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November 25, 2024

Mr. Todd Hendricks
Division of Waste Management
Kentucky Department for Environmental Protection
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Frankfort, Kentucky 40601

PPPO-02-10030313-25

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

Dear Mr. Hendricks and Ms. Nielsen:

C-746-S&T LANDFILLS THIRD QUARTER CALENDAR YEAR 2024 (JULY–SEPTEMBER) COMPLIANCE MONITORING REPORT, PADUCAH GASEOUS DIFFUSION PLANT, PADUCAH, KENTUCKY, FRNP-RPT-0351/V3, PERMIT NUMBER SW07300014, SW07300015, SW07300045, AGENCY INTEREST ID NO. 3059

The subject report for the third 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 third quarter CY 2024 monitoring well (MW) data collected from the C-746-S&T Landfills were performed in accordance with Monitoring Condition GSTR0003, Standard Requirement 3, using the U.S. Environmental Protection Agency guidance document, *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Final Guidance* (1989).

A statistically significant exceedance was indicated for calcium in MW372 and MW373 as well as, dissolved solids, magnesium, sodium, and sulfate in MW373. These statistical exceedances are Type 2 Exceedances—Source Unknown. Continued evaluation of calcium, dissolved solids, magnesium, sodium, and sulfate levels through future quarterly monitoring events is recommended. This report also serves as the statistical exceedance notification for the third

quarter CY 2024, in accordance with Monitoring Condition GSTR0001, Standard Requirement 5, of the Permit.

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

Sincerely,

APRIL LADD

Digitally signed by APRIL LADD
Date: 2024.11.25 09:00:45 -06'00'

April Ladd
Paducah Site Lead
Portsmouth/Paducah Project Office

Enclosure:
C-746-S&T Landfills Third Quarter Calendar Year 2024 (July–September) Compliance Monitoring Report, Paducah Gaseous Diffusion Plant, Paducah, Kentucky, FRNP-RPT-0351/V3

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FRNP-RPT-0351/V3

C-746-S&T Landfills
Third Quarter Calendar Year 2024
(July–September)
Compliance Monitoring Report,
Paducah Gaseous Diffusion Plant,
Paducah, Kentucky

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NUCLEAR PARTNERSHIP, LLC

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C-746-S&T Landfills
Third Quarter Calendar Year 2024
(July–September)
Compliance Monitoring Report,
Paducah Gaseous Diffusion Plant,
Paducah, Kentucky

Date Issued—November 2024

U.S. DEPARTMENT OF ENERGY
Office of Environmental Management

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

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ACRONYMS

CFR	*Code of Federal Regulations*
COD	chemical oxygen demand
KAR	*Kentucky Administrative Regulations*
KRS	*Kentucky Revised Statutes*
LEL	lower explosive limit
LRGA	Lower Regional Gravel Aquifer
LTL	lower tolerance limit
MCL	maximum contaminant level
MW	monitoring well
RGA	Regional Gravel Aquifer
UCRS	Upper Continental Recharge System
URGA	Upper Regional Gravel Aquifer
UTL	upper tolerance limit

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1. INTRODUCTION

This report, *C-746-S&T Landfills Third Quarter Calendar Year 2024 (July–September) 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.

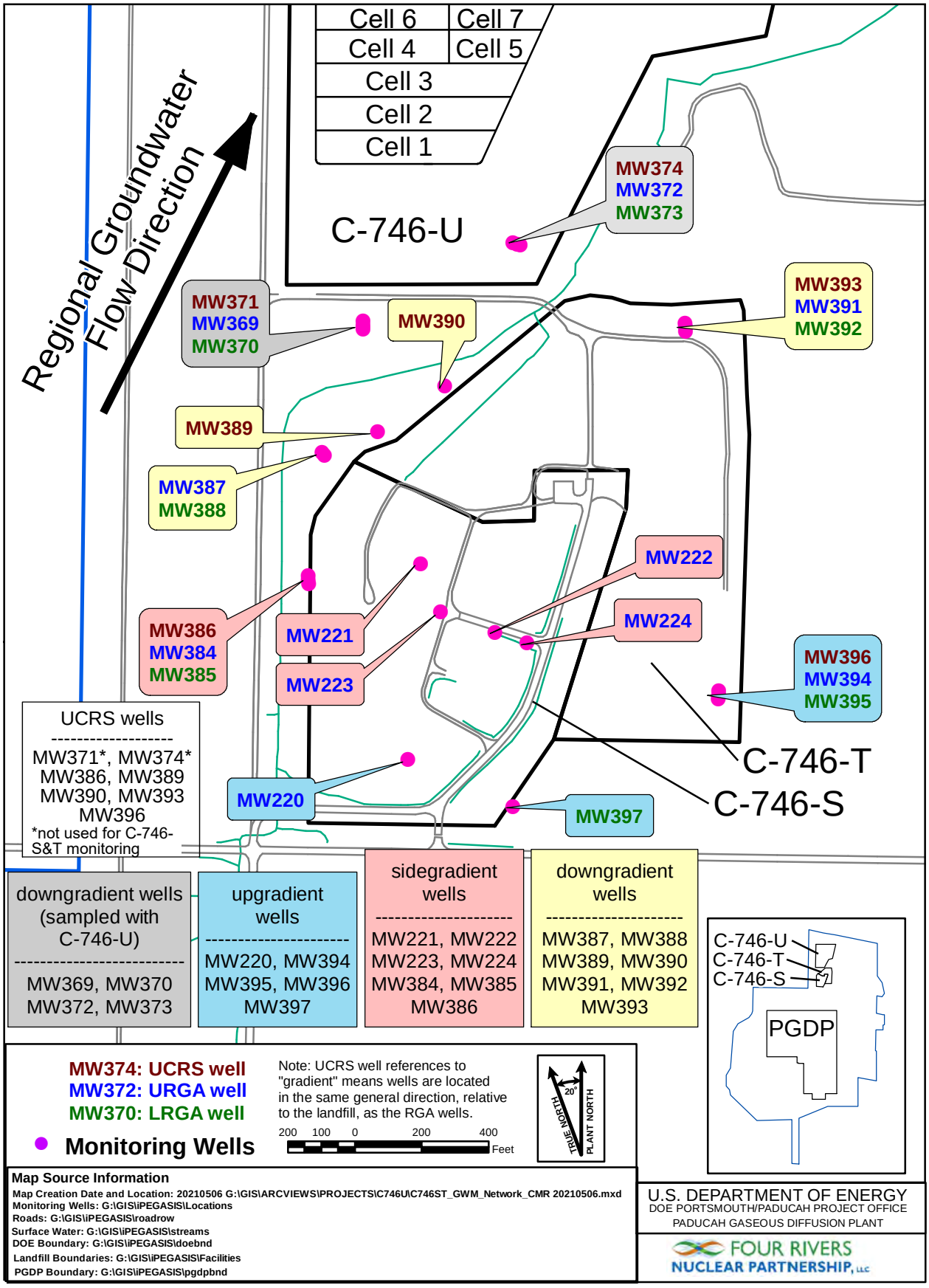

Figure 1. C-746-S&T Landfills Groundwater Monitoring Well Network

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 third 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 third quarter 2024 was conducted on July 17–30, 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 July 23, 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 July 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 July 2024 was 3.13×10^{-4} ft/ft, while the gradient beneath the C-746-S&T Landfills was approximately 1.99×10^{-4} ft/ft (see Appendix E, Table E.2). Calculated groundwater flow rates (average linear velocities) for the RGA at the C-746-S&T Landfills ranged from 3.38×10^{-1} to 5.77×10^{-1} 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 August 20, 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 July 9, 2024, at the three locations monitored for the C-746-S&T Landfills: (1) upstream location L135, (2) instream location L154, and (3) instream location L136 (Figure 2). Surface water was monitored, as specified in 401 *KAR* 48:300 § 2, and the approved *Surface Water Monitoring Plan for C-746-U and C-746-S&T Landfills Permit Number SW07300014, SW07300015, SW07300045, Paducah Gaseous Diffusion Plant, Paducah, Kentucky, Agency Interest Number 3059* (FRNP 2021), which is Technical Application Attachment 24 of the Solid Waste Permit. Surface water results are provided in Appendix I.

1.3 KEY RESULTS

Groundwater data were evaluated in accordance with the approved Groundwater Monitoring Plan (LATA Kentucky 2014), which is Technical Application Attachment 25, of the Solid Waste Permit. Parameters that had concentrations that exceeded their respective MCL are listed in Table 1. Those constituents that exceeded their respective MCL were 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 third 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	MW395: Trichloroethene

The notification of parameters that exceeded the MCL has 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.

The constituents that exceeded their MCL were subjected to a comparison against the UTL concentrations calculated using historical concentrations from wells identified as background. In accordance with the approved Groundwater Monitoring Plan (LATA Kentucky 2014), the MCL exceedance for trichloroethene in upgradient well MW395 did not exceed the historical background concentration and is considered to be a Type 1 exceedance—not attributable to the C-746-S&T Landfills.

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

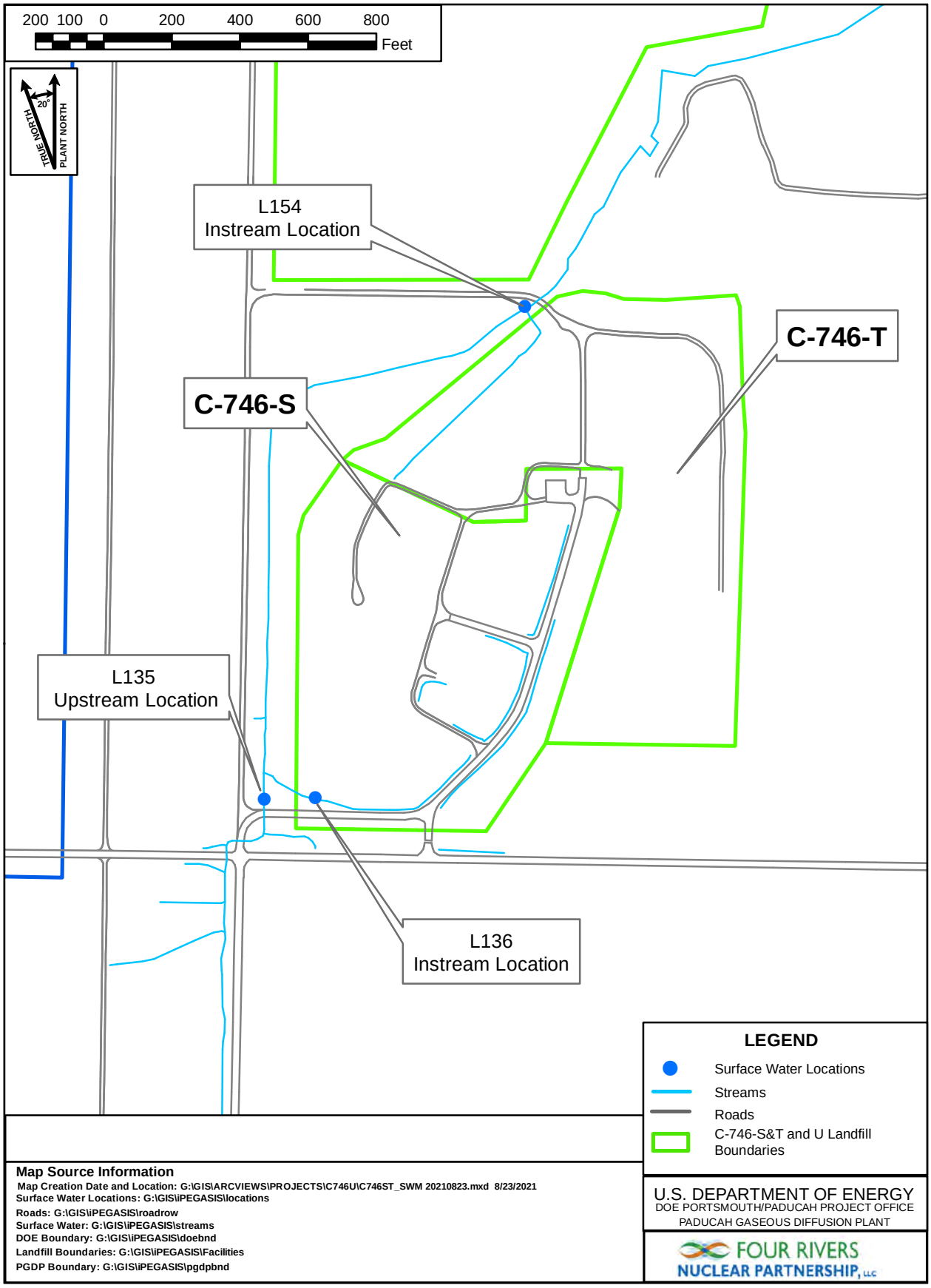

Figure 2. C-746-S&T Landfill Surface Water Monitoring Locations

Table 2. Exceedances of Statistically Derived Historical Background Concentrations

UCRS[a]	URGA	LRGA
MW386: Oxidation-reduction potential[b]	MW220: Sulfate	MW370: Oxidation-reduction potential[b] and sulfate
MW390: Oxidation-reduction potential,[b] radium-226, and technetium-99	MW221: Oxidation-reduction potential[b] and radium-226	MW373: Calcium, conductivity, dissolved solids, magnesium, oxidation-reduction potential,[b] sodium, and sulfate
MW393: Oxidation-reduction potential[b]	MW223:Oxidation-reduction potential[b]	MW385: Oxidation-reduction potential,[b] sulfate, and technetium-99
MW396: Oxidation-reduction potential[b] and radium-226	MW224: Sodium and sulfate	MW388: Oxidation-reduction potential,[b] radium-226, and sulfate
	MW369: Oxidation-reduction potential[b] and technetium-99	MW392: Oxidation-reduction potential[b]
	MW372: Calcium, conductivity, dissolved solids, magnesium, oxidation-reduction potential,[b] and sulfate	MW395: Oxidation-reduction potential[b]
	MW384: Oxidation-reduction potential,[b] radium-226, sulfate, and technetium-99	MW397: Oxidation-reduction potential[b] and radium-226
	MW387: Chemical oxygen demand (COD), magnesium, oxidation-reduction potential,[b] sulfate, and technetium-99	
	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, and sulfate	MW373: Calcium, conductivity, dissolved solids, magnesium, sodium, and sulfate
MW387: Magnesium, sulfate, and technetium-99	MW388: Radium-226 and sulfate

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. Twelve of the 18 preliminary Type 2 exceedances in downgradient wells do not have increasing trends and are considered to be Type 1 exceedances—not attributable to the C-746-S&T Landfills.

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

Location	Well ID	Parameter	Sample Size	Alpha[a]	p-Value[b]	S[c]	Decision[d]
C-746-S&T Landfills	MW369	Technetium-99	8	0.05	0.36	4	No Trend
	MW370	Sulfate	8	0.05	0.274	6	No Trend
	MW372	Calcium	8	0.05	0.031	16	Increasing
		Conductivity	8	0.05	0.119	-8	No Trend
		Dissolved Solids	8	0.05	0.138	11	No Trend
		Magnesium	8	0.05	0.119	8	No Trend
		Sulfate	8	0.05	0.089	12	No Trend
	MW373	Calcium	8	0.05	0.001	24	Increasing
		Conductivity	8	0.05	0.089	12	No Trend
		Dissolved Solids	8	0.05	0.001	24	Increasing
		Magnesium	8	0.05	0.016	18	Increasing
		Sodium	8	0.05	0.001	24	Increasing
		Sulfate	8	0.05	0.001	24	Increasing
	MW387	Magnesium	8	0.05	0.089	-12	No Trend
		Sulfate	8	0.05	0.138	-11	No Trend
		Technetium-99	8	0.05	0.36	-4	No Trend
	MW388	Radium-226	8	0.05	0.119	8	No Trend
		Sulfate	8	0.05	0.36	-4	No Trend

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

Six of the 18 preliminary Type 2 exceedances in downgradient wells had an increasing trend. Specifically, the Mann-Kendall statistical test indicates increasing trends for calcium in URGA well MW372 and LRGA well MW373; in addition to dissolved solids, magnesium, sodium, and sulfate in MW373. It should be noted that over the past eight quarters concentrations of calcium, dissolved solids, magnesium, sodium, and sulfate in URGA well MW372 are consistently lower than those shown in collocated LRGA well MW373. Since calcium, dissolved solids, magnesium, sodium, and sulfate concentrations are lower in the shallower screened well at this location, the C-746-S&T Landfills are likely not the source of the concentrations observed in the deeper screened well. Therefore, the observed trends in MW372/MW373 should be considered Type 2 exceedances—sources undetermined. Evaluation of calcium, dissolved solids, magnesium, sodium, and sulfate trends through future quarterly monitoring events is recommended.

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

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

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

UCRS
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 calcium in both MW372 and MW373, as well as dissolved solids, magnesium, sodium, and sulfate in MW373, were evaluated and considered to be Type 1 exceedances—not attributable to the C-746-S&T Landfills.

2. DATA EVALUATION/STATISTICAL SYNOPSIS

The statistical analyses conducted on the third 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 third quarter, oxidation-reduction potential, radium-226, and technetium-99 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, 29 parameters, including those with MCLs, required statistical analysis in the URGA. During the third quarter, calcium, COD, conductivity, dissolved solids, magnesium, oxidation-reduction potential, radium-226, sodium, sulfate, and technetium-99 displayed concentrations that exceeded their respective historical UTLs and are listed in Table 2. Calcium, conductivity, dissolved solids, magnesium, sulfate, and technetium-99 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, 29 parameters, including those with MCLs, required statistical analysis in the LRGA. During the third quarter, calcium, conductivity, dissolved solids, magnesium, oxidation-reduction potential, radium-226, sodium, sulfate, and technetium-99 displayed concentrations that exceeded their respective historical UTL and are listed in Table 2. Calcium, conductivity, dissolved solids, magnesium, radium-226, sodium, and sulfate exceeded the current background UTL in downgradient wells and are included in Table 3.

2.2 DATA VERIFICATION AND VALIDATION

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

Data validation was performed on 100% of the organic, inorganic, and radiochemical analytical data 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 Third Quarter Calendar Year 2024 (July–September) Compliance Monitoring Report, Paducah Gaseous Diffusion Plant, Paducah, Kentucky* (FRNP-RPT-0351/V3)

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

PG113927
KDavis 11-21-2024

Kenneth R. Davis
Kenneth R. Davis

PG113927

November 21, 2024
Date

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4. REFERENCES

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

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

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APPENDIX A

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

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

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

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

Activity: C-746-S&T Landfills

Permit No: SW07300014, SW07300015, SW07300045

Finds/Unit No:

Quarter & Year: 3rd Qtr. CY 2024

Please check the following as applicable:

___ Characterization X Quarterly ___ Semiannual ___ Annual ___ Assessment

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

___ Leachate X Methane Monitoring

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

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

Myrna E. Redfield, Program Manager/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

Sampling Date: Groundwater: July 2024; Methane: August 2024; Surface Water: July 2024 | County: McCracken | Permit Nos. SW07300014, SW07300015, SW07300045

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

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

Phone No: (270) 441-6800 | Latitude: N 37° 07' 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

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

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

SAMPLING PERSONNEL
(IF OTHER THAN LANDFILL OR LABORATORY)

Company: Four Rivers Nuclear Partnership, LLC

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

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

LABORATORY RECORD #1

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

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

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

LABORATORY RECORD #2

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

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

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

LABORATORY RECORD #3

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

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

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

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APPENDIX C

GROUNDWATER SAMPLE ANALYSES AND LABORATORY REPORTS

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Paducah OREIS
GROUNDWATER MONITORING REPORT

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

Sampling Point: MW220 UP **RGA Type:** URGA **Period:** 3rd Quarter 2024

AKGWA Well Tag #: 8000-5201 **SAMPLE ID:** MW220SG4-24 Sample Type: REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide	W	0.261	mg/L	0.2	7/24/2024			SW846-9056A	=
Chloride	J	18.1	mg/L	250	7/24/2024			SW846-9056A	=
Fluoride	J	0.242	mg/L	4	7/24/2024			SW846-9056A	=
Nitrate as Nitrogen	J	1.06	mg/L	10	7/24/2024			SW846-9056A	=
Sulfate		21.6	mg/L	0.8	7/24/2024			SW846-9056A	=
Barometric Pressure Reading		30.15	Inches/Hg		7/24/2024				X
Conductivity		417	µmhos/cm		7/24/2024				X
Depth to Water		58.04	ft		7/24/2024				X
Dissolved Oxygen		3.55	mg/L		7/24/2024				X
Eh (approx)		392	mV		7/24/2024				X
pH		6.23	Std Unit		7/24/2024				X
Temperature		62.8	deg F		7/24/2024				X
Turbidity		1.11	NTU		7/24/2024				X
Aluminum	U	0.05	mg/L	0.05	7/24/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	7/24/2024			SW846-6020B	=
Arsenic	U	0.005	mg/L	0.005	7/24/2024			SW846-6020B	=
Barium		0.204	mg/L	0.004	7/24/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	7/24/2024			SW846-6020B	=
Boron	J	0.00712	mg/L	0.015	7/24/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	7/24/2024			SW846-6020B	=
Calcium		25.5	mg/L	0.2	7/24/2024			SW846-6020B	=
Chromium	J	0.00902	mg/L	0.01	7/24/2024			SW846-6020B	=
Cobalt	U	0.001	mg/L	0.001	7/24/2024			SW846-6020B	=
Copper	J	0.00194	mg/L	0.002	7/24/2024			SW846-6020B	=
Iron	J	0.0385	mg/L	0.1	7/24/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	7/24/2024			SW846-6020B	=
Magnesium		10.4	mg/L	0.03	7/24/2024			SW846-6020B	=
Manganese	J	0.00279	mg/L	0.005	7/24/2024			SW846-6020B	=
Molybdenum		0.00131	mg/L	0.001	7/24/2024			SW846-6020B	=
Nickel		0.00649	mg/L	0.002	7/24/2024			SW846-6020B	=
Potassium		11	mg/L	0.3	7/24/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	7/24/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	7/24/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	7/24/2024			SW846-6020B	=
Sodium		46	mg/L	0.25	7/24/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	7/24/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	7/24/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	7/24/2024			SW846-6020B	=
Vanadium	U	0.02	mg/L	0.02	7/24/2024			SW846-6020B	=
Zinc	J	0.00543	mg/L	0.02	7/24/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	7/24/2024			SW846-7470A	=
Barium, Dissolved		0.216	mg/L	0.004	7/24/2024			SW846-6020B	J
Chromium, Dissolved	J	0.00844	mg/L	0.01	7/24/2024			SW846-6020B	J
Uranium, Dissolved	U	0.0002	mg/L	0.0002	7/24/2024			SW846-6020B	UJ
Radium-226	U	0.6	pCi/L	0.808	7/24/2024	0.639	0.641	AN-1418	=

Strontium-90	U	0.982	pCi/L	4.25	7/24/2024	2.4	2.41	EPA-905.0-M	=
Tritium	U	58.2	pCi/L	252	7/24/2024	144	144	EPA-906.0-M	=
Technetium-99	U	2.79	pCi/L	17.7	7/24/2024	10.1	10.1	HASL 300, Tc-02-RC M	=
Thorium-230	U	0.155	pCi/L	1.71	7/24/2024	0.849	0.851	HASL 300, Th-01-RC M	=
Alpha activity	U	1.91	pCi/L	5.83	7/24/2024	3.2	3.22	SW846-9310	=
Beta activity		17.6	pCi/L	8.59	7/24/2024	6.7	7.31	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.0189	ug/L	0.0189	7/24/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	UY2	1	ug/L	1	7/24/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	7/24/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	7/24/2024			SW846-8260D	=
1,1,2-Trichloroethane	UY2	1	ug/L	1	7/24/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	7/24/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	7/24/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	7/24/2024			SW846-8260D	=
1,2-Dibromoethane	UY2	1	ug/L	1	7/24/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	7/24/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	7/24/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	7/24/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	7/24/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	7/24/2024			SW846-8260D	=
2-Hexanone	UY2	5	ug/L	5	7/24/2024			SW846-8260D	=
4-Methyl-2-pentanone	UY2	5	ug/L	5	7/24/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	7/24/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	7/24/2024			SW846-8260D	UJ
Acrylonitrile	U	5	ug/L	5	7/24/2024			SW846-8260D	UJ
Benzene	U	1	ug/L	1	7/24/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	7/24/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	7/24/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	7/24/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	7/24/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	7/24/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	7/24/2024			SW846-8260D	UJ
Chlorobenzene	UY2	1	ug/L	1	7/24/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	7/24/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	7/24/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	7/24/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	7/24/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	7/24/2024			SW846-8260D	=
Dibromochloromethane	UY2	1	ug/L	1	7/24/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	7/24/2024			SW846-8260D	=
Ethylbenzene	UY2	1	ug/L	1	7/24/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	7/24/2024			SW846-8260D	=
Methylene chloride	U	5	ug/L	5	7/24/2024			SW846-8260D	=
Styrene	UY2	1	ug/L	1	7/24/2024			SW846-8260D	UJ
Tetrachloroethene	UY2	1	ug/L	1	7/24/2024			SW846-8260D	=
Toluene	UY2	1	ug/L	1	7/24/2024			SW846-8260D	=
Total Xylene	UY2	3	ug/L	3	7/24/2024			SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	7/24/2024			SW846-8260D	=
trans-1,3-Dichloropropene	UY2	1	ug/L	1	7/24/2024			SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	7/24/2024			SW846-8260D	UJ
Trichloroethene	U	1	ug/L	1	7/24/2024			SW846-8260D	=
Trichlorofluoromethane	U	1	ug/L	1	7/24/2024			SW846-8260D	=

