846-9056A	=
Fluoride	J	0.218	mg/L	4	10/16/2024			SW846-9056A	=
Nitrate as Nitrogen	J	0.925	mg/L	10	10/16/2024			SW846-9056A	=
Sulfate		17.3	mg/L	0.4	10/16/2024			SW846-9056A	=
Barometric Pressure Reading		30.47	Inches/Hg		10/16/2024				X
Conductivity		500	µmhos/cm		10/16/2024				X
Depth to Water		40.19	ft		10/16/2024				X
Dissolved Oxygen		4.9	mg/L		10/16/2024				X
Eh (approx)		510	mV		10/16/2024				X
pH		6.09	Std Unit		10/16/2024				X
Temperature		60.2	deg F		10/16/2024				X
Turbidity		0	NTU		10/16/2024				X
Aluminum	U	0.05	mg/L	0.05	10/16/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	10/16/2024			SW846-6020B	=
Arsenic	U	0.005	mg/L	0.005	10/16/2024			SW846-6020B	=
Barium		0.178	mg/L	0.004	10/16/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	10/16/2024			SW846-6020B	=
Boron		0.0277	mg/L	0.015	10/16/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	10/16/2024			SW846-6020B	=
Calcium		23.9	mg/L	0.2	10/16/2024			SW846-6020B	=
Chromium	U	0.01	mg/L	0.01	10/16/2024			SW846-6020B	=
Cobalt	U	0.001	mg/L	0.001	10/16/2024			SW846-6020B	=
Copper	J	0.000803	mg/L	0.002	10/16/2024			SW846-6020B	=
Iron	U	0.1	mg/L	0.1	10/16/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	10/16/2024			SW846-6020B	=
Magnesium		10.2	mg/L	0.03	10/16/2024			SW846-6020B	=
Manganese	U	0.005	mg/L	0.005	10/16/2024			SW846-6020B	=
Molybdenum	U	0.001	mg/L	0.001	10/16/2024			SW846-6020B	=
Nickel	U	0.002	mg/L	0.002	10/16/2024			SW846-6020B	=
Potassium		1.68	mg/L	0.3	10/16/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	10/16/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	10/16/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	10/16/2024			SW846-6020B	=
Sodium		43.2	mg/L	0.25	10/16/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	10/16/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	10/16/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	10/16/2024			SW846-6020B	=
Vanadium	BJ	0.00517	mg/L	0.02	10/16/2024			SW846-6020B	U
Zinc	U	0.02	mg/L	0.02	10/16/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	10/16/2024			SW846-7470A	=
Barium, Dissolved		0.191	mg/L	0.004	10/16/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	10/16/2024			SW846-6020B	UJ
Uranium, Dissolved	U	0.0002	mg/L	0.0002	10/16/2024			SW846-6020B	UJ
PCB-1016	U	0.0964	ug/L	0.0964	10/16/2024			SW846-8082A	=

PCB-1221	U	0.0964	ug/L	0.0964	10/16/2024			SW846-8082A	=
PCB-1232	U	0.0964	ug/L	0.0964	10/16/2024			SW846-8082A	=
PCB-1242	U	0.0964	ug/L	0.0964	10/16/2024			SW846-8082A	=
PCB-1248	U	0.0964	ug/L	0.0964	10/16/2024			SW846-8082A	=
PCB-1254	U	0.0964	ug/L	0.0964	10/16/2024			SW846-8082A	=
PCB-1260	U	0.0964	ug/L	0.0964	10/16/2024			SW846-8082A	=
PCB-1268	U	0.0964	ug/L	0.0964	10/16/2024			SW846-8082A	=
Polychlorinated biphenyl	U	0.0964	ug/L	0.0964	10/16/2024			SW846-8082A	=
Radium-226	U	1.01	pCi/L	1.66	10/16/2024	1.3	1.3	AN-1418	=
Strontium-90	U	1.85	pCi/L	4.38	10/16/2024	2.55	2.56	EPA-905.0-M	=
Tritium	U	68	pCi/L	224	10/16/2024	130	131	EPA-906.0-M	=
Technetium-99	U	4.56	pCi/L	16.9	10/16/2024	9.79	9.8	HASL 300, Tc-02-RC M	=
Thorium-230		2.83	pCi/L	1.8	10/16/2024	1.61	1.65	HASL 300, Th-01-RC M	=
Alpha activity	U	3.31	pCi/L	8.38	10/16/2024	4.79	4.82	SW846-9310	=
Beta activity	U	6.67	pCi/L	8.69	10/16/2024	5.47	5.59	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.0191	ug/L	0.0191	10/16/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	10/16/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	10/16/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	10/16/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	10/16/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	10/16/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	10/16/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	10/16/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	10/16/2024			SW846-8260D	=
Acrylonitrile	U	5	ug/L	5	10/16/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	10/16/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	10/16/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Ethylbenzene	UY2	1	ug/L	1	10/16/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	10/16/2024			SW846-8260D	=
Methylene chloride	U	5	ug/L	5	10/16/2024			SW846-8260D	=

Styrene	U	1 ug/L	1	10/16/2024	SW846-8260D	=
Tetrachloroethene	U	1 ug/L	1	10/16/2024	SW846-8260D	=
Toluene	UY2	1 ug/L	1	10/16/2024	SW846-8260D	=
Total Xylene	UY2	3 ug/L	3	10/16/2024	SW846-8260D	=
trans-1,2-Dichloroethene	U	1 ug/L	1	10/16/2024	SW846-8260D	=
trans-1,3-Dichloropropene	U	1 ug/L	1	10/16/2024	SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5 ug/L	5	10/16/2024	SW846-8260D	=
Trichloroethene	U	1 ug/L	1	10/16/2024	SW846-8260D	=
Trichlorofluoromethane	U	1 ug/L	1	10/16/2024	SW846-8260D	=
Vinyl acetate	U	5 ug/L	5	10/16/2024	SW846-8260D	=
Vinyl chloride	UY1	1 ug/L	1	10/16/2024	SW846-8260D	=
Dissolved Solids		209 mg/L	10	10/16/2024	EPA-160.1	=
Iodide	U	0.5 mg/L	0.5	10/16/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	J	10 mg/L	20	10/16/2024	EPA-410.4	=
Cyanide	U	0.2 mg/L	0.2	10/16/2024	SW846-9012B	=
Total Organic Halides (TOX)	H	15.6 ug/L	10	10/16/2024	SW846-9020B	J
Total Organic Carbon (TOC)	J	1.29 mg/L	2	10/16/2024	SW846-9060A	=

Paducah OREIS
GROUNDWATER MONITORING REPORT

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

Sampling Point: MW390 DOWN **RGA Type:** UCRS **Period:** 4th Quarter 2024

AKGWA Well Tag #: 8004-4811 **SAMPLE ID:** MW390SG1-25 Sample Type: REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide	U	0.8	mg/L	0.8	10/16/2024			SW846-9056A	=
Chloride	JW	36.4	mg/L	250	10/16/2024			SW846-9056A	=
Fluoride	J	0.339	mg/L	4	10/16/2024			SW846-9056A	=
Nitrate as Nitrogen	J	2	mg/L	10	10/16/2024			SW846-9056A	=
Sulfate		31.2	mg/L	1.6	10/16/2024			SW846-9056A	=
Barometric Pressure Reading		30.43	Inches/Hg		10/16/2024				X
Conductivity		656	µmhos/cm		10/16/2024				X
Depth to Water		37.33	ft		10/16/2024				X
Dissolved Oxygen		5.15	mg/L		10/16/2024				X
Eh (approx)		542	mV		10/16/2024				X
pH		6.38	Std Unit		10/16/2024				X
Temperature		56.2	deg F		10/16/2024				X
Turbidity		1.64	NTU		10/16/2024				X
Aluminum		0.204	mg/L	0.05	10/16/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	10/16/2024			SW846-6020B	=
Arsenic	U	0.005	mg/L	0.005	10/16/2024			SW846-6020B	=
Barium		0.215	mg/L	0.004	10/16/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	10/16/2024			SW846-6020B	=
Boron		0.0153	mg/L	0.015	10/16/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	10/16/2024			SW846-6020B	=
Calcium		26.7	mg/L	0.2	10/16/2024			SW846-6020B	=
Chromium	U	0.01	mg/L	0.01	10/16/2024			SW846-6020B	=
Cobalt	U	0.001	mg/L	0.001	10/16/2024			SW846-6020B	=
Copper	J	0.00164	mg/L	0.002	10/16/2024			SW846-6020B	=
Iron		0.16	mg/L	0.1	10/16/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	10/16/2024			SW846-6020B	=
Magnesium		11.2	mg/L	0.03	10/16/2024			SW846-6020B	=
Manganese	J	0.00113	mg/L	0.005	10/16/2024			SW846-6020B	=
Molybdenum	J	0.000361	mg/L	0.001	10/16/2024			SW846-6020B	=
Nickel	J	0.00144	mg/L	0.002	10/16/2024			SW846-6020B	=
Potassium		0.356	mg/L	0.3	10/16/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	10/16/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	10/16/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	10/16/2024			SW846-6020B	=
Sodium		90.2	mg/L	5	10/16/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	10/16/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	10/16/2024			SW846-6020B	=
Uranium	J	0.000152	mg/L	0.0002	10/16/2024			SW846-6020B	=
Vanadium	BJ	0.00726	mg/L	0.02	10/16/2024			SW846-6020B	U
Zinc	J	0.00711	mg/L	0.02	10/16/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	10/16/2024			SW846-7470A	=
Barium, Dissolved		0.215	mg/L	0.004	10/16/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	10/16/2024			SW846-6020B	UJ
Uranium, Dissolved	J	0.000149	mg/L	0.0002	10/16/2024			SW846-6020B	J
PCB-1016	U	0.102	ug/L	0.102	10/16/2024			SW846-8082A	=

PCB-1221	U	0.102	ug/L	0.102	10/16/2024			SW846-8082A	=
PCB-1232	U	0.102	ug/L	0.102	10/16/2024			SW846-8082A	=
PCB-1242	U	0.102	ug/L	0.102	10/16/2024			SW846-8082A	=
PCB-1248	U	0.102	ug/L	0.102	10/16/2024			SW846-8082A	=
PCB-1254	U	0.102	ug/L	0.102	10/16/2024			SW846-8082A	=
PCB-1260	U	0.102	ug/L	0.102	10/16/2024			SW846-8082A	=
PCB-1268	U	0.102	ug/L	0.102	10/16/2024			SW846-8082A	=
Polychlorinated biphenyl	U	0.102	ug/L	0.102	10/16/2024			SW846-8082A	=
Radium-226	U	0.388	pCi/L	0.415	10/16/2024	0.33	0.331	AN-1418	=
Strontium-90	U	4.06	pCi/L	6.25	10/16/2024	3.79	3.85	EPA-905.0-M	=
Tritium	U	-24.7	pCi/L	224	10/16/2024	124	124	EPA-906.0-M	=
Technetium-99		67.4	pCi/L	16.7	10/16/2024	13.1	15.2	HASL 300, Tc-02-RC M	=
Thorium-230	U	0.193	pCi/L	1.89	10/16/2024	0.971	0.974	HASL 300, Th-01-RC M	=
Alpha activity	U	0.834	pCi/L	7.55	10/16/2024	3.67	3.67	SW846-9310	=
Beta activity		40.7	pCi/L	7.39	10/16/2024	7.87	10.3	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.019	ug/L	0.019	10/16/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	10/16/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	10/16/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	10/16/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	10/16/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	10/16/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	10/16/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	10/16/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	10/16/2024			SW846-8260D	=
Acrylonitrile	U	5	ug/L	5	10/16/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	10/16/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	10/16/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Ethylbenzene	UY2	1	ug/L	1	10/16/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	10/16/2024			SW846-8260D	=
Methylene chloride	U	5	ug/L	5	10/16/2024			SW846-8260D	=

Styrene	U	1 ug/L	1	10/16/2024	SW846-8260D	=
Tetrachloroethene	U	1 ug/L	1	10/16/2024	SW846-8260D	=
Toluene	UY2	1 ug/L	1	10/16/2024	SW846-8260D	=
Total Xylene	UY2	3 ug/L	3	10/16/2024	SW846-8260D	=
trans-1,2-Dichloroethene	U	1 ug/L	1	10/16/2024	SW846-8260D	=
trans-1,3-Dichloropropene	U	1 ug/L	1	10/16/2024	SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5 ug/L	5	10/16/2024	SW846-8260D	=
Trichloroethene	U	1 ug/L	1	10/16/2024	SW846-8260D	=
Trichlorofluoromethane	U	1 ug/L	1	10/16/2024	SW846-8260D	=
Vinyl acetate	U	5 ug/L	5	10/16/2024	SW846-8260D	=
Vinyl chloride	UY1	1 ug/L	1	10/16/2024	SW846-8260D	=
Dissolved Solids		347 mg/L	10	10/16/2024	EPA-160.1	=
Iodide	U	0.5 mg/L	0.5	10/16/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	J	12.4 mg/L	20	10/16/2024	EPA-410.4	=
Cyanide	U	0.2 mg/L	0.2	10/16/2024	SW846-9012B	=
Total Organic Halides (TOX)	H	28.3 ug/L	10	10/16/2024	SW846-9020B	J
Total Organic Carbon (TOC)		2.34 mg/L	2	10/16/2024	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:** 4th Quarter 2024

AKGWA Well Tag #: 8004-4805 **SAMPLE ID:** MW391SG1-25 Sample Type: REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide		0.526	mg/L	0.2	10/15/2024			SW846-9056A	=
Chloride	JW	41.6	mg/L	250	10/15/2024			SW846-9056A	J
Fluoride	J	0.209	mg/L	4	10/15/2024			SW846-9056A	=
Nitrate as Nitrogen	J	1.17	mg/L	10	10/15/2024			SW846-9056A	=
Sulfate		11.9	mg/L	0.4	10/15/2024			SW846-9056A	=
Barometric Pressure Reading		30.21	Inches/Hg		10/15/2024				X
Conductivity		372	µmhos/cm		10/15/2024				X
Depth to Water		44.26	ft		10/15/2024				X
Dissolved Oxygen		5.71	mg/L		10/15/2024				X
Eh (approx)		455	mV		10/15/2024				X
pH		5.97	Std Unit		10/15/2024				X
Temperature		58.3	deg F		10/15/2024				X
Turbidity		1.08	NTU		10/15/2024				X
Aluminum	U	0.05	mg/L	0.05	10/15/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	10/15/2024			SW846-6020B	=
Arsenic	U	0.005	mg/L	0.005	10/15/2024			SW846-6020B	=
Barium		0.212	mg/L	0.004	10/15/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	10/15/2024			SW846-6020B	=
Boron		0.0265	mg/L	0.015	10/15/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	10/15/2024			SW846-6020B	=
Calcium		25.2	mg/L	0.2	10/15/2024			SW846-6020B	=
Chromium	U	0.01	mg/L	0.01	10/15/2024			SW846-6020B	=
Cobalt	U	0.001	mg/L	0.001	10/15/2024			SW846-6020B	=
Copper	J	0.000548	mg/L	0.002	10/15/2024			SW846-6020B	=
Iron	J	0.038	mg/L	0.1	10/15/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	10/15/2024			SW846-6020B	=
Magnesium		10.6	mg/L	0.03	10/15/2024			SW846-6020B	=
Manganese	J	0.00151	mg/L	0.005	10/15/2024			SW846-6020B	=
Molybdenum	U	0.001	mg/L	0.001	10/15/2024			SW846-6020B	=
Nickel	U	0.002	mg/L	0.002	10/15/2024			SW846-6020B	=
Potassium		1.49	mg/L	0.3	10/15/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	10/15/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	10/15/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	10/15/2024			SW846-6020B	=
Sodium		32.7	mg/L	0.25	10/15/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	10/15/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	10/15/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	10/15/2024			SW846-6020B	=
Vanadium	U	0.02	mg/L	0.02	10/15/2024			SW846-6020B	=
Zinc	U	0.02	mg/L	0.02	10/15/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	10/15/2024			SW846-7470A	=
Barium, Dissolved		0.215	mg/L	0.004	10/15/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	10/15/2024			SW846-6020B	UJ
Uranium, Dissolved	U	0.0002	mg/L	0.0002	10/15/2024			SW846-6020B	UJ
PCB-1016	U	0.0965	ug/L	0.0965	10/15/2024			SW846-8082A	=

PCB-1221	U	0.0965	ug/L	0.0965	10/15/2024			SW846-8082A	=
PCB-1232	U	0.0965	ug/L	0.0965	10/15/2024			SW846-8082A	=
PCB-1242	U	0.0965	ug/L	0.0965	10/15/2024			SW846-8082A	=
PCB-1248	U	0.0965	ug/L	0.0965	10/15/2024			SW846-8082A	=
PCB-1254	U	0.0965	ug/L	0.0965	10/15/2024			SW846-8082A	=
PCB-1260	U	0.0965	ug/L	0.0965	10/15/2024			SW846-8082A	UJ
PCB-1268	U	0.0965	ug/L	0.0965	10/15/2024			SW846-8082A	=
Polychlorinated biphenyl	U	0.0965	ug/L	0.0965	10/15/2024			SW846-8082A	UJ
Radium-226	U	0.424	pCi/L	1.7	10/15/2024	1.03	1.04	AN-1418	=
Strontium-90	U	1.6	pCi/L	5.77	10/15/2024	3.29	3.3	EPA-905.0-M	=
Tritium	U	76.7	pCi/L	244	10/15/2024	142	143	EPA-906.0-M	=
Technetium-99	U	6.22	pCi/L	16.3	10/15/2024	9.55	9.58	HASL 300, Tc-02-RC M	=
Thorium-230	U	0.186	pCi/L	1.69	10/15/2024	0.856	0.861	HASL 300, Th-01-RC M	=
Alpha activity	U	-1.06	pCi/L	8.8	10/15/2024	3.74	3.74	SW846-9310	=
Beta activity	U	5.73	pCi/L	9.09	10/15/2024	5.55	5.64	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.019	ug/L	0.019	10/15/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	10/15/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	10/15/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	10/15/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	10/15/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	10/15/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	10/15/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	10/15/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	10/15/2024			SW846-8260D	UJ
Acrylonitrile	U	5	ug/L	5	10/15/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	10/15/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	10/15/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Ethylbenzene	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	10/15/2024			SW846-8260D	=
Methylene chloride	U	5	ug/L	5	10/15/2024			SW846-8260D	=

Styrene	U	1 ug/L	1	10/15/2024	SW846-8260D	=
Tetrachloroethene	U	1 ug/L	1	10/15/2024	SW846-8260D	=
Toluene	U	1 ug/L	1	10/15/2024	SW846-8260D	=
Total Xylene	U	3 ug/L	3	10/15/2024	SW846-8260D	=
trans-1,2-Dichloroethene	U	1 ug/L	1	10/15/2024	SW846-8260D	=
trans-1,3-Dichloropropene	U	1 ug/L	1	10/15/2024	SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5 ug/L	5	10/15/2024	SW846-8260D	=
Trichloroethene	J	0.64 ug/L	1	10/15/2024	SW846-8260D	=
Trichlorofluoromethane	U	1 ug/L	1	10/15/2024	SW846-8260D	=
Vinyl acetate	U	5 ug/L	5	10/15/2024	SW846-8260D	=
Vinyl chloride	U	1 ug/L	1	10/15/2024	SW846-8260D	=
Dissolved Solids		195 mg/L	10	10/15/2024	EPA-160.1	=
Iodide	U	0.5 mg/L	0.5	10/15/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	U	20 mg/L	20	10/15/2024	EPA-410.4	=
Cyanide	UN	0.2 mg/L	0.2	10/15/2024	SW846-9012B	UJ
Total Organic Halides (TOX)		46.6 ug/L	10	10/15/2024	SW846-9020B	=
Total Organic Carbon (TOC)	J	0.87 mg/L	2	10/15/2024	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:** 4th Quarter 2024

AKGWA Well Tag #: 8004-4806 **SAMPLE ID:** MW392SG1-25 Sample Type: REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide		0.539	mg/L	0.2	10/15/2024			SW846-9056A	=
Chloride	JW	41.5	mg/L	250	10/15/2024			SW846-9056A	=
Fluoride	J	0.239	mg/L	4	10/15/2024			SW846-9056A	=
Nitrate as Nitrogen	J	0.777	mg/L	10	10/15/2024			SW846-9056A	=
Sulfate		7.48	mg/L	0.4	10/15/2024			SW846-9056A	=
Barometric Pressure Reading		30.19	Inches/Hg		10/15/2024				X
Conductivity		328	µmhos/cm		10/15/2024				X
Depth to Water		42.34	ft		10/15/2024				X
Dissolved Oxygen		2.3	mg/L		10/15/2024				X
Eh (approx)		452	mV		10/15/2024				X
pH		5.83	Std Unit		10/15/2024				X
Temperature		59	deg F		10/15/2024				X
Turbidity		0	NTU		10/15/2024				X
Aluminum	U	0.05	mg/L	0.05	10/15/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	10/15/2024			SW846-6020B	=
Arsenic	U	0.005	mg/L	0.005	10/15/2024			SW846-6020B	=
Barium		0.282	mg/L	0.004	10/15/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	10/15/2024			SW846-6020B	=
Boron		0.0185	mg/L	0.015	10/15/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	10/15/2024			SW846-6020B	=
Calcium		24	mg/L	0.2	10/15/2024			SW846-6020B	=
Chromium	U	0.01	mg/L	0.01	10/15/2024			SW846-6020B	=
Cobalt	U	0.001	mg/L	0.001	10/15/2024			SW846-6020B	=
Copper	J	0.000925	mg/L	0.002	10/15/2024			SW846-6020B	=
Iron	J	0.0624	mg/L	0.1	10/15/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	10/15/2024			SW846-6020B	=
Magnesium		10.1	mg/L	0.03	10/15/2024			SW846-6020B	=
Manganese		0.0695	mg/L	0.005	10/15/2024			SW846-6020B	=
Molybdenum	U	0.001	mg/L	0.001	10/15/2024			SW846-6020B	=
Nickel	J	0.00128	mg/L	0.002	10/15/2024			SW846-6020B	=
Potassium		2.14	mg/L	0.3	10/15/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	10/15/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	10/15/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	10/15/2024			SW846-6020B	=
Sodium		23.8	mg/L	0.25	10/15/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	10/15/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	10/15/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	10/15/2024			SW846-6020B	=
Vanadium	U	0.02	mg/L	0.02	10/15/2024			SW846-6020B	=
Zinc	J	0.00343	mg/L	0.02	10/15/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	10/15/2024			SW846-7470A	=
Barium, Dissolved		0.273	mg/L	0.004	10/15/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	10/15/2024			SW846-6020B	UJ
Uranium, Dissolved	U	0.0002	mg/L	0.0002	10/15/2024			SW846-6020B	UJ
PCB-1016	U	0.0967	ug/L	0.0967	10/15/2024			SW846-8082A	=

PCB-1221	U	0.0967	ug/L	0.0967	10/15/2024			SW846-8082A	=
PCB-1232	U	0.0967	ug/L	0.0967	10/15/2024			SW846-8082A	=
PCB-1242	U	0.0967	ug/L	0.0967	10/15/2024			SW846-8082A	=
PCB-1248	U	0.0967	ug/L	0.0967	10/15/2024			SW846-8082A	=
PCB-1254	U	0.0967	ug/L	0.0967	10/15/2024			SW846-8082A	=
PCB-1260	U	0.0967	ug/L	0.0967	10/15/2024			SW846-8082A	UJ
PCB-1268	U	0.0967	ug/L	0.0967	10/15/2024			SW846-8082A	=
Polychlorinated biphenyl	U	0.0967	ug/L	0.0967	10/15/2024			SW846-8082A	UJ
Radium-226	U	0.106	pCi/L	1.8	10/15/2024	0.875	0.876	AN-1418	=
Strontium-90	U	-1.58	pCi/L	3.01	10/15/2024	1.42	1.42	EPA-905.0-M	UJ
Tritium	U	54.4	pCi/L	254	10/15/2024	146	146	EPA-906.0-M	=
Technetium-99	U	-1.01	pCi/L	16.4	10/15/2024	9.11	9.11	HASL 300, Tc-02-RC M	=
Thorium-230	U	0.87	pCi/L	1.83	10/15/2024	1.15	1.16	HASL 300, Th-01-RC M	=
Alpha activity	U	-0.444	pCi/L	7.62	10/15/2024	3.23	3.23	SW846-9310	=
Beta activity	U	7.8	pCi/L	10.4	10/15/2024	6.46	6.59	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.0191	ug/L	0.0191	10/15/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	10/15/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	10/15/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	10/15/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	10/15/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	10/15/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	10/15/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	10/15/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	10/15/2024			SW846-8260D	UJ
Acrylonitrile	U	5	ug/L	5	10/15/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	10/15/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	10/15/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Ethylbenzene	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	10/15/2024			SW846-8260D	=
Methylene chloride	U	5	ug/L	5	10/15/2024			SW846-8260D	=

Styrene	U	1 ug/L	1	10/15/2024	SW846-8260D	=
Tetrachloroethene	U	1 ug/L	1	10/15/2024	SW846-8260D	=
Toluene	U	1 ug/L	1	10/15/2024	SW846-8260D	=
Total Xylene	U	3 ug/L	3	10/15/2024	SW846-8260D	=
trans-1,2-Dichloroethene	U	1 ug/L	1	10/15/2024	SW846-8260D	=
trans-1,3-Dichloropropene	U	1 ug/L	1	10/15/2024	SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5 ug/L	5	10/15/2024	SW846-8260D	=
Trichloroethene		1.43 ug/L	1	10/15/2024	SW846-8260D	=
Trichlorofluoromethane	U	1 ug/L	1	10/15/2024	SW846-8260D	=
Vinyl acetate	U	5 ug/L	5	10/15/2024	SW846-8260D	=
Vinyl chloride	U	1 ug/L	1	10/15/2024	SW846-8260D	=
Dissolved Solids		179 mg/L	10	10/15/2024	EPA-160.1	=
Iodide	U	0.5 mg/L	0.5	10/15/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	U	20 mg/L	20	10/15/2024	EPA-410.4	=
Cyanide	UN	0.2 mg/L	0.2	10/15/2024	SW846-9012B	=
Total Organic Halides (TOX)		53.6 ug/L	10	10/15/2024	SW846-9020B	=
Total Organic Carbon (TOC)	J	0.823 mg/L	2	10/15/2024	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:** 4th Quarter 2024

AKGWA Well Tag #: 8004-4807 **SAMPLE ID:** MW393SG1-25 Sample Type: REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide	J	0.129	mg/L	0.2	10/15/2024			SW846-9056A	=
Chloride	JW	9.33	mg/L	250	10/15/2024			SW846-9056A	=
Fluoride	J	0.279	mg/L	4	10/15/2024			SW846-9056A	=
Nitrate as Nitrogen	U	10	mg/L	10	10/15/2024			SW846-9056A	=
Sulfate		21.2	mg/L	0.8	10/15/2024			SW846-9056A	=
Barometric Pressure Reading		30.19	Inches/Hg		10/15/2024				X
Conductivity		436	µmhos/cm		10/15/2024				X
Depth to Water		28.55	ft		10/15/2024				X
Dissolved Oxygen		1.15	mg/L		10/15/2024				X
Eh (approx)		255	mV		10/15/2024				X
pH		6.03	Std Unit		10/15/2024				X
Temperature		60	deg F		10/15/2024				X
Turbidity		18.27	NTU		10/15/2024				X
Aluminum	J	0.0277	mg/L	0.05	10/15/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	10/15/2024			SW846-6020B	=
Arsenic	J	0.00403	mg/L	0.005	10/15/2024			SW846-6020B	=
Barium		0.169	mg/L	0.004	10/15/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	10/15/2024			SW846-6020B	=
Boron		0.0187	mg/L	0.015	10/15/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	10/15/2024			SW846-6020B	=
Calcium		16.3	mg/L	0.2	10/15/2024			SW846-6020B	=
Chromium	U	0.01	mg/L	0.01	10/15/2024			SW846-6020B	=
Cobalt	U	0.001	mg/L	0.001	10/15/2024			SW846-6020B	=
Copper	J	0.000494	mg/L	0.002	10/15/2024			SW846-6020B	=
Iron		2.92	mg/L	0.1	10/15/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	10/15/2024			SW846-6020B	=
Magnesium		4.13	mg/L	0.03	10/15/2024			SW846-6020B	=
Manganese		0.0582	mg/L	0.005	10/15/2024			SW846-6020B	=
Molybdenum	BJ	0.000304	mg/L	0.001	10/15/2024			SW846-6020B	U
Nickel	U	0.002	mg/L	0.002	10/15/2024			SW846-6020B	=
Potassium		0.493	mg/L	0.3	10/15/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	10/15/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	10/15/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	10/15/2024			SW846-6020B	=
Sodium		79.9	mg/L	2.5	10/15/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	10/15/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	10/15/2024			SW846-6020B	=
Uranium	J	0.000176	mg/L	0.0002	10/15/2024			SW846-6020B	=
Vanadium	BJ	0.00885	mg/L	0.02	10/15/2024			SW846-6020B	U
Zinc	U	0.02	mg/L	0.02	10/15/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	10/15/2024			SW846-7470A	=
Barium, Dissolved		0.0739	mg/L	0.004	10/15/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	10/15/2024			SW846-6020B	UJ
Uranium, Dissolved	J	0.000093	mg/L	0.0002	10/15/2024			SW846-6020B	J
PCB-1016	U	0.0979	ug/L	0.0979	10/15/2024			SW846-8082A	=

PCB-1221	U	0.0979	ug/L	0.0979	10/15/2024			SW846-8082A	=
PCB-1232	U	0.0979	ug/L	0.0979	10/15/2024			SW846-8082A	=
PCB-1242	U	0.0979	ug/L	0.0979	10/15/2024			SW846-8082A	=
PCB-1248	U	0.0979	ug/L	0.0979	10/15/2024			SW846-8082A	=
PCB-1254	U	0.0979	ug/L	0.0979	10/15/2024			SW846-8082A	=
PCB-1260	U	0.0979	ug/L	0.0979	10/15/2024			SW846-8082A	UJ
PCB-1268	U	0.0979	ug/L	0.0979	10/15/2024			SW846-8082A	=
Polychlorinated biphenyl	U	0.0979	ug/L	0.0979	10/15/2024			SW846-8082A	UJ
Radium-226	U	0.425	pCi/L	0.658	10/15/2024	0.462	0.462	AN-1418	=
Strontium-90	U	-1.41	pCi/L	6.05	10/15/2024	2.92	2.92	EPA-905.0-M	=
Tritium	U	45.1	pCi/L	252	10/15/2024	144	144	EPA-906.0-M	=
Technetium-99	U	-1.24	pCi/L	17	10/15/2024	9.48	9.48	HASL 300, Tc-02-RC M	=
Thorium-230	U	0.626	pCi/L	2.04	10/15/2024	1.17	1.18	HASL 300, Th-01-RC M	=
Alpha activity	U	2.2	pCi/L	7.61	10/15/2024	4.11	4.13	SW846-9310	=
Beta activity	U	3.38	pCi/L	8.21	10/15/2024	4.79	4.82	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.019	ug/L	0.019	10/15/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	10/15/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	10/15/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	10/15/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	10/15/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	10/15/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	10/15/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	10/15/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	10/15/2024			SW846-8260D	UJ
Acrylonitrile	U	5	ug/L	5	10/15/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	10/15/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	10/15/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Ethylbenzene	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	10/15/2024			SW846-8260D	=
Methylene chloride	U	5	ug/L	5	10/15/2024			SW846-8260D	=

Styrene	U	1 ug/L	1	10/15/2024	SW846-8260D	=
Tetrachloroethene	U	1 ug/L	1	10/15/2024	SW846-8260D	=
Toluene	U	1 ug/L	1	10/15/2024	SW846-8260D	=
Total Xylene	U	3 ug/L	3	10/15/2024	SW846-8260D	=
trans-1,2-Dichloroethene	U	1 ug/L	1	10/15/2024	SW846-8260D	=
trans-1,3-Dichloropropene	U	1 ug/L	1	10/15/2024	SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5 ug/L	5	10/15/2024	SW846-8260D	=
Trichloroethene	U	1 ug/L	1	10/15/2024	SW846-8260D	=
Trichlorofluoromethane	U	1 ug/L	1	10/15/2024	SW846-8260D	=
Vinyl acetate	U	5 ug/L	5	10/15/2024	SW846-8260D	=
Vinyl chloride	U	1 ug/L	1	10/15/2024	SW846-8260D	=
Dissolved Solids		280 mg/L	10	10/15/2024	EPA-160.1	=
Iodide	U	0.5 mg/L	0.5	10/15/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	U	20 mg/L	20	10/15/2024	EPA-410.4	=
Cyanide	UN	0.2 mg/L	0.2	10/15/2024	SW846-9012B	=
Total Organic Halides (TOX)		29.9 ug/L	10	10/15/2024	SW846-9020B	=
Total Organic Carbon (TOC)		2.7 mg/L	2	10/15/2024	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:** 4th Quarter 2024

AKGWA Well Tag #: 8004-4802 **SAMPLE ID:** MW394SG1-25 Sample Type: REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide		0.552	mg/L	0.2	10/15/2024			SW846-9056A	=
Chloride	JW	44.5	mg/L	250	10/15/2024			SW846-9056A	=
Fluoride	J	0.195	mg/L	4	10/15/2024			SW846-9056A	=
Nitrate as Nitrogen	J	1.16	mg/L	10	10/15/2024			SW846-9056A	=
Sulfate		11.7	mg/L	0.4	10/15/2024			SW846-9056A	=
Barometric Pressure Reading		30.14	Inches/Hg		10/15/2024				X
Conductivity		401	µmhos/cm		10/15/2024				X
Depth to Water		55.71	ft		10/15/2024				X
Dissolved Oxygen		5.4	mg/L		10/15/2024				X
Eh (approx)		534	mV		10/15/2024				X
pH		5.84	Std Unit		10/15/2024				X
Temperature		58	deg F		10/15/2024				X
Turbidity		0	NTU		10/15/2024				X
Aluminum	U	0.05	mg/L	0.05	10/15/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	10/15/2024			SW846-6020B	=
Arsenic	U	0.005	mg/L	0.005	10/15/2024			SW846-6020B	=
Barium		0.245	mg/L	0.004	10/15/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	10/15/2024			SW846-6020B	=
Boron		0.0196	mg/L	0.015	10/15/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	10/15/2024			SW846-6020B	=
Calcium		26.6	mg/L	0.2	10/15/2024			SW846-6020B	=
Chromium	U	0.01	mg/L	0.01	10/15/2024			SW846-6020B	=
Cobalt	U	0.001	mg/L	0.001	10/15/2024			SW846-6020B	=
Copper	J	0.00109	mg/L	0.002	10/15/2024			SW846-6020B	=
Iron	U	0.1	mg/L	0.1	10/15/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	10/15/2024			SW846-6020B	=
Magnesium		11.4	mg/L	0.03	10/15/2024			SW846-6020B	=
Manganese	U	0.005	mg/L	0.005	10/15/2024			SW846-6020B	=
Molybdenum	U	0.001	mg/L	0.001	10/15/2024			SW846-6020B	=
Nickel		0.00489	mg/L	0.002	10/15/2024			SW846-6020B	=
Potassium		1.29	mg/L	0.3	10/15/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	10/15/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	10/15/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	10/15/2024			SW846-6020B	=
Sodium		32.9	mg/L	0.25	10/15/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	10/15/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	10/15/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	10/15/2024			SW846-6020B	=
Vanadium	BJ	0.00358	mg/L	0.02	10/15/2024			SW846-6020B	U
Zinc	J	0.00587	mg/L	0.02	10/15/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	10/15/2024			SW846-7470A	=
Barium, Dissolved		0.26	mg/L	0.004	10/15/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	10/15/2024			SW846-6020B	UJ
Uranium, Dissolved	U	0.0002	mg/L	0.0002	10/15/2024			SW846-6020B	UJ
PCB-1016	U	0.0954	ug/L	0.0954	10/15/2024			SW846-8082A	=

PCB-1221	U	0.0954	ug/L	0.0954	10/15/2024			SW846-8082A	=
PCB-1232	U	0.0954	ug/L	0.0954	10/15/2024			SW846-8082A	=
PCB-1242	U	0.0954	ug/L	0.0954	10/15/2024			SW846-8082A	=
PCB-1248	U	0.0954	ug/L	0.0954	10/15/2024			SW846-8082A	=
PCB-1254	U	0.0954	ug/L	0.0954	10/15/2024			SW846-8082A	=
PCB-1260	U	0.0954	ug/L	0.0954	10/15/2024			SW846-8082A	UJ
PCB-1268	U	0.0954	ug/L	0.0954	10/15/2024			SW846-8082A	=
Polychlorinated biphenyl	U	0.0954	ug/L	0.0954	10/15/2024			SW846-8082A	UJ
Radium-226	U	0.545	pCi/L	1.56	10/15/2024	1.09	1.09	AN-1418	=
Strontium-90	U	1.27	pCi/L	5.06	10/15/2024	2.85	2.86	EPA-905.0-M	=
Tritium	U	96.3	pCi/L	252	10/15/2024	147	149	EPA-906.0-M	=
Technetium-99	U	0.147	pCi/L	16.5	10/15/2024	9.28	9.28	HASL 300, Tc-02-RC M	=
Thorium-230	U	0.813	pCi/L	1.86	10/15/2024	1.15	1.16	HASL 300, Th-01-RC M	=
Alpha activity	U	0.517	pCi/L	8.17	10/15/2024	3.85	3.85	SW846-9310	=
Beta activity	U	8.47	pCi/L	8.89	10/15/2024	5.81	5.98	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.019	ug/L	0.019	10/15/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	10/15/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	10/15/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	10/15/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	10/15/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	10/15/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	10/15/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	10/15/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	10/15/2024			SW846-8260D	UJ
Acrylonitrile	U	5	ug/L	5	10/15/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	10/15/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	10/15/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Ethylbenzene	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	10/15/2024			SW846-8260D	=
Methylene chloride	U	5	ug/L	5	10/15/2024			SW846-8260D	=

Styrene	U	1 ug/L	1	10/15/2024	SW846-8260D	=
Tetrachloroethene	U	1 ug/L	1	10/15/2024	SW846-8260D	=
Toluene	U	1 ug/L	1	10/15/2024	SW846-8260D	=
Total Xylene	U	3 ug/L	3	10/15/2024	SW846-8260D	=
trans-1,2-Dichloroethene	U	1 ug/L	1	10/15/2024	SW846-8260D	=
trans-1,3-Dichloropropene	U	1 ug/L	1	10/15/2024	SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5 ug/L	5	10/15/2024	SW846-8260D	=
Trichloroethene		2.82 ug/L	1	10/15/2024	SW846-8260D	=
Trichlorofluoromethane	U	1 ug/L	1	10/15/2024	SW846-8260D	=
Vinyl acetate	U	5 ug/L	5	10/15/2024	SW846-8260D	=
Vinyl chloride	U	1 ug/L	1	10/15/2024	SW846-8260D	=
Dissolved Solids		211 mg/L	10	10/15/2024	EPA-160.1	=
Iodide	U	0.5 mg/L	0.5	10/15/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	J	10 mg/L	20	10/15/2024	EPA-410.4	=
Cyanide	UN	0.2 mg/L	0.2	10/15/2024	SW846-9012B	=
Total Organic Halides (TOX)		47 ug/L	10	10/15/2024	SW846-9020B	=
Total Organic Carbon (TOC)	J	0.943 mg/L	2	10/15/2024	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:** 4th Quarter 2024

AKGWA Well Tag #: 8004-4801 **SAMPLE ID:** MW395SG1-25 Sample Type: REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide		0.542	mg/L	0.2	10/15/2024			SW846-9056A	=
Chloride	JW	45.2	mg/L	250	10/15/2024			SW846-9056A	=
Fluoride	J	0.172	mg/L	4	10/15/2024			SW846-9056A	=
Nitrate as Nitrogen	J	1.28	mg/L	10	10/15/2024			SW846-9056A	=
Sulfate		11	mg/L	0.4	10/15/2024			SW846-9056A	=
Barometric Pressure Reading		30.14	Inches/Hg		10/15/2024				X
Conductivity		384	µmhos/cm		10/15/2024				X
Depth to Water		56.35	ft		10/15/2024				X
Dissolved Oxygen		5.1	mg/L		10/15/2024				X
Eh (approx)		460	mV		10/15/2024				X
pH		5.88	Std Unit		10/15/2024				X
Temperature		58.7	deg F		10/15/2024				X
Turbidity		1.1	NTU		10/15/2024				X
Aluminum	U	0.05	mg/L	0.05	10/15/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	10/15/2024			SW846-6020B	=
Arsenic	U	0.005	mg/L	0.005	10/15/2024			SW846-6020B	=
Barium		0.257	mg/L	0.004	10/15/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	10/15/2024			SW846-6020B	=
Boron		0.0206	mg/L	0.015	10/15/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	10/15/2024			SW846-6020B	=
Calcium		27.4	mg/L	0.2	10/15/2024			SW846-6020B	=
Chromium	U	0.01	mg/L	0.01	10/15/2024			SW846-6020B	=
Cobalt	U	0.001	mg/L	0.001	10/15/2024			SW846-6020B	=
Copper	J	0.00168	mg/L	0.002	10/15/2024			SW846-6020B	=
Iron	J	0.0911	mg/L	0.1	10/15/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	10/15/2024			SW846-6020B	=
Magnesium		11.5	mg/L	0.03	10/15/2024			SW846-6020B	=
Manganese	J	0.00411	mg/L	0.005	10/15/2024			SW846-6020B	=
Molybdenum	BJ	0.000222	mg/L	0.001	10/15/2024			SW846-6020B	U
Nickel	J	0.00124	mg/L	0.002	10/15/2024			SW846-6020B	=
Potassium		1.58	mg/L	0.3	10/15/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	10/15/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	10/15/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	10/15/2024			SW846-6020B	=
Sodium		30.6	mg/L	0.25	10/15/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	10/15/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	10/15/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	10/15/2024			SW846-6020B	=
Vanadium	BJ	0.00437	mg/L	0.02	10/15/2024			SW846-6020B	U
Zinc	J	0.0072	mg/L	0.02	10/15/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	10/15/2024			SW846-7470A	=
Barium, Dissolved		0.252	mg/L	0.004	10/15/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	10/15/2024			SW846-6020B	UJ
Uranium, Dissolved	U	0.0002	mg/L	0.0002	10/15/2024			SW846-6020B	UJ
PCB-1016	U	0.097	ug/L	0.097	10/15/2024			SW846-8082A	=

PCB-1221	U	0.097	ug/L	0.097	10/15/2024			SW846-8082A	=
PCB-1232	U	0.097	ug/L	0.097	10/15/2024			SW846-8082A	=
PCB-1242	U	0.097	ug/L	0.097	10/15/2024			SW846-8082A	=
PCB-1248	U	0.097	ug/L	0.097	10/15/2024			SW846-8082A	=
PCB-1254	U	0.097	ug/L	0.097	10/15/2024			SW846-8082A	=
PCB-1260	U	0.097	ug/L	0.097	10/15/2024			SW846-8082A	UJ
PCB-1268	U	0.097	ug/L	0.097	10/15/2024			SW846-8082A	=
Polychlorinated biphenyl	U	0.097	ug/L	0.097	10/15/2024			SW846-8082A	UJ
Radium-226	U	0.345	pCi/L	0.707	10/15/2024	0.457	0.457	AN-1418	=
Strontium-90	U	-2.79	pCi/L	4.8	10/15/2024	2.21	2.21	EPA-905.0-M	UJ
Tritium	U	147	pCi/L	253	10/15/2024	151	154	EPA-906.0-M	=
Technetium-99	U	10.7	pCi/L	16.9	10/15/2024	10.2	10.2	HASL 300, Tc-02-RC M	=
Thorium-230	U	0.527	pCi/L	1.96	10/15/2024	1.1	1.11	HASL 300, Th-01-RC M	=
Alpha activity	U	3.18	pCi/L	7.55	10/15/2024	4.38	4.41	SW846-9310	=
Beta activity	U	8.32	pCi/L	9	10/15/2024	5.85	6.01	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.0192	ug/L	0.0192	10/15/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	10/15/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	10/15/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	10/15/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	10/15/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	10/15/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	10/15/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	10/15/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	10/15/2024			SW846-8260D	UJ
Acrylonitrile	U	5	ug/L	5	10/15/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	10/15/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	10/15/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Ethylbenzene	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	10/15/2024			SW846-8260D	=
Methylene chloride	U	5	ug/L	5	10/15/2024			SW846-8260D	=

Styrene	U	1 ug/L	1	10/15/2024	SW846-8260D	=
Tetrachloroethene	U	1 ug/L	1	10/15/2024	SW846-8260D	=
Toluene	U	1 ug/L	1	10/15/2024	SW846-8260D	=
Total Xylene	U	3 ug/L	3	10/15/2024	SW846-8260D	=
trans-1,2-Dichloroethene	U	1 ug/L	1	10/15/2024	SW846-8260D	=
trans-1,3-Dichloropropene	U	1 ug/L	1	10/15/2024	SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5 ug/L	5	10/15/2024	SW846-8260D	=
Trichloroethene		4.89 ug/L	1	10/15/2024	SW846-8260D	=
Trichlorofluoromethane	U	1 ug/L	1	10/15/2024	SW846-8260D	=
Vinyl acetate	U	5 ug/L	5	10/15/2024	SW846-8260D	=
Vinyl chloride	U	1 ug/L	1	10/15/2024	SW846-8260D	=
Dissolved Solids		209 mg/L	10	10/15/2024	EPA-160.1	=
Iodide	U	0.5 mg/L	0.5	10/15/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	U	20 mg/L	20	10/15/2024	EPA-410.4	=
Cyanide	UN	0.2 mg/L	0.2	10/15/2024	SW846-9012B	=
Total Organic Halides (TOX)		93.3 ug/L	10	10/15/2024	SW846-9020B	=
Total Organic Carbon (TOC)	J	0.931 mg/L	2	10/15/2024	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:** 4th Quarter 2024
AKGWA Well Tag #: 8004-4803 **SAMPLE ID:** MW396SG1-25 Sample Type: REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide		0.922	mg/L	0.4	10/15/2024			SW846-9056A	=
Chloride	JW	58.7	mg/L	250	10/15/2024			SW846-9056A	=
Fluoride	J	0.655	mg/L	4	10/15/2024			SW846-9056A	=
Nitrate as Nitrogen	U	10	mg/L	10	10/15/2024			SW846-9056A	=
Sulfate		27.6	mg/L	0.8	10/15/2024			SW846-9056A	=
Barometric Pressure Reading		30.17	Inches/Hg		10/15/2024				X
Conductivity		673	µmhos/cm		10/15/2024				X
Depth to Water		13.36	ft		10/15/2024				X
Dissolved Oxygen		1.2	mg/L		10/15/2024				X
Eh (approx)		440	mV		10/15/2024				X
pH		6.2	Std Unit		10/15/2024				X
Temperature		59.7	deg F		10/15/2024				X
Turbidity		0	NTU		10/15/2024				X
Aluminum	U	0.05	mg/L	0.05	10/15/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	10/15/2024			SW846-6020B	=
Arsenic	U	0.005	mg/L	0.005	10/15/2024			SW846-6020B	=
Barium		0.373	mg/L	0.004	10/15/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	10/15/2024			SW846-6020B	=
Boron	U	0.015	mg/L	0.015	10/15/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	10/15/2024			SW846-6020B	=
Calcium		31.7	mg/L	0.2	10/15/2024			SW846-6020B	=
Chromium	U	0.01	mg/L	0.01	10/15/2024			SW846-6020B	=
Cobalt	J	0.000353	mg/L	0.001	10/15/2024			SW846-6020B	=
Copper	J	0.00124	mg/L	0.002	10/15/2024			SW846-6020B	=
Iron		0.141	mg/L	0.1	10/15/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	10/15/2024			SW846-6020B	=
Magnesium		14.2	mg/L	0.03	10/15/2024			SW846-6020B	=
Manganese		0.143	mg/L	0.005	10/15/2024			SW846-6020B	=
Molybdenum	BJ	0.000433	mg/L	0.001	10/15/2024			SW846-6020B	U
Nickel	J	0.000949	mg/L	0.002	10/15/2024			SW846-6020B	=
Potassium		0.735	mg/L	0.3	10/15/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	10/15/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	10/15/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	10/15/2024			SW846-6020B	=
Sodium		92.9	mg/L	2.5	10/15/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	10/15/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	10/15/2024			SW846-6020B	=
Uranium	J	0.000088	mg/L	0.0002	10/15/2024			SW846-6020B	=
Vanadium	BJ	0.0061	mg/L	0.02	10/15/2024			SW846-6020B	U
Zinc	J	0.00418	mg/L	0.02	10/15/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	10/15/2024			SW846-7470A	=
Barium, Dissolved		0.373	mg/L	0.004	10/15/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	10/15/2024			SW846-6020B	UJ
Uranium, Dissolved	J	0.000083	mg/L	0.0002	10/15/2024			SW846-6020B	J
PCB-1016	U	0.0981	ug/L	0.0981	10/15/2024			SW846-8082A	=

PCB-1221	U	0.0981	ug/L	0.0981	10/15/2024			SW846-8082A	=
PCB-1232	U	0.0981	ug/L	0.0981	10/15/2024			SW846-8082A	=
PCB-1242	U	0.0981	ug/L	0.0981	10/15/2024			SW846-8082A	=
PCB-1248	U	0.0981	ug/L	0.0981	10/15/2024			SW846-8082A	=
PCB-1254	U	0.0981	ug/L	0.0981	10/15/2024			SW846-8082A	=
PCB-1260	U	0.0981	ug/L	0.0981	10/15/2024			SW846-8082A	UJ
PCB-1268	U	0.0981	ug/L	0.0981	10/15/2024			SW846-8082A	=
Polychlorinated biphenyl	U	0.0981	ug/L	0.0981	10/15/2024			SW846-8082A	UJ
Radium-226	U	0.296	pCi/L	0.546	10/15/2024	0.385	0.385	AN-1418	=
Strontium-90	U	0.202	pCi/L	4.7	10/15/2024	2.5	2.5	EPA-905.0-M	=
Tritium	U	18	pCi/L	253	10/15/2024	143	143	EPA-906.0-M	=
Technetium-99	U	2.29	pCi/L	17	10/15/2024	9.67	9.67	HASL 300, Tc-02-RC M	=
Thorium-230	U	0.32	pCi/L	2.06	10/15/2024	1.08	1.08	HASL 300, Th-01-RC M	=
Alpha activity	U	-2.18	pCi/L	9.64	10/15/2024	3.55	3.55	SW846-9310	=
Beta activity	U	2.61	pCi/L	9.36	10/15/2024	5.27	5.29	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.019	ug/L	0.019	10/15/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	10/15/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	10/15/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	10/15/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	10/15/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	10/15/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	10/15/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	10/15/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	10/15/2024			SW846-8260D	UJ
Acrylonitrile	U	5	ug/L	5	10/15/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	10/15/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	10/15/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Ethylbenzene	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	10/15/2024			SW846-8260D	=
Methylene chloride	U	5	ug/L	5	10/15/2024			SW846-8260D	=

Styrene	U	1 ug/L	1	10/15/2024	SW846-8260D	=
Tetrachloroethene	U	1 ug/L	1	10/15/2024	SW846-8260D	=
Toluene	U	1 ug/L	1	10/15/2024	SW846-8260D	=
Total Xylene	U	3 ug/L	3	10/15/2024	SW846-8260D	=
trans-1,2-Dichloroethene	U	1 ug/L	1	10/15/2024	SW846-8260D	=
trans-1,3-Dichloropropene	U	1 ug/L	1	10/15/2024	SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5 ug/L	5	10/15/2024	SW846-8260D	=
Trichloroethene	U	1 ug/L	1	10/15/2024	SW846-8260D	=
Trichlorofluoromethane	U	1 ug/L	1	10/15/2024	SW846-8260D	=
Vinyl acetate	U	5 ug/L	5	10/15/2024	SW846-8260D	=
Vinyl chloride	U	1 ug/L	1	10/15/2024	SW846-8260D	=
Dissolved Solids		402 mg/L	10	10/15/2024	EPA-160.1	=
Iodide	J	0.429 mg/L	0.5	10/15/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	J	17.2 mg/L	20	10/15/2024	EPA-410.4	=
Cyanide	UN	0.2 mg/L	0.2	10/15/2024	SW846-9012B	=
Total Organic Halides (TOX)		113 ug/L	10	10/15/2024	SW846-9020B	=
Total Organic Carbon (TOC)		4.17 mg/L	2	10/15/2024	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:** 4th Quarter 2024
AKGWA Well Tag #: 8004-4817 **SAMPLE ID:** MW397SG1-25 Sample Type: REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide		0.393	mg/L	0.2	10/16/2024			SW846-9056A	=
Chloride	JW	33.4	mg/L	250	10/16/2024			SW846-9056A	=
Fluoride	J	0.168	mg/L	4	10/16/2024			SW846-9056A	=
Nitrate as Nitrogen	J	1.11	mg/L	10	10/16/2024			SW846-9056A	=
Sulfate		11.4	mg/L	0.4	10/16/2024			SW846-9056A	=
Barometric Pressure Reading		30.47	Inches/Hg		10/16/2024				X
Conductivity		420	µmhos/cm		10/16/2024				X
Depth to Water		63.66	ft		10/16/2024				X
Dissolved Oxygen		6.7	mg/L		10/16/2024				X
Eh (approx)		313	mV		10/16/2024				X
pH		6.24	Std Unit		10/16/2024				X
Temperature		59.9	deg F		10/16/2024				X
Turbidity		6.3	NTU		10/16/2024				X
Aluminum		0.103	mg/L	0.05	10/16/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	10/16/2024			SW846-6020B	=
Arsenic	U	0.005	mg/L	0.005	10/16/2024			SW846-6020B	=
Barium		0.129	mg/L	0.004	10/16/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	10/16/2024			SW846-6020B	=
Boron	J	0.00937	mg/L	0.015	10/16/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	10/16/2024			SW846-6020B	=
Calcium		18	mg/L	0.2	10/16/2024			SW846-6020B	=
Chromium	U	0.01	mg/L	0.01	10/16/2024			SW846-6020B	=
Cobalt	U	0.001	mg/L	0.001	10/16/2024			SW846-6020B	=
Copper	J	0.000778	mg/L	0.002	10/16/2024			SW846-6020B	=
Iron		0.19	mg/L	0.1	10/16/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	10/16/2024			SW846-6020B	=
Magnesium		7.57	mg/L	0.03	10/16/2024			SW846-6020B	=
Manganese		0.0072	mg/L	0.005	10/16/2024			SW846-6020B	=
Molybdenum	U	0.001	mg/L	0.001	10/16/2024			SW846-6020B	=
Nickel	U	0.002	mg/L	0.002	10/16/2024			SW846-6020B	=
Potassium		1.76	mg/L	0.3	10/16/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	10/16/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	10/16/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	10/16/2024			SW846-6020B	=
Sodium		31.7	mg/L	0.25	10/16/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	10/16/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	10/16/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	10/16/2024			SW846-6020B	=
Vanadium	BJ	0.00811	mg/L	0.02	10/16/2024			SW846-6020B	U
Zinc	U	0.02	mg/L	0.02	10/16/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	10/16/2024			SW846-7470A	=
Barium, Dissolved		0.128	mg/L	0.004	10/16/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	10/16/2024			SW846-6020B	UJ
Uranium, Dissolved	U	0.0002	mg/L	0.0002	10/16/2024			SW846-6020B	UJ
PCB-1016	U	0.096	ug/L	0.096	10/16/2024			SW846-8082A	=