Vinyl acetate	U	5	ug/L	5	7/24/2024	SW846-8260D	=
Vinyl chloride	U	1	ug/L	1	7/24/2024	SW846-8260D	=
Dissolved Solids		246	mg/L	10	7/24/2024	EPA-160.1	=
Iodide	U	0.5	mg/L	0.5	7/24/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	J	13.3	mg/L	20	7/24/2024	EPA-410.4	=
Cyanide	U	0.2	mg/L	0.2	7/24/2024	SW846-9012B	=
Total Organic Halides (TOX)	J	7.16	ug/L	10	7/24/2024	SW846-9020B	=
Total Organic Carbon (TOC)	J	0.758	mg/L	2	7/24/2024	SW846-9060A	=

Paducah OREIS
GROUNDWATER MONITORING REPORT

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

Sampling Point: MW221 SIDE **RGA Type:** URGA **Period:** 3rd Quarter 2024

AKGWA Well Tag #: 8000-5202 **SAMPLE ID:** MW221SG4-24 Sample Type: REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide	W	0.623	mg/L	0.2	7/24/2024			SW846-9056A	=
Chloride	J	35	mg/L	250	7/24/2024			SW846-9056A	=
Fluoride	J	0.19	mg/L	4	7/24/2024			SW846-9056A	=
Nitrate as Nitrogen	J	0.931	mg/L	10	7/24/2024			SW846-9056A	=
Sulfate		16.1	mg/L	0.4	7/24/2024			SW846-9056A	=
Barometric Pressure Reading		30.14	Inches/Hg		7/24/2024				X
Conductivity		396	µmhos/cm		7/24/2024				X
Depth to Water		67.58	ft		7/24/2024				X
Dissolved Oxygen		4.9	mg/L		7/24/2024				X
Eh (approx)		439	mV		7/24/2024				X
pH		6.22	Std Unit		7/24/2024				X
Temperature		65.4	deg F		7/24/2024				X
Turbidity		2.5	NTU		7/24/2024				X
Aluminum	U	0.05	mg/L	0.05	7/24/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	7/24/2024			SW846-6020B	=
Arsenic	U	0.005	mg/L	0.005	7/24/2024			SW846-6020B	=
Barium		0.213	mg/L	0.004	7/24/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	7/24/2024			SW846-6020B	=
Boron		0.0242	mg/L	0.015	7/24/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	7/24/2024			SW846-6020B	=
Calcium		21.3	mg/L	0.2	7/24/2024			SW846-6020B	=
Chromium	J	0.00721	mg/L	0.01	7/24/2024			SW846-6020B	=
Cobalt		0.00112	mg/L	0.001	7/24/2024			SW846-6020B	=
Copper		0.00329	mg/L	0.002	7/24/2024			SW846-6020B	=
Iron	U	0.1	mg/L	0.1	7/24/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	7/24/2024			SW846-6020B	=
Magnesium		9.39	mg/L	0.03	7/24/2024			SW846-6020B	=
Manganese		0.00541	mg/L	0.005	7/24/2024			SW846-6020B	=
Molybdenum		0.00654	mg/L	0.001	7/24/2024			SW846-6020B	=
Nickel		0.12	mg/L	0.002	7/24/2024			SW846-6020B	=
Potassium		2.32	mg/L	0.3	7/24/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	7/24/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	7/24/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	7/24/2024			SW846-6020B	=
Sodium		45.3	mg/L	0.25	7/24/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	7/24/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	7/24/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	7/24/2024			SW846-6020B	=
Vanadium	U	0.02	mg/L	0.02	7/24/2024			SW846-6020B	=
Zinc	J	0.0104	mg/L	0.02	7/24/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	7/24/2024			SW846-7470A	=
Barium, Dissolved		0.209	mg/L	0.004	7/24/2024			SW846-6020B	J
Chromium, Dissolved	J	0.00497	mg/L	0.01	7/24/2024			SW846-6020B	J
Uranium, Dissolved	U	0.0002	mg/L	0.0002	7/24/2024			SW846-6020B	UJ
Radium-226		1.07	pCi/L	0.756	7/24/2024	0.771	0.775	AN-1418	=

Strontium-90	U	1.01	pCi/L	3.47	7/24/2024	1.96	1.97	EPA-905.0-M	=
Tritium	U	92.5	pCi/L	247	7/24/2024	144	145	EPA-906.0-M	=
Technetium-99	U	10.1	pCi/L	17.9	7/24/2024	10.7	10.7	HASL 300, Tc-02-RC M	=
Thorium-230	U	-0.582	pCi/L	2.14	7/24/2024	0.694	0.694	HASL 300, Th-01-RC M	=
Alpha activity	U	5.4	pCi/L	9.4	7/24/2024	5.84	5.91	SW846-9310	=
Beta activity	U	7.08	pCi/L	8.26	7/24/2024	5.38	5.51	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.0187	ug/L	0.0187	7/24/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	UY2	1	ug/L	1	7/24/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	7/24/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	7/24/2024			SW846-8260D	=
1,1,2-Trichloroethane	UY2	1	ug/L	1	7/24/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	7/24/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	7/24/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	7/24/2024			SW846-8260D	=
1,2-Dibromoethane	UY2	1	ug/L	1	7/24/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	7/24/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	7/24/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	7/24/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	7/24/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	7/24/2024			SW846-8260D	=
2-Hexanone	UY2	5	ug/L	5	7/24/2024			SW846-8260D	=
4-Methyl-2-pentanone	UY2	5	ug/L	5	7/24/2024			SW846-8260D	=
Acetone	J	2.45	ug/L	5	7/24/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	7/24/2024			SW846-8260D	UJ
Acrylonitrile	U	5	ug/L	5	7/24/2024			SW846-8260D	UJ
Benzene	U	1	ug/L	1	7/24/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	7/24/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	7/24/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	7/24/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	7/24/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	7/24/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	7/24/2024			SW846-8260D	UJ
Chlorobenzene	UY2	1	ug/L	1	7/24/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	7/24/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	7/24/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	7/24/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	7/24/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	7/24/2024			SW846-8260D	=
Dibromochloromethane	UY2	1	ug/L	1	7/24/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	7/24/2024			SW846-8260D	=
Ethylbenzene	UY2	1	ug/L	1	7/24/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	7/24/2024			SW846-8260D	=
Methylene chloride	U	5	ug/L	5	7/24/2024			SW846-8260D	=
Styrene	UY2	1	ug/L	1	7/24/2024			SW846-8260D	UJ
Tetrachloroethene	UY2	1	ug/L	1	7/24/2024			SW846-8260D	=
Toluene	UY2	1	ug/L	1	7/24/2024			SW846-8260D	=
Total Xylene	UY2	3	ug/L	3	7/24/2024			SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	7/24/2024			SW846-8260D	=
trans-1,3-Dichloropropene	UY2	1	ug/L	1	7/24/2024			SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	7/24/2024			SW846-8260D	UJ
Trichloroethene	J	0.35	ug/L	1	7/24/2024			SW846-8260D	=
Trichlorofluoromethane	U	1	ug/L	1	7/24/2024			SW846-8260D	=

Vinyl acetate	U	5	ug/L	5	7/24/2024	SW846-8260D	=
Vinyl chloride	U	1	ug/L	1	7/24/2024	SW846-8260D	=
Dissolved Solids		210	mg/L	10	7/24/2024	EPA-160.1	=
Iodide	U	0.5	mg/L	0.5	7/24/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	U	20	mg/L	20	7/24/2024	EPA-410.4	=
Cyanide	U	0.2	mg/L	0.2	7/24/2024	SW846-9012B	=
Total Organic Halides (TOX)	J	3.64	ug/L	10	7/24/2024	SW846-9020B	=
Total Organic Carbon (TOC)	J	0.652	mg/L	2	7/24/2024	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:** 3rd Quarter 2024

AKGWA Well Tag #: 8000-5242 **SAMPLE ID:** MW222SG4-24 Sample Type: REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide		0.398	mg/L	0.2	7/25/2024			SW846-9056A	=
Chloride	J	32.3	mg/L	250	7/25/2024			SW846-9056A	=
Fluoride	*J	0.223	mg/L	4	7/25/2024			SW846-9056A	=
Nitrate as Nitrogen	J	1.02	mg/L	10	7/25/2024			SW846-9056A	=
Sulfate		12.5	mg/L	0.4	7/25/2024			SW846-9056A	=
Barometric Pressure Reading		30.16	Inches/Hg		7/25/2024				X
Conductivity		389	µmhos/cm		7/25/2024				X
Depth to Water		71.31	ft		7/25/2024				X
Dissolved Oxygen		4.32	mg/L		7/25/2024				X
Eh (approx)		383	mV		7/25/2024				X
pH		6.1	Std Unit		7/25/2024				X
Temperature		64.6	deg F		7/25/2024				X
Turbidity		0	NTU		7/25/2024				X
Aluminum	U	0.05	mg/L	0.05	7/25/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	7/25/2024			SW846-6020B	=
Arsenic	U	0.005	mg/L	0.005	7/25/2024			SW846-6020B	=
Barium		0.281	mg/L	0.004	7/25/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	7/25/2024			SW846-6020B	=
Boron	J	0.0129	mg/L	0.015	7/25/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	7/25/2024			SW846-6020B	=
Calcium		21.1	mg/L	0.2	7/25/2024			SW846-6020B	=
Chromium	J	0.00349	mg/L	0.01	7/25/2024			SW846-6020B	=
Cobalt	J	0.000516	mg/L	0.001	7/25/2024			SW846-6020B	=
Copper	J	0.00108	mg/L	0.002	7/25/2024			SW846-6020B	=
Iron	U	0.1	mg/L	0.1	7/25/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	7/25/2024			SW846-6020B	=
Magnesium		9.33	mg/L	0.03	7/25/2024			SW846-6020B	=
Manganese		0.00769	mg/L	0.005	7/25/2024			SW846-6020B	=
Molybdenum		0.00484	mg/L	0.001	7/25/2024			SW846-6020B	=
Nickel		0.0446	mg/L	0.002	7/25/2024			SW846-6020B	=
Potassium		0.808	mg/L	0.3	7/25/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	7/25/2024			SW846-6020B	=
Selenium	J	0.00173	mg/L	0.005	7/25/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	7/25/2024			SW846-6020B	=
Sodium		46.3	mg/L	0.25	7/25/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	7/25/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	7/25/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	7/25/2024			SW846-6020B	=
Vanadium	J	0.00474	mg/L	0.02	7/25/2024			SW846-6020B	=
Zinc	J	0.0085	mg/L	0.02	7/25/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	7/25/2024			SW846-7470A	=
Barium, Dissolved		0.279	mg/L	0.004	7/25/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	7/25/2024			SW846-6020B	UJ
Uranium, Dissolved	U	0.0002	mg/L	0.0002	7/25/2024			SW846-6020B	UJ
Radium-226	U	0.168	pCi/L	0.599	7/25/2024	0.38	0.38	AN-1418	=

Strontium-90	U	-2.03	pCi/L	5.34	7/25/2024	2.6	2.6	EPA-905.0-M	=
Tritium	U	-9.46	pCi/L	285	7/25/2024	158	158	EPA-906.0-M	=
Technetium-99	U	5.16	pCi/L	17.9	7/25/2024	10.4	10.4	HASL 300, Tc-02-RC M	=
Thorium-230	U	0.888	pCi/L	1.51	7/25/2024	1.03	1.04	HASL 300, Th-01-RC M	=
Alpha activity	U	2.84	pCi/L	6.15	7/25/2024	3.67	3.7	SW846-9310	UJ
Beta activity	U	-2.94	pCi/L	13.1	7/25/2024	6.88	6.88	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.0191	ug/L	0.0191	7/25/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	7/25/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	7/25/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	7/25/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	7/25/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	7/25/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	7/25/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	7/25/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	7/25/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	7/25/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	7/25/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	7/25/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	7/25/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	7/25/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	7/25/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	7/25/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	7/25/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	7/25/2024			SW846-8260D	UJ
Acrylonitrile	U	5	ug/L	5	7/25/2024			SW846-8260D	UJ
Benzene	U	1	ug/L	1	7/25/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	7/25/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	7/25/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	7/25/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	7/25/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	7/25/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	7/25/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	7/25/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	7/25/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	7/25/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	7/25/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	7/25/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	7/25/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	7/25/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	7/25/2024			SW846-8260D	=
Ethylbenzene	U	1	ug/L	1	7/25/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	7/25/2024			SW846-8260D	=
Methylene chloride	U	5	ug/L	5	7/25/2024			SW846-8260D	=
Styrene	U	1	ug/L	1	7/25/2024			SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	7/25/2024			SW846-8260D	=
Toluene	U	1	ug/L	1	7/25/2024			SW846-8260D	=
Total Xylene	U	3	ug/L	3	7/25/2024			SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	7/25/2024			SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	7/25/2024			SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	7/25/2024			SW846-8260D	UJ
Trichloroethene	U	1	ug/L	1	7/25/2024			SW846-8260D	=
Trichlorofluoromethane	U	1	ug/L	1	7/25/2024			SW846-8260D	=

Vinyl acetate	U	5	ug/L	5	7/25/2024	SW846-8260D	=
Vinyl chloride	U	1	ug/L	1	7/25/2024	SW846-8260D	=
Dissolved Solids		218	mg/L	10	7/25/2024	EPA-160.1	=
Iodide	U	0.5	mg/L	0.5	7/25/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	U	20	mg/L	20	7/25/2024	EPA-410.4	=
Cyanide	U	0.2	mg/L	0.2	7/25/2024	SW846-9012B	=
Total Organic Halides (TOX)		17.1	ug/L	10	7/25/2024	SW846-9020B	=
Total Organic Carbon (TOC)	J	0.395	mg/L	2	7/25/2024	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:** 3rd Quarter 2024

AKGWA Well Tag #: 8000-5243 **SAMPLE ID:** MW223SG4-24 Sample Type: REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide		0.405	mg/L	0.2	7/25/2024			SW846-9056A	=
Chloride	J	35.9	mg/L	250	7/25/2024			SW846-9056A	=
Fluoride	*J	0.202	mg/L	4	7/25/2024			SW846-9056A	=
Nitrate as Nitrogen	J	0.897	mg/L	10	7/25/2024			SW846-9056A	=
Sulfate		14.5	mg/L	0.4	7/25/2024			SW846-9056A	=
Barometric Pressure Reading		30.15	Inches/Hg		7/25/2024				X
Conductivity		396	µmhos/cm		7/25/2024				X
Depth to Water		70.44	ft		7/25/2024				X
Dissolved Oxygen		2.41	mg/L		7/25/2024				X
Eh (approx)		419	mV		7/25/2024				X
pH		6.03	Std Unit		7/25/2024				X
Temperature		63.7	deg F		7/25/2024				X
Turbidity		3.33	NTU		7/25/2024				X
Aluminum	U	0.05	mg/L	0.05	7/25/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	7/25/2024			SW846-6020B	=
Arsenic	U	0.005	mg/L	0.005	7/25/2024			SW846-6020B	=
Barium		0.241	mg/L	0.004	7/25/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	7/25/2024			SW846-6020B	=
Boron	J	0.0134	mg/L	0.015	7/25/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	7/25/2024			SW846-6020B	=
Calcium		23.4	mg/L	0.2	7/25/2024			SW846-6020B	=
Chromium		0.0187	mg/L	0.01	7/25/2024			SW846-6020B	=
Cobalt		0.00307	mg/L	0.001	7/25/2024			SW846-6020B	=
Copper	J	0.0015	mg/L	0.002	7/25/2024			SW846-6020B	=
Iron		0.277	mg/L	0.1	7/25/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	7/25/2024			SW846-6020B	=
Magnesium		9.96	mg/L	0.03	7/25/2024			SW846-6020B	=
Manganese		0.029	mg/L	0.005	7/25/2024			SW846-6020B	=
Molybdenum		0.00323	mg/L	0.001	7/25/2024			SW846-6020B	=
Nickel		0.631	mg/L	0.002	7/25/2024			SW846-6020B	=
Potassium		1.18	mg/L	0.3	7/25/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	7/25/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	7/25/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	7/25/2024			SW846-6020B	=
Sodium		46.2	mg/L	0.25	7/25/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	7/25/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	7/25/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	7/25/2024			SW846-6020B	=
Vanadium	J	0.00516	mg/L	0.02	7/25/2024			SW846-6020B	=
Zinc	J	0.00503	mg/L	0.02	7/25/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	7/25/2024			SW846-7470A	=
Barium, Dissolved		0.232	mg/L	0.004	7/25/2024			SW846-6020B	J
Chromium, Dissolved		0.0157	mg/L	0.01	7/25/2024			SW846-6020B	J
Uranium, Dissolved	U	0.0002	mg/L	0.0002	7/25/2024			SW846-6020B	UJ
Radium-226	U	0.241	pCi/L	0.692	7/25/2024	0.444	0.445	AN-1418	=

Strontium-90	U	-0.666	pCi/L	4.59	7/25/2024	2.29	2.29	EPA-905.0-M	=
Tritium	U	41	pCi/L	288	7/25/2024	163	164	EPA-906.0-M	=
Technetium-99	U	8.67	pCi/L	18.6	7/25/2024	11	11	HASL 300, Tc-02-RC M	=
Thorium-230	U	-0.101	pCi/L	1.49	7/25/2024	0.621	0.621	HASL 300, Th-01-RC M	=
Alpha activity	U	1.68	pCi/L	7.27	7/25/2024	3.78	3.79	SW846-9310	UJ
Beta activity	U	9.73	pCi/L	10.2	7/25/2024	6.58	6.78	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.0187	ug/L	0.0187	7/25/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	7/25/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	7/25/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	7/25/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	7/25/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	7/25/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	7/25/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	7/25/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	7/25/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	7/25/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	7/25/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	7/25/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	7/25/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	7/25/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	7/25/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	7/25/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	7/25/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	7/25/2024			SW846-8260D	UJ
Acrylonitrile	U	5	ug/L	5	7/25/2024			SW846-8260D	UJ
Benzene	U	1	ug/L	1	7/25/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	7/25/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	7/25/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	7/25/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	7/25/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	7/25/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	7/25/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	7/25/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	7/25/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	7/25/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	7/25/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	7/25/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	7/25/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	7/25/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	7/25/2024			SW846-8260D	=
Ethylbenzene	U	1	ug/L	1	7/25/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	7/25/2024			SW846-8260D	=
Methylene chloride	U	5	ug/L	5	7/25/2024			SW846-8260D	=
Styrene	U	1	ug/L	1	7/25/2024			SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	7/25/2024			SW846-8260D	=
Toluene	U	1	ug/L	1	7/25/2024			SW846-8260D	=
Total Xylene	U	3	ug/L	3	7/25/2024			SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	7/25/2024			SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	7/25/2024			SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	7/25/2024			SW846-8260D	UJ
Trichloroethene	U	1	ug/L	1	7/25/2024			SW846-8260D	=
Trichlorofluoromethane	U	1	ug/L	1	7/25/2024			SW846-8260D	=

Vinyl acetate	U	5	ug/L	5	7/25/2024	SW846-8260D	=
Vinyl chloride	U	1	ug/L	1	7/25/2024	SW846-8260D	=
Dissolved Solids		227	mg/L	10	7/25/2024	EPA-160.1	=
Iodide	U	0.5	mg/L	0.5	7/25/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	U	20	mg/L	20	7/25/2024	EPA-410.4	=
Cyanide	U	0.2	mg/L	0.2	7/25/2024	SW846-9012B	=
Total Organic Halides (TOX)	J	7.18	ug/L	10	7/25/2024	SW846-9020B	=
Total Organic Carbon (TOC)	J	0.455	mg/L	2	7/25/2024	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:** 3rd Quarter 2024

AKGWA Well Tag #: 8000-5244 **SAMPLE ID:** MW224DSG4-24 Sample Type: FR

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide		0.327	mg/L	0.2	7/25/2024			SW846-9056A	=
Chloride	J	24.8	mg/L	250	7/25/2024			SW846-9056A	=
Fluoride	*J	0.262	mg/L	4	7/25/2024			SW846-9056A	=
Nitrate as Nitrogen	J	0.979	mg/L	10	7/25/2024			SW846-9056A	=
Sulfate		19.2	mg/L	0.4	7/25/2024			SW846-9056A	=
Aluminum	U	0.05	mg/L	0.05	7/25/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	7/25/2024			SW846-6020B	=
Arsenic	U	0.005	mg/L	0.005	7/25/2024			SW846-6020B	=
Barium		0.234	mg/L	0.004	7/25/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	7/25/2024			SW846-6020B	=
Boron		0.034	mg/L	0.015	7/25/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	7/25/2024			SW846-6020B	=
Calcium		25.8	mg/L	0.2	7/25/2024			SW846-6020B	=
Chromium	J	0.00406	mg/L	0.01	7/25/2024			SW846-6020B	=
Cobalt	U	0.001	mg/L	0.001	7/25/2024			SW846-6020B	=
Copper	J	0.00102	mg/L	0.002	7/25/2024			SW846-6020B	=
Iron	J	0.0334	mg/L	0.1	7/25/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	7/25/2024			SW846-6020B	=
Magnesium		11.4	mg/L	0.03	7/25/2024			SW846-6020B	=
Manganese		0.0083	mg/L	0.005	7/25/2024			SW846-6020B	=
Molybdenum	J	0.000967	mg/L	0.001	7/25/2024			SW846-6020B	=
Nickel		0.0101	mg/L	0.002	7/25/2024			SW846-6020B	=
Potassium		1.04	mg/L	0.3	7/25/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	7/25/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	7/25/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	7/25/2024			SW846-6020B	=
Sodium		58.3	mg/L	2.5	7/25/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	7/25/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	7/25/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	7/25/2024			SW846-6020B	=
Vanadium	J	0.00354	mg/L	0.02	7/25/2024			SW846-6020B	=
Zinc	U	0.02	mg/L	0.02	7/25/2024			SW846-6020B	=
Mercury	J	0.000121	mg/L	0.0002	7/25/2024			SW846-7470A	=
Barium, Dissolved		0.233	mg/L	0.004	7/25/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	7/25/2024			SW846-6020B	UJ
Uranium, Dissolved	U	0.0002	mg/L	0.0002	7/25/2024			SW846-6020B	UJ
Radium-226	U	0.113	pCi/L	0.338	7/25/2024	0.313	0.313	AN-1418	=
Strontium-90	U	-0.589	pCi/L	5.18	7/25/2024	2.73	2.73	EPA-905.0-M	=
Tritium	U	63.2	pCi/L	296	7/25/2024	169	170	EPA-906.0-M	=
Technetium-99	U	5.55	pCi/L	18.7	7/25/2024	10.9	10.9	HASL 300, Tc-02-RC M	=
Thorium-230	U	1.33	pCi/L	1.86	7/25/2024	1.32	1.34	HASL 300, Th-01-RC M	=
Alpha activity	U	-0.292	pCi/L	7.43	7/25/2024	3.09	3.09	SW846-9310	UJ
Beta activity	U	7.38	pCi/L	8.68	7/25/2024	5.55	5.69	SW846-9310	=

1,2-Dibromo-3-chloropropane	U	0.0192	ug/L	0.0192	7/25/2024	SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	7/25/2024	SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	7/25/2024	SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	7/25/2024	SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	7/25/2024	SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	7/25/2024	SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	7/25/2024	SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	7/25/2024	SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	7/25/2024	SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	7/25/2024	SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	7/25/2024	SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	7/25/2024	SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	7/25/2024	SW846-8260D	=
2-Butanone	U	5	ug/L	5	7/25/2024	SW846-8260D	=
2-Hexanone	U	5	ug/L	5	7/25/2024	SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	7/25/2024	SW846-8260D	=
Acetone	U	5	ug/L	5	7/25/2024	SW846-8260D	=
Acrolein	U	5	ug/L	5	7/25/2024	SW846-8260D	UJ
Acrylonitrile	U	5	ug/L	5	7/25/2024	SW846-8260D	UJ
Benzene	U	1	ug/L	1	7/25/2024	SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	7/25/2024	SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	7/25/2024	SW846-8260D	=
Bromoform	U	1	ug/L	1	7/25/2024	SW846-8260D	=
Bromomethane	U	1	ug/L	1	7/25/2024	SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	7/25/2024	SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	7/25/2024	SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	7/25/2024	SW846-8260D	=
Chloroethane	U	1	ug/L	1	7/25/2024	SW846-8260D	=
Chloroform	U	1	ug/L	1	7/25/2024	SW846-8260D	=
Chloromethane	U	1	ug/L	1	7/25/2024	SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	7/25/2024	SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	7/25/2024	SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	7/25/2024	SW846-8260D	=
Dibromomethane	U	1	ug/L	1	7/25/2024	SW846-8260D	=
Ethylbenzene	U	1	ug/L	1	7/25/2024	SW846-8260D	=
Iodomethane	U	5	ug/L	5	7/25/2024	SW846-8260D	=
Methylene chloride	U	5	ug/L	5	7/25/2024	SW846-8260D	=
Styrene	U	1	ug/L	1	7/25/2024	SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	7/25/2024	SW846-8260D	=
Toluene	U	1	ug/L	1	7/25/2024	SW846-8260D	=
Total Xylene	U	3	ug/L	3	7/25/2024	SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	7/25/2024	SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	7/25/2024	SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	7/25/2024	SW846-8260D	UJ
Trichloroethene	U	1	ug/L	1	7/25/2024	SW846-8260D	=
Trichlorofluoromethane	U	1	ug/L	1	7/25/2024	SW846-8260D	=
Vinyl acetate	U	5	ug/L	5	7/25/2024	SW846-8260D	=
Vinyl chloride	U	1	ug/L	1	7/25/2024	SW846-8260D	=
Dissolved Solids		261	mg/L	10	7/25/2024	EPA-160.1	=
Iodide	U	0.5	mg/L	0.5	7/25/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	J	11	mg/L	20	7/25/2024	EPA-410.4	=
Cyanide	U	0.2	mg/L	0.2	7/25/2024	SW846-9012B	=
Total Organic Halides (TOX)	J	9.78	ug/L	10	7/25/2024	SW846-9020B	=

Total Organic Carbon (TOC)	J	0.777	mg/L	2	7/25/2024	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:** 3rd Quarter 2024

AKGWA Well Tag #: 8000-5244 **SAMPLE ID:** MW224SG4-24 Sample Type: REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide		0.33	mg/L	0.2	7/25/2024			SW846-9056A	=
Chloride	J	24.8	mg/L	250	7/25/2024			SW846-9056A	=
Fluoride	*J	0.259	mg/L	4	7/25/2024			SW846-9056A	=
Nitrate as Nitrogen	J	0.925	mg/L	10	7/25/2024			SW846-9056A	=
Sulfate		19.3	mg/L	0.4	7/25/2024			SW846-9056A	=
Barometric Pressure Reading		30.16	Inches/Hg		7/25/2024				X
Conductivity		460	µmhos/cm		7/25/2024				X
Depth to Water		71.88	ft		7/25/2024				X
Dissolved Oxygen		4.57	mg/L		7/25/2024				X
Eh (approx)		391	mV		7/25/2024				X
pH		6.11	Std Unit		7/25/2024				X
Temperature		65	deg F		7/25/2024				X
Turbidity		1.06	NTU		7/25/2024				X
Aluminum	U	0.05	mg/L	0.05	7/25/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	7/25/2024			SW846-6020B	=
Arsenic	U	0.005	mg/L	0.005	7/25/2024			SW846-6020B	=
Barium		0.231	mg/L	0.004	7/25/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	7/25/2024			SW846-6020B	=
Boron		0.035	mg/L	0.015	7/25/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	7/25/2024			SW846-6020B	=
Calcium		25.9	mg/L	0.2	7/25/2024			SW846-6020B	=
Chromium	J	0.00571	mg/L	0.01	7/25/2024			SW846-6020B	=
Cobalt	U	0.001	mg/L	0.001	7/25/2024			SW846-6020B	=
Copper	J	0.0011	mg/L	0.002	7/25/2024			SW846-6020B	=
Iron	J	0.0527	mg/L	0.1	7/25/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	7/25/2024			SW846-6020B	=
Magnesium		11.3	mg/L	0.03	7/25/2024			SW846-6020B	=
Manganese		0.00868	mg/L	0.005	7/25/2024			SW846-6020B	=
Molybdenum	J	0.000986	mg/L	0.001	7/25/2024			SW846-6020B	=
Nickel		0.0103	mg/L	0.002	7/25/2024			SW846-6020B	=
Potassium		1.06	mg/L	0.3	7/25/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	7/25/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	7/25/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	7/25/2024			SW846-6020B	=
Sodium		57.5	mg/L	2.5	7/25/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	7/25/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	7/25/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	7/25/2024			SW846-6020B	=
Vanadium	J	0.0035	mg/L	0.02	7/25/2024			SW846-6020B	=
Zinc	U	0.02	mg/L	0.02	7/25/2024			SW846-6020B	=
Mercury	J	0.000151	mg/L	0.0002	7/25/2024			SW846-7470A	=
Barium, Dissolved		0.235	mg/L	0.004	7/25/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	7/25/2024			SW846-6020B	UJ
Uranium, Dissolved	U	0.0002	mg/L	0.0002	7/25/2024			SW846-6020B	UJ
Radium-226	U	-0.00834	pCi/L	0.69	7/25/2024	0.299	0.299	AN-1418	=

Strontium-90	U	1.2	pCi/L	2.81	7/25/2024	1.63	1.65	EPA-905.0-M	=
Tritium	U	1.99	pCi/L	296	7/25/2024	164	164	EPA-906.0-M	=
Technetium-99	U	-4.03	pCi/L	17.9	7/25/2024	9.86	9.86	HASL 300, Tc-02-RC M	=
Thorium-230	U	0.385	pCi/L	1.54	7/25/2024	0.864	0.869	HASL 300, Th-01-RC M	=
Alpha activity	U	4.74	pCi/L	6.95	7/25/2024	4.6	4.66	SW846-9310	UJ
Beta activity	U	3.98	pCi/L	8.71	7/25/2024	5.13	5.18	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.0189	ug/L	0.0189	7/25/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	7/25/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	7/25/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	7/25/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	7/25/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	7/25/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	7/25/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	7/25/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	7/25/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	7/25/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	7/25/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	7/25/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	7/25/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	7/25/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	7/25/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	7/25/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	7/25/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	7/25/2024			SW846-8260D	UJ
Acrylonitrile	U	5	ug/L	5	7/25/2024			SW846-8260D	UJ
Benzene	U	1	ug/L	1	7/25/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	7/25/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	7/25/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	7/25/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	7/25/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	7/25/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	7/25/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	7/25/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	7/25/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	7/25/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	7/25/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	7/25/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	7/25/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	7/25/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	7/25/2024			SW846-8260D	=
Ethylbenzene	U	1	ug/L	1	7/25/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	7/25/2024			SW846-8260D	=
Methylene chloride	U	5	ug/L	5	7/25/2024			SW846-8260D	=
Styrene	U	1	ug/L	1	7/25/2024			SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	7/25/2024			SW846-8260D	=
Toluene	U	1	ug/L	1	7/25/2024			SW846-8260D	=
Total Xylene	U	3	ug/L	3	7/25/2024			SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	7/25/2024			SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	7/25/2024			SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	7/25/2024			SW846-8260D	UJ
Trichloroethene	U	1	ug/L	1	7/25/2024			SW846-8260D	=
Trichlorofluoromethane	U	1	ug/L	1	7/25/2024			SW846-8260D	=

Vinyl acetate	U	5	ug/L	5	7/25/2024	SW846-8260D	=
Vinyl chloride	U	1	ug/L	1	7/25/2024	SW846-8260D	=
Dissolved Solids		256	mg/L	10	7/25/2024	EPA-160.1	=
Iodide	U	0.5	mg/L	0.5	7/25/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	J	13.3	mg/L	20	7/25/2024	EPA-410.4	=
Cyanide	U	0.2	mg/L	0.2	7/25/2024	SW846-9012B	=
Total Organic Halides (TOX)		13.1	ug/L	10	7/25/2024	SW846-9020B	=
Total Organic Carbon (TOC)	J	0.799	mg/L	2	7/25/2024	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:** 3rd Quarter 2024

AKGWA Well Tag #: 8004-4820 **SAMPLE ID:** MW369UG4-24 Sample Type: REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Barometric Pressure Reading		30.01	Inches/Hg		7/17/2024				X
Conductivity		342	µmhos/cm		7/17/2024				X
Depth to Water		40.07	ft		7/17/2024				X
Dissolved Oxygen		1.95	mg/L		7/17/2024				X
Eh (approx)		536	mV		7/17/2024				X
pH		6.09	Std Unit		7/17/2024				X
Temperature		68.3	deg F		7/17/2024				X
Turbidity		-3.6	NTU		7/17/2024				X
Aluminum	J	0.0269	mg/L	0.05	7/17/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	7/17/2024			SW846-6020B	=
Arsenic	U	0.005	mg/L	0.005	7/17/2024			SW846-6020B	=
Barium		0.359	mg/L	0.004	7/17/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	7/17/2024			SW846-6020B	=
Boron	J	0.0137	mg/L	0.015	7/17/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	7/17/2024			SW846-6020B	=
Calcium		15.1	mg/L	0.2	7/17/2024			SW846-6020B	=
Chromium	U	0.01	mg/L	0.01	7/17/2024			SW846-6020B	=
Cobalt		0.00431	mg/L	0.001	7/17/2024			SW846-6020B	=
Copper		0.00295	mg/L	0.002	7/17/2024			SW846-6020B	=
Iron	J	0.0486	mg/L	0.1	7/17/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	7/17/2024			SW846-6020B	=
Magnesium		6.22	mg/L	0.03	7/17/2024			SW846-6020B	=
Manganese	J	0.00423	mg/L	0.005	7/17/2024			SW846-6020B	=
Molybdenum	U	0.001	mg/L	0.001	7/17/2024			SW846-6020B	=
Nickel		0.00432	mg/L	0.002	7/17/2024			SW846-6020B	=
Potassium		0.499	mg/L	0.3	7/17/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	7/17/2024			SW846-6020B	=
Selenium	J	0.002	mg/L	0.005	7/17/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	7/17/2024			SW846-6020B	=
Sodium		48.4	mg/L	0.25	7/17/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	7/17/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	7/17/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	7/17/2024			SW846-6020B	=
Vanadium	U	0.02	mg/L	0.02	7/17/2024			SW846-6020B	=
Zinc	J	0.00676	mg/L	0.02	7/17/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	7/17/2024			SW846-7470A	=
Barium, Dissolved		0.349	mg/L	0.004	7/17/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	7/17/2024			SW846-6020B	UJ
Uranium, Dissolved	U	0.0002	mg/L	0.0002	7/17/2024			SW846-6020B	UJ
Radium-226	U	0.377	pCi/L	1.22	7/17/2024	0.749	0.75	AN-1418	=
Radium-228	U	4.57	pCi/L	4.61	7/17/2024	2.94	3.17	EPA-904.0-M	=
Strontium-90	U	0.861	pCi/L	6.81	7/17/2024	3.67	3.68	EPA-905.0-M	=
Technetium-99		42.7	pCi/L	17.7	7/17/2024	11.5	12.5	HASL 300, Tc-02-RC M	J

Thorium-230	U	0.139	pCi/L	0.649	7/17/2024	0.354	0.355	HASL 300, Th-01-RC M	=
Thorium-232	U	-0.0533	pCi/L	0.518	7/17/2024	0.202	0.202	HASL 300, Th-01-RC M	=
Alpha activity	U	-0.865	pCi/L	6.58	7/17/2024	2.38	2.39	SW846-9310	=
Beta activity		31.5	pCi/L	9.06	7/17/2024	8.17	9.7	SW846-9310	=

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:** 3rd Quarter 2024

AKGWA Well Tag #: 8004-4820 **SAMPLE ID:** MW369UG4-24R Sample Type: REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide		0.325	mg/L	0.2	7/30/2024			SW846-9056A	=
Chloride	JW	29.4	mg/L	250	7/30/2024			SW846-9056A	J
Fluoride	J	0.243	mg/L	4	7/30/2024			SW846-9056A	=
Nitrate as Nitrogen	J	0.946	mg/L	10	7/30/2024			SW846-9056A	=
Sulfate		7.92	mg/L	0.4	7/30/2024			SW846-9056A	=
Barometric Pressure Reading		29.93	Inches/Hg		7/30/2024				X
Conductivity		336	µmhos/cm		7/30/2024				X
Depth to Water		38.89	ft		7/30/2024				X
Dissolved Oxygen		3	mg/L		7/30/2024				X
Eh (approx)		462	mV		7/30/2024				X
pH		6.06	Std Unit		7/30/2024				X
Temperature		69.9	deg F		7/30/2024				X
Turbidity		0	NTU		7/30/2024				X
PCB-1016	U	0.0951	ug/L	0.0951	7/30/2024			SW846-8082A	UJ
PCB-1221	U	0.0951	ug/L	0.0951	7/30/2024			SW846-8082A	=
PCB-1232	U	0.0951	ug/L	0.0951	7/30/2024			SW846-8082A	=
PCB-1242	U	0.0951	ug/L	0.0951	7/30/2024			SW846-8082A	=
PCB-1248	U	0.0951	ug/L	0.0951	7/30/2024			SW846-8082A	=
PCB-1254	U	0.0951	ug/L	0.0951	7/30/2024			SW846-8082A	=
PCB-1260	U	0.0951	ug/L	0.0951	7/30/2024			SW846-8082A	UJ
PCB-1268	U	0.0951	ug/L	0.0951	7/30/2024			SW846-8082A	=
Polychlorinated biphenyl	U	0.0951	ug/L	0.0951	7/30/2024			SW846-8082A	UJ
Tritium	U	-48.7	pCi/L	287	7/30/2024	155	155	EPA-906.0-M	=
1,2-Dibromo-3-chloropropane	UY2	0.0273	ug/L	0.0273	7/30/2024			SW846-8011	UJ
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	7/30/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	7/30/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	7/30/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	7/30/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	7/30/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	7/30/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	7/30/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	7/30/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	7/30/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	7/30/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	7/30/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	7/30/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	7/30/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	7/30/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	7/30/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	7/30/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	7/30/2024			SW846-8260D	UJ
Acrylonitrile	U	5	ug/L	5	7/30/2024			SW846-8260D	UJ
Benzene	U	1	ug/L	1	7/30/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	7/30/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	7/30/2024			SW846-8260D	=

Bromoform	U	1	ug/L	1	7/30/2024	SW846-8260D	UJ
Bromomethane	U	1	ug/L	1	7/30/2024	SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	7/30/2024	SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	7/30/2024	SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	7/30/2024	SW846-8260D	=
Chloroethane	U	1	ug/L	1	7/30/2024	SW846-8260D	=
Chloroform	U	1	ug/L	1	7/30/2024	SW846-8260D	=
Chloromethane	U	1	ug/L	1	7/30/2024	SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	7/30/2024	SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	7/30/2024	SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	7/30/2024	SW846-8260D	=
Dibromomethane	U	1	ug/L	1	7/30/2024	SW846-8260D	=
Ethylbenzene	U	1	ug/L	1	7/30/2024	SW846-8260D	=
Iodomethane	U	5	ug/L	5	7/30/2024	SW846-8260D	=
Methylene chloride	U	5	ug/L	5	7/30/2024	SW846-8260D	=
Styrene	U	1	ug/L	1	7/30/2024	SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	7/30/2024	SW846-8260D	=
Toluene	U	1	ug/L	1	7/30/2024	SW846-8260D	=
Total Xylene	U	3	ug/L	3	7/30/2024	SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	7/30/2024	SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	7/30/2024	SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	7/30/2024	SW846-8260D	UJ
Trichloroethene		1.26	ug/L	1	7/30/2024	SW846-8260D	=
Trichlorofluoromethane	U	1	ug/L	1	7/30/2024	SW846-8260D	=
Vinyl acetate	U	5	ug/L	5	7/30/2024	SW846-8260D	=
Vinyl chloride	U	1	ug/L	1	7/30/2024	SW846-8260D	=
Dissolved Solids		213	mg/L	10	7/30/2024	EPA-160.1	=
Iodide	U	0.5	mg/L	0.5	7/30/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	U	20	mg/L	20	7/30/2024	EPA-410.4	=
Cyanide	U	0.2	mg/L	0.2	7/30/2024	SW846-9012B	=
Total Organic Halides (TOX)		18.3	ug/L	10	7/30/2024	SW846-9020B	=
Total Organic Carbon (TOC)	J	0.757	mg/L	2	7/30/2024	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:** 3rd Quarter 2024

AKGWA Well Tag #: 8004-4818 **SAMPLE ID:** MW370UG4-24 Sample Type: REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Barometric Pressure Reading		29.99	Inches/Hg		7/17/2024				X
Conductivity		454	µmhos/cm		7/17/2024				X
Depth to Water		40.95	ft		7/17/2024				X
Dissolved Oxygen		3.66	mg/L		7/17/2024				X
Eh (approx)		556	mV		7/17/2024				X
pH		6.05	Std Unit		7/17/2024				X
Temperature		66.7	deg F		7/17/2024				X
Turbidity		-3.39	NTU		7/17/2024				X
Aluminum		0.814	mg/L	0.05	7/17/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	7/17/2024			SW846-6020B	=
Arsenic	U	0.005	mg/L	0.005	7/17/2024			SW846-6020B	=
Barium		0.212	mg/L	0.004	7/17/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	7/17/2024			SW846-6020B	=
Boron		0.0977	mg/L	0.015	7/17/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	7/17/2024			SW846-6020B	=
Calcium		29	mg/L	0.2	7/17/2024			SW846-6020B	=
Chromium	J	0.00371	mg/L	0.01	7/17/2024			SW846-6020B	=
Cobalt	J	0.000355	mg/L	0.001	7/17/2024			SW846-6020B	=
Copper	J	0.00111	mg/L	0.002	7/17/2024			SW846-6020B	=
Iron		1.7	mg/L	0.1	7/17/2024			SW846-6020B	=
Lead	J	0.000518	mg/L	0.002	7/17/2024			SW846-6020B	=
Magnesium		12.1	mg/L	0.03	7/17/2024			SW846-6020B	=
Manganese		0.0587	mg/L	0.005	7/17/2024			SW846-6020B	=
Molybdenum	J	0.000285	mg/L	0.001	7/17/2024			SW846-6020B	U
Nickel	J	0.000938	mg/L	0.002	7/17/2024			SW846-6020B	=
Potassium		2.36	mg/L	0.3	7/17/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	7/17/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	7/17/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	7/17/2024			SW846-6020B	=
Sodium		41.9	mg/L	0.25	7/17/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	7/17/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	7/17/2024			SW846-6020B	=
Uranium	J	0.000108	mg/L	0.0002	7/17/2024			SW846-6020B	=
Vanadium	U	0.02	mg/L	0.02	7/17/2024			SW846-6020B	=
Zinc	J	0.00377	mg/L	0.02	7/17/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	7/17/2024			SW846-7470A	=
Barium, Dissolved		0.207	mg/L	0.004	7/17/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	7/17/2024			SW846-6020B	UJ
Uranium, Dissolved	U	0.0002	mg/L	0.0002	7/17/2024			SW846-6020B	UJ
Radium-226	U	0.683	pCi/L	1.26	7/17/2024	0.887	0.888	AN-1418	=
Radium-228	U	2.78	pCi/L	4.98	7/17/2024	2.98	3.07	EPA-904.0-M	=
Strontium-90	U	2.56	pCi/L	3.29	7/17/2024	2.06	2.1	EPA-905.0-M	=
Tritium	U	-40	pCi/L	290	7/17/2024	160	160	EPA-906.0-M	=
Technetium-99	U	-4.19	pCi/L	18.8	7/17/2024	10.4	10.4	HASL 300, Tc-02-RC M	UJ

Thorium-230	U	0.384	pCi/L	1.06	7/17/2024	0.627	0.632	HASL 300, Th-01-RC M	=
Thorium-232	U	0.0942	pCi/L	0.397	7/17/2024	0.286	0.287	HASL 300, Th-01-RC M	=
Alpha activity	U	0.184	pCi/L	6.29	7/17/2024	2.7	2.7	SW846-9310	=
Beta activity		14.1	pCi/L	8.83	7/17/2024	6.4	6.82	SW846-9310	=

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:** 3rd Quarter 2024

AKGWA Well Tag #: 8004-4818 **SAMPLE ID:** MW370UG4-24R Sample Type: REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide		0.546	mg/L	0.2	7/30/2024			SW846-9056A	=
Chloride	JW	42	mg/L	250	7/30/2024			SW846-9056A	=
Fluoride	J	0.205	mg/L	4	7/30/2024			SW846-9056A	=
Nitrate as Nitrogen	J	0.995	mg/L	10	7/30/2024			SW846-9056A	=
Sulfate		20.8	mg/L	0.8	7/30/2024			SW846-9056A	=
Barometric Pressure Reading		29.94	Inches/Hg		7/30/2024				X
Conductivity		439	µmhos/cm		7/30/2024				X
Depth to Water		40.78	ft		7/30/2024				X
Dissolved Oxygen		4.22	mg/L		7/30/2024				X
Eh (approx)		464	mV		7/30/2024				X
pH		6.06	Std Unit		7/30/2024				X
Temperature		69.6	deg F		7/30/2024				X
Turbidity		0	NTU		7/30/2024				X
PCB-1016	U	0.1	ug/L	0.1	7/30/2024			SW846-8082A	UJ
PCB-1221	U	0.1	ug/L	0.1	7/30/2024			SW846-8082A	=
PCB-1232	U	0.1	ug/L	0.1	7/30/2024			SW846-8082A	=
PCB-1242	U	0.1	ug/L	0.1	7/30/2024			SW846-8082A	=
PCB-1248	U	0.1	ug/L	0.1	7/30/2024			SW846-8082A	=
PCB-1254	U	0.1	ug/L	0.1	7/30/2024			SW846-8082A	=
PCB-1260	U	0.1	ug/L	0.1	7/30/2024			SW846-8082A	UJ
PCB-1268	U	0.1	ug/L	0.1	7/30/2024			SW846-8082A	=
Polychlorinated biphenyl	U	0.1	ug/L	0.1	7/30/2024			SW846-8082A	UJ
1,2-Dibromo-3-chloropropane	UY2	0.0192	ug/L	0.0192	7/30/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	7/30/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	7/30/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	7/30/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	7/30/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	7/30/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	7/30/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	7/30/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	7/30/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	7/30/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	7/30/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	7/30/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	7/30/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	7/30/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	7/30/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	7/30/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	7/30/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	7/30/2024			SW846-8260D	UJ
Acrylonitrile	U	5	ug/L	5	7/30/2024			SW846-8260D	UJ
Benzene	U	1	ug/L	1	7/30/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	7/30/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	7/30/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	7/30/2024			SW846-8260D	UJ

Bromomethane	U	1	ug/L	1	7/30/2024	SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	7/30/2024	SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	7/30/2024	SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	7/30/2024	SW846-8260D	=
Chloroethane	U	1	ug/L	1	7/30/2024	SW846-8260D	=
Chloroform	U	1	ug/L	1	7/30/2024	SW846-8260D	=
Chloromethane	U	1	ug/L	1	7/30/2024	SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	7/30/2024	SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	7/30/2024	SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	7/30/2024	SW846-8260D	=
Dibromomethane	U	1	ug/L	1	7/30/2024	SW846-8260D	=
Ethylbenzene	U	1	ug/L	1	7/30/2024	SW846-8260D	=
Iodomethane	U	5	ug/L	5	7/30/2024	SW846-8260D	=
Methylene chloride	U	5	ug/L	5	7/30/2024	SW846-8260D	=
Styrene	U	1	ug/L	1	7/30/2024	SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	7/30/2024	SW846-8260D	=
Toluene	U	1	ug/L	1	7/30/2024	SW846-8260D	=
Total Xylene	U	3	ug/L	3	7/30/2024	SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	7/30/2024	SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	7/30/2024	SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	7/30/2024	SW846-8260D	UJ
Trichloroethene		2.1	ug/L	1	7/30/2024	SW846-8260D	=
Trichlorofluoromethane	U	1	ug/L	1	7/30/2024	SW846-8260D	=
Vinyl acetate	U	5	ug/L	5	7/30/2024	SW846-8260D	=
Vinyl chloride	U	1	ug/L	1	7/30/2024	SW846-8260D	=
Dissolved Solids		247	mg/L	10	7/30/2024	EPA-160.1	=
Iodide	U	0.5	mg/L	0.5	7/30/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	U	20	mg/L	20	7/30/2024	EPA-410.4	=
Cyanide	U	0.2	mg/L	0.2	7/30/2024	SW846-9012B	=
Total Organic Halides (TOX)		11.1	ug/L	10	7/30/2024	SW846-9020B	=
Total Organic Carbon (TOC)	J	0.798	mg/L	2	7/30/2024	SW846-9060A	=