PCB-1221	U	0.096	ug/L	0.096	10/16/2024			SW846-8082A	=
PCB-1232	U	0.096	ug/L	0.096	10/16/2024			SW846-8082A	=
PCB-1242	U	0.096	ug/L	0.096	10/16/2024			SW846-8082A	=
PCB-1248	U	0.096	ug/L	0.096	10/16/2024			SW846-8082A	=
PCB-1254	U	0.096	ug/L	0.096	10/16/2024			SW846-8082A	=
PCB-1260	U	0.096	ug/L	0.096	10/16/2024			SW846-8082A	=
PCB-1268	U	0.096	ug/L	0.096	10/16/2024			SW846-8082A	=
Polychlorinated biphenyl	U	0.096	ug/L	0.096	10/16/2024			SW846-8082A	=
Radium-226	U	0.774	pCi/L	0.817	10/16/2024	0.748	0.75	AN-1418	=
Strontium-90	U	1.38	pCi/L	3.54	10/16/2024	2.04	2.06	EPA-905.0-M	=
Tritium	U	3.29	pCi/L	228	10/16/2024	128	128	EPA-906.0-M	=
Technetium-99	U	15.5	pCi/L	16.2	10/16/2024	10.1	10.2	HASL 300, Tc-02-RC M	=
Thorium-230	U	0.713	pCi/L	2.07	10/16/2024	1.22	1.23	HASL 300, Th-01-RC M	=
Alpha activity	U	2.7	pCi/L	9	10/16/2024	4.93	4.95	SW846-9310	=
Beta activity	U	6.72	pCi/L	10	10/16/2024	6.18	6.28	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.0191	ug/L	0.0191	10/16/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	10/16/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	10/16/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	10/16/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	10/16/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	10/16/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	10/16/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	10/16/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	10/16/2024			SW846-8260D	=
Acrylonitrile	U	5	ug/L	5	10/16/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	10/16/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	10/16/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Ethylbenzene	UY2	1	ug/L	1	10/16/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	10/16/2024			SW846-8260D	=
Methylene chloride	U	5	ug/L	5	10/16/2024			SW846-8260D	=

Styrene	U	1 ug/L	1	10/16/2024	SW846-8260D	=
Tetrachloroethene	U	1 ug/L	1	10/16/2024	SW846-8260D	=
Toluene	UY2	1 ug/L	1	10/16/2024	SW846-8260D	=
Total Xylene	UY2	3 ug/L	3	10/16/2024	SW846-8260D	=
trans-1,2-Dichloroethene	U	1 ug/L	1	10/16/2024	SW846-8260D	=
trans-1,3-Dichloropropene	U	1 ug/L	1	10/16/2024	SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5 ug/L	5	10/16/2024	SW846-8260D	=
Trichloroethene	U	1 ug/L	1	10/16/2024	SW846-8260D	=
Trichlorofluoromethane	U	1 ug/L	1	10/16/2024	SW846-8260D	=
Vinyl acetate	U	5 ug/L	5	10/16/2024	SW846-8260D	=
Vinyl chloride	UY1	1 ug/L	1	10/16/2024	SW846-8260D	=
Dissolved Solids		164 mg/L	10	10/16/2024	EPA-160.1	=
Iodide	U	0.5 mg/L	0.5	10/16/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	U	20 mg/L	20	10/16/2024	EPA-410.4	=
Cyanide	U	0.2 mg/L	0.2	10/16/2024	SW846-9012B	=
Total Organic Halides (TOX)	H	10.7 ug/L	10	10/16/2024	SW846-9020B	J
Total Organic Carbon (TOC)	J	0.793 mg/L	2	10/16/2024	SW846-9060A	=

Paducah OREIS
GROUNDWATER MONITORING REPORT

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

Sampling Point: QC **Period:** 4th Quarter 2024

AKGWA Well Tag #: N/A **SAMPLE ID:** FB1SG1-25 **Sample Type:** FB

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Aluminum	U	0.05	mg/L	0.05	10/16/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	10/16/2024			SW846-6020B	=
Arsenic	U	0.005	mg/L	0.005	10/16/2024			SW846-6020B	=
Barium	U	0.004	mg/L	0.004	10/16/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	10/16/2024			SW846-6020B	=
Boron	U	0.015	mg/L	0.015	10/16/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	10/16/2024			SW846-6020B	=
Calcium	U	0.2	mg/L	0.2	10/16/2024			SW846-6020B	=
Chromium	U	0.01	mg/L	0.01	10/16/2024			SW846-6020B	=
Cobalt	U	0.001	mg/L	0.001	10/16/2024			SW846-6020B	=
Copper	U	0.002	mg/L	0.002	10/16/2024			SW846-6020B	=
Iron	U	0.1	mg/L	0.1	10/16/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	10/16/2024			SW846-6020B	=
Magnesium	U	0.03	mg/L	0.03	10/16/2024			SW846-6020B	=
Manganese	U	0.005	mg/L	0.005	10/16/2024			SW846-6020B	=
Molybdenum	U	0.001	mg/L	0.001	10/16/2024			SW846-6020B	=
Nickel	U	0.002	mg/L	0.002	10/16/2024			SW846-6020B	=
Potassium	U	0.3	mg/L	0.3	10/16/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	10/16/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	10/16/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	10/16/2024			SW846-6020B	=
Sodium	U	0.25	mg/L	0.25	10/16/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	10/16/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	10/16/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	10/16/2024			SW846-6020B	=
Vanadium	BJ	0.00755	mg/L	0.02	10/16/2024			SW846-6020B	U
Zinc	J	0.00587	mg/L	0.02	10/16/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	10/16/2024			SW846-7470A	=
PCB-1016	U	0.0957	ug/L	0.0957	10/16/2024			SW846-8082A	=
PCB-1221	U	0.0957	ug/L	0.0957	10/16/2024			SW846-8082A	=
PCB-1232	U	0.0957	ug/L	0.0957	10/16/2024			SW846-8082A	=
PCB-1242	U	0.0957	ug/L	0.0957	10/16/2024			SW846-8082A	=
PCB-1248	U	0.0957	ug/L	0.0957	10/16/2024			SW846-8082A	=
PCB-1254	U	0.0957	ug/L	0.0957	10/16/2024			SW846-8082A	=
PCB-1260	U	0.0957	ug/L	0.0957	10/16/2024			SW846-8082A	=
PCB-1268	U	0.0957	ug/L	0.0957	10/16/2024			SW846-8082A	=
Polychlorinated biphenyl	U	0.0957	ug/L	0.0957	10/16/2024			SW846-8082A	=
Radium-226	U	0.558	pCi/L	0.71	10/16/2024	0.513	0.515	AN-1418	=
Strontium-90	U	-1.73	pCi/L	5.55	10/16/2024	2.71	2.71	EPA-905.0-M	=
Tritium	U	139	pCi/L	223	10/16/2024	134	137	EPA-906.0-M	=
Technetium-99	U	-1.61	pCi/L	16.8	10/16/2024	9.32	9.32	HASL 300, Tc-02-RC M	=
Thorium-230	U	0.101	pCi/L	1.99	10/16/2024	0.956	0.96	HASL 300, Th-01-RC M	=
Alpha activity	U	-0.384	pCi/L	7.26	10/16/2024	3.07	3.08	SW846-9310	=
Beta activity	U	-2.12	pCi/L	8.91	10/16/2024	4.33	4.33	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.0189	ug/L	0.0189	10/16/2024			SW846-8011	=

1,1,1,2-Tetrachloroethane	U	1 ug/L	1	10/16/2024	SW846-8260D	=
1,1,1-Trichloroethane	U	1 ug/L	1	10/16/2024	SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1 ug/L	1	10/16/2024	SW846-8260D	=
1,1,2-Trichloroethane	U	1 ug/L	1	10/16/2024	SW846-8260D	=
1,1-Dichloroethane	U	1 ug/L	1	10/16/2024	SW846-8260D	=
1,1-Dichloroethene	U	1 ug/L	1	10/16/2024	SW846-8260D	=
1,2,3-Trichloropropane	U	1 ug/L	1	10/16/2024	SW846-8260D	=
1,2-Dibromoethane	U	1 ug/L	1	10/16/2024	SW846-8260D	=
1,2-Dichlorobenzene	U	1 ug/L	1	10/16/2024	SW846-8260D	=
1,2-Dichloroethane	U	1 ug/L	1	10/16/2024	SW846-8260D	=
1,2-Dichloropropane	U	1 ug/L	1	10/16/2024	SW846-8260D	=
1,4-Dichlorobenzene	U	1 ug/L	1	10/16/2024	SW846-8260D	=
2-Butanone	U	5 ug/L	5	10/16/2024	SW846-8260D	=
2-Hexanone	U	5 ug/L	5	10/16/2024	SW846-8260D	=
4-Methyl-2-pentanone	U	5 ug/L	5	10/16/2024	SW846-8260D	=
Acetone	U	5 ug/L	5	10/16/2024	SW846-8260D	=
Acrolein	U	5 ug/L	5	10/16/2024	SW846-8260D	=
Acrylonitrile	U	5 ug/L	5	10/16/2024	SW846-8260D	=
Benzene	U	1 ug/L	1	10/16/2024	SW846-8260D	=
Bromochloromethane	U	1 ug/L	1	10/16/2024	SW846-8260D	=
Bromodichloromethane	U	1 ug/L	1	10/16/2024	SW846-8260D	=
Bromoform	U	1 ug/L	1	10/16/2024	SW846-8260D	=
Bromomethane	U	1 ug/L	1	10/16/2024	SW846-8260D	=
Carbon disulfide	U	5 ug/L	5	10/16/2024	SW846-8260D	=
Carbon tetrachloride	U	1 ug/L	1	10/16/2024	SW846-8260D	=
Chlorobenzene	U	1 ug/L	1	10/16/2024	SW846-8260D	=
Chloroethane	U	1 ug/L	1	10/16/2024	SW846-8260D	=
Chloroform	U	1 ug/L	1	10/16/2024	SW846-8260D	=
Chloromethane	U	1 ug/L	1	10/16/2024	SW846-8260D	=
cis-1,2-Dichloroethene	U	1 ug/L	1	10/16/2024	SW846-8260D	=
cis-1,3-Dichloropropene	U	1 ug/L	1	10/16/2024	SW846-8260D	=
Dibromochloromethane	U	1 ug/L	1	10/16/2024	SW846-8260D	=
Dibromomethane	U	1 ug/L	1	10/16/2024	SW846-8260D	=
Ethylbenzene	UY2	1 ug/L	1	10/16/2024	SW846-8260D	=
Iodomethane	U	5 ug/L	5	10/16/2024	SW846-8260D	=
Methylene chloride	U	5 ug/L	5	10/16/2024	SW846-8260D	=
Styrene	U	1 ug/L	1	10/16/2024	SW846-8260D	=
Tetrachloroethene	U	1 ug/L	1	10/16/2024	SW846-8260D	=
Toluene	UY2	1 ug/L	1	10/16/2024	SW846-8260D	=
Total Xylene	UY2	3 ug/L	3	10/16/2024	SW846-8260D	=
trans-1,2-Dichloroethene	U	1 ug/L	1	10/16/2024	SW846-8260D	=
trans-1,3-Dichloropropene	U	1 ug/L	1	10/16/2024	SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5 ug/L	5	10/16/2024	SW846-8260D	=
Trichloroethene	U	1 ug/L	1	10/16/2024	SW846-8260D	=
Trichlorofluoromethane	U	1 ug/L	1	10/16/2024	SW846-8260D	=
Vinyl acetate	U	5 ug/L	5	10/16/2024	SW846-8260D	=
Vinyl chloride	UY1	1 ug/L	1	10/16/2024	SW846-8260D	=
Iodide	U	0.5 mg/L	0.5	10/16/2024	EPA-300.0	=

Paducah OREIS
GROUNDWATER MONITORING REPORT

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

Sampling Point: QC **Period:** 4th Quarter 2024

AKGWA Well Tag #: N/A **SAMPLE ID:** RI1SG1-25 **Sample Type:** RI

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Aluminum	U	0.05	mg/L	0.05	10/16/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	10/16/2024			SW846-6020B	=
Arsenic	U	0.005	mg/L	0.005	10/16/2024			SW846-6020B	=
Barium	U	0.004	mg/L	0.004	10/16/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	10/16/2024			SW846-6020B	=
Boron	U	0.015	mg/L	0.015	10/16/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	10/16/2024			SW846-6020B	=
Calcium	U	0.2	mg/L	0.2	10/16/2024			SW846-6020B	=
Chromium	U	0.01	mg/L	0.01	10/16/2024			SW846-6020B	=
Cobalt	U	0.001	mg/L	0.001	10/16/2024			SW846-6020B	=
Copper	U	0.002	mg/L	0.002	10/16/2024			SW846-6020B	=
Iron	U	0.1	mg/L	0.1	10/16/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	10/16/2024			SW846-6020B	=
Magnesium	U	0.03	mg/L	0.03	10/16/2024			SW846-6020B	=
Manganese	U	0.005	mg/L	0.005	10/16/2024			SW846-6020B	=
Molybdenum	U	0.001	mg/L	0.001	10/16/2024			SW846-6020B	=
Nickel	U	0.002	mg/L	0.002	10/16/2024			SW846-6020B	=
Potassium	U	0.3	mg/L	0.3	10/16/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	10/16/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	10/16/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	10/16/2024			SW846-6020B	=
Sodium	U	0.25	mg/L	0.25	10/16/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	10/16/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	10/16/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	10/16/2024			SW846-6020B	=
Vanadium	BJ	0.00726	mg/L	0.02	10/16/2024			SW846-6020B	U
Zinc	U	0.02	mg/L	0.02	10/16/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	10/16/2024			SW846-7470A	=
PCB-1016	U	0.096	ug/L	0.096	10/16/2024			SW846-8082A	=
PCB-1221	U	0.096	ug/L	0.096	10/16/2024			SW846-8082A	=
PCB-1232	U	0.096	ug/L	0.096	10/16/2024			SW846-8082A	=
PCB-1242	U	0.096	ug/L	0.096	10/16/2024			SW846-8082A	=
PCB-1248	U	0.096	ug/L	0.096	10/16/2024			SW846-8082A	=
PCB-1254	U	0.096	ug/L	0.096	10/16/2024			SW846-8082A	=
PCB-1260	U	0.096	ug/L	0.096	10/16/2024			SW846-8082A	=
PCB-1268	U	0.096	ug/L	0.096	10/16/2024			SW846-8082A	=
Polychlorinated biphenyl	U	0.096	ug/L	0.096	10/16/2024			SW846-8082A	=
Radium-226	U	-0.0819	pCi/L	1.08	10/16/2024	0.425	0.426	AN-1418	=
Strontium-90	U	-1.29	pCi/L	3.73	10/16/2024	1.72	1.72	EPA-905.0-M	=
Tritium	U	111	pCi/L	231	10/16/2024	137	139	EPA-906.0-M	=
Technetium-99	U	1.09	pCi/L	15.9	10/16/2024	8.98	8.98	HASL 300, Tc-02-RC M	=
Thorium-230	U	0.0755	pCi/L	2.1	10/16/2024	0.995	0.999	HASL 300, Th-01-RC M	=
Alpha activity	U	2.85	pCi/L	6.82	10/16/2024	3.95	3.98	SW846-9310	=
Beta activity	U	-0.862	pCi/L	13.1	10/16/2024	7.06	7.06	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.019	ug/L	0.019	10/16/2024			SW846-8011	=

1,1,1,2-Tetrachloroethane	U	1 ug/L	1	10/16/2024	SW846-8260D	=
1,1,1-Trichloroethane	U	1 ug/L	1	10/16/2024	SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1 ug/L	1	10/16/2024	SW846-8260D	=
1,1,2-Trichloroethane	U	1 ug/L	1	10/16/2024	SW846-8260D	=
1,1-Dichloroethane	U	1 ug/L	1	10/16/2024	SW846-8260D	=
1,1-Dichloroethene	U	1 ug/L	1	10/16/2024	SW846-8260D	=
1,2,3-Trichloropropane	U	1 ug/L	1	10/16/2024	SW846-8260D	=
1,2-Dibromoethane	U	1 ug/L	1	10/16/2024	SW846-8260D	=
1,2-Dichlorobenzene	U	1 ug/L	1	10/16/2024	SW846-8260D	=
1,2-Dichloroethane	U	1 ug/L	1	10/16/2024	SW846-8260D	=
1,2-Dichloropropane	U	1 ug/L	1	10/16/2024	SW846-8260D	=
1,4-Dichlorobenzene	U	1 ug/L	1	10/16/2024	SW846-8260D	=
2-Butanone	U	5 ug/L	5	10/16/2024	SW846-8260D	=
2-Hexanone	U	5 ug/L	5	10/16/2024	SW846-8260D	=
4-Methyl-2-pentanone	U	5 ug/L	5	10/16/2024	SW846-8260D	=
Acetone	U	5 ug/L	5	10/16/2024	SW846-8260D	=
Acrolein	U	5 ug/L	5	10/16/2024	SW846-8260D	=
Acrylonitrile	U	5 ug/L	5	10/16/2024	SW846-8260D	=
Benzene	U	1 ug/L	1	10/16/2024	SW846-8260D	=
Bromochloromethane	U	1 ug/L	1	10/16/2024	SW846-8260D	=
Bromodichloromethane	U	1 ug/L	1	10/16/2024	SW846-8260D	=
Bromoform	U	1 ug/L	1	10/16/2024	SW846-8260D	=
Bromomethane	U	1 ug/L	1	10/16/2024	SW846-8260D	=
Carbon disulfide	U	5 ug/L	5	10/16/2024	SW846-8260D	=
Carbon tetrachloride	U	1 ug/L	1	10/16/2024	SW846-8260D	=
Chlorobenzene	U	1 ug/L	1	10/16/2024	SW846-8260D	=
Chloroethane	U	1 ug/L	1	10/16/2024	SW846-8260D	=
Chloroform	U	1 ug/L	1	10/16/2024	SW846-8260D	=
Chloromethane	U	1 ug/L	1	10/16/2024	SW846-8260D	=
cis-1,2-Dichloroethene	U	1 ug/L	1	10/16/2024	SW846-8260D	=
cis-1,3-Dichloropropene	U	1 ug/L	1	10/16/2024	SW846-8260D	=
Dibromochloromethane	U	1 ug/L	1	10/16/2024	SW846-8260D	=
Dibromomethane	U	1 ug/L	1	10/16/2024	SW846-8260D	=
Ethylbenzene	UY2	1 ug/L	1	10/16/2024	SW846-8260D	=
Iodomethane	U	5 ug/L	5	10/16/2024	SW846-8260D	=
Methylene chloride	U	5 ug/L	5	10/16/2024	SW846-8260D	=
Styrene	U	1 ug/L	1	10/16/2024	SW846-8260D	=
Tetrachloroethene	U	1 ug/L	1	10/16/2024	SW846-8260D	=
Toluene	UY2	1 ug/L	1	10/16/2024	SW846-8260D	=
Total Xylene	UY2	3 ug/L	3	10/16/2024	SW846-8260D	=
trans-1,2-Dichloroethene	U	1 ug/L	1	10/16/2024	SW846-8260D	=
trans-1,3-Dichloropropene	U	1 ug/L	1	10/16/2024	SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5 ug/L	5	10/16/2024	SW846-8260D	=
Trichloroethene	U	1 ug/L	1	10/16/2024	SW846-8260D	=
Trichlorofluoromethane	U	1 ug/L	1	10/16/2024	SW846-8260D	=
Vinyl acetate	U	5 ug/L	5	10/16/2024	SW846-8260D	=
Vinyl chloride	UY1	1 ug/L	1	10/16/2024	SW846-8260D	=
Iodide	U	0.5 mg/L	0.5	10/16/2024	EPA-300.0	=

Paducah OREIS
GROUNDWATER MONITORING REPORT

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

Sampling Point: QC **Period:** 4th Quarter 2024

AKGWA Well Tag #: N/A **SAMPLE ID:** TB1SG1-25 **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	10/14/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	10/14/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	10/14/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	10/14/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	10/14/2024			SW846-8260D	=
Acetone	BJ	4.96	ug/L	5	10/14/2024			SW846-8260D	U
Acrolein	U	5	ug/L	5	10/14/2024			SW846-8260D	=
Acrylonitrile	U	5	ug/L	5	10/14/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	10/14/2024			SW846-8260D	=
Carbon tetrachloride	UY2	1	ug/L	1	10/14/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	10/14/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Ethylbenzene	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	10/14/2024			SW846-8260D	=
Methylene chloride	U	5	ug/L	5	10/14/2024			SW846-8260D	=
Styrene	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Tetrachloroethene	UY1	1	ug/L	1	10/14/2024			SW846-8260D	=
Toluene	U	1	ug/L	1	10/14/2024			SW846-8260D	=
Total Xylene	U	3	ug/L	3	10/14/2024			SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	10/14/2024			SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	10/14/2024			SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	10/14/2024			SW846-8260D	=
Trichloroethene	U	1	ug/L	1	10/14/2024			SW846-8260D	=

Trichlorofluoromethane	U	1 ug/L	1	10/14/2024	SW846-8260D	=
Vinyl acetate	U	5 ug/L	5	10/14/2024	SW846-8260D	=
Vinyl chloride	U	1 ug/L	1	10/14/2024	SW846-8260D	=

Paducah OREIS
GROUNDWATER MONITORING REPORT

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

Sampling Point: QC **Period:** 4th Quarter 2024

AKGWA Well Tag #: N/A **SAMPLE ID:** TB2SG1-25 **Sample Type:** TB

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
1,2-Dibromo-3-chloropropane	U	0.0194	ug/L	0.0194	10/15/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	10/15/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	10/15/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	10/15/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	10/15/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	10/15/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	10/15/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	10/15/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	10/15/2024			SW846-8260D	UJ
Acrylonitrile	U	5	ug/L	5	10/15/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	10/15/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	10/15/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Ethylbenzene	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	10/15/2024			SW846-8260D	=
Methylene chloride	U	5	ug/L	5	10/15/2024			SW846-8260D	=
Styrene	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Toluene	U	1	ug/L	1	10/15/2024			SW846-8260D	=
Total Xylene	U	3	ug/L	3	10/15/2024			SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	10/15/2024			SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	10/15/2024			SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	10/15/2024			SW846-8260D	=
Trichloroethene	U	1	ug/L	1	10/15/2024			SW846-8260D	=

Trichlorofluoromethane	U	1 ug/L	1	10/15/2024	SW846-8260D	=
Vinyl acetate	U	5 ug/L	5	10/15/2024	SW846-8260D	=
Vinyl chloride	U	1 ug/L	1	10/15/2024	SW846-8260D	=

Paducah OREIS
GROUNDWATER MONITORING REPORT

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

Sampling Point: QC **Period:** 4th Quarter 2024

AKGWA Well Tag #: N/A **SAMPLE ID:** TB3SG1-25 **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	10/16/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	10/16/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	10/16/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	10/16/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	10/16/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	10/16/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	10/16/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	10/16/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	10/16/2024			SW846-8260D	=
Acrylonitrile	U	5	ug/L	5	10/16/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	10/16/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	10/16/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Ethylbenzene	UY2	1	ug/L	1	10/16/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	10/16/2024			SW846-8260D	=
Methylene chloride	U	5	ug/L	5	10/16/2024			SW846-8260D	=
Styrene	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	10/16/2024			SW846-8260D	=
Toluene	UY2	1	ug/L	1	10/16/2024			SW846-8260D	=
Total Xylene	UY2	3	ug/L	3	10/16/2024			SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	10/16/2024			SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	10/16/2024			SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	10/16/2024			SW846-8260D	=
Trichloroethene	U	1	ug/L	1	10/16/2024			SW846-8260D	=

Trichlorofluoromethane	U	1 ug/L	1	10/16/2024	SW846-8260D	=
Vinyl acetate	U	5 ug/L	5	10/16/2024	SW846-8260D	=
Vinyl chloride	UY1	1 ug/L	1	10/16/2024	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. RADS: Value reported is < MDA and/or TPU.
W	Post-digestion spike recovery out of control limits.
W1	Post-digestion spike and post-digestion spike duplicate RPD out of control limits.
X	Other specific flags and footnotes may be required to properly define the results.
Y1	MS/MSD recovery outside acceptance criteria.
Y2	MS/MSD RPD outside acceptance criteria.

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

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

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

ATTACHMENT C1

GEL LABORATORIES CERTIFICATE OF ANALYSIS

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GEL LABORATORIES LLC

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

Certificate of Analysis

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

Kevil, Kentucky 42053

Report Date: January 21, 2025

Contact: Ms. Jaime Morrow

Project: C-746-U Landfill Quarterly(UG25-01)

Client Sample ID: MW369UG1-25
Sample ID: 689817001
Matrix: WG
Collect Date: 10-OCT-24
Receive Date: 11-OCT-24
Collector: Client

Project: FRNP00607
Client ID: FRNP006

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

Rad Alpha Spec Analysis

AN-1418 AlphaSpec Ra226, Liquid "As Received"

Radium-226	U	0.541	+/-0.534	0.769	+/-0.535	5.00	pCi/L			CM4	10/22/24	1442	2686953	1

Th-01-RC M, Th Isotopes, Liquid "As Received"

Thorium-230	U	0.812	+/-1.16	1.86	+/-1.17	50.0	pCi/L			RM3	10/20/24	1156	2686954	2

Thorium-232	U	0.104	+/-0.554	1.04	+/-0.554		pCi/L							

Rad Gas Flow Proportional Counting

904.0Mod, Ra228, Liquid "As Received"

Radium-228	U	1.71	+/-2.79	4.89	+/-2.83	4.99	pCi/L			KP1	10/29/24	1226	2686469	3

905.0Mod, Sr90, liquid "As Received"

Strontium-90	U	-0.594	+/-1.89	3.97	+/-1.89	8.00	pCi/L			ST2	10/22/24	1538	2686483	4

9310, Alpha/Beta Activity, liquid "As Received"

Alpha	U	-1.20	+/-1.86	7.03	+/-1.87	15.0	pCi/L			CH7	10/23/24	1431	2690660	5

Beta		41.0	+/-9.45	9.97	+/-11.6	50.0	pCi/L							

Rad Liquid Scintillation Analysis

906.0M, Tritium Dist, Liquid "As Received"

Tritium	U	152	+/-174	293	+/-177	300	pCi/L			SA2	11/06/24	1024	2690811	6

Tc-02-RC-MOD, Tc99, Liquid "As Received"

Technetium-99		83.8	+/-12.5	15.3	+/-15.6	25.0	pCi/L			GS3	11/03/24	1722	2690759	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"	2686953	95.1	(30%-110%)
Thorium-229 Tracer		Th-01-RC M, Th Isotopes, Liquid "As Received"	2686954	89.6	(30%-110%)
Barium-133 Tracer		904.0Mod, Ra228, Liquid "As Received"	2686469	82.6	(30%-110%)
Strontium Carrier		905.0Mod, Sr90, liquid "As Received"	2686483	81.7	(30%-110%)
Technetium-99m Tracer		Tc-02-RC-MOD, Tc99, Liquid "As Received"	2690759	97.2	(30%-110%)

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Certificate of Analysis

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

Kevil, Kentucky 42053

Report Date: January 21, 2025

Contact: Ms. Jaime Morrow

Project: C-746-U Landfill Quarterly(UG25-01)

Client Sample ID: MW369UG1-25

Sample ID: 689817001

Project: FRNP00607

Client ID: FRNP006

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

Notes:

The MDC is a sample specific MDC.

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

Column headers are defined as follows:

DF: Dilution Factor

DL: Detection Limit

Lc/LC: Critical Level

MDA: Minimum Detectable Activity

MDC: Minimum Detectable Concentration

Mtd.: Method

PF: Prep Factor

RL: Reporting Limit

TPU: Total Propagated Uncertainty

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Kevil, Kentucky 42053

Report Date: January 21, 2025

Contact: Ms. Jaime Morrow

Project: C-746-U Landfill Quarterly(UG25-01)

Client Sample ID: MW370UG1-25

Project: FRNP00607

Sample ID: 689817003

Client ID: FRNP006

Matrix: WG

Collect Date: 10-OCT-24

Receive Date: 11-OCT-24

Collector: Client

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

Rad Alpha Spec Analysis

AN-1418 AlphaSpec Ra226, Liquid "As Received"

Radium-226	U	0.566	+/-0.560	0.638	+/-0.561	5.00	pCi/L			CM4	10/23/24	1403	2686953	1

Th-01-RC M, Th Isotopes, Liquid "As Received"

Thorium-230	U	0.264	+/-1.02	1.97	+/-1.02	50.0	pCi/L			RM3	10/20/24	1157	2686954	2

Thorium-232	U	0.338	+/-0.654	0.873	+/-0.655		pCi/L							

Rad Gas Flow Proportional Counting

904.0Mod, Ra228, Liquid "As Received"

Radium-228	U	1.90	+/-2.40	4.07	+/-2.44	4.99	pCi/L			KP1	10/29/24	1225	2686469	3

905.0Mod, Sr90, liquid "As Received"

Strontium-90	U	-1.44	+/-1.75	4.01	+/-1.75	8.00	pCi/L			ST2	10/22/24	1538	2686483	4

9310, Alpha/Beta Activity, liquid "As Received"

Alpha	U	4.40	+/-4.28	6.54	+/-4.34	15.0	pCi/L			CH7	10/23/24	0907	2690660	5

Beta		14.3	+/-5.92	7.94	+/-6.37	50.0	pCi/L							

Rad Liquid Scintillation Analysis

906.0M, Tritium Dist, Liquid "As Received"

Tritium	U	226	+/-178	292	+/-183	300	pCi/L			SA2	11/06/24	1101	2690811	6

Tc-02-RC-MOD, Tc99, Liquid "As Received"

Technetium-99		20.6	+/-9.58	15.0	+/-9.86	25.0	pCi/L			GS3	11/03/24	1744	2690759	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"	2686953	93.8	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2686954	94	(30%-110%)
Barium-133 Tracer	904.0Mod, Ra228, Liquid "As Received"	2686469	80.7	(30%-110%)
Strontium Carrier	905.0Mod, Sr90, liquid "As Received"	2686483	83.9	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2690759	98.8	(30%-110%)

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Report Date: January 21, 2025

Contact: Ms. Jaime Morrow

Project: C-746-U Landfill Quarterly(UG25-01)

Client Sample ID: MW370UG1-25

Project: FRNP00607

Sample ID: 689817003

Client ID: FRNP006

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: January 21, 2025

Contact: Ms. Jaime Morrow

Project: C-746-U Landfill Quarterly(UG25-01)

Client Sample ID: MW372UG1-25

Project: FRNP00607

Sample ID: 689817007

Client ID: FRNP006

Matrix: WG

Collect Date: 10-OCT-24

Receive Date: 11-OCT-24

Collector: Client

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

Rad Alpha Spec Analysis

AN-1418 AlphaSpec Ra226, Liquid "As Received"

Radium-226	U	0.218	+/-0.415	0.718	+/-0.416	5.00	pCi/L			CM4	10/22/24	1442	2686953	1

Th-01-RC M, Th Isotopes, Liquid "As Received"

Thorium-230	U	1.22	+/-1.37	2.05	+/-1.38	50.0	pCi/L			RM3	10/20/24	1157	2686954	2

Thorium-232	U	-0.0850	+/-0.622	1.51	+/-0.622		pCi/L							

Rad Gas Flow Proportional Counting

904.0Mod, Ra228, Liquid "As Received"

Radium-228	U	3.07	+/-2.94	4.80	+/-3.04	4.99	pCi/L			KP1	10/29/24	1226	2686469	3

905.0Mod, Sr90, liquid "As Received"

Strontium-90	U	-0.641	+/-2.00	4.11	+/-2.00	8.00	pCi/L			ST2	10/22/24	1538	2686483	4

9310, Alpha/Beta Activity, liquid "As Received"

Alpha	U	7.84	+/-7.41	11.4	+/-7.52	15.0	pCi/L			CH7	10/23/24	1431	2690660	5

Beta		48.5	+/-9.83	9.08	+/-12.7	50.0	pCi/L							

Rad Liquid Scintillation Analysis

906.0M, Tritium Dist, Liquid "As Received"

Tritium	U	-23.4	+/-162	291	+/-162	300	pCi/L			SA2	11/06/24	1214	2690811	6

Tc-02-RC-MOD, Tc99, Liquid "As Received"

Technetium-99		92.0	+/-12.7	15.1	+/-16.4	25.0	pCi/L			GS3	11/03/24	1828	2690759	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"	2686953	96.4	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2686954	86.9	(30%-110%)
Barium-133 Tracer	904.0Mod, Ra228, Liquid "As Received"	2686469	86.4	(30%-110%)
Strontium Carrier	905.0Mod, Sr90, liquid "As Received"	2686483	88.2	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2690759	98.5	(30%-110%)

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Report Date: January 21, 2025

Contact: Ms. Jaime Morrow

Project: C-746-U Landfill Quarterly(UG25-01)

Client Sample ID: MW372UG1-25

Sample ID: 689817007

Project: FRNP00607

Client ID: FRNP006

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

Notes:

The MDC is a sample specific MDC.

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

Column headers are defined as follows:

DF: Dilution Factor

DL: Detection Limit

Lc/LC: Critical Level

MDA: Minimum Detectable Activity

MDC: Minimum Detectable Concentration

Mtd.: Method

PF: Prep Factor

RL: Reporting Limit

TPU: Total Propagated Uncertainty

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Certificate of Analysis

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Kevil, Kentucky 42053

Report Date: January 21, 2025

Contact: Ms. Jaime Morrow

Project: C-746-U Landfill Quarterly(UG25-01)

Client Sample ID: MW373UG1-25

Project: FRNP00607

Sample ID: 689817009

Client ID: FRNP006

Matrix: WG

Collect Date: 10-OCT-24

Receive Date: 11-OCT-24

Collector: Client

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

Rad Alpha Spec Analysis

AN-1418 AlphaSpec Ra226, Liquid "As Received"

Radium-226	U	0.328	+/-0.488	0.802	+/-0.488	5.00	pCi/L			CM4	10/22/24	1442	2686953	1

Th-01-RC M, Th Isotopes, Liquid "As Received"

Thorium-230	U	1.19	+/-1.30	1.93	+/-1.32	50.0	pCi/L			RM3	10/20/24	1157	2686954	2

Thorium-232	U	-0.139	+/-0.420	1.18	+/-0.421		pCi/L							

Rad Gas Flow Proportional Counting

904.0Mod, Ra228, Liquid "As Received"

Radium-228	U	2.80	+/-2.80	4.61	+/-2.89	4.99	pCi/L			KP1	10/29/24	1226	2686469	3

905.0Mod, Sr90, liquid "As Received"

Strontium-90	U	-1.47	+/-2.19	4.59	+/-2.19	8.00	pCi/L			ST2	10/22/24	1538	2686483	4

9310, Alpha/Beta Activity, liquid "As Received"

Alpha	U	4.37	+/-5.71	9.72	+/-5.75	15.0	pCi/L			CH7	10/23/24	0907	2690660	5

Beta	U	8.19	+/-6.33	9.97	+/-6.47	50.0	pCi/L							

Rad Liquid Scintillation Analysis

906.0M, Tritium Dist, Liquid "As Received"

Tritium	U	153	+/-176	295	+/-178	300	pCi/L			SA2	11/06/24	1251	2690811	6

Tc-02-RC-MOD, Tc99, Liquid "As Received"

Technetium-99	U	12.8	+/-9.36	15.3	+/-9.47	25.0	pCi/L			GS3	11/03/24	1849	2690759	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"	2686953	93.3	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2686954	91.5	(30%-110%)
Barium-133 Tracer	904.0Mod, Ra228, Liquid "As Received"	2686469	93.6	(30%-110%)
Strontium Carrier	905.0Mod, Sr90, liquid "As Received"	2686483	88.2	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2690759	96.8	(30%-110%)

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Kevil, Kentucky 42053

Report Date: January 21, 2025

Contact: Ms. Jaime Morrow

Project: C-746-U Landfill Quarterly(UG25-01)

Client Sample ID: MW373UG1-25

Sample ID: 689817009

Project: FRNP00607

Client ID: FRNP006

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

Notes:

The MDC is a sample specific MDC.

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

Column headers are defined as follows:

DF: Dilution Factor

DL: Detection Limit

Lc/LC: Critical Level

MDA: Minimum Detectable Activity

MDC: Minimum Detectable Concentration

Mtd.: Method

PF: Prep Factor

RL: Reporting Limit

TPU: Total Propagated Uncertainty

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Certificate of Analysis

Report Date: January 21, 2025

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-U Landfill Quarterly(UG25-01)

Client Sample ID: MW369UG1-25
Sample ID: 689817001
Matrix: WG
Collect Date: 10-OCT-24 08:42
Receive Date: 11-OCT-24
Collector: Client

Project: FRNP00607
Client ID: FRNP006

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	0.00873	0.0194	ug/L	0.970	1	LOF	10/13/24	1558	2686620	1
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	1.27	0.330	2.00	mg/L		1	KB3	10/28/24	2218	2695656	3
Flow Injection Analysis												
9012B, Cyanide, Total "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	10/15/24	0818	2686803	4
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens		15.0	3.33	10.0	ug/L		1	RMJ	11/07/24	2156	2701364	5
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	10/11/24	1342	2686385	6
SW846 9056A Anions (5 elements) "As Received"												
Fluoride	J	0.197	0.0330	4.00	mg/L		1	CH6	10/11/24	1241	2686382	7
Sulfate		8.91	0.133	0.400	mg/L		1					
Bromide	J	0.411	0.268	0.800	mg/L		4	CH6	10/11/24	1922	2686382	8
Chloride	J	28.5	0.268	250	mg/L		4					
Nitrate-N	J	1.05	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	10/16/24	1000	2687295	9
Metals Analysis-ICP-MS												
6020, Metals (15+ elements) "As Received"												
Aluminum	J	0.0452	0.0193	0.0500	mg/L	1.00	1	PRB	11/02/24	0359	2686433	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		0.341	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Calcium		15.5	0.0800	0.200	mg/L	1.00	1					
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					
Cobalt		0.00421	0.000300	0.00100	mg/L	1.00	1					

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Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-U Landfill Quarterly(UG25-01)

Client Sample ID: MW369UG1-25
Sample ID: 689817001

Project: FRNP00607
Client ID: FRNP006

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Metals (15+ elements) "As Received"												
Copper	J	0.00133	0.000300	0.00200	mg/L	1.00	1					
Iron	J	0.0662	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Magnesium		6.34	0.0100	0.0300	mg/L	1.00	1					
Manganese	J	0.00193	0.00100	0.00500	mg/L	1.00	1					
Molybdenum	J	0.000207	0.000200	0.00100	mg/L	1.00	1					
Nickel		0.00344	0.000600	0.00200	mg/L	1.00	1					
Potassium		0.575	0.0800	0.300	mg/L	1.00	1					
Selenium	J	0.00381	0.00150	0.00500	mg/L	1.00	1					
Silver	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Sodium		44.5	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	0.00431	0.00330	0.0200	mg/L	1.00	1					
Zinc	J	0.00376	0.00330	0.0200	mg/L	1.00	1					
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	11/01/24	1559	2686433	11
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Boron		0.0186	0.00520	0.0150	mg/L	1.00	1	PRB	11/02/24	1233	2686433	12
Semi-Volatiles-PCB												
8082A, PCB Liquids "As Received"												
Aroclor-1016	U	0.0974	0.0324	0.0974	ug/L	0.000974	1	YS1	11/07/24	0644	2700262	13
Aroclor-1221	U	0.0974	0.0324	0.0974	ug/L	0.000974	1					
Aroclor-1232	U	0.0974	0.0324	0.0974	ug/L	0.000974	1					
Aroclor-1242	U	0.0974	0.0324	0.0974	ug/L	0.000974	1					
Aroclor-1248	U	0.0974	0.0324	0.0974	ug/L	0.000974	1					
Aroclor-1254	U	0.0974	0.0324	0.0974	ug/L	0.000974	1					
Aroclor-1260	U	0.0974	0.0324	0.0974	ug/L	0.000974	1					
Aroclor-1268	U	0.0974	0.0324	0.0974	ug/L	0.000974	1					
Aroclor-Total	U	0.0974	0.0324	0.0974	ug/L	0.000974	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids	*	178	2.38	10.0	mg/L			KLP1	10/17/24	1506	2689834	14
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												

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Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-U Landfill Quarterly(UG25-01)

Client Sample ID: MW369UG1-25
Sample ID: 689817001

Project: FRNP00607
Client ID: FRNP006

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD	J	9.81	8.95	20.0	mg/L		1	JW2	10/14/24	1252	2686980	15
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	PXY1	10/16/24	1259	2688587	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	BJ	2.31	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: January 21, 2025

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-U Landfill Quarterly(UG25-01)

Project:	FRNP00607
Client ID:	FRNP006

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	0.950	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	10/14/24	1039	2686802
SW846 3535A	SW3535A PCB SPE Extraction	DG3	11/06/24	1053	2700261
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	10/15/24	1110	2687294
SW846 3005A	ICP-MS 3005A PREP	BB2	10/15/24	0855	2686432
SW846 8011 PREP	8011 Prep	LOF	10/13/24	1249	2686619

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Certificate of Analysis

Report Date: January 21, 2025

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-U Landfill Quarterly(UG25-01)

Client Sample ID: MW369UG1-25
Sample ID: 689817001

Project: FRNP00607
Client ID: FRNP006

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

The following Analytical Methods were performed:

Method	Description	Analyst	Comments
1	SW846 8011		
2	SW846 8011		
3	SW846 9060A		
4	SW846 9012B		
5	SW846 9020B		
6	EPA 300.0		
7	SW846 9056A		
8	SW846 9056A		
9	SW846 7470A		
10	SW846 3005A/6020B		
11	SW846 3005A/6020B		
12	SW846 3005A/6020B		
13	SW846 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"	6.96 ug/L	6.93	100	(56%-149%)
Decachlorobiphenyl	8082A, PCB Liquids "As Received"	0.145 ug/L	0.195	75	(30%-135%)
4cmx	8082A, PCB Liquids "As Received"	0.155 ug/L	0.195	79	(26%-108%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	49.9 ug/L	50.0	100	(85%-114%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	50.2 ug/L	50.0	100	(81%-118%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	50.2 ug/L	50.0	100	(89%-112%)

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: January 21, 2025

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-U Landfill Quarterly(UG25-01)

Client Sample ID: MW369UG1-25 Project: FRNP00607
Sample ID: 689817002 Client ID: FRNP006
Matrix: WG
Collect Date: 10-OCT-24 08:42
Receive Date: 11-OCT-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		0.348	0.000670	0.00400	mg/L	1.00	1	PRB	11/02/24	0402	2686433	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	SD	10/11/24	1239	2686402
SW846 3005A	ICP-MS 3005A PREP	BB2	10/15/24	0855	2686432

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: January 21, 2025

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-U Landfill Quarterly(UG25-01)

Client Sample ID: MW370UG1-25
Sample ID: 689817003
Matrix: WG
Collect Date: 10-OCT-24 09:27
Receive Date: 11-OCT-24
Collector: Client

Project: FRNP00607
Client ID: FRNP006

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
504.1/8011 Analysis of EDB/DBCP												
8011 VOA- 1,2-Dibromo-3-chloropropane "As Received"												
1,2-Dibromo-3-chloropropane	U	0.0192	0.00863	0.0192	ug/L	0.959	1	LOF	10/13/24	1633	2686620	1
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	1.35	0.330	2.00	mg/L		1	KB3	10/28/24	2251	2695656	3
Flow Injection Analysis												
9012B, Cyanide, Total "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	10/15/24	0819	2686803	4
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens	H	10.3	3.33	10.0	ug/L		1	RMJ	11/08/24	0246	2701364	5
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	10/11/24	1354	2686385	6
SW846 9056A Anions (5 elements) "As Received"												
Fluoride	J	0.177	0.0330	4.00	mg/L		1	CH6	10/11/24	1312	2686382	7
Bromide	J	0.612	0.335	1.00	mg/L		5	CH6	10/11/24	1953	2686382	8
Chloride	J	42.0	0.335	250	mg/L		5					
Nitrate-N	J	1.10	0.165	10.0	mg/L		5					
Sulfate		19.5	0.665	2.00	mg/L		5					
Mercury Analysis-CVAA												
7470, Mercury Liquid "As Received"												
Mercury	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	JP2	10/16/24	1002	2687295	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	11/02/24	0406	2686433	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		0.216	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Calcium		28.5	0.0800	0.200	mg/L	1.00	1					
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					
Cobalt	U	0.00100	0.000300	0.00100	mg/L	1.00	1					

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Certificate of Analysis

Report Date: January 21, 2025

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-U Landfill Quarterly(UG25-01)

Client Sample ID: MW370UG1-25
Sample ID: 689817003

Project: FRNP00607
Client ID: FRNP006

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Metals (15+ elements) "As Received"												
Copper	J	0.000576	0.000300	0.00200	mg/L	1.00	1					
Iron	J	0.0375	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Magnesium		12.1	0.0100	0.0300	mg/L	1.00	1					
Manganese	J	0.00216	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		2.46	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		42.6	0.0800	0.250	mg/L	1.00	1					
Thallium	U	0.00200	0.000600	0.00200	mg/L	1.00	1					
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1					
Vanadium	BJ	0.00337	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	11/01/24	1601	2686433	11
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Boron		0.0926	0.00520	0.0150	mg/L	1.00	1	PRB	11/02/24	1235	2686433	12
Semi-Volatiles-PCB												
8082A, PCB Liquids "As Received"												
Aroclor-1016	U	0.0993	0.0331	0.0993	ug/L	0.000993	1	YS1	11/07/24	0656	2700262	13
Aroclor-1221	U	0.0993	0.0331	0.0993	ug/L	0.000993	1					
Aroclor-1232	U	0.0993	0.0331	0.0993	ug/L	0.000993	1					
Aroclor-1242	U	0.0993	0.0331	0.0993	ug/L	0.000993	1					
Aroclor-1248	U	0.0993	0.0331	0.0993	ug/L	0.000993	1					
Aroclor-1254	U	0.0993	0.0331	0.0993	ug/L	0.000993	1					
Aroclor-1260	U	0.0993	0.0331	0.0993	ug/L	0.000993	1					
Aroclor-1268	U	0.0993	0.0331	0.0993	ug/L	0.000993	1					
Aroclor-Total	U	0.0993	0.0331	0.0993	ug/L	0.000993	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids	*	221	2.38	10.0	mg/L			KLP1	10/17/24	1506	2689834	14
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												

GEL LABORATORIES LLC

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Certificate of Analysis

Report Date: January 21, 2025

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-U Landfill Quarterly(UG25-01)

Client Sample ID: MW370UG1-25
Sample ID: 689817003

Project: FRNP00607
Client ID: FRNP006

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	10/14/24	1252	2686980	15
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	PXY1	10/16/24	1325	2688587	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	BJ	2.38	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: January 21, 2025

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-U Landfill Quarterly(UG25-01)

Project:	FRNP00607
Client ID:	FRNP006

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		1.96	0.333	1.00	ug/L		1					
Trichlorofluoromethane	U	1.00	0.333	1.00	ug/L		1					
Vinyl acetate	U	5.00	1.67	5.00	ug/L		1					
Vinyl chloride	U	1.00	0.333	1.00	ug/L		1					
Xylenes (total)	U	3.00	1.00	3.00	ug/L		1					
cis-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
cis-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,4-Dichloro-2-butene	U	5.00	1.67	5.00	ug/L		1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3535A	SW3535A PCB SPE Extraction	DG3	11/06/24	1053	2700261
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	10/15/24	1110	2687294
SW846 8011 PREP	8011 Prep	LOF	10/13/24	1249	2686619
SW846 9010C Distillation	SW846 9010C Prep	ES2	10/14/24	1039	2686802
SW846 3005A	ICP-MS 3005A PREP	BB2	10/15/24	0855	2686432

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Certificate of Analysis

Report Date: January 21, 2025

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-U Landfill Quarterly(UG25-01)

Client Sample ID: MW370UG1-25
Sample ID: 689817003

Project: FRNP00607
Client ID: FRNP006

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

The following Analytical Methods were performed:

Method	Description	Analyst	Comments
1	SW846 8011		
2	SW846 8011		
3	SW846 9060A		
4	SW846 9012B		
5	SW846 9020B		
6	EPA 300.0		
7	SW846 9056A		
8	SW846 9056A		
9	SW846 7470A		
10	SW846 3005A/6020B		
11	SW846 3005A/6020B		
12	SW846 3005A/6020B		
13	SW846 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"	6.61 ug/L	6.85	97	(56%-149%)
Decachlorobiphenyl	8082A, PCB Liquids "As Received"	0.173 ug/L	0.199	87	(30%-135%)
4cmx	8082A, PCB Liquids "As Received"	0.169 ug/L	0.199	85	(26%-108%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	50.2 ug/L	50.0	100	(85%-114%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	51.6 ug/L	50.0	103	(81%-118%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	52.3 ug/L	50.0	105	(89%-112%)

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: January 21, 2025

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-U Landfill Quarterly(UG25-01)

Client Sample ID: MW370UG1-25 Project: FRNP00607
Sample ID: 689817004 Client ID: FRNP006
Matrix: WG
Collect Date: 10-OCT-24 09:27
Receive Date: 11-OCT-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		0.204	0.000670	0.00400	mg/L	1.00	1	PRB	11/02/24	0410	2686433	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	SD	10/11/24	1239	2686402
SW846 3005A	ICP-MS 3005A PREP	BB2	10/15/24	0855	2686432

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

GEL LABORATORIES LLC

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Certificate of Analysis

Report Date: January 21, 2025

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-U Landfill Quarterly(UG25-01)

Client Sample ID: MW372UG1-25
Sample ID: 689817007
Matrix: WG
Collect Date: 10-OCT-24 10:51
Receive Date: 11-OCT-24
Collector: Client

Project: FRNP00607
Client ID: FRNP006

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
504.1/8011 Analysis of EDB/DBCP												
8011 VOA- 1,2-Dibromo-3-chloropropane "As Received"												
1,2-Dibromo-3-chloropropane	U	0.0189	0.00849	0.0189	ug/L	0.943	1	LOF	10/13/24	1741	2686620	1
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	1.44	0.330	2.00	mg/L		1	KB3	10/29/24	0016	2695656	2
Flow Injection Analysis												
9012B, Cyanide, Total "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	10/15/24	0821	2686803	3
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens	HJ	8.14	3.33	10.0	ug/L		1	RMJ	11/08/24	0305	2701364	4
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	10/11/24	1420	2686385	5
SW846 9056A Anions (5 elements) "As Received"												
Fluoride	J	0.198	0.0330	4.00	mg/L		1	CH6	10/11/24	1414	2686382	6
Bromide	J	0.577	0.268	0.800	mg/L		4	CH6	10/11/24	2055	2686382	7
Nitrate-N	J	0.982	0.132	10.0	mg/L		4					
Chloride	J	38.2	0.670	250	mg/L		10	CH6	10/12/24	0102	2686382	8
Sulfate		146	1.33	4.00	mg/L		10					
Mercury Analysis-CVAA												
7470, Mercury Liquid "As Received"												
Mercury	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	JP2	10/16/24	1005	2687295	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	11/02/24	0420	2686433	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		0.0493	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	0.000605	0.000300	0.00200	mg/L	1.00	1					

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Report Date: January 21, 2025

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-U Landfill Quarterly(UG25-01)

Client Sample ID: MW372UG1-25
Sample ID: 689817007

Project: FRNP00607
Client ID: FRNP006

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Metals (15+ elements) "As Received"												
Iron	J	0.0512	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Magnesium		22.4	0.0100	0.0300	mg/L	1.00	1					
Manganese	J	0.00123	0.00100	0.00500	mg/L	1.00	1					
Molybdenum	U	0.00100	0.000200	0.00100	mg/L	1.00	1					
Nickel	J	0.000627	0.000600	0.00200	mg/L	1.00	1					
Potassium		2.00	0.0800	0.300	mg/L	1.00	1					
Selenium	J	0.00246	0.00150	0.00500	mg/L	1.00	1					
Silver	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Thallium	U	0.00200	0.000600	0.00200	mg/L	1.00	1					
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1					
Vanadium	U	0.0200	0.00330	0.0200	mg/L	1.00	1					
Zinc	U	0.0200	0.00330	0.0200	mg/L	1.00	1					
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	11/01/24	1605	2686433	11
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Boron		1.14	0.0520	0.150	mg/L	1.00	10	PRB	11/02/24	1239	2686433	12
Calcium		64.5	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	0.0988	0.0329	0.0988	ug/L	0.000988	1	YS1	11/07/24	0720	2700262	13
Aroclor-1221	U	0.0988	0.0329	0.0988	ug/L	0.000988	1					
Aroclor-1232	U	0.0988	0.0329	0.0988	ug/L	0.000988	1					
Aroclor-1242	U	0.0988	0.0329	0.0988	ug/L	0.000988	1					
Aroclor-1248	U	0.0988	0.0329	0.0988	ug/L	0.000988	1					
Aroclor-1254	U	0.0988	0.0329	0.0988	ug/L	0.000988	1					
Aroclor-1260	U	0.0988	0.0329	0.0988	ug/L	0.000988	1					
Aroclor-1268	U	0.0988	0.0329	0.0988	ug/L	0.000988	1					
Aroclor-Total	U	0.0988	0.0329	0.0988	ug/L	0.000988	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids	*	442	2.38	10.0	mg/L			KLP1	10/17/24	1506	2689834	14
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												

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Certificate of Analysis

Report Date: January 21, 2025

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-U Landfill Quarterly(UG25-01)

Client Sample ID: MW372UG1-25
Sample ID: 689817007

Project: FRNP00607
Client ID: FRNP006

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD	J	9.81	8.95	20.0	mg/L		1	JW2	10/14/24	1252	2686980	15
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	PXY1	10/16/24	1418	2688587	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	BJ	2.05	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: January 21, 2025

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-U Landfill Quarterly(UG25-01)

Project:	FRNP00607
Client ID:	FRNP006

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	0.880	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	10/14/24	1039	2686802
SW846 3005A	ICP-MS 3005A PREP	BB2	10/15/24	0855	2686432
SW846 3535A	SW3535A PCB SPE Extraction	DG3	11/06/24	1053	2700261
SW846 8011 PREP	8011 Prep	LOF	10/13/24	1249	2686619
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	10/15/24	1110	2687294

GEL LABORATORIES LLC

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Certificate of Analysis

Report Date: January 21, 2025

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-U Landfill Quarterly(UG25-01)

Client Sample ID: MW372UG1-25
Sample ID: 689817007

Project: FRNP00607
Client ID: FRNP006

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

The following Analytical Methods were performed:

Method	Description	Analyst	Comments
1	SW846 8011		
2	SW846 9060A		
3	SW846 9012B		
4	SW846 9020B		
5	EPA 300.0		
6	SW846 9056A		
7	SW846 9056A		
8	SW846 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"	6.25 ug/L	6.74	93	(56%-149%)
Decachlorobiphenyl	8082A, PCB Liquids "As Received"	0.155 ug/L	0.198	78	(30%-135%)
4cmx	8082A, PCB Liquids "As Received"	0.150 ug/L	0.198	76	(26%-108%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	50.9 ug/L	50.0	102	(85%-114%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	52.4 ug/L	50.0	105	(81%-118%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	49.8 ug/L	50.0	100	(89%-112%)