Paducah OREIS
GROUNDWATER MONITORING REPORT

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

Sampling Point: MW372 DOWN **RGA Type:** URGA **Period:** 3rd Quarter 2024

AKGWA Well Tag #: 8004-4808 **SAMPLE ID:** MW372UG4-24 Sample Type: REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Barometric Pressure Reading		29.98	Inches/Hg		7/17/2024				X
Conductivity		762	µmhos/cm		7/17/2024				X
Depth to Water		35.46	ft		7/17/2024				X
Dissolved Oxygen		0.68	mg/L		7/17/2024				X
Eh (approx)		533	mV		7/17/2024				X
pH		6.02	Std Unit		7/17/2024				X
Temperature		66.3	deg F		7/17/2024				X
Turbidity		-4.13	NTU		7/17/2024				X
Aluminum	U	0.05	mg/L	0.05	7/17/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	7/17/2024			SW846-6020B	=
Arsenic	U	0.005	mg/L	0.005	7/17/2024			SW846-6020B	=
Barium		0.0622	mg/L	0.004	7/17/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	7/17/2024			SW846-6020B	=
Boron		1.86	mg/L	0.3	7/17/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	7/17/2024			SW846-6020B	=
Calcium		65.9	mg/L	4	7/17/2024			SW846-6020B	=
Chromium	U	0.01	mg/L	0.01	7/17/2024			SW846-6020B	=
Cobalt	J	0.000387	mg/L	0.001	7/17/2024			SW846-6020B	=
Copper	J	0.00135	mg/L	0.002	7/17/2024			SW846-6020B	=
Iron	J	0.068	mg/L	0.1	7/17/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	7/17/2024			SW846-6020B	=
Magnesium		22.6	mg/L	0.03	7/17/2024			SW846-6020B	=
Manganese	J	0.004	mg/L	0.005	7/17/2024			SW846-6020B	=
Molybdenum	J	0.000312	mg/L	0.001	7/17/2024			SW846-6020B	=
Nickel	J	0.000937	mg/L	0.002	7/17/2024			SW846-6020B	=
Potassium		2.26	mg/L	0.3	7/17/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	7/17/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	7/17/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	7/17/2024			SW846-6020B	=
Sodium		57.7	mg/L	5	7/17/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	7/17/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	7/17/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	7/17/2024			SW846-6020B	=
Vanadium	U	0.02	mg/L	0.02	7/17/2024			SW846-6020B	=
Zinc	U	0.02	mg/L	0.02	7/17/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	7/17/2024			SW846-7470A	=
Barium, Dissolved		0.0608	mg/L	0.004	7/17/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	7/17/2024			SW846-6020B	UJ
Uranium, Dissolved	U	0.0002	mg/L	0.0002	7/17/2024			SW846-6020B	UJ
Radium-226	U	0.0157	pCi/L	1.58	7/17/2024	0.721	0.722	AN-1418	=
Radium-228	U	0.0188	pCi/L	4.25	7/17/2024	2.12	2.12	EPA-904.0-M	=
Strontium-90	U	-2.62	pCi/L	4.13	7/17/2024	1.73	1.73	EPA-905.0-M	UJ
Tritium	U	-87	pCi/L	287	7/17/2024	155	155	EPA-906.0-M	=
Technetium-99	U	17.5	pCi/L	18.2	7/17/2024	11.1	11.2	HASL 300, Tc-02-RC M	UJ

Thorium-230	U	0.309	pCi/L	0.588	7/17/2024	0.392	0.396	HASL 300, Th-01-RC M	=
Thorium-232	U	-0.0419	pCi/L	0.402	7/17/2024	0.147	0.148	HASL 300, Th-01-RC M	=
Alpha activity	U	0.0672	pCi/L	9.4	7/17/2024	3.91	3.92	SW846-9310	=
Beta activity	U	7.82	pCi/L	11.8	7/17/2024	7.21	7.33	SW846-9310	=

Paducah OREIS
GROUNDWATER MONITORING REPORT

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

Sampling Point: MW372 DOWN **RGA Type:** URGA **Period:** 3rd Quarter 2024

AKGWA Well Tag #: 8004-4808 **SAMPLE ID:** MW372UG4-24R Sample Type: REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide		0.486	mg/L	0.2	7/30/2024			SW846-9056A	=
Chloride	JW	35.2	mg/L	4	7/30/2024			SW846-9056A	=
Fluoride	J	0.224	mg/L	4	7/30/2024			SW846-9056A	=
Nitrate as Nitrogen	J	0.532	mg/L	10	7/30/2024			SW846-9056A	=
Sulfate		164	mg/L	8	7/30/2024			SW846-9056A	=
Barometric Pressure Reading		29.95	Inches/Hg		7/30/2024				X
Conductivity		749	µmhos/cm		7/30/2024				X
Depth to Water		35.07	ft		7/30/2024				X
Dissolved Oxygen		1.57	mg/L		7/30/2024				X
Eh (approx)		452	mV		7/30/2024				X
pH		6.06	Std Unit		7/30/2024				X
Temperature		66.5	deg F		7/30/2024				X
Turbidity		0	NTU		7/30/2024				X
PCB-1016	U	0.101	ug/L	0.101	7/30/2024			SW846-8082A	UJ
PCB-1221	U	0.101	ug/L	0.101	7/30/2024			SW846-8082A	=
PCB-1232	U	0.101	ug/L	0.101	7/30/2024			SW846-8082A	=
PCB-1242	U	0.101	ug/L	0.101	7/30/2024			SW846-8082A	=
PCB-1248	U	0.101	ug/L	0.101	7/30/2024			SW846-8082A	=
PCB-1254	U	0.101	ug/L	0.101	7/30/2024			SW846-8082A	=
PCB-1260	U	0.101	ug/L	0.101	7/30/2024			SW846-8082A	UJ
PCB-1268	U	0.101	ug/L	0.101	7/30/2024			SW846-8082A	=
Polychlorinated biphenyl	U	0.101	ug/L	0.101	7/30/2024			SW846-8082A	UJ
1,2-Dibromo-3-chloropropane	UY2	0.0188	ug/L	0.0188	7/30/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	7/30/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	7/30/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	7/30/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	7/30/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	7/30/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	7/30/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	7/30/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	7/30/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	7/30/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	7/30/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	7/30/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	7/30/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	7/30/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	7/30/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	7/30/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	7/30/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	7/30/2024			SW846-8260D	UJ
Acrylonitrile	U	5	ug/L	5	7/30/2024			SW846-8260D	UJ
Benzene	U	1	ug/L	1	7/30/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	7/30/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	7/30/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	7/30/2024			SW846-8260D	UJ

Bromomethane	U	1	ug/L	1	7/30/2024	SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	7/30/2024	SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	7/30/2024	SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	7/30/2024	SW846-8260D	=
Chloroethane	U	1	ug/L	1	7/30/2024	SW846-8260D	=
Chloroform	U	1	ug/L	1	7/30/2024	SW846-8260D	=
Chloromethane	U	1	ug/L	1	7/30/2024	SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	7/30/2024	SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	7/30/2024	SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	7/30/2024	SW846-8260D	=
Dibromomethane	U	1	ug/L	1	7/30/2024	SW846-8260D	=
Ethylbenzene	U	1	ug/L	1	7/30/2024	SW846-8260D	=
Iodomethane	U	5	ug/L	5	7/30/2024	SW846-8260D	=
Methylene chloride	U	5	ug/L	5	7/30/2024	SW846-8260D	=
Styrene	U	1	ug/L	1	7/30/2024	SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	7/30/2024	SW846-8260D	=
Toluene	U	1	ug/L	1	7/30/2024	SW846-8260D	=
Total Xylene	U	3	ug/L	3	7/30/2024	SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	7/30/2024	SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	7/30/2024	SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	7/30/2024	SW846-8260D	UJ
Trichloroethene		4.38	ug/L	1	7/30/2024	SW846-8260D	=
Trichlorofluoromethane	U	1	ug/L	1	7/30/2024	SW846-8260D	=
Vinyl acetate	U	5	ug/L	5	7/30/2024	SW846-8260D	=
Vinyl chloride	U	1	ug/L	1	7/30/2024	SW846-8260D	=
Dissolved Solids		496	mg/L	10	7/30/2024	EPA-160.1	=
Iodide	U	0.5	mg/L	0.5	7/30/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)		25.7	mg/L	20	7/30/2024	EPA-410.4	=
Cyanide	U	0.2	mg/L	0.2	7/30/2024	SW846-9012B	=
Total Organic Halides (TOX)	J	6.46	ug/L	10	7/30/2024	SW846-9020B	=
Total Organic Carbon (TOC)	J	0.798	mg/L	2	7/30/2024	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:** 3rd Quarter 2024

AKGWA Well Tag #: 8004-4792 **SAMPLE ID:** MW373UG4-24 Sample Type: REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide		0.464	mg/L	0.2	7/17/2024			SW846-9056A	=
Chloride	J	29.7	mg/L	4	7/17/2024			SW846-9056A	=
Fluoride	J	0.182	mg/L	4	7/17/2024			SW846-9056A	=
Nitrate as Nitrogen	HJ	0.81	mg/L	10	7/17/2024			SW846-9056A	J
Sulfate		213	mg/L	8	7/17/2024			SW846-9056A	=
Barometric Pressure Reading		29.95	Inches/Hg		7/17/2024				X
Conductivity		949	µmhos/cm		7/17/2024				X
Depth to Water		35.81	ft		7/17/2024				X
Dissolved Oxygen		0.81	mg/L		7/17/2024				X
Eh (approx)		528	mV		7/17/2024				X
pH		6.02	Std Unit		7/17/2024				X
Temperature		64.9	deg F		7/17/2024				X
Turbidity		-2.17	NTU		7/17/2024				X
Aluminum	J	0.0198	mg/L	0.05	7/17/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	7/17/2024			SW846-6020B	=
Arsenic	U	0.005	mg/L	0.005	7/17/2024			SW846-6020B	=
Barium		0.0356	mg/L	0.004	7/17/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	7/17/2024			SW846-6020B	=
Boron		2.81	mg/L	0.3	7/17/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	7/17/2024			SW846-6020B	=
Calcium		85.9	mg/L	4	7/17/2024			SW846-6020B	=
Chromium	U	0.01	mg/L	0.01	7/17/2024			SW846-6020B	=
Cobalt	U	0.001	mg/L	0.001	7/17/2024			SW846-6020B	=
Copper	J	0.00119	mg/L	0.002	7/17/2024			SW846-6020B	=
Iron	J	0.0849	mg/L	0.1	7/17/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	7/17/2024			SW846-6020B	=
Magnesium		29.1	mg/L	0.03	7/17/2024			SW846-6020B	=
Manganese		0.0356	mg/L	0.005	7/17/2024			SW846-6020B	=
Molybdenum	J	0.000383	mg/L	0.001	7/17/2024			SW846-6020B	=
Nickel	J	0.0014	mg/L	0.002	7/17/2024			SW846-6020B	=
Potassium		2.67	mg/L	0.3	7/17/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	7/17/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	7/17/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	7/17/2024			SW846-6020B	=
Sodium		71.4	mg/L	5	7/17/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	7/17/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	7/17/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	7/17/2024			SW846-6020B	=
Vanadium	U	0.02	mg/L	0.02	7/17/2024			SW846-6020B	=
Zinc	U	0.02	mg/L	0.02	7/17/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	7/17/2024			SW846-7470A	=
Barium, Dissolved		0.0341	mg/L	0.004	7/17/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	7/17/2024			SW846-6020B	UJ
Uranium, Dissolved	J	0.000074	mg/L	0.0002	7/17/2024			SW846-6020B	J
PCB-1016	U	0.1	ug/L	0.1	7/17/2024			SW846-8082A	=

PCB-1221	U	0.1	ug/L	0.1	7/17/2024			SW846-8082A	=
PCB-1232	U	0.1	ug/L	0.1	7/17/2024			SW846-8082A	=
PCB-1242	U	0.1	ug/L	0.1	7/17/2024			SW846-8082A	=
PCB-1248	U	0.1	ug/L	0.1	7/17/2024			SW846-8082A	=
PCB-1254	U	0.1	ug/L	0.1	7/17/2024			SW846-8082A	=
PCB-1260	U	0.1	ug/L	0.1	7/17/2024			SW846-8082A	UJ
PCB-1268	U	0.1	ug/L	0.1	7/17/2024			SW846-8082A	=
Polychlorinated biphenyl	U	0.1	ug/L	0.1	7/17/2024			SW846-8082A	UJ
Radium-226	U	0.529	pCi/L	1.56	7/17/2024	0.937	0.937	AN-1418	=
Radium-228	U	0.00453	pCi/L	4.59	7/17/2024	2.33	2.33	EPA-904.0-M	=
Strontium-90	U	4.11	pCi/L	6.42	7/17/2024	3.9	3.95	EPA-905.0-M	=
Tritium	U	136	pCi/L	285	7/17/2024	169	171	EPA-906.0-M	=
Technetium-99	U	-8.77	pCi/L	18.9	7/17/2024	10.1	10.1	HASL 300, Tc-02-RC M	UJ
Thorium-230	U	0.449	pCi/L	0.648	7/17/2024	0.462	0.468	HASL 300, Th-01-RC M	=
Thorium-232	U	-0.00523	pCi/L	0.494	7/17/2024	0.217	0.217	HASL 300, Th-01-RC M	=
Alpha activity	U	-0.776	pCi/L	8.15	7/17/2024	3.21	3.22	SW846-9310	=
Beta activity	U	7.68	pCi/L	9.88	7/17/2024	6.2	6.33	SW846-9310	=
Dissolved Solids		585	mg/L	10	7/17/2024			EPA-160.1	=
Iodide	U	0.5	mg/L	0.5	7/17/2024			EPA-300.0	=
Chemical Oxygen Demand (COD)	J	12.9	mg/L	20	7/17/2024			EPA-410.4	=
Cyanide	UN	0.2	mg/L	0.2	7/17/2024			SW846-9012B	UJ
Total Organic Halides (TOX)	H	36.6	ug/L	10	7/17/2024			SW846-9020B	J
Total Organic Carbon (TOC)	J	1.14	mg/L	2	7/17/2024			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:** 3rd Quarter 2024

AKGWA Well Tag #: 8004-4792 **SAMPLE ID:** MW373UG4-24R Sample Type: REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Barometric Pressure Reading		29.96	Inches/Hg		7/30/2024				X
Conductivity		943	µmhos/cm		7/30/2024				X
Depth to Water		35.4	ft		7/30/2024				X
Dissolved Oxygen		1.14	mg/L		7/30/2024				X
Eh (approx)		437	mV		7/30/2024				X
pH		6.04	Std Unit		7/30/2024				X
Temperature		65.9	deg F		7/30/2024				X
Turbidity		0	NTU		7/30/2024				X
1,2-Dibromo-3-chloropropane	UY2	0.0195	ug/L	0.0195	7/30/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	7/30/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	7/30/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	7/30/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	7/30/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	7/30/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	7/30/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	7/30/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	7/30/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	7/30/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	7/30/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	7/30/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	7/30/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	7/30/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	7/30/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	7/30/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	7/30/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	7/30/2024			SW846-8260D	UJ
Acrylonitrile	U	5	ug/L	5	7/30/2024			SW846-8260D	UJ
Benzene	U	1	ug/L	1	7/30/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	7/30/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	7/30/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	7/30/2024			SW846-8260D	UJ
Bromomethane	U	1	ug/L	1	7/30/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	7/30/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	7/30/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	7/30/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	7/30/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	7/30/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	7/30/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	7/30/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	7/30/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	7/30/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	7/30/2024			SW846-8260D	=
Ethylbenzene	U	1	ug/L	1	7/30/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	7/30/2024			SW846-8260D	=
Methylene chloride	U	5	ug/L	5	7/30/2024			SW846-8260D	=

Styrene	U	1	ug/L	1	7/30/2024	SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	7/30/2024	SW846-8260D	=
Toluene	U	1	ug/L	1	7/30/2024	SW846-8260D	=
Total Xylene	U	3	ug/L	3	7/30/2024	SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	7/30/2024	SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	7/30/2024	SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	7/30/2024	SW846-8260D	UJ
Trichloroethene		2.54	ug/L	1	7/30/2024	SW846-8260D	=
Trichlorofluoromethane	U	1	ug/L	1	7/30/2024	SW846-8260D	=
Vinyl acetate	U	5	ug/L	5	7/30/2024	SW846-8260D	=
Vinyl chloride	U	1	ug/L	1	7/30/2024	SW846-8260D	=

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:** 3rd Quarter 2024

AKGWA Well Tag #: 8004-4809 **SAMPLE ID:** MW384SG4-24 Sample Type: REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide		0.257	mg/L	0.2	7/23/2024			SW846-9056A	=
Chloride	BJ	21.3	mg/L	250	7/23/2024			SW846-9056A	U
Fluoride	JW	0.174	mg/L	4	7/23/2024			SW846-9056A	=
Nitrate as Nitrogen	J	0.784	mg/L	10	7/23/2024			SW846-9056A	=
Sulfate		17.9	mg/L	0.4	7/23/2024			SW846-9056A	=
Barometric Pressure Reading		30.05	Inches/Hg		7/23/2024				X
Conductivity		420	µmhos/cm		7/23/2024				X
Depth to Water		41.15	ft		7/23/2024				X
Dissolved Oxygen		4.7	mg/L		7/23/2024				X
Eh (approx)		428	mV		7/23/2024				X
pH		6.11	Std Unit		7/23/2024				X
Temperature		63.8	deg F		7/23/2024				X
Turbidity		0	NTU		7/23/2024				X
Aluminum	J	0.0402	mg/L	0.05	7/23/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	7/23/2024			SW846-6020B	=
Arsenic	U	0.005	mg/L	0.005	7/23/2024			SW846-6020B	=
Barium		0.196	mg/L	0.004	7/23/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	7/23/2024			SW846-6020B	=
Boron		0.0599	mg/L	0.015	7/23/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	7/23/2024			SW846-6020B	=
Calcium		23.3	mg/L	0.2	7/23/2024			SW846-6020B	=
Chromium	J	0.00405	mg/L	0.01	7/23/2024			SW846-6020B	=
Cobalt	U	0.001	mg/L	0.001	7/23/2024			SW846-6020B	=
Copper	J	0.00139	mg/L	0.002	7/23/2024			SW846-6020B	=
Iron		0.554	mg/L	0.1	7/23/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	7/23/2024			SW846-6020B	=
Magnesium		9.62	mg/L	0.03	7/23/2024			SW846-6020B	=
Manganese		0.0111	mg/L	0.005	7/23/2024			SW846-6020B	=
Molybdenum	U	0.001	mg/L	0.001	7/23/2024			SW846-6020B	=
Nickel	J	0.000912	mg/L	0.002	7/23/2024			SW846-6020B	=
Potassium		1.33	mg/L	0.3	7/23/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	7/23/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	7/23/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	7/23/2024			SW846-6020B	=
Sodium		43.7	mg/L	0.25	7/23/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	7/23/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	7/23/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	7/23/2024			SW846-6020B	=
Vanadium	U	0.02	mg/L	0.02	7/23/2024			SW846-6020B	=
Zinc	J	0.00423	mg/L	0.02	7/23/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	7/23/2024			SW846-7470A	=
Barium, Dissolved		0.194	mg/L	0.004	7/23/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	7/23/2024			SW846-6020B	UJ
Uranium, Dissolved	U	0.0002	mg/L	0.0002	7/23/2024			SW846-6020B	UJ
Radium-226		1.08	pCi/L	0.751	7/23/2024	0.753	0.757	AN-1418	=

Strontium-90	U	0.716	pCi/L	7.17	7/23/2024	3.94	3.94	EPA-905.0-M	=
Tritium	U	143	pCi/L	276	7/23/2024	164	166	EPA-906.0-M	=
Technetium-99		47.6	pCi/L	15.7	7/23/2024	11.7	12.8	HASL 300, Tc-02-RC M	=
Thorium-230	U	0.0246	pCi/L	1.76	7/23/2024	0.803	0.805	HASL 300, Th-01-RC M	=
Alpha activity	U	1.32	pCi/L	6.18	7/23/2024	3.11	3.12	SW846-9310	=
Beta activity		27.5	pCi/L	9.07	7/23/2024	7.94	9.16	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.0193	ug/L	0.0193	7/23/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	7/23/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	7/23/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	7/23/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	7/23/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	7/23/2024			SW846-8260D	UJ
Acrylonitrile	U	5	ug/L	5	7/23/2024			SW846-8260D	UJ
Benzene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	7/23/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Ethylbenzene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	7/23/2024			SW846-8260D	=
Methylene chloride	U	5	ug/L	5	7/23/2024			SW846-8260D	=
Styrene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Toluene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Total Xylene	U	3	ug/L	3	7/23/2024			SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	7/23/2024			SW846-8260D	UJ
Trichloroethene		1.98	ug/L	1	7/23/2024			SW846-8260D	=
Trichlorofluoromethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=

Vinyl acetate	U	5	ug/L	5	7/23/2024	SW846-8260D	=
Vinyl chloride	U	1	ug/L	1	7/23/2024	SW846-8260D	=
Dissolved Solids		184	mg/L	10	7/23/2024	EPA-160.1	=
Iodide	U	0.5	mg/L	0.5	7/23/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	UN	20	mg/L	20	7/23/2024	EPA-410.4	=
Cyanide	U	0.2	mg/L	0.2	7/23/2024	SW846-9012B	=
Total Organic Halides (TOX)	J	8.58	ug/L	10	7/23/2024	SW846-9020B	=
Total Organic Carbon (TOC)	J	0.813	mg/L	2	7/23/2024	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:** 3rd Quarter 2024

AKGWA Well Tag #: 8004-4810 **SAMPLE ID:** MW385SG4-24 Sample Type: REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide		0.215	mg/L	0.2	7/23/2024			SW846-9056A	=
Chloride	BJ	20.9	mg/L	250	7/23/2024			SW846-9056A	U
Fluoride	JW	0.142	mg/L	4	7/23/2024			SW846-9056A	J
Nitrate as Nitrogen	J	0.658	mg/L	10	7/23/2024			SW846-9056A	=
Sulfate		19.2	mg/L	0.4	7/23/2024			SW846-9056A	=
Barometric Pressure Reading		30.05	Inches/Hg		7/23/2024				X
Conductivity		410	µmhos/cm		7/23/2024				X
Depth to Water		41.54	ft		7/23/2024				X
Dissolved Oxygen		1.79	mg/L		7/23/2024				X
Eh (approx)		390	mV		7/23/2024				X
pH		6.32	Std Unit		7/23/2024				X
Temperature		62.9	deg F		7/23/2024				X
Turbidity		1.16	NTU		7/23/2024				X
Aluminum	U	0.05	mg/L	0.05	7/23/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	7/23/2024			SW846-6020B	=
Arsenic	U	0.005	mg/L	0.005	7/23/2024			SW846-6020B	=
Barium		0.201	mg/L	0.004	7/23/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	7/23/2024			SW846-6020B	=
Boron		0.0767	mg/L	0.015	7/23/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	7/23/2024			SW846-6020B	=
Calcium		24.1	mg/L	0.2	7/23/2024			SW846-6020B	=
Chromium	U	0.01	mg/L	0.01	7/23/2024			SW846-6020B	=
Cobalt	J	0.000461	mg/L	0.001	7/23/2024			SW846-6020B	=
Copper	J	0.00111	mg/L	0.002	7/23/2024			SW846-6020B	=
Iron	J	0.0381	mg/L	0.1	7/23/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	7/23/2024			SW846-6020B	=
Magnesium		9.36	mg/L	0.03	7/23/2024			SW846-6020B	=
Manganese	J	0.00291	mg/L	0.005	7/23/2024			SW846-6020B	=
Molybdenum	J	0.000225	mg/L	0.001	7/23/2024			SW846-6020B	=
Nickel	J	0.0011	mg/L	0.002	7/23/2024			SW846-6020B	=
Potassium		1.52	mg/L	0.3	7/23/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	7/23/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	7/23/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	7/23/2024			SW846-6020B	=
Sodium		41.9	mg/L	0.25	7/23/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	7/23/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	7/23/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	7/23/2024			SW846-6020B	=
Vanadium	U	0.02	mg/L	0.02	7/23/2024			SW846-6020B	=
Zinc	U	0.02	mg/L	0.02	7/23/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	7/23/2024			SW846-7470A	=
Barium, Dissolved		0.199	mg/L	0.004	7/23/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	7/23/2024			SW846-6020B	UJ
Uranium, Dissolved	U	0.0002	mg/L	0.0002	7/23/2024			SW846-6020B	UJ
Radium-226	U	0.457	pCi/L	0.726	7/23/2024	0.549	0.55	AN-1418	=

Strontium-90	U	-1.05	pCi/L	4.55	7/23/2024	2.34	2.34	EPA-905.0-M	=
Tritium	U	-15.6	pCi/L	271	7/23/2024	149	149	EPA-906.0-M	=
Technetium-99		45.9	pCi/L	15.5	7/23/2024	11.5	12.6	HASL 300, Tc-02-RC M	=
Thorium-230	U	-0.205	pCi/L	1.76	7/23/2024	0.664	0.665	HASL 300, Th-01-RC M	=
Alpha activity	U	2.92	pCi/L	6.44	7/23/2024	3.84	3.87	SW846-9310	=
Beta activity		13.4	pCi/L	9.43	7/23/2024	6.64	7.02	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.0188	ug/L	0.0188	7/23/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	7/23/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	7/23/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	7/23/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	7/23/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	7/23/2024			SW846-8260D	UJ
Acrylonitrile	U	5	ug/L	5	7/23/2024			SW846-8260D	UJ
Benzene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	7/23/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Ethylbenzene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	7/23/2024			SW846-8260D	=
Methylene chloride	U	5	ug/L	5	7/23/2024			SW846-8260D	=
Styrene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Toluene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Total Xylene	U	3	ug/L	3	7/23/2024			SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	7/23/2024			SW846-8260D	UJ
Trichloroethene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Trichlorofluoromethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=

Vinyl acetate	U	5	ug/L	5	7/23/2024	SW846-8260D	=
Vinyl chloride	U	1	ug/L	1	7/23/2024	SW846-8260D	=
Dissolved Solids		201	mg/L	10	7/23/2024	EPA-160.1	=
Iodide	U	0.5	mg/L	0.5	7/23/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	UN	20	mg/L	20	7/23/2024	EPA-410.4	=
Cyanide	U	0.2	mg/L	0.2	7/23/2024	SW846-9012B	=
Total Organic Halides (TOX)		16.5	ug/L	10	7/23/2024	SW846-9020B	=
Total Organic Carbon (TOC)	J	0.697	mg/L	2	7/23/2024	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:** 3rd Quarter 2024

AKGWA Well Tag #: 8004-4804 **SAMPLE ID:** MW386SG4-24 Sample Type: REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide	J	0.109	mg/L	0.2	7/23/2024			SW846-9056A	=
Chloride	BJ	9.94	mg/L	250	7/23/2024			SW846-9056A	U
Fluoride	JW	0.784	mg/L	4	7/23/2024			SW846-9056A	=
Nitrate as Nitrogen	U	10	mg/L	10	7/23/2024			SW846-9056A	=
Sulfate		38.8	mg/L	0.8	7/23/2024			SW846-9056A	=
Barometric Pressure Reading		30.06	Inches/Hg		7/23/2024				X
Conductivity		586	µmhos/cm		7/23/2024				X
Depth to Water		19.56	ft		7/23/2024				X
Dissolved Oxygen		2.1	mg/L		7/23/2024				X
Eh (approx)		331	mV		7/23/2024				X
pH		6.75	Std Unit		7/23/2024				X
Temperature		62.7	deg F		7/23/2024				X
Turbidity		0	NTU		7/23/2024				X
Aluminum	U	0.05	mg/L	0.05	7/23/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	7/23/2024			SW846-6020B	=
Arsenic	J	0.0024	mg/L	0.005	7/23/2024			SW846-6020B	=
Barium		0.157	mg/L	0.004	7/23/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	7/23/2024			SW846-6020B	=
Boron		0.0186	mg/L	0.015	7/23/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	7/23/2024			SW846-6020B	=
Calcium		20.3	mg/L	0.2	7/23/2024			SW846-6020B	=
Chromium	U	0.01	mg/L	0.01	7/23/2024			SW846-6020B	=
Cobalt		0.00466	mg/L	0.001	7/23/2024			SW846-6020B	=
Copper	J	0.00152	mg/L	0.002	7/23/2024			SW846-6020B	=
Iron		0.132	mg/L	0.1	7/23/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	7/23/2024			SW846-6020B	=
Magnesium		8.31	mg/L	0.03	7/23/2024			SW846-6020B	=
Manganese		1.17	mg/L	0.05	7/23/2024			SW846-6020B	=
Molybdenum	J	0.000917	mg/L	0.001	7/23/2024			SW846-6020B	=
Nickel		0.00353	mg/L	0.002	7/23/2024			SW846-6020B	=
Potassium	J	0.281	mg/L	0.3	7/23/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	7/23/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	7/23/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	7/23/2024			SW846-6020B	=
Sodium		110	mg/L	2.5	7/23/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	7/23/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	7/23/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	7/23/2024			SW846-6020B	=
Vanadium	U	0.02	mg/L	0.02	7/23/2024			SW846-6020B	=
Zinc	U	0.02	mg/L	0.02	7/23/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	7/23/2024			SW846-7470A	=
Barium, Dissolved		0.151	mg/L	0.004	7/23/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	7/23/2024			SW846-6020B	UJ
Uranium, Dissolved	U	0.0002	mg/L	0.0002	7/23/2024			SW846-6020B	UJ
Radium-226	U	0.412	pCi/L	0.747	7/23/2024	0.555	0.556	AN-1418	=

Strontium-90	U	0.244	pCi/L	3.35	7/23/2024	1.74	1.74	EPA-905.0-M	=
Tritium	U	118	pCi/L	280	7/23/2024	164	166	EPA-906.0-M	=
Technetium-99	U	-9.74	pCi/L	15.4	7/23/2024	7.87	7.87	HASL 300, Tc-02-RC M	UJ
Thorium-230	U	-0.491	pCi/L	1.84	7/23/2024	0.5	0.501	HASL 300, Th-01-RC M	=
Alpha activity	U	1.16	pCi/L	9.53	7/23/2024	4.72	4.73	SW846-9310	=
Beta activity	U	-2.69	pCi/L	9.32	7/23/2024	4.48	4.48	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.0193	ug/L	0.0193	7/23/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	7/23/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	7/23/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	7/23/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	7/23/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	7/23/2024			SW846-8260D	UJ
Acrylonitrile	U	5	ug/L	5	7/23/2024			SW846-8260D	UJ
Benzene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	7/23/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Ethylbenzene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	7/23/2024			SW846-8260D	=
Methylene chloride	U	5	ug/L	5	7/23/2024			SW846-8260D	=
Styrene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Toluene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Total Xylene	U	3	ug/L	3	7/23/2024			SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	7/23/2024			SW846-8260D	UJ
Trichloroethene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Trichlorofluoromethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=

Vinyl acetate	U	5	ug/L	5	7/23/2024	SW846-8260D	=
Vinyl chloride	U	1	ug/L	1	7/23/2024	SW846-8260D	=
Dissolved Solids		364	mg/L	10	7/23/2024	EPA-160.1	=
Iodide	U	0.5	mg/L	0.5	7/23/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	N	22.4	mg/L	20	7/23/2024	EPA-410.4	=
Cyanide	U	0.2	mg/L	0.2	7/23/2024	SW846-9012B	=
Total Organic Halides (TOX)		146	ug/L	10	7/23/2024	SW846-9020B	=
Total Organic Carbon (TOC)		5.53	mg/L	2	7/23/2024	SW846-9060A	=

Paducah OREIS
GROUNDWATER MONITORING REPORT

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

Sampling Point: MW387 DOWN **RGA Type:** URGA **Period:** 3rd Quarter 2024

AKGWA Well Tag #: 8004-4815 **SAMPLE ID:** MW387SG4-24 Sample Type: REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide		0.475	mg/L	0.2	7/22/2024			SW846-9056A	=
Chloride	JW	36.9	mg/L	250	7/22/2024			SW846-9056A	J
Fluoride	*J	0.903	mg/L	4	7/22/2024			SW846-9056A	=
Nitrate as Nitrogen	J	0.899	mg/L	10	7/22/2024			SW846-9056A	=
Sulfate		27.3	mg/L	2	7/22/2024			SW846-9056A	=
Barometric Pressure Reading		30.02	Inches/Hg		7/22/2024				X
Conductivity		566	µmhos/cm		7/22/2024				X
Depth to Water		38.81	ft		7/22/2024				X
Dissolved Oxygen		4.53	mg/L		7/22/2024				X
Eh (approx)		413	mV		7/22/2024				X
pH		6.19	Std Unit		7/22/2024				X
Temperature		66.7	deg F		7/22/2024				X
Turbidity		0.06	NTU		7/22/2024				X
Aluminum		0.23	mg/L	0.05	7/22/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	7/22/2024			SW846-6020B	=
Arsenic	U	0.005	mg/L	0.005	7/22/2024			SW846-6020B	=
Barium		0.117	mg/L	0.004	7/22/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	7/22/2024			SW846-6020B	=
Boron		0.0458	mg/L	0.015	7/22/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	7/22/2024			SW846-6020B	=
Calcium		37.4	mg/L	0.2	7/22/2024			SW846-6020B	=
Chromium	J	0.00464	mg/L	0.01	7/22/2024			SW846-6020B	=
Cobalt	J	0.000371	mg/L	0.001	7/22/2024			SW846-6020B	=
Copper	J	0.00148	mg/L	0.002	7/22/2024			SW846-6020B	=
Iron		0.821	mg/L	0.1	7/22/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	7/22/2024			SW846-6020B	=
Magnesium		16.3	mg/L	0.03	7/22/2024			SW846-6020B	=
Manganese		0.0333	mg/L	0.005	7/22/2024			SW846-6020B	=
Molybdenum	U	0.001	mg/L	0.001	7/22/2024			SW846-6020B	=
Nickel	J	0.00117	mg/L	0.002	7/22/2024			SW846-6020B	=
Potassium		1.82	mg/L	0.3	7/22/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	7/22/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	7/22/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	7/22/2024			SW846-6020B	=
Sodium		48.6	mg/L	2.5	7/22/2024			SW846-6020B	=
Tantalum	UN	0.005	mg/L	0.005	7/22/2024			SW846-6020B	UJ
Thallium	U	0.002	mg/L	0.002	7/22/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	7/22/2024			SW846-6020B	=
Vanadium	U	0.02	mg/L	0.02	7/22/2024			SW846-6020B	=
Zinc	J	0.0073	mg/L	0.02	7/22/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	7/22/2024			SW846-7470A	=
Barium, Dissolved		0.113	mg/L	0.004	7/22/2024			SW846-6020B	J
Chromium, Dissolved	J	0.00367	mg/L	0.01	7/22/2024			SW846-6020B	J
Uranium, Dissolved	U	0.0002	mg/L	0.0002	7/22/2024			SW846-6020B	UJ
Radium-226	U	0.892	pCi/L	0.954	7/22/2024	0.759	0.761	AN-1418	=

Strontium-90	U	-2.32	pCi/L	5.02	7/22/2024	2.29	2.29	EPA-905.0-M	UJ
Tritium	U	-75.2	pCi/L	240	7/22/2024	132	132	EPA-906.0-M	=
Technetium-99		34.6	pCi/L	15.6	7/22/2024	10.9	11.6	HASL 300, Tc-02-RC M	=
Thorium-230	U	0.0878	pCi/L	0.736	7/22/2024	0.375	0.377	HASL 300, Th-01-RC M	=
Alpha activity	U	6.61	pCi/L	6.95	7/22/2024	5.12	5.24	SW846-9310	=
Beta activity		38.7	pCi/L	9.35	7/22/2024	8.97	11	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.019	ug/L	0.019	7/22/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	7/22/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	7/22/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	7/22/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	7/22/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	7/22/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	7/22/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	7/22/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	7/22/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	7/22/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	7/22/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	7/22/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	7/22/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	7/22/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	7/22/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	7/22/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	7/22/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	7/22/2024			SW846-8260D	UJ
Acrylonitrile	U	5	ug/L	5	7/22/2024			SW846-8260D	UJ
Benzene	U	1	ug/L	1	7/22/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	7/22/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	7/22/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	7/22/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	7/22/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	7/22/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	7/22/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	7/22/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	7/22/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	7/22/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	7/22/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	7/22/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	7/22/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	7/22/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	7/22/2024			SW846-8260D	=
Ethylbenzene	U	1	ug/L	1	7/22/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	7/22/2024			SW846-8260D	=
Methylene chloride	J	0.79	ug/L	5	7/22/2024			SW846-8260D	=
Styrene	U	1	ug/L	1	7/22/2024			SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	7/22/2024			SW846-8260D	=
Toluene	U	1	ug/L	1	7/22/2024			SW846-8260D	=
Total Xylene	U	3	ug/L	3	7/22/2024			SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	7/22/2024			SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	7/22/2024			SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	7/22/2024			SW846-8260D	UJ
Trichloroethene	J	0.46	ug/L	1	7/22/2024			SW846-8260D	=
Trichlorofluoromethane	U	1	ug/L	1	7/22/2024			SW846-8260D	=

Vinyl acetate	U	5	ug/L	5	7/22/2024	SW846-8260D	=
Vinyl chloride	U	1	ug/L	1	7/22/2024	SW846-8260D	=
Dissolved Solids		300	mg/L	10	7/22/2024	EPA-160.1	=
Iodide	U	0.5	mg/L	0.5	7/22/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)		42.1	mg/L	20	7/22/2024	EPA-410.4	=
Cyanide	U	0.2	mg/L	0.2	7/22/2024	SW846-9012B	=
Total Organic Halides (TOX)	J	7.58	ug/L	10	7/22/2024	SW846-9020B	=
Total Organic Carbon (TOC)	J	0.887	mg/L	2	7/22/2024	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:** 3rd Quarter 2024

AKGWA Well Tag #: 8004-4816 **SAMPLE ID:** MW388SG4-24 Sample Type: REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide		0.429	mg/L	0.2	7/22/2024			SW846-9056A	=
Chloride	JW	33.2	mg/L	250	7/22/2024			SW846-9056A	=
Fluoride	*J	0.378	mg/L	4	7/22/2024			SW846-9056A	=
Nitrate as Nitrogen	J	0.889	mg/L	10	7/22/2024			SW846-9056A	=
Sulfate		20.6	mg/L	2	7/22/2024			SW846-9056A	=
Barometric Pressure Reading		30.02	Inches/Hg		7/22/2024				X
Conductivity		466	µmhos/cm		7/22/2024				X
Depth to Water		38.79	ft		7/22/2024				X
Dissolved Oxygen		4.38	mg/L		7/22/2024				X
Eh (approx)		396	mV		7/22/2024				X
pH		5.99	Std Unit		7/22/2024				X
Temperature		63.7	deg F		7/22/2024				X
Turbidity		3.66	NTU		7/22/2024				X
Aluminum		0.0518	mg/L	0.05	7/22/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	7/22/2024			SW846-6020B	=
Arsenic	U	0.005	mg/L	0.005	7/22/2024			SW846-6020B	=
Barium		0.177	mg/L	0.004	7/22/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	7/22/2024			SW846-6020B	=
Boron		0.0346	mg/L	0.015	7/22/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	7/22/2024			SW846-6020B	=
Calcium		29.3	mg/L	0.2	7/22/2024			SW846-6020B	=
Chromium	U	0.01	mg/L	0.01	7/22/2024			SW846-6020B	=
Cobalt	U	0.001	mg/L	0.001	7/22/2024			SW846-6020B	=
Copper	J	0.000981	mg/L	0.002	7/22/2024			SW846-6020B	=
Iron		0.251	mg/L	0.1	7/22/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	7/22/2024			SW846-6020B	=
Magnesium		13.2	mg/L	0.03	7/22/2024			SW846-6020B	=
Manganese	J	0.00373	mg/L	0.005	7/22/2024			SW846-6020B	=
Molybdenum	U	0.001	mg/L	0.001	7/22/2024			SW846-6020B	=
Nickel	J	0.000774	mg/L	0.002	7/22/2024			SW846-6020B	=
Potassium		1.8	mg/L	0.3	7/22/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	7/22/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	7/22/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	7/22/2024			SW846-6020B	=
Sodium		48.2	mg/L	0.25	7/22/2024			SW846-6020B	=
Tantalum	UN	0.005	mg/L	0.005	7/22/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	7/22/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	7/22/2024			SW846-6020B	=
Vanadium	U	0.02	mg/L	0.02	7/22/2024			SW846-6020B	=
Zinc	J	0.00462	mg/L	0.02	7/22/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	7/22/2024			SW846-7470A	=
Barium, Dissolved		0.171	mg/L	0.004	7/22/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	7/22/2024			SW846-6020B	UJ
Uranium, Dissolved	U	0.0002	mg/L	0.0002	7/22/2024			SW846-6020B	UJ
Radium-226		1.85	pCi/L	0.822	7/22/2024	0.984	0.992	AN-1418	=

Strontium-90	U	-0.5	pCi/L	7.27	7/22/2024	3.89	3.89	EPA-905.0-M	=
Tritium	U	-72	pCi/L	263	7/22/2024	145	145	EPA-906.0-M	=
Technetium-99	U	2.57	pCi/L	18.7	7/22/2024	10.7	10.7	HASL 300, Tc-02-RC M	=
Thorium-230	U	0.193	pCi/L	1.14	7/22/2024	0.608	0.611	HASL 300, Th-01-RC M	=
Alpha activity	U	2.16	pCi/L	6.41	7/22/2024	3.56	3.59	SW846-9310	=
Beta activity		25.8	pCi/L	9.26	7/22/2024	7.82	8.93	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.0189	ug/L	0.0189	7/22/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	7/22/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	7/22/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	7/22/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	7/22/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	7/22/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	7/22/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	7/22/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	7/22/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	7/22/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	7/22/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	7/22/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	7/22/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	7/22/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	7/22/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	7/22/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	7/22/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	7/22/2024			SW846-8260D	UJ
Acrylonitrile	U	5	ug/L	5	7/22/2024			SW846-8260D	UJ
Benzene	U	1	ug/L	1	7/22/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	7/22/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	7/22/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	7/22/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	7/22/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	7/22/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	7/22/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	7/22/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	7/22/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	7/22/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	7/22/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	7/22/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	7/22/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	7/22/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	7/22/2024			SW846-8260D	=
Ethylbenzene	U	1	ug/L	1	7/22/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	7/22/2024			SW846-8260D	=
Methylene chloride	U	5	ug/L	5	7/22/2024			SW846-8260D	=
Styrene	U	1	ug/L	1	7/22/2024			SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	7/22/2024			SW846-8260D	=
Toluene	U	1	ug/L	1	7/22/2024			SW846-8260D	=
Total Xylene	U	3	ug/L	3	7/22/2024			SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	7/22/2024			SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	7/22/2024			SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	7/22/2024			SW846-8260D	UJ
Trichloroethene	U	1	ug/L	1	7/22/2024			SW846-8260D	=
Trichlorofluoromethane	U	1	ug/L	1	7/22/2024			SW846-8260D	=

Vinyl acetate	U	5	ug/L	5	7/22/2024	SW846-8260D	=
Vinyl chloride	U	1	ug/L	1	7/22/2024	SW846-8260D	=
Dissolved Solids		248	mg/L	10	7/22/2024	EPA-160.1	=
Iodide	U	0.5	mg/L	0.5	7/22/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	U	20	mg/L	20	7/22/2024	EPA-410.4	=
Cyanide	U	0.2	mg/L	0.2	7/22/2024	SW846-9012B	=
Total Organic Halides (TOX)		12.1	ug/L	10	7/22/2024	SW846-9020B	=
Total Organic Carbon (TOC)	J	0.908	mg/L	2	7/22/2024	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:** 3rd Quarter 2024

AKGWA Well Tag #: 8004-4811 **SAMPLE ID:** MW390SG4-24 Sample Type: REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide		0.235	mg/L	0.2	7/23/2024			SW846-9056A	=
Chloride	BJ	20.7	mg/L	250	7/23/2024			SW846-9056A	U
Fluoride	JW	0.253	mg/L	4	7/23/2024			SW846-9056A	=
Nitrate as Nitrogen	J	1.12	mg/L	10	7/23/2024			SW846-9056A	=
Sulfate		33.6	mg/L	2	7/23/2024			SW846-9056A	=
Barometric Pressure Reading		30.04	Inches/Hg		7/23/2024				X
Conductivity		600	µmhos/cm		7/23/2024				X
Depth to Water		36.31	ft		7/23/2024				X
Dissolved Oxygen		3	mg/L		7/23/2024				X
Eh (approx)		479	mV		7/23/2024				X
pH		6.34	Std Unit		7/23/2024				X
Temperature		63.2	deg F		7/23/2024				X
Turbidity		0	NTU		7/23/2024				X
Aluminum		0.1	mg/L	0.05	7/23/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	7/23/2024			SW846-6020B	=
Arsenic	U	0.005	mg/L	0.005	7/23/2024			SW846-6020B	=
Barium		0.225	mg/L	0.004	7/23/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	7/23/2024			SW846-6020B	=
Boron		0.0221	mg/L	0.015	7/23/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	7/23/2024			SW846-6020B	=
Calcium		27.7	mg/L	0.2	7/23/2024			SW846-6020B	=
Chromium	U	0.01	mg/L	0.01	7/23/2024			SW846-6020B	=
Cobalt	U	0.001	mg/L	0.001	7/23/2024			SW846-6020B	=
Copper	J	0.00173	mg/L	0.002	7/23/2024			SW846-6020B	=
Iron		0.101	mg/L	0.1	7/23/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	7/23/2024			SW846-6020B	=
Magnesium		11.8	mg/L	0.03	7/23/2024			SW846-6020B	=
Manganese	J	0.0015	mg/L	0.005	7/23/2024			SW846-6020B	=
Molybdenum	J	0.000333	mg/L	0.001	7/23/2024			SW846-6020B	=
Nickel	J	0.0015	mg/L	0.002	7/23/2024			SW846-6020B	=
Potassium		0.347	mg/L	0.3	7/23/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	7/23/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	7/23/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	7/23/2024			SW846-6020B	=
Sodium		91	mg/L	2.5	7/23/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	7/23/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	7/23/2024			SW846-6020B	=
Uranium	J	0.000197	mg/L	0.0002	7/23/2024			SW846-6020B	=
Vanadium	U	0.02	mg/L	0.02	7/23/2024			SW846-6020B	=
Zinc	J	0.00648	mg/L	0.02	7/23/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	7/23/2024			SW846-7470A	=
Barium, Dissolved		0.23	mg/L	0.004	7/23/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	7/23/2024			SW846-6020B	UJ
Uranium, Dissolved	J	0.00019	mg/L	0.0002	7/23/2024			SW846-6020B	UJ
Radium-226		0.771	pCi/L	0.686	7/23/2024	0.671	0.674	AN-1418	=

Strontium-90	U	-0.836	pCi/L	3.06	7/23/2024	1.41	1.41	EPA-905.0-M	=
Tritium	U	78.2	pCi/L	280	7/23/2024	161	162	EPA-906.0-M	=
Technetium-99		57.4	pCi/L	16.1	7/23/2024	12.5	14	HASL 300, Tc-02-RC M	=
Thorium-230	U	0.137	pCi/L	1.89	7/23/2024	0.921	0.923	HASL 300, Th-01-RC M	=
Alpha activity	U	5.03	pCi/L	7.18	7/23/2024	4.95	5.02	SW846-9310	=
Beta activity		39.1	pCi/L	9.13	7/23/2024	8.93	11	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.0188	ug/L	0.0188	7/23/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	7/23/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	7/23/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	7/23/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	7/23/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	7/23/2024			SW846-8260D	UJ
Acrylonitrile	U	5	ug/L	5	7/23/2024			SW846-8260D	UJ
Benzene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	7/23/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Ethylbenzene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	7/23/2024			SW846-8260D	=
Methylene chloride	U	5	ug/L	5	7/23/2024			SW846-8260D	=
Styrene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Toluene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Total Xylene	U	3	ug/L	3	7/23/2024			SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	7/23/2024			SW846-8260D	UJ
Trichloroethene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Trichlorofluoromethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=