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

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Certificate of Analysis

Report Date: January 21, 2025

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-U Landfill Quarterly(UG25-01)

Client Sample ID: MW372UG1-25 Project: FRNP00607
Sample ID: 689817008 Client ID: FRNP006
Matrix: WG
Collect Date: 10-OCT-24 10:51
Receive Date: 11-OCT-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		0.0486	0.000670	0.00400	mg/L	1.00	1	PRB	11/02/24	0431	2686433	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	BB2	10/15/24	0855	2686432
EPA 160	Laboratory Filtration	SD	10/11/24	1239	2686402

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: January 21, 2025

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-U Landfill Quarterly(UG25-01)

Client Sample ID:	MW373UG1-25	Project:	FRNP00607
Sample ID:	689817009	Client ID:	FRNP006
Matrix:	WG		
Collect Date:	10-OCT-24 11:38		
Receive Date:	11-OCT-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	10/13/24	1815	2686620	1
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	1.99	0.330	2.00	mg/L		1	KB3	10/29/24	0048	2695656	3
Flow Injection Analysis												
9012B, Cyanide, Total "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	10/15/24	0822	2686803	4
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens	H	11.8	3.33	10.0	ug/L		1	RMJ	11/08/24	0122	2701364	5
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	10/11/24	1433	2686385	6
SW846 9056A Anions (5 elements) "As Received"												
Fluoride	J	0.177	0.0330	4.00	mg/L		1	CH6	10/11/24	1445	2686382	7
Bromide	J	0.506	0.268	0.800	mg/L		4	CH6	10/11/24	2126	2686382	8
Nitrate-N	J	0.635	0.132	10.0	mg/L		4					
Chloride	J	30.2	1.34	250	mg/L		20	CH6	10/12/24	0133	2686382	9
Sulfate		201	2.66	8.00	mg/L		20					
Mercury Analysis-CVAA												
7470, Mercury Liquid "As Received"												
Mercury	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	JP2	10/16/24	1007	2687295	10
Metals Analysis-ICP-MS												
6020, Metals (15+ elements) "As Received"												
Aluminum	U	0.0500	0.0193	0.0500	mg/L	1.00	1	PRB	11/02/24	0435	2686433	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		0.0297	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	0.000570	0.000300	0.00200	mg/L	1.00	1					

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Report Date: January 21, 2025

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-U Landfill Quarterly(UG25-01)

Client Sample ID: MW373UG1-25
Sample ID: 689817009

Project: FRNP00607
Client ID: FRNP006

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Metals (15+ elements) "As Received"												
Iron	J	0.0493	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Magnesium		29.1	0.0100	0.0300	mg/L	1.00	1					
Manganese		0.0263	0.00100	0.00500	mg/L	1.00	1					
Molybdenum	U	0.00100	0.000200	0.00100	mg/L	1.00	1					
Nickel	J	0.00112	0.000600	0.00200	mg/L	1.00	1					
Potassium		2.66	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					
Thallium	U	0.00200	0.000600	0.00200	mg/L	1.00	1					
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1					
Vanadium	U	0.0200	0.00330	0.0200	mg/L	1.00	1					
Zinc	U	0.0200	0.00330	0.0200	mg/L	1.00	1					
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	11/01/24	1607	2686433	12
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Boron		2.17	0.104	0.300	mg/L	1.00	20	PRB	11/02/24	1241	2686433	13
Calcium		81.3	1.60	4.00	mg/L	1.00	20					
Sodium		67.2	1.60	5.00	mg/L	1.00	20					
Semi-Volatiles-PCB												
8082A, PCB Liquids "As Received"												
Aroclor-1016	U	0.0982	0.0327	0.0982	ug/L	0.000982	1	YS1	11/07/24	0732	2700262	14
Aroclor-1221	U	0.0982	0.0327	0.0982	ug/L	0.000982	1					
Aroclor-1232	U	0.0982	0.0327	0.0982	ug/L	0.000982	1					
Aroclor-1242	U	0.0982	0.0327	0.0982	ug/L	0.000982	1					
Aroclor-1248	U	0.0982	0.0327	0.0982	ug/L	0.000982	1					
Aroclor-1254	U	0.0982	0.0327	0.0982	ug/L	0.000982	1					
Aroclor-1260	U	0.0982	0.0327	0.0982	ug/L	0.000982	1					
Aroclor-1268	U	0.0982	0.0327	0.0982	ug/L	0.000982	1					
Aroclor-Total	U	0.0982	0.0327	0.0982	ug/L	0.000982	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids	*	552	2.38	10.0	mg/L			KLP1	10/17/24	1506	2689834	15
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												

GEL LABORATORIES LLC

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

Certificate of Analysis

Report Date: January 21, 2025

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-U Landfill Quarterly(UG25-01)

Client Sample ID: MW373UG1-25
Sample ID: 689817009

Project: FRNP00607
Client ID: FRNP006

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	10/14/24	1252	2686980	16
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	PXY1	10/16/24	1445	2688587	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	BJ	2.21	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: January 21, 2025

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-U Landfill Quarterly(UG25-01)

Client Sample ID: MW373UG1-25
Sample ID: 689817009

Project: FRNP00607
Client ID: FRNP006

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		2.48	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	10/15/24	1110	2687294
SW846 9010C Distillation	SW846 9010C Prep	ES2	10/14/24	1039	2686802
SW846 3005A	ICP-MS 3005A PREP	BB2	10/15/24	0855	2686432
SW846 8011 PREP	8011 Prep	LOF	10/13/24	1249	2686619
SW846 3535A	SW3535A PCB SPE Extraction	DG3	11/06/24	1053	2700261

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Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-U Landfill Quarterly(UG25-01)

Client Sample ID: MW373UG1-25
Sample ID: 689817009

Project: FRNP00607
Client ID: FRNP006

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

The following Analytical Methods were performed:

Method	Description	Analyst	Comments
1	SW846 8011		
2	SW846 8011		
3	SW846 9060A		
4	SW846 9012B		
5	SW846 9020B		
6	EPA 300.0		
7	SW846 9056A		
8	SW846 9056A		
9	SW846 9056A		
10	SW846 7470A		
11	SW846 3005A/6020B		
12	SW846 3005A/6020B		
13	SW846 3005A/6020B		
14	SW846 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"	6.65 ug/L	6.77	98	(56%-149%)
Decachlorobiphenyl	8082A, PCB Liquids "As Received"	0.150 ug/L	0.196	76	(30%-135%)
4cmx	8082A, PCB Liquids "As Received"	0.136 ug/L	0.196	69	(26%-108%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	52.0 ug/L	50.0	104	(85%-114%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	52.5 ug/L	50.0	105	(81%-118%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	52.2 ug/L	50.0	104	(89%-112%)

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: January 21, 2025

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-U Landfill Quarterly(UG25-01)

Client Sample ID: MW373UG1-25 Project: FRNP00607
Sample ID: 689817010 Client ID: FRNP006
Matrix: WG
Collect Date: 10-OCT-24 11:38
Receive Date: 11-OCT-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		0.0293	0.000670	0.00400	mg/L	1.00	1	PRB	11/02/24	0439	2686433	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	SD	10/11/24	1239	2686402
SW846 3005A	ICP-MS 3005A PREP	BB2	10/15/24	0855	2686432

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: January 21, 2025

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-U Landfill Quarterly(UG25-01)

Client Sample ID: TB3UG1-25 Project: FRNP00607
Sample ID: 689817015 Client ID: FRNP006
Matrix: WATER
Collect Date: 10-OCT-24 07:00
Receive Date: 11-OCT-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	0.0189	0.00850	0.0189	ug/L	0.944	1	LOF	10/13/24	2154	2686620	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	10/16/24	1604	2688587	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	4.22	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: January 21, 2025

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-U Landfill Quarterly(UG25-01)

Client Sample ID: TB3UG1-25
Sample ID: 689817015

Project: FRNP00607
Client ID: FRNP006

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	10/13/24	1249	2686619

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"	6.94 ug/L	6.74	103	(56%-149%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	53.8 ug/L	50.0	108	(85%-114%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	54.0 ug/L	50.0	108	(81%-118%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	51.3 ug/L	50.0	103	(89%-112%)

Notes:

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Certificate of Analysis

Report Date: January 21, 2025

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-U Landfill Quarterly(UG25-01)

Client Sample ID: TB3UG1-25
Sample ID: 689817015

Project: FRNP00607
Client ID: FRNP006

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

Column headers are defined as follows:

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

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ATTACHMENT C2

GEL LABORATORIES CERTIFICATE OF ANALYSIS

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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: January 21, 2025

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW220SG1-25
Sample ID: 690161001
Matrix: WG
Collect Date: 14-OCT-24
Receive Date: 16-OCT-24
Collector: Client

Project: FRNP00609
Client ID: FRNP006

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

Rad Alpha Spec Analysis

AlphaSpec Ra226, Liquid "As Received"

Radium-226	U	0.336	+/-1.05	1.90	+/-1.05	5.00	pCi/L			CM4	10/28/24	1344	2689710	1

Th-01-RC M, Th Isotopes, Liquid "As Received"

Thorium-230	U	0.746	+/-1.43	2.49	+/-1.44	50.0	pCi/L			RM3	10/26/24	0922	2689715	2

Rad Gas Flow Proportional Counting

905.0 Mod, Sr90, liquid "As Received"

Strontium-90	U	-1.10	+/-1.87	4.01	+/-1.87	8.00	pCi/L			HH3	11/04/24	1432	2688726	3

9310,Alpha/Beta Activity, liquid "As Received"

Alpha	U	-0.991	+/-2.71	7.23	+/-2.71	15.0	pCi/L			CH7	11/04/24	0954	2688739	4

Beta		10.6	+/-6.73	10.3	+/-6.96	50.0	pCi/L							

Rad Liquid Scintillation Analysis

906.0 Mod, Tritium Dist, Liquid "As Received"

Tritium	U	53.6	+/-130	225	+/-130	300	pCi/L			SA2	11/09/24	1825	2690818	5

Tc-02-RC-MOD, Tc99, Liquid "As Received"

Technetium-99	U	14.8	+/-12.4	20.6	+/-12.5	25.0	pCi/L			JXK3	11/10/24	0910	2695431	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"	2689710	94.9	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2689715	69.7	(30%-110%)
Strontium Carrier	905.0 Mod, Sr90, liquid "As Received"	2688726	58.1	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2695431	99.8	(30%-110%)

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Kevil, Kentucky 42053

Report Date: January 21, 2025

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW220SG1-25

Project: FRNP00609

Sample ID: 690161001

Client ID: FRNP006

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

Kevil, Kentucky 42053

Report Date: January 21, 2025

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW221SG1-25

Project: FRNP00609

Sample ID: 690161003

Client ID: FRNP006

Matrix: WG

Collect Date: 14-OCT-24

Receive Date: 16-OCT-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	0.462	+/-0.447	0.607	+/-0.448	5.00	pCi/L			CM4	10/26/24	0853	2689710	1
<i>Th-01-RC M, Th Isotopes, Liquid "As Received"</i>														
Thorium-230	U	-0.0117	+/-1.14	2.51	+/-1.14	50.0	pCi/L			RM3	10/26/24	0922	2689715	2
Rad Gas Flow Proportional Counting														
<i>905.0 Mod, Sr90, liquid "As Received"</i>														
Strontium-90	U	-0.256	+/-1.46	2.92	+/-1.46	8.00	pCi/L			HH3	11/04/24	1432	2688726	3
<i>9310,Alpha/Beta Activity, liquid "As Received"</i>														
Alpha	U	-0.0476	+/-3.39	7.75	+/-3.39	15.0	pCi/L			CH7	11/04/24	0954	2688739	4
Beta	U	3.13	+/-5.13	8.95	+/-5.16	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
<i>906.0 Mod, Tritium Dist, Liquid "As Received"</i>														
Tritium	U	-11.7	+/-128	227	+/-128	300	pCi/L			SA2	11/09/24	1912	2690818	5
<i>Tc-02-RC-MOD, Tc99, Liquid "As Received"</i>														
Technetium-99	U	2.74	+/-11.9	20.4	+/-11.9	25.0	pCi/L			JXK3	11/10/24	0941	2695431	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"	2689710	88.7	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2689715	74.4	(30%-110%)
Strontium Carrier	905.0 Mod, Sr90, liquid "As Received"	2688726	75.3	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2695431	101	(30%-110%)

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Certificate of Analysis

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

Kevil, Kentucky 42053

Report Date: January 21, 2025

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW221SG1-25

Project: FRNP00609

Sample ID: 690161003

Client ID: FRNP006

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: January 21, 2025

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW222SG1-25

Project: FRNP00609

Sample ID: 690161005

Client ID: FRNP006

Matrix: WG

Collect Date: 14-OCT-24

Receive Date: 16-OCT-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	0.907	+/-1.24	1.31	+/-1.24	5.00	pCi/L			CM4	10/28/24	1344	2689710	1
<i>Th-01-RC M, Th Isotopes, Liquid "As Received"</i>														
Thorium-230	U	0.796	+/-1.25	2.04	+/-1.26	50.0	pCi/L			RM3	10/26/24	0922	2689715	2
Rad Gas Flow Proportional Counting														
<i>905.0 Mod, Sr90, liquid "As Received"</i>														
Strontium-90	U	0.455	+/-1.40	2.62	+/-1.40	8.00	pCi/L			HH3	11/04/24	1432	2688726	3
<i>9310,Alpha/Beta Activity, liquid "As Received"</i>														
Alpha	U	0.223	+/-4.40	9.32	+/-4.40	15.0	pCi/L			CH7	11/04/24	0954	2688739	4
Beta	U	7.63	+/-6.02	9.52	+/-6.15	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
<i>906.0 Mod, Tritium Dist, Liquid "As Received"</i>														
Tritium	U	-64.8	+/-124	226	+/-124	300	pCi/L			SA2	11/09/24	1959	2690818	5
<i>Tc-02-RC-MOD, Tc99, Liquid "As Received"</i>														
Technetium-99	U	-2.88	+/-11.8	20.5	+/-11.8	25.0	pCi/L			JXK3	11/10/24	1013	2695431	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"	2689710	91.4	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2689715	82.6	(30%-110%)
Strontium Carrier	905.0 Mod, Sr90, liquid "As Received"	2688726	77.4	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2695431	100	(30%-110%)

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Certificate of Analysis

Company : Four Rivers Nuclear Partnership,
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5600 Hobbs Road

Kevil, Kentucky 42053

Report Date: January 21, 2025

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW222SG1-25

Project: FRNP00609

Sample ID: 690161005

Client ID: FRNP006

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: January 21, 2025

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW223SG1-25

Project: FRNP00609

Sample ID: 690161007

Client ID: FRNP006

Matrix: WG

Collect Date: 14-OCT-24

Receive Date: 16-OCT-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	0.391	+/-1.04	1.79	+/-1.04	5.00	pCi/L			CM4	10/28/24	1347	2689710	1
<i>Th-01-RC M, Th Isotopes, Liquid "As Received"</i>														
Thorium-230	U	0.168	+/-1.12	2.30	+/-1.13	50.0	pCi/L			RM3	10/26/24	0922	2689715	2
Rad Gas Flow Proportional Counting														
<i>905.0 Mod, Sr90, liquid "As Received"</i>														
Strontium-90	U	-0.367	+/-1.76	3.47	+/-1.76	8.00	pCi/L			HH3	11/04/24	1432	2688726	3
<i>9310,Alpha/Beta Activity, liquid "As Received"</i>														
Alpha	U	-1.45	+/-2.87	7.61	+/-2.88	15.0	pCi/L			CH7	11/04/24	0954	2688739	4
Beta	U	8.25	+/-6.05	9.52	+/-6.20	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
<i>906.0 Mod, Tritium Dist, Liquid "As Received"</i>														
Tritium	U	48.1	+/-133	230	+/-133	300	pCi/L			SA2	11/09/24	2046	2690818	5
<i>Tc-02-RC-MOD, Tc99, Liquid "As Received"</i>														
Technetium-99	U	6.45	+/-12.1	20.5	+/-12.1	25.0	pCi/L			JXK3	11/10/24	1045	2695431	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"	2689710	94.1	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2689715	73.4	(30%-110%)
Strontium Carrier	905.0 Mod, Sr90, liquid "As Received"	2688726	73.1	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2695431	100	(30%-110%)

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Certificate of Analysis

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Report Date: January 21, 2025

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW223SG1-25

Project: FRNP00609

Sample ID: 690161007

Client ID: FRNP006

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: January 21, 2025

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW224SG1-25

Project: FRNP00609

Sample ID: 690161009

Client ID: FRNP006

Matrix: WG

Collect Date: 14-OCT-24

Receive Date: 16-OCT-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	0.511	+/-1.03	1.46	+/-1.03	5.00	pCi/L			CM4	10/28/24	1347	2689710	1
<i>Th-01-RC M, Th Isotopes, Liquid "As Received"</i>														
Thorium-230	U	1.33	+/-1.41	2.01	+/-1.43	50.0	pCi/L			RM3	10/26/24	0922	2689715	2
Rad Gas Flow Proportional Counting														
<i>905.0 Mod, Sr90, liquid "As Received"</i>														
Strontium-90	U	-0.654	+/-1.58	3.29	+/-1.58	8.00	pCi/L			HH3	11/05/24	1609	2688726	3
<i>9310,Alpha/Beta Activity, liquid "As Received"</i>														
Alpha	U	0.365	+/-3.24	7.17	+/-3.24	15.0	pCi/L			CH7	11/04/24	0954	2688739	4
Beta	U	2.35	+/-8.13	14.4	+/-8.14	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
<i>906.0 Mod, Tritium Dist, Liquid "As Received"</i>														
Tritium	U	13.3	+/-127	224	+/-128	300	pCi/L			SA2	11/09/24	2132	2690818	5
<i>Tc-02-RC-MOD, Tc99, Liquid "As Received"</i>														
Technetium-99	U	6.41	+/-11.9	20.2	+/-11.9	25.0	pCi/L			JXK3	11/10/24	1116	2695431	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"	2689710	97.7	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2689715	82.5	(30%-110%)
Strontium Carrier	905.0 Mod, Sr90, liquid "As Received"	2688726	64.5	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2695431	99.7	(30%-110%)

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Certificate of Analysis

Company : Four Rivers Nuclear Partnership,
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Kevil, Kentucky 42053

Report Date: January 21, 2025

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW224SG1-25

Project: FRNP00609

Sample ID: 690161009

Client ID: FRNP006

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: January 21, 2025

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW384SG1-25

Project: FRNP00609

Sample ID: 690161011

Client ID: FRNP006

Matrix: WG

Collect Date: 14-OCT-24

Receive Date: 16-OCT-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	0.118	+/-0.826	1.66	+/-0.826	5.00	pCi/L			CM4	10/28/24	1346	2689710	1
<i>Th-01-RC M, Th Isotopes, Liquid "As Received"</i>														
Thorium-230	U	0.338	+/-1.04	1.96	+/-1.05	50.0	pCi/L			RM3	10/26/24	0922	2689715	2
Rad Gas Flow Proportional Counting														
<i>905.0 Mod, Sr90, liquid "As Received"</i>														
Strontium-90	U	-1.17	+/-1.61	3.37	+/-1.61	8.00	pCi/L			HH3	11/04/24	1433	2688726	3
<i>9310,Alpha/Beta Activity, liquid "As Received"</i>														
Alpha	U	-2.27	+/-2.45	7.71	+/-2.46	15.0	pCi/L			CH7	11/04/24	0954	2688739	4
Beta		20.2	+/-7.44	9.66	+/-8.14	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
<i>906.0 Mod, Tritium Dist, Liquid "As Received"</i>														
Tritium	U	146	+/-137	228	+/-140	300	pCi/L			SA2	11/09/24	2219	2690818	5
<i>Tc-02-RC-MOD, Tc99, Liquid "As Received"</i>														
Technetium-99		35.1	+/-13.3	21.2	+/-13.9	25.0	pCi/L			JXK3	11/10/24	1148	2695431	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"	2689710	94.6	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2689715	89.3	(30%-110%)
Strontium Carrier	905.0 Mod, Sr90, liquid "As Received"	2688726	77.4	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2695431	97.5	(30%-110%)

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Report Date: January 21, 2025

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW384SG1-25

Project: FRNP00609

Sample ID: 690161011

Client ID: FRNP006

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: January 21, 2025

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW385SG1-25

Project: FRNP00609

Sample ID: 690161013

Client ID: FRNP006

Matrix: WG

Collect Date: 14-OCT-24

Receive Date: 16-OCT-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	0.268	+/-0.336	0.505	+/-0.336	5.00	pCi/L			CM4	10/26/24	0853	2689710	1
<i>Th-01-RC M, Th Isotopes, Liquid "As Received"</i>														
Thorium-230	U	-0.0861	+/-1.13	2.56	+/-1.13	50.0	pCi/L			RM3	10/26/24	0922	2689715	2
Rad Gas Flow Proportional Counting														
<i>905.0 Mod, Sr90, liquid "As Received"</i>														
Strontium-90	U	1.45	+/-2.10	3.61	+/-2.11	8.00	pCi/L			HH3	11/04/24	1433	2688726	3
<i>9310,Alpha/Beta Activity, liquid "As Received"</i>														
Alpha	U	-0.862	+/-3.87	8.90	+/-3.88	15.0	pCi/L			CH7	11/04/24	0954	2688739	4
Beta		24.0	+/-7.90	9.95	+/-8.82	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
<i>906.0 Mod, Tritium Dist, Liquid "As Received"</i>														
Tritium	U	-61.1	+/-128	233	+/-128	300	pCi/L			SA2	11/09/24	2306	2690818	5
<i>Tc-02-RC-MOD, Tc99, Liquid "As Received"</i>														
Technetium-99		40.9	+/-13.0	20.4	+/-13.8	25.0	pCi/L			JXK3	11/10/24	1220	2695431	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"	2689710	92.9	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2689715	65	(30%-110%)
Strontium Carrier	905.0 Mod, Sr90, liquid "As Received"	2688726	68.8	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2695431	99.9	(30%-110%)

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Certificate of Analysis

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Report Date: January 21, 2025

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW385SG1-25

Project: FRNP00609

Sample ID: 690161013

Client ID: FRNP006

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: January 21, 2025

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID:	MW220SG1-25	Project:	FRNP00609
Sample ID:	690161001	Client ID:	FRNP006
Matrix:	WG		
Collect Date:	14-OCT-24 11:05		
Receive Date:	16-OCT-24		
Collector:	Client		

C2-17

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Report Date: January 21, 2025

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW220SG1-25
Sample ID: 690161001

Project: FRNP00609
Client ID: FRNP006

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	0.000974	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		8.55	0.0100	0.0300	mg/L	1.00	1					
Manganese	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Molybdenum	J	0.000657	0.000200	0.00100	mg/L	1.00	1					
Nickel		0.00583	0.000600	0.00200	mg/L	1.00	1					
Potassium		2.00	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		36.9	0.0800	0.250	mg/L	1.00	1					
Thallium	U	0.00200	0.000600	0.00200	mg/L	1.00	1					
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1					
Vanadium	U	0.0200	0.00330	0.0200	mg/L	1.00	1					
Zinc	J	0.00355	0.00330	0.0200	mg/L	1.00	1					
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	11/10/24	1426	2689906	11
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Semi-Volatiles-PCB												
8082A, PCB Liquids "As Received"												
Aroclor-1016	U	0.0872	0.0290	0.0872	ug/L	0.000872	1	YS1	11/08/24	1442	2701396	12
Aroclor-1221	U	0.0872	0.0290	0.0872	ug/L	0.000872	1					
Aroclor-1232	U	0.0872	0.0290	0.0872	ug/L	0.000872	1					
Aroclor-1242	U	0.0872	0.0290	0.0872	ug/L	0.000872	1					
Aroclor-1248	U	0.0872	0.0290	0.0872	ug/L	0.000872	1					
Aroclor-1254	U	0.0872	0.0290	0.0872	ug/L	0.000872	1					
Aroclor-1260	U	0.0872	0.0290	0.0872	ug/L	0.000872	1					
Aroclor-1268	U	0.0872	0.0290	0.0872	ug/L	0.000872	1					
Aroclor-Total	U	0.0872	0.0290	0.0872	ug/L	0.000872	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		181	2.38	10.0	mg/L			KLP1	10/21/24	1350	2691105	13
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												

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Certificate of Analysis

Report Date: January 21, 2025

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW220SG1-25
Sample ID: 690161001

Project: FRNP00609
Client ID: FRNP006

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	10/16/24	1748	2688679	14
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	JM6	10/21/24	1212	2691187	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	BJ	3.95	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	UY2	1.00	0.333	1.00	ug/L		1					
Chlorobenzene	U	1.00	0.333	1.00	ug/L		1					
Chloroethane	U	1.00	0.333	1.00	ug/L		1					
Chloroform	U	1.00	0.333	1.00	ug/L		1					
Chloromethane	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
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Project:	FRNP00609
Client ID:	FRNP006

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	UY1	1.00	0.333	1.00	ug/L		1					
Toluene	U	1.00	0.333	1.00	ug/L		1					
Trichloroethylene	U	1.00	0.333	1.00	ug/L		1					
Trichlorofluoromethane	U	1.00	0.333	1.00	ug/L		1					
Vinyl acetate	U	5.00	1.67	5.00	ug/L		1					
Vinyl chloride	U	1.00	0.333	1.00	ug/L		1					
Xylenes (total)	U	3.00	1.00	3.00	ug/L		1					
cis-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
cis-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,4-Dichloro-2-butene	U	5.00	1.67	5.00	ug/L		1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-MS 3005A PREP	BB2	10/25/24	0820	2689905
SW846 9010C Distillation	SW846 9010C Prep	ES2	10/17/24	1024	2689172
SW846 3535A	SW3535A PCB SPE Extraction	DXF4	11/08/24	0600	2701394
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	10/17/24	1105	2688830
SW846 8011 PREP	8011 Prep	LOF	10/17/24	1347	2689569

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Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW220SG1-25
Sample ID: 690161001

Project: FRNP00609
Client ID: FRNP006

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

The following Analytical Methods were performed:

Method	Description	Analyst	Comments
1	SW846 8011		
2	SW846 8011		
3	SW846 9060A		
4	SW846 9012B		
5	SW846 9020B		
6	EPA 300.0		
7	SW846 9056A		
8	SW846 9056A		
9	SW846 7470A		
10	SW846 3005A/6020B		
11	SW846 3005A/6020B		
12	SW846 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 Compounds Liquid "As Received"	6.82 ug/L	6.92	99	(56%-149%)
Decachlorobiphenyl	8082A, PCB Liquids "As Received"	0.162 ug/L	0.174	93	(30%-135%)
4cmx	8082A, PCB Liquids "As Received"	0.151 ug/L	0.174	87	(26%-108%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	54.1 ug/L	50.0	108	(85%-114%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	53.0 ug/L	50.0	106	(81%-118%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	50.2 ug/L	50.0	100	(89%-112%)

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW220SG1-25 Project: FRNP00609
Sample ID: 690161002 Client ID: FRNP006
Matrix: WG
Collect Date: 14-OCT-24 11:05
Receive Date: 16-OCT-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		0.183	0.000670	0.00400	mg/L	1.00	1	PRB	11/09/24	2302	2689906	1
Chromium	J	0.00359	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	BB2	10/25/24	0820	2689905
EPA 160	Laboratory Filtration	SD	10/17/24	1535	2688846

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: January 21, 2025

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW221SG1-25 Project: FRNP00609
Sample ID: 690161003 Client ID: FRNP006
Matrix: WG
Collect Date: 14-OCT-24 07:59
Receive Date: 16-OCT-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	10/17/24	1813	2689576	1
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	1.21	0.330	2.00	mg/L		1	KB3	10/30/24	0754	2696471	3
Flow Injection Analysis												
9012B, Total Cyanide "As Received"												
Cyanide, Total	UN	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	10/21/24	0705	2689173	4
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens	J	7.60	3.33	10.0	ug/L		1	RMJ	11/09/24	0301	2702851	5
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	10/16/24	1410	2688638	6
SW846 9056A Anions (5) "As Received"												
Bromide		0.500	0.0670	0.200	mg/L		1	CH6	10/16/24	1504	2688636	7
Fluoride	J	0.256	0.0330	4.00	mg/L		1					
Sulfate		13.7	0.133	0.400	mg/L		1					
Chloride	J	32.6	0.335	250	mg/L		5	CH6	10/16/24	1941	2688636	8
Nitrate-N	HJ	1.11	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	10/18/24	1112	2688834	9
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Aluminum	U	0.0500	0.0193	0.0500	mg/L	1.00	1	PRB	11/09/24	2305	2689906	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		0.190	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					
Boron	J	0.0147	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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Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW221SG1-25
Sample ID: 690161003

Project: FRNP00609
Client ID: FRNP006

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	0.00171	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		8.90	0.0100	0.0300	mg/L	1.00	1					
Manganese	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Molybdenum		0.00216	0.000200	0.00100	mg/L	1.00	1					
Nickel		0.0138	0.000600	0.00200	mg/L	1.00	1					
Potassium		1.19	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		45.6	0.0800	0.250	mg/L	1.00	1					
Thallium	U	0.00200	0.000600	0.00200	mg/L	1.00	1					
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1					
Vanadium	U	0.0200	0.00330	0.0200	mg/L	1.00	1					
Zinc	J	0.0179	0.00330	0.0200	mg/L	1.00	1					
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	11/10/24	1427	2689906	11
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Semi-Volatiles-PCB												
8082A, PCB Liquids "As Received"												
Aroclor-1016	U	0.0863	0.0288	0.0863	ug/L	0.000863	1	YS1	11/08/24	1454	2701396	12
Aroclor-1221	U	0.0863	0.0288	0.0863	ug/L	0.000863	1					
Aroclor-1232	U	0.0863	0.0288	0.0863	ug/L	0.000863	1					
Aroclor-1242	U	0.0863	0.0288	0.0863	ug/L	0.000863	1					
Aroclor-1248	U	0.0863	0.0288	0.0863	ug/L	0.000863	1					
Aroclor-1254	U	0.0863	0.0288	0.0863	ug/L	0.000863	1					
Aroclor-1260	U	0.0863	0.0288	0.0863	ug/L	0.000863	1					
Aroclor-1268	U	0.0863	0.0288	0.0863	ug/L	0.000863	1					
Aroclor-Total	U	0.0863	0.0288	0.0863	ug/L	0.000863	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		207	2.38	10.0	mg/L			KLP1	10/21/24	1350	2691105	13
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												

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Client Sample ID: MW221SG1-25
Sample ID: 690161003

Project: FRNP00609
Client ID: FRNP006

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	10/16/24	1748	2688679	14
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	JM6	10/21/24	1240	2691187	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	UY2	1.00	0.333	1.00	ug/L		1					
Chlorobenzene	U	1.00	0.333	1.00	ug/L		1					
Chloroethane	U	1.00	0.333	1.00	ug/L		1					
Chloroform	U	1.00	0.333	1.00	ug/L		1					
Chloromethane	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: January 21, 2025

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Project:	FRNP00609
Client ID:	FRNP006

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	UY1	1.00	0.333	1.00	ug/L		1					
Toluene	U	1.00	0.333	1.00	ug/L		1					
Trichloroethylene	U	1.00	0.333	1.00	ug/L		1					
Trichlorofluoromethane	U	1.00	0.333	1.00	ug/L		1					
Vinyl acetate	U	5.00	1.67	5.00	ug/L		1					
Vinyl chloride	U	1.00	0.333	1.00	ug/L		1					
Xylenes (total)	U	3.00	1.00	3.00	ug/L		1					
cis-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
cis-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,4-Dichloro-2-butene	U	5.00	1.67	5.00	ug/L		1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-MS 3005A PREP	BB2	10/25/24	0820	2689905
SW846 9010C Distillation	SW846 9010C Prep	ES2	10/17/24	1024	2689172
SW846 3535A	SW3535A PCB SPE Extraction	DXF4	11/08/24	0600	2701394
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	10/17/24	1105	2688830
SW846 8011 PREP	8011 Prep	LOF	10/17/24	1347	2689569

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Certificate of Analysis

Report Date: January 21, 2025

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW221SG1-25
Sample ID: 690161003

Project: FRNP00609
Client ID: FRNP006

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

The following Analytical Methods were performed:

Method	Description	Analyst	Comments
1	SW846 8011		
2	SW846 8011		
3	SW846 9060A		
4	SW846 9012B		
5	SW846 9020B		
6	EPA 300.0		
7	SW846 9056A		
8	SW846 9056A		
9	SW846 7470A		
10	SW846 3005A/6020B		
11	SW846 3005A/6020B		
12	SW846 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 Compounds Liquid "As Received"	6.72 ug/L	6.81	99	(56%-149%)
Decachlorobiphenyl	8082A, PCB Liquids "As Received"	0.148 ug/L	0.173	86	(30%-135%)
4cmx	8082A, PCB Liquids "As Received"	0.135 ug/L	0.173	78	(26%-108%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	53.8 ug/L	50.0	108	(85%-114%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	52.9 ug/L	50.0	106	(81%-118%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	50.5 ug/L	50.0	101	(89%-112%)

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: January 21, 2025

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID:	MW221SG1-25	Project:	FRNP00609
Sample ID:	690161004	Client ID:	FRNP006
Matrix:	WG		
Collect Date:	14-OCT-24 07:59		
Receive Date:	16-OCT-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		0.180	0.000670	0.00400	mg/L	1.00	1	PRB	11/09/24	2309	2689906	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	BB2	10/25/24	0820	2689905
EPA 160	Laboratory Filtration	SD	10/17/24	1535	2688846

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: January 21, 2025

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID:	MW222SG1-25	Project:	FRNP00609
Sample ID:	690161005	Client ID:	FRNP006
Matrix:	WG		
Collect Date:	14-OCT-24 09:33		
Receive Date:	16-OCT-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	10/17/24	1847	2689576	1
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	1.11	0.330	2.00	mg/L		1	KB3	10/30/24	0827	2696471	3
Flow Injection Analysis												
9012B, Total Cyanide "As Received"												
Cyanide, Total	UN	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	10/21/24	0706	2689173	4
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens	U	10.0	3.33	10.0	ug/L		1	RMJ	11/09/24	1957	2702958	5
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	10/16/24	1423	2688638	6
SW846 9056A Anions (5) "As Received"												
Bromide		0.409	0.0670	0.200	mg/L		1	CH6	10/16/24	1534	2688636	7
Fluoride	J	0.301	0.0330	4.00	mg/L		1					
Sulfate		11.0	0.133	0.400	mg/L		1					
Chloride	J	29.3	0.268	250	mg/L		4	CH6	10/16/24	2012	2688636	8
Nitrate-N	HJ	0.956	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	10/18/24	1113	2688834	9
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Aluminum	U	0.0500	0.0193	0.0500	mg/L	1.00	1	PRB	11/09/24	2313	2689906	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		0.226	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					
Boron	J	0.00798	0.00520	0.0150	mg/L	1.00	1					
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Calcium		16.5	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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Report Date: January 21, 2025

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW222SG1-25
Sample ID: 690161005

Project: FRNP00609
Client ID: FRNP006

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Cobalt	J	0.000349	0.000300	0.00100	mg/L	1.00	1					
Copper	J	0.00103	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		7.26	0.0100	0.0300	mg/L	1.00	1					
Manganese	J	0.00308	0.00100	0.00500	mg/L	1.00	1					
Molybdenum		0.00192	0.000200	0.00100	mg/L	1.00	1					
Nickel		0.0179	0.000600	0.00200	mg/L	1.00	1					
Potassium		0.674	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		41.3	0.0800	0.250	mg/L	1.00	1					
Thallium	U	0.00200	0.000600	0.00200	mg/L	1.00	1					
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1					
Vanadium	U	0.0200	0.00330	0.0200	mg/L	1.00	1					
Zinc	J	0.00773	0.00330	0.0200	mg/L	1.00	1					
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	11/10/24	1429	2689906	11
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Semi-Volatiles-PCB												
8082A, PCB Liquids "As Received"												
Aroclor-1016	U	0.0981	0.0327	0.0981	ug/L	0.000981	1	YS1	11/12/24	0639	2702806	12
Aroclor-1221	U	0.0981	0.0327	0.0981	ug/L	0.000981	1					
Aroclor-1232	U	0.0981	0.0327	0.0981	ug/L	0.000981	1					
Aroclor-1242	U	0.0981	0.0327	0.0981	ug/L	0.000981	1					
Aroclor-1248	U	0.0981	0.0327	0.0981	ug/L	0.000981	1					
Aroclor-1254	U	0.0981	0.0327	0.0981	ug/L	0.000981	1					
Aroclor-1260	U	0.0981	0.0327	0.0981	ug/L	0.000981	1					
Aroclor-1268	U	0.0981	0.0327	0.0981	ug/L	0.000981	1					
Aroclor-Total	U	0.0981	0.0327	0.0981	ug/L	0.000981	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		190	2.38	10.0	mg/L			KLP1	10/21/24	1350	2691105	13
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												

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Certificate of Analysis

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW222SG1-25
Sample ID: 690161005

Project: FRNP00609
Client ID: FRNP006

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	10/16/24	1748	2688679	14
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	JM6	10/21/24	1308	2691187	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	UY2	1.00	0.333	1.00	ug/L		1					
Chlorobenzene	U	1.00	0.333	1.00	ug/L		1					
Chloroethane	U	1.00	0.333	1.00	ug/L		1					
Chloroform	U	1.00	0.333	1.00	ug/L		1					
Chloromethane	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: January 21, 2025

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Project:	FRNP00609
Client ID:	FRNP006

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	UY1	1.00	0.333	1.00	ug/L		1					
Toluene	U	1.00	0.333	1.00	ug/L		1					
Trichloroethylene	U	1.00	0.333	1.00	ug/L		1					
Trichlorofluoromethane	U	1.00	0.333	1.00	ug/L		1					
Vinyl acetate	U	5.00	1.67	5.00	ug/L		1					
Vinyl chloride	U	1.00	0.333	1.00	ug/L		1					
Xylenes (total)	U	3.00	1.00	3.00	ug/L		1					
cis-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
cis-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,4-Dichloro-2-butene	U	5.00	1.67	5.00	ug/L		1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-MS 3005A PREP	BB2	10/25/24	0820	2689905
SW846 8011 PREP	8011 Prep	LOF	10/17/24	1347	2689569
SW846 3535A	SW3535A PCB SPE Extraction	DG3	11/11/24	1157	2702733
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	10/17/24	1105	2688830
SW846 3535A	SW3535A PCB SPE Extraction	DXF4	11/08/24	0600	2701394
SW846 9010C Distillation	SW846 9010C Prep	ES2	10/17/24	1024	2689172

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Certificate of Analysis

Report Date: January 21, 2025

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW222SG1-25
Sample ID: 690161005

Project: FRNP00609
Client ID: FRNP006

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

The following Analytical Methods were performed:

Method	Description	Analyst	Comments
1	SW846 8011		
2	SW846 8011		
3	SW846 9060A		
4	SW846 9012B		
5	SW846 9020B		
6	EPA 300.0		
7	SW846 9056A		
8	SW846 9056A		
9	SW846 7470A		
10	SW846 3005A/6020B		
11	SW846 3005A/6020B		
12	SW846 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 Compounds Liquid "As Received"	6.38 ug/L	6.82	94	(56%-149%)
4cmx	8082A, PCB Liquids "As Received"	0.165 ug/L	0.196	84	(26%-108%)
Decachlorobiphenyl	8082A, PCB Liquids "As Received"	0.196 ug/L	0.196	100	(30%-135%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	51.7 ug/L	50.0	103	(85%-114%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	53.4 ug/L	50.0	107	(81%-118%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	50.3 ug/L	50.0	101	(89%-112%)

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW222SG1-25 Project: FRNP00609
Sample ID: 690161006 Client ID: FRNP006
Matrix: WG
Collect Date: 14-OCT-24 09:33
Receive Date: 16-OCT-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		0.231	0.000670	0.00400	mg/L	1.00	1	PRB	11/09/24	2316	2689906	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	BB2	10/25/24	0820	2689905
EPA 160	Laboratory Filtration	SD	10/17/24	1535	2688846

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: January 21, 2025

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW223SG1-25 Project: FRNP00609
Sample ID: 690161007 Client ID: FRNP006
Matrix: WG
Collect Date: 14-OCT-24 08:47
Receive Date: 16-OCT-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	0.00855	0.0190	ug/L	0.950	1	LOF	10/17/24	1921	2689576	1
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	1.17	0.330	2.00	mg/L		1	KB3	10/30/24	0859	2696471	3
Flow Injection Analysis												
9012B, Total Cyanide "As Received"												
Cyanide, Total	UN	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	10/21/24	0707	2689173	4
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens	U	10.0	3.33	10.0	ug/L		1	RMJ	11/09/24	2156	2702958	5
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	10/16/24	1435	2688638	6
SW846 9056A Anions (5) "As Received"												
Bromide		0.532	0.0670	0.200	mg/L		1	CH6	10/16/24	1605	2688636	7
Fluoride	J	0.258	0.0330	4.00	mg/L		1					
Sulfate		13.5	0.133	0.400	mg/L		1					
Chloride	J	32.9	0.335	250	mg/L		5	CH6	10/16/24	2043	2688636	8
Nitrate-N	HJ	0.916	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	10/18/24	1115	2688834	9
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Aluminum	U	0.0500	0.0193	0.0500	mg/L	1.00	1	PRB	11/09/24	2320	2689906	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		0.236	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					
Boron	J	0.00797	0.00520	0.0150	mg/L	1.00	1					
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Calcium		21.4	0.0800	0.200	mg/L	1.00	1					
Chromium		0.0159	0.00300	0.0100	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: January 21, 2025

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW223SG1-25
Sample ID: 690161007

Project: FRNP00609
Client ID: FRNP006

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Cobalt		0.00292	0.000300	0.00100	mg/L	1.00	1					
Copper	J	0.00136	0.000300	0.00200	mg/L	1.00	1					
Iron	J	0.0960	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Magnesium		8.91	0.0100	0.0300	mg/L	1.00	1					
Manganese		0.0231	0.00100	0.00500	mg/L	1.00	1					
Molybdenum		0.00377	0.000200	0.00100	mg/L	1.00	1					
Nickel		0.600	0.000600	0.00200	mg/L	1.00	1					
Potassium		1.39	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		43.2	0.0800	0.250	mg/L	1.00	1					
Thallium	U	0.00200	0.000600	0.00200	mg/L	1.00	1					
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1					
Vanadium	U	0.0200	0.00330	0.0200	mg/L	1.00	1					
Zinc	J	0.00659	0.00330	0.0200	mg/L	1.00	1					
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	11/10/24	1431	2689906	11
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Semi-Volatiles-PCB												
8082A, PCB Liquids "As Received"												
Aroclor-1016	U	0.0872	0.0290	0.0872	ug/L	0.000872	1	YS1	11/08/24	1518	2701396	12
Aroclor-1221	U	0.0872	0.0290	0.0872	ug/L	0.000872	1					
Aroclor-1232	U	0.0872	0.0290	0.0872	ug/L	0.000872	1					
Aroclor-1242	U	0.0872	0.0290	0.0872	ug/L	0.000872	1					
Aroclor-1248	U	0.0872	0.0290	0.0872	ug/L	0.000872	1					
Aroclor-1254	U	0.0872	0.0290	0.0872	ug/L	0.000872	1					
Aroclor-1260	U	0.0872	0.0290	0.0872	ug/L	0.000872	1					
Aroclor-1268	U	0.0872	0.0290	0.0872	ug/L	0.000872	1					
Aroclor-Total	U	0.0872	0.0290	0.0872	ug/L	0.000872	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		216	2.38	10.0	mg/L			KLP1	10/21/24	1350	2691105	13
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												

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Certificate of Analysis

Report Date: January 21, 2025

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW223SG1-25
Sample ID: 690161007

Project: FRNP00609
Client ID: FRNP006

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	10/16/24	1748	2688679	14
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	JM6	10/21/24	1335	2691187	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	UY2	1.00	0.333	1.00	ug/L		1					
Chlorobenzene	U	1.00	0.333	1.00	ug/L		1					
Chloroethane	U	1.00	0.333	1.00	ug/L		1					
Chloroform	U	1.00	0.333	1.00	ug/L		1					
Chloromethane	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: January 21, 2025

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Project:	FRNP00609
Client ID:	FRNP006

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	UY1	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	10/17/24	1024	2689172
SW846 3535A	SW3535A PCB SPE Extraction	DXF4	11/08/24	0600	2701394
SW846 8011 PREP	8011 Prep	LOF	10/17/24	1347	2689569
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	10/17/24	1105	2688830
SW846 3005A	ICP-MS 3005A PREP	BB2	10/25/24	0820	2689905

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Address : 5600 Hobbs Road

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW223SG1-25
Sample ID: 690161007

Project: FRNP00609
Client ID: FRNP006

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

The following Analytical Methods were performed:

Method	Description	Analyst	Comments
1	SW846 8011		
2	SW846 8011		
3	SW846 9060A		
4	SW846 9012B		
5	SW846 9020B		
6	EPA 300.0		
7	SW846 9056A		
8	SW846 9056A		
9	SW846 7470A		
10	SW846 3005A/6020B		
11	SW846 3005A/6020B		
12	SW846 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 Compounds Liquid "As Received"	6.13 ug/L	6.78	90	(56%-149%)
Decachlorobiphenyl	8082A, PCB Liquids "As Received"	0.150 ug/L	0.174	86	(30%-135%)
4cmx	8082A, PCB Liquids "As Received"	0.132 ug/L	0.174	76	(26%-108%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	52.0 ug/L	50.0	104	(85%-114%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	53.3 ug/L	50.0	107	(81%-118%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	49.4 ug/L	50.0	99	(89%-112%)

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: January 21, 2025

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW223SG1-25 Project: FRNP00609
Sample ID: 690161008 Client ID: FRNP006
Matrix: WG
Collect Date: 14-OCT-24 08:47
Receive Date: 16-OCT-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		0.232	0.000670	0.00400	mg/L	1.00	1	PRB	11/09/24	2331	2689906	1
Chromium		0.0117	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	SD	10/17/24	1535	2688846
SW846 3005A	ICP-MS 3005A PREP	BB2	10/25/24	0820	2689905

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: January 21, 2025

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW224SG1-25 Project: FRNP00609
Sample ID: 690161009 Client ID: FRNP006
Matrix: WG
Collect Date: 14-OCT-24 10:19
Receive Date: 16-OCT-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	0.0188	0.00845	0.0188	ug/L	0.939	1	LOF	10/17/24	1956	2689576	1
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	1.48	0.330	2.00	mg/L		1	KB3	10/30/24	0932	2696471	3
Flow Injection Analysis												
9012B, Total Cyanide "As Received"												
Cyanide, Total	UN	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	10/21/24	0708	2689173	4
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens		10.4	3.33	10.0	ug/L		1	RMJ	11/09/24	0353	2702851	5
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	10/16/24	1448	2688638	6
SW846 9056A Anions (5) "As Received"												
Fluoride	J	0.336	0.0330	4.00	mg/L		1	CH6	10/16/24	1636	2688636	7
Sulfate		17.0	0.133	0.400	mg/L		1					
Bromide	J	0.352	0.268	0.800	mg/L		4	CH6	10/16/24	2114	2688636	8
Chloride	J	20.9	0.268	250	mg/L		4					
Nitrate-N	HJ	0.726	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	10/18/24	1117	2688834	9
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Aluminum	U	0.0500	0.0193	0.0500	mg/L	1.00	1	PRB	11/09/24	2335	2689906	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		0.223	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		23.2	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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Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW224SG1-25
Sample ID: 690161009

Project: FRNP00609
Client ID: FRNP006

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	0.000982	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		10.0	0.0100	0.0300	mg/L	1.00	1					
Manganese	J	0.00323	0.00100	0.00500	mg/L	1.00	1					
Molybdenum	J	0.000972	0.000200	0.00100	mg/L	1.00	1					
Nickel		0.00896	0.000600	0.00200	mg/L	1.00	1					
Potassium		1.09	0.0800	0.300	mg/L	1.00	1					
Selenium	U	0.00500	0.00150	0.00500	mg/L	1.00	1					
Silver	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Thallium	U	0.00200	0.000600	0.00200	mg/L	1.00	1					
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1					
Vanadium	U	0.0200	0.00330	0.0200	mg/L	1.00	1					
Zinc	J	0.00374	0.00330	0.0200	mg/L	1.00	1					
Sodium		55.9	0.800	2.50	mg/L	1.00	10	PRB	11/10/24	0720	2689906	11
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	11/10/24	1433	2689906	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	0.0853	0.0284	0.0853	ug/L	0.000853	1	YS1	11/08/24	1530	2701396	13
Aroclor-1221	U	0.0853	0.0284	0.0853	ug/L	0.000853	1					
Aroclor-1232	U	0.0853	0.0284	0.0853	ug/L	0.000853	1					
Aroclor-1242	U	0.0853	0.0284	0.0853	ug/L	0.000853	1					
Aroclor-1248	U	0.0853	0.0284	0.0853	ug/L	0.000853	1					
Aroclor-1254	U	0.0853	0.0284	0.0853	ug/L	0.000853	1					
Aroclor-1260	U	0.0853	0.0284	0.0853	ug/L	0.000853	1					
Aroclor-1268	U	0.0853	0.0284	0.0853	ug/L	0.000853	1					
Aroclor-Total	U	0.0853	0.0284	0.0853	ug/L	0.000853	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		247	2.38	10.0	mg/L			KLP1	10/21/24	1350	2691105	14
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												

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C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW224SG1-25
Sample ID: 690161009

Project: FRNP00609
Client ID: FRNP006

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD	J	10.0	8.95	20.0	mg/L		1	JW2	10/16/24	1748	2688679	15
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	JM6	10/21/24	1403	2691187	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	UY2	1.00	0.333	1.00	ug/L		1					
Chlorobenzene	U	1.00	0.333	1.00	ug/L		1					
Chloroethane	U	1.00	0.333	1.00	ug/L		1					
Chloroform	U	1.00	0.333	1.00	ug/L		1					
Chloromethane	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: January 21, 2025

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW224SG1-25
Sample ID: 690161009

Project: FRNP00609
Client ID: FRNP006

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	UY1	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	10/17/24	1347	2689569
SW846 3535A	SW3535A PCB SPE Extraction	DXF4	11/08/24	0600	2701394
SW846 9010C Distillation	SW846 9010C Prep	ES2	10/17/24	1024	2689172
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	10/17/24	1105	2688830
SW846 3005A	ICP-MS 3005A PREP	BB2	10/25/24	0820	2689905

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C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW224SG1-25
Sample ID: 690161009

Project: FRNP00609
Client ID: FRNP006

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

The following Analytical Methods were performed:

Method	Description	Analyst	Comments
1	SW846 8011		
2	SW846 8011		
3	SW846 9060A		
4	SW846 9012B		
5	SW846 9020B		
6	EPA 300.0		
7	SW846 9056A		
8	SW846 9056A		
9	SW846 7470A		
10	SW846 3005A/6020B		
11	SW846 3005A/6020B		
12	SW846 3005A/6020B		
13	SW846 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 Compounds Liquid "As Received"	6.23 ug/L	6.71	93	(56%-149%)
Decachlorobiphenyl	8082A, PCB Liquids "As Received"	0.126 ug/L	0.171	74	(30%-135%)
4cmx	8082A, PCB Liquids "As Received"	0.127 ug/L	0.171	75	(26%-108%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	51.2 ug/L	50.0	102	(85%-114%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	52.3 ug/L	50.0	105	(81%-118%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	49.5 ug/L	50.0	99	(89%-112%)

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW224SG1-25
Sample ID: 690161010
Matrix: WG
Collect Date: 14-OCT-24 10:19
Receive Date: 16-OCT-24
Collector: Client

Project: FRNP00609
Client ID: FRNP006

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		0.217	0.000670	0.00400	mg/L	1.00	1	PRB	11/09/24	2338	2689906	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	BB2	10/25/24	0820	2689905
EPA 160	Laboratory Filtration	SD	10/17/24	1535	2688846

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3005A/6020B	

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration

Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: January 21, 2025

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW384SG1-25 Project: FRNP00609
Sample ID: 690161011 Client ID: FRNP006
Matrix: WG
Collect Date: 14-OCT-24 12:28
Receive Date: 16-OCT-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	0.00862	0.0191	ug/L	0.957	1	LOF	10/17/24	2031	2689576	1
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	1.34	0.330	2.00	mg/L		1	KB3	10/30/24	1004	2696471	3
Flow Injection Analysis												
9012B, Total Cyanide "As Received"												
Cyanide, Total	UN	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	10/21/24	0709	2689173	4
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens	J	8.40	3.33	10.0	ug/L		1	RMJ	11/09/24	0428	2702851	5
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	10/16/24	1501	2688638	6
SW846 9056A Anions (5) "As Received"												
Fluoride	J	0.201	0.0330	4.00	mg/L		1	CH6	10/16/24	1230	2688636	7
Sulfate		18.0	0.133	0.400	mg/L		1					
Bromide	J	0.314	0.268	0.800	mg/L		4	CH6	10/16/24	2145	2688636	8
Chloride	J	21.3	0.268	250	mg/L		4					
Nitrate-N	HJ	0.762	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	10/18/24	1118	2688834	9
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Aluminum	U	0.0500	0.0193	0.0500	mg/L	1.00	1	PRB	11/09/24	2342	2689906	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		0.0564	0.00520	0.0150	mg/L	1.00	1					
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Calcium		21.7	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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Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW384SG1-25
Sample ID: 690161011

Project: FRNP00609
Client ID: FRNP006

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	0.000968	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		9.03	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		1.30	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		41.0	0.0800	0.250	mg/L	1.00	1					
Thallium	U	0.00200	0.000600	0.00200	mg/L	1.00	1					
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1					
Vanadium	U	0.0200	0.00330	0.0200	mg/L	1.00	1					
Zinc	J	0.00424	0.00330	0.0200	mg/L	1.00	1					
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	11/10/24	1439	2689906	11
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Semi-Volatiles-PCB												
8082A, PCB Liquids "As Received"												
Aroclor-1016	U	0.0849	0.0283	0.0849	ug/L	0.000849	1	YS1	11/08/24	1542	2701396	12
Aroclor-1221	U	0.0849	0.0283	0.0849	ug/L	0.000849	1					
Aroclor-1232	U	0.0849	0.0283	0.0849	ug/L	0.000849	1					
Aroclor-1242	U	0.0849	0.0283	0.0849	ug/L	0.000849	1					
Aroclor-1248	U	0.0849	0.0283	0.0849	ug/L	0.000849	1					
Aroclor-1254	U	0.0849	0.0283	0.0849	ug/L	0.000849	1					
Aroclor-1260	U	0.0849	0.0283	0.0849	ug/L	0.000849	1					
Aroclor-1268	U	0.0849	0.0283	0.0849	ug/L	0.000849	1					
Aroclor-Total	U	0.0849	0.0283	0.0849	ug/L	0.000849	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		184	2.38	10.0	mg/L			KLP1	10/21/24	1350	2691105	13
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												

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Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW384SG1-25
Sample ID: 690161011

Project: FRNP00609
Client ID: FRNP006

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	10/16/24	1748	2688679	14
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	JM6	10/21/24	1431	2691187	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	UY2	1.00	0.333	1.00	ug/L		1					
Chlorobenzene	U	1.00	0.333	1.00	ug/L		1					
Chloroethane	U	1.00	0.333	1.00	ug/L		1					
Chloroform	U	1.00	0.333	1.00	ug/L		1					
Chloromethane	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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Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW384SG1-25
Sample ID: 690161011

Project: FRNP00609
Client ID: FRNP006

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	UY1	1.00	0.333	1.00	ug/L		1					
Toluene	U	1.00	0.333	1.00	ug/L		1					
Trichloroethylene	J	0.490	0.333	1.00	ug/L		1					
Trichlorofluoromethane	U	1.00	0.333	1.00	ug/L		1					
Vinyl acetate	U	5.00	1.67	5.00	ug/L		1					
Vinyl chloride	U	1.00	0.333	1.00	ug/L		1					
Xylenes (total)	U	3.00	1.00	3.00	ug/L		1					
cis-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
cis-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,4-Dichloro-2-butene	U	5.00	1.67	5.00	ug/L		1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3535A	SW3535A PCB SPE Extraction	DXF4	11/08/24	0600	2701394
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	10/17/24	1105	2688830
SW846 9010C Distillation	SW846 9010C Prep	ES2	10/17/24	1024	2689172
SW846 3005A	ICP-MS 3005A PREP	BB2	10/25/24	0820	2689905
SW846 8011 PREP	8011 Prep	LOF	10/17/24	1347	2689569

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Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW384SG1-25
Sample ID: 690161011

Project: FRNP00609
Client ID: FRNP006

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

The following Analytical Methods were performed:

Method	Description	Analyst	Comments
1	SW846 8011		
2	SW846 8011		
3	SW846 9060A		
4	SW846 9012B		
5	SW846 9020B		
6	EPA 300.0		
7	SW846 9056A		
8	SW846 9056A		
9	SW846 7470A		
10	SW846 3005A/6020B		
11	SW846 3005A/6020B		
12	SW846 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 Compounds Liquid "As Received"	6.27 ug/L	6.84	92	(56%-149%)
Decachlorobiphenyl	8082A, PCB Liquids "As Received"	0.119 ug/L	0.170	70	(30%-135%)
4cmx	8082A, PCB Liquids "As Received"	0.117 ug/L	0.170	69	(26%-108%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	52.3 ug/L	50.0	105	(85%-114%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	52.0 ug/L	50.0	104	(81%-118%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	50.8 ug/L	50.0	102	(89%-112%)

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: January 21, 2025

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW384SG1-25 Project: FRNP00609
Sample ID: 690161012 Client ID: FRNP006
Matrix: WG
Collect Date: 14-OCT-24 12:28
Receive Date: 16-OCT-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		0.193	0.000670	0.00400	mg/L	1.00	1	PRB	11/09/24	2346	2689906	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	SD	10/17/24	1535	2688846
SW846 3005A	ICP-MS 3005A PREP	BB2	10/25/24	0820	2689905

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3005A/6020B	

Notes:

Column headers are defined as follows:

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

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW385SG1-25 Project: FRNP00609
Sample ID: 690161013 Client ID: FRNP006
Matrix: WG
Collect Date: 14-OCT-24 13:15
Receive Date: 16-OCT-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	0.955	1	LOF	10/17/24	2154	2689576	1
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	1.42	0.330	2.00	mg/L		1	KB3	10/30/24	1129	2696471	3
Flow Injection Analysis												
9012B, Total Cyanide "As Received"												
Cyanide, Total	UN	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	10/21/24	0710	2689173	4
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens	J	5.36	3.33	10.0	ug/L		1	RMJ	11/08/24	2107	2702851	5
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	10/16/24	1540	2688638	6
SW846 9056A Anions (5) "As Received"												
Fluoride	J	0.198	0.0330	4.00	mg/L		1	CH6	10/16/24	1300	2688636	7
Sulfate		19.6	0.133	0.400	mg/L		1					
Bromide	J	0.335	0.268	0.800	mg/L		4	CH6	10/16/24	2216	2688636	8
Chloride	J	21.7	0.268	250	mg/L		4					
Nitrate-N	HJ	0.640	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	10/18/24	1123	2688834	9
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Aluminum	U	0.0500	0.0193	0.0500	mg/L	1.00	1	PRB	11/09/24	2349	2689906	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		0.203	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					
Boron		0.0595	0.00520	0.0150	mg/L	1.00	1					
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Calcium		29.1	0.0800	0.200	mg/L	1.00	1					
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					

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Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW385SG1-25
Sample ID: 690161013

Project: FRNP00609
Client ID: FRNP006

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Cobalt	J	0.000460	0.000300	0.00100	mg/L	1.00	1					
Copper	J	0.000831	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		11.8	0.0100	0.0300	mg/L	1.00	1					
Manganese	J	0.00449	0.00100	0.00500	mg/L	1.00	1					
Molybdenum	J	0.000203	0.000200	0.00100	mg/L	1.00	1					
Nickel	J	0.000857	0.000600	0.00200	mg/L	1.00	1					
Potassium		1.62	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		37.2	0.0800	0.250	mg/L	1.00	1					
Thallium	U	0.00200	0.000600	0.00200	mg/L	1.00	1					
Uranium	J	0.0000820	0.0000670	0.000200	mg/L	1.00	1					
Vanadium	U	0.0200	0.00330	0.0200	mg/L	1.00	1					
Zinc	J	0.00341	0.00330	0.0200	mg/L	1.00	1					
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	11/10/24	1441	2689906	11
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	YS1	11/08/24	1554	2701396	12
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		204	2.38	10.0	mg/L			KLP1	10/21/24	1350	2691105	13
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												

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Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW385SG1-25
Sample ID: 690161013

Project: FRNP00609
Client ID: FRNP006

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	10/16/24	1748	2688679	14
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	JM6	10/21/24	1459	2691187	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	UY2	1.00	0.333	1.00	ug/L		1					
Chlorobenzene	U	1.00	0.333	1.00	ug/L		1					
Chloroethane	U	1.00	0.333	1.00	ug/L		1					
Chloroform	U	1.00	0.333	1.00	ug/L		1					
Chloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromomethane	U	1.00	0.333	1.00	ug/L		1					
Ethylbenzene	U	1.00	0.333	1.00	ug/L		1					
Iodomethane	U	5.00	1.67	5.00	ug/L		1					

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW385SG1-25
Sample ID: 690161013

Project: FRNP00609
Client ID: FRNP006

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	UY1	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 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	10/17/24	1105	2688830
SW846 9010C Distillation	SW846 9010C Prep	ES2	10/17/24	1024	2689172
SW846 3535A	SW3535A PCB SPE Extraction	DXF4	11/08/24	0600	2701394
SW846 3005A	ICP-MS 3005A PREP	BB2	10/25/24	0820	2689905
SW846 8011 PREP	8011 Prep	LOF	10/17/24	1347	2689569

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Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW385SG1-25
Sample ID: 690161013

Project: FRNP00609
Client ID: FRNP006

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

The following Analytical Methods were performed:

Method	Description	Analyst	Comments
1	SW846 8011		
2	SW846 8011		
3	SW846 9060A		
4	SW846 9012B		
5	SW846 9020B		
6	EPA 300.0		
7	SW846 9056A		
8	SW846 9056A		
9	SW846 7470A		
10	SW846 3005A/6020B		
11	SW846 3005A/6020B		
12	SW846 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 Compounds Liquid "As Received"	6.20 ug/L	6.82	91	(56%-149%)
Decachlorobiphenyl	8082A, PCB Liquids "As Received"	0.151 ug/L	0.200	76	(30%-135%)
4cmx	8082A, PCB Liquids "As Received"	0.154 ug/L	0.200	77	(26%-108%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	51.4 ug/L	50.0	103	(85%-114%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	52.3 ug/L	50.0	105	(81%-118%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	49.8 ug/L	50.0	100	(89%-112%)

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID:	MW385SG1-25	Project:	FRNP00609
Sample ID:	690161014	Client ID:	FRNP006
Matrix:	WG		
Collect Date:	14-OCT-24 13:15		
Receive Date:	16-OCT-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		0.204	0.000670	0.00400	mg/L	1.00	1	PRB	11/10/24	0015	2689906	1
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					
Uranium	J	0.0000810	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	BB2	10/25/24	0820	2689905
EPA 160	Laboratory Filtration	SD	10/17/24	1535	2688846

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3005A/6020B	

Notes:

Column headers are defined as follows:

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

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Company : Four Rivers Nuclear Partnership, LLC
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Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID:	TB1SG1-25	Project:	FRNP00609
Sample ID:	690161015	Client ID:	FRNP006
Matrix:	WATER		
Collect Date:	14-OCT-24 07:00		
Receive Date:	16-OCT-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	10/17/24	2338	2689576	1
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	JM6	10/21/24	1526	2691187	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	BJ	4.96	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	UY2	1.00	0.333	1.00	ug/L		1					
Chlorobenzene	U	1.00	0.333	1.00	ug/L		1					
Chloroethane	U	1.00	0.333	1.00	ug/L		1					
Chloroform	U	1.00	0.333	1.00	ug/L		1					
Chloromethane	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
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: TB1SG1-25
Sample ID: 690161015

Project: FRNP00609
Client ID: FRNP006

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	UY1	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	10/17/24	1347	2689569

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"	6.73 ug/L	6.85	98	(56%-149%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	51.4 ug/L	50.0	103	(85%-114%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	51.3 ug/L	50.0	103	(81%-118%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	49.6 ug/L	50.0	99	(89%-112%)

Notes:

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Certificate of Analysis

Report Date: January 21, 2025

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: TB1SG1-25
Sample ID: 690161015

Project: FRNP00609
Client ID: FRNP006

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

Column headers are defined as follows:

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

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ATTACHMENT C3

GEL LABORATORIES CERTIFICATE OF ANALYSIS

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Certificate of Analysis

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

Kevil, Kentucky 42053

Report Date: January 21, 2025

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW386DSG1-25
Sample ID: 690651001
Matrix: WG
Collect Date: 16-OCT-24
Receive Date: 17-OCT-24
Collector: Client

Project: FRNP00609
Client ID: FRNP006

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

Rad Alpha Spec Analysis

AlphaSpec Ra226, Liquid "As Received"

Radium-226	U	0.204	+/-0.502	0.830	+/-0.502	5.00	pCi/L			CM4	11/04/24	1802	2689720	1

Th-01-RC M, Th Isotopes, Liquid "As Received"

Thorium-230		4.21	+/-1.74	1.53	+/-1.80	50.0	pCi/L			RM3	10/31/24	1049	2689722	2

Rad Gas Flow Proportional Counting

905.0 Mod, Sr90, liquid "As Received"

Strontium-90	U	0.576	+/-2.11	3.96	+/-2.11	8.00	pCi/L			HH3	11/05/24	1421	2689825	3

9310,Alpha/Beta Activity, liquid "As Received"

Alpha	U	4.39	+/-5.64	9.56	+/-5.69	15.0	pCi/L			CH7	11/04/24	1433	2689800	4

Beta	U	6.06	+/-5.62	9.08	+/-5.71	50.0	pCi/L							

Rad Liquid Scintillation Analysis

906.0 Mod, Tritium Dist, Liquid "As Received"

Tritium	U	79.0	+/-135	232	+/-136	300	pCi/L			SA2	11/12/24	1009	2696227	5

Tc-02-RC-MOD, Tc99, Liquid "As Received"

Technetium-99	U	-4.64	+/-9.14	16.9	+/-9.14	25.0	pCi/L			GS3	11/09/24	0130	2696204	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"	2689720	101	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2689722	82.6	(30%-110%)
Strontium Carrier	905.0 Mod, Sr90, liquid "As Received"	2689825	64.5	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2696204	97.5	(30%-110%)

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Report Date: January 21, 2025

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW386DSG1-25

Project: FRNP00609

Sample ID: 690651001

Client ID: FRNP006

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: January 21, 2025

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW386SG1-25

Project: FRNP00609

Sample ID: 690651003

Client ID: FRNP006

Matrix: WG

Collect Date: 16-OCT-24

Receive Date: 17-OCT-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	-0.0293	+/-0.422	0.999	+/-0.422	5.00	pCi/L			CM4	11/04/24	1803	2689720	1
<i>Th-01-RC M, Th Isotopes, Liquid "As Received"</i>														
Thorium-230		1.94	+/-1.38	1.75	+/-1.40	50.0	pCi/L			RM3	10/31/24	1049	2689722	2
Rad Gas Flow Proportional Counting														
<i>905.0 Mod, Sr90, liquid "As Received"</i>														
Strontium-90	U	3.61	+/-3.08	4.88	+/-3.13	8.00	pCi/L			HH3	11/05/24	1421	2689825	3
<i>9310,Alpha/Beta Activity, liquid "As Received"</i>														
Alpha	U	0.447	+/-4.81	10.2	+/-4.81	15.0	pCi/L			CH7	11/04/24	1433	2689800	4
Beta	U	2.96	+/-5.30	9.29	+/-5.32	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
<i>906.0 Mod, Tritium Dist, Liquid "As Received"</i>														
Tritium	U	-3.90	+/-129	231	+/-129	300	pCi/L			SA2	11/12/24	1050	2696227	5
<i>Tc-02-RC-MOD, Tc99, Liquid "As Received"</i>														
Technetium-99	U	-1.76	+/-9.11	16.5	+/-9.11	25.0	pCi/L			GS3	11/09/24	0146	2696204	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"	2689720	99	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2689722	86.9	(30%-110%)
Strontium Carrier	905.0 Mod, Sr90, liquid "As Received"	2689825	55.9	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2696204	100	(30%-110%)

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Kevil, Kentucky 42053

Report Date: January 21, 2025

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW386SG1-25

Project: FRNP00609

Sample ID: 690651003

Client ID: FRNP006

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: January 21, 2025

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW387SG1-25

Project: FRNP00609

Sample ID: 690651005

Client ID: FRNP006

Matrix: WG

Collect Date: 16-OCT-24

Receive Date: 17-OCT-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	0.635	+/-0.752	1.05	+/-0.753	5.00	pCi/L			CM4	11/04/24	1803	2689720	1
<i>Th-01-RC M, Th Isotopes, Liquid "As Received"</i>														
Thorium-230		1.92	+/-1.42	1.83	+/-1.44	50.0	pCi/L			RM3	10/31/24	1049	2689722	2
Rad Gas Flow Proportional Counting														
<i>905.0 Mod, Sr90, liquid "As Received"</i>														
Strontium-90	U	-1.48	+/-1.17	3.01	+/-1.17	8.00	pCi/L			HH3	11/05/24	1421	2689825	3
<i>9310,Alpha/Beta Activity, liquid "As Received"</i>														
Alpha	U	-3.88	+/-3.21	10.1	+/-3.22	15.0	pCi/L			CH7	11/04/24	1433	2689800	4
Beta		27.5	+/-7.96	9.06	+/-9.13	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
<i>906.0 Mod, Tritium Dist, Liquid "As Received"</i>														
Tritium	U	102	+/-134	227	+/-135	300	pCi/L			SA2	11/12/24	1132	2696227	5
<i>Tc-02-RC-MOD, Tc99, Liquid "As Received"</i>														
Technetium-99		154	+/-15.7	14.1	+/-23.3	25.0	pCi/L			GS3	11/13/24	0638	2704114	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"	2689720	102	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2689722	79.3	(30%-110%)
Strontium Carrier	905.0 Mod, Sr90, liquid "As Received"	2689825	83.9	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2704114	99.1	(30%-110%)

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Kevil, Kentucky 42053

Report Date: January 21, 2025

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW387SG1-25

Project: FRNP00609

Sample ID: 690651005

Client ID: FRNP006

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: January 21, 2025

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW388SG1-25

Project: FRNP00609

Sample ID: 690651007

Client ID: FRNP006

Matrix: WG

Collect Date: 16-OCT-24

Receive Date: 17-OCT-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	1.01	+/-1.30	1.66	+/-1.30	5.00	pCi/L			CM4	11/05/24	1418	2689720	1
<i>Th-01-RC M, Th Isotopes, Liquid "As Received"</i>														
Thorium-230		2.83	+/-1.61	1.80	+/-1.65	50.0	pCi/L			RM3	10/31/24	1049	2689722	2
Rad Gas Flow Proportional Counting														
<i>905.0 Mod, Sr90, liquid "As Received"</i>														
Strontium-90	U	1.85	+/-2.55	4.38	+/-2.56	8.00	pCi/L			HH3	11/05/24	1421	2689825	3
<i>9310,Alpha/Beta Activity, liquid "As Received"</i>														
Alpha	U	3.31	+/-4.79	8.38	+/-4.82	15.0	pCi/L			CH7	11/04/24	1433	2689800	4
Beta	U	6.67	+/-5.47	8.69	+/-5.59	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
<i>906.0 Mod, Tritium Dist, Liquid "As Received"</i>														
Tritium	U	68.0	+/-130	224	+/-131	300	pCi/L			SA2	11/12/24	1214	2696227	5
<i>Tc-02-RC-MOD, Tc99, Liquid "As Received"</i>														
Technetium-99	U	4.56	+/-9.79	16.9	+/-9.80	25.0	pCi/L			GS3	11/09/24	0220	2696204	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"	2689720	98.2	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2689722	76.7	(30%-110%)
Strontium Carrier	905.0 Mod, Sr90, liquid "As Received"	2689825	66.7	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2696204	97.5	(30%-110%)

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Kevil, Kentucky 42053

Report Date: January 21, 2025

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW388SG1-25

Project: FRNP00609

Sample ID: 690651007

Client ID: FRNP006

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: January 21, 2025

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW390SG1-25

Project: FRNP00609

Sample ID: 690651009

Client ID: FRNP006

Matrix: WG

Collect Date: 16-OCT-24

Receive Date: 17-OCT-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	0.388	+/-0.330	0.415	+/-0.331	5.00	pCi/L			CM4	11/02/24	0901	2689720	1
<i>Th-01-RC M, Th Isotopes, Liquid "As Received"</i>														
Thorium-230	U	0.193	+/-0.971	1.89	+/-0.974	50.0	pCi/L			RM3	10/31/24	1049	2689722	2
Rad Gas Flow Proportional Counting														
<i>905.0 Mod, Sr90, liquid "As Received"</i>														
Strontium-90	U	4.06	+/-3.79	6.25	+/-3.85	8.00	pCi/L			HH3	11/05/24	1421	2689825	3
<i>9310,Alpha/Beta Activity, liquid "As Received"</i>														
Alpha	U	0.834	+/-3.67	7.55	+/-3.67	15.0	pCi/L			CH7	11/04/24	1433	2689800	4
Beta		40.7	+/-7.87	7.39	+/-10.3	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
<i>906.0 Mod, Tritium Dist, Liquid "As Received"</i>														
Tritium	U	-24.7	+/-124	224	+/-124	300	pCi/L			SA2	11/12/24	1256	2696227	5
<i>Tc-02-RC-MOD, Tc99, Liquid "As Received"</i>														
Technetium-99		67.4	+/-13.1	16.7	+/-15.2	25.0	pCi/L			GS3	11/09/24	0236	2696204	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"	2689720	101	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2689722	98	(30%-110%)
Strontium Carrier	905.0 Mod, Sr90, liquid "As Received"	2689825	75.3	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2696204	98.5	(30%-110%)

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Report Date: January 21, 2025

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW390SG1-25

Project: FRNP00609

Sample ID: 690651009

Client ID: FRNP006

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: January 21, 2025

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW397SG1-25

Project: FRNP00609

Sample ID: 690651011

Client ID: FRNP006

Matrix: WG

Collect Date: 16-OCT-24

Receive Date: 17-OCT-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	0.774	+/-0.748	0.817	+/-0.750	5.00	pCi/L			CM4	11/04/24	1809	2689720	1
<i>Th-01-RC M, Th Isotopes, Liquid "As Received"</i>														
Thorium-230	U	0.713	+/-1.22	2.07	+/-1.23	50.0	pCi/L			RM3	10/31/24	1050	2689722	2
Rad Gas Flow Proportional Counting														
<i>905.0 Mod, Sr90, liquid "As Received"</i>														
Strontium-90	U	1.38	+/-2.04	3.54	+/-2.06	8.00	pCi/L			HH3	11/05/24	1421	2689825	3
<i>9310,Alpha/Beta Activity, liquid "As Received"</i>														
Alpha	U	2.70	+/-4.93	9.00	+/-4.95	15.0	pCi/L			CH7	11/04/24	1433	2689800	4
Beta	U	6.72	+/-6.18	10.0	+/-6.28	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
<i>906.0 Mod, Tritium Dist, Liquid "As Received"</i>														
Tritium	U	3.29	+/-128	228	+/-128	300	pCi/L			SA2	11/12/24	1338	2696227	5
<i>Tc-02-RC-MOD, Tc99, Liquid "As Received"</i>														
Technetium-99	U	15.5	+/-10.1	16.2	+/-10.2	25.0	pCi/L			GS3	11/09/24	0253	2696204	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"	2689720	101	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2689722	96.2	(30%-110%)
Strontium Carrier	905.0 Mod, Sr90, liquid "As Received"	2689825	79.6	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2696204	101	(30%-110%)

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Certificate of Analysis

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

Kevil, Kentucky 42053

Report Date: January 21, 2025

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW397SG1-25

Project: FRNP00609

Sample ID: 690651011

Client ID: FRNP006

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: January 21, 2025

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: FB1SG1-25

Project: FRNP00609

Sample ID: 690651013

Client ID: FRNP006

Matrix: WATER

Collect Date: 16-OCT-24

Receive Date: 17-OCT-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	0.558	+/-0.513	0.710	+/-0.515	5.00	pCi/L			CM4	11/02/24	0903	2689720	1
<i>Th-01-RC M, Th Isotopes, Liquid "As Received"</i>														
Thorium-230	U	0.101	+/-0.956	1.99	+/-0.960	50.0	pCi/L			RM3	10/31/24	1050	2689722	2
Rad Gas Flow Proportional Counting														
<i>905.0 Mod, Sr90, liquid "As Received"</i>														
Strontium-90	U	-1.73	+/-2.71	5.55	+/-2.71	8.00	pCi/L			HH3	11/05/24	1421	2689825	3
<i>9310,Alpha/Beta Activity, liquid "As Received"</i>														
Alpha	U	-0.384	+/-3.07	7.26	+/-3.08	15.0	pCi/L			CH7	11/04/24	1433	2689800	4
Beta	U	-2.12	+/-4.33	8.91	+/-4.33	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
<i>906.0 Mod, Tritium Dist, Liquid "As Received"</i>														
Tritium	U	139	+/-134	223	+/-137	300	pCi/L			SA2	11/12/24	1419	2696227	5
<i>Tc-02-RC-MOD, Tc99, Liquid "As Received"</i>														
Technetium-99	U	-1.61	+/-9.32	16.8	+/-9.32	25.0	pCi/L			GS3	11/09/24	0310	2696204	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"	2689720	99.3	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2689722	85.7	(30%-110%)
Strontium Carrier	905.0 Mod, Sr90, liquid "As Received"	2689825	64.5	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2696204	98.2	(30%-110%)

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Kevil, Kentucky 42053

Report Date: January 21, 2025

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: FB1SG1-25

Project: FRNP00609

Sample ID: 690651013

Client ID: FRNP006

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: January 21, 2025

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: RI1SG1-25

Project: FRNP00609

Sample ID: 690651014

Client ID: FRNP006

Matrix: WATER

Collect Date: 16-OCT-24

Receive Date: 17-OCT-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	-0.0819	+/-0.425	1.08	+/-0.426	5.00	pCi/L			CM4	11/04/24	1809	2689720	1
<i>Th-01-RC M, Th Isotopes, Liquid "As Received"</i>														
Thorium-230	U	0.0755	+/-0.995	2.10	+/-0.999	50.0	pCi/L			RM3	10/31/24	1103	2689722	2
Rad Gas Flow Proportional Counting														
<i>905.0 Mod, Sr90, liquid "As Received"</i>														
Strontium-90	U	-1.29	+/-1.72	3.73	+/-1.72	8.00	pCi/L			HH3	11/05/24	1421	2689825	3
<i>9310,Alpha/Beta Activity, liquid "As Received"</i>														
Alpha	U	2.85	+/-3.95	6.82	+/-3.98	15.0	pCi/L			CH7	11/04/24	1433	2689800	4
Beta	U	-0.862	+/-7.06	13.1	+/-7.06	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
<i>906.0 Mod, Tritium Dist, Liquid "As Received"</i>														
Tritium	U	111	+/-137	231	+/-139	300	pCi/L			SA2	11/12/24	1501	2696227	5
<i>Tc-02-RC-MOD, Tc99, Liquid "As Received"</i>														
Technetium-99	U	1.09	+/-8.98	15.9	+/-8.98	25.0	pCi/L			GS3	11/09/24	0326	2696204	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"	2689720	99.9	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2689722	83.6	(30%-110%)
Strontium Carrier	905.0 Mod, Sr90, liquid "As Received"	2689825	77.4	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2696204	104	(30%-110%)

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Report Date: January 21, 2025

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: RI1SG1-25

Project: FRNP00609

Sample ID: 690651014

Client ID: FRNP006

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: January 21, 2025

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW386DSG1-25
Sample ID: 690651001
Matrix: WG
Collect Date: 16-OCT-24 10:13
Receive Date: 17-OCT-24
Collector: Client

Project: FRNP00609
Client ID: FRNP006

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	0.945	1	LOF	10/18/24	2321	2689888	1
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average		7.96	0.330	2.00	mg/L		1	KB3	11/02/24	0036	2698897	3
Flow Injection Analysis												
9012B, Total Cyanide "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	10/21/24	0830	2690096	4
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens	H	154	3.33	10.0	ug/L		1	RMJ	11/19/24	2023	2707408	5
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	10/17/24	1243	2689636	6
SW846 9056A Anions (5) "As Received"												
Bromide	J	0.131	0.0670	0.200	mg/L		1	CH6	10/17/24	1211	2689592	7
Chloride	JW	9.22	0.0670	250	mg/L		1					
Fluoride	J	0.886	0.0330	4.00	mg/L		1					
Nitrate-N	U	10.0	0.0660	10.0	mg/L		2	CH6	10/17/24	1805	2689592	8
Sulfate		30.6	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	10/23/24	1112	2691681	9
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Aluminum	U	0.0500	0.0193	0.0500	mg/L	1.00	1	PRB	11/13/24	0058	2690494	10
Arsenic	J	0.00343	0.00200	0.00500	mg/L	1.00	1					
Barium		0.181	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					
Boron		0.0316	0.00520	0.0150	mg/L	1.00	1					
Calcium		19.3	0.0800	0.200	mg/L	1.00	1					
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					
Cobalt		0.0125	0.000300	0.00100	mg/L	1.00	1					
Copper	J	0.000828	0.000300	0.00200	mg/L	1.00	1					

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Address : 5600 Hobbs Road

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW386DSG1-25
Sample ID: 690651001

Project: FRNP00609
Client ID: FRNP006

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Iron		1.17	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Magnesium		8.46	0.0100	0.0300	mg/L	1.00	1					
Nickel		0.00260	0.000600	0.00200	mg/L	1.00	1					
Potassium		0.300	0.0800	0.300	mg/L	1.00	1					
Selenium	U	0.00500	0.00150	0.00500	mg/L	1.00	1					
Thallium	U	0.00200	0.000600	0.00200	mg/L	1.00	1					
Vanadium	BJ	0.00824	0.00330	0.0200	mg/L	1.00	1					
Zinc	U	0.0200	0.00330	0.0200	mg/L	1.00	1					
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1	PRB	11/13/24	0312	2690494	11
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	11/13/24	0943	2690494	12
Antimony	U	0.00300	0.00100	0.00300	mg/L	1.00	1	PRB	11/13/24	1102	2690494	13
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Molybdenum		0.00101	0.000200	0.00100	mg/L	1.00	1					
Silver	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1					
Manganese		1.12	0.0200	0.100	mg/L	1.00	20	PRB	11/13/24	1105	2690494	14
Sodium		124	1.60	5.00	mg/L	1.00	20					
Semi-Volatiles-PCB												
8082A, PCB Liquids "As Received"												
Aroclor-1016	U	0.101	0.0337	0.101	ug/L	0.00101	1	YS1	11/13/24	2001	2704018	15
Aroclor-1221	U	0.101	0.0337	0.101	ug/L	0.00101	1					
Aroclor-1232	U	0.101	0.0337	0.101	ug/L	0.00101	1					
Aroclor-1242	U	0.101	0.0337	0.101	ug/L	0.00101	1					
Aroclor-1248	U	0.101	0.0337	0.101	ug/L	0.00101	1					
Aroclor-1254	U	0.101	0.0337	0.101	ug/L	0.00101	1					
Aroclor-1260	U	0.101	0.0337	0.101	ug/L	0.00101	1					
Aroclor-1268	U	0.101	0.0337	0.101	ug/L	0.00101	1					
Aroclor-Total	U	0.101	0.0337	0.101	ug/L	0.00101	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		401	2.38	10.0	mg/L			ES2	10/23/24	1011	2691654	16
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												

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Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW386DSG1-25
Sample ID: 690651001

Project: FRNP00609
Client ID: FRNP006

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD		24.3	8.95	20.0	mg/L		1	JW2	10/17/24	1544	2689675	17
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	JB6	10/22/24	1628	2692182	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	UY2	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: January 21, 2025

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Project:	FRNP00609
Client ID:	FRNP006

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-MS 3005A PREP	MM7	10/29/24	1500	2690493
SW846 9010C Distillation	SW846 9010C Prep	ES2	10/18/24	1130	2690093
SW846 8011 PREP	8011 Prep	LL2	10/18/24	1035	2689887
SW846 3535A	SW3535A PCB SPE Extraction	DG3	11/13/24	1125	2704014
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	10/22/24	1130	2691680

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Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW386DSG1-25
Sample ID: 690651001

Project: FRNP00609
Client ID: FRNP006

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

The following Analytical Methods were performed:

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

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011, VOA Compounds Liquid "As Received"	7.06 ug/L	6.75	105	(56%-149%)
Decachlorobiphenyl	8082A, PCB Liquids "As Received"	0.145 ug/L	0.203	72	(30%-135%)
4cmx	8082A, PCB Liquids "As Received"	0.186 ug/L	0.203	92	(26%-108%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	50.6 ug/L	50.0	101	(85%-114%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	49.4 ug/L	50.0	99	(81%-118%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	52.2 ug/L	50.0	104	(89%-112%)

Notes:

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Certificate of Analysis

Report Date: January 21, 2025

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW386DSG1-25
Sample ID: 690651001

Project: FRNP00609
Client ID: FRNP006

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

Column headers are defined as follows:

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

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Address : 5600 Hobbs Road

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW386DSG1-25
Sample ID: 690651002
Matrix: WG
Collect Date: 16-OCT-24 10:13
Receive Date: 17-OCT-24
Collector: Client

Project: FRNP00609
Client ID: FRNP006

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		0.115	0.000670	0.00400	mg/L	1.00	1	PRB	11/13/24	0102	2690494	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	11/13/24	1107	2690494	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 160	Laboratory Filtration	SD	10/18/24	1232	2689854
SW846 3005A	ICP-MS 3005A PREP	MM7	10/29/24	1500	2690493

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
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: January 21, 2025

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW386SG1-25
Sample ID: 690651003
Matrix: WG
Collect Date: 16-OCT-24 10:13
Receive Date: 17-OCT-24
Collector: Client

Project: FRNP00609
Client ID: FRNP006

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	0.00850	0.0189	ug/L	0.945	1	LOF	10/18/24	2355	2689888	1
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average		8.17	0.330	2.00	mg/L		1	KB3	11/02/24	0109	2698897	3
Flow Injection Analysis												
9012B, Total Cyanide "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	10/21/24	0831	2690096	4
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens	H	173	3.33	10.0	ug/L		1	RMJ	11/19/24	2242	2707408	5
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	10/17/24	1256	2689636	6
SW846 9056A Anions (5) "As Received"												
Bromide	J	0.127	0.0670	0.200	mg/L		1	CH6	10/17/24	1242	2689592	7
Chloride	JW	9.31	0.0670	250	mg/L		1					
Fluoride	J	0.888	0.0330	4.00	mg/L		1					
Nitrate-N	U	10.0	0.0660	10.0	mg/L		2	CH6	10/17/24	1835	2689592	8
Sulfate		32.1	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	10/23/24	1113	2691681	9
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Aluminum	J	0.0291	0.0193	0.0500	mg/L	1.00	1	PRB	11/13/24	0105	2690494	10
Antimony	U	0.00300	0.00100	0.00300	mg/L	1.00	1					
Arsenic	J	0.00308	0.00200	0.00500	mg/L	1.00	1					
Barium		0.175	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					
Boron		0.0287	0.00520	0.0150	mg/L	1.00	1					
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Calcium		19.1	0.0800	0.200	mg/L	1.00	1					
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					

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Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW386SG1-25
Sample ID: 690651003

Project: FRNP00609
Client ID: FRNP006

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Cobalt		0.0116	0.000300	0.00100	mg/L	1.00	1					
Copper	J	0.000601	0.000300	0.00200	mg/L	1.00	1					
Iron		1.19	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Magnesium		8.28	0.0100	0.0300	mg/L	1.00	1					
Manganese		0.981	0.00100	0.00500	mg/L	1.00	1					
Molybdenum	J	0.000950	0.000200	0.00100	mg/L	1.00	1					
Nickel		0.00259	0.000600	0.00200	mg/L	1.00	1					
Potassium	J	0.296	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	0.00882	0.00330	0.0200	mg/L	1.00	1					
Zinc	U	0.0200	0.00330	0.0200	mg/L	1.00	1					
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1	PRB	11/13/24	0314	2690494	11
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	11/13/24	0945	2690494	12
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	PRB	11/13/24	1109	2690494	13
Sodium		122	1.60	5.00	mg/L	1.00	20	PRB	11/13/24	1112	2690494	14
Semi-Volatiles-PCB												
8082A, PCB Liquids "As Received"												
Aroclor-1016	U	0.105	0.0348	0.105	ug/L	0.00105	1	YS1	11/13/24	2013	2704018	15
Aroclor-1221	U	0.105	0.0348	0.105	ug/L	0.00105	1					
Aroclor-1232	U	0.105	0.0348	0.105	ug/L	0.00105	1					
Aroclor-1242	U	0.105	0.0348	0.105	ug/L	0.00105	1					
Aroclor-1248	U	0.105	0.0348	0.105	ug/L	0.00105	1					
Aroclor-1254	U	0.105	0.0348	0.105	ug/L	0.00105	1					
Aroclor-1260	U	0.105	0.0348	0.105	ug/L	0.00105	1					
Aroclor-1268	U	0.105	0.0348	0.105	ug/L	0.00105	1					
Aroclor-Total	U	0.105	0.0348	0.105	ug/L	0.00105	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		407	2.38	10.0	mg/L			ES2	10/23/24	1011	2691654	16
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												

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Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW386SG1-25
Sample ID: 690651003

Project: FRNP00609
Client ID: FRNP006

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD		24.3	8.95	20.0	mg/L		1	JW2	10/17/24	1544	2689675	17
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	JB6	10/22/24	1809	2692182	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	UY2	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
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW386SG1-25
Sample ID: 690651003

Project: FRNP00609
Client ID: FRNP006

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	UY2	1.00	0.333	1.00	ug/L		1					
Trichloroethylene	U	1.00	0.333	1.00	ug/L		1					
Trichlorofluoromethane	U	1.00	0.333	1.00	ug/L		1					
Vinyl acetate	U	5.00	1.67	5.00	ug/L		1					
Vinyl chloride	UY1	1.00	0.333	1.00	ug/L		1					
Xylenes (total)	UY2	3.00	1.00	3.00	ug/L		1					
cis-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
cis-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,4-Dichloro-2-butene	U	5.00	1.67	5.00	ug/L		1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3535A	SW3535A PCB SPE Extraction	DG3	11/13/24	1125	2704014
SW846 8011 PREP	8011 Prep	LL2	10/18/24	1035	2689887
SW846 9010C Distillation	SW846 9010C Prep	ES2	10/18/24	1130	2690093
SW846 3005A	ICP-MS 3005A PREP	MM7	10/29/24	1500	2690493
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	10/22/24	1130	2691680

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Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW386SG1-25
Sample ID: 690651003

Project: FRNP00609
Client ID: FRNP006

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

The following Analytical Methods were performed:

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

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011, VOA Compounds Liquid "As Received"	8.91 ug/L	6.75	132	(56%-149%)
Decachlorobiphenyl	8082A, PCB Liquids "As Received"	0.102 ug/L	0.209	49	(30%-135%)
4cmx	8082A, PCB Liquids "As Received"	0.156 ug/L	0.209	75	(26%-108%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	50.7 ug/L	50.0	101	(85%-114%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	49.2 ug/L	50.0	98	(81%-118%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	52.2 ug/L	50.0	104	(89%-112%)

Notes:

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Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW386SG1-25
Sample ID: 690651003

Project: FRNP00609
Client ID: FRNP006

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

Column headers are defined as follows:

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

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Company : Four Rivers Nuclear Partnership, LLC
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Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW386SG1-25
Sample ID: 690651004
Matrix: WG
Collect Date: 16-OCT-24 10:13
Receive Date: 17-OCT-24
Collector: Client

Project: FRNP00609
Client ID: FRNP006

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		0.116	0.000670	0.00400	mg/L	1.00	1	PRB	11/13/24	0109	2690494	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	11/13/24	1119	2690494	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-MS 3005A PREP	MM7	10/29/24	1500	2690493
EPA 160	Laboratory Filtration	SD	10/18/24	1232	2689854

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
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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Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW387SG1-25 Project: FRNP00609
Sample ID: 690651005 Client ID: FRNP006
Matrix: WG
Collect Date: 16-OCT-24 08:29
Receive Date: 17-OCT-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	10/19/24	0029	2689888	1
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	1.51	0.330	2.00	mg/L		1	KB3	11/02/24	0141	2698897	3
Flow Injection Analysis												
9012B, Total Cyanide "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	10/21/24	0838	2690096	4
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens	HJ	8.32	3.33	10.0	ug/L		1	RMJ	11/19/24	2117	2707408	5
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	10/17/24	1309	2689636	6
SW846 9056A Anions (5) "As Received"												
Fluoride	J	0.952	0.0330	4.00	mg/L		1	CH6	10/17/24	1313	2689592	7
Bromide	J	0.550	0.268	0.800	mg/L		4	CH6	10/17/24	1906	2689592	8
Chloride	JW	35.7	0.268	250	mg/L		4					
Sulfate		25.3	0.532	1.60	mg/L		4					
Nitrate-N	J	0.931	0.165	10.0	mg/L		5	CH6	10/17/24	2211	2689592	9
Mercury Analysis-CVAA												
7470, Mercury Liquid "As Received"												
Mercury	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	JP2	10/23/24	1115	2691681	10
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Aluminum	U	0.0500	0.0193	0.0500	mg/L	1.00	1	PRB	11/13/24	0120	2690494	11
Antimony	U	0.00300	0.00100	0.00300	mg/L	1.00	1					
Arsenic	J	0.00205	0.00200	0.00500	mg/L	1.00	1					
Barium		0.0938	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					
Boron		0.0406	0.00520	0.0150	mg/L	1.00	1					
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Calcium		36.6	0.0800	0.200	mg/L	1.00	1					
Chromium	J	0.00394	0.00300	0.0100	mg/L	1.00	1					

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Certificate of Analysis

Report Date: January 21, 2025

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW387SG1-25
Sample ID: 690651005

Project: FRNP00609
Client ID: FRNP006

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	0.00114	0.000300	0.00200	mg/L	1.00	1					
Iron	J	0.0461	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Magnesium		15.8	0.0100	0.0300	mg/L	1.00	1					
Manganese	J	0.00379	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		1.76	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	0.00590	0.00330	0.0200	mg/L	1.00	1					
Zinc	J	0.00333	0.00330	0.0200	mg/L	1.00	1					
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1	PRB	11/13/24	0316	2690494	12
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	11/13/24	0947	2690494	13
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	PRB	11/13/24	1121	2690494	14
Sodium		49.5	1.60	5.00	mg/L	1.00	20	PRB	11/13/24	1133	2690494	15
Semi-Volatiles-PCB												
8082A, PCB Liquids "As Received"												
Aroclor-1016	U	0.0909	0.0303	0.0909	ug/L	0.000909	1	YS1	11/13/24	2025	2704018	16
Aroclor-1221	U	0.0909	0.0303	0.0909	ug/L	0.000909	1					
Aroclor-1232	U	0.0909	0.0303	0.0909	ug/L	0.000909	1					
Aroclor-1242	U	0.0909	0.0303	0.0909	ug/L	0.000909	1					
Aroclor-1248	U	0.0909	0.0303	0.0909	ug/L	0.000909	1					
Aroclor-1254	U	0.0909	0.0303	0.0909	ug/L	0.000909	1					
Aroclor-1260	U	0.0909	0.0303	0.0909	ug/L	0.000909	1					
Aroclor-1268	U	0.0909	0.0303	0.0909	ug/L	0.000909	1					
Aroclor-Total	U	0.0909	0.0303	0.0909	ug/L	0.000909	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		290	2.38	10.0	mg/L			ES2	10/23/24	1011	2691654	17
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												

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Certificate of Analysis

Report Date: January 21, 2025

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW387SG1-25
Sample ID: 690651005

Project: FRNP00609
Client ID: FRNP006

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	10/17/24	1544	2689675	18
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	JB6	10/22/24	1834	2692182	19
1,1,1-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
1,2,3-Trichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dibromoethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,4-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
2-Butanone	U	5.00	1.67	5.00	ug/L		1					
2-Hexanone	U	5.00	1.67	5.00	ug/L		1					
4-Methyl-2-pentanone	U	5.00	1.67	5.00	ug/L		1					
Acetone	U	5.00	1.74	5.00	ug/L		1					
Acrolein	U	5.00	1.67	5.00	ug/L		1					
Acrylonitrile	U	5.00	1.67	5.00	ug/L		1					
Benzene	U	1.00	0.333	1.00	ug/L		1					
Bromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromodichloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromoform	U	1.00	0.333	1.00	ug/L		1					
Bromomethane	U	1.00	0.337	1.00	ug/L		1					
Carbon disulfide	U	5.00	1.67	5.00	ug/L		1					
Carbon tetrachloride	U	1.00	0.333	1.00	ug/L		1					
Chlorobenzene	U	1.00	0.333	1.00	ug/L		1					
Chloroethane	U	1.00	0.333	1.00	ug/L		1					
Chloroform	U	1.00	0.333	1.00	ug/L		1					
Chloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromomethane	U	1.00	0.333	1.00	ug/L		1					
Ethylbenzene	UY2	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
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Project:	FRNP00609
Client ID:	FRNP006

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	UY2	1.00	0.333	1.00	ug/L		1					
Trichloroethylene	U	1.00	0.333	1.00	ug/L		1					
Trichlorofluoromethane	U	1.00	0.333	1.00	ug/L		1					
Vinyl acetate	U	5.00	1.67	5.00	ug/L		1					
Vinyl chloride	UY1	1.00	0.333	1.00	ug/L		1					
Xylenes (total)	UY2	3.00	1.00	3.00	ug/L		1					
cis-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
cis-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,4-Dichloro-2-butene	U	5.00	1.67	5.00	ug/L		1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	10/22/24	1130	2691680
SW846 3535A	SW3535A PCB SPE Extraction	DG3	11/13/24	1125	2704014
SW846 9010C Distillation	SW846 9010C Prep	ES2	10/18/24	1130	2690093
SW846 8011 PREP	8011 Prep	LL2	10/18/24	1035	2689887
SW846 3005A	ICP-MS 3005A PREP	MM7	10/29/24	1500	2690493

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Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW387SG1-25
Sample ID: 690651005

Project: FRNP00609
Client ID: FRNP006

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

The following Analytical Methods were performed:

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

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011, VOA Compounds Liquid "As Received"	8.37 ug/L	6.83	123	(56%-149%)
Decachlorobiphenyl	8082A, PCB Liquids "As Received"	0.163 ug/L	0.182	90	(30%-135%)
4cmx	8082A, PCB Liquids "As Received"	0.153 ug/L	0.182	84	(26%-108%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	50.8 ug/L	50.0	102	(85%-114%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	48.5 ug/L	50.0	97	(81%-118%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	51.9 ug/L	50.0	104	(89%-112%)

Notes:

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Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW387SG1-25
Sample ID: 690651005

Project: FRNP00609
Client ID: FRNP006

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

Column headers are defined as follows:

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

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Certificate of Analysis

Report Date: January 21, 2025

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW387SG1-25
Sample ID: 690651006
Matrix: WG
Collect Date: 16-OCT-24 08:29
Receive Date: 17-OCT-24
Collector: Client

Project: FRNP00609
Client ID: FRNP006

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		0.0925	0.000670	0.00400	mg/L	1.00	1	PRB	11/13/24	0138	2690494	1
Chromium	J	0.00365	0.00300	0.0100	mg/L	1.00	1					
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	PRB	11/13/24	1148	2690494	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 160	Laboratory Filtration	SD	10/18/24	1232	2689854
SW846 3005A	ICP-MS 3005A PREP	MM7	10/29/24	1500	2690493

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
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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Report Date: January 21, 2025

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW388SG1-25 Project: FRNP00609
Sample ID: 690651007 Client ID: FRNP006
Matrix: WG
Collect Date: 16-OCT-24 09:32
Receive Date: 17-OCT-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	10/19/24	0212	2689888	1
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	1.29	0.330	2.00	mg/L		1	KB3	11/02/24	0319	2688897	3
Flow Injection Analysis												
9012B, Total Cyanide "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	10/21/24	0841	2690096	4
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens	H	15.6	3.33	10.0	ug/L		1	RMJ	11/20/24	0127	2707408	5
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	10/17/24	1348	2689636	6
SW846 9056A Anions (5) "As Received"												
Fluoride	J	0.218	0.0330	4.00	mg/L		1	CH6	10/17/24	1344	2689592	7
Sulfate		17.3	0.133	0.400	mg/L		1					
Bromide	J	0.461	0.268	0.800	mg/L		4	CH6	10/17/24	1937	2689592	8
Chloride	JW	33.2	0.268	250	mg/L		4					
Nitrate-N	J	0.925	0.165	10.0	mg/L		5	CH6	10/18/24	0045	2689592	9
Mercury Analysis-CVAA												
7470, Mercury Liquid "As Received"												
Mercury	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	JP2	10/23/24	1123	2691681	10
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Aluminum	U	0.0500	0.0193	0.0500	mg/L	1.00	1	PRB	11/13/24	0204	2690494	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		0.178	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					
Boron		0.0277	0.00520	0.0150	mg/L	1.00	1					
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Calcium		23.9	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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Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW388SG1-25
Sample ID: 690651007

Project: FRNP00609
Client ID: FRNP006

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	0.000803	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		10.2	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		1.68	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		43.2	0.0800	0.250	mg/L	1.00	1					
Thallium	U	0.00200	0.000600	0.00200	mg/L	1.00	1					
Vanadium	BJ	0.00517	0.00330	0.0200	mg/L	1.00	1					
Zinc	U	0.0200	0.00330	0.0200	mg/L	1.00	1					
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1	PRB	11/13/24	0329	2690494	12
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	11/13/24	1000	2690494	13
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	PRB	11/13/24	1200	2690494	14
Semi-Volatiles-PCB												
8082A, PCB Liquids "As Received"												
Aroclor-1016	U	0.0964	0.0321	0.0964	ug/L	0.000964	1	YS1	11/13/24	2101	2704018	15
Aroclor-1221	U	0.0964	0.0321	0.0964	ug/L	0.000964	1					
Aroclor-1232	U	0.0964	0.0321	0.0964	ug/L	0.000964	1					
Aroclor-1242	U	0.0964	0.0321	0.0964	ug/L	0.000964	1					
Aroclor-1248	U	0.0964	0.0321	0.0964	ug/L	0.000964	1					
Aroclor-1254	U	0.0964	0.0321	0.0964	ug/L	0.000964	1					
Aroclor-1260	U	0.0964	0.0321	0.0964	ug/L	0.000964	1					
Aroclor-1268	U	0.0964	0.0321	0.0964	ug/L	0.000964	1					
Aroclor-Total	U	0.0964	0.0321	0.0964	ug/L	0.000964	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		209	2.38	10.0	mg/L			ES2	10/23/24	1011	2691654	16
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												

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Client Sample ID: MW388SG1-25
Sample ID: 690651007

Project: FRNP00609
Client ID: FRNP006

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD	J	10.0	8.95	20.0	mg/L		1	JW2	10/17/24	1544	2689675	17
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	JB6	10/22/24	1859	2692182	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	UY2	1.00	0.333	1.00	ug/L		1					
Iodomethane	U	5.00	1.67	5.00	ug/L		1					

GEL LABORATORIES LLC

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Certificate of Analysis

Report Date: January 21, 2025

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW388SG1-25
Sample ID: 690651007

Project: FRNP00609
Client ID: FRNP006

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	UY2	1.00	0.333	1.00	ug/L		1					
Trichloroethylene	U	1.00	0.333	1.00	ug/L		1					
Trichlorofluoromethane	U	1.00	0.333	1.00	ug/L		1					
Vinyl acetate	U	5.00	1.67	5.00	ug/L		1					
Vinyl chloride	UY1	1.00	0.333	1.00	ug/L		1					
Xylenes (total)	UY2	3.00	1.00	3.00	ug/L		1					
cis-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
cis-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,4-Dichloro-2-butene	U	5.00	1.67	5.00	ug/L		1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3535A	SW3535A PCB SPE Extraction	DG3	11/13/24	1125	2704014
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	10/22/24	1130	2691680
SW846 8011 PREP	8011 Prep	LL2	10/18/24	1035	2689887
SW846 3005A	ICP-MS 3005A PREP	MM7	10/29/24	1500	2690493
SW846 9010C Distillation	SW846 9010C Prep	ES2	10/18/24	1130	2690093

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Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW388SG1-25
Sample ID: 690651007

Project: FRNP00609
Client ID: FRNP006

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

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 8011	
2	SW846 8011	
3	SW846 9060A	
4	SW846 9012B	
5	SW846 9020B	
6	EPA 300.0	
7	SW846 9056A	
8	SW846 9056A	
9	SW846 9056A	
10	SW846 7470A	
11	SW846 3005A/6020B	
12	SW846 3005A/6020B	
13	SW846 3005A/6020B	
14	SW846 3005A/6020B	
15	SW846 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 Compounds Liquid "As Received"	6.64 ug/L	6.83	97	(56%-149%)
Decachlorobiphenyl	8082A, PCB Liquids "As Received"	0.191 ug/L	0.193	99	(30%-135%)
4cmx	8082A, PCB Liquids "As Received"	0.169 ug/L	0.193	88	(26%-108%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	50.9 ug/L	50.0	102	(85%-114%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	48.8 ug/L	50.0	98	(81%-118%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	52.3 ug/L	50.0	105	(89%-112%)

Notes:

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Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW388SG1-25
Sample ID: 690651007

Project: FRNP00609
Client ID: FRNP006

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

Column headers are defined as follows:

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

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Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW388SG1-25 Project: FRNP00609
Sample ID: 690651008 Client ID: FRNP006
Matrix: WG
Collect Date: 16-OCT-24 09:32
Receive Date: 17-OCT-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		0.191	0.000670	0.00400	mg/L	1.00	1	PRB	11/13/24	0208	2690494	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	11/13/24	1202	2690494	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 160	Laboratory Filtration	SD	10/18/24	1232	2689854
SW846 3005A	ICP-MS 3005A PREP	MM7	10/29/24	1500	2690493

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW390SG1-25 Project: FRNP00609
Sample ID: 690651009 Client ID: FRNP006
Matrix: WG
Collect Date: 16-OCT-24 07:44
Receive Date: 17-OCT-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	LOF	10/19/24	0247	2689888	1
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average		2.34	0.330	2.00	mg/L		1	KB3	11/02/24	0352	2688897	3
Flow Injection Analysis												
9012B, Total Cyanide "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	10/21/24	0842	2690096	4
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens	H	28.3	3.33	10.0	ug/L		1	RMJ	11/20/24	0008	2707408	5
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	10/17/24	1401	2689636	6
SW846 9056A Anions (5) "As Received"												
Fluoride	J	0.339	0.0330	4.00	mg/L		1	CH6	10/17/24	1414	2689592	7
Bromide	U	0.800	0.268	0.800	mg/L		4	CH6	10/17/24	2008	2689592	8
Chloride	JW	36.4	0.268	250	mg/L		4					
Sulfate		31.2	0.532	1.60	mg/L		4					
Nitrate-N	J	2.00	0.165	10.0	mg/L		5	CH6	10/18/24	0116	2689592	9
Mercury Analysis-CVAA												
7470, Mercury Liquid "As Received"												
Mercury	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	JP2	10/23/24	1125	2691681	10
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Aluminum		0.204	0.0193	0.0500	mg/L	1.00	1	PRB	11/13/24	0211	2690494	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		0.215	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		26.7	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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Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW390SG1-25
Sample ID: 690651009

Project: FRNP00609
Client ID: FRNP006

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	0.00164	0.000300	0.00200	mg/L	1.00	1					
Iron		0.160	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	0.00113	0.00100	0.00500	mg/L	1.00	1					
Molybdenum	J	0.000361	0.000200	0.00100	mg/L	1.00	1					
Nickel	J	0.00144	0.000600	0.00200	mg/L	1.00	1					
Potassium		0.356	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	0.00726	0.00330	0.0200	mg/L	1.00	1					
Zinc	J	0.00711	0.00330	0.0200	mg/L	1.00	1					
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1	PRB	11/13/24	0331	2690494	12
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	11/13/24	1001	2690494	13
Uranium	J	0.000152	0.0000670	0.000200	mg/L	1.00	1	PRB	11/13/24	1205	2690494	14
Sodium		90.2	1.60	5.00	mg/L	1.00	20	PRB	11/13/24	1207	2690494	15
Semi-Volatiles-PCB												
8082A, PCB Liquids "As Received"												
Aroclor-1016	U	0.102	0.0338	0.102	ug/L	0.00102	1	YS1	11/13/24	2113	2704018	16
Aroclor-1221	U	0.102	0.0338	0.102	ug/L	0.00102	1					
Aroclor-1232	U	0.102	0.0338	0.102	ug/L	0.00102	1					
Aroclor-1242	U	0.102	0.0338	0.102	ug/L	0.00102	1					
Aroclor-1248	U	0.102	0.0338	0.102	ug/L	0.00102	1					
Aroclor-1254	U	0.102	0.0338	0.102	ug/L	0.00102	1					
Aroclor-1260	U	0.102	0.0338	0.102	ug/L	0.00102	1					
Aroclor-1268	U	0.102	0.0338	0.102	ug/L	0.00102	1					
Aroclor-Total	U	0.102	0.0338	0.102	ug/L	0.00102	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		347	2.38	10.0	mg/L			ES2	10/23/24	1011	2691654	17
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												

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Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW390SG1-25
Sample ID: 690651009

Project: FRNP00609
Client ID: FRNP006

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD	J	12.4	8.95	20.0	mg/L		1	JW2	10/17/24	1544	2689675	18
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	JB6	10/22/24	1924	2692182	19
1,1,1-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
1,2,3-Trichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dibromoethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,4-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
2-Butanone	U	5.00	1.67	5.00	ug/L		1					
2-Hexanone	U	5.00	1.67	5.00	ug/L		1					
4-Methyl-2-pentanone	U	5.00	1.67	5.00	ug/L		1					
Acetone	U	5.00	1.74	5.00	ug/L		1					
Acrolein	U	5.00	1.67	5.00	ug/L		1					
Acrylonitrile	U	5.00	1.67	5.00	ug/L		1					
Benzene	U	1.00	0.333	1.00	ug/L		1					
Bromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromodichloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromoform	U	1.00	0.333	1.00	ug/L		1					
Bromomethane	U	1.00	0.337	1.00	ug/L		1					
Carbon disulfide	U	5.00	1.67	5.00	ug/L		1					
Carbon tetrachloride	U	1.00	0.333	1.00	ug/L		1					
Chlorobenzene	U	1.00	0.333	1.00	ug/L		1					
Chloroethane	U	1.00	0.333	1.00	ug/L		1					
Chloroform	U	1.00	0.333	1.00	ug/L		1					
Chloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromomethane	U	1.00	0.333	1.00	ug/L		1					
Ethylbenzene	UY2	1.00	0.333	1.00	ug/L		1					
Iodomethane	U	5.00	1.67	5.00	ug/L		1					