Vinyl acetate	U	5	ug/L	5	7/23/2024	SW846-8260D	=
Vinyl chloride	U	1	ug/L	1	7/23/2024	SW846-8260D	=
Dissolved Solids		355	mg/L	10	7/23/2024	EPA-160.1	=
Iodide	U	0.5	mg/L	0.5	7/23/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	JN	10.8	mg/L	20	7/23/2024	EPA-410.4	=
Cyanide	U	0.2	mg/L	0.2	7/23/2024	SW846-9012B	=
Total Organic Halides (TOX)		12	ug/L	10	7/23/2024	SW846-9020B	=
Total Organic Carbon (TOC)	J	1.93	mg/L	2	7/23/2024	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:** 3rd Quarter 2024

AKGWA Well Tag #: 8004-4805 **SAMPLE ID:** MW391SG4-24 Sample Type: REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide		0.49	mg/L	0.2	7/23/2024			SW846-9056A	=
Chloride	BJ	42	mg/L	250	7/23/2024			SW846-9056A	U
Fluoride	JW	0.129	mg/L	4	7/23/2024			SW846-9056A	=
Nitrate as Nitrogen	J	1.19	mg/L	10	7/23/2024			SW846-9056A	=
Sulfate		12.2	mg/L	0.4	7/23/2024			SW846-9056A	=
Barometric Pressure Reading		30.08	Inches/Hg		7/23/2024				X
Conductivity		384	µmhos/cm		7/23/2024				X
Depth to Water		42.64	ft		7/23/2024				X
Dissolved Oxygen		5.02	mg/L		7/23/2024				X
Eh (approx)		373	mV		7/23/2024				X
pH		6.13	Std Unit		7/23/2024				X
Temperature		63.1	deg F		7/23/2024				X
Turbidity		0	NTU		7/23/2024				X
Aluminum	J	0.0224	mg/L	0.05	7/23/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	7/23/2024			SW846-6020B	=
Arsenic	U	0.005	mg/L	0.005	7/23/2024			SW846-6020B	=
Barium		0.21	mg/L	0.004	7/23/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	7/23/2024			SW846-6020B	=
Boron		0.0241	mg/L	0.015	7/23/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	7/23/2024			SW846-6020B	=
Calcium		24.7	mg/L	0.2	7/23/2024			SW846-6020B	=
Chromium	U	0.01	mg/L	0.01	7/23/2024			SW846-6020B	=
Cobalt	U	0.001	mg/L	0.001	7/23/2024			SW846-6020B	=
Copper	J	0.000621	mg/L	0.002	7/23/2024			SW846-6020B	=
Iron		0.125	mg/L	0.1	7/23/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	7/23/2024			SW846-6020B	=
Magnesium		10.3	mg/L	0.03	7/23/2024			SW846-6020B	=
Manganese	J	0.00221	mg/L	0.005	7/23/2024			SW846-6020B	=
Molybdenum	U	0.001	mg/L	0.001	7/23/2024			SW846-6020B	=
Nickel	U	0.002	mg/L	0.002	7/23/2024			SW846-6020B	=
Potassium		1.41	mg/L	0.3	7/23/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	7/23/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	7/23/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	7/23/2024			SW846-6020B	=
Sodium		31.4	mg/L	0.25	7/23/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	7/23/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	7/23/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	7/23/2024			SW846-6020B	=
Vanadium	U	0.02	mg/L	0.02	7/23/2024			SW846-6020B	=
Zinc	U	0.02	mg/L	0.02	7/23/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	7/23/2024			SW846-7470A	=
Barium, Dissolved		0.214	mg/L	0.004	7/23/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	7/23/2024			SW846-6020B	UJ
Uranium, Dissolved	U	0.0002	mg/L	0.0002	7/23/2024			SW846-6020B	UJ
Radium-226	U	0.411	pCi/L	0.828	7/23/2024	0.562	0.563	AN-1418	=

Strontium-90	U	0.71	pCi/L	2.45	7/23/2024	1.36	1.36	EPA-905.0-M	=
Tritium	U	16.4	pCi/L	274	7/23/2024	153	153	EPA-906.0-M	=
Technetium-99	U	9.87	pCi/L	15.2	7/23/2024	9.18	9.25	HASL 300, Tc-02-RC M	=
Thorium-230	U	-0.0222	pCi/L	2.11	7/23/2024	0.955	0.956	HASL 300, Th-01-RC M	=
Alpha activity	U	-0.555	pCi/L	8	7/23/2024	3.39	3.39	SW846-9310	=
Beta activity	U	6.69	pCi/L	9.83	7/23/2024	6.06	6.16	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.0186	ug/L	0.0186	7/23/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	7/23/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	7/23/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	7/23/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	7/23/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	7/23/2024			SW846-8260D	UJ
Acrylonitrile	U	5	ug/L	5	7/23/2024			SW846-8260D	UJ
Benzene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	7/23/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	7/23/2024			SW846-8260D	UJ
Chlorobenzene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Ethylbenzene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	7/23/2024			SW846-8260D	=
Methylene chloride	U	5	ug/L	5	7/23/2024			SW846-8260D	=
Styrene	U	1	ug/L	1	7/23/2024			SW846-8260D	UJ
Tetrachloroethene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Toluene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Total Xylene	U	3	ug/L	3	7/23/2024			SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	7/23/2024			SW846-8260D	UJ
Trichloroethene	J	0.47	ug/L	1	7/23/2024			SW846-8260D	=
Trichlorofluoromethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=

Vinyl acetate	U	5	ug/L	5	7/23/2024	SW846-8260D	=
Vinyl chloride	U	1	ug/L	1	7/23/2024	SW846-8260D	=
Dissolved Solids		182	mg/L	10	7/23/2024	EPA-160.1	=
Iodide	U	0.5	mg/L	0.5	7/23/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	JN	10.8	mg/L	20	7/23/2024	EPA-410.4	=
Cyanide	U	0.2	mg/L	0.2	7/23/2024	SW846-9012B	=
Total Organic Halides (TOX)		21	ug/L	10	7/23/2024	SW846-9020B	=
Total Organic Carbon (TOC)	J	0.462	mg/L	2	7/23/2024	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:** 3rd Quarter 2024

AKGWA Well Tag #: 8004-4806 **SAMPLE ID:** MW392SG4-24 Sample Type: REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide		0.525	mg/L	0.2	7/23/2024			SW846-9056A	=
Chloride	BJ	41.6	mg/L	250	7/23/2024			SW846-9056A	U
Fluoride	JW	0.167	mg/L	4	7/23/2024			SW846-9056A	=
Nitrate as Nitrogen	J	0.677	mg/L	10	7/23/2024			SW846-9056A	=
Sulfate		7.73	mg/L	0.4	7/23/2024			SW846-9056A	=
Barometric Pressure Reading		30.08	Inches/Hg		7/23/2024				X
Conductivity		329	µmhos/cm		7/23/2024				X
Depth to Water		41.83	ft		7/23/2024				X
Dissolved Oxygen		1.87	mg/L		7/23/2024				X
Eh (approx)		368	mV		7/23/2024				X
pH		5.97	Std Unit		7/23/2024				X
Temperature		63.5	deg F		7/23/2024				X
Turbidity		0	NTU		7/23/2024				X
Aluminum	J	0.0219	mg/L	0.05	7/23/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	7/23/2024			SW846-6020B	=
Arsenic	U	0.005	mg/L	0.005	7/23/2024			SW846-6020B	=
Barium		0.305	mg/L	0.004	7/23/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	7/23/2024			SW846-6020B	=
Boron		0.0211	mg/L	0.015	7/23/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	7/23/2024			SW846-6020B	=
Calcium		22.7	mg/L	0.2	7/23/2024			SW846-6020B	=
Chromium	U	0.01	mg/L	0.01	7/23/2024			SW846-6020B	=
Cobalt	J	0.000313	mg/L	0.001	7/23/2024			SW846-6020B	=
Copper	J	0.000956	mg/L	0.002	7/23/2024			SW846-6020B	=
Iron		0.202	mg/L	0.1	7/23/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	7/23/2024			SW846-6020B	=
Magnesium		9.7	mg/L	0.03	7/23/2024			SW846-6020B	=
Manganese		0.198	mg/L	0.005	7/23/2024			SW846-6020B	=
Molybdenum	U	0.001	mg/L	0.001	7/23/2024			SW846-6020B	=
Nickel		0.00223	mg/L	0.002	7/23/2024			SW846-6020B	=
Potassium		2.03	mg/L	0.3	7/23/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	7/23/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	7/23/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	7/23/2024			SW846-6020B	=
Sodium		23.5	mg/L	0.25	7/23/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	7/23/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	7/23/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	7/23/2024			SW846-6020B	=
Vanadium	U	0.02	mg/L	0.02	7/23/2024			SW846-6020B	=
Zinc	U	0.02	mg/L	0.02	7/23/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	7/23/2024			SW846-7470A	=
Barium, Dissolved		0.295	mg/L	0.004	7/23/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	7/23/2024			SW846-6020B	UJ
Uranium, Dissolved	U	0.0002	mg/L	0.0002	7/23/2024			SW846-6020B	UJ
Radium-226	U	0.313	pCi/L	0.817	7/23/2024	0.52	0.521	AN-1418	=

Strontium-90	U	2.64	pCi/L	3.29	7/23/2024	2.09	2.13	EPA-905.0-M	=
Tritium	U	192	pCi/L	283	7/23/2024	172	176	EPA-906.0-M	=
Technetium-99	U	0.664	pCi/L	15.2	7/23/2024	8.51	8.51	HASL 300, Tc-02-RC M	=
Thorium-230	U	0.0853	pCi/L	1.97	7/23/2024	0.933	0.935	HASL 300, Th-01-RC M	=
Alpha activity	U	-1.57	pCi/L	8.11	7/23/2024	3.06	3.07	SW846-9310	=
Beta activity	U	5.11	pCi/L	9.76	7/23/2024	5.82	5.88	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.0191	ug/L	0.0191	7/23/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	7/23/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	7/23/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	7/23/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	7/23/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	7/23/2024			SW846-8260D	UJ
Acrylonitrile	U	5	ug/L	5	7/23/2024			SW846-8260D	UJ
Benzene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	7/23/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
cis-1,2-Dichloroethene	J	0.44	ug/L	1	7/23/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Ethylbenzene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	7/23/2024			SW846-8260D	=
Methylene chloride	U	5	ug/L	5	7/23/2024			SW846-8260D	=
Styrene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Toluene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Total Xylene	U	3	ug/L	3	7/23/2024			SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	7/23/2024			SW846-8260D	UJ
Trichloroethene		4.04	ug/L	1	7/23/2024			SW846-8260D	=
Trichlorofluoromethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=

Vinyl acetate	U	5	ug/L	5	7/23/2024	SW846-8260D	=
Vinyl chloride	U	1	ug/L	1	7/23/2024	SW846-8260D	=
Dissolved Solids		172	mg/L	10	7/23/2024	EPA-160.1	=
Iodide	U	0.5	mg/L	0.5	7/23/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	UN	20	mg/L	20	7/23/2024	EPA-410.4	=
Cyanide	U	0.2	mg/L	0.2	7/23/2024	SW846-9012B	=
Total Organic Halides (TOX)	J	8.76	ug/L	10	7/23/2024	SW846-9020B	=
Total Organic Carbon (TOC)	J	0.51	mg/L	2	7/23/2024	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:** 3rd Quarter 2024

AKGWA Well Tag #: 8004-4807 **SAMPLE ID:** MW393SG4-24 Sample Type: REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide	UW	0.2	mg/L	0.2	7/24/2024			SW846-9056A	=
Chloride	J	9.43	mg/L	250	7/24/2024			SW846-9056A	=
Fluoride	J	0.219	mg/L	4	7/24/2024			SW846-9056A	=
Nitrate as Nitrogen	J	0.226	mg/L	10	7/24/2024			SW846-9056A	=
Sulfate		23.2	mg/L	0.8	7/24/2024			SW846-9056A	=
Barometric Pressure Reading		30.16	Inches/Hg		7/24/2024				X
Conductivity		460	µmhos/cm		7/24/2024				X
Depth to Water		29.2	ft		7/24/2024				X
Dissolved Oxygen		1	mg/L		7/24/2024				X
Eh (approx)		383	mV		7/24/2024				X
pH		6.37	Std Unit		7/24/2024				X
Temperature		66.1	deg F		7/24/2024				X
Turbidity		18.09	NTU		7/24/2024				X
Aluminum	J	0.0284	mg/L	0.05	7/24/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	7/24/2024			SW846-6020B	=
Arsenic	J	0.00401	mg/L	0.005	7/24/2024			SW846-6020B	=
Barium		0.091	mg/L	0.004	7/24/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	7/24/2024			SW846-6020B	=
Boron		0.0168	mg/L	0.015	7/24/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	7/24/2024			SW846-6020B	=
Calcium		15.8	mg/L	0.2	7/24/2024			SW846-6020B	=
Chromium	U	0.01	mg/L	0.01	7/24/2024			SW846-6020B	=
Cobalt	U	0.001	mg/L	0.001	7/24/2024			SW846-6020B	=
Copper	J	0.000726	mg/L	0.002	7/24/2024			SW846-6020B	=
Iron		1.09	mg/L	0.1	7/24/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	7/24/2024			SW846-6020B	=
Magnesium		4.01	mg/L	0.03	7/24/2024			SW846-6020B	=
Manganese		0.0338	mg/L	0.005	7/24/2024			SW846-6020B	=
Molybdenum	J	0.000463	mg/L	0.001	7/24/2024			SW846-6020B	=
Nickel	U	0.002	mg/L	0.002	7/24/2024			SW846-6020B	=
Potassium		0.459	mg/L	0.3	7/24/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	7/24/2024			SW846-6020B	=
Selenium	J	0.00174	mg/L	0.005	7/24/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	7/24/2024			SW846-6020B	=
Sodium		77.9	mg/L	2.5	7/24/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	7/24/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	7/24/2024			SW846-6020B	=
Uranium		0.000213	mg/L	0.0002	7/24/2024			SW846-6020B	=
Vanadium	U	0.02	mg/L	0.02	7/24/2024			SW846-6020B	=
Zinc	U	0.02	mg/L	0.02	7/24/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	7/24/2024			SW846-7470A	=
Barium, Dissolved		0.0503	mg/L	0.004	7/24/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	7/24/2024			SW846-6020B	UJ
Uranium, Dissolved	J	0.000129	mg/L	0.0002	7/24/2024			SW846-6020B	J
Radium-226	U	0.178	pCi/L	0.635	7/24/2024	0.403	0.403	AN-1418	=

Strontium-90	U	0.528	pCi/L	5.77	7/24/2024	3.17	3.17	EPA-905.0-M	=
Tritium	U	57.1	pCi/L	245	7/24/2024	140	140	EPA-906.0-M	=
Technetium-99	U	-8.36	pCi/L	18	7/24/2024	9.64	9.64	HASL 300, Tc-02-RC M	=
Thorium-230	U	1.34	pCi/L	1.4	7/24/2024	1.11	1.13	HASL 300, Th-01-RC M	=
Alpha activity	U	0.395	pCi/L	9.11	7/24/2024	4.29	4.29	SW846-9310	=
Beta activity	U	-1.96	pCi/L	9.57	7/24/2024	4.72	4.72	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.0192	ug/L	0.0192	7/24/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	UY2	1	ug/L	1	7/24/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	7/24/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	7/24/2024			SW846-8260D	=
1,1,2-Trichloroethane	UY2	1	ug/L	1	7/24/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	7/24/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	7/24/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	7/24/2024			SW846-8260D	=
1,2-Dibromoethane	UY2	1	ug/L	1	7/24/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	7/24/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	7/24/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	7/24/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	7/24/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	7/24/2024			SW846-8260D	=
2-Hexanone	UY2	5	ug/L	5	7/24/2024			SW846-8260D	=
4-Methyl-2-pentanone	UY2	5	ug/L	5	7/24/2024			SW846-8260D	=
Acetone	J	2.39	ug/L	5	7/24/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	7/24/2024			SW846-8260D	UJ
Acrylonitrile	U	5	ug/L	5	7/24/2024			SW846-8260D	UJ
Benzene	U	1	ug/L	1	7/24/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	7/24/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	7/24/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	7/24/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	7/24/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	7/24/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	7/24/2024			SW846-8260D	UJ
Chlorobenzene	UY2	1	ug/L	1	7/24/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	7/24/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	7/24/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	7/24/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	7/24/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	7/24/2024			SW846-8260D	=
Dibromochloromethane	UY2	1	ug/L	1	7/24/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	7/24/2024			SW846-8260D	=
Ethylbenzene	UY2	1	ug/L	1	7/24/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	7/24/2024			SW846-8260D	=
Methylene chloride	U	5	ug/L	5	7/24/2024			SW846-8260D	=
Styrene	UY2	1	ug/L	1	7/24/2024			SW846-8260D	UJ
Tetrachloroethene	UY2	1	ug/L	1	7/24/2024			SW846-8260D	=
Toluene	UY2	1	ug/L	1	7/24/2024			SW846-8260D	=
Total Xylene	UY2	3	ug/L	3	7/24/2024			SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	7/24/2024			SW846-8260D	=
trans-1,3-Dichloropropene	UY2	1	ug/L	1	7/24/2024			SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	7/24/2024			SW846-8260D	UJ
Trichloroethene	J	0.83	ug/L	1	7/24/2024			SW846-8260D	=
Trichlorofluoromethane	U	1	ug/L	1	7/24/2024			SW846-8260D	=

Vinyl acetate	U	5	ug/L	5	7/24/2024	SW846-8260D	=
Vinyl chloride	U	1	ug/L	1	7/24/2024	SW846-8260D	=
Dissolved Solids		272	mg/L	10	7/24/2024	EPA-160.1	=
Iodide	U	0.5	mg/L	0.5	7/24/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	J	15.7	mg/L	20	7/24/2024	EPA-410.4	=
Cyanide	U	0.2	mg/L	0.2	7/24/2024	SW846-9012B	=
Total Organic Halides (TOX)		22.1	ug/L	10	7/24/2024	SW846-9020B	=
Total Organic Carbon (TOC)	J	1.91	mg/L	2	7/24/2024	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:** 3rd Quarter 2024

AKGWA Well Tag #: 8004-4802 **SAMPLE ID:** MW394SG4-24 Sample Type: REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide	W	0.8	mg/L	0.2	7/24/2024			SW846-9056A	J
Chloride	J	22.5	mg/L	250	7/24/2024			SW846-9056A	=
Fluoride	J	0.147	mg/L	4	7/24/2024			SW846-9056A	=
Nitrate as Nitrogen	J	1.18	mg/L	10	7/24/2024			SW846-9056A	=
Sulfate		11.7	mg/L	0.4	7/24/2024			SW846-9056A	=
Barometric Pressure Reading		30.16	Inches/Hg		7/24/2024				X
Conductivity		400	µmhos/cm		7/24/2024				X
Depth to Water		54.41	ft		7/24/2024				X
Dissolved Oxygen		4.66	mg/L		7/24/2024				X
Eh (approx)		404	mV		7/24/2024				X
pH		6.03	Std Unit		7/24/2024				X
Temperature		63.8	deg F		7/24/2024				X
Turbidity		0	NTU		7/24/2024				X
Aluminum	U	0.05	mg/L	0.05	7/24/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	7/24/2024			SW846-6020B	=
Arsenic	U	0.005	mg/L	0.005	7/24/2024			SW846-6020B	=
Barium		0.284	mg/L	0.004	7/24/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	7/24/2024			SW846-6020B	=
Boron		0.0206	mg/L	0.015	7/24/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	7/24/2024			SW846-6020B	=
Calcium		27.5	mg/L	0.2	7/24/2024			SW846-6020B	=
Chromium	U	0.01	mg/L	0.01	7/24/2024			SW846-6020B	=
Cobalt	U	0.001	mg/L	0.001	7/24/2024			SW846-6020B	=
Copper	J	0.00103	mg/L	0.002	7/24/2024			SW846-6020B	=
Iron	J	0.0602	mg/L	0.1	7/24/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	7/24/2024			SW846-6020B	=
Magnesium		11.5	mg/L	0.03	7/24/2024			SW846-6020B	=
Manganese	J	0.00156	mg/L	0.005	7/24/2024			SW846-6020B	=
Molybdenum	U	0.001	mg/L	0.001	7/24/2024			SW846-6020B	=
Nickel		0.00811	mg/L	0.002	7/24/2024			SW846-6020B	=
Potassium		1.57	mg/L	0.3	7/24/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	7/24/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	7/24/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	7/24/2024			SW846-6020B	=
Sodium		33.2	mg/L	0.25	7/24/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	7/24/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	7/24/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	7/24/2024			SW846-6020B	=
Vanadium	U	0.02	mg/L	0.02	7/24/2024			SW846-6020B	=
Zinc	J	0.00357	mg/L	0.02	7/24/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	7/24/2024			SW846-7470A	=
Barium, Dissolved		0.28	mg/L	0.004	7/24/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	7/24/2024			SW846-6020B	UJ
Uranium, Dissolved	U	0.0002	mg/L	0.0002	7/24/2024			SW846-6020B	UJ
Radium-226	U	0.448	pCi/L	0.852	7/24/2024	0.593	0.594	AN-1418	=

Strontium-90	U	1.62	pCi/L	3.48	7/24/2024	2.05	2.06	EPA-905.0-M	=
Tritium	U	79.4	pCi/L	249	7/24/2024	144	145	EPA-906.0-M	=
Technetium-99	U	6.82	pCi/L	17.9	7/24/2024	10.5	10.5	HASL 300, Tc-02-RC M	=
Thorium-230	U	0.856	pCi/L	1.99	7/24/2024	1.23	1.24	HASL 300, Th-01-RC M	=
Alpha activity	U	0.787	pCi/L	7.44	7/24/2024	3.42	3.43	SW846-9310	=
Beta activity	U	3.93	pCi/L	7.25	7/24/2024	4.38	4.44	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.0195	ug/L	0.0195	7/24/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	UY2	1	ug/L	1	7/24/2024			SW846-8260D	UJ
1,1,1-Trichloroethane	U	1	ug/L	1	7/24/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	7/24/2024			SW846-8260D	=
1,1,2-Trichloroethane	UY2	1	ug/L	1	7/24/2024			SW846-8260D	UJ
1,1-Dichloroethane	U	1	ug/L	1	7/24/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	7/24/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	7/24/2024			SW846-8260D	=
1,2-Dibromoethane	UY2	1	ug/L	1	7/24/2024			SW846-8260D	UJ
1,2-Dichlorobenzene	U	1	ug/L	1	7/24/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	7/24/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	7/24/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	7/24/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	7/24/2024			SW846-8260D	=
2-Hexanone	UY2	5	ug/L	5	7/24/2024			SW846-8260D	UJ
4-Methyl-2-pentanone	UY2	5	ug/L	5	7/24/2024			SW846-8260D	UJ
Acetone	U	5	ug/L	5	7/24/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	7/24/2024			SW846-8260D	UJ
Acrylonitrile	U	5	ug/L	5	7/24/2024			SW846-8260D	UJ
Benzene	U	1	ug/L	1	7/24/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	7/24/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	7/24/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	7/24/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	7/24/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	7/24/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	7/24/2024			SW846-8260D	UJ
Chlorobenzene	UY2	1	ug/L	1	7/24/2024			SW846-8260D	UJ
Chloroethane	U	1	ug/L	1	7/24/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	7/24/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	7/24/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	7/24/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	7/24/2024			SW846-8260D	=
Dibromochloromethane	UY2	1	ug/L	1	7/24/2024			SW846-8260D	UJ
Dibromomethane	U	1	ug/L	1	7/24/2024			SW846-8260D	=
Ethylbenzene	UY2	1	ug/L	1	7/24/2024			SW846-8260D	UJ
Iodomethane	U	5	ug/L	5	7/24/2024			SW846-8260D	=
Methylene chloride	U	5	ug/L	5	7/24/2024			SW846-8260D	=
Styrene	UY2	1	ug/L	1	7/24/2024			SW846-8260D	UJ
Tetrachloroethene	UY2	1	ug/L	1	7/24/2024			SW846-8260D	UJ
Toluene	UY2	1	ug/L	1	7/24/2024			SW846-8260D	UJ
Total Xylene	UY2	3	ug/L	3	7/24/2024			SW846-8260D	UJ
trans-1,2-Dichloroethene	U	1	ug/L	1	7/24/2024			SW846-8260D	=
trans-1,3-Dichloropropene	UY2	1	ug/L	1	7/24/2024			SW846-8260D	UJ
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	7/24/2024			SW846-8260D	UJ
Trichloroethene		4.23	ug/L	1	7/24/2024			SW846-8260D	=
Trichlorofluoromethane	U	1	ug/L	1	7/24/2024			SW846-8260D	=