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Project:	FRNP00609
Client ID:	FRNP006

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	UY2	1.00	0.333	1.00	ug/L		1					
Trichloroethylene	U	1.00	0.333	1.00	ug/L		1					
Trichlorofluoromethane	U	1.00	0.333	1.00	ug/L		1					
Vinyl acetate	U	5.00	1.67	5.00	ug/L		1					
Vinyl chloride	UY1	1.00	0.333	1.00	ug/L		1					
Xylenes (total)	UY2	3.00	1.00	3.00	ug/L		1					
cis-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
cis-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,4-Dichloro-2-butene	U	5.00	1.67	5.00	ug/L		1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 9010C Distillation	SW846 9010C Prep	ES2	10/18/24	1130	2690093
SW846 3535A	SW3535A PCB SPE Extraction	DG3	11/13/24	1125	2704014
SW846 8011 PREP	8011 Prep	LL2	10/18/24	1035	2689887
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	10/22/24	1130	2691680
SW846 3005A	ICP-MS 3005A PREP	MM7	10/29/24	1500	2690493

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Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW390SG1-25
Sample ID: 690651009

Project: FRNP00609
Client ID: FRNP006

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

The following Analytical Methods were performed:

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

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011, VOA Compounds Liquid "As Received"	8.55 ug/L	6.78	126	(56%-149%)
Decachlorobiphenyl	8082A, PCB Liquids "As Received"	0.156 ug/L	0.203	77	(30%-135%)
4cmx	8082A, PCB Liquids "As Received"	0.156 ug/L	0.203	77	(26%-108%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	51.4 ug/L	50.0	103	(85%-114%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	49.5 ug/L	50.0	99	(81%-118%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	53.8 ug/L	50.0	108	(89%-112%)

Notes:

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Certificate of Analysis

Report Date: January 21, 2025

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW390SG1-25
Sample ID: 690651009

Project: FRNP00609
Client ID: FRNP006

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

Column headers are defined as follows:

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

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW390SG1-25
Sample ID: 690651010
Matrix: WG
Collect Date: 16-OCT-24 07:44
Receive Date: 17-OCT-24
Collector: Client

Project: FRNP00609
Client ID: FRNP006

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	11/13/24	0215	2690494	1
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					
Uranium	J	0.000149	0.0000670	0.000200	mg/L	1.00	1	PRB	11/13/24	1214	2690494	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 160	Laboratory Filtration	SD	10/18/24	1232	2689854
SW846 3005A	ICP-MS 3005A PREP	MM7	10/29/24	1500	2690493

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
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: January 21, 2025

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW397SG1-25 Project: FRNP00609
Sample ID: 690651011 Client ID: FRNP006
Matrix: WG
Collect Date: 16-OCT-24 11:25
Receive Date: 17-OCT-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	0.955	1	LOF	10/19/24	0321	2689888	1
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	0.793	0.330	2.00	mg/L		1	KB3	11/02/24	0418	2689803	3
Flow Injection Analysis												
9012B, Total Cyanide "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	10/21/24	0843	2690096	4
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens	H	10.7	3.33	10.0	ug/L		1	RMJ	11/20/24	0141	2707408	5
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	10/17/24	1413	2689636	6
SW846 9056A Anions (5) "As Received"												
Bromide		0.393	0.0670	0.200	mg/L		1	CH6	10/17/24	1445	2689592	7
Fluoride	J	0.168	0.0330	4.00	mg/L		1					
Sulfate		11.4	0.133	0.400	mg/L		1					
Chloride	JW	33.4	0.268	250	mg/L		4	CH6	10/17/24	2039	2689592	8
Nitrate-N	J	1.11	0.165	10.0	mg/L		5	CH6	10/18/24	0147	2689592	9
Mercury Analysis-CVAA												
7470, Mercury Liquid "As Received"												
Mercury	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	JP2	10/23/24	1126	2691681	10
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Aluminum		0.103	0.0193	0.0500	mg/L	1.00	1	PRB	11/13/24	0218	2690494	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		0.129	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					
Boron	J	0.00937	0.00520	0.0150	mg/L	1.00	1					
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Calcium		18.0	0.0800	0.200	mg/L	1.00	1					
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW397SG1-25
Sample ID: 690651011

Project: FRNP00609
Client ID: FRNP006

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	0.000778	0.000300	0.00200	mg/L	1.00	1					
Iron		0.190	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Magnesium		7.57	0.0100	0.0300	mg/L	1.00	1					
Manganese		0.00720	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		1.76	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		31.7	0.0800	0.250	mg/L	1.00	1					
Thallium	U	0.00200	0.000600	0.00200	mg/L	1.00	1					
Vanadium	BJ	0.00811	0.00330	0.0200	mg/L	1.00	1					
Zinc	U	0.0200	0.00330	0.0200	mg/L	1.00	1					
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1	PRB	11/13/24	0333	2690494	12
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	11/13/24	1003	2690494	13
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	PRB	11/13/24	1217	2690494	14
Semi-Volatiles-PCB												
8082A, PCB Liquids "As Received"												
Aroclor-1016	U	0.0960	0.0320	0.0960	ug/L	0.000960	1	YS1	11/13/24	2125	2704018	15
Aroclor-1221	U	0.0960	0.0320	0.0960	ug/L	0.000960	1					
Aroclor-1232	U	0.0960	0.0320	0.0960	ug/L	0.000960	1					
Aroclor-1242	U	0.0960	0.0320	0.0960	ug/L	0.000960	1					
Aroclor-1248	U	0.0960	0.0320	0.0960	ug/L	0.000960	1					
Aroclor-1254	U	0.0960	0.0320	0.0960	ug/L	0.000960	1					
Aroclor-1260	U	0.0960	0.0320	0.0960	ug/L	0.000960	1					
Aroclor-1268	U	0.0960	0.0320	0.0960	ug/L	0.000960	1					
Aroclor-Total	U	0.0960	0.0320	0.0960	ug/L	0.000960	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		164	2.38	10.0	mg/L			ES2	10/23/24	1011	2691654	16
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												

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Address : 5600 Hobbs Road

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW397SG1-25
Sample ID: 690651011

Project: FRNP00609
Client ID: FRNP006

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	10/17/24	1544	2689675	17
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	JB6	10/22/24	1949	2692182	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	UY2	1.00	0.333	1.00	ug/L		1					
Iodomethane	U	5.00	1.67	5.00	ug/L		1					

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW397SG1-25
Sample ID: 690651011

Project: FRNP00609
Client ID: FRNP006

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	UY2	1.00	0.333	1.00	ug/L		1					
Trichloroethylene	U	1.00	0.333	1.00	ug/L		1					
Trichlorofluoromethane	U	1.00	0.333	1.00	ug/L		1					
Vinyl acetate	U	5.00	1.67	5.00	ug/L		1					
Vinyl chloride	UY1	1.00	0.333	1.00	ug/L		1					
Xylenes (total)	UY2	3.00	1.00	3.00	ug/L		1					
cis-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
cis-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,4-Dichloro-2-butene	U	5.00	1.67	5.00	ug/L		1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	10/22/24	1130	2691680
SW846 8011 PREP	8011 Prep	LL2	10/18/24	1035	2689887
SW846 9010C Distillation	SW846 9010C Prep	ES2	10/18/24	1130	2690093
SW846 3005A	ICP-MS 3005A PREP	MM7	10/29/24	1500	2690493
SW846 3535A	SW3535A PCB SPE Extraction	DG3	11/13/24	1125	2704014

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Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW397SG1-25
Sample ID: 690651011

Project: FRNP00609
Client ID: FRNP006

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

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 8011	
2	SW846 8011	
3	SW846 9060A	
4	SW846 9012B	
5	SW846 9020B	
6	EPA 300.0	
7	SW846 9056A	
8	SW846 9056A	
9	SW846 9056A	
10	SW846 7470A	
11	SW846 3005A/6020B	
12	SW846 3005A/6020B	
13	SW846 3005A/6020B	
14	SW846 3005A/6020B	
15	SW846 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 Compounds Liquid "As Received"	6.62 ug/L	6.82	97	(56%-149%)
Decachlorobiphenyl	8082A, PCB Liquids "As Received"	0.158 ug/L	0.192	82	(30%-135%)
4cmx	8082A, PCB Liquids "As Received"	0.161 ug/L	0.192	84	(26%-108%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	49.1 ug/L	50.0	98	(85%-114%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	46.1 ug/L	50.0	92	(81%-118%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	50.2 ug/L	50.0	100	(89%-112%)

Notes:

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW397SG1-25
Sample ID: 690651011

Project: FRNP00609
Client ID: FRNP006

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

Column headers are defined as follows:

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

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Report Date: January 21, 2025

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW397SG1-25 Project: FRNP00609
Sample ID: 690651012 Client ID: FRNP006
Matrix: WG
Collect Date: 16-OCT-24 11:25
Receive Date: 17-OCT-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		0.128	0.000670	0.00400	mg/L	1.00	1	PRB	11/13/24	0222	2690494	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	11/13/24	1219	2690494	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 160	Laboratory Filtration	SD	10/18/24	1232	2689854
SW846 3005A	ICP-MS 3005A PREP	MM7	10/29/24	1500	2690493

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: January 21, 2025

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: FB1SG1-25 Project: FRNP00609
Sample ID: 690651013 Client ID: FRNP006
Matrix: WATER
Collect Date: 16-OCT-24 10:15
Receive Date: 17-OCT-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	0.946	1	LOF	10/19/24	0444	2689888	1
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	10/17/24	1452	2689636	3
Mercury Analysis-CVAA												
7470, Mercury Liquid "As Received"												
Mercury	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	JP2	10/23/24	1137	2691681	4
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Aluminum	U	0.0500	0.0193	0.0500	mg/L	1.00	1	PRB	11/13/24	0226	2690494	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	U	0.300	0.0800	0.300	mg/L	1.00	1					
Selenium	U	0.00500	0.00150	0.00500	mg/L	1.00	1					
Silver	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
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					
Vanadium	BJ	0.00755	0.00330	0.0200	mg/L	1.00	1					
Zinc	J	0.00587	0.00330	0.0200	mg/L	1.00	1					
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1	PRB	11/13/24	0335	2690494	6

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Certificate of Analysis

Report Date: January 21, 2025

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: FB1SG1-25
Sample ID: 690651013

Project: FRNP00609
Client ID: FRNP006

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	11/13/24	1005	2690494	7
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	PRB	11/13/24	1221	2690494	8
Semi-Volatiles-PCB												
8082A, PCB Liquids "As Received"												
Aroclor-1016	U	0.0957	0.0319	0.0957	ug/L	0.000957	1	YS1	11/13/24	2159	2704018	9
Aroclor-1221	U	0.0957	0.0319	0.0957	ug/L	0.000957	1					
Aroclor-1232	U	0.0957	0.0319	0.0957	ug/L	0.000957	1					
Aroclor-1242	U	0.0957	0.0319	0.0957	ug/L	0.000957	1					
Aroclor-1248	U	0.0957	0.0319	0.0957	ug/L	0.000957	1					
Aroclor-1254	U	0.0957	0.0319	0.0957	ug/L	0.000957	1					
Aroclor-1260	U	0.0957	0.0319	0.0957	ug/L	0.000957	1					
Aroclor-1268	U	0.0957	0.0319	0.0957	ug/L	0.000957	1					
Aroclor-Total	U	0.0957	0.0319	0.0957	ug/L	0.000957	1					
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	JB6	10/22/24	1653	2692182	10
1,1,1-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
1,2,3-Trichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dibromoethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,4-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
2-Butanone	U	5.00	1.67	5.00	ug/L		1					
2-Hexanone	U	5.00	1.67	5.00	ug/L		1					
4-Methyl-2-pentanone	U	5.00	1.67	5.00	ug/L		1					
Acetone	U	5.00	1.74	5.00	ug/L		1					
Acrolein	U	5.00	1.67	5.00	ug/L		1					
Acrylonitrile	U	5.00	1.67	5.00	ug/L		1					
Benzene	U	1.00	0.333	1.00	ug/L		1					
Bromochloromethane	U	1.00	0.333	1.00	ug/L		1					

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Report Date: January 21, 2025

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: FB1SG1-25
Sample ID: 690651013

Project: FRNP00609
Client ID: FRNP006

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
Bromodichloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromoform	U	1.00	0.333	1.00	ug/L		1					
Bromomethane	U	1.00	0.337	1.00	ug/L		1					
Carbon disulfide	U	5.00	1.67	5.00	ug/L		1					
Carbon tetrachloride	U	1.00	0.333	1.00	ug/L		1					
Chlorobenzene	U	1.00	0.333	1.00	ug/L		1					
Chloroethane	U	1.00	0.333	1.00	ug/L		1					
Chloroform	U	1.00	0.333	1.00	ug/L		1					
Chloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromomethane	U	1.00	0.333	1.00	ug/L		1					
Ethylbenzene	UY2	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	UY2	1.00	0.333	1.00	ug/L		1					
Trichloroethylene	U	1.00	0.333	1.00	ug/L		1					
Trichlorofluoromethane	U	1.00	0.333	1.00	ug/L		1					
Vinyl acetate	U	5.00	1.67	5.00	ug/L		1					
Vinyl chloride	UY1	1.00	0.333	1.00	ug/L		1					
Xylenes (total)	UY2	3.00	1.00	3.00	ug/L		1					
cis-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
cis-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,4-Dichloro-2-butene	U	5.00	1.67	5.00	ug/L		1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	10/22/24	1130	2691680
SW846 8011 PREP	8011 Prep	LL2	10/18/24	1035	2689887
SW846 3005A	ICP-MS 3005A PREP	MM7	10/29/24	1500	2690493
SW846 3535A	SW3535A PCB SPE Extraction	DG3	11/13/24	1125	2704014

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Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: FB1SG1-25
Sample ID: 690651013

Project: FRNP00609
Client ID: FRNP006

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

The following Analytical Methods were performed:

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

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011, VOA Compounds Liquid "As Received"	7.32 ug/L	6.76	108	(56%-149%)
Decachlorobiphenyl	8082A, PCB Liquids "As Received"	0.177 ug/L	0.191	93	(30%-135%)
4cmx	8082A, PCB Liquids "As Received"	0.169 ug/L	0.191	88	(26%-108%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	50.7 ug/L	50.0	101	(85%-114%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	49.6 ug/L	50.0	99	(81%-118%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	53.0 ug/L	50.0	106	(89%-112%)

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: January 21, 2025

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: RI1SG1-25 Project: FRNP00609
Sample ID: 690651014 Client ID: FRNP006
Matrix: WATER
Collect Date: 16-OCT-24 07:05
Receive Date: 17-OCT-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	0.00855	0.0190	ug/L	0.950	1	LOF	10/19/24	0518	2689888	1
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	10/17/24	1505	2689636	3
Mercury Analysis-CVAA												
7470, Mercury Liquid "As Received"												
Mercury	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	JP2	10/23/24	1139	2691681	4
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Aluminum	U	0.0500	0.0193	0.0500	mg/L	1.00	1	PRB	11/13/24	0229	2690494	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	U	0.300	0.0800	0.300	mg/L	1.00	1					
Selenium	U	0.00500	0.00150	0.00500	mg/L	1.00	1					
Silver	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
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					
Vanadium	BJ	0.00726	0.00330	0.0200	mg/L	1.00	1					
Zinc	U	0.0200	0.00330	0.0200	mg/L	1.00	1					
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1	PRB	11/13/24	0337	2690494	6

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: RI1SG1-25
Sample ID: 690651014

Project: FRNP00609
Client ID: FRNP006

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	11/13/24	1007	2690494	7
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	PRB	11/13/24	1224	2690494	8
Semi-Volatiles-PCB												
8082A, PCB Liquids "As Received"												
Aroclor-1016	U	0.0960	0.0320	0.0960	ug/L	0.000960	1	YS1	11/13/24	2211	2704018	9
Aroclor-1221	U	0.0960	0.0320	0.0960	ug/L	0.000960	1					
Aroclor-1232	U	0.0960	0.0320	0.0960	ug/L	0.000960	1					
Aroclor-1242	U	0.0960	0.0320	0.0960	ug/L	0.000960	1					
Aroclor-1248	U	0.0960	0.0320	0.0960	ug/L	0.000960	1					
Aroclor-1254	U	0.0960	0.0320	0.0960	ug/L	0.000960	1					
Aroclor-1260	U	0.0960	0.0320	0.0960	ug/L	0.000960	1					
Aroclor-1268	U	0.0960	0.0320	0.0960	ug/L	0.000960	1					
Aroclor-Total	U	0.0960	0.0320	0.0960	ug/L	0.000960	1					
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	JB6	10/22/24	1718	2692182	10
1,1,1-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
1,2,3-Trichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dibromoethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,4-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
2-Butanone	U	5.00	1.67	5.00	ug/L		1					
2-Hexanone	U	5.00	1.67	5.00	ug/L		1					
4-Methyl-2-pentanone	U	5.00	1.67	5.00	ug/L		1					
Acetone	U	5.00	1.74	5.00	ug/L		1					
Acrolein	U	5.00	1.67	5.00	ug/L		1					
Acrylonitrile	U	5.00	1.67	5.00	ug/L		1					
Benzene	U	1.00	0.333	1.00	ug/L		1					
Bromochloromethane	U	1.00	0.333	1.00	ug/L		1					

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Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: RI1SG1-25
Sample ID: 690651014

Project: FRNP00609
Client ID: FRNP006

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
Bromodichloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromoform	U	1.00	0.333	1.00	ug/L		1					
Bromomethane	U	1.00	0.337	1.00	ug/L		1					
Carbon disulfide	U	5.00	1.67	5.00	ug/L		1					
Carbon tetrachloride	U	1.00	0.333	1.00	ug/L		1					
Chlorobenzene	U	1.00	0.333	1.00	ug/L		1					
Chloroethane	U	1.00	0.333	1.00	ug/L		1					
Chloroform	U	1.00	0.333	1.00	ug/L		1					
Chloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromomethane	U	1.00	0.333	1.00	ug/L		1					
Ethylbenzene	UY2	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	UY2	1.00	0.333	1.00	ug/L		1					
Trichloroethylene	U	1.00	0.333	1.00	ug/L		1					
Trichlorofluoromethane	U	1.00	0.333	1.00	ug/L		1					
Vinyl acetate	U	5.00	1.67	5.00	ug/L		1					
Vinyl chloride	UY1	1.00	0.333	1.00	ug/L		1					
Xylenes (total)	UY2	3.00	1.00	3.00	ug/L		1					
cis-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
cis-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,4-Dichloro-2-butene	U	5.00	1.67	5.00	ug/L		1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	10/22/24	1130	2691680
SW846 3005A	ICP-MS 3005A PREP	MM7	10/29/24	1500	2690493
SW846 8011 PREP	8011 Prep	LL2	10/18/24	1035	2689887
SW846 3535A	SW3535A PCB SPE Extraction	DG3	11/13/24	1125	2704014

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: RI1SG1-25
Sample ID: 690651014

Project: FRNP00609
Client ID: FRNP006

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

The following Analytical Methods were performed:

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

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011, VOA Compounds Liquid "As Received"	6.06 ug/L	6.79	89	(56%-149%)
Decachlorobiphenyl	8082A, PCB Liquids "As Received"	0.175 ug/L	0.192	91	(30%-135%)
4cmx	8082A, PCB Liquids "As Received"	0.150 ug/L	0.192	78	(26%-108%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	50.0 ug/L	50.0	100	(85%-114%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	48.4 ug/L	50.0	97	(81%-118%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	51.9 ug/L	50.0	104	(89%-112%)

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

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Certificate of Analysis

Report Date: January 21, 2025

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID:	TB3SG1-25	Project:	FRNP00609
Sample ID:	690651015	Client ID:	FRNP006
Matrix:	WATER		
Collect Date:	16-OCT-24 07:00		
Receive Date:	17-OCT-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	0.00850	0.0189	ug/L	0.944	1	LOF	10/19/24	0553	2689888	1
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	JB6	10/22/24	1744	2692182	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	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	UY2	1.00	0.333	1.00	ug/L		1					
Iodomethane	U	5.00	1.67	5.00	ug/L		1					

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Address : 5600 Hobbs Road

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: TB3SG1-25
Sample ID: 690651015

Project: FRNP00609
Client ID: FRNP006

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	UY2	1.00	0.333	1.00	ug/L		1					
Trichloroethylene	U	1.00	0.333	1.00	ug/L		1					
Trichlorofluoromethane	U	1.00	0.333	1.00	ug/L		1					
Vinyl acetate	U	5.00	1.67	5.00	ug/L		1					
Vinyl chloride	UY1	1.00	0.333	1.00	ug/L		1					
Xylenes (total)	UY2	3.00	1.00	3.00	ug/L		1					
cis-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
cis-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,4-Dichloro-2-butene	U	5.00	1.67	5.00	ug/L		1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 8011 PREP	8011 Prep	LL2	10/18/24	1035	2689887

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"	6.38 ug/L	6.75	95	(56%-149%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	50.3 ug/L	50.0	101	(85%-114%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	48.9 ug/L	50.0	98	(81%-118%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	52.1 ug/L	50.0	104	(89%-112%)

Notes:

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Address : 5600 Hobbs Road

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: TB3SG1-25
Sample ID: 690651015

Project: FRNP00609
Client ID: FRNP006

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

Column headers are defined as follows:

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

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ATTACHMENT C4

GEL LABORATORIES CERTIFICATE OF ANALYSIS

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Certificate of Analysis

Company : Four Rivers Nuclear Partnership,
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5600 Hobbs Road

Kevil, Kentucky 42053

Report Date: January 21, 2025

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW391SG1-25
Sample ID: 690382001
Matrix: WG
Collect Date: 15-OCT-24
Receive Date: 16-OCT-24
Collector: Client

Project: FRNP00609
Client ID: FRNP006

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

Rad Alpha Spec Analysis

AlphaSpec Ra226, Liquid "As Received"

Radium-226	U	0.424	+/-1.03	1.70	+/-1.04	5.00	pCi/L			CM4	10/28/24	1346	2689710	1

Th-01-RC M, Th Isotopes, Liquid "As Received"

Thorium-230	U	0.186	+/-0.856	1.69	+/-0.861	50.0	pCi/L			RM3	10/26/24	0922	2689715	2

Rad Gas Flow Proportional Counting

905.0 Mod, Sr90, liquid "As Received"

Strontium-90	U	1.60	+/-3.29	5.77	+/-3.30	8.00	pCi/L			HH3	10/30/24	1341	2688869	3

9310,Alpha/Beta Activity, liquid "As Received"

Alpha	U	-1.06	+/-3.74	8.80	+/-3.74	15.0	pCi/L			CH7	11/04/24	0955	2688859	4

Beta	U	5.73	+/-5.55	9.09	+/-5.64	50.0	pCi/L							

Rad Liquid Scintillation Analysis

906.0 Mod, Tritium Dist, Liquid "As Received"

Tritium	U	76.7	+/-142	244	+/-143	300	pCi/L			SA2	11/11/24	0735	2690854	5

Tc-02-RC-MOD, Tc99, Liquid "As Received"

Technetium-99	U	6.22	+/-9.55	16.3	+/-9.58	25.0	pCi/L			GS3	11/08/24	2350	2696204	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"	2689710	95.6	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2689715	101	(30%-110%)
Strontium Carrier	905.0 Mod, Sr90, liquid "As Received"	2688869	90.3	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2696204	101	(30%-110%)

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Report Date: January 21, 2025

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW391SG1-25

Project: FRNP00609

Sample ID: 690382001

Client ID: FRNP006

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: January 21, 2025

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW392SG1-25

Project: FRNP00609

Sample ID: 690382003

Client ID: FRNP006

Matrix: WG

Collect Date: 15-OCT-24

Receive Date: 16-OCT-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	0.106	+/-0.875	1.80	+/-0.876	5.00	pCi/L			CM4	10/28/24	1346	2689710	1
<i>Th-01-RC M, Th Isotopes, Liquid "As Received"</i>														
Thorium-230	U	0.870	+/-1.15	1.83	+/-1.16	50.0	pCi/L			RM3	10/26/24	0922	2689715	2
Rad Gas Flow Proportional Counting														
<i>905.0 Mod, Sr90, liquid "As Received"</i>														
Strontium-90	U	-1.58	+/-1.42	3.01	+/-1.42	8.00	pCi/L			HH3	11/04/24	1408	2688869	3
<i>9310,Alpha/Beta Activity, liquid "As Received"</i>														
Alpha	U	-0.444	+/-3.23	7.62	+/-3.23	15.0	pCi/L			CH7	11/04/24	0955	2688859	4
Beta	U	7.80	+/-6.46	10.4	+/-6.59	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
<i>906.0 Mod, Tritium Dist, Liquid "As Received"</i>														
Tritium	U	54.4	+/-146	254	+/-146	300	pCi/L			SA2	11/11/24	0817	2690854	5
<i>Tc-02-RC-MOD, Tc99, Liquid "As Received"</i>														
Technetium-99	U	-1.01	+/-9.11	16.4	+/-9.11	25.0	pCi/L			GS3	11/09/24	0006	2696204	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"	2689710	93.6	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2689715	98.9	(30%-110%)
Strontium Carrier	905.0 Mod, Sr90, liquid "As Received"	2688869	92.5	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2696204	101	(30%-110%)

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5600 Hobbs Road

Kevil, Kentucky 42053

Report Date: January 21, 2025

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW392SG1-25

Project: FRNP00609

Sample ID: 690382003

Client ID: FRNP006

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: January 21, 2025

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW393SG1-25

Project: FRNP00609

Sample ID: 690382005

Client ID: FRNP006

Matrix: WG

Collect Date: 15-OCT-24

Receive Date: 16-OCT-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	0.425	+/-0.462	0.658	+/-0.462	5.00	pCi/L			CM4	10/26/24	0857	2689710	1
<i>Th-01-RC M, Th Isotopes, Liquid "As Received"</i>														
Thorium-230	U	0.626	+/-1.17	2.04	+/-1.18	50.0	pCi/L			RM3	10/26/24	0922	2689715	2
Rad Gas Flow Proportional Counting														
<i>905.0 Mod, Sr90, liquid "As Received"</i>														
Strontium-90	U	-1.41	+/-2.92	6.05	+/-2.92	8.00	pCi/L			HH3	11/04/24	1408	2688869	3
<i>9310,Alpha/Beta Activity, liquid "As Received"</i>														
Alpha	U	2.20	+/-4.11	7.61	+/-4.13	15.0	pCi/L			CH7	11/04/24	0955	2688859	4
Beta	U	3.38	+/-4.79	8.21	+/-4.82	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
<i>906.0 Mod, Tritium Dist, Liquid "As Received"</i>														
Tritium	U	45.1	+/-144	252	+/-144	300	pCi/L			SA2	11/11/24	0858	2690854	5
<i>Tc-02-RC-MOD, Tc99, Liquid "As Received"</i>														
Technetium-99	U	-1.24	+/-9.48	17.0	+/-9.48	25.0	pCi/L			GS3	11/09/24	0023	2696204	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"	2689710	92	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2689715	92.9	(30%-110%)
Strontium Carrier	905.0 Mod, Sr90, liquid "As Received"	2688869	36.6	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2696204	96.7	(30%-110%)

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Report Date: January 21, 2025

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW393SG1-25

Project: FRNP00609

Sample ID: 690382005

Client ID: FRNP006

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: January 21, 2025

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW394SG1-25

Project: FRNP00609

Sample ID: 690382007

Client ID: FRNP006

Matrix: WG

Collect Date: 15-OCT-24

Receive Date: 16-OCT-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	0.545	+/-1.09	1.56	+/-1.09	5.00	pCi/L			CM4	10/28/24	1346	2689710	1
<i>Th-01-RC M, Th Isotopes, Liquid "As Received"</i>														
Thorium-230	U	0.813	+/-1.15	1.86	+/-1.16	50.0	pCi/L			RM3	10/26/24	0923	2689715	2
Rad Gas Flow Proportional Counting														
<i>905.0 Mod, Sr90, liquid "As Received"</i>														
Strontium-90	U	1.27	+/-2.85	5.06	+/-2.86	8.00	pCi/L			HH3	10/30/24	1341	2688869	3
<i>9310,Alpha/Beta Activity, liquid "As Received"</i>														
Alpha	U	0.517	+/-3.85	8.17	+/-3.85	15.0	pCi/L			CH7	11/04/24	0955	2688859	4
Beta	U	8.47	+/-5.81	8.89	+/-5.98	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
<i>906.0 Mod, Tritium Dist, Liquid "As Received"</i>														
Tritium	U	96.3	+/-147	252	+/-149	300	pCi/L			SA2	11/11/24	0940	2690854	5
<i>Tc-02-RC-MOD, Tc99, Liquid "As Received"</i>														
Technetium-99	U	0.147	+/-9.28	16.5	+/-9.28	25.0	pCi/L			GS3	11/09/24	0040	2696204	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"	2689710	92.2	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2689715	98.6	(30%-110%)
Strontium Carrier	905.0 Mod, Sr90, liquid "As Received"	2688869	88.2	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2696204	99.9	(30%-110%)

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Report Date: January 21, 2025

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW394SG1-25

Project: FRNP00609

Sample ID: 690382007

Client ID: FRNP006

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.

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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

RL: Reporting Limit

MDA: Minimum Detectable Activity

TPU: Total Propagated Uncertainty

MDC: Minimum Detectable Concentration

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Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW395SG1-25

Project: FRNP00609

Sample ID: 690382009

Client ID: FRNP006

Matrix: WG

Collect Date: 15-OCT-24

Receive Date: 16-OCT-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	0.345	+/-0.457	0.707	+/-0.457	5.00	pCi/L			CM4	10/26/24	0857	2689710	1
<i>Th-01-RC M, Th Isotopes, Liquid "As Received"</i>														
Thorium-230	U	0.527	+/-1.10	1.96	+/-1.11	50.0	pCi/L			RM3	10/26/24	0923	2689715	2
Rad Gas Flow Proportional Counting														
<i>905.0 Mod, Sr90, liquid "As Received"</i>														
Strontium-90	U	-2.79	+/-2.21	4.80	+/-2.21	8.00	pCi/L			HH3	10/30/24	1341	2688869	3
<i>9310,Alpha/Beta Activity, liquid "As Received"</i>														
Alpha	U	3.18	+/-4.38	7.55	+/-4.41	15.0	pCi/L			CH7	11/04/24	0955	2688859	4
Beta	U	8.32	+/-5.85	9.00	+/-6.01	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
<i>906.0 Mod, Tritium Dist, Liquid "As Received"</i>														
Tritium	U	147	+/-151	253	+/-154	300	pCi/L			SA2	11/11/24	1022	2690854	5
<i>Tc-02-RC-MOD, Tc99, Liquid "As Received"</i>														
Technetium-99	U	10.7	+/-10.2	16.9	+/-10.2	25.0	pCi/L			GS3	11/09/24	0056	2696204	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"	2689710	92.5	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2689715	90.8	(30%-110%)
Strontium Carrier	905.0 Mod, Sr90, liquid "As Received"	2688869	96.8	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2696204	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: January 21, 2025

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW395SG1-25

Project: FRNP00609

Sample ID: 690382009

Client ID: FRNP006

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: January 21, 2025

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW396SG1-25

Project: FRNP00609

Sample ID: 690382011

Client ID: FRNP006

Matrix: WG

Collect Date: 15-OCT-24

Receive Date: 16-OCT-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	0.296	+/-0.385	0.546	+/-0.385	5.00	pCi/L			CM4	10/26/24	0857	2689710	1
<i>Th-01-RC M, Th Isotopes, Liquid "As Received"</i>														
Thorium-230	U	0.320	+/-1.08	2.06	+/-1.08	50.0	pCi/L			RM3	10/26/24	0923	2689715	2
Rad Gas Flow Proportional Counting														
<i>905.0 Mod, Sr90, liquid "As Received"</i>														
Strontium-90	U	0.202	+/-2.50	4.70	+/-2.50	8.00	pCi/L			HH3	10/30/24	1341	2688869	3
<i>9310,Alpha/Beta Activity, liquid "As Received"</i>														
Alpha	U	-2.18	+/-3.55	9.64	+/-3.55	15.0	pCi/L			CH7	11/04/24	0955	2688859	4
Beta	U	2.61	+/-5.27	9.36	+/-5.29	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
<i>906.0 Mod, Tritium Dist, Liquid "As Received"</i>														
Tritium	U	18.0	+/-143	253	+/-143	300	pCi/L			SA2	11/11/24	1104	2690854	5
<i>Tc-02-RC-MOD, Tc99, Liquid "As Received"</i>														
Technetium-99	U	2.29	+/-9.67	17.0	+/-9.67	25.0	pCi/L			GS3	11/09/24	0113	2696204	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"	2689710	94.9	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2689715	89.4	(30%-110%)
Strontium Carrier	905.0 Mod, Sr90, liquid "As Received"	2688869	86	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2696204	96.7	(30%-110%)

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Kevil, Kentucky 42053

Report Date: January 21, 2025

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW396SG1-25

Project: FRNP00609

Sample ID: 690382011

Client ID: FRNP006

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

Report Date: January 21, 2025

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW391SG1-25 Project: FRNP00609
Sample ID: 690382001 Client ID: FRNP006
Matrix: WG
Collect Date: 15-OCT-24 12:24
Receive Date: 16-OCT-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	0.00856	0.0190	ug/L	0.951	1	LOF	10/18/24	1522	2689579	1
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	0.870	0.330	2.00	mg/L		1	KB3	10/31/24	0745	2696480	3
Flow Injection Analysis												
9012B, Total Cyanide "As Received"												
Cyanide, Total	UN	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	10/21/24	0719	2689173	4
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens		46.6	3.33	10.0	ug/L		1	RMJ	11/09/24	2042	2702958	5
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	10/16/24	1618	2688638	6
SW846 9056A Anions (5) "As Received"												
Bromide		0.526	0.0670	0.200	mg/L		1	CH6	10/16/24	1424	2688735	7
Fluoride	J	0.209	0.0330	4.00	mg/L		1					
Sulfate		11.9	0.133	0.400	mg/L		1					
Chloride	JW	41.6	0.335	250	mg/L		5	CH6	10/16/24	2034	2688735	8
Nitrate-N	J	1.17	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	10/18/24	1148	2688834	9
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Aluminum	U	0.0500	0.0193	0.0500	mg/L	1.00	1	PRB	11/10/24	1950	2689586	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		0.212	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					
Boron		0.0265	0.00520	0.0150	mg/L	1.00	1					
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Calcium		25.2	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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Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW391SG1-25
Sample ID: 690382001

Project: FRNP00609
Client ID: FRNP006

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	0.000548	0.000300	0.00200	mg/L	1.00	1					
Iron	J	0.0380	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Magnesium		10.6	0.0100	0.0300	mg/L	1.00	1					
Manganese	J	0.00151	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		1.49	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		32.7	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	11/10/24	1352	2689586	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	11/11/24	0331	2689586	12
Semi-Volatiles-PCB												
8082A, PCB Liquids "As Received"												
Aroclor-1016	U	0.0965	0.0321	0.0965	ug/L	0.000965	1	YS1	11/12/24	0651	2702806	13
Aroclor-1221	U	0.0965	0.0321	0.0965	ug/L	0.000965	1					
Aroclor-1232	U	0.0965	0.0321	0.0965	ug/L	0.000965	1					
Aroclor-1242	U	0.0965	0.0321	0.0965	ug/L	0.000965	1					
Aroclor-1248	U	0.0965	0.0321	0.0965	ug/L	0.000965	1					
Aroclor-1254	U	0.0965	0.0321	0.0965	ug/L	0.000965	1					
Aroclor-1260	U	0.0965	0.0321	0.0965	ug/L	0.000965	1					
Aroclor-1268	U	0.0965	0.0321	0.0965	ug/L	0.000965	1					
Aroclor-Total	U	0.0965	0.0321	0.0965	ug/L	0.000965	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		195	2.38	10.0	mg/L			ES2	10/22/24	1057	2691651	14
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												

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Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW391SG1-25
Sample ID: 690382001

Project: FRNP00609
Client ID: FRNP006

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	10/17/24	1319	2689433	15
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	JM6	10/22/24	1333	2691917	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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Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW391SG1-25
Sample ID: 690382001

Project: FRNP00609
Client ID: FRNP006

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	0.640	0.333	1.00	ug/L		1					
Trichlorofluoromethane	U	1.00	0.333	1.00	ug/L		1					
Vinyl acetate	U	5.00	1.67	5.00	ug/L		1					
Vinyl chloride	U	1.00	0.333	1.00	ug/L		1					
Xylenes (total)	U	3.00	1.00	3.00	ug/L		1					
cis-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
cis-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,4-Dichloro-2-butene	U	5.00	1.67	5.00	ug/L		1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3535A	SW3535A PCB SPE Extraction	DG3	11/11/24	1157	2702733
SW846 3005A	ICP-MS 3005A PREP	PB1	10/28/24	1515	2689583
SW846 8011 PREP	8011 Prep	BM1	10/18/24	0904	2689577
SW846 9010C Distillation	SW846 9010C Prep	ES2	10/17/24	1024	2689172
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	10/17/24	1105	2688830

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Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW391SG1-25
Sample ID: 690382001

Project: FRNP00609
Client ID: FRNP006

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

The following Analytical Methods were performed:

Method	Description	Analyst	Comments
1	SW846 8011		
2	SW846 8011		
3	SW846 9060A		
4	SW846 9012B		
5	SW846 9020B		
6	EPA 300.0		
7	SW846 9056A		
8	SW846 9056A		
9	SW846 7470A		
10	SW846 3005A/6020B		
11	SW846 3005A/6020B		
12	SW846 3005A/6020B		
13	SW846 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 Compounds Liquid "As Received"	6.08 ug/L	6.79	89	(56%-149%)
Decachlorobiphenyl	8082A, PCB Liquids "As Received"	0.179 ug/L	0.193	93	(30%-135%)
4cmx	8082A, PCB Liquids "As Received"	0.153 ug/L	0.193	79	(26%-108%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	50.6 ug/L	50.0	101	(85%-114%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	50.4 ug/L	50.0	101	(81%-118%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	50.8 ug/L	50.0	102	(89%-112%)

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: January 21, 2025

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW391SG1-25
Sample ID: 690382002
Matrix: WG
Collect Date: 15-OCT-24 12:24
Receive Date: 16-OCT-24
Collector: Client

Project: FRNP00609
Client ID: FRNP006

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	11/10/24	2016	2689586	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	11/11/24	0357	2689586	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-MS 3005A PREP	PB1	10/28/24	1515	2689583
EPA 160	Laboratory Filtration	SD	10/17/24	1110	2688847

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
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: January 21, 2025

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW392SG1-25 Project: FRNP00609
Sample ID: 690382003 Client ID: FRNP006
Matrix: WG
Collect Date: 15-OCT-24 10:18
Receive Date: 16-OCT-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	10/18/24	1706	2689579	1
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	0.823	0.330	2.00	mg/L		1	KB3	10/31/24	0940	2696480	3
Flow Injection Analysis												
9012B, Total Cyanide "As Received"												
Cyanide, Total	UN	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	10/21/24	0722	2689173	4
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens		53.6	3.33	10.0	ug/L		1	RMJ	11/10/24	0142	2702958	5
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	10/16/24	1723	2688638	6
SW846 9056A Anions (5) "As Received"												
Bromide		0.539	0.0670	0.200	mg/L		1	CH6	10/16/24	1454	2688735	7
Fluoride	J	0.239	0.0330	4.00	mg/L		1					
Sulfate		7.48	0.133	0.400	mg/L		1					
Nitrate-N	J	0.777	0.132	10.0	mg/L		4	CH6	10/16/24	2207	2688735	8
Chloride	JW	41.5	0.670	250	mg/L		10	CH6	10/16/24	2237	2688735	9
Mercury Analysis-CVAA												
7470, Mercury Liquid "As Received"												
Mercury	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	JP2	10/18/24	1156	2688834	10
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Aluminum	U	0.0500	0.0193	0.0500	mg/L	1.00	1	PRB	11/10/24	2034	2689586	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		0.282	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					
Boron		0.0185	0.00520	0.0150	mg/L	1.00	1					
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Calcium		24.0	0.0800	0.200	mg/L	1.00	1					
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW392SG1-25
Sample ID: 690382003

Project: FRNP00609
Client ID: FRNP006

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	0.000925	0.000300	0.00200	mg/L	1.00	1					
Iron	J	0.0624	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Magnesium		10.1	0.0100	0.0300	mg/L	1.00	1					
Manganese		0.0695	0.00100	0.00500	mg/L	1.00	1					
Molybdenum	U	0.00100	0.000200	0.00100	mg/L	1.00	1					
Nickel	J	0.00128	0.000600	0.00200	mg/L	1.00	1					
Potassium		2.14	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		23.8	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	0.00343	0.00330	0.0200	mg/L	1.00	1					
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	11/10/24	1406	2689586	12
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	11/11/24	0415	2689586	13
Semi-Volatiles-PCB												
8082A, PCB Liquids "As Received"												
Aroclor-1016	U	0.0967	0.0322	0.0967	ug/L	0.000967	1	YS1	11/12/24	0727	2702806	14
Aroclor-1221	U	0.0967	0.0322	0.0967	ug/L	0.000967	1					
Aroclor-1232	U	0.0967	0.0322	0.0967	ug/L	0.000967	1					
Aroclor-1242	U	0.0967	0.0322	0.0967	ug/L	0.000967	1					
Aroclor-1248	U	0.0967	0.0322	0.0967	ug/L	0.000967	1					
Aroclor-1254	U	0.0967	0.0322	0.0967	ug/L	0.000967	1					
Aroclor-1260	U	0.0967	0.0322	0.0967	ug/L	0.000967	1					
Aroclor-1268	U	0.0967	0.0322	0.0967	ug/L	0.000967	1					
Aroclor-Total	U	0.0967	0.0322	0.0967	ug/L	0.000967	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		179	2.38	10.0	mg/L			ES2	10/22/24	1057	2691651	15
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												

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Certificate of Analysis

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW392SG1-25
Sample ID: 690382003

Project: FRNP00609
Client ID: FRNP006

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	10/17/24	1319	2689433	16
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	JM6	10/22/24	1400	2691917	17
1,1,1-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
1,2,3-Trichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dibromoethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,4-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
2-Butanone	U	5.00	1.67	5.00	ug/L		1					
2-Hexanone	U	5.00	1.67	5.00	ug/L		1					
4-Methyl-2-pentanone	U	5.00	1.67	5.00	ug/L		1					
Acetone	U	5.00	1.74	5.00	ug/L		1					
Acrolein	U	5.00	1.67	5.00	ug/L		1					
Acrylonitrile	U	5.00	1.67	5.00	ug/L		1					
Benzene	U	1.00	0.333	1.00	ug/L		1					
Bromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromodichloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromoform	U	1.00	0.333	1.00	ug/L		1					
Bromomethane	U	1.00	0.337	1.00	ug/L		1					
Carbon disulfide	U	5.00	1.67	5.00	ug/L		1					
Carbon tetrachloride	U	1.00	0.333	1.00	ug/L		1					
Chlorobenzene	U	1.00	0.333	1.00	ug/L		1					
Chloroethane	U	1.00	0.333	1.00	ug/L		1					
Chloroform	U	1.00	0.333	1.00	ug/L		1					
Chloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromomethane	U	1.00	0.333	1.00	ug/L		1					
Ethylbenzene	U	1.00	0.333	1.00	ug/L		1					
Iodomethane	U	5.00	1.67	5.00	ug/L		1					

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Address : 5600 Hobbs Road

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW392SG1-25
Sample ID: 690382003

Project: FRNP00609
Client ID: FRNP006

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		1.43	0.333	1.00	ug/L		1					
Trichlorofluoromethane	U	1.00	0.333	1.00	ug/L		1					
Vinyl acetate	U	5.00	1.67	5.00	ug/L		1					
Vinyl chloride	U	1.00	0.333	1.00	ug/L		1					
Xylenes (total)	U	3.00	1.00	3.00	ug/L		1					
cis-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
cis-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,4-Dichloro-2-butene	U	5.00	1.67	5.00	ug/L		1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 8011 PREP	8011 Prep	BM1	10/18/24	0904	2689577
SW846 9010C Distillation	SW846 9010C Prep	ES2	10/17/24	1024	2689172
SW846 3005A	ICP-MS 3005A PREP	PB1	10/28/24	1515	2689583
SW846 3535A	SW3535A PCB SPE Extraction	DG3	11/11/24	1157	2702733
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	10/17/24	1105	2688830

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Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW392SG1-25
Sample ID: 690382003

Project: FRNP00609
Client ID: FRNP006

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

The following Analytical Methods were performed:

Method	Description	Analyst	Comments
1	SW846 8011		
2	SW846 8011		
3	SW846 9060A		
4	SW846 9012B		
5	SW846 9020B		
6	EPA 300.0		
7	SW846 9056A		
8	SW846 9056A		
9	SW846 9056A		
10	SW846 7470A		
11	SW846 3005A/6020B		
12	SW846 3005A/6020B		
13	SW846 3005A/6020B		
14	SW846 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 Compounds Liquid "As Received"	6.29 ug/L	6.82	92	(56%-149%)
Decachlorobiphenyl	8082A, PCB Liquids "As Received"	0.175 ug/L	0.193	91	(30%-135%)
4cmx	8082A, PCB Liquids "As Received"	0.156 ug/L	0.193	81	(26%-108%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	50.9 ug/L	50.0	102	(85%-114%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	50.7 ug/L	50.0	101	(81%-118%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	49.1 ug/L	50.0	98	(89%-112%)

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

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Report Date: January 21, 2025

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW392SG1-25 Project: FRNP00609
Sample ID: 690382004 Client ID: FRNP006
Matrix: WG
Collect Date: 15-OCT-24 10:18
Receive Date: 16-OCT-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		0.273	0.000670	0.00400	mg/L	1.00	1	PRB	11/10/24	2038	2689586	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	11/11/24	0419	2689586	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 160	Laboratory Filtration	SD	10/17/24	1110	2688847
SW846 3005A	ICP-MS 3005A PREP	PB1	10/28/24	1515	2689583

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW393SG1-25 Project: FRNP00609
Sample ID: 690382005 Client ID: FRNP006
Matrix: WG
Collect Date: 15-OCT-24 10:50
Receive Date: 16-OCT-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	0.00856	0.0190	ug/L	0.952	1	LOF	10/18/24	1741	2689579	1
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average		2.70	0.330	2.00	mg/L		1	KB3	10/31/24	1018	2696480	3
Flow Injection Analysis												
9012B, Total Cyanide "As Received"												
Cyanide, Total	UN	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	10/21/24	0723	2689173	4
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens		29.9	3.33	10.0	ug/L		1	RMJ	11/09/24	2311	2702958	5
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	10/16/24	1735	2688638	6
SW846 9056A Anions (5) "As Received"												
Bromide	J	0.129	0.0670	0.200	mg/L		1	CH6	10/16/24	1525	2688735	7
Chloride	JW	9.33	0.0670	250	mg/L		1					
Fluoride	J	0.279	0.0330	4.00	mg/L		1					
Nitrate-N	U	10.0	0.0330	10.0	mg/L		1					
Sulfate		21.2	0.266	0.800	mg/L		2	CH6	10/16/24	2308	2688735	8
Mercury Analysis-CVAA												
7470, Mercury Liquid "As Received"												
Mercury	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	JP2	10/18/24	1158	2688834	9
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Aluminum	J	0.0277	0.0193	0.0500	mg/L	1.00	1	PRB	11/10/24	2041	2689586	10
Antimony	U	0.00300	0.00100	0.00300	mg/L	1.00	1					
Arsenic	J	0.00403	0.00200	0.00500	mg/L	1.00	1					
Barium		0.169	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					
Boron		0.0187	0.00520	0.0150	mg/L	1.00	1					
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Calcium		16.3	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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Address : 5600 Hobbs Road

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW393SG1-25
Sample ID: 690382005

Project: FRNP00609
Client ID: FRNP006

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	0.000494	0.000300	0.00200	mg/L	1.00	1					
Iron		2.92	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Magnesium		4.13	0.0100	0.0300	mg/L	1.00	1					
Manganese		0.0582	0.00100	0.00500	mg/L	1.00	1					
Molybdenum	BJ	0.000304	0.000200	0.00100	mg/L	1.00	1					
Nickel	U	0.00200	0.000600	0.00200	mg/L	1.00	1					
Potassium		0.493	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	0.00885	0.00330	0.0200	mg/L	1.00	1					
Zinc	U	0.0200	0.00330	0.0200	mg/L	1.00	1					
Sodium		79.9	0.800	2.50	mg/L	1.00	10	PRB	11/10/24	0732	2689586	11
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	11/10/24	1408	2689586	12
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Uranium	J	0.000176	0.0000670	0.000200	mg/L	1.00	1	PRB	11/11/24	0422	2689586	13
Semi-Volatiles-PCB												
8082A, PCB Liquids "As Received"												
Aroclor-1016	U	0.0979	0.0326	0.0979	ug/L	0.000979	1	YS1	11/12/24	0739	2702806	14
Aroclor-1221	U	0.0979	0.0326	0.0979	ug/L	0.000979	1					
Aroclor-1232	U	0.0979	0.0326	0.0979	ug/L	0.000979	1					
Aroclor-1242	U	0.0979	0.0326	0.0979	ug/L	0.000979	1					
Aroclor-1248	U	0.0979	0.0326	0.0979	ug/L	0.000979	1					
Aroclor-1254	U	0.0979	0.0326	0.0979	ug/L	0.000979	1					
Aroclor-1260	U	0.0979	0.0326	0.0979	ug/L	0.000979	1					
Aroclor-1268	U	0.0979	0.0326	0.0979	ug/L	0.000979	1					
Aroclor-Total	U	0.0979	0.0326	0.0979	ug/L	0.000979	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		280	2.38	10.0	mg/L			ES2	10/22/24	1057	2691651	15
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												

GEL LABORATORIES LLC

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

Certificate of Analysis

Report Date: January 21, 2025

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW393SG1-25
Sample ID: 690382005

Project: FRNP00609
Client ID: FRNP006

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	10/17/24	1319	2689433	16
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	JM6	10/22/24	1428	2691917	17
1,1,1-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
1,2,3-Trichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dibromoethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,4-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
2-Butanone	U	5.00	1.67	5.00	ug/L		1					
2-Hexanone	U	5.00	1.67	5.00	ug/L		1					
4-Methyl-2-pentanone	U	5.00	1.67	5.00	ug/L		1					
Acetone	U	5.00	1.74	5.00	ug/L		1					
Acrolein	U	5.00	1.67	5.00	ug/L		1					
Acrylonitrile	U	5.00	1.67	5.00	ug/L		1					
Benzene	U	1.00	0.333	1.00	ug/L		1					
Bromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromodichloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromoform	U	1.00	0.333	1.00	ug/L		1					
Bromomethane	U	1.00	0.337	1.00	ug/L		1					
Carbon disulfide	U	5.00	1.67	5.00	ug/L		1					
Carbon tetrachloride	U	1.00	0.333	1.00	ug/L		1					
Chlorobenzene	U	1.00	0.333	1.00	ug/L		1					
Chloroethane	U	1.00	0.333	1.00	ug/L		1					
Chloroform	U	1.00	0.333	1.00	ug/L		1					
Chloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromomethane	U	1.00	0.333	1.00	ug/L		1					
Ethylbenzene	U	1.00	0.333	1.00	ug/L		1					
Iodomethane	U	5.00	1.67	5.00	ug/L		1					

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Report Date: January 21, 2025

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Project:	FRNP00609
Client ID:	FRNP006

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

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3535A	SW3535A PCB SPE Extraction	DG3	11/11/24	1157	2702733
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	10/17/24	1105	2688830
SW846 9010C Distillation	SW846 9010C Prep	ES2	10/17/24	1024	2689172
SW846 8011 PREP	8011 Prep	BM1	10/18/24	0904	2689577
SW846 3005A	ICP-MS 3005A PREP	PB1	10/28/24	1515	2689583

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Certificate of Analysis

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW393SG1-25
Sample ID: 690382005

Project: FRNP00609
Client ID: FRNP006

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

The following Analytical Methods were performed:

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

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011, VOA Compounds Liquid "As Received"	6.15 ug/L	6.80	90	(56%-149%)
Decachlorobiphenyl	8082A, PCB Liquids "As Received"	0.121 ug/L	0.196	62	(30%-135%)
4cmx	8082A, PCB Liquids "As Received"	0.164 ug/L	0.196	84	(26%-108%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	53.9 ug/L	50.0	108	(85%-114%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	49.5 ug/L	50.0	99	(81%-118%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	52.3 ug/L	50.0	105	(89%-112%)

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW393SG1-25
Sample ID: 690382006
Matrix: WG
Collect Date: 15-OCT-24 10:50
Receive Date: 16-OCT-24
Collector: Client

Project: FRNP00609
Client ID: FRNP006

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		0.0739	0.000670	0.00400	mg/L	1.00	1	PRB	11/10/24	2052	2689586	1
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					
Uranium	J	0.0000930	0.0000670	0.000200	mg/L	1.00	1	PRB	11/11/24	0433	2689586	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 160	Laboratory Filtration	SD	10/17/24	1110	2688847
SW846 3005A	ICP-MS 3005A PREP	PB1	10/28/24	1515	2689583

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
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: January 21, 2025

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW394SG1-25 Project: FRNP00609
Sample ID: 690382007 Client ID: FRNP006
Matrix: WG
Collect Date: 15-OCT-24 07:57
Receive Date: 16-OCT-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	LOF	10/18/24	1815	2689579	1
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	0.943	0.330	2.00	mg/L		1	KB3	10/31/24	1056	2696480	3
Flow Injection Analysis												
9012B, Total Cyanide "As Received"												
Cyanide, Total	UN	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	10/21/24	0724	2689173	4
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens		47.0	3.33	10.0	ug/L		1	RMJ	11/09/24	2339	2702958	5
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	10/16/24	1748	2688638	6
SW846 9056A Anions (5) "As Received"												
Bromide		0.552	0.0670	0.200	mg/L		1	CH6	10/16/24	1556	2688735	7
Fluoride	J	0.195	0.0330	4.00	mg/L		1					
Sulfate		11.7	0.133	0.400	mg/L		1					
Nitrate-N	J	1.16	0.132	10.0	mg/L		4	CH6	10/16/24	2339	2688735	8
Chloride	JW	44.5	0.670	250	mg/L		10	CH6	10/17/24	0010	2688735	9
Mercury Analysis-CVAA												
7470, Mercury Liquid "As Received"												
Mercury	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	JP2	10/18/24	1203	2688834	10
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Aluminum	U	0.0500	0.0193	0.0500	mg/L	1.00	1	PRB	11/10/24	2056	2689586	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		0.245	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					
Boron		0.0196	0.00520	0.0150	mg/L	1.00	1					
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Calcium		26.6	0.0800	0.200	mg/L	1.00	1					
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					

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Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW394SG1-25
Sample ID: 690382007

Project: FRNP00609
Client ID: FRNP006

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	0.00109	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		11.4	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		0.00489	0.000600	0.00200	mg/L	1.00	1					
Potassium		1.29	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		32.9	0.0800	0.250	mg/L	1.00	1					
Thallium	U	0.00200	0.000600	0.00200	mg/L	1.00	1					
Vanadium	BJ	0.00358	0.00330	0.0200	mg/L	1.00	1					
Zinc	J	0.00587	0.00330	0.0200	mg/L	1.00	1					
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	11/10/24	1410	2689586	12
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	11/11/24	0437	2689586	13
Semi-Volatiles-PCB												
8082A, PCB Liquids "As Received"												
Aroclor-1016	U	0.0954	0.0318	0.0954	ug/L	0.000954	1	YS1	11/12/24	0751	2702806	14
Aroclor-1221	U	0.0954	0.0318	0.0954	ug/L	0.000954	1					
Aroclor-1232	U	0.0954	0.0318	0.0954	ug/L	0.000954	1					
Aroclor-1242	U	0.0954	0.0318	0.0954	ug/L	0.000954	1					
Aroclor-1248	U	0.0954	0.0318	0.0954	ug/L	0.000954	1					
Aroclor-1254	U	0.0954	0.0318	0.0954	ug/L	0.000954	1					
Aroclor-1260	U	0.0954	0.0318	0.0954	ug/L	0.000954	1					
Aroclor-1268	U	0.0954	0.0318	0.0954	ug/L	0.000954	1					
Aroclor-Total	U	0.0954	0.0318	0.0954	ug/L	0.000954	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		211	2.38	10.0	mg/L			ES2	10/22/24	1057	2691651	15
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												

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Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW394SG1-25
Sample ID: 690382007

Project: FRNP00609
Client ID: FRNP006

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD	J	10.0	8.95	20.0	mg/L		1	JW2	10/17/24	1319	2689433	16
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	JM6	10/22/24	1456	2691917	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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Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Project:	FRNP00609
Client ID:	FRNP006

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		2.82	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	10/17/24	1105	2688830
SW846 3535A	SW3535A PCB SPE Extraction	DG3	11/11/24	1157	2702733
SW846 8011 PREP	8011 Prep	BM1	10/18/24	0904	2689577
SW846 3005A	ICP-MS 3005A PREP	PB1	10/28/24	1515	2689583
SW846 9010C Distillation	SW846 9010C Prep	ES2	10/17/24	1024	2689172

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Certificate of Analysis

Report Date: January 21, 2025

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW394SG1-25
Sample ID: 690382007

Project: FRNP00609
Client ID: FRNP006

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

The following Analytical Methods were performed:

Method	Description	Analyst	Comments
1	SW846 8011		
2	SW846 8011		
3	SW846 9060A		
4	SW846 9012B		
5	SW846 9020B		
6	EPA 300.0		
7	SW846 9056A		
8	SW846 9056A		
9	SW846 9056A		
10	SW846 7470A		
11	SW846 3005A/6020B		
12	SW846 3005A/6020B		
13	SW846 3005A/6020B		
14	SW846 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 Compounds Liquid "As Received"	6.12 ug/L	6.78	90	(56%-149%)
Decachlorobiphenyl	8082A, PCB Liquids "As Received"	0.197 ug/L	0.191	103	(30%-135%)
4cmx	8082A, PCB Liquids "As Received"	0.160 ug/L	0.191	84	(26%-108%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	50.6 ug/L	50.0	101	(85%-114%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	50.2 ug/L	50.0	100	(81%-118%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	50.6 ug/L	50.0	101	(89%-112%)

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: January 21, 2025

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW394SG1-25
Sample ID: 690382008
Matrix: WG
Collect Date: 15-OCT-24 07:57
Receive Date: 16-OCT-24
Collector: Client

Project: FRNP00609
Client ID: FRNP006

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	11/10/24	2100	2689586	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	11/11/24	0440	2689586	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-MS 3005A PREP	PB1	10/28/24	1515	2689583
EPA 160	Laboratory Filtration	SD	10/17/24	1110	2688847

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
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: January 21, 2025

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW395SG1-25 Project: FRNP00609
Sample ID: 690382009 Client ID: FRNP006
Matrix: WG
Collect Date: 15-OCT-24 08:45
Receive Date: 16-OCT-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	0.00865	0.0192	ug/L	0.961	1	LOF	10/18/24	1939	2689579	1
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	0.931	0.330	2.00	mg/L		1	KB3	10/31/24	1134	2696480	3
Flow Injection Analysis												
9012B, Total Cyanide "As Received"												
Cyanide, Total	UN	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	10/21/24	0725	2689173	4
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens		93.3	3.33	10.0	ug/L		1	RMJ	11/10/24	0025	2702958	5
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	10/16/24	1801	2688638	6
SW846 9056A Anions (5) "As Received"												
Bromide		0.542	0.0670	0.200	mg/L		1	CH6	10/16/24	1627	2688735	7
Fluoride	J	0.172	0.0330	4.00	mg/L		1					
Sulfate		11.0	0.133	0.400	mg/L		1					
Nitrate-N	J	1.28	0.132	10.0	mg/L		4	CH6	10/17/24	0041	2688735	8
Chloride	JW	45.2	0.670	250	mg/L		10	CH6	10/17/24	0112	2688735	9
Mercury Analysis-CVAA												
7470, Mercury Liquid "As Received"												
Mercury	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	JP2	10/18/24	1204	2688834	10
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Aluminum	U	0.0500	0.0193	0.0500	mg/L	1.00	1	PRB	11/10/24	2103	2689586	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		0.257	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		27.4	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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Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW395SG1-25
Sample ID: 690382009

Project: FRNP00609
Client ID: FRNP006

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	0.00168	0.000300	0.00200	mg/L	1.00	1					
Iron	J	0.0911	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Magnesium		11.5	0.0100	0.0300	mg/L	1.00	1					
Manganese	J	0.00411	0.00100	0.00500	mg/L	1.00	1					
Molybdenum	BJ	0.000222	0.000200	0.00100	mg/L	1.00	1					
Nickel	J	0.00124	0.000600	0.00200	mg/L	1.00	1					
Potassium		1.58	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		30.6	0.0800	0.250	mg/L	1.00	1					
Thallium	U	0.00200	0.000600	0.00200	mg/L	1.00	1					
Vanadium	BJ	0.00437	0.00330	0.0200	mg/L	1.00	1					
Zinc	J	0.00720	0.00330	0.0200	mg/L	1.00	1					
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	11/10/24	1412	2689586	12
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	11/11/24	0444	2689586	13
Semi-Volatiles-PCB												
8082A, PCB Liquids "As Received"												
Aroclor-1016	U	0.0970	0.0323	0.0970	ug/L	0.000970	1	YS1	11/12/24	0825	2702806	14
Aroclor-1221	U	0.0970	0.0323	0.0970	ug/L	0.000970	1					
Aroclor-1232	U	0.0970	0.0323	0.0970	ug/L	0.000970	1					
Aroclor-1242	U	0.0970	0.0323	0.0970	ug/L	0.000970	1					
Aroclor-1248	U	0.0970	0.0323	0.0970	ug/L	0.000970	1					
Aroclor-1254	U	0.0970	0.0323	0.0970	ug/L	0.000970	1					
Aroclor-1260	U	0.0970	0.0323	0.0970	ug/L	0.000970	1					
Aroclor-1268	U	0.0970	0.0323	0.0970	ug/L	0.000970	1					
Aroclor-Total	U	0.0970	0.0323	0.0970	ug/L	0.000970	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		209	2.38	10.0	mg/L			ES2	10/22/24	1057	2691651	15
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												

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Report Date: January 21, 2025

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW395SG1-25
Sample ID: 690382009

Project: FRNP00609
Client ID: FRNP006

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	10/17/24	1319	2689433	16
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	JM6	10/22/24	1523	2691917	17
1,1,1-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
1,2,3-Trichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dibromoethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,4-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
2-Butanone	U	5.00	1.67	5.00	ug/L		1					
2-Hexanone	U	5.00	1.67	5.00	ug/L		1					
4-Methyl-2-pentanone	U	5.00	1.67	5.00	ug/L		1					
Acetone	U	5.00	1.74	5.00	ug/L		1					
Acrolein	U	5.00	1.67	5.00	ug/L		1					
Acrylonitrile	U	5.00	1.67	5.00	ug/L		1					
Benzene	U	1.00	0.333	1.00	ug/L		1					
Bromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromodichloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromoform	U	1.00	0.333	1.00	ug/L		1					
Bromomethane	U	1.00	0.337	1.00	ug/L		1					
Carbon disulfide	U	5.00	1.67	5.00	ug/L		1					
Carbon tetrachloride	U	1.00	0.333	1.00	ug/L		1					
Chlorobenzene	U	1.00	0.333	1.00	ug/L		1					
Chloroethane	U	1.00	0.333	1.00	ug/L		1					
Chloroform	U	1.00	0.333	1.00	ug/L		1					
Chloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromomethane	U	1.00	0.333	1.00	ug/L		1					
Ethylbenzene	U	1.00	0.333	1.00	ug/L		1					
Iodomethane	U	5.00	1.67	5.00	ug/L		1					

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Report Date: January 21, 2025

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Project:	FRNP00609
Client ID:	FRNP006

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		4.89	0.333	1.00	ug/L		1					
Trichlorofluoromethane	U	1.00	0.333	1.00	ug/L		1					
Vinyl acetate	U	5.00	1.67	5.00	ug/L		1					
Vinyl chloride	U	1.00	0.333	1.00	ug/L		1					
Xylenes (total)	U	3.00	1.00	3.00	ug/L		1					
cis-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
cis-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,4-Dichloro-2-butene	U	5.00	1.67	5.00	ug/L		1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-MS 3005A PREP	PB1	10/28/24	1515	2689583
SW846 9010C Distillation	SW846 9010C Prep	ES2	10/17/24	1024	2689172
SW846 8011 PREP	8011 Prep	BM1	10/18/24	0904	2689577
SW846 7470A Prep	EP4 7470A Mercury Prep Liquid	JM13	10/17/24	1105	2688830
SW846 3535A	SW3535A PCB SPE Extraction	DG3	11/11/24	1157	2702733

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Certificate of Analysis

Report Date: January 21, 2025

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW395SG1-25
Sample ID: 690382009

Project: FRNP00609
Client ID: FRNP006

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

The following Analytical Methods were performed:

Method	Description	Analyst	Comments
1	SW846 8011		
2	SW846 8011		
3	SW846 9060A		
4	SW846 9012B		
5	SW846 9020B		
6	EPA 300.0		
7	SW846 9056A		
8	SW846 9056A		
9	SW846 9056A		
10	SW846 7470A		
11	SW846 3005A/6020B		
12	SW846 3005A/6020B		
13	SW846 3005A/6020B		
14	SW846 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 Compounds Liquid "As Received"	6.38 ug/L	6.86	93	(56%-149%)
Decachlorobiphenyl	8082A, PCB Liquids "As Received"	0.169 ug/L	0.194	87	(30%-135%)
4cmx	8082A, PCB Liquids "As Received"	0.164 ug/L	0.194	85	(26%-108%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	49.7 ug/L	50.0	99	(85%-114%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	49.2 ug/L	50.0	98	(81%-118%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	51.0 ug/L	50.0	102	(89%-112%)

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: January 21, 2025

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID:	MW395SG1-25	Project:	FRNP00609
Sample ID:	690382010	Client ID:	FRNP006
Matrix:	WG		
Collect Date:	15-OCT-24 08:45		
Receive Date:	16-OCT-24		
Collector:	Client		

The following Prep Methods were performed:

The following Analytical Methods were performed:

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: January 21, 2025

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW396SG1-25 Project: FRNP00609
Sample ID: 690382011 Client ID: FRNP006
Matrix: WG
Collect Date: 15-OCT-24 09:27
Receive Date: 16-OCT-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	LOF	10/18/24	2014	2689579	1
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average		4.17	0.330	2.00	mg/L		1	KB3	10/31/24	1212	2696480	3
Flow Injection Analysis												
9012B, Total Cyanide "As Received"												
Cyanide, Total	UN	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	10/21/24	0726	2689173	4
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens		113	3.33	10.0	ug/L		1	RMJ	11/10/24	0057	2702958	5
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	J	0.429	0.167	0.500	mg/L		1	TXT1	10/16/24	1814	2688638	6
SW846 9056A Anions (5) "As Received"												
Fluoride	J	0.655	0.0330	4.00	mg/L		1	CH6	10/16/24	1658	2688735	7
Nitrate-N	U	10.0	0.0330	10.0	mg/L		1					
Bromide		0.922	0.134	0.400	mg/L		2	CH6	10/17/24	0244	2688735	8
Sulfate		27.6	0.266	0.800	mg/L		2					
Chloride	JW	58.7	0.670	250	mg/L		10	CH6	10/17/24	0315	2688735	9
Mercury Analysis-CVAA												
7470, Mercury Liquid "As Received"												
Mercury	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	JP2	10/18/24	1206	2688834	10
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Aluminum	U	0.0500	0.0193	0.0500	mg/L	1.00	1	PRB	11/10/24	2111	2689586	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		0.373	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		31.7	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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Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW396SG1-25
Sample ID: 690382011

Project: FRNP00609
Client ID: FRNP006

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Cobalt	J	0.000353	0.000300	0.00100	mg/L	1.00	1					
Copper	J	0.00124	0.000300	0.00200	mg/L	1.00	1					
Iron		0.141	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Magnesium		14.2	0.0100	0.0300	mg/L	1.00	1					
Manganese		0.143	0.00100	0.00500	mg/L	1.00	1					
Molybdenum	BJ	0.000433	0.000200	0.00100	mg/L	1.00	1					
Nickel	J	0.000949	0.000600	0.00200	mg/L	1.00	1					
Potassium		0.735	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	0.00610	0.00330	0.0200	mg/L	1.00	1					
Zinc	J	0.00418	0.00330	0.0200	mg/L	1.00	1					
Sodium		92.9	0.800	2.50	mg/L	1.00	10	PRB	11/10/24	0736	2689586	12
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	11/10/24	1414	2689586	13
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Uranium	J	0.0000880	0.0000670	0.000200	mg/L	1.00	1	PRB	11/11/24	0451	2689586	14
Semi-Volatiles-PCB												
8082A, PCB Liquids "As Received"												
Aroclor-1016	U	0.0981	0.0327	0.0981	ug/L	0.000981	1	YS1	11/12/24	0837	2702806	15
Aroclor-1221	U	0.0981	0.0327	0.0981	ug/L	0.000981	1					
Aroclor-1232	U	0.0981	0.0327	0.0981	ug/L	0.000981	1					
Aroclor-1242	U	0.0981	0.0327	0.0981	ug/L	0.000981	1					
Aroclor-1248	U	0.0981	0.0327	0.0981	ug/L	0.000981	1					
Aroclor-1254	U	0.0981	0.0327	0.0981	ug/L	0.000981	1					
Aroclor-1260	U	0.0981	0.0327	0.0981	ug/L	0.000981	1					
Aroclor-1268	U	0.0981	0.0327	0.0981	ug/L	0.000981	1					
Aroclor-Total	U	0.0981	0.0327	0.0981	ug/L	0.000981	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		402	2.38	10.0	mg/L			ES2	10/22/24	1057	2691651	16
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												

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Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW396SG1-25
Sample ID: 690382011

Project: FRNP00609
Client ID: FRNP006

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD	J	17.2	8.95	20.0	mg/L		1	JW2	10/17/24	1319	2689433	17
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	JM6	10/22/24	1551	2691917	18
1,1,1-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
1,2,3-Trichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dibromoethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,4-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
2-Butanone	U	5.00	1.67	5.00	ug/L		1					
2-Hexanone	U	5.00	1.67	5.00	ug/L		1					
4-Methyl-2-pentanone	U	5.00	1.67	5.00	ug/L		1					
Acetone	U	5.00	1.74	5.00	ug/L		1					
Acrolein	U	5.00	1.67	5.00	ug/L		1					
Acrylonitrile	U	5.00	1.67	5.00	ug/L		1					
Benzene	U	1.00	0.333	1.00	ug/L		1					
Bromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromodichloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromoform	U	1.00	0.333	1.00	ug/L		1					
Bromomethane	U	1.00	0.337	1.00	ug/L		1					
Carbon disulfide	U	5.00	1.67	5.00	ug/L		1					
Carbon tetrachloride	U	1.00	0.333	1.00	ug/L		1					
Chlorobenzene	U	1.00	0.333	1.00	ug/L		1					
Chloroethane	U	1.00	0.333	1.00	ug/L		1					
Chloroform	U	1.00	0.333	1.00	ug/L		1					
Chloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromomethane	U	1.00	0.333	1.00	ug/L		1					
Ethylbenzene	U	1.00	0.333	1.00	ug/L		1					
Iodomethane	U	5.00	1.67	5.00	ug/L		1					

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Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Project:	FRNP00609
Client ID:	FRNP006

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

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-MS 3005A PREP	PB1	10/28/24	1515	2689583
SW846 3535A	SW3535A PCB SPE Extraction	DG3	11/11/24	1157	2702733
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	10/17/24	1105	2688830
SW846 9010C Distillation	SW846 9010C Prep	ES2	10/17/24	1024	2689172
SW846 8011 PREP	8011 Prep	BM1	10/18/24	0904	2689577

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Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW396SG1-25
Sample ID: 690382011

Project: FRNP00609
Client ID: FRNP006

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

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 8011	
2	SW846 8011	
3	SW846 9060A	
4	SW846 9012B	
5	SW846 9020B	
6	EPA 300.0	
7	SW846 9056A	
8	SW846 9056A	
9	SW846 9056A	
10	SW846 7470A	
11	SW846 3005A/6020B	
12	SW846 3005A/6020B	
13	SW846 3005A/6020B	
14	SW846 3005A/6020B	
15	SW846 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 Compounds Liquid "As Received"	6.60 ug/L	6.78	97	(56%-149%)
Decachlorobiphenyl	8082A, PCB Liquids "As Received"	0.168 ug/L	0.196	85	(30%-135%)
4cmx	8082A, PCB Liquids "As Received"	0.164 ug/L	0.196	84	(26%-108%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	48.9 ug/L	50.0	98	(85%-114%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	50.1 ug/L	50.0	100	(81%-118%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	50.1 ug/L	50.0	100	(89%-112%)

Notes:

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Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW396SG1-25
Sample ID: 690382011

Project: FRNP00609
Client ID: FRNP006

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

Column headers are defined as follows:

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

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Company : Four Rivers Nuclear Partnership, LLC
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Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: MW396SG1-25 Project: FRNP00609
Sample ID: 690382012 Client ID: FRNP006
Matrix: WG
Collect Date: 15-OCT-24 09:27
Receive Date: 16-OCT-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		0.373	0.000670	0.00400	mg/L	1.00	1	PRB	11/10/24	2114	2689586	1
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					
Uranium	J	0.0000830	0.0000670	0.000200	mg/L	1.00	1	PRB	11/11/24	0455	2689586	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-MS 3005A PREP	PB1	10/28/24	1515	2689583
EPA 160	Laboratory Filtration	SD	10/17/24	1110	2688847

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID:	TB2SG1-25	Project:	FRNP00609
Sample ID:	690382013	Client ID:	FRNP006
Matrix:	WATER		
Collect Date:	15-OCT-24 06:45		
Receive Date:	16-OCT-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	LOF	10/18/24	2048	2689579	1
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	JM6	10/22/24	1619	2691917	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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Client Sample ID: TB2SG1-25
Sample ID: 690382013

Project: FRNP00609
Client ID: FRNP006

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

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 8011 PREP	8011 Prep	BM1	10/18/24	0904	2689577

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"	6.54 ug/L	6.92	95	(56%-149%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	49.6 ug/L	50.0	99	(85%-114%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	49.8 ug/L	50.0	100	(81%-118%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	49.3 ug/L	50.0	99	(89%-112%)

Notes:

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Project: Ms. Jaime Morrow
C-746-S&T Landfill Quarterly(SG25-01)

Client Sample ID: TB2SG1-25
Sample ID: 690382013

Project: FRNP00609
Client ID: FRNP006

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

Column headers are defined as follows:

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

APPENDIX D

**STATISTICAL ANALYSES AND
QUALIFICATION STATEMENT**

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GROUNDWATER STATISTICAL COMMENTS

Introduction

The statistical analyses conducted on the fourth 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 fourth quarter 2024 data used to conduct the statistical analyses were collected in October 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	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 Regional Gravel Aquifer 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 URGAs, and the LRGAs, 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, fourth 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
Aluminum
Boron
Bromide
Calcium
Chemical Oxygen Demand (COD)
Chloride
Cobalt
Conductivity
Copper
Dissolved Oxygen
Dissolved Solids
Iodide
Iron
Magnesium
Manganese
Molybdenum
Nickel
Oxidation-Reduction Potential ¹
pH ²
Potassium
Sodium
Sulfate
Technetium-99
Thorium-230
Total Organic Carbon (TOC)
Total Organic Halides (TOX)
Zinc

¹ Oxidation-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	4	4	0	No
1,1,2,2-Tetrachloroethane	4	4	0	No
1,1,2-Trichloroethane	4	4	0	No
1,1-Dichloroethane	4	4	0	No
1,2,3-Trichloropropane	4	4	0	No
1,2-Dibromo-3-chloropropane	4	4	0	No
1,2-Dibromoethane	4	4	0	No
1,2-Dichlorobenzene	4	4	0	No
1,2-Dichloropropane	4	4	0	No
2-Butanone	4	4	0	No
2-Hexanone	4	4	0	No
4-Methyl-2-pentanone	4	4	0	No
Acetone	4	4	0	No
Acrolein	4	4	0	No
Acrylonitrile	4	4	0	No
Aluminum	4	2	2	Yes
Antimony	4	4	0	No
Beryllium	4	4	0	No
Boron	4	1	3	Yes
Bromide	4	1	3	Yes
Bromochloromethane	4	4	0	No
Bromodichloromethane	4	4	0	No
Bromoform	4	4	0	No
Bromomethane	4	4	0	No
Calcium	4	0	4	Yes
Carbon disulfide	4	4	0	No
Chemical Oxygen Demand (COD)	4	1	3	Yes
Chloride	4	0	4	Yes
Chlorobenzene	4	4	0	No
Chloroethane	4	4	0	No
Chloroform	4	4	0	No
Chloromethane	4	4	0	No
cis-1,2-Dichloroethene	4	4	0	No
cis-1,3-Dichloropropene	4	4	0	No
Cobalt	4	2	2	Yes
Conductivity	4	0	4	Yes
Copper	4	0	4	Yes
Cyanide	4	4	0	No
Dibromochloromethane	4	4	0	No
Dibromomethane	4	4	0	No
Dimethylbenzene, Total	4	4	0	No
Dissolved Oxygen	4	0	4	Yes
Dissolved Solids	4	0	4	Yes
Ethylbenzene	4	4	0	No
Iodide	4	3	1	Yes

Exhibit D.3. Summary of Censored and Uncensored Data—UCRS (Continued)

Parameters	Observations	Censored Observation	Uncensored Observation	Statistical Analysis?
Iodomethane	4	4	0	No
Iron	4	0	4	Yes
Magnesium	4	0	4	Yes
Manganese	4	0	4	Yes
Methylene chloride	4	4	0	No
Molybdenum	4	2	2	Yes
Nickel	4	1	3	Yes
Oxidation-Reduction Potential	4	0	4	Yes
PCB, Total	4	4	0	No
PCB-1016	4	4	0	No
PCB-1221	4	4	0	No
PCB-1232	4	4	0	No
PCB-1242	4	4	0	No
PCB-1248	4	4	0	No
PCB-1254	4	4	0	No
PCB-1260	4	4	0	No
PCB-1268	4	4	0	No
pH	4	0	4	Yes
Potassium	4	0	4	Yes
Radium-226	4	4	0	No
Rhodium	4	4	0	No
Sodium	4	0	4	Yes
Styrene	4	4	0	No
Sulfate	4	0	4	Yes
Tantalum	4	4	0	No
Technetium-99	4	3	1	Yes
Tetrachloroethene	4	4	0	No
Thallium	4	4	0	No
Thorium-230	4	3	1	Yes
Toluene	4	4	0	No
Total Organic Carbon (TOC)	4	0	4	Yes
Total Organic Halides (TOX)	4	0	4	Yes
trans-1,2-Dichloroethene	4	4	0	No
trans-1,3-Dichloropropene	4	4	0	No
trans-1,4-Dichloro-2-Butene	4	4	0	No
Trichlorofluoromethane	4	4	0	No
Vanadium	4	4	0	No
Vinyl Acetate	4	4	0	No
Zinc	4	2	2	Yes

Bold denotes parameters with at least one uncensored observation.

Exhibit D.4. Summary of Censored and Uncensored Data—URGA

Parameters	Observations	Censored Observation	Uncensored Observation	Statistical Analysis?
1,1,1,2-Tetrachloroethane	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	11	0	No
Acrolein	11	11	0	No
Acrylonitrile	11	11	0	No
Aluminum	11	10	1	Yes
Antimony	11	11	0	No
Beryllium	11	11	0	No
Boron	11	0	11	Yes
Bromide	11	0	11	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
Chemical Oxygen Demand (COD)	11	7	4	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
cis-1,2-Dichloroethene	11	11	0	No
cis-1,3-Dichloropropene	11	11	0	No
Cobalt	11	8	3	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	6	5	Yes
Magnesium	11	0	11	Yes
Manganese	11	4	7	Yes
Methylene chloride	11	11	0	No
Molybdenum	11	5	6	Yes
Nickel	11	3	8	Yes
Oxidation-Reduction Potential	11	0	11	Yes
PCB, Total	11	11	0	No
PCB-1016	11	11	0	No
PCB-1221	11	11	0	No
PCB-1232	11	11	0	No
PCB-1242	11	11	0	No
PCB-1248	11	11	0	No
PCB-1254	11	11	0	No
PCB-1260	11	11	0	No
PCB-1268	11	11	0	No
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	10	1	Yes
Toluene	11	11	0	No
Total Organic Carbon (TOC)	11	0	11	Yes
Total Organic Halides (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	11	0	No
Vinyl Acetate	11	11	0	No
Zinc	11	2	9	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	6	1	Yes
Antimony	7	7	0	No
Beryllium	7	7	0	No
Boron	7	0	7	Yes
Bromide	7	0	7	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
Chemical Oxygen Demand (COD)	7	6	1	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	7	0	No
cis-1,3-Dichloropropene	7	7	0	No
Cobalt	7	6	1	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	2	5	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	6	1	Yes
Nickel	7	3	4	Yes
Oxidation-Reduction Potential	7	0	7	Yes
PCB, Total	7	7	0	No
PCB-1016	7	7	0	No
PCB-1221	7	7	0	No
PCB-1232	7	7	0	No
PCB-1242	7	7	0	No
PCB-1248	7	7	0	No
PCB-1254	7	7	0	No
PCB-1260	7	7	0	No
PCB-1268	7	7	0	No
pH	7	0	7	Yes
Potassium	7	0	7	Yes
Radium-226	7	7	0	No
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	6	1	Yes
Toluene	7	7	0	No
Total Organic Carbon (TOC)	7	0	7	Yes
Total Organic Halides (TOX)	7	0	7	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	4	3	Yes

Bold denotes parameters with at least one uncensored observation.

Discussion of Results from Historical Background Comparison

For the UCRS, URGAs, 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, URGAs, and LRGA, the test was applied to 27, 26, and 26 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, technetium-99, and thorium-230.

URGA

This quarter's results identified exceedances of historical background UTL for calcium, conductivity, dissolved solids, magnesium, oxidation-reduction potential, sodium, sulfate, technetium-99, and thorium-230.

LRGA

This quarter's results identified exceedances of historical background UTL for calcium, conductivity, dissolved solids, magnesium, oxidation-reduction potential, sodium, sulfate, technetium-99, thorium-230, and TOX.

Statistical Summary

Summaries of the results of the statistical tests conducted on data obtained from wells in the UCRS, the URGAs, 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* and thorium-230	MW220: Oxidation-reduction potential*	MW370: Oxidation-reduction potential* and sulfate
MW390: Oxidation-reduction potential* and technetium-99	MW221: Oxidation-reduction potential*	MW373: Calcium, conductivity, dissolved solids, magnesium, oxidation-reduction potential,* sodium, and sulfate
MW393: Oxidation-reduction potential*	MW222: Oxidation-reduction potential*	MW385: Oxidation-reduction potential,* sulfate, and technetium-99
MW396: Oxidation-reduction potential*	MW223: Oxidation-reduction potential*	MW388: Oxidation-reduction potential,* sulfate, and thorium-230
	MW224: Oxidation-reduction potential*	MW392: Oxidation-reduction potential*
	MW369: Oxidation-reduction potential* and technetium-99	MW395: Oxidation-reduction potential* and TOX
	MW372: Calcium, conductivity, dissolved solids, magnesium, oxidation-reduction potential,* sodium, sulfate, and technetium-99	MW397: Oxidation-reduction potential*
	MW384: Oxidation-reduction potential,* sulfate, and technetium-99	
	MW387: Magnesium, oxidation-reduction potential,* sulfate, technetium-99, and thorium-230	
	MW391: Oxidation-reduction potential*	
	MW394: 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.
COD	Tolerance Interval	0.02	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.
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.
Iodide	Tolerance Interval	0.13	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, MW390, 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.
Technetium-99	Tolerance Interval	0.86	Current results exceed statistically derived historical background concentration in MW390.
Thorium-230	Tolerance Interval	2.01	Current results exceed statistically derived historical background concentration in MW386.
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.
Zinc	Tolerance Interval	0.79	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
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.
COD	Tolerance Interval	0.00	No exceedance of statistically derived historical background concentration.
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.
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 MW220, MW221, MW222, MW223, MW224, MW369, MW372, MW384, MW387, MW391, and 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 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 MW372, MW384, and MW387.
Technetium-99	Tolerance Interval	0.99	Current results exceed statistically derived historical background concentration in MW369, MW372, MW384, and MW387.
Thorium-230	Tolerance Interval	1.65	Current results exceed statistically derived historical background concentration in 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.
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.
COD	Tolerance Interval	0.04	No exceedance of statistically derived historical background concentration.
Chloride	Tolerance Interval	0.22	No exceedance of statistically derived historical background concentration.
Cobalt	Tolerance Interval	1.51	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.

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	Current results exceed statistically derived historical background concentration in MW385.
Thorium-230	Tolerance Interval	1.35	Current results exceed statistically derived historical background concentration in MW388.
TOC	Tolerance Interval	0.55	No exceedance of statistically derived historical background concentration.
TOX	Tolerance Interval	0.59	Current results exceed statistically derived historical background concentration in MW395.
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.

Discussion of Results from Current Background Comparison

For concentrations in wells in the UCRS, URGAs, 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, URGAs, and LRGA, the test was applied to 3, 9, and 10 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 this quarter's results identified current background exceedances in downgradient UCRS wells for oxidation-reduction potential, technetium-99, and thorium-230.

URGA

This quarter's results identified current background exceedances in downgradient wells for calcium, conductivity, dissolved solids, magnesium, sodium, sulfate, technetium-99, and thorium-230.

LRGA

This quarter's results identified current background exceedances in downgradient wells for calcium, conductivity, dissolved solids, magnesium, sodium, sulfate, technetium-99, and thorium-230.

Statistical Summary

Summaries of the statistical tests conducted on data obtained from wells in the UCRS, the URGAs, 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, sulfate, technetium-99, and thorium-230	MW388: Sulfate and thorium-230

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	MW390 exceeded the upper TL, which is evidence of elevated concentration with respect to current background data.
Technetium-99	Tolerance Interval	-18.2	MW390 exceeded the upper TL, which is evidence of elevated concentration with respect to current background data.
Thorium-230 ^a	Tolerance Interval	2.12	MW386 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.

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	0.12	MW372 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	0.11	MW372 exceeded the upper TL, which is evidence of elevated concentration with respect to current background data.
Magnesium	Tolerance Interval	0.13	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	0.12	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	0.16	MW372 exceeded the upper TL, which is evidence of elevated concentration with respect to current background data.
Sulfate	Tolerance Interval	0.23	MW372 and MW387 exceeded the upper TL, which is evidence of elevated concentration with respect to current background data.
Technetium-99	Tolerance Interval	0.61	MW369, MW372, MW384, and MW387 exceeded the upper TL, which is evidence of elevated concentration with respect to current background data.
Thorium-230	Tolerance Interval	0.79	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	0.20	MW373 exceeded the upper TL, which is evidence of elevated concentration with respect to current background data.
Conductivity	Tolerance Interval	0.11	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	0.20	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.
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.
Technetium-99	Tolerance Interval	0.72	MW385 exceeded the upper TL, which is evidence of elevated concentration with respect to current background data.
Thorium-230 ^a	Tolerance Interval	1.25	MW388 exceeded the upper TL, which is evidence of elevated concentration with respect to current background data.
TOX	Tolerance Interval	0.49	MW395 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 Fouth 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

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
MW390	Downgradient	Yes	2.04E-01	NO	-1.59E+00	N/A
MW393	Downgradient	Yes	2.77E-02	NO	-3.59E+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.

D1-3

C-746-S/T Fouth 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

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	3.16E-02	N/A	-3.45E+00	NO
MW390	Downgradient	Yes	1.53E-02	N/A	-4.18E+00	NO
MW393	Downgradient	Yes	1.87E-02	N/A	-3.98E+00	NO
MW396	Upgradient	No	1.50E-02	N/A	-4.20E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, $CV = S/X$ If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, $S = [\text{Sum}([(background\ result-X)^2]/[\text{count of background results} -1])]^{0.5}$

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 Fouth 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

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	1.31E-01	NO	-2.03E+00	N/A
MW390	Downgradient	No	8.00E-01	N/A	-2.23E-01	N/A
MW393	Downgradient	Yes	1.29E-01	NO	-2.05E+00	N/A
MW396	Upgradient	Yes	9.22E-01	NO	-8.12E-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 = [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 Fouth 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

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	2.43E+01	NO	3.19E+00	N/A
MW390	Downgradient	Yes	1.24E+01	NO	2.52E+00	N/A
MW393	Downgradient	No	2.00E+01	N/A	3.00E+00	N/A
MW396	Upgradient	Yes	1.72E+01	NO	2.84E+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 = [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 Fouth 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

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	1.25E-02	N/A	-4.38E+00	NO
MW390	Downgradient	No	1.00E-03	N/A	-6.91E+00	N/A
MW393	Downgradient	No	1.00E-03	N/A	-6.91E+00	N/A
MW396	Upgradient	Yes	3.53E-04	N/A	-7.95E+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, $S = [\text{Sum}([(background\ result-X)^2]/[\text{count of background results}-1])]^{0.5}$

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.

D1-9

C-746-S/T Fouth 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

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	6.81E+02	NO	6.52E+00	N/A
MW390	Downgradient	Yes	6.56E+02	NO	6.49E+00	N/A
MW393	Downgradient	Yes	4.36E+02	NO	6.08E+00	N/A
MW396	Upgradient	Yes	6.73E+02	NO	6.51E+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 Fouth 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

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	8.28E-04	NO	-7.10E+00	N/A
MW390	Downgradient	Yes	1.64E-03	NO	-6.41E+00	N/A
MW393	Downgradient	Yes	4.94E-04	NO	-7.61E+00	N/A
MW396	Upgradient	Yes	1.24E-03	NO	-6.69E+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.

D1-11

C-746-S/T Fouth Quarter 2024 Statistical Analysis
Historical Background Comparison

Dissolved Oxygen
UNITS: mg/L
UCRS

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	X= 1.395	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

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	1.34E+00	N/A	2.93E-01	NO
MW390	Downgradient	Yes	5.15E+00	N/A	1.64E+00	NO
MW393	Downgradient	Yes	1.15E+00	N/A	1.40E-01	NO
MW396	Upgradient	Yes	1.20E+00	N/A	1.82E-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.

D1-12

C-746-S/T Fouth Quarter 2024 Statistical Analysis

Historical Background Comparison

Dissolved Solids

UNITS: mg/L

UCRS

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	X= 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

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	4.07E+02	NO	6.01E+00	N/A
MW390	Downgradient	Yes	3.47E+02	NO	5.85E+00	N/A
MW393	Downgradient	Yes	2.80E+02	NO	5.63E+00	N/A
MW396	Upgradient	Yes	4.02E+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, $S = [\text{Sum}([(background\ result-X)^2]/[\text{count of background results} -1])]^{0.5}$

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.

D1-13

C-746-S/T Fouth Quarter 2024 Statistical Analysis
Historical Background Comparison

Iodide
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= 2.150	S= 0.283	CV(1)=0.132	K factor**= 3.188	TL(1)= 3.05E+00	LL(1)=N/A
Statistics-Transformed Background Data	X= 0.759	S= 0.123	CV(2)=0.162	K factor**= 3.188	TL(2)= 1.15E+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+00	6.93E-01
1/13/2003	2.00E+00	6.93E-01
4/8/2003	2.00E+00	6.93E-01
7/16/2003	2.70E+00	9.93E-01
10/14/2003	2.50E+00	9.16E-01
1/14/2004	2.00E+00	6.93E-01

Dry/Partially Dry Wells

Well No.	Gradient
MW389	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-01	N/A	-6.93E-01	N/A
MW390	Downgradient	No	5.00E-01	N/A	-6.93E-01	N/A
MW393	Downgradient	No	5.00E-01	N/A	-6.93E-01	N/A
MW396	Upgradient	Yes	4.29E-01	NO	-8.46E-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 Fouth 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

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	1.19E+00	NO	1.74E-01	N/A
MW390	Downgradient	Yes	1.60E-01	NO	-1.83E+00	N/A
MW393	Downgradient	Yes	2.92E+00	NO	1.07E+00	N/A
MW396	Upgradient	Yes	1.41E-01	NO	-1.96E+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 Fouth Quarter 2024 Statistical Analysis
Magnesium

Historical Background Comparison
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

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	8.46E+00	NO	2.14E+00	N/A
MW390	Downgradient	Yes	1.12E+01	NO	2.42E+00	N/A
MW393	Downgradient	Yes	4.13E+00	NO	1.42E+00	N/A
MW396	Upgradient	Yes	1.42E+01	NO	2.65E+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.

D1-16

C-746-S/T Fouth Quarter 2024 Statistical Analysis
Historical Background Comparison

Manganese
UNITS: mg/L
UCRS

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	X= 0.774	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

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

Dry/Partially Dry Wells

Well No.	Gradient
MW389	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+00	NO	1.13E-01	N/A
MW390	Downgradient	Yes	1.13E-03	NO	-6.79E+00	N/A
MW393	Downgradient	Yes	5.82E-02	NO	-2.84E+00	N/A
MW396	Upgradient	Yes	1.43E-01	NO	-1.94E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.
CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum (((background result-X)^2)/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>,2009.

D1-17

C-746-S/T Fouth Quarter 2024 Statistical Analysis
Molybdenum

Historical Background Comparison
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

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	1.01E-03	N/A	-6.90E+00	NO
MW390	Downgradient	Yes	3.61E-04	N/A	-7.93E+00	NO
MW393	Downgradient	No	3.04E-04	N/A	-8.10E+00	N/A
MW396	Upgradient	No	4.33E-04	N/A	-7.74E+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 Fouth Quarter 2024 Statistical Analysis
Historical Background Comparison

Nickel
UNITS: mg/L
UCRS

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	X= 0.016	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

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	2.60E-03	N/A	-5.95E+00	NO
MW390	Downgradient	Yes	1.44E-03	N/A	-6.54E+00	NO
MW393	Downgradient	No	2.00E-03	N/A	-6.21E+00	N/A
MW396	Upgradient	Yes	9.49E-04	N/A	-6.96E+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.

D1-19

C-746-S/T Fouth Quarter 2024 Statistical Analysis
Oxidation-Reduction Potential

Historical Background Comparison
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

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	2.20E+02	N/A	5.39E+00	YES
MW390	Downgradient	Yes	5.42E+02	N/A	6.30E+00	YES
MW393	Downgradient	Yes	2.55E+02	N/A	5.54E+00	YES
MW396	Upgradient	Yes	4.40E+02	N/A	6.09E+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
MW390
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.

D1-20

C-746-S/T Fouth Quarter 2024 Statistical Analysis
Historical Background Comparison

pH
UNITS: Std Unit
UCRS

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	X= 6.460	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

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	6.75E+00	NO	1.91E+00	N/A
MW390	Downgradient	Yes	6.38E+00	NO	1.85E+00	N/A
MW393	Downgradient	Yes	6.03E+00	NO	1.80E+00	N/A
MW396	Upgradient	Yes	6.20E+00	NO	1.82E+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 Fouth Quarter 2024 Statistical Analysis
Historical Background Comparison

Potassium
UNITS: mg/L
UCRS

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	X= 1.411	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

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	3.00E-01	NO	-1.20E+00	N/A
MW390	Downgradient	Yes	3.56E-01	NO	-1.03E+00	N/A
MW393	Downgradient	Yes	4.93E-01	NO	-7.07E-01	N/A
MW396	Upgradient	Yes	7.35E-01	NO	-3.08E-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.

D1-22

C-746-S/T Fouth Quarter 2024 Statistical Analysis		Historical Background Comparison
Sodium	UNITS: mg/L	UCRS

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	X= 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

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+02	NO	4.82E+00	N/A
MW390	Downgradient	Yes	9.02E+01	NO	4.50E+00	N/A
MW393	Downgradient	Yes	7.99E+01	NO	4.38E+00	N/A
MW396	Upgradient	Yes	9.29E+01	NO	4.53E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, $CV = S/X$ If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, $S = \sqrt{\text{Sum} ((\text{background result}-X)^2 / [\text{count of background results} - 1])}^{0.5}$

TL Upper Tolerance Limit, $TL = \bar{X} + (K * S)$, LL Lower Tolerance Limit, $LL = \bar{X} - (K * S)$

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 Fouth 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

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	3.21E+01	NO	3.47E+00	N/A
MW390	Downgradient	Yes	3.12E+01	NO	3.44E+00	N/A
MW393	Downgradient	Yes	2.12E+01	NO	3.05E+00	N/A
MW396	Upgradient	Yes	2.76E+01	NO	3.32E+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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C-746-S/T Fouth Quarter 2024 Statistical Analysis Historical Background Comparison

Technetium-99 UNITS: pCi/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= 7.624	S= 6.558	CV(1)=0.860	K factor**= 3.188	TL(1)= 2.85E+01	LL(1)=N/A
Statistics-Transformed Background Data	X= 1.498	S= 1.321	CV(2)=0.882	K factor**= 3.188	TL(2)= 5.71E+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	1.67E+01	2.82E+00
9/16/2002	6.39E+00	1.85E+00
10/16/2002	4.55E+00	1.52E+00
1/13/2003	1.65E+01	2.80E+00
4/8/2003	3.04E+00	1.11E+00
7/16/2003	3.54E-01	-1.04E+00
10/14/2003	1.19E+01	2.48E+00
1/14/2004	1.56E+00	4.45E-01

Dry/Partially Dry Wells

Well No.	Gradient
MW389	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	-1.76E+00	N/A	#Error	N/A
MW390	Downgradient	Yes	6.74E+01	YES	4.21E+00	N/A
MW393	Downgradient	No	-1.24E+00	N/A	#Error	N/A
MW396	Upgradient	No	2.29E+00	N/A	8.29E-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

MW390

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 Fouth Quarter 2024 Statistical Analysis Historical Background Comparison

Thorium-230 UNITS: pCi/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= 0.103	S= 0.206	CV(1)=2.010	K factor**= 3.188	TL(1)= 7.60E-01	LL(1)=N/A
Statistics-Transformed Background Data	X= -2.743	S= 2.515	CV(2)=-0.917	K factor**= 3.188	TL(2)= -6.11E-01	LL(2)=N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW396	
Date Collected	Result	LN(Result)
10/12/2004	5.43E-01	-6.11E-01
1/18/2005	1.96E-03	-6.23E+00
4/19/2005	2.85E-01	-1.26E+00
7/11/2005	-1.08E-02	#Func!
10/17/2005	5.66E-02	-2.87E+00
1/19/2006	-1.22E-03	#Func!
4/11/2006	-4.90E-02	#Func!
7/17/2006	-4.90E-03	#Func!

Dry/Partially Dry Wells

Well No.	Gradient
MW389	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	4.21E+00	N/A	1.44E+00	YES
MW390	Downgradient	No	1.93E-01	N/A	-1.65E+00	N/A
MW393	Downgradient	No	6.26E-01	N/A	-4.68E-01	N/A
MW396	Upgradient	No	3.20E-01	N/A	-1.14E+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

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

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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Historical Background Comparison

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

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	8.17E+00	NO	2.10E+00	N/A
MW390	Downgradient	Yes	2.34E+00	NO	8.50E-01	N/A
MW393	Downgradient	Yes	2.70E+00	NO	9.93E-01	N/A
MW396	Upgradient	Yes	4.17E+00	NO	1.43E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

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.

D1-27

C-746-S/T Fouth Quarter 2024 Statistical Analysis

Historical Background Comparison

Total Organic Halides (TOX)

UNITS: ug/L

UCRS

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	X= 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

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	1.73E+02	NO	5.15E+00	N/A
MW390	Downgradient	Yes	2.83E+01	NO	3.34E+00	N/A
MW393	Downgradient	Yes	2.99E+01	NO	3.40E+00	N/A
MW396	Upgradient	Yes	1.13E+02	NO	4.73E+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.

D1-28

C-746-S/T Fouth Quarter 2024 Statistical Analysis Historical Background Comparison

Zinc UNITS: mg/L UCRS

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	X= 0.044	S= 0.035	CV(1)=0.786	K factor**= 3.188	TL(1)= 1.56E-01	LL(1)=N/A
Statistics-Transformed Background Data	X= -3.342	S= 0.682	CV(2)=-0.204	K factor**= 3.188	TL(2)= -1.17E+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	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
4/8/2003	3.50E-02	-3.35E+00
7/16/2003	2.00E-02	-3.91E+00
10/14/2003	2.00E-02	-3.91E+00
1/14/2004	2.00E-02	-3.91E+00

Dry/Partially Dry Wells

Well No.	Gradient
MW389	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	2.00E-02	N/A	-3.91E+00	N/A
MW390	Downgradient	Yes	7.11E-03	NO	-4.95E+00	N/A
MW393	Downgradient	No	2.00E-02	N/A	-3.91E+00	N/A
MW396	Upgradient	Yes	4.18E-03	NO	-5.48E+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.

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.

D1-29

C-746-S/T Fouth Quarter 2024 Statistical Analysis Historical Background Comparison

Aluminum

UNITS: mg/L

URGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data X= 0.221 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

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

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	4.52E-02	NO	-3.10E+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	No	5.00E-02	N/A	-3.00E+00	N/A
MW391	Downgradient	No	5.00E-02	N/A	-3.00E+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.

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 Fouth Quarter 2024 Statistical Analysis
Historical Background Comparison

Boron
UNITS: mg/L
URGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	X= 0.425	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
Well Number: MW394		
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

Current Quarter Data						
Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW220	Upgradient	Yes	8.83E-03	N/A	-4.73E+00	NO
MW221	Sidegradient	Yes	1.47E-02	N/A	-4.22E+00	NO
MW222	Sidegradient	Yes	7.98E-03	N/A	-4.83E+00	NO
MW223	Sidegradient	Yes	7.97E-03	N/A	-4.83E+00	NO
MW224	Sidegradient	Yes	2.23E-02	N/A	-3.80E+00	NO
MW369	Downgradient	Yes	1.86E-02	N/A	-3.98E+00	NO
MW372	Downgradient	Yes	1.14E+00	N/A	1.31E-01	NO
MW384	Sidegradient	Yes	5.64E-02	N/A	-2.88E+00	NO
MW387	Downgradient	Yes	4.06E-02	N/A	-3.20E+00	NO
MW391	Downgradient	Yes	2.65E-02	N/A	-3.63E+00	NO
MW394	Upgradient	Yes	1.96E-02	N/A	-3.93E+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.

C-746-S/T Fouth 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
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

Current Quarter Data						
Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW220	Upgradient	Yes	2.12E-01	NO	-1.55E+00	N/A
MW221	Sidegradient	Yes	5.00E-01	NO	-6.93E-01	N/A
MW222	Sidegradient	Yes	4.09E-01	NO	-8.94E-01	N/A
MW223	Sidegradient	Yes	5.32E-01	NO	-6.31E-01	N/A
MW224	Sidegradient	Yes	3.52E-01	NO	-1.04E+00	N/A
MW369	Downgradient	Yes	4.11E-01	NO	-8.89E-01	N/A
MW372	Downgradient	Yes	5.77E-01	NO	-5.50E-01	N/A
MW384	Sidegradient	Yes	3.14E-01	NO	-1.16E+00	N/A
MW387	Downgradient	Yes	5.50E-01	NO	-5.98E-01	N/A
MW391	Downgradient	Yes	5.26E-01	NO	-6.42E-01	N/A
MW394	Upgradient	Yes	5.52E-01	NO	-5.94E-01	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.
CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>,2009.

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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
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

Current Quarter Data						
Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW220	Upgradient	Yes	2.05E+01	NO	3.02E+00	N/A
MW221	Sidegradient	Yes	2.02E+01	NO	3.01E+00	N/A
MW222	Sidegradient	Yes	1.65E+01	NO	2.80E+00	N/A
MW223	Sidegradient	Yes	2.14E+01	NO	3.06E+00	N/A
MW224	Sidegradient	Yes	2.32E+01	NO	3.14E+00	N/A
MW369	Downgradient	Yes	1.55E+01	NO	2.74E+00	N/A
MW372	Downgradient	Yes	6.45E+01	YES	4.17E+00	N/A
MW384	Sidegradient	Yes	2.17E+01	NO	3.08E+00	N/A
MW387	Downgradient	Yes	3.66E+01	NO	3.60E+00	N/A
MW391	Downgradient	Yes	2.52E+01	NO	3.23E+00	N/A
MW394	Upgradient	Yes	2.66E+01	NO	3.28E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

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

Historical Background Comparison

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= 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
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

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	Yes	1.00E+01	NO	2.30E+00	N/A
MW369	Downgradient	Yes	9.81E+00	NO	2.28E+00	N/A
MW372	Downgradient	Yes	9.81E+00	NO	2.28E+00	N/A
MW384	Sidegradient	No	2.00E+01	N/A	3.00E+00	N/A
MW387	Downgradient	No	2.00E+01	N/A	3.00E+00	N/A
MW391	Downgradient	No	2.00E+01	N/A	3.00E+00	N/A
MW394	Upgradient	Yes	1.00E+01	NO	2.30E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, $CV = S/X$ If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, $S = [\text{Sum } ((\text{background result}-X)^2)/[\text{count of background results } -1]]^{0.5}$

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.

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Historical Background Comparison

Chloride
UNITS: mg/L
URGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	X= 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
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

Current Quarter Data						
Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW220	Upgradient	Yes	1.76E+01	NO	2.87E+00	N/A
MW221	Sidegradient	Yes	3.26E+01	NO	3.48E+00	N/A
MW222	Sidegradient	Yes	2.93E+01	NO	3.38E+00	N/A
MW223	Sidegradient	Yes	3.29E+01	NO	3.49E+00	N/A
MW224	Sidegradient	Yes	2.09E+01	NO	3.04E+00	N/A
MW369	Downgradient	Yes	2.85E+01	NO	3.35E+00	N/A
MW372	Downgradient	Yes	3.82E+01	NO	3.64E+00	N/A
MW384	Sidegradient	Yes	2.13E+01	NO	3.06E+00	N/A
MW387	Downgradient	Yes	3.57E+01	NO	3.58E+00	N/A
MW391	Downgradient	Yes	4.16E+01	NO	3.73E+00	N/A
MW394	Upgradient	Yes	4.45E+01	NO	3.80E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>,2009.

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Historical Background Comparison

Cobalt
UNITS: mg/L
URGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	X= 0.016	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
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

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	Yes	3.49E-04	N/A	-7.96E+00	NO
MW223	Sidegradient	Yes	2.92E-03	N/A	-5.84E+00	NO
MW224	Sidegradient	No	1.00E-03	N/A	-6.91E+00	N/A
MW369	Downgradient	Yes	4.21E-03	N/A	-5.47E+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.

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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Historical Background Comparison

Conductivity

UNITS: umho/cm

URGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	X= 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
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

Current Quarter Data						
Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW220	Upgradient	Yes	3.42E+02	NO	5.83E+00	N/A
MW221	Sidegradient	Yes	3.91E+02	NO	5.97E+00	N/A
MW222	Sidegradient	Yes	3.44E+02	NO	5.84E+00	N/A
MW223	Sidegradient	Yes	3.93E+02	NO	5.97E+00	N/A
MW224	Sidegradient	Yes	4.51E+02	NO	6.11E+00	N/A
MW369	Downgradient	Yes	4.08E+02	NO	6.01E+00	N/A
MW372	Downgradient	Yes	7.91E+02	YES	6.67E+00	N/A
MW384	Sidegradient	Yes	3.84E+02	NO	5.95E+00	N/A
MW387	Downgradient	Yes	6.08E+02	NO	6.41E+00	N/A
MW391	Downgradient	Yes	3.72E+02	NO	5.92E+00	N/A
MW394	Upgradient	Yes	4.01E+02	NO	5.99E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

The test well(s) listed exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to historical background data.

Wells with Exceedances

MW372

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009.

D1-37

C-746-S/T Fouth 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

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	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

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW220	Upgradient	Yes	9.74E-04	NO	-6.93E+00	N/A
MW221	Sidegradient	Yes	1.71E-03	NO	-6.37E+00	N/A
MW222	Sidegradient	Yes	1.03E-03	NO	-6.88E+00	N/A
MW223	Sidegradient	Yes	1.36E-03	NO	-6.60E+00	N/A
MW224	Sidegradient	Yes	9.82E-04	NO	-6.93E+00	N/A
MW369	Downgradient	Yes	1.33E-03	NO	-6.62E+00	N/A
MW372	Downgradient	Yes	6.05E-04	NO	-7.41E+00	N/A
MW384	Sidegradient	Yes	9.68E-04	NO	-6.94E+00	N/A
MW387	Downgradient	Yes	1.14E-03	NO	-6.78E+00	N/A
MW391	Downgradient	Yes	5.48E-04	NO	-7.51E+00	N/A
MW394	Upgradient	Yes	1.09E-03	NO	-6.82E+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.