Vinyl acetate	U	5	ug/L	5	7/24/2024	SW846-8260D	=
Vinyl chloride	U	1	ug/L	1	7/24/2024	SW846-8260D	=
Dissolved Solids		217	mg/L	10	7/24/2024	EPA-160.1	=
Iodide	U	0.5	mg/L	0.5	7/24/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	J	11	mg/L	20	7/24/2024	EPA-410.4	=
Cyanide	U	0.2	mg/L	0.2	7/24/2024	SW846-9012B	=
Total Organic Halides (TOX)	J	8.76	ug/L	10	7/24/2024	SW846-9020B	=
Total Organic Carbon (TOC)	J	0.59	mg/L	2	7/24/2024	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:** 3rd Quarter 2024

AKGWA Well Tag #: 8004-4801 **SAMPLE ID:** MW395SG4-24 Sample Type: REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide	W	0.622	mg/L	0.2	7/24/2024			SW846-9056A	=
Chloride	J	22.8	mg/L	250	7/24/2024			SW846-9056A	=
Fluoride	J	0.133	mg/L	4	7/24/2024			SW846-9056A	=
Nitrate as Nitrogen	J	1.27	mg/L	10	7/24/2024			SW846-9056A	=
Sulfate		11.1	mg/L	0.4	7/24/2024			SW846-9056A	=
Barometric Pressure Reading		30.16	Inches/Hg		7/24/2024				X
Conductivity		391	µmhos/cm		7/24/2024				X
Depth to Water		55.21	ft		7/24/2024				X
Dissolved Oxygen		3.5	mg/L		7/24/2024				X
Eh (approx)		393	mV		7/24/2024				X
pH		6.09	Std Unit		7/24/2024				X
Temperature		62.9	deg F		7/24/2024				X
Turbidity		1.09	NTU		7/24/2024				X
Aluminum	J	0.0325	mg/L	0.05	7/24/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	7/24/2024			SW846-6020B	=
Arsenic	U	0.005	mg/L	0.005	7/24/2024			SW846-6020B	=
Barium		0.254	mg/L	0.004	7/24/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	7/24/2024			SW846-6020B	=
Boron		0.0195	mg/L	0.015	7/24/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	7/24/2024			SW846-6020B	=
Calcium		26.9	mg/L	0.2	7/24/2024			SW846-6020B	=
Chromium	U	0.01	mg/L	0.01	7/24/2024			SW846-6020B	=
Cobalt	U	0.001	mg/L	0.001	7/24/2024			SW846-6020B	=
Copper	J	0.000944	mg/L	0.002	7/24/2024			SW846-6020B	=
Iron	J	0.0913	mg/L	0.1	7/24/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	7/24/2024			SW846-6020B	=
Magnesium		11.3	mg/L	0.03	7/24/2024			SW846-6020B	=
Manganese	J	0.00361	mg/L	0.005	7/24/2024			SW846-6020B	=
Molybdenum	U	0.001	mg/L	0.001	7/24/2024			SW846-6020B	=
Nickel	U	0.002	mg/L	0.002	7/24/2024			SW846-6020B	=
Potassium		1.55	mg/L	0.3	7/24/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	7/24/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	7/24/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	7/24/2024			SW846-6020B	=
Sodium		30.8	mg/L	0.25	7/24/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	7/24/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	7/24/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	7/24/2024			SW846-6020B	=
Vanadium	U	0.02	mg/L	0.02	7/24/2024			SW846-6020B	=
Zinc	U	0.02	mg/L	0.02	7/24/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	7/24/2024			SW846-7470A	=
Barium, Dissolved		0.252	mg/L	0.004	7/24/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	7/24/2024			SW846-6020B	UJ
Uranium, Dissolved	U	0.0002	mg/L	0.0002	7/24/2024			SW846-6020B	UJ
Radium-226	U	0.493	pCi/L	0.738	7/24/2024	0.553	0.554	AN-1418	=

Strontium-90	U	2.45	pCi/L	6.16	7/24/2024	3.59	3.61	EPA-905.0-M	=
Tritium	U	78	pCi/L	253	7/24/2024	147	147	EPA-906.0-M	=
Technetium-99	U	3.05	pCi/L	18.3	7/24/2024	10.5	10.5	HASL 300, Tc-02-RC M	=
Thorium-230	U	0.181	pCi/L	1.75	7/24/2024	0.888	0.891	HASL 300, Th-01-RC M	=
Alpha activity	U	-2.48	pCi/L	7.63	7/24/2024	2.36	2.36	SW846-9310	UJ
Beta activity	U	5.15	pCi/L	9.74	7/24/2024	5.81	5.87	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.019	ug/L	0.019	7/24/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	UY2	1	ug/L	1	7/24/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	7/24/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	7/24/2024			SW846-8260D	=
1,1,2-Trichloroethane	UY2	1	ug/L	1	7/24/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	7/24/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	7/24/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	7/24/2024			SW846-8260D	=
1,2-Dibromoethane	UY2	1	ug/L	1	7/24/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	7/24/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	7/24/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	7/24/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	7/24/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	7/24/2024			SW846-8260D	=
2-Hexanone	UY2	5	ug/L	5	7/24/2024			SW846-8260D	=
4-Methyl-2-pentanone	UY2	5	ug/L	5	7/24/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	7/24/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	7/24/2024			SW846-8260D	UJ
Acrylonitrile	U	5	ug/L	5	7/24/2024			SW846-8260D	UJ
Benzene	U	1	ug/L	1	7/24/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	7/24/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	7/24/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	7/24/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	7/24/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	7/24/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	7/24/2024			SW846-8260D	UJ
Chlorobenzene	UY2	1	ug/L	1	7/24/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	7/24/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	7/24/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	7/24/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	7/24/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	7/24/2024			SW846-8260D	=
Dibromochloromethane	UY2	1	ug/L	1	7/24/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	7/24/2024			SW846-8260D	=
Ethylbenzene	UY2	1	ug/L	1	7/24/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	7/24/2024			SW846-8260D	=
Methylene chloride	U	5	ug/L	5	7/24/2024			SW846-8260D	=
Styrene	UY2	1	ug/L	1	7/24/2024			SW846-8260D	UJ
Tetrachloroethene	UY2	1	ug/L	1	7/24/2024			SW846-8260D	=
Toluene	UY2	1	ug/L	1	7/24/2024			SW846-8260D	=
Total Xylene	UY2	3	ug/L	3	7/24/2024			SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	7/24/2024			SW846-8260D	=
trans-1,3-Dichloropropene	UY2	1	ug/L	1	7/24/2024			SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	7/24/2024			SW846-8260D	UJ
Trichloroethene		5.29	ug/L	1	7/24/2024			SW846-8260D	=
Trichlorofluoromethane	U	1	ug/L	1	7/24/2024			SW846-8260D	=

Vinyl acetate	U	5	ug/L	5	7/24/2024	SW846-8260D	=
Vinyl chloride	U	1	ug/L	1	7/24/2024	SW846-8260D	=
Dissolved Solids		214	mg/L	10	7/24/2024	EPA-160.1	=
Iodide	U	0.5	mg/L	0.5	7/24/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	U	20	mg/L	20	7/24/2024	EPA-410.4	=
Cyanide	U	0.2	mg/L	0.2	7/24/2024	SW846-9012B	=
Total Organic Halides (TOX)		18.9	ug/L	10	7/24/2024	SW846-9020B	=
Total Organic Carbon (TOC)	J	0.573	mg/L	2	7/24/2024	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:** 3rd Quarter 2024

AKGWA Well Tag #: 8004-4803 **SAMPLE ID:** MW396SG4-24 Sample Type: REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide	W	1.09	mg/L	0.2	7/24/2024			SW846-9056A	=
Chloride	J	56.8	mg/L	250	7/24/2024			SW846-9056A	=
Fluoride	J	0.62	mg/L	4	7/24/2024			SW846-9056A	=
Nitrate as Nitrogen	J	0.149	mg/L	10	7/24/2024			SW846-9056A	=
Sulfate		27.5	mg/L	4	7/24/2024			SW846-9056A	=
Barometric Pressure Reading		30.16	Inches/Hg		7/24/2024				X
Conductivity		643	µmhos/cm		7/24/2024				X
Depth to Water		13.05	ft		7/24/2024				X
Dissolved Oxygen		2.61	mg/L		7/24/2024				X
Eh (approx)		373	mV		7/24/2024				X
pH		6.58	Std Unit		7/24/2024				X
Temperature		63.6	deg F		7/24/2024				X
Turbidity		0	NTU		7/24/2024				X
Aluminum	U	0.05	mg/L	0.05	7/24/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	7/24/2024			SW846-6020B	=
Arsenic	U	0.005	mg/L	0.005	7/24/2024			SW846-6020B	=
Barium		0.353	mg/L	0.004	7/24/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	7/24/2024			SW846-6020B	=
Boron	J	0.00561	mg/L	0.015	7/24/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	7/24/2024			SW846-6020B	=
Calcium		29.8	mg/L	0.2	7/24/2024			SW846-6020B	=
Chromium	U	0.01	mg/L	0.01	7/24/2024			SW846-6020B	=
Cobalt	U	0.001	mg/L	0.001	7/24/2024			SW846-6020B	=
Copper	J	0.000865	mg/L	0.002	7/24/2024			SW846-6020B	=
Iron	J	0.0539	mg/L	0.1	7/24/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	7/24/2024			SW846-6020B	=
Magnesium		13.3	mg/L	0.03	7/24/2024			SW846-6020B	=
Manganese		0.00937	mg/L	0.005	7/24/2024			SW846-6020B	=
Molybdenum	J	0.00034	mg/L	0.001	7/24/2024			SW846-6020B	=
Nickel	U	0.002	mg/L	0.002	7/24/2024			SW846-6020B	=
Potassium		0.748	mg/L	0.3	7/24/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	7/24/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	7/24/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	7/24/2024			SW846-6020B	=
Sodium		87.9	mg/L	2.5	7/24/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	7/24/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	7/24/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	7/24/2024			SW846-6020B	=
Vanadium	U	0.02	mg/L	0.02	7/24/2024			SW846-6020B	=
Zinc	U	0.02	mg/L	0.02	7/24/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	7/24/2024			SW846-7470A	=
Barium, Dissolved		0.351	mg/L	0.004	7/24/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	7/24/2024			SW846-6020B	UJ
Uranium, Dissolved	U	0.0002	mg/L	0.0002	7/24/2024			SW846-6020B	UJ
Radium-226		0.994	pCi/L	0.769	7/24/2024	0.739	0.743	AN-1418	=

Strontium-90	U	0.415	pCi/L	3.87	7/24/2024	2.12	2.12	EPA-905.0-M	=
Tritium	U	83.6	pCi/L	255	7/24/2024	148	149	EPA-906.0-M	=
Technetium-99	U	-8.86	pCi/L	18.2	7/24/2024	9.7	9.7	HASL 300, Tc-02-RC M	=
Thorium-230	U	0.146	pCi/L	1.39	7/24/2024	0.7	0.702	HASL 300, Th-01-RC M	=
Alpha activity	U	3.42	pCi/L	8.84	7/24/2024	5.05	5.09	SW846-9310	=
Beta activity	U	1.29	pCi/L	9.93	7/24/2024	5.43	5.44	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.0193	ug/L	0.0193	7/24/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	UY2	1	ug/L	1	7/24/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	7/24/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	7/24/2024			SW846-8260D	=
1,1,2-Trichloroethane	UY2	1	ug/L	1	7/24/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	7/24/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	7/24/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	7/24/2024			SW846-8260D	=
1,2-Dibromoethane	UY2	1	ug/L	1	7/24/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	7/24/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	7/24/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	7/24/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	7/24/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	7/24/2024			SW846-8260D	=
2-Hexanone	UY2	5	ug/L	5	7/24/2024			SW846-8260D	=
4-Methyl-2-pentanone	UY2	5	ug/L	5	7/24/2024			SW846-8260D	=
Acetone	J	1.85	ug/L	5	7/24/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	7/24/2024			SW846-8260D	UJ
Acrylonitrile	U	5	ug/L	5	7/24/2024			SW846-8260D	UJ
Benzene	U	1	ug/L	1	7/24/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	7/24/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	7/24/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	7/24/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	7/24/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	7/24/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	7/24/2024			SW846-8260D	UJ
Chlorobenzene	UY2	1	ug/L	1	7/24/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	7/24/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	7/24/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	7/24/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	7/24/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	7/24/2024			SW846-8260D	=
Dibromochloromethane	UY2	1	ug/L	1	7/24/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	7/24/2024			SW846-8260D	=
Ethylbenzene	UY2	1	ug/L	1	7/24/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	7/24/2024			SW846-8260D	=
Methylene chloride	U	5	ug/L	5	7/24/2024			SW846-8260D	=
Styrene	UY2	1	ug/L	1	7/24/2024			SW846-8260D	UJ
Tetrachloroethene	UY2	1	ug/L	1	7/24/2024			SW846-8260D	=
Toluene	UY2	1	ug/L	1	7/24/2024			SW846-8260D	=
Total Xylene	UY2	3	ug/L	3	7/24/2024			SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	7/24/2024			SW846-8260D	=
trans-1,3-Dichloropropene	UY2	1	ug/L	1	7/24/2024			SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	7/24/2024			SW846-8260D	UJ
Trichloroethene	U	1	ug/L	1	7/24/2024			SW846-8260D	=
Trichlorofluoromethane	U	1	ug/L	1	7/24/2024			SW846-8260D	=

Vinyl acetate	U	5	ug/L	5	7/24/2024	SW846-8260D	=
Vinyl chloride	U	1	ug/L	1	7/24/2024	SW846-8260D	=
Dissolved Solids		398	mg/L	10	7/24/2024	EPA-160.1	=
Iodide	U	0.5	mg/L	0.5	7/24/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	J	18	mg/L	20	7/24/2024	EPA-410.4	=
Cyanide	U	0.2	mg/L	0.2	7/24/2024	SW846-9012B	=
Total Organic Halides (TOX)		42.6	ug/L	10	7/24/2024	SW846-9020B	=
Total Organic Carbon (TOC)		3.51	mg/L	2	7/24/2024	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:** 3rd Quarter 2024

AKGWA Well Tag #: 8004-4817 **SAMPLE ID:** MW397SG4-24 Sample Type: REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide		0.37	mg/L	0.2	7/22/2024			SW846-9056A	=
Chloride	JW	33.4	mg/L	250	7/22/2024			SW846-9056A	=
Fluoride	*J	0.202	mg/L	4	7/22/2024			SW846-9056A	=
Nitrate as Nitrogen	J	1.03	mg/L	10	7/22/2024			SW846-9056A	=
Sulfate		11.8	mg/L	0.4	7/22/2024			SW846-9056A	=
Barometric Pressure Reading		30.01	Inches/Hg		7/22/2024				X
Conductivity		318	µmhos/cm		7/22/2024				X
Depth to Water		62.82	ft		7/22/2024				X
Dissolved Oxygen		6.17	mg/L		7/22/2024				X
Eh (approx)		397	mV		7/22/2024				X
pH		5.95	Std Unit		7/22/2024				X
Temperature		65.7	deg F		7/22/2024				X
Turbidity		3.02	NTU		7/22/2024				X
Aluminum		0.205	mg/L	0.05	7/22/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	7/22/2024			SW846-6020B	=
Arsenic	U	0.005	mg/L	0.005	7/22/2024			SW846-6020B	=
Barium		0.131	mg/L	0.004	7/22/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	7/22/2024			SW846-6020B	=
Boron	J	0.00783	mg/L	0.015	7/22/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	7/22/2024			SW846-6020B	=
Calcium		18.4	mg/L	0.2	7/22/2024			SW846-6020B	=
Chromium	U	0.01	mg/L	0.01	7/22/2024			SW846-6020B	=
Cobalt	U	0.001	mg/L	0.001	7/22/2024			SW846-6020B	=
Copper	J	0.00092	mg/L	0.002	7/22/2024			SW846-6020B	=
Iron		0.56	mg/L	0.1	7/22/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	7/22/2024			SW846-6020B	=
Magnesium		7.52	mg/L	0.03	7/22/2024			SW846-6020B	=
Manganese		0.0102	mg/L	0.005	7/22/2024			SW846-6020B	=
Molybdenum	U	0.001	mg/L	0.001	7/22/2024			SW846-6020B	=
Nickel	J	0.000875	mg/L	0.002	7/22/2024			SW846-6020B	=
Potassium		1.77	mg/L	0.3	7/22/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	7/22/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	7/22/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	7/22/2024			SW846-6020B	=
Sodium		32.3	mg/L	0.25	7/22/2024			SW846-6020B	=
Tantalum	UN	0.005	mg/L	0.005	7/22/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	7/22/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	7/22/2024			SW846-6020B	=
Vanadium	U	0.02	mg/L	0.02	7/22/2024			SW846-6020B	=
Zinc	J	0.00387	mg/L	0.02	7/22/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	7/22/2024			SW846-7470A	=
Barium, Dissolved		0.127	mg/L	0.004	7/22/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	7/22/2024			SW846-6020B	UJ
Uranium, Dissolved	U	0.0002	mg/L	0.0002	7/22/2024			SW846-6020B	UJ
Radium-226		0.886	pCi/L	0.653	7/22/2024	0.7	0.702	AN-1418	=

Strontium-90	U	-0.659	pCi/L	6.69	7/22/2024	3.54	3.54	EPA-905.0-M	=
Tritium	U	44.2	pCi/L	248	7/22/2024	143	143	EPA-906.0-M	=
Technetium-99	U	9.13	pCi/L	15.7	7/22/2024	9.42	9.47	HASL 300, Tc-02-RC M	=
Thorium-230	U	0.228	pCi/L	0.536	7/22/2024	0.339	0.342	HASL 300, Th-01-RC M	=
Alpha activity	U	5.23	pCi/L	8.91	7/22/2024	5.52	5.59	SW846-9310	=
Beta activity		16.4	pCi/L	9.54	7/22/2024	7.04	7.55	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.019	ug/L	0.019	7/22/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	7/22/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	7/22/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	7/22/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	7/22/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	7/22/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	7/22/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	7/22/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	7/22/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	7/22/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	7/22/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	7/22/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	7/22/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	7/22/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	7/22/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	7/22/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	7/22/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	7/22/2024			SW846-8260D	UJ
Acrylonitrile	U	5	ug/L	5	7/22/2024			SW846-8260D	UJ
Benzene	U	1	ug/L	1	7/22/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	7/22/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	7/22/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	7/22/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	7/22/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	7/22/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	7/22/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	7/22/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	7/22/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	7/22/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	7/22/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	7/22/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	7/22/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	7/22/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	7/22/2024			SW846-8260D	=
Ethylbenzene	U	1	ug/L	1	7/22/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	7/22/2024			SW846-8260D	=
Methylene chloride	J	0.69	ug/L	5	7/22/2024			SW846-8260D	=
Styrene	U	1	ug/L	1	7/22/2024			SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	7/22/2024			SW846-8260D	=
Toluene	U	1	ug/L	1	7/22/2024			SW846-8260D	=
Total Xylene	U	3	ug/L	3	7/22/2024			SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	7/22/2024			SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	7/22/2024			SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	7/22/2024			SW846-8260D	UJ
Trichloroethene	U	1	ug/L	1	7/22/2024			SW846-8260D	=
Trichlorofluoromethane	U	1	ug/L	1	7/22/2024			SW846-8260D	=

Vinyl acetate	U	5	ug/L	5	7/22/2024	SW846-8260D	=
Vinyl chloride	U	1	ug/L	1	7/22/2024	SW846-8260D	=
Dissolved Solids		160	mg/L	10	7/22/2024	EPA-160.1	=
Iodide	U	0.5	mg/L	0.5	7/22/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	U	20	mg/L	20	7/22/2024	EPA-410.4	=
Cyanide	U	0.2	mg/L	0.2	7/22/2024	SW846-9012B	=
Total Organic Halides (TOX)	J	5	ug/L	10	7/22/2024	SW846-9020B	=
Total Organic Carbon (TOC)	J	0.536	mg/L	2	7/22/2024	SW846-9060A	=

Paducah OREIS
GROUNDWATER MONITORING REPORT

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

Sampling Point: QC **Period:** 3rd Quarter 2024

AKGWA Well Tag #: N/A **SAMPLE ID:** FB1SG4-24 **Sample Type:** FB

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Aluminum	U	0.05	mg/L	0.05	7/25/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	7/25/2024			SW846-6020B	=
Arsenic	U	0.005	mg/L	0.005	7/25/2024			SW846-6020B	=
Barium	U	0.004	mg/L	0.004	7/25/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	7/25/2024			SW846-6020B	=
Boron	U	0.015	mg/L	0.015	7/25/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	7/25/2024			SW846-6020B	=
Calcium	U	0.2	mg/L	0.2	7/25/2024			SW846-6020B	=
Chromium	U	0.01	mg/L	0.01	7/25/2024			SW846-6020B	=
Cobalt	U	0.001	mg/L	0.001	7/25/2024			SW846-6020B	=
Copper	U	0.002	mg/L	0.002	7/25/2024			SW846-6020B	=
Iron	U	0.1	mg/L	0.1	7/25/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	7/25/2024			SW846-6020B	=
Magnesium	U	0.03	mg/L	0.03	7/25/2024			SW846-6020B	=
Manganese	U	0.005	mg/L	0.005	7/25/2024			SW846-6020B	=
Molybdenum	U	0.001	mg/L	0.001	7/25/2024			SW846-6020B	=
Nickel	U	0.002	mg/L	0.002	7/25/2024			SW846-6020B	=
Potassium	U	0.3	mg/L	0.3	7/25/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	7/25/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	7/25/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	7/25/2024			SW846-6020B	=
Sodium	U	0.25	mg/L	0.25	7/25/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	7/25/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	7/25/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	7/25/2024			SW846-6020B	=
Vanadium	J	0.005	mg/L	0.02	7/25/2024			SW846-6020B	=
Zinc	U	0.02	mg/L	0.02	7/25/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	7/25/2024			SW846-7470A	=
Radium-226	U	0.352	pCi/L	0.798	7/25/2024	0.536	0.537	AN-1418	=
Strontium-90	U	0.226	pCi/L	4.35	7/25/2024	2.31	2.31	EPA-905.0-M	=
Tritium	U	38.5	pCi/L	290	7/25/2024	164	164	EPA-906.0-M	=
Technetium-99	U	-4.15	pCi/L	17.8	7/25/2024	9.78	9.78	HASL 300, Tc-02-RC M	=
Thorium-230	U	0.868	pCi/L	1.75	7/25/2024	1.11	1.12	HASL 300, Th-01-RC M	=
Alpha activity	U	3.41	pCi/L	5.05	7/25/2024	3.42	3.47	SW846-9310	UJ
Beta activity	U	-5.47	pCi/L	11	7/25/2024	5.21	5.21	SW846-9310	UJ
1,2-Dibromo-3-chloropropane	U	0.019	ug/L	0.019	7/25/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	7/25/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	7/25/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	7/25/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	7/25/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	7/25/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	7/25/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	7/25/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	7/25/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	7/25/2024			SW846-8260D	=

1,2-Dichloroethane	U	1	ug/L	1	7/25/2024	SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	7/25/2024	SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	7/25/2024	SW846-8260D	=
2-Butanone	U	5	ug/L	5	7/25/2024	SW846-8260D	=
2-Hexanone	U	5	ug/L	5	7/25/2024	SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	7/25/2024	SW846-8260D	=
Acetone	U	5	ug/L	5	7/25/2024	SW846-8260D	=
Acrolein	U	5	ug/L	5	7/25/2024	SW846-8260D	UJ
Acrylonitrile	U	5	ug/L	5	7/25/2024	SW846-8260D	UJ
Benzene	U	1	ug/L	1	7/25/2024	SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	7/25/2024	SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	7/25/2024	SW846-8260D	=
Bromoform	U	1	ug/L	1	7/25/2024	SW846-8260D	=
Bromomethane	U	1	ug/L	1	7/25/2024	SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	7/25/2024	SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	7/25/2024	SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	7/25/2024	SW846-8260D	=
Chloroethane	U	1	ug/L	1	7/25/2024	SW846-8260D	=
Chloroform	U	1	ug/L	1	7/25/2024	SW846-8260D	=
Chloromethane	U	1	ug/L	1	7/25/2024	SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	7/25/2024	SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	7/25/2024	SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	7/25/2024	SW846-8260D	=
Dibromomethane	U	1	ug/L	1	7/25/2024	SW846-8260D	=
Ethylbenzene	U	1	ug/L	1	7/25/2024	SW846-8260D	=
Iodomethane	U	5	ug/L	5	7/25/2024	SW846-8260D	=
Methylene chloride	U	5	ug/L	5	7/25/2024	SW846-8260D	=
Styrene	U	1	ug/L	1	7/25/2024	SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	7/25/2024	SW846-8260D	=
Toluene	U	1	ug/L	1	7/25/2024	SW846-8260D	=
Total Xylene	U	3	ug/L	3	7/25/2024	SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	7/25/2024	SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	7/25/2024	SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	7/25/2024	SW846-8260D	UJ
Trichloroethene	U	1	ug/L	1	7/25/2024	SW846-8260D	=
Trichlorofluoromethane	U	1	ug/L	1	7/25/2024	SW846-8260D	=
Vinyl acetate	U	5	ug/L	5	7/25/2024	SW846-8260D	=
Vinyl chloride	U	1	ug/L	1	7/25/2024	SW846-8260D	=
Iodide	U	0.5	mg/L	0.5	7/25/2024	EPA-300.0	=

Paducah OREIS
GROUNDWATER MONITORING REPORT

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

Sampling Point: QC **Period:** 3rd Quarter 2024

AKGWA Well Tag #: N/A **SAMPLE ID:** RI1SG4-24 **Sample Type:** RI

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Aluminum	U	0.05	mg/L	0.05	7/25/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	7/25/2024			SW846-6020B	=
Arsenic	U	0.005	mg/L	0.005	7/25/2024			SW846-6020B	=
Barium	U	0.004	mg/L	0.004	7/25/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	7/25/2024			SW846-6020B	=
Boron	U	0.015	mg/L	0.015	7/25/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	7/25/2024			SW846-6020B	=
Calcium	U	0.2	mg/L	0.2	7/25/2024			SW846-6020B	=
Chromium	U	0.01	mg/L	0.01	7/25/2024			SW846-6020B	=
Cobalt	U	0.001	mg/L	0.001	7/25/2024			SW846-6020B	=
Copper	U	0.002	mg/L	0.002	7/25/2024			SW846-6020B	=
Iron	U	0.1	mg/L	0.1	7/25/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	7/25/2024			SW846-6020B	=
Magnesium	U	0.03	mg/L	0.03	7/25/2024			SW846-6020B	=
Manganese	U	0.005	mg/L	0.005	7/25/2024			SW846-6020B	=
Molybdenum	U	0.001	mg/L	0.001	7/25/2024			SW846-6020B	=
Nickel	U	0.002	mg/L	0.002	7/25/2024			SW846-6020B	=
Potassium	U	0.3	mg/L	0.3	7/25/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	7/25/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	7/25/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	7/25/2024			SW846-6020B	=
Sodium	U	0.25	mg/L	0.25	7/25/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	7/25/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	7/25/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	7/25/2024			SW846-6020B	=
Vanadium	J	0.00524	mg/L	0.02	7/25/2024			SW846-6020B	=
Zinc	U	0.02	mg/L	0.02	7/25/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	7/25/2024			SW846-7470A	=
Radium-226	U	0.207	pCi/L	0.714	7/25/2024	0.431	0.431	AN-1418	=
Strontium-90	U	3.51	pCi/L	5.72	7/25/2024	3.45	3.5	EPA-905.0-M	=
Tritium	U	119	pCi/L	293	7/25/2024	172	173	EPA-906.0-M	=
Technetium-99	U	2.04	pCi/L	17.4	7/25/2024	9.92	9.92	HASL 300, Tc-02-RC M	=
Thorium-230	U	1.49	pCi/L	1.53	7/25/2024	1.21	1.23	HASL 300, Th-01-RC M	=
Alpha activity	U	-1.01	pCi/L	8.53	7/25/2024	3.36	3.36	SW846-9310	UJ
Beta activity	U	0.746	pCi/L	8.38	7/25/2024	4.47	4.47	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.0191	ug/L	0.0191	7/25/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	7/25/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	7/25/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	7/25/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	7/25/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	7/25/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	7/25/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	7/25/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	7/25/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	7/25/2024			SW846-8260D	=

1,2-Dichloroethane	U	1	ug/L	1	7/25/2024	SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	7/25/2024	SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	7/25/2024	SW846-8260D	=
2-Butanone	U	5	ug/L	5	7/25/2024	SW846-8260D	=
2-Hexanone	U	5	ug/L	5	7/25/2024	SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	7/25/2024	SW846-8260D	=
Acetone	U	5	ug/L	5	7/25/2024	SW846-8260D	=
Acrolein	U	5	ug/L	5	7/25/2024	SW846-8260D	UJ
Acrylonitrile	U	5	ug/L	5	7/25/2024	SW846-8260D	UJ
Benzene	U	1	ug/L	1	7/25/2024	SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	7/25/2024	SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	7/25/2024	SW846-8260D	=
Bromoform	U	1	ug/L	1	7/25/2024	SW846-8260D	=
Bromomethane	U	1	ug/L	1	7/25/2024	SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	7/25/2024	SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	7/25/2024	SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	7/25/2024	SW846-8260D	=
Chloroethane	U	1	ug/L	1	7/25/2024	SW846-8260D	=
Chloroform	J	0.43	ug/L	1	7/25/2024	SW846-8260D	=
Chloromethane	U	1	ug/L	1	7/25/2024	SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	7/25/2024	SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	7/25/2024	SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	7/25/2024	SW846-8260D	=
Dibromomethane	U	1	ug/L	1	7/25/2024	SW846-8260D	=
Ethylbenzene	U	1	ug/L	1	7/25/2024	SW846-8260D	=
Iodomethane	U	5	ug/L	5	7/25/2024	SW846-8260D	=
Methylene chloride	U	5	ug/L	5	7/25/2024	SW846-8260D	=
Styrene	U	1	ug/L	1	7/25/2024	SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	7/25/2024	SW846-8260D	=
Toluene	U	1	ug/L	1	7/25/2024	SW846-8260D	=
Total Xylene	U	3	ug/L	3	7/25/2024	SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	7/25/2024	SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	7/25/2024	SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	7/25/2024	SW846-8260D	UJ
Trichloroethene	U	1	ug/L	1	7/25/2024	SW846-8260D	=
Trichlorofluoromethane	U	1	ug/L	1	7/25/2024	SW846-8260D	=
Vinyl acetate	U	5	ug/L	5	7/25/2024	SW846-8260D	=
Vinyl chloride	U	1	ug/L	1	7/25/2024	SW846-8260D	=
Iodide	U	0.5	mg/L	0.5	7/25/2024	EPA-300.0	=

Paducah OREIS
GROUNDWATER MONITORING REPORT

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

Sampling Point: QC **Period:** 3rd Quarter 2024

AKGWA Well Tag #: N/A **SAMPLE ID:** TB1SG4-24 **Sample Type:** TB

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
1,2-Dibromo-3-chloropropane	U	0.0189	ug/L	0.0189	7/22/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	7/22/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	7/22/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	7/22/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	7/22/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	7/22/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	7/22/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	7/22/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	7/22/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	7/22/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	7/22/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	7/22/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	7/22/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	7/22/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	7/22/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	7/22/2024			SW846-8260D	=
Acetone	J	3.34	ug/L	5	7/22/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	7/22/2024			SW846-8260D	UJ
Acrylonitrile	U	5	ug/L	5	7/22/2024			SW846-8260D	UJ
Benzene	U	1	ug/L	1	7/22/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	7/22/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	7/22/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	7/22/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	7/22/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	7/22/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	7/22/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	7/22/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	7/22/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	7/22/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	7/22/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	7/22/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	7/22/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	7/22/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	7/22/2024			SW846-8260D	=
Ethylbenzene	U	1	ug/L	1	7/22/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	7/22/2024			SW846-8260D	=
Methylene chloride	J	0.85	ug/L	5	7/22/2024			SW846-8260D	=
Styrene	U	1	ug/L	1	7/22/2024			SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	7/22/2024			SW846-8260D	=
Toluene	U	1	ug/L	1	7/22/2024			SW846-8260D	=
Total Xylene	U	3	ug/L	3	7/22/2024			SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	7/22/2024			SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	7/22/2024			SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	7/22/2024			SW846-8260D	UJ
Trichloroethene	U	1	ug/L	1	7/22/2024			SW846-8260D	=

Trichlorofluoromethane	U	1	ug/L	1	7/22/2024	SW846-8260D	=
Vinyl acetate	U	5	ug/L	5	7/22/2024	SW846-8260D	=
Vinyl chloride	U	1	ug/L	1	7/22/2024	SW846-8260D	=

Paducah OREIS
GROUNDWATER MONITORING REPORT

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

Sampling Point: QC **Period:** 3rd Quarter 2024

AKGWA Well Tag #: N/A **SAMPLE ID:** TB2SG4-24 **Sample Type:** TB

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
1,2-Dibromo-3-chloropropane	U	0.0191	ug/L	0.0191	7/23/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	7/23/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	7/23/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	7/23/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	7/23/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	7/23/2024			SW846-8260D	UJ
Acrylonitrile	U	5	ug/L	5	7/23/2024			SW846-8260D	UJ
Benzene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	7/23/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	7/23/2024			SW846-8260D	UJ
Chlorobenzene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Ethylbenzene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	7/23/2024			SW846-8260D	=
Methylene chloride	U	5	ug/L	5	7/23/2024			SW846-8260D	=
Styrene	U	1	ug/L	1	7/23/2024			SW846-8260D	UJ
Tetrachloroethene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Toluene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
Total Xylene	U	3	ug/L	3	7/23/2024			SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	7/23/2024			SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	7/23/2024			SW846-8260D	UJ
Trichloroethene	U	1	ug/L	1	7/23/2024			SW846-8260D	=

Trichlorofluoromethane	U	1	ug/L	1	7/23/2024	SW846-8260D	=
Vinyl acetate	U	5	ug/L	5	7/23/2024	SW846-8260D	=
Vinyl chloride	U	1	ug/L	1	7/23/2024	SW846-8260D	=

Paducah OREIS
GROUNDWATER MONITORING REPORT

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

Sampling Point: QC **Period:** 3rd Quarter 2024

AKGWA Well Tag #: N/A **SAMPLE ID:** TB3SG4-24 **Sample Type:** TB

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
1,2-Dibromo-3-chloropropane	U	0.0191	ug/L	0.0191	7/24/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	UY2	1	ug/L	1	7/24/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	7/24/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	7/24/2024			SW846-8260D	=
1,1,2-Trichloroethane	UY2	1	ug/L	1	7/24/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	7/24/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	7/24/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	7/24/2024			SW846-8260D	=
1,2-Dibromoethane	UY2	1	ug/L	1	7/24/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	7/24/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	7/24/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	7/24/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	7/24/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	7/24/2024			SW846-8260D	=
2-Hexanone	UY2	5	ug/L	5	7/24/2024			SW846-8260D	=
4-Methyl-2-pentanone	UY2	5	ug/L	5	7/24/2024			SW846-8260D	=
Acetone	J	2.48	ug/L	5	7/24/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	7/24/2024			SW846-8260D	UJ
Acrylonitrile	U	5	ug/L	5	7/24/2024			SW846-8260D	UJ
Benzene	U	1	ug/L	1	7/24/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	7/24/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	7/24/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	7/24/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	7/24/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	7/24/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	7/24/2024			SW846-8260D	UJ
Chlorobenzene	UY2	1	ug/L	1	7/24/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	7/24/2024			SW846-8260D	=
Chloroform	J	0.37	ug/L	1	7/24/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	7/24/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	7/24/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	7/24/2024			SW846-8260D	=
Dibromochloromethane	UY2	1	ug/L	1	7/24/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	7/24/2024			SW846-8260D	=
Ethylbenzene	UY2	1	ug/L	1	7/24/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	7/24/2024			SW846-8260D	=
Methylene chloride	U	5	ug/L	5	7/24/2024			SW846-8260D	=
Styrene	UY2	1	ug/L	1	7/24/2024			SW846-8260D	UJ
Tetrachloroethene	UY2	1	ug/L	1	7/24/2024			SW846-8260D	=
Toluene	UY2	1	ug/L	1	7/24/2024			SW846-8260D	=
Total Xylene	UY2	3	ug/L	3	7/24/2024			SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	7/24/2024			SW846-8260D	=
trans-1,3-Dichloropropene	UY2	1	ug/L	1	7/24/2024			SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	7/24/2024			SW846-8260D	UJ
Trichloroethene	U	1	ug/L	1	7/24/2024			SW846-8260D	=

Trichlorofluoromethane	U	1	ug/L	1	7/24/2024	SW846-8260D	=
Vinyl acetate	U	5	ug/L	5	7/24/2024	SW846-8260D	=
Vinyl chloride	U	1	ug/L	1	7/24/2024	SW846-8260D	=

Paducah OREIS
GROUNDWATER MONITORING REPORT

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

Sampling Point: QC **Period:** 3rd Quarter 2024

AKGWA Well Tag #: N/A **SAMPLE ID:** TB4SG4-24 **Sample Type:** TB

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
1,2-Dibromo-3-chloropropane	U	0.0195	ug/L	0.0195	7/25/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	7/25/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	7/25/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	7/25/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	7/25/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	7/25/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	7/25/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	7/25/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	7/25/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	7/25/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	7/25/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	7/25/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	7/25/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	7/25/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	7/25/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	7/25/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	7/25/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	7/25/2024			SW846-8260D	UJ
Acrylonitrile	U	5	ug/L	5	7/25/2024			SW846-8260D	UJ
Benzene	U	1	ug/L	1	7/25/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	7/25/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	7/25/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	7/25/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	7/25/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	7/25/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	7/25/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	7/25/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	7/25/2024			SW846-8260D	=
Chloroform	J	0.42	ug/L	1	7/25/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	7/25/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	7/25/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	7/25/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	7/25/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	7/25/2024			SW846-8260D	=
Ethylbenzene	U	1	ug/L	1	7/25/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	7/25/2024			SW846-8260D	=
Methylene chloride	U	5	ug/L	5	7/25/2024			SW846-8260D	=
Styrene	U	1	ug/L	1	7/25/2024			SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	7/25/2024			SW846-8260D	=
Toluene	U	1	ug/L	1	7/25/2024			SW846-8260D	=
Total Xylene	U	3	ug/L	3	7/25/2024			SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	7/25/2024			SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	7/25/2024			SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	7/25/2024			SW846-8260D	UJ
Trichloroethene	U	1	ug/L	1	7/25/2024			SW846-8260D	=

Trichlorofluoromethane	U	1	ug/L	1	7/25/2024	SW846-8260D	=
Vinyl acetate	U	5	ug/L	5	7/25/2024	SW846-8260D	=
Vinyl chloride	U	1	ug/L	1	7/25/2024	SW846-8260D	=

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

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

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

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

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, LLC
Address : 5600 Hobbs Road
Kevil, Kentucky 42053
Report Date: October 31, 2024
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW220SG4-24
Sample ID: 677449001
Matrix: WG
Collect Date: 24-JUL-24
Receive Date: 25-JUL-24
Collector: Client
Project: FRNP00511
Client ID: FRNP005

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
AlphaSpec Ra226, Liquid "As Received"														
Radium-226	U	0.600	+/-0.639	0.808	+/-0.641	5.00	pCi/L			CM4	08/22/24	0837	2659829	1
Th-01-RC M, Th Isotopes, Liquid "As Received"														
Thorium-230	U	0.155	+/-0.849	1.71	+/-0.851	50.0	pCi/L			AG2	08/15/24	1233	2646982	2
Rad Gas Flow Proportional Counting														
905.0 Mod, Sr90, liquid "As Received"														
Strontium-90	U	0.982	+/-2.40	4.25	+/-2.41	8.00	pCi/L			JE1	08/13/24	0657	2650332	3
9310,Alpha/Beta Activity, liquid "As Received"														
Alpha	U	1.91	+/-3.20	5.83	+/-3.22	15.0	pCi/L			HH3	08/05/24	1333	2650243	4
Beta		17.6	+/-6.70	8.59	+/-7.31	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
906.0 Mod, Tritium Dist, Liquid "As Received"														
Tritium	U	58.2	+/-144	252	+/-144	300	pCi/L			HB2	08/21/24	1408	2649582	5
Tc-02-RC-MOD, Tc99, Liquid "As Received"														
Technetium-99	U	2.79	+/-10.1	17.7	+/-10.1	25.0	pCi/L			GS3	08/13/24	1539	2647382	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"	2659829	94.8	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2646982	84.8	(30%-110%)
Strontium Carrier	905.0 Mod, Sr90, liquid "As Received"	2650332	96.3	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2647382	98.8	(30%-110%)

GEL LABORATORIES LLC

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Certificate of Analysis

Company : Four Rivers Nuclear Partnership,
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5600 Hobbs Road

Kevil, Kentucky 42053

Report Date: October 31, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW220SG4-24
Sample ID: 677449001

Project: FRNP00511
Client ID: FRNP005

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

Notes:

The MDC is a sample specific MDC.

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

Column headers are defined as follows:

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

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Kevil, Kentucky 42053

Report Date: October 31, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW221SG4-24
Sample ID: 677449003
Matrix: WG
Collect Date: 24-JUL-24
Receive Date: 25-JUL-24
Collector: Client

Project: FRNP00511
Client ID: FRNP005

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
AlphaSpec Ra226, Liquid "As Received"														
Radium-226		1.07	+/-0.771	0.756	+/-0.775	5.00	pCi/L			CM4	08/22/24	0837	2659829	1
Th-01-RC M, Th Isotopes, Liquid "As Received"														
Thorium-230	U	-0.582	+/-0.694	2.14	+/-0.694	50.0	pCi/L			AG2	08/15/24	1233	2646982	2
Rad Gas Flow Proportional Counting														
905.0 Mod, Sr90, liquid "As Received"														
Strontium-90	U	1.01	+/-1.96	3.47	+/-1.97	8.00	pCi/L			JE1	08/13/24	0657	2650332	3
9310,Alpha/Beta Activity, liquid "As Received"														
Alpha	U	5.40	+/-5.84	9.40	+/-5.91	15.0	pCi/L			HH3	08/09/24	1220	2650243	4
Beta	U	7.08	+/-5.38	8.26	+/-5.51	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
906.0 Mod, Tritium Dist, Liquid "As Received"														
Tritium	U	92.5	+/-144	247	+/-145	300	pCi/L			HB2	08/21/24	1445	2649582	5
Tc-02-RC-MOD, Tc99, Liquid "As Received"														
Technetium-99	U	10.1	+/-10.7	17.9	+/-10.7	25.0	pCi/L			GS3	08/13/24	1556	2647382	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"	2659829	93.9	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2646982	83.8	(30%-110%)
Strontium Carrier	905.0 Mod, Sr90, liquid "As Received"	2650332	92	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2647382	98.7	(30%-110%)

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5600 Hobbs Road

Kevil, Kentucky 42053 Report Date: October 31, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW221SG4-24 Project: FRNP00511
Sample ID: 677449003 Client ID: FRNP005

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

Notes:

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

Column headers are defined as follows:

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

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

Kevil, Kentucky 42053

Report Date: October 31, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW393SG4-24
Sample ID: 677449005
Matrix: WG
Collect Date: 24-JUL-24
Receive Date: 25-JUL-24
Collector: Client

Project: FRNP00511
Client ID: FRNP005

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
AlphaSpec Ra226, Liquid "As Received"														
Radium-226	U	0.178	+/-0.403	0.635	+/-0.403	5.00	pCi/L			CM4	08/22/24	0837	2659829	1
Th-01-RC M, Th Isotopes, Liquid "As Received"														
Thorium-230	U	1.34	+/-1.11	1.40	+/-1.13	50.0	pCi/L			AG2	08/16/24	1041	2646982	2
Rad Gas Flow Proportional Counting														
905.0 Mod, Sr90, liquid "As Received"														
Strontium-90	U	0.528	+/-3.17	5.77	+/-3.17	8.00	pCi/L			JE1	08/13/24	0657	2650332	3
9310,Alpha/Beta Activity, liquid "As Received"														
Alpha	U	0.395	+/-4.29	9.11	+/-4.29	15.0	pCi/L			HH3	08/05/24	1333	2650243	4
Beta	U	-1.96	+/-4.72	9.57	+/-4.72	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
906.0 Mod, Tritium Dist, Liquid "As Received"														
Tritium	U	57.1	+/-140	245	+/-140	300	pCi/L			HB2	08/21/24	1522	2649582	5
Tc-02-RC-MOD, Tc99, Liquid "As Received"														
Technetium-99	U	-8.36	+/-9.64	18.0	+/-9.64	25.0	pCi/L			GS3	08/13/24	1612	2647382	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"	2659829	94.5	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2646982	82.9	(30%-110%)
Strontium Carrier	905.0 Mod, Sr90, liquid "As Received"	2650332	72.7	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2647382	97.7	(30%-110%)

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Certificate of Analysis

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

Report Date: October 31, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW393SG4-24
Sample ID: 677449005

Project: FRNP00511
Client ID: FRNP005

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

Notes:

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

Column headers are defined as follows:

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

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Kevil, Kentucky 42053

Report Date: October 31, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW394SG4-24
Sample ID: 677449007
Matrix: WG
Collect Date: 24-JUL-24
Receive Date: 25-JUL-24
Collector: Client

Project: FRNP00511
Client ID: FRNP005

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
AlphaSpec Ra226, Liquid "As Received"														
Radium-226	U	0.448	+/-0.593	0.852	+/-0.594	5.00	pCi/L			CM4	08/22/24	0837	2659829	1
Th-01-RC M, Th Isotopes, Liquid "As Received"														
Thorium-230	U	0.856	+/-1.23	1.99	+/-1.24	50.0	pCi/L			AG2	08/16/24	1041	2646982	2
Rad Gas Flow Proportional Counting														
905.0 Mod, Sr90, liquid "As Received"														
Strontium-90	U	1.62	+/-2.05	3.48	+/-2.06	8.00	pCi/L			JE1	08/13/24	0657	2650332	3
9310,Alpha/Beta Activity, liquid "As Received"														
Alpha	U	0.787	+/-3.42	7.44	+/-3.43	15.0	pCi/L			HH3	08/09/24	1220	2650243	4
Beta	U	3.93	+/-4.38	7.25	+/-4.44	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
906.0 Mod, Tritium Dist, Liquid "As Received"														
Tritium	U	79.4	+/-144	249	+/-145	300	pCi/L			HB2	08/21/24	1558	2649582	5
Tc-02-RC-MOD, Tc99, Liquid "As Received"														
Technetium-99	U	6.82	+/-10.5	17.9	+/-10.5	25.0	pCi/L			GS3	08/13/24	1629	2647382	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"	2659829	92.5	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2646982	79.6	(30%-110%)
Strontium Carrier	905.0 Mod, Sr90, liquid "As Received"	2650332	81.3	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2647382	96.7	(30%-110%)

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Kevil, Kentucky 42053 Report Date: October 31, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW394SG4-24 Project: FRNP00511
Sample ID: 677449007 Client ID: FRNP005

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

Notes:

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

Column headers are defined as follows:

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

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Certificate of Analysis

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

Kevil, Kentucky 42053

Report Date: October 31, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW395SG4-24
Sample ID: 677449009
Matrix: WG
Collect Date: 24-JUL-24
Receive Date: 25-JUL-24
Collector: Client

Project: FRNP00511
Client ID: FRNP005

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
AlphaSpec Ra226, Liquid "As Received"														
Radium-226	U	0.493	+/-0.553	0.738	+/-0.554	5.00	pCi/L			CM4	08/22/24	0837	2659829	1
Th-01-RC M, Th Isotopes, Liquid "As Received"														
Thorium-230	U	0.181	+/-0.888	1.75	+/-0.891	50.0	pCi/L			AG2	08/16/24	1041	2646982	2
Rad Gas Flow Proportional Counting														
905.0 Mod, Sr90, liquid "As Received"														
Strontium-90	U	2.45	+/-3.59	6.16	+/-3.61	8.00	pCi/L			JE1	08/13/24	0658	2650332	3
9310,Alpha/Beta Activity, liquid "As Received"														
Alpha	U	-2.48	+/-2.36	7.63	+/-2.36	15.0	pCi/L			HH3	08/05/24	1333	2650243	4
Beta	U	5.15	+/-5.81	9.74	+/-5.87	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
906.0 Mod, Tritium Dist, Liquid "As Received"														
Tritium	U	78.0	+/-147	253	+/-147	300	pCi/L			HB2	08/21/24	1635	2649582	5
Tc-02-RC-MOD, Tc99, Liquid "As Received"														
Technetium-99	U	3.05	+/-10.5	18.3	+/-10.5	25.0	pCi/L			GS3	08/13/24	1645	2647382	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"	2659829	97.5	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2646982	84.6	(30%-110%)
Strontium Carrier	905.0 Mod, Sr90, liquid "As Received"	2650332	72.7	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2647382	95.8	(30%-110%)

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Report Date: October 31, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW395SG4-24
Sample ID: 677449009

Project: FRNP