D1-38

C-746-S/T Fouth Quarter 2024 Statistical Analysis
Dissolved Oxygen

Historical Background Comparison
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
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

Current Quarter Data						
Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW220	Upgradient	Yes	5.90E+00	NO	1.77E+00	N/A
MW221	Sidegradient	Yes	5.46E+00	NO	1.70E+00	N/A
MW222	Sidegradient	Yes	3.90E+00	NO	1.36E+00	N/A
MW223	Sidegradient	Yes	2.40E+00	NO	8.75E-01	N/A
MW224	Sidegradient	Yes	2.77E+00	NO	1.02E+00	N/A
MW369	Downgradient	Yes	3.44E+00	NO	1.24E+00	N/A
MW372	Downgradient	Yes	2.20E+00	NO	7.88E-01	N/A
MW384	Sidegradient	Yes	6.00E+00	NO	1.79E+00	N/A
MW387	Downgradient	Yes	4.63E+00	NO	1.53E+00	N/A
MW391	Downgradient	Yes	5.71E+00	NO	1.74E+00	N/A
MW394	Upgradient	Yes	5.40E+00	NO	1.69E+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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C-746-S/T Fouth Quarter 2024 Statistical Analysis

Historical Background Comparison

Dissolved Solids

UNITS: mg/L

URGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	X= 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
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

Current Quarter Data						
Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW220	Upgradient	Yes	1.81E+02	NO	5.20E+00	N/A
MW221	Sidegradient	Yes	2.07E+02	NO	5.33E+00	N/A
MW222	Sidegradient	Yes	1.90E+02	NO	5.25E+00	N/A
MW223	Sidegradient	Yes	2.16E+02	NO	5.38E+00	N/A
MW224	Sidegradient	Yes	2.47E+02	NO	5.51E+00	N/A
MW369	Downgradient	Yes	1.78E+02	NO	5.18E+00	N/A
MW372	Downgradient	Yes	4.42E+02	YES	6.09E+00	N/A
MW384	Sidegradient	Yes	1.84E+02	NO	5.21E+00	N/A
MW387	Downgradient	Yes	2.90E+02	NO	5.67E+00	N/A
MW391	Downgradient	Yes	1.95E+02	NO	5.27E+00	N/A
MW394	Upgradient	Yes	2.11E+02	NO	5.35E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

The test well(s) listed exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to historical background data.

Wells with Exceedances

MW372

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ((background result-X)^2)/[count of background results -1]]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009.

D1-40

C-746-S/T Fouth Quarter 2024 Statistical Analysis
Historical Background Comparison

Iron
UNITS: mg/L
URGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	X= 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
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

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	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	9.60E-02	N/A	-2.34E+00	NO
MW224	Sidegradient	No	1.00E-01	N/A	-2.30E+00	N/A
MW369	Downgradient	Yes	6.62E-02	N/A	-2.72E+00	NO
MW372	Downgradient	Yes	5.12E-02	N/A	-2.97E+00	NO
MW384	Sidegradient	No	1.00E-01	N/A	-2.30E+00	N/A
MW387	Downgradient	Yes	4.61E-02	N/A	-3.08E+00	NO
MW391	Downgradient	Yes	3.80E-02	N/A	-3.27E+00	NO
MW394	Upgradient	No	1.00E-01	N/A	-2.30E+00	N/A
N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.						

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.
CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>,2009.

D1-41

C-746-S/T Fouth Quarter 2024 Statistical Analysis

Historical Background Comparison

Magnesium

UNITS: mg/L

URGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	X= 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
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

Current Quarter Data						
Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW220	Upgradient	Yes	8.55E+00	NO	2.15E+00	N/A
MW221	Sidegradient	Yes	8.90E+00	NO	2.19E+00	N/A
MW222	Sidegradient	Yes	7.26E+00	NO	1.98E+00	N/A
MW223	Sidegradient	Yes	8.91E+00	NO	2.19E+00	N/A
MW224	Sidegradient	Yes	1.00E+01	NO	2.30E+00	N/A
MW369	Downgradient	Yes	6.34E+00	NO	1.85E+00	N/A
MW372	Downgradient	Yes	2.24E+01	YES	3.11E+00	N/A
MW384	Sidegradient	Yes	9.03E+00	NO	2.20E+00	N/A
MW387	Downgradient	Yes	1.58E+01	YES	2.76E+00	N/A
MW391	Downgradient	Yes	1.06E+01	NO	2.36E+00	N/A
MW394	Upgradient	Yes	1.14E+01	NO	2.43E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

The test well(s) listed exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to historical background data.

Wells with Exceedances

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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C-746-S/T Fouth Quarter 2024 Statistical Analysis
Historical Background Comparison

Manganese
UNITS: mg/L
URGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	X= 0.287	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
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

Current Quarter Data						
Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW220	Upgradient	No	5.00E-03	N/A	-5.30E+00	N/A
MW221	Sidegradient	No	5.00E-03	N/A	-5.30E+00	N/A
MW222	Sidegradient	Yes	3.08E-03	N/A	-5.78E+00	NO
MW223	Sidegradient	Yes	2.31E-02	N/A	-3.77E+00	NO
MW224	Sidegradient	Yes	3.23E-03	N/A	-5.74E+00	NO
MW369	Downgradient	Yes	1.93E-03	N/A	-6.25E+00	NO
MW372	Downgradient	Yes	1.23E-03	N/A	-6.70E+00	NO
MW384	Sidegradient	No	5.00E-03	N/A	-5.30E+00	N/A
MW387	Downgradient	Yes	3.79E-03	N/A	-5.58E+00	NO
MW391	Downgradient	Yes	1.51E-03	N/A	-6.50E+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.

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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C-746-S/T Fouth Quarter 2024 Statistical Analysis
Molybdenum

Historical Background Comparison
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
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

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW220	Upgradient	Yes	6.57E-04	N/A	-7.33E+00	NO
MW221	Sidegradient	Yes	2.16E-03	N/A	-6.14E+00	NO
MW222	Sidegradient	Yes	1.92E-03	N/A	-6.26E+00	NO
MW223	Sidegradient	Yes	3.77E-03	N/A	-5.58E+00	NO
MW224	Sidegradient	Yes	9.72E-04	N/A	-6.94E+00	NO
MW369	Downgradient	Yes	2.07E-04	N/A	-8.48E+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.

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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C-746-S/T Fouth 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	5.83E-03	N/A	-5.14E+00	NO
MW221	Sidegradient	Yes	1.38E-02	N/A	-4.28E+00	NO
MW222	Sidegradient	Yes	1.79E-02	N/A	-4.02E+00	NO
MW223	Sidegradient	Yes	6.00E-01	N/A	-5.11E-01	NO
MW224	Sidegradient	Yes	8.96E-03	N/A	-4.71E+00	NO
MW369	Downgradient	Yes	3.44E-03	N/A	-5.67E+00	NO
MW372	Downgradient	Yes	6.27E-04	N/A	-7.37E+00	NO
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	4.89E-03	N/A	-5.32E+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 Fouth Quarter 2024 Statistical Analysis	Historical Background Comparison
Oxidation-Reduction Potential	UNITS: mV
URGA	

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data X= 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

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

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW220	Upgradient	Yes	5.00E+02	YES	6.21E+00	N/A
MW221	Sidegradient	Yes	5.52E+02	YES	6.31E+00	N/A
MW222	Sidegradient	Yes	4.75E+02	YES	6.16E+00	N/A
MW223	Sidegradient	Yes	5.17E+02	YES	6.25E+00	N/A
MW224	Sidegradient	Yes	4.93E+02	YES	6.20E+00	N/A
MW369	Downgradient	Yes	4.69E+02	YES	6.15E+00	N/A
MW372	Downgradient	Yes	4.56E+02	YES	6.12E+00	N/A
MW384	Sidegradient	Yes	5.51E+02	YES	6.31E+00	N/A
MW387	Downgradient	Yes	4.54E+02	YES	6.12E+00	N/A
MW391	Downgradient	Yes	4.55E+02	YES	6.12E+00	N/A
MW394	Upgradient	Yes	5.34E+02	YES	6.28E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

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.

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

MW220
MW221
MW222
MW223
MW224
MW369
MW372
MW384
MW387
MW391
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, $S = [\text{Sum } ((\text{background result} - X)^2) / [\text{count of background results} - 1]]^{0.5}$

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 Fouth Quarter 2024 Statistical Analysis
Historical Background Comparison

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

Well Number: MW394

Date Collected	Result	LN(Result)
8/13/2002	5.80E+00	1.76E+00
9/30/2002	5.93E+00	1.78E+00
10/16/2002	5.42E+00	1.69E+00
1/13/2003	6.00E+00	1.79E+00
4/10/2003	6.04E+00	1.80E+00
7/16/2003	6.20E+00	1.82E+00
10/14/2003	6.40E+00	1.86E+00
1/13/2004	6.39E+00	1.85E+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	6.07E+00	NO	1.80E+00	N/A
MW221	Sidegradient	Yes	5.40E+00	NO	1.69E+00	N/A
MW222	Sidegradient	Yes	6.16E+00	NO	1.82E+00	N/A
MW223	Sidegradient	Yes	6.13E+00	NO	1.81E+00	N/A
MW224	Sidegradient	Yes	6.10E+00	NO	1.81E+00	N/A
MW369	Downgradient	Yes	5.99E+00	NO	1.79E+00	N/A
MW372	Downgradient	Yes	6.09E+00	NO	1.81E+00	N/A
MW384	Sidegradient	Yes	6.07E+00	NO	1.80E+00	N/A
MW387	Downgradient	Yes	6.22E+00	NO	1.83E+00	N/A
MW391	Downgradient	Yes	5.97E+00	NO	1.79E+00	N/A
MW394	Upgradient	Yes	5.84E+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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C-746-S/T Fouth Quarter 2024 Statistical Analysis Historical Background Comparison

Potassium UNITS: mg/L URGAs

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
Well Number: MW394		
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	1.03E+00	2.96E-02
1/13/2003	1.10E+00	9.53E-02
4/10/2003	1.24E+00	2.15E-01
7/16/2003	1.14E+00	1.31E-01
10/14/2003	1.05E+00	4.88E-02
1/13/2004	1.07E+00	6.77E-02

Current Quarter Data						
Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW220	Upgradient	Yes	2.00E+00	N/A	6.93E-01	NO
MW221	Sidegradient	Yes	1.19E+00	N/A	1.74E-01	NO
MW222	Sidegradient	Yes	6.74E-01	N/A	-3.95E-01	NO
MW223	Sidegradient	Yes	1.39E+00	N/A	3.29E-01	NO
MW224	Sidegradient	Yes	1.09E+00	N/A	8.62E-02	NO
MW369	Downgradient	Yes	5.75E-01	N/A	-5.53E-01	NO
MW372	Downgradient	Yes	2.00E+00	N/A	6.93E-01	NO
MW384	Sidegradient	Yes	1.30E+00	N/A	2.62E-01	NO
MW387	Downgradient	Yes	1.76E+00	N/A	5.65E-01	NO
MW391	Downgradient	Yes	1.49E+00	N/A	3.99E-01	NO
MW394	Upgradient	Yes	1.29E+00	N/A	2.55E-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, $S = [\text{Sum}([(background\ result-X)^2]/[\text{count of background results}-1])]^{0.5}$

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 Fouth Quarter 2024 Statistical Analysis		Historical 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 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
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

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW220	Upgradient	Yes	3.69E+01	NO	3.61E+00	N/A
MW221	Sidegradient	Yes	4.56E+01	NO	3.82E+00	N/A
MW222	Sidegradient	Yes	4.13E+01	NO	3.72E+00	N/A
MW223	Sidegradient	Yes	4.32E+01	NO	3.77E+00	N/A
MW224	Sidegradient	Yes	5.59E+01	NO	4.02E+00	N/A
MW369	Downgradient	Yes	4.45E+01	NO	3.80E+00	N/A
MW372	Downgradient	Yes	6.12E+01	YES	4.11E+00	N/A
MW384	Sidegradient	Yes	4.10E+01	NO	3.71E+00	N/A
MW387	Downgradient	Yes	4.95E+01	NO	3.90E+00	N/A
MW391	Downgradient	Yes	3.27E+01	NO	3.49E+00	N/A
MW394	Upgradient	Yes	3.29E+01	NO	3.49E+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

Wells with Exceedances

MW372

The test well(s) listed exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to historical background data.

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, $S = [\text{Sum} ((\text{background result}-X)^2)/[\text{count of background results} - 1]]^{0.5}$

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 Fouth Quarter 2024 Statistical Analysis
Historical 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 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= 10.481	S= 2.648	CV(1)=0.253	K factor**= 2.523	TL(1)= 1.72E+01	LL(1)=N/A
Statistics-Transformed Background Data	X= 2.322	S= 0.239	CV(2)=0.103	K factor**= 2.523	TL(2)= 2.92E+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	1.04E+01	2.34E+00
1/15/2003	9.80E+00	2.28E+00
4/10/2003	1.54E+01	2.73E+00
7/14/2003	1.49E+01	2.70E+00
10/13/2003	1.35E+01	2.60E+00
1/13/2004	1.03E+01	2.33E+00
4/13/2004	1.43E+01	2.66E+00
7/21/2004	1.05E+01	2.35E+00
Well Number: MW394		
Date Collected	Result	LN(Result)
8/13/2002	1.12E+01	2.42E+00
9/16/2002	8.30E+00	2.12E+00
10/16/2002	8.00E+00	2.08E+00
1/13/2003	8.50E+00	2.14E+00
4/10/2003	7.90E+00	2.07E+00
7/16/2003	8.40E+00	2.13E+00
10/14/2003	8.20E+00	2.10E+00
1/13/2004	8.10E+00	2.09E+00

Current Quarter Data						
Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW220	Upgradient	Yes	1.66E+01	NO	2.81E+00	N/A
MW221	Sidegradient	Yes	1.37E+01	NO	2.62E+00	N/A
MW222	Sidegradient	Yes	1.10E+01	NO	2.40E+00	N/A
MW223	Sidegradient	Yes	1.35E+01	NO	2.60E+00	N/A
MW224	Sidegradient	Yes	1.70E+01	NO	2.83E+00	N/A
MW369	Downgradient	Yes	8.91E+00	NO	2.19E+00	N/A
MW372	Downgradient	Yes	1.46E+02	YES	4.98E+00	N/A
MW384	Sidegradient	Yes	1.80E+01	YES	2.89E+00	N/A
MW387	Downgradient	Yes	2.53E+01	YES	3.23E+00	N/A
MW391	Downgradient	Yes	1.19E+01	NO	2.48E+00	N/A
MW394	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.

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
MW384
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.

D1-51

C-746-S/T Fouth Quarter 2024 Statistical Analysis Historical Background Comparison

Technetium-99 UNITS: pCi/L URG A

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

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
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!

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)
MW220	Upgradient	No	1.48E+01	N/A	2.69E+00	N/A
MW221	Sidegradient	No	2.74E+00	N/A	1.01E+00	N/A
MW222	Sidegradient	No	-2.88E+00	N/A	#Error	N/A
MW223	Sidegradient	No	6.45E+00	N/A	1.86E+00	N/A
MW224	Sidegradient	No	6.41E+00	N/A	1.86E+00	N/A
MW369	Downgradient	Yes	8.38E+01	YES	4.43E+00	N/A
MW372	Downgradient	Yes	9.20E+01	YES	4.52E+00	N/A
MW384	Sidegradient	Yes	3.51E+01	YES	3.56E+00	N/A
MW387	Downgradient	Yes	1.54E+02	YES	5.04E+00	N/A
MW391	Downgradient	No	6.22E+00	N/A	1.83E+00	N/A
MW394	Upgradient	No	1.47E-01	N/A	-1.92E+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.

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
MW384
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, $S = [\text{Sum}([(background\ result-X)^2]/[\text{count of background results} - 1])]^{0.5}$

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.

D1-52

C-746-S/T Fouth Quarter 2024 Statistical Analysis
Thorium-230

Historical Background Comparison
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= 0.103	S= 0.171	CV(1)=1.652	K factor**= 2.523	TL(1)= 5.35E-01	LL(1)=N/A
Statistics-Transformed Background Data	X= -2.248	S= 1.154	CV(2)=-0.513	K factor**= 2.523	TL(2)= -5.73E-01	LL(2)=N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number: MW220		
Date Collected	Result	LN(Result)
10/11/2004	2.67E-01	-1.32E+00
1/20/2005	2.51E-01	-1.38E+00
4/25/2005	3.48E-01	-1.06E+00
7/14/2005	-4.28E-02	#Func!
10/20/2005	-5.86E-03	#Func!
1/18/2006	-5.43E-03	#Func!
4/11/2006	-2.95E-02	#Func!
7/17/2006	-3.11E-02	#Func!
Well Number: MW394		
Date Collected	Result	LN(Result)
10/12/2004	5.64E-01	-5.73E-01
1/18/2005	1.06E-01	-2.24E+00
4/18/2005	-2.20E-02	#Func!
7/11/2005	1.27E-01	-2.06E+00
10/17/2005	2.91E-02	-3.54E+00
1/18/2006	2.71E-02	-3.61E+00
4/11/2006	4.68E-02	-3.06E+00
7/17/2006	2.63E-02	-3.64E+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)
MW220	Upgradient	No	7.46E-01	N/A	-2.93E-01	N/A
MW221	Sidegradient	No	-1.17E-02	N/A	#Error	N/A
MW222	Sidegradient	No	7.96E-01	N/A	-2.28E-01	N/A
MW223	Sidegradient	No	1.68E-01	N/A	-1.78E+00	N/A
MW224	Sidegradient	No	1.33E+00	N/A	2.85E-01	N/A
MW369	Downgradient	No	8.12E-01	N/A	-2.08E-01	N/A
MW372	Downgradient	No	1.22E+00	N/A	1.99E-01	N/A
MW384	Sidegradient	No	3.38E-01	N/A	-1.08E+00	N/A
MW387	Downgradient	Yes	1.92E+00	N/A	6.52E-01	YES
MW391	Downgradient	No	1.86E-01	N/A	-1.68E+00	N/A
MW394	Upgradient	No	8.13E-01	N/A	-2.07E-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

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.

D1-53

C-746-S/T Fouth Quarter 2024 Statistical Analysis

Historical Background Comparison

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

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

Current Quarter Data						
Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW220	Upgradient	Yes	1.29E+00	NO	2.55E-01	N/A
MW221	Sidegradient	Yes	1.21E+00	NO	1.91E-01	N/A
MW222	Sidegradient	Yes	1.11E+00	NO	1.04E-01	N/A
MW223	Sidegradient	Yes	1.17E+00	NO	1.57E-01	N/A
MW224	Sidegradient	Yes	1.48E+00	NO	3.92E-01	N/A
MW369	Downgradient	Yes	1.27E+00	NO	2.39E-01	N/A
MW372	Downgradient	Yes	1.44E+00	NO	3.65E-01	N/A
MW384	Sidegradient	Yes	1.34E+00	NO	2.93E-01	N/A
MW387	Downgradient	Yes	1.51E+00	NO	4.12E-01	N/A
MW391	Downgradient	Yes	8.70E-01	NO	-1.39E-01	N/A
MW394	Upgradient	Yes	9.43E-01	NO	-5.87E-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 = [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.

D1-54

C-746-S/T Fouth Quarter 2024 Statistical Analysis

Historical Background Comparison

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	7.60E+00	N/A	2.03E+00	NO
MW222	Sidegradient	No	1.00E+01	N/A	2.30E+00	N/A
MW223	Sidegradient	No	1.00E+01	N/A	2.30E+00	N/A
MW224	Sidegradient	Yes	1.04E+01	N/A	2.34E+00	NO
MW369	Downgradient	Yes	1.50E+01	N/A	2.71E+00	NO
MW372	Downgradient	Yes	8.14E+00	N/A	2.10E+00	NO
MW384	Sidegradient	Yes	8.40E+00	N/A	2.13E+00	NO
MW387	Downgradient	Yes	8.32E+00	N/A	2.12E+00	NO
MW391	Downgradient	Yes	4.66E+01	N/A	3.84E+00	NO
MW394	Upgradient	Yes	4.70E+01	N/A	3.85E+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.

D1-55

C-746-S/T Fouth Quarter 2024 Statistical Analysis
Historical Background Comparison

Zinc
UNITS: mg/L
URGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	X= 0.036	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
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

Current Quarter Data						
Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW220	Upgradient	Yes	3.55E-03	NO	-5.64E+00	N/A
MW221	Sidegradient	Yes	1.79E-02	NO	-4.02E+00	N/A
MW222	Sidegradient	Yes	7.73E-03	NO	-4.86E+00	N/A
MW223	Sidegradient	Yes	6.59E-03	NO	-5.02E+00	N/A
MW224	Sidegradient	Yes	3.74E-03	NO	-5.59E+00	N/A
MW369	Downgradient	Yes	3.76E-03	NO	-5.58E+00	N/A
MW372	Downgradient	No	2.00E-02	N/A	-3.91E+00	N/A
MW384	Sidegradient	Yes	4.24E-03	NO	-5.46E+00	N/A
MW387	Downgradient	Yes	3.33E-03	NO	-5.70E+00	N/A
MW391	Downgradient	No	2.00E-02	N/A	-3.91E+00	N/A
MW394	Upgradient	Yes	5.87E-03	NO	-5.14E+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.

D1-56

C-746-S/T Fouth Quarter 2024 Statistical Analysis
Historical Background Comparison

Aluminum
UNITS: mg/L
LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	X= 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
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

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	No	5.00E-02	N/A	-3.00E+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	1.03E-01	NO	-2.27E+00	N/A
N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.						

Conclusion of Statistical Analysis on Historical Data

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.

D1-57

C-746-S/T Fouth 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	9.26E-02	N/A	-2.38E+00	NO
MW373	Downgradient	Yes	2.17E+00	N/A	7.75E-01	NO
MW385	Sidegradient	Yes	5.95E-02	N/A	-2.82E+00	NO
MW388	Downgradient	Yes	2.77E-02	N/A	-3.59E+00	NO
MW392	Downgradient	Yes	1.85E-02	N/A	-3.99E+00	NO
MW395	Upgradient	Yes	2.06E-02	N/A	-3.88E+00	NO
MW397	Upgradient	Yes	9.37E-03	N/A	-4.67E+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.

D1-58

C-746-S/T Fouth 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
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

Current Quarter Data						
Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW370	Downgradient	Yes	6.12E-01	NO	-4.91E-01	N/A
MW373	Downgradient	Yes	5.06E-01	NO	-6.81E-01	N/A
MW385	Sidegradient	Yes	3.35E-01	NO	-1.09E+00	N/A
MW388	Downgradient	Yes	4.61E-01	NO	-7.74E-01	N/A
MW392	Downgradient	Yes	5.39E-01	NO	-6.18E-01	N/A
MW395	Upgradient	Yes	5.42E-01	NO	-6.12E-01	N/A
MW397	Upgradient	Yes	3.93E-01	NO	-9.34E-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, $S = [\text{Sum}([(background\ result-X)^2]/[\text{count of background results}-1])]^{0.5}$

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.

D1-59

C-746-S/T Fouth 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
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

Current Quarter Data						
Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW370	Downgradient	Yes	2.85E+01	NO	3.35E+00	N/A
MW373	Downgradient	Yes	8.13E+01	YES	4.40E+00	N/A
MW385	Sidegradient	Yes	2.91E+01	NO	3.37E+00	N/A
MW388	Downgradient	Yes	2.39E+01	NO	3.17E+00	N/A
MW392	Downgradient	Yes	2.40E+01	NO	3.18E+00	N/A
MW395	Upgradient	Yes	2.74E+01	NO	3.31E+00	N/A
MW397	Upgradient	Yes	1.80E+01	NO	2.89E+00	N/A
N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.						

Conclusion of Statistical Analysis on Historical Data

The test well(s) listed exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to historical background data.

Wells with Exceedances

MW373

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009.

D1-60

C-746-S/T Fouth Quarter 2024 Statistical Analysis

Chemical Oxygen Demand (COD)

UNITS: mg/L

Historical Background Comparison

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
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

Current Quarter Data						
Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW370	Downgradient	No	2.00E+01	N/A	3.00E+00	N/A
MW373	Downgradient	No	2.00E+01	N/A	3.00E+00	N/A
MW385	Sidegradient	No	2.00E+01	N/A	3.00E+00	N/A
MW388	Downgradient	Yes	1.00E+01	NO	2.30E+00	N/A
MW392	Downgradient	No	2.00E+01	N/A	3.00E+00	N/A
MW395	Upgradient	No	2.00E+01	N/A	3.00E+00	N/A
MW397	Upgradient	No	2.00E+01	N/A	3.00E+00	N/A
N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.						

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum (((background result-X)^2)/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>,2009.

D1-61

C-746-S/T Fouth 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
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

Current Quarter Data						
Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW370	Downgradient	Yes	4.20E+01	NO	3.74E+00	N/A
MW373	Downgradient	Yes	3.02E+01	NO	3.41E+00	N/A
MW385	Sidegradient	Yes	2.17E+01	NO	3.08E+00	N/A
MW388	Downgradient	Yes	3.32E+01	NO	3.50E+00	N/A
MW392	Downgradient	Yes	4.15E+01	NO	3.73E+00	N/A
MW395	Upgradient	Yes	4.52E+01	NO	3.81E+00	N/A
MW397	Upgradient	Yes	3.34E+01	NO	3.51E+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.

D1-62

C-746-S/T Fouth 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
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

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	4.60E-04	N/A	-7.68E+00	NO
MW388	Downgradient	No	1.00E-03	N/A	-6.91E+00	N/A
MW392	Downgradient	No	1.00E-03	N/A	-6.91E+00	N/A
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.						

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.

D1-63

C-746-S/T Fouth 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
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

Current Quarter Data						
Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW370	Downgradient	Yes	4.99E+02	NO	6.21E+00	N/A
MW373	Downgradient	Yes	9.46E+02	YES	6.85E+00	N/A
MW385	Sidegradient	Yes	4.20E+02	NO	6.04E+00	N/A
MW388	Downgradient	Yes	5.00E+02	NO	6.21E+00	N/A
MW392	Downgradient	Yes	3.28E+02	NO	5.79E+00	N/A
MW395	Upgradient	Yes	3.84E+02	NO	5.95E+00	N/A
MW397	Upgradient	Yes	4.20E+02	NO	6.04E+00	N/A
N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.						

Conclusion of Statistical Analysis on Historical Data

The test well(s) listed exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to historical background data.

Wells with Exceedances

MW373

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, $CV = S/X$ If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, $S = [\text{Sum}([(background\ result-X)^2]/[\text{count of background results} - 1])]^{0.5}$

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.

D1-64

C-746-S/T Fouth 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
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

Current Quarter Data						
Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW370	Downgradient	Yes	5.76E-04	NO	-7.46E+00	N/A
MW373	Downgradient	Yes	5.70E-04	NO	-7.47E+00	N/A
MW385	Sidegradient	Yes	8.31E-04	NO	-7.09E+00	N/A
MW388	Downgradient	Yes	8.03E-04	NO	-7.13E+00	N/A
MW392	Downgradient	Yes	9.25E-04	NO	-6.99E+00	N/A
MW395	Upgradient	Yes	1.68E-03	NO	-6.39E+00	N/A
MW397	Upgradient	Yes	7.78E-04	NO	-7.16E+00	N/A
N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.						

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum (((background result-X)^2)/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>,2009.

D1-65

C-746-S/T Fouth 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	4.30E+00	NO	1.46E+00	N/A
MW373	Downgradient	Yes	1.52E+00	NO	4.19E-01	N/A
MW385	Sidegradient	Yes	2.69E+00	NO	9.90E-01	N/A
MW388	Downgradient	Yes	4.90E+00	NO	1.59E+00	N/A
MW392	Downgradient	Yes	2.30E+00	NO	8.33E-01	N/A
MW395	Upgradient	Yes	5.10E+00	NO	1.63E+00	N/A
MW397	Upgradient	Yes	6.70E+00	NO	1.90E+00	N/A
N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.						

Conclusion of Statistical Analysis on Historical Data

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.

D1-66

C-746-S/T Fouth 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
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

Current Quarter Data						
Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW370	Downgradient	Yes	2.21E+02	NO	5.40E+00	N/A
MW373	Downgradient	Yes	5.52E+02	YES	6.31E+00	N/A
MW385	Sidegradient	Yes	2.04E+02	NO	5.32E+00	N/A
MW388	Downgradient	Yes	2.09E+02	NO	5.34E+00	N/A
MW392	Downgradient	Yes	1.79E+02	NO	5.19E+00	N/A
MW395	Upgradient	Yes	2.09E+02	NO	5.34E+00	N/A
MW397	Upgradient	Yes	1.64E+02	NO	5.10E+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.						

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.

D1-67

C-746-S/T Fouth 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
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

Current Quarter Data						
Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW370	Downgradient	Yes	3.75E-02	N/A	-3.28E+00	NO
MW373	Downgradient	Yes	4.93E-02	N/A	-3.01E+00	NO
MW385	Sidegradient	No	1.00E-01	N/A	-2.30E+00	N/A
MW388	Downgradient	No	1.00E-01	N/A	-2.30E+00	N/A
MW392	Downgradient	Yes	6.24E-02	N/A	-2.77E+00	NO
MW395	Upgradient	Yes	9.11E-02	N/A	-2.40E+00	NO
MW397	Upgradient	Yes	1.90E-01	N/A	-1.66E+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, $S = \sqrt{[\text{Sum } ((\text{background result}-X)^2)/[\text{count of background results } -1]]}^{0.5}$

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.

D1-68

C-746-S/T Fouth Quarter 2024 Statistical Analysis Historical Background Comparison

Magnesium UNITS: mg/L LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	X= 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
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

Current Quarter Data						
Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW370	Downgradient	Yes	1.21E+01	NO	2.49E+00	N/A
MW373	Downgradient	Yes	2.91E+01	YES	3.37E+00	N/A
MW385	Sidegradient	Yes	1.18E+01	NO	2.47E+00	N/A
MW388	Downgradient	Yes	1.02E+01	NO	2.32E+00	N/A
MW392	Downgradient	Yes	1.01E+01	NO	2.31E+00	N/A
MW395	Upgradient	Yes	1.15E+01	NO	2.44E+00	N/A
MW397	Upgradient	Yes	7.57E+00	NO	2.02E+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

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, $S = [\text{Sum}([(background\ result-X)^2]/[\text{count of background results} - 1])]^{0.5}$

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.

D1-69

C-746-S/T Fouth Quarter 2024 Statistical Analysis
Historical Background Comparison

Manganese
UNITS: mg/L
LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	X= 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
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

Current Quarter Data						
Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW370	Downgradient	Yes	2.16E-03	N/A	-6.14E+00	NO
MW373	Downgradient	Yes	2.63E-02	N/A	-3.64E+00	NO
MW385	Sidegradient	Yes	4.49E-03	N/A	-5.41E+00	NO
MW388	Downgradient	No	5.00E-03	N/A	-5.30E+00	N/A
MW392	Downgradient	Yes	6.95E-02	N/A	-2.67E+00	NO
MW395	Upgradient	Yes	4.11E-03	N/A	-5.49E+00	NO
MW397	Upgradient	Yes	7.20E-03	N/A	-4.93E+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.

D1-70

C-746-S/T Fouth Quarter 2024 Statistical Analysis Historical Background Comparison

Molybdenum

UNITS: mg/L

LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data X= 0.007 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

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

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

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)
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	2.03E-04	N/A	-8.50E+00	NO
MW388	Downgradient	No	1.00E-03	N/A	-6.91E+00	N/A
MW392	Downgradient	No	1.00E-03	N/A	-6.91E+00	N/A
MW395	Upgradient	No	2.22E-04	N/A	-8.41E+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.

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 Fouth Quarter 2024 Statistical Analysis
Historical Background Comparison

Nickel
UNITS: mg/L
LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	X= 0.018	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	1.12E-03	N/A	-6.79E+00	NO
MW385	Sidegradient	Yes	8.57E-04	N/A	-7.06E+00	NO
MW388	Downgradient	No	2.00E-03	N/A	-6.21E+00	N/A
MW392	Downgradient	Yes	1.28E-03	N/A	-6.66E+00	NO
MW395	Upgradient	Yes	1.24E-03	N/A	-6.69E+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.

D1-72

C-746-S/T Fouth Quarter 2024 Statistical Analysis Historical Background Comparison

Oxidation-Reduction Potential UNITS: mV LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	X= 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
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

Current Quarter Data						
Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW370	Downgradient	Yes	4.96E+02	YES	6.21E+00	N/A
MW373	Downgradient	Yes	4.78E+02	YES	6.17E+00	N/A
MW385	Sidegradient	Yes	5.08E+02	YES	6.23E+00	N/A
MW388	Downgradient	Yes	5.10E+02	YES	6.23E+00	N/A
MW392	Downgradient	Yes	4.52E+02	YES	6.11E+00	N/A
MW395	Upgradient	Yes	4.60E+02	YES	6.13E+00	N/A
MW397	Upgradient	Yes	3.13E+02	YES	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.						

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, $S = [\text{Sum}([(background\ result-X)^2]/[\text{count of background results} - 1])]^{0.5}$

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.

D1-73

C-746-S/T Fouth Quarter 2024 Statistical Analysis
Historical Background Comparison

pH
UNITS: Std Unit
LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	X= 6.048	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
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

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	5.98E+00	NO	1.79E+00	N/A
MW373	Downgradient	Yes	5.96E+00	NO	1.79E+00	N/A
MW385	Sidegradient	Yes	6.26E+00	NO	1.83E+00	N/A
MW388	Downgradient	Yes	6.09E+00	NO	1.81E+00	N/A
MW392	Downgradient	Yes	5.83E+00	NO	1.76E+00	N/A
MW395	Upgradient	Yes	5.88E+00	NO	1.77E+00	N/A
MW397	Upgradient	Yes	6.24E+00	NO	1.83E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, $CV = S/X$ If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, $S = [\text{Sum}([(background\ result-X)^2]/[\text{count of background results} - 1])]^{0.5}$

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.

D1-74

C-746-S/T Fouth Quarter 2024 Statistical Analysis

Potassium

Historical Background Comparison

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
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

Current Quarter Data						
Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW370	Downgradient	Yes	2.46E+00	NO	9.00E-01	N/A
MW373	Downgradient	Yes	2.66E+00	NO	9.78E-01	N/A
MW385	Sidegradient	Yes	1.62E+00	NO	4.82E-01	N/A
MW388	Downgradient	Yes	1.68E+00	NO	5.19E-01	N/A
MW392	Downgradient	Yes	2.14E+00	NO	7.61E-01	N/A
MW395	Upgradient	Yes	1.58E+00	NO	4.57E-01	N/A
MW397	Upgradient	Yes	1.76E+00	NO	5.65E-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.

D1-75

C-746-S/T Fouth 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
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

Current Quarter Data						
Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW370	Downgradient	Yes	4.26E+01	NO	3.75E+00	N/A
MW373	Downgradient	Yes	6.72E+01	YES	4.21E+00	N/A
MW385	Sidegradient	Yes	3.72E+01	NO	3.62E+00	N/A
MW388	Downgradient	Yes	4.32E+01	NO	3.77E+00	N/A
MW392	Downgradient	Yes	2.38E+01	NO	3.17E+00	N/A
MW395	Upgradient	Yes	3.06E+01	NO	3.42E+00	N/A
MW397	Upgradient	Yes	3.17E+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.						

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, $S = [\text{Sum}([(background\ result-X)^2]/[\text{count of background results} - 1])]^{0.5}$

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 Fouth Quarter 2024 Statistical Analysis
Historical Background Comparison

Sulfate
UNITS: mg/L
LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	X= 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
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

Current Quarter Data						
Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW370	Downgradient	Yes	1.95E+01	YES	2.97E+00	N/A
MW373	Downgradient	Yes	2.01E+02	YES	5.30E+00	N/A
MW385	Sidegradient	Yes	1.96E+01	YES	2.98E+00	N/A
MW388	Downgradient	Yes	1.73E+01	YES	2.85E+00	N/A
MW392	Downgradient	Yes	7.48E+00	NO	2.01E+00	N/A
MW395	Upgradient	Yes	1.10E+01	NO	2.40E+00	N/A
MW397	Upgradient	Yes	1.14E+01	NO	2.43E+00	N/A
N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.						

Conclusion of Statistical Analysis on Historical Data

The test well(s) listed exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to historical background data.

- Wells with Exceedances
- 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, $S = \sqrt{[\text{Sum } ((\text{background result}-X)^2)/[\text{count of background results } -1]]}^{0.5}$

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.

D1-77

C-746-S/T Fouth Quarter 2024 Statistical Analysis Historical Background Comparison

Technetium-99 UNITS: pCi/L LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	X= 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	2.06E+01	NO	3.03E+00	N/A
MW373	Downgradient	No	1.28E+01	N/A	2.55E+00	N/A
MW385	Sidegradient	Yes	4.09E+01	YES	3.71E+00	N/A
MW388	Downgradient	No	4.56E+00	N/A	1.52E+00	N/A
MW392	Downgradient	No	-1.01E+00	N/A	#Error	N/A
MW395	Upgradient	No	1.07E+01	N/A	2.37E+00	N/A
MW397	Upgradient	No	1.55E+01	N/A	2.74E+00	N/A
N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.						

Conclusion of Statistical Analysis on Historical Data

The test well(s) listed exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to historical background data.

Wells with Exceedances

MW385

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.

D1-78

C-746-S/T Fouth Quarter 2024 Statistical Analysis Historical Background Comparison

Thorium-230 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= 0.139	S= 0.188	CV(1)= 1.349	K factor**= 2.523	TL(1)= 6.13E-01	LL(1)=N/A
Statistics-Transformed Background Data	X= -2.481	S= 1.249	CV(2)=-0.504	K factor**= 2.523	TL(2)= -4.94E-01	LL(2)=N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number: MW395		
Date Collected	Result	LN(Result)
10/12/2004	6.10E-01	-4.94E-01
1/18/2005	-3.05E-02	#Func!
4/19/2005	3.47E-01	-1.06E+00
7/11/2005	2.76E-01	-1.29E+00
10/17/2005	1.46E-02	-4.23E+00
1/19/2006	3.89E-02	-3.25E+00
4/11/2006	4.01E-02	-3.22E+00
7/17/2006	1.24E-02	-4.39E+00
Well Number: MW397		
Date Collected	Result	LN(Result)
10/12/2004	4.59E-01	-7.79E-01
1/20/2005	1.71E-01	-1.77E+00
4/21/2005	1.09E-01	-2.22E+00
7/11/2005	8.10E-02	-2.51E+00
10/19/2005	3.19E-02	-3.45E+00
1/18/2006	4.23E-02	-3.16E+00
4/10/2006	-2.95E-02	#Func!
7/18/2006	5.31E-02	-2.94E+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	2.64E-01	N/A	-1.33E+00	N/A
MW373	Downgradient	No	1.19E+00	N/A	1.74E-01	N/A
MW385	Sidegradient	No	-8.61E-02	N/A	#Error	N/A
MW388	Downgradient	Yes	2.83E+00	N/A	1.04E+00	YES
MW392	Downgradient	No	8.70E-01	N/A	-1.39E-01	N/A
MW395	Upgradient	No	5.27E-01	N/A	-6.41E-01	N/A
MW397	Upgradient	No	7.13E-01	N/A	-3.38E-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	Wells with Exceedances
	MW388

The test well(s) listed exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to historical background data.

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.

D1-79

C-746-S/T Fouth Quarter 2024 Statistical Analysis
Historical Background Comparison

Total Organic Carbon (TOC)
UNITS: mg/L
LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	X= 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
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

Current Quarter Data						
Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW370	Downgradient	Yes	1.35E+00	NO	3.00E-01	N/A
MW373	Downgradient	Yes	1.99E+00	NO	6.88E-01	N/A
MW385	Sidegradient	Yes	1.42E+00	NO	3.51E-01	N/A
MW388	Downgradient	Yes	1.29E+00	NO	2.55E-01	N/A
MW392	Downgradient	Yes	8.23E-01	NO	-1.95E-01	N/A
MW395	Upgradient	Yes	9.31E-01	NO	-7.15E-02	N/A
MW397	Upgradient	Yes	7.93E-01	NO	-2.32E-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, $S = \sqrt{[\text{Sum } ((\text{background result}-X)^2)/[\text{count of background results } -1]]}$

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.

D1-80

C-746-S/T Fouth Quarter 2024 Statistical Analysis Historical Background Comparison

Total Organic Halides (TOX) UNITS: ug/L LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	X= 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
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

Current Quarter Data						
Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW370	Downgradient	Yes	1.03E+01	NO	2.33E+00	N/A
MW373	Downgradient	Yes	1.18E+01	NO	2.47E+00	N/A
MW385	Sidegradient	Yes	5.36E+00	NO	1.68E+00	N/A
MW388	Downgradient	Yes	1.56E+01	NO	2.75E+00	N/A
MW392	Downgradient	Yes	5.36E+01	NO	3.98E+00	N/A
MW395	Upgradient	Yes	9.33E+01	YES	4.54E+00	N/A
MW397	Upgradient	Yes	1.07E+01	NO	2.37E+00	N/A
N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.						

Conclusion of Statistical Analysis on Historical Data

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

MW395

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.

D1-81

C-746-S/T Fouth 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
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

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	Yes	3.41E-03	NO	-5.68E+00	N/A
MW388	Downgradient	No	2.00E-02	N/A	-3.91E+00	N/A
MW392	Downgradient	Yes	3.43E-03	NO	-5.68E+00	N/A
MW395	Upgradient	Yes	7.20E-03	NO	-4.93E+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.						

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.

D1-82

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 Fourth Quarter 2024 Statistical Analysis
Oxidation-Reduction Potential

Current Background Comparison
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= 289.750	S= 56.086	CV(1)=0.194	K factor**= 3.188	TL(1)= 4.69E+02	LL(1)=N/A
Statistics-Transformed Background Data	X= 5.653	S= 0.194	CV(2)=0.034	K factor**= 3.188	TL(2)= 6.27E+00	LL(2)=N/A

Current Background Data from Upgradient Wells with Transformed Result

Well Number: MW396

Date Collected	Result	LN(Result)
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
4/16/2024	3.53E+02	5.87E+00
7/24/2024	3.73E+02	5.92E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW386	Sidegradient	Yes	2.20E+02	NO	5.39E+00	N/A
MW390	Downgradient	Yes	5.42E+02	YES	6.30E+00	N/A
MW393	Downgradient	Yes	2.55E+02	NO	5.54E+00	N/A
MW396	Upgradient	Yes	4.40E+02	NO	6.09E+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

MW390

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 Fourth Quarter 2024 Statistical Analysis
Current Background Comparison

Technetium-99
UNITS: pCi/L
UCRS

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is statistically significant evidence of elevated concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	X= -0.411	S= 7.467	CV(1)= -18.156	K factor**= 3.188	TL(1)= 2.34E+01	LL(1)=N/A
Statistics-Transformed Background Data	X= 1.761	S= 0.392	CV(2)=0.223	K factor**= 3.188	TL(2)= 2.22E+00	LL(2)=N/A

Current Background Data from Upgradient Wells with Transformed Result

Well Number: MW396

Date Collected	Result	LN(Result)
10/17/2022	7.04E+00	1.95E+00
1/25/2023	-1.01E+01	#Func!
4/27/2023	9.19E+00	2.22E+00
7/27/2023	3.97E+00	1.38E+00
10/18/2023	4.46E+00	1.50E+00
1/30/2024	-5.21E+00	#Func!
4/16/2024	-3.78E+00	#Func!
7/24/2024	-8.86E+00	#Func!

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)
MW390	Downgradient	Yes	6.74E+01	YES	4.21E+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

MW390

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, $S = [\text{Sum } ((\text{background result}-X)^2)/[\text{count of background results} -1]]^{0.5}$

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 Fourth Quarter 2024 Statistical Analysis

Current Background Comparison

Thorium-230

UNITS: pCi/L

UCRS

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is statistically significant evidence of elevated concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	X= 0.293	S= 0.621	CV(1)=2.118	K factor**= 3.188	TL(1)= 2.27E+00	LL(1)=N/A
Statistics-Transformed Background Data	X= -0.603	S= 0.824	CV(2)=-1.365	K factor**= 3.188	TL(2)= 9.53E-02	LL(2)=N/A

Current Background Data from Upgradient Wells with Transformed Result

Well Number: MW396		
Date Collected	Result	LN(Result)
10/17/2022	-3.28E-01	#Func!
1/25/2023	4.15E-01	-8.79E-01
4/27/2023	8.44E-01	-1.70E-01
7/27/2023	1.10E+00	9.53E-02
10/18/2023	-6.67E-02	#Func!
1/30/2024	-6.35E-01	#Func!
4/16/2024	8.71E-01	-1.38E-01
7/24/2024	1.46E-01	-1.92E+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)
MW386	Sidegradient	Yes	4.21E+00	N/A	1.44E+00	YES

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

MW386

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 Fourth 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= 24.906 S= 3.042 CV(1)=0.122 K factor**= 2.523 TL(1)= 3.26E+01 LL(1)=N/A

Statistics-Transformed Background Data X= 3.208 S= 0.127 CV(2)=0.040 K factor**= 2.523 TL(2)= 3.53E+00 LL(2)=N/A

Current Background Data from Upgradient Wells with Transformed Result

Well Number: MW220

Date Collected	Result	LN(Result)
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
4/11/2024	2.33E+01	3.15E+00
7/24/2024	2.55E+01	3.24E+00

Well Number: MW394

Date Collected	Result	LN(Result)
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
4/16/2024	2.79E+01	3.33E+00
7/24/2024	2.75E+01	3.31E+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)
MW372	Downgradient	Yes	6.45E+01	YES	4.17E+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, $S = \sqrt{[\text{Sum } ((\text{background result}-X)^2)/[\text{count of background results}-1]]}^{0.5}$

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.

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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= 384.875	S= 36.664	CV(1)=0.095	K factor**= 2.523	TL(1)= 4.77E+02	LL(1)=N/A
Statistics-Transformed Background Data	X= 5.948	S= 0.099	CV(2)=0.017	K factor**= 2.523	TL(2)= 6.20E+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)
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
4/11/2024	3.78E+02	5.93E+00
7/24/2024	4.17E+02	6.03E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW372	Downgradient	Yes	7.91E+02	YES	6.67E+00	N/A

Well Number: MW394

Date Collected	Result	LN(Result)
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
4/16/2024	4.14E+02	6.03E+00
7/24/2024	4.00E+02	5.99E+00

Conclusion of Statistical Analysis on Current Data

Wells with Exceedances

The test well(s) listed exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to current background data.

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, $S = \sqrt{[\text{Sum } ((\text{background result}-X)^2)/[\text{count of background results } -1]]}^{0.5}$

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 Fourth 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= 192.438	S= 20.662	CV(1)=0.107	K factor**= 2.523	TL(1)= 2.45E+02	LL(1)=N/A
Statistics-Transformed Background Data	X= 5.255	S= 0.105	CV(2)=0.020	K factor**= 2.523	TL(2)= 5.52E+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)
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
4/11/2024	1.98E+02	5.29E+00
7/24/2024	2.46E+02	5.51E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW372	Downgradient	Yes	4.42E+02	YES	6.09E+00	N/A

Well Number: MW394

Date Collected	Result	LN(Result)
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
4/16/2024	1.92E+02	5.26E+00
7/24/2024	2.17E+02	5.38E+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, $S = \sqrt{[\text{Sum } ((\text{background result}-X)^2)/[\text{count of background results } -1]]}^{0.5}$

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 Fourth 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= 10.328	S= 1.346	CV(1)=0.130	K factor**= 2.523	TL(1)= 1.37E+01	LL(1)=N/A
Statistics-Transformed Background Data	X= 2.326	S= 0.136	CV(2)=0.058	K factor**= 2.523	TL(2)= 2.67E+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)
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
4/11/2024	9.96E+00	2.30E+00
7/24/2024	1.04E+01	2.34E+00

Well Number: MW394		
Date Collected	Result	LN(Result)
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
4/16/2024	1.16E+01	2.45E+00
7/24/2024	1.15E+01	2.44E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW372	Downgradient	Yes	2.24E+01	YES	3.11E+00	N/A
MW387	Downgradient	Yes	1.58E+01	YES	2.76E+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
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, $S = \sqrt{[\text{Sum } ((\text{background result}-X)^2)/[\text{count of background results } -1]]}^{0.5}$

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 Fourth Quarter 2024 Statistical Analysis Oxidation-Reduction Potential	Current Background Comparison URGA
UNITS: mV	

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= 425.000	S= 51.486	CV(1)=0.121	K factor**= 2.523	TL(1)= 5.55E+02	LL(1)=N/A

Statistics-Transformed Background Data	X= 6.045	S= 0.121	CV(2)=0.020	K factor**= 2.523	TL(2)= 6.35E+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)
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
4/11/2024	3.66E+02	5.90E+00
7/24/2024	3.92E+02	5.97E+00

Well Number: MW394

Date Collected	Result	LN(Result)
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
4/16/2024	4.12E+02	6.02E+00
7/24/2024	4.04E+02	6.00E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW220	Upgradient	Yes	5.00E+02	NO	6.21E+00	N/A
MW221	Sidegradient	Yes	5.52E+02	NO	6.31E+00	N/A
MW222	Sidegradient	Yes	4.75E+02	NO	6.16E+00	N/A
MW223	Sidegradient	Yes	5.17E+02	NO	6.25E+00	N/A
MW224	Sidegradient	Yes	4.93E+02	NO	6.20E+00	N/A
MW369	Downgradient	Yes	4.69E+02	NO	6.15E+00	N/A
MW372	Downgradient	Yes	4.56E+02	NO	6.12E+00	N/A
MW384	Sidegradient	Yes	5.51E+02	NO	6.31E+00	N/A
MW387	Downgradient	Yes	4.54E+02	NO	6.12E+00	N/A
MW391	Downgradient	Yes	4.55E+02	NO	6.12E+00	N/A
MW394	Upgradient	Yes	5.34E+02	NO	6.28E+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 Fourth 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= 37.181	S= 5.781	CV(1)=0.155	K factor**= 2.523	TL(1)= 5.18E+01	LL(1)=N/A
Statistics-Transformed Background Data	X= 3.606	S= 0.142	CV(2)=0.039	K factor**= 2.523	TL(2)= 3.96E+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)
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
4/11/2024	4.34E+01	3.77E+00
7/24/2024	4.60E+01	3.83E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW372	Downgradient	Yes	6.12E+01	YES	4.11E+00	N/A

Well Number: MW394

Date Collected	Result	LN(Result)
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
4/16/2024	3.41E+01	3.53E+00
7/24/2024	3.32E+01	3.50E+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, $S = \sqrt{[\text{Sum } ((\text{background result}-X)^2)/[\text{count of background results } -1]]}^{0.5}$

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.

D2-11

C-746-S/T Fourth Quarter 2024 Statistical AnalysisCurrent Background Comparison

SulfateUNITS: mg/LURGA

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= 14.713	S= 3.354	CV(1)=0.228	K factor**= 2.523	TL(1)= 2.32E+01	LL(1)=N/A
Statistics-Transformed Background Data	X= 2.666	S= 0.218	CV(2)=0.082	K factor**= 2.523	TL(2)= 3.21E+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)
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
4/11/2024	1.86E+01	2.92E+00
7/24/2024	2.16E+01	3.07E+00
Well Number: MW394		
Date Collected	Result	LN(Result)
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
4/16/2024	1.20E+01	2.48E+00
7/24/2024	1.17E+01	2.46E+00

Current Quarter Data						
Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW372	Downgradient	Yes	1.46E+02	YES	4.98E+00	N/A
MW384	Sidegradient	Yes	1.80E+01	NO	2.89E+00	N/A
MW387	Downgradient	Yes	2.53E+01	YES	3.23E+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
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, $S = \sqrt{[\text{Sum } ((\text{background result}-X)^2)/[\text{count of background results } -1]]}^{0.5}$

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.

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Current Background Comparison

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 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= 11.003	S= 6.731	CV(1)=0.612	K factor**= 2.523	TL(1)= 2.80E+01	LL(1)=N/A
Statistics-Transformed Background Data	X= 2.142	S= 0.824	CV(2)=0.385	K factor**= 2.523	TL(2)= 4.22E+00	LL(2)=N/A

Current Background Data from Upgradient Wells with Transformed Result

Well Number: MW220		
Date Collected	Result	LN(Result)
10/18/2022	2.13E+01	3.06E+00
1/23/2023	1.42E+01	2.65E+00
5/1/2023	1.13E+01	2.42E+00
7/28/2023	1.91E+01	2.95E+00
10/16/2023	1.58E+01	2.76E+00
1/29/2024	2.00E+01	3.00E+00
4/11/2024	1.64E+01	2.80E+00
7/24/2024	2.79E+00	1.03E+00
Well Number: MW394		
Date Collected	Result	LN(Result)
10/17/2022	1.11E+01	2.41E+00
1/25/2023	1.64E+00	4.95E-01
4/27/2023	6.79E+00	1.92E+00
7/27/2023	4.32E+00	1.46E+00
10/17/2023	1.63E+01	2.79E+00
1/30/2024	2.34E+00	8.50E-01
4/16/2024	5.85E+00	1.77E+00
7/24/2024	6.82E+00	1.92E+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)
MW369	Downgradient	Yes	8.38E+01	YES	4.43E+00	N/A
MW372	Downgradient	Yes	9.20E+01	YES	4.52E+00	N/A
MW384	Sidegradient	Yes	3.51E+01	YES	3.56E+00	N/A
MW387	Downgradient	Yes	1.54E+02	YES	5.04E+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

MW369
MW372
MW384
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, $S = \sqrt{[\text{Sum } ((\text{background result}-X)^2)/[\text{count of background results } -1]]}^{0.5}$

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.

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Thorium-230

Current Background Comparison
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 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= 0.608	S= 0.479	CV(1)=0.787	K factor**= 2.523	TL(1)= 1.82E+00	LL(1)=N/A
Statistics-Transformed Background Data	X= -0.803	S= 1.014	CV(2)=-1.263	K factor**= 2.523	TL(2)= 3.36E-01	LL(2)=N/A

Current Background Data from Upgradient Wells with Transformed Result

Well Number: MW220

Date Collected	Result	LN(Result)
10/18/2022	3.61E-01	-1.02E+00
1/23/2023	1.11E+00	1.04E-01
5/1/2023	1.14E+00	1.31E-01
7/28/2023	7.81E-01	-2.47E-01
10/16/2023	3.35E-01	-1.09E+00
1/29/2024	1.40E+00	3.36E-01
4/11/2024	2.26E-01	-1.49E+00
7/24/2024	1.55E-01	-1.86E+00

Well Number: MW394

Date Collected	Result	LN(Result)
10/17/2022	1.19E+00	1.74E-01
1/25/2023	1.13E+00	1.22E-01
4/27/2023	2.51E-01	-1.38E+00
7/27/2023	6.54E-01	-4.25E-01
10/17/2023	8.78E-02	-2.43E+00
1/30/2024	6.04E-02	-2.81E+00
4/16/2024	-1.20E-02	#Func!
7/24/2024	8.56E-01	-1.55E-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)
MW387	Downgradient	Yes	1.92E+00	YES	6.52E-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

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, $S = \sqrt{[\text{Sum } ((\text{background result}-X)^2)/[\text{count of background results } -1]]}^{0.5}$

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.

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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= 22.656	S= 4.545	CV(1)=0.201	K factor**= 2.523	TL(1)= 3.41E+01	LL(1)=N/A
Statistics-Transformed Background Data	X= 3.101	S= 0.203	CV(2)=0.066	K factor**= 2.523	TL(2)= 3.61E+00	LL(2)=N/A

Current Background Data from Upgradient Wells with Transformed Result

Well Number: MW395

Date Collected	Result	LN(Result)
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
4/16/2024	2.78E+01	3.33E+00
7/24/2024	2.69E+01	3.29E+00

Well Number: MW397

Date Collected	Result	LN(Result)
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
4/15/2024	1.89E+01	2.94E+00
7/22/2024	1.84E+01	2.91E+00

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW373	Downgradient	Yes	8.13E+01	YES	4.40E+00	N/A

Conclusion of Statistical Analysis on Current Data

The test well(s) listed exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to current background data.

Wells with Exceedances

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, $S = \sqrt{[\text{Sum } ((\text{background result}-X)^2)/(\text{count of background results } -1)]}$

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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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= 354.813	S= 38.642	CV(1)=0.109	K factor**= 2.523	TL(1)= 4.52E+02	LL(1)=N/A
Statistics-Transformed Background Data	X= 5.866	S= 0.109	CV(2)=0.019	K factor**= 2.523	TL(2)= 6.14E+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)
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
4/16/2024	4.01E+02	5.99E+00
7/24/2024	3.91E+02	5.97E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW373	Downgradient	Yes	9.46E+02	YES	6.85E+00	N/A

Well Number: MW397

Date Collected	Result	LN(Result)
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
4/15/2024	3.14E+02	5.75E+00
7/22/2024	3.18E+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, $S = \sqrt{[\text{Sum } ((\text{background result}-X)^2)/(\text{count of background results } -1)]}$

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.

D2-16

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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= 175.250	S= 23.414	CV(1)=0.134	K factor**= 2.523	TL(1)= 2.34E+02	LL(1)=N/A
Statistics-Transformed Background Data	X= 5.158	S= 0.136	CV(2)=0.026	K factor**= 2.523	TL(2)= 5.50E+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)
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
4/16/2024	2.02E+02	5.31E+00
7/24/2024	2.14E+02	5.37E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW373	Downgradient	Yes	5.52E+02	YES	6.31E+00	N/A

Well Number: MW397

Date Collected	Result	LN(Result)
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
4/15/2024	1.66E+02	5.11E+00
7/22/2024	1.60E+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, $S = \sqrt{[\text{Sum } ((\text{background result}-X)^2)/[\text{count of background results } -1]]}^{0.5}$

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.

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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= 9.431	S= 1.881	CV(1)=0.199	K factor**= 2.523	TL(1)= 1.42E+01	LL(1)=N/A
Statistics-Transformed Background Data	X= 2.225	S= 0.202	CV(2)=0.091	K factor**= 2.523	TL(2)= 2.73E+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)
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
4/16/2024	1.16E+01	2.45E+00
7/24/2024	1.13E+01	2.42E+00

Well Number: MW397

Date Collected	Result	LN(Result)
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
4/15/2024	7.73E+00	2.05E+00
7/22/2024	7.52E+00	2.02E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW373	Downgradient	Yes	2.91E+01	YES	3.37E+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

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, $S = \sqrt{[\text{Sum } ((\text{background result}-X)^2)/[\text{count of background results } -1]]}^{0.5}$

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 Fourth Quarter 2024 Statistical Analysis	Current Background Comparison
Oxidation-Reduction Potential	UNITS: mV
LRGA	

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is statistically significant evidence of elevated concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	X= 398.750	S= 84.387	CV(1)=0.212	K factor**= 2.523	TL(1)= 6.12E+02	LL(1)=N/A
Statistics-Transformed Background Data	X= 5.963	S= 0.245	CV(2)=0.041	K factor**= 2.523	TL(2)= 6.58E+00	LL(2)=N/A

Current Background Data from Upgradient Wells with Transformed Result

Well Number: MW395

Date Collected	Result	LN(Result)
10/17/2022	3.26E+02	5.79E+00
1/25/2023	4.25E+02	6.05E+00
4/27/2023	1.90E+02	5.25E+00
7/27/2023	3.02E+02	5.71E+00
10/18/2023	4.09E+02	6.01E+00
1/30/2024	5.09E+02	6.23E+00
4/16/2024	3.99E+02	5.99E+00
7/24/2024	3.93E+02	5.97E+00

Well Number: MW397

Date Collected	Result	LN(Result)
10/18/2022	3.71E+02	5.92E+00
1/23/2023	3.77E+02	5.93E+00
5/1/2023	4.76E+02	6.17E+00
7/27/2023	4.05E+02	6.00E+00
10/16/2023	4.87E+02	6.19E+00
1/30/2024	5.40E+02	6.29E+00
4/15/2024	3.74E+02	5.92E+00
7/22/2024	3.97E+02	5.98E+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)
MW370	Downgradient	Yes	4.96E+02	NO	6.21E+00	N/A
MW373	Downgradient	Yes	4.78E+02	NO	6.17E+00	N/A
MW385	Sidegradient	Yes	5.08E+02	NO	6.23E+00	N/A
MW388	Downgradient	Yes	5.10E+02	NO	6.23E+00	N/A
MW392	Downgradient	Yes	4.52E+02	NO	6.11E+00	N/A
MW395	Upgradient	Yes	4.60E+02	NO	6.13E+00	N/A
MW397	Upgradient	Yes	3.13E+02	NO	5.75E+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 Fourth 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= 31.475	S= 1.738	CV(1)=0.055	K factor**= 2.523	TL(1)= 3.59E+01	LL(1)=N/A
Statistics-Transformed Background Data	X= 3.448	S= 0.055	CV(2)=0.016	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)
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
4/16/2024	3.14E+01	3.45E+00
7/24/2024	3.08E+01	3.43E+00

Well Number: MW397

Date Collected	Result	LN(Result)
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
4/15/2024	3.19E+01	3.46E+00
7/22/2024	3.23E+01	3.48E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW373	Downgradient	Yes	6.72E+01	YES	4.21E+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

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, $S = \sqrt{[\text{Sum } ((\text{background result}-X)^2)/(\text{count of background results} -1)]}$

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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C-746-S/T Fourth 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= 11.544	S= 0.361	CV(1)=0.031	K factor**= 2.523	TL(1)= 1.25E+01	LL(1)=N/A
Statistics-Transformed Background Data	X= 2.446	S= 0.031	CV(2)=0.013	K factor**= 2.523	TL(2)= 2.52E+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)
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
4/16/2024	1.13E+01	2.42E+00
7/24/2024	1.11E+01	2.41E+00
Well Number: MW397		
Date Collected	Result	LN(Result)
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
4/15/2024	1.17E+01	2.46E+00
7/22/2024	1.18E+01	2.47E+00

Current Quarter Data						
Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW370	Downgradient	Yes	1.95E+01	YES	2.97E+00	N/A
MW373	Downgradient	Yes	2.01E+02	YES	5.30E+00	N/A
MW385	Sidegradient	Yes	1.96E+01	YES	2.98E+00	N/A
MW388	Downgradient	Yes	1.73E+01	YES	2.85E+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, $S = \sqrt{[\text{Sum } ((\text{background result}-X)^2)/[\text{count of background results } -1]]}$

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 Fourth Quarter 2024 Statistical Analysis

Current Background Comparison

Technetium-99

UNITS: pCi/L

LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is statistically significant evidence of elevated concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	X= 10.993	S= 7.954	CV(1)=0.724	K factor**= 2.523	TL(1)= 3.11E+01	LL(1)=N/A
Statistics-Transformed Background Data	X= 2.122	S= 0.805	CV(2)=0.380	K factor**= 2.523	TL(2)= 4.15E+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)
10/17/2022	8.43E+00	2.13E+00
1/25/2023	1.25E+01	2.53E+00
4/27/2023	2.51E+00	9.20E-01
7/27/2023	3.76E+00	1.32E+00
10/18/2023	1.64E+01	2.80E+00
1/30/2024	5.75E+00	1.75E+00
4/16/2024	2.17E+00	7.75E-01
7/24/2024	3.05E+00	1.12E+00

Well Number: MW397

Date Collected	Result	LN(Result)
10/18/2022	2.30E+01	3.14E+00
1/23/2023	8.51E+00	2.14E+00
5/1/2023	1.41E+01	2.65E+00
7/27/2023	2.77E+01	3.32E+00
10/16/2023	2.29E+01	3.13E+00
1/30/2024	1.08E+01	2.38E+00
4/15/2024	5.18E+00	1.64E+00
7/22/2024	9.13E+00	2.21E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW385	Sidegradient	Yes	4.09E+01	YES	3.71E+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

MW385

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, $S = \sqrt{[\text{Sum } ((\text{background result}-X)^2)/(\text{count of background results} -1)]}$

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 Fourth Quarter 2024 Statistical Analysis

Current Background Comparison

Thorium-230

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= 0.417	S= 0.522	CV(1)=1.251	K factor**= 2.523	TL(1)= 1.73E+00	LL(1)=N/A
Statistics-Transformed Background Data	X= -0.998	S= 1.182	CV(2)=-1.184	K factor**= 2.523	TL(2)= 3.07E-01	LL(2)=N/A

Current Background Data from Upgradient Wells with Transformed Result

Well Number: MW395

Date Collected	Result	LN(Result)
10/17/2022	3.50E-01	-1.05E+00
1/25/2023	7.29E-01	-3.16E-01
4/27/2023	-5.34E-01	#Func!
7/27/2023	7.18E-01	-3.31E-01
10/18/2023	6.97E-01	-3.61E-01
1/30/2024	2.35E-02	-3.75E+00
4/16/2024	-8.66E-02	#Func!
7/24/2024	1.81E-01	-1.71E+00

Well Number: MW397

Date Collected	Result	LN(Result)
10/18/2022	1.03E+00	2.96E-02
1/23/2023	1.36E+00	3.07E-01
5/1/2023	-1.78E-01	#Func!
7/27/2023	1.74E-01	-1.75E+00
10/16/2023	7.72E-01	-2.59E-01
1/30/2024	1.12E+00	1.13E-01
4/15/2024	8.88E-02	-2.42E+00
7/22/2024	2.28E-01	-1.48E+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)
MW388	Downgradient	Yes	2.83E+00	N/A	1.04E+00	YES

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

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, $S = \sqrt{[\text{Sum } ((\text{background result}-X)^2)/[\text{count of background results } -1]]}^{0.5}$

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.

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C-746-S/T Fourth Quarter 2024 Statistical Analysis

Current Background Comparison

Total Organic Halides (TOX)

UNITS: ug/L

LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is 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= 9.844	S= 4.787	CV(1)=0.486	K factor**= 2.523	TL(1)= 2.19E+01	LL(1)=N/A
Statistics-Transformed Background Data	X= 2.190	S= 0.442	CV(2)=0.202	K factor**= 2.523	TL(2)= 3.31E+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)
10/17/2022	7.34E+00	1.99E+00
1/25/2023	1.84E+01	2.91E+00
4/27/2023	8.88E+00	2.18E+00
7/27/2023	7.98E+00	2.08E+00
10/18/2023	8.22E+00	2.11E+00
1/30/2024	1.29E+01	2.56E+00
4/16/2024	1.87E+01	2.93E+00
7/24/2024	1.89E+01	2.94E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW395	Upgradient	Yes	9.33E+01	YES	4.54E+00	N/A

Well Number: MW397

Date Collected	Result	LN(Result)
10/18/2022	1.00E+01	2.30E+00
1/23/2023	6.44E+00	1.86E+00
5/1/2023	6.88E+00	1.93E+00
7/27/2023	4.42E+00	1.49E+00
10/16/2023	8.52E+00	2.14E+00
1/30/2024	6.74E+00	1.91E+00
4/15/2024	8.18E+00	2.10E+00
7/22/2024	5.00E+00	1.61E+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

MW395

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.

ATTACHMENT D3

STATISTICIAN QUALIFICATION STATEMENT

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January 21, 2025

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 fourth 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 fourth quarter 2024 and to determine the groundwater flow rate and direction.

Water levels during this reporting period were measured on October 22, 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 October, 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 1.55×10^{-3} ft/ft. Additional water level measurements in October (Figure E.3) document the vicinity groundwater hydraulic gradient for the RGA to be 2.47×10^{-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 October 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.

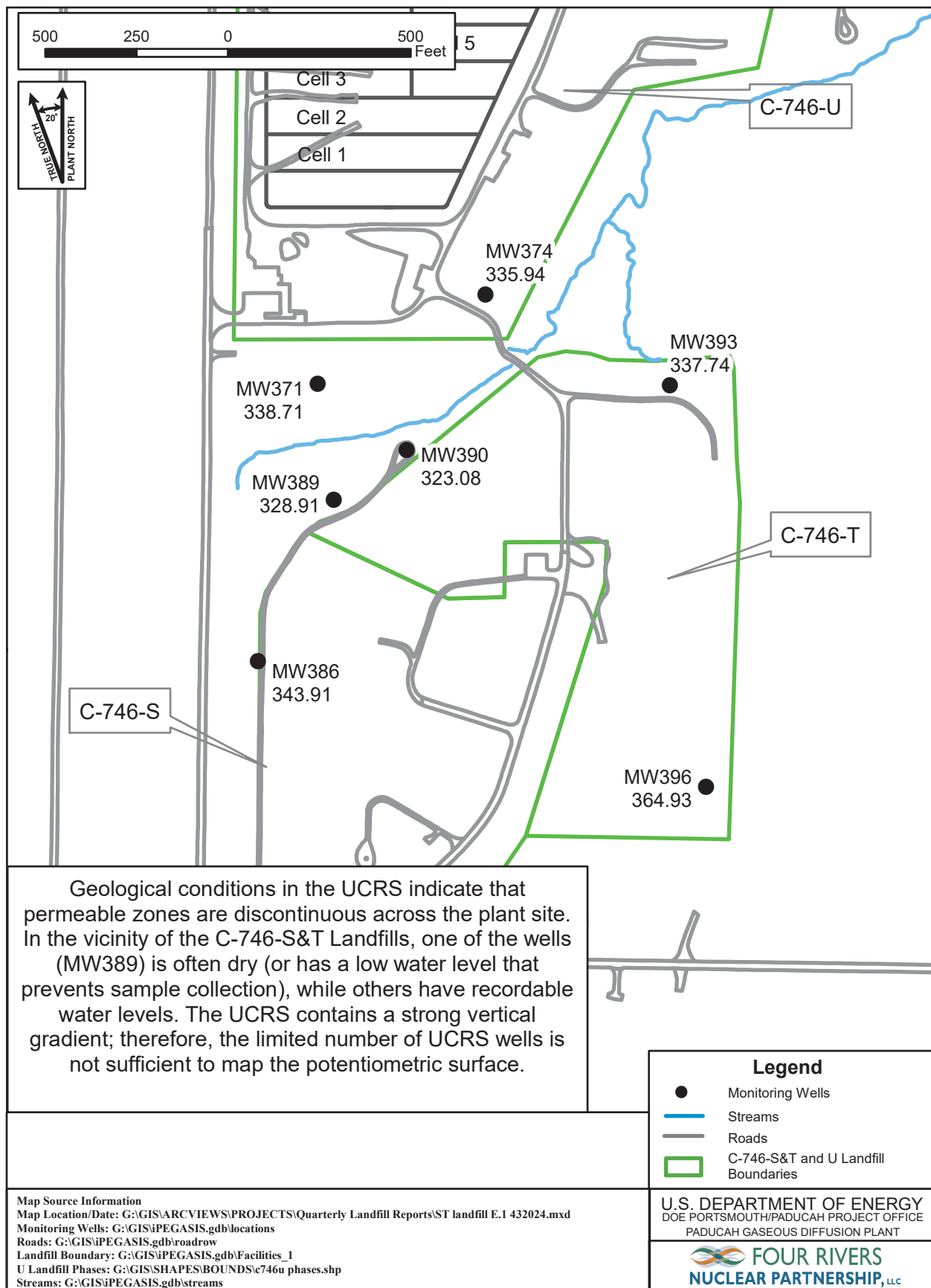


Figure E.1. Potentiometric Measurements of the Upper Continental Recharge System at the C-746-S&T Landfills, October 22, 2024

Table E.1. C-746-S&T Landfills Fourth Quarter 2024 (October) Water Levels

C-746-S&T Landfills (October 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)
10/22/2024	13:12	MW220	URGA	382.01	30.12	0.00	58.71	323.30	58.71	323.30
10/22/2024	13:02	MW221	URGA	391.38	30.12	0.00	68.35	323.03	68.35	323.03
10/22/2024	13:07	MW222	URGA	395.27	30.12	0.00	72.20	323.07	72.20	323.07
10/22/2024	13:05	MW223	URGA	394.38	30.12	0.00	71.28	323.10	71.28	323.10
10/22/2024	13:09	MW224	URGA	395.69	30.12	0.00	72.73	322.96	72.73	322.96
10/22/2024	13:16	MW225	URGA	385.73	30.12	0.00	62.81	322.92	62.81	322.92
10/22/2024	13:49	MW353	LRGA	375.05	30.12	0.00	51.43	323.62	51.43	323.62
10/22/2024	12:58	MW369	URGA	364.23	30.12	0.00	41.06	323.17	41.06	323.17
10/22/2024	12:59	MW370	LRGA	365.12	30.12	0.00	41.96	323.16	41.96	323.16
10/22/2024	13:00	MW371	UCRS	364.64	30.12	0.00	25.93	338.71	25.93	338.71
10/22/2024	12:54	MW372	URGA	359.42	30.12	0.00	36.24	323.18	36.24	323.18
10/22/2024	12:55	MW373	LRGA	359.73	30.12	0.00	36.56	323.17	36.56	323.17
10/22/2024	12:56	MW374	UCRS	359.44	30.12	0.00	23.50	335.94	23.50	335.94
10/22/2024	13:28	MW384	URGA	365.29	30.12	0.00	42.11	323.18	42.11	323.18
10/22/2024	13:29	MW385	LRGA	365.74	30.12	0.00	42.50	323.24	42.50	323.24
10/22/2024	13:30	MW386	UCRS	365.32	30.12	0.00	21.41	343.91	21.41	343.91
10/22/2024	13:26	MW387	URGA	363.48	30.12	0.00	40.34	323.14	40.34	323.14
10/22/2024	13:27	MW388	LRGA	363.45	30.12	0.00	40.32	323.13	40.32	323.13
10/22/2024	13:23	MW389	UCRS	364.11	30.12	0.00	35.20	328.91	35.20	328.91
10/22/2024	13:21	MW390	UCRS	360.39	30.12	0.00	37.31	323.08	37.31	323.08
10/22/2024	13:42	MW391	URGA	366.67	30.12	0.00	43.57	323.10	43.57	323.10
10/22/2024	13:43	MW392	LRGA	365.85	30.12	0.00	42.77	323.08	42.77	323.08
10/22/2024	13:44	MW393	UCRS	366.62	30.12	0.00	28.88	337.74	28.88	337.74
10/22/2024	13:36	MW394	URGA	378.46	30.12	0.00	55.11	323.35	55.11	323.35
10/22/2024	13:37	MW395	LRGA	379.12	30.12	0.00	55.80	323.32	55.80	323.32
10/22/2024	13:38	MW396	UCRS	378.75	30.12	0.00	13.82	364.93	13.82	364.93
10/22/2024	13:32	MW397	LRGA	387.00	30.12	0.00	63.64	323.36	63.64	323.36
10/22/2024	13:40	MW418	URGA	367.21	30.12	0.00	44.00	323.21	44.00	323.21
10/22/2024	13:41	MW419	LRGA	367.05	30.12	0.00	43.84	323.21	43.84	323.21
Reference Barometric Pressure			30.12	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						

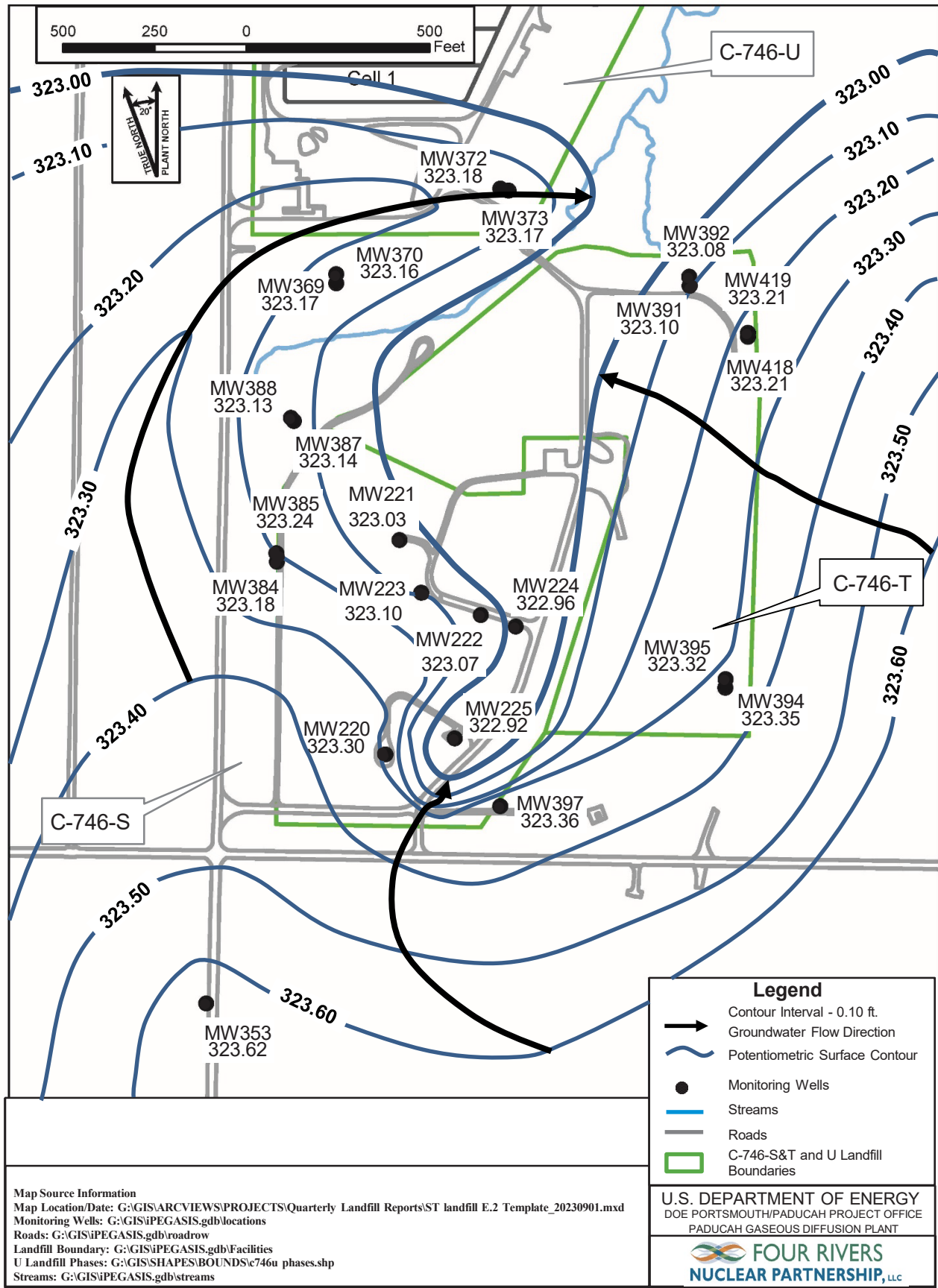


Figure E.2. Composite Potentiometric Surface of the Regional Gravel Aquifer at the C-746-S&T Landfills, October 22, 2024

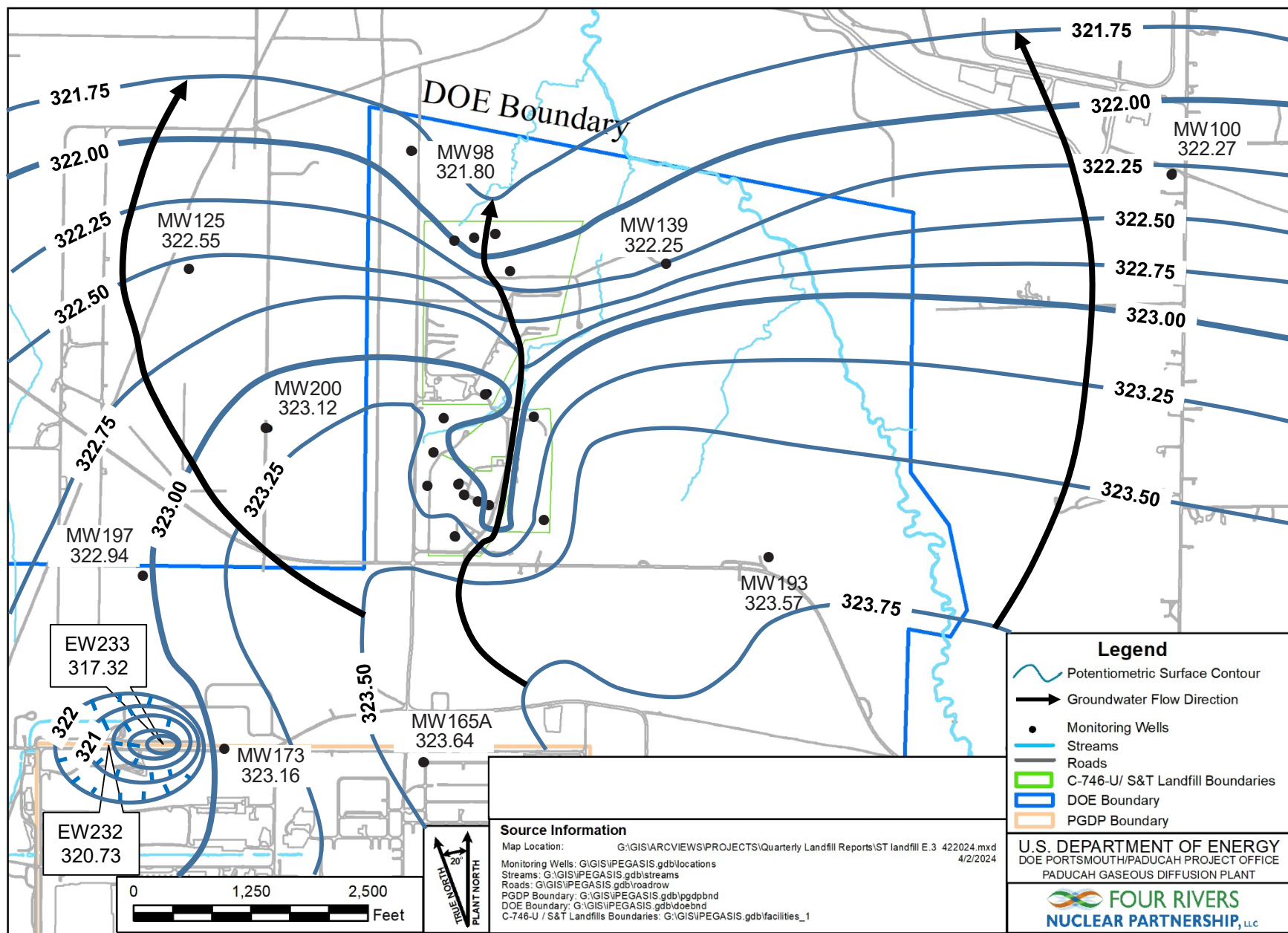


Figure E.3. Vicinity Potentiometric Surface of the Regional Gravel Aquifer, October 22, 2024

Table E.2. C-746-S&T Landfills Hydraulic Gradients

	ft/ft
Beneath Landfill Mound	1.55×10^{-3}
Vicinity	2.47×10^{-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}	1.13	3.98×10^{-4}	4.51	1.59×10^{-3}
4.25×10^2	1.50×10^{-1}	6.66×10^{-1}	2.33×10^{-4}	2.64	9.32×10^{-4}
<u>Vicinity</u>					
7.25×10^2	2.56×10^{-1}	1.79×10^{-1}	6.32×10^{-5}	7.15×10^{-1}	2.53×10^{-4}
4.25×10^2	1.50×10^{-1}	1.05×10^{-1}	3.70×10^{-5}	4.19×10^{-1}	1.48×10^{-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 fourth 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	Technetium-99	MW390
	Thorium-230	MW386
Upper Regional Gravel Aquifer	Sodium	MW372
	Technetium-99	MW369, MW372, MW384, MW387
	Thorium-230	MW387
Lower Regional Gravel Aquifer	Sodium	MW373
	Technetium-99	MW385
	Thorium-230	MW388

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.

11/20/2024

**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									
Gradient	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		
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			*				*	*			*														
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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							
Gradient	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
BETA ACTIVITY																							
Quarter 2, 2003			■	■													■			■			
Quarter 3, 2003			■										■				■						
Quarter 4, 2003			■							■			■										
Quarter 1, 2004			■										■				■						
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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										■		■	■				■			■			
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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	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		
BETA ACTIVITY																									
Quarter 4, 2018											■		■					■		■					
Quarter 1, 2019											■		■					■	■		■				
Quarter 2, 2019											■	■		■				■	■		■				
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CALCIUM																									
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Chart of MCL and Historical UTL Exceedances for the C-746-S&T Landfills (Continued)

Groundwater Flow System	UCRS					URGA										LRGA									
Gradient	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		
CALCIUM																									
Quarter 4, 2012												*							*						
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Quarter 1, 2022												*	*						*						
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Quarter 4, 2022												*	*						*						
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Quarter 1, 2024												*							*						
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Quarter 3, 2024												*							*						
Quarter 4, 2024												*							*						
CARBON DISULFIDE																									
Quarter 4, 2010											*														
Quarter 1, 2011												*									*				
Quarter 2, 2017												*	*						*						
CHEMICAL OXYGEN DEMAND																									
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Quarter 2, 2003				*																					
Quarter 3, 2003				*		*			*																
Quarter 4, 2003				*																					
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Quarter 2, 2008	*																								

Chart of MCL and Historical UTL Exceedances for the C-746-S&T Landfills (Continued)

Groundwater Flow System	UCRS					URGA										LRGA							
Gradient	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
CHEMICAL OXYGEN DEMAND																							
Quarter 3, 2008	*																						
Quarter 4, 2008	*																						
Quarter 1, 2009	*																						
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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					*								*										
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CHLORIDE																							
Quarter 1, 2003			*																				
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Quarter 4, 2008			*																				

Chart of MCL and Historical UTL Exceedances for the C-746-S&T Landfills (Continued)

Groundwater Flow System	UCRS					URGA										LRGA							
Gradient	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
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							
Gradient	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
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												*							*				
Quarter 3, 2024												*							*				
Quarter 4, 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									
Gradient	S	D	D	D	U	S	S	S	S	S	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		
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												*	*						*						
Quarter 3, 2024												*	*						*						
Quarter 4, 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	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									
Gradient	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		
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												*	*						*						
Quarter 3, 2024												*	*						*						
Quarter 4, 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									
Gradient	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		
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	*		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Quarter 3, 2024	*		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Quarter 4, 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									
Gradient	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		
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									
Gradient	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		
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																	*			*	*				
Quarter 3, 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									
Gradient	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		
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										*		*	*		*				*						
Quarter 3, 2024										*		*	*		*				*						
Quarter 4, 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							
Gradient	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
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									*	*		*	*	*	*	*	*	*	*	*	*		
Quarter 3, 2024									*	*		*	*	*	*	*	*	*	*	*	*		
Quarter 4, 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							
Gradient	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
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							
Gradient	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
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										*	*	*	*										
Quarter 3, 2024			*							*	*	*	*				*						
Quarter 4, 2024			*							*	*	*	*				*						
THORIUM-230																							
Quarter 1, 2012	*									*					*								
Quarter 4, 2014	*		*																				
Quarter 3, 2015	*									*	*		*		*								
Quarter 1, 2017			*							*							*						
Quarter 4, 2024	*												*							*			
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									
Gradient	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		
TOTAL ORGANIC HALIDES																									
Quarter 4, 2010	*																								
Quarter 1, 2011	*																								
Quarter 3, 2013																					*				
Quarter 4, 2024																						*			
TRICHLOROETHENE																									
Quarter 4, 2002																									
Quarter 1, 2003																									
Quarter 2, 2003																									
Quarter 3, 2003																									
Quarter 4, 2003																									
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Quarter 1, 2015																									
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)

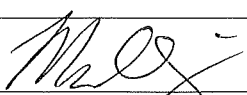
Groundwater Flow System	UCRS					URGA										LRGA							
Gradient	S	D	D	D	U	S	S	S	S	S	D	D	D	D	U	U	S	D	D	D	D	U	U
Monitoring Well	386	389	390	393	396	221	222	223	224	384	369	372	387	391	220	394	385	370	373	388	392	395	397
TRICHLOROETHENE																							
Quarter 1, 2017												■		■		■			■		■		
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																■					■	■	
Quarter 3, 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:	November 19, 2024	Time:	1330	Monitor:	Michael Hideg													
Weather Conditions: Sunny, Approximately 70° F, humidity: 60%																		
Monitoring Equipment: Multi RAE – Serial # 11882																		
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:  12-9-2024																		
																	Signature	Date

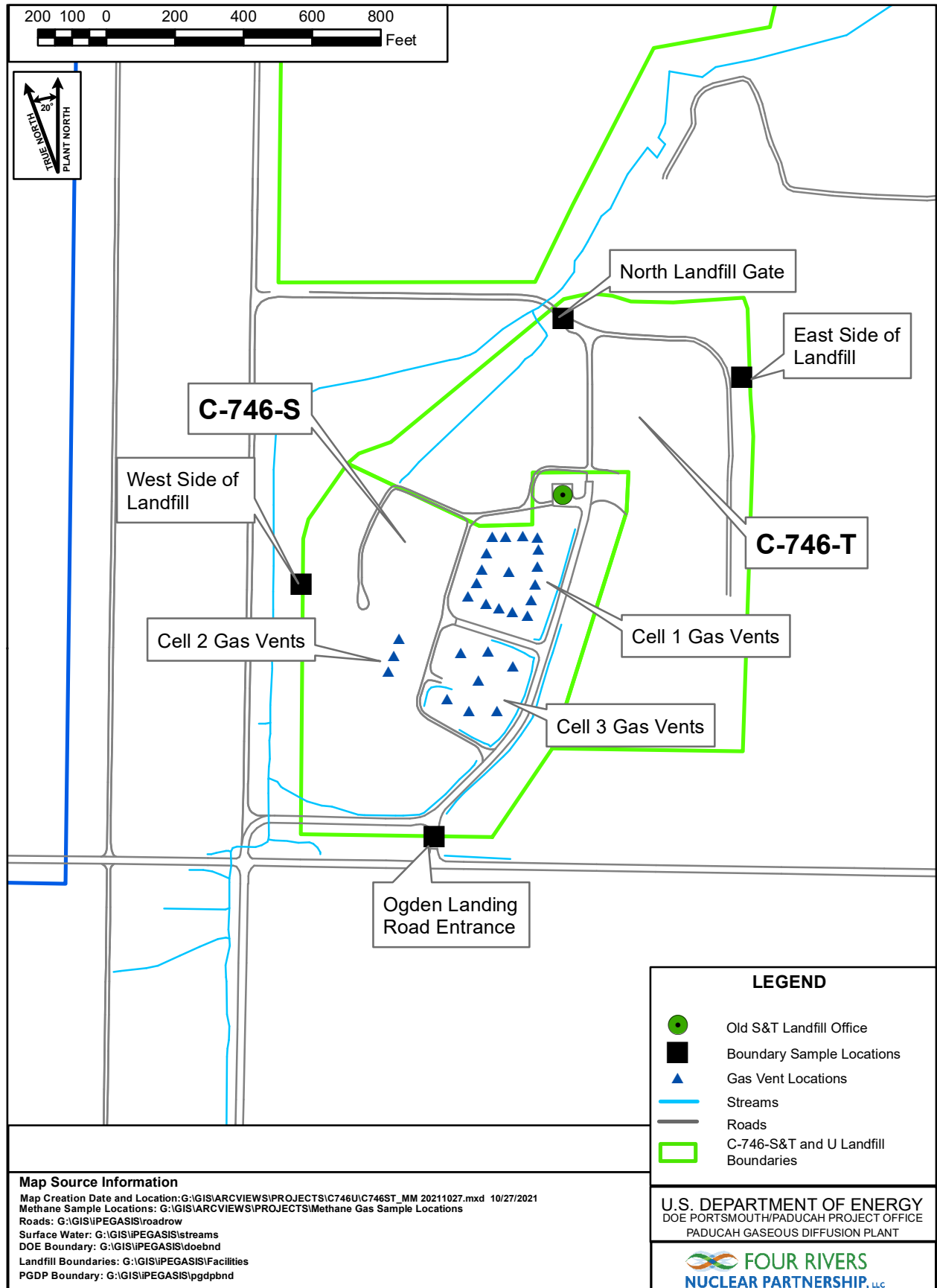


Figure H.1. C-746-S&T Landfill Methane Monitoring Locations

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:** 4th Quarter 2024
SAMPLE ID: L135DSS1-25 Sample Type: FR

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Chloride		2.72	mg/L	0.2	11/6/2024			EPA-300.0	X
Sulfate		6.87	mg/L	0.4	11/6/2024			EPA-300.0	X
Iron		2.06	mg/L	0.1	11/6/2024			EPA-200.8	X
Sodium	E	3.09	mg/L	0.25	11/6/2024			EPA-200.8	X
Uranium		0.00228	mg/L	0.0002	11/6/2024			EPA-200.8	X
Alpha activity	U	2.92	pCi/L	7.99	11/6/2024	4.5	4.53	SW846-9310	X
Beta activity		15.4	pCi/L	9.78	11/6/2024	7.04	7.48	SW846-9310	X
Dissolved Solids		128	mg/L	10	11/6/2024			EPA-160.1	X
Suspended Solids		42.4	mg/L	10	11/6/2024			EPA-160.2	X
Chemical Oxygen Demand (COD)		113	mg/L	20	11/6/2024			EPA-410.4	X
Total Solids	*	184	mg/L	10	11/6/2024			SM-2540B	X
Total Organic Carbon (TOC)		25.2	mg/L	2	11/6/2024			SW846-9060A	X

Paducah OREIS
SURFACE WATER MONITORING REPORT

Facility: C-746-S&T Landfill **County:** McCracken **Permit #:** SW07300014,SW07300015,SW07300045
Sampling Point: L135 UPSTREAM **Period:** 4th Quarter 2024
SAMPLE ID: L135SS1-25 Sample Type: REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Chloride		2.72	mg/L	0.2	11/6/2024			EPA-300.0	X
Sulfate		6.84	mg/L	0.4	11/6/2024			EPA-300.0	X
Conductivity		324	µmhos/cm		11/6/2024				X
pH		6.94	Std Unit		11/6/2024				X
Iron	U	0.1	mg/L	0.1	11/6/2024			EPA-200.8	X
Sodium	UE	0.25	mg/L	0.25	11/6/2024			EPA-200.8	X
Uranium	U	0.0002	mg/L	0.0002	11/6/2024			EPA-200.8	X
Alpha activity	U	-1.66	pCi/L	7.46	11/6/2024	2.68	2.68	SW846-9310	X
Beta activity		27.1	pCi/L	8.27	11/6/2024	7.44	8.65	SW846-9310	X
Dissolved Solids		129	mg/L	10	11/6/2024			EPA-160.1	X
Suspended Solids		37.6	mg/L	10	11/6/2024			EPA-160.2	X
Chemical Oxygen Demand (COD)		103	mg/L	20	11/6/2024			EPA-410.4	X
Total Solids	*	186	mg/L	10	11/6/2024			SM-2540B	X
Total Organic Carbon (TOC)		26.5	mg/L	2	11/6/2024			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:** 4th Quarter 2024

SAMPLE ID: L136SS1-25 **Sample Type:** REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Chloride		0.873	mg/L	0.2	11/6/2024			EPA-300.0	X
Sulfate		11.1	mg/L	0.4	11/6/2024			EPA-300.0	X
Conductivity		476	µmhos/cm		11/6/2024				X
pH		7.36	Std Unit		11/6/2024				X
Iron		1.94	mg/L	0.1	11/6/2024			EPA-200.8	X
Sodium	E	3.13	mg/L	0.25	11/6/2024			EPA-200.8	X
Uranium		0.00227	mg/L	0.0002	11/6/2024			EPA-200.8	X
Alpha activity	U	-1.14	pCi/L	6.6	11/6/2024	2.3	2.3	SW846-9310	X
Beta activity	U	3.57	pCi/L	8.36	11/6/2024	4.88	4.92	SW846-9310	X
Dissolved Solids		170	mg/L	10	11/6/2024			EPA-160.1	X
Suspended Solids	U	10	mg/L	10	11/6/2024			EPA-160.2	X
Chemical Oxygen Demand (COD)		60.2	mg/L	20	11/6/2024			EPA-410.4	X
Total Solids	*	194	mg/L	10	11/6/2024			SM-2540B	X
Total Organic Carbon (TOC)		16	mg/L	2	11/6/2024			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:** 4th Quarter 2024
SAMPLE ID: L154US1-25 Sample Type: REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Chloride		2.99	mg/L	1	11/6/2024			EPA-300.0	X
Sulfate		6.7	mg/L	2	11/6/2024			EPA-300.0	X
Conductivity		343	µmhos/cm		11/6/2024				X
pH		7.12	Std Unit		11/6/2024				X
Iron		1.62	mg/L	0.1	11/6/2024			EPA-200.8	X
Sodium	E	2.85	mg/L	0.25	11/6/2024			EPA-200.8	X
Uranium		0.00177	mg/L	0.0002	11/6/2024			EPA-200.8	X
Alpha activity	U	0.595	pCi/L	7.21	11/6/2024	3.4	3.41	SW846-9310	X
Beta activity		17.7	pCi/L	8.36	11/6/2024	6.59	7.22	SW846-9310	X
Dissolved Solids		120	mg/L	10	11/6/2024			EPA-160.1	X
Suspended Solids		21.2	mg/L	10	11/6/2024			EPA-160.2	X
Chemical Oxygen Demand (COD)		91.1	mg/L	20	11/6/2024			EPA-410.4	X
Total Solids	*	178	mg/L	10	11/6/2024			SM-2540B	X
Total Organic Carbon (TOC)		27	mg/L	10	11/6/2024			SW846-9060A	X

Paducah OREIS
SURFACE WATER MONITORING REPORT

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

Sampling Point: QC **Period:** 4th Quarter 2024

SAMPLE ID: FB1SS1-25 **Sample Typ** FB

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Chloride	U	0.2	mg/L	0.2	11/6/2024			EPA-300.0	X
Sulfate	U	0.4	mg/L	0.4	11/6/2024			EPA-300.0	X
Iron	J	0.0642	mg/L	0.1	11/6/2024			EPA-200.8	X
Sodium	E	1.18	mg/L	0.25	11/6/2024			EPA-200.8	X
Uranium		0.00045	mg/L	0.0002	11/6/2024			EPA-200.8	X
Alpha activity	U	0.741	pCi/L	8.13	11/6/2024	3.95	3.95	SW846-9310	X
Beta activity	U	-1.42	pCi/L	10.8	11/6/2024	5.56	5.56	SW846-9310	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. RADS: Value reported is < MDA and/or TPU.
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 II

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: January 22, 2025

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-U Landfill Surface Water Quarterly (US25-01)

Client Sample ID: L154US1-25 Project: FRNP00612
Sample ID: 694232001 Client ID: FRNP006
Matrix: WS
Collect Date: 06-NOV-24 09:00
Receive Date: 07-NOV-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		27.0	3.30	10.0	mg/L		10	KB3	11/15/24	1443	2703937	1
Ion Chromatography												
EPA 300.0 Anions (Chloride and Sulfate) "As Received"												
Chloride		2.99	0.335	1.00	mg/L		5	CWW	11/08/24	0230	2701872	2
Sulfate		6.70	0.665	2.00	mg/L		5					
Metals Analysis-ICP-MS												
200.8/200.2 MIMICP Metals- Fe Na U "As Received"												
Iron		1.62	0.0330	0.100	mg/L	1.00	1	PRB	12/04/24	0934	2702267	3
Sodium		2.85	0.0800	0.250	mg/L	1.00	1					
Uranium		0.00177	0.0000670	0.000200	mg/L	1.00	1					
Solids Analysis												
EPA 160.1 Solids, Dissolved "As Received"												
Total Dissolved Solids		120	2.38	10.0	mg/L			KLP1	11/13/24	1316	2704933	4
EPA 160.2 Total Suspended Liq "As Received"												
Total Suspended Solids		21.2	2.28	10.0	mg/L			KLP1	11/13/24	1401	2704927	5
SM 2540 B Solids, Total "As Received"												
Total Solids	*	178	6.29	10.0	mg/L			KLP1	11/12/24	1324	2704185	6
Spectrometric Analysis												
EPA 410.4 Chem. Oxygen Demand "As Received"												
COD		91.1	8.95	20.0	mg/L		1	JW2	11/07/24	1524	2701732	7

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	MM7	11/26/24	1540	2702266

GEL LABORATORIES LLC

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

Certificate of Analysis

Report Date: January 22, 2025

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-U Landfill Surface Water Quarterly (US25-01)

Client Sample ID: L154US1-25
Sample ID: 694232001

Project: FRNP00612
Client ID: FRNP006

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
The following Analytical Methods were performed:												
Method	Description										Analyst Comments	
1	SW846 9060A											
2	EPA 300.0											
3	EPA 200.8											
4	EPA 160.1											
5	EPA 160.2											
6	SM 2540B											
7	EPA 410.4											

Notes:

Column headers are defined as follows:

DF: Dilution Factor

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

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: January 22, 2025

Contact: Ms. Jaime Morrow

Project: C-746-U Landfill Surface Water Quarterly (US25-01)

Client Sample ID: L154US1-25
Sample ID: 694232001
Matrix: WS
Collect Date: 06-NOV-24
Receive Date: 07-NOV-24
Collector: Client

Project: FRNP00612
Client ID: FRNP006

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	0.595	+/-3.40	7.21	+/-3.41	15.0	pCi/L			CH7	11/18/24	1215	2701783	1
Beta		17.7	+/-6.59	8.36	+/-7.22	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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ATTACHMENT I2

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: January 22, 2025

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Surface Water Quarterly(SS25-01)

Client Sample ID: L135DSS1-25 Project: FRNP00617
Sample ID: 694236001 Client ID: FRNP006
Matrix: WS
Collect Date: 06-NOV-24 09:25
Receive Date: 07-NOV-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		25.2	3.30	10.0	mg/L		10	KB3	11/18/24	1725	2704611	1
Ion Chromatography												
EPA 300.0 Anions (Chloride and Sulfate) "As Received"												
Chloride		2.72	0.0670	0.200	mg/L		1	CWW	11/08/24	0612	2701872	2
Sulfate		6.87	0.133	0.400	mg/L		1					
Metals Analysis-ICP-MS												
200.8/200.2 MIMICP Metals- Fe Na U "As Received"												
Iron		2.06	0.0330	0.100	mg/L	1.00	1	PRB	12/04/24	0958	2702267	3
Sodium		3.09	0.0800	0.250	mg/L	1.00	1					
Uranium		0.00228	0.0000670	0.000200	mg/L	1.00	1					
Solids Analysis												
EPA 160.1 Solids, Dissolved "As Received"												
Total Dissolved Solids		128	2.38	10.0	mg/L			KLP1	11/13/24	1316	2704933	4
EPA 160.2 Total Suspended Liq "As Received"												
Total Suspended Solids		42.4	2.28	10.0	mg/L			KLP1	11/13/24	1401	2704927	5
SM 2540 B Solids, Total "As Received"												
Total Solids	*	184	6.29	10.0	mg/L			KLP1	11/12/24	1324	2704185	6
Spectrometric Analysis												
EPA 410.4 Chem. Oxygen Demand "As Received"												
COD		113	8.95	20.0	mg/L		1	JW2	11/07/24	1524	2701732	7

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	MM7	11/26/24	1540	2702266

GEL LABORATORIES LLC

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Certificate of Analysis

Report Date: January 22, 2025

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Surface Water Quarterly(SS25-01)

Client Sample ID: L135DSS1-25
Sample ID: 694236001

Project: FRNP00617
Client ID: FRNP006

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
The following Analytical Methods were performed:												
Method	Description							Analyst Comments				
1	SW846 9060A											
2	EPA 300.0											
3	EPA 200.8											
4	EPA 160.1											
5	EPA 160.2											
6	SM 2540B											
7	EPA 410.4											

Notes:

Column headers are defined as follows:

DF: Dilution Factor

DL: Detection Limit

MDA: Minimum Detectable Activity

MDC: Minimum Detectable Concentration

Lc/LC: Critical Level

PF: Prep Factor

RL: Reporting Limit

SQL: Sample Quantitation Limit

GEL LABORATORIES LLC

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Certificate of Analysis

Report Date: January 22, 2025

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Surface Water Quarterly(SS25-01)

Client Sample ID: L135SS1-25 Project: FRNP00617
Sample ID: 694236002 Client ID: FRNP006
Matrix: WS
Collect Date: 06-NOV-24 09:25
Receive Date: 07-NOV-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		26.5	3.30	10.0	mg/L		10	KB3	11/18/24	1804	2704611	1
Ion Chromatography												
EPA 300.0 Anions (Chloride and Sulfate) "As Received"												
Chloride		2.72	0.0670	0.200	mg/L		1	CWW	11/08/24	0644	2701872	2
Sulfate		6.84	0.133	0.400	mg/L		1					
Metals Analysis-ICP-MS												
200.8/200.2 MIMICP Metals- Fe Na U "As Received"												
Iron	U	0.100	0.0330	0.100	mg/L	1.00	1	PRB	12/04/24	1000	2702267	3
Sodium	U	0.250	0.0800	0.250	mg/L	1.00	1					
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1					
Solids Analysis												
EPA 160.1 Solids, Dissolved "As Received"												
Total Dissolved Solids		129	2.38	10.0	mg/L			KLP1	11/13/24	1316	2704933	4
EPA 160.2 Total Suspended Liq "As Received"												
Total Suspended Solids		37.6	2.28	10.0	mg/L			KLP1	11/13/24	1401	2704927	5
SM 2540 B Solids, Total "As Received"												
Total Solids	*	186	6.29	10.0	mg/L			KLP1	11/12/24	1324	2704185	6
Spectrometric Analysis												
EPA 410.4 Chem. Oxygen Demand "As Received"												
COD		103	8.95	20.0	mg/L		1	JW2	11/07/24	1524	2701732	7

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	MM7	11/26/24	1540	2702266

GEL LABORATORIES LLC

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Certificate of Analysis

Report Date: January 22, 2025

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Surface Water Quarterly(SS25-01)

Client Sample ID: L135SS1-25

Sample ID: 694236002

Project: FRNP00617

Client ID: FRNP006

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
The following Analytical Methods were performed:												
Method	Description										Analyst Comments	
1	SW846 9060A											
2	EPA 300.0											
3	EPA 200.8											
4	EPA 160.1											
5	EPA 160.2											
6	SM 2540B											
7	EPA 410.4											

Notes:

Column headers are defined as follows:

DF: Dilution Factor

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

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

Certificate of Analysis

Report Date: January 22, 2025

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Surface Water Quarterly(SS25-01)

Client Sample ID: L136SS1-25 Project: FRNP00617
Sample ID: 694236003 Client ID: FRNP006
Matrix: WS
Collect Date: 06-NOV-24 09:12
Receive Date: 07-NOV-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		16.0	0.330	2.00	mg/L		1	KB3	11/15/24	1457	2704611	1
Ion Chromatography												
EPA 300.0 Anions (Chloride and Sulfate) "As Received"												
Chloride		0.873	0.0670	0.200	mg/L		1	CWW	11/08/24	0716	2701872	2
Sulfate		11.1	0.133	0.400	mg/L		1					
Metals Analysis-ICP-MS												
200.8/200.2 MIMICP Metals- Fe Na U "As Received"												
Iron		1.94	0.0330	0.100	mg/L	1.00	1	PRB	12/04/24	1002	2702267	3
Sodium		3.13	0.0800	0.250	mg/L	1.00	1					
Uranium		0.00227	0.0000670	0.000200	mg/L	1.00	1					
Solids Analysis												
EPA 160.1 Solids, Dissolved "As Received"												
Total Dissolved Solids		170	2.38	10.0	mg/L			KLP1	11/13/24	1316	2704933	4
EPA 160.2 Total Suspended Liq "As Received"												
Total Suspended Solids	U	10.0	2.28	10.0	mg/L			KLP1	11/13/24	1401	2704927	5
SM 2540 B Solids, Total "As Received"												
Total Solids	*	194	6.29	10.0	mg/L			KLP1	11/12/24	1324	2704185	6
Spectrometric Analysis												
EPA 410.4 Chem. Oxygen Demand "As Received"												
COD		60.2	8.95	20.0	mg/L		1	JW2	11/07/24	1524	2701732	7

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	MM7	11/26/24	1540	2702266

GEL LABORATORIES LLC

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

Certificate of Analysis

Report Date: January 22, 2025

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

Contact: Kevil, Kentucky 42053
Project: Ms. Jaime Morrow
C-746-S&T Landfill Surface Water Quarterly(SS25-01)

Client Sample ID: L136SS1-25
Sample ID: 694236003

Project: FRNP00617
Client ID: FRNP006

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
The following Analytical Methods were performed:												
Method	Description		Analyst Comments									
1	SW846 9060A											
2	EPA 300.0											
3	EPA 200.8											
4	EPA 160.1											
5	EPA 160.2											
6	SM 2540B											
7	EPA 410.4											

Notes:

Column headers are defined as follows:

DF: Dilution Factor

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

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

Certificate of Analysis

Report Date: January 22, 2025

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

Project: Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Surface Water Quarterly(SS25-01)

Client Sample ID: FB1SS1-25
Sample ID: 694236004
Matrix: WATER
Collect Date: 06-NOV-24 09:27
Receive Date: 07-NOV-24
Collector: Client

Project: FRNP00617
Client ID: FRNP006

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
EPA 300.0 Anions (Chloride and Sulfate) "As Received"												
Chloride	U	0.200	0.0670	0.200	mg/L		1	CWW	11/08/24	0158	2701872	1
Sulfate	U	0.400	0.133	0.400	mg/L		1					
Metals Analysis-ICP-MS												
200.8/200.2 MIMICP Metals- Fe Na U "As Received"												
Iron	J	0.0642	0.0330	0.100	mg/L	1.00	1	PRB	12/04/24	1004	2702267	2
Sodium		1.18	0.0800	0.250	mg/L	1.00	1					
Uranium		0.000450	0.0000670	0.000200	mg/L	1.00	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	MM7	11/26/24	1540	2702266

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	EPA 200.8	

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration

Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

GEL LABORATORIES LLC

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: January 22, 2025

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Surface Water Quarterly(SS25-01)

Client Sample ID: L135DSS1-25
Sample ID: 694236001
Matrix: WS
Collect Date: 06-NOV-24
Receive Date: 07-NOV-24
Collector: Client

Project: FRNP00617
Client ID: FRNP006

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	2.92	+/-4.50	7.99	+/-4.53	15.0	pCi/L			CH7	11/18/24	1215	2701783	1
Beta		15.4	+/-7.04	9.78	+/-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

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: January 22, 2025

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Surface Water Quarterly(SS25-01)

Client Sample ID: L135SS1-25

Project: FRNP00617

Sample ID: 694236002

Client ID: FRNP006

Matrix: WS

Collect Date: 06-NOV-24

Receive Date: 07-NOV-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	-1.66	+/-2.68	7.46	+/-2.68	15.0	pCi/L			CH7	11/18/24	1215	2701783	1
Beta		27.1	+/-7.44	8.27	+/-8.65	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

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: January 22, 2025

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Surface Water Quarterly(SS25-01)

Client Sample ID: L136SS1-25

Project: FRNP00617

Sample ID: 694236003

Client ID: FRNP006

Matrix: WS

Collect Date: 06-NOV-24

Receive Date: 07-NOV-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	-1.14	+/-2.30	6.60	+/-2.30	15.0	pCi/L			CH7	11/18/24	1215	2701783	1
Beta	U	3.57	+/-4.88	8.36	+/-4.92	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

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: January 22, 2025

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Surface Water Quarterly(SS25-01)

Client Sample ID: FB1SS1-25

Project: FRNP00617

Sample ID: 694236004

Client ID: FRNP006

Matrix: WATER

Collect Date: 06-NOV-24

Receive Date: 07-NOV-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	0.741	+/-3.95	8.13	+/-3.95	15.0	pCi/L			CH7	11/18/24	1215	2701783	1
Beta	U	-1.42	+/-5.56	10.8	+/-5.56	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

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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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.

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**

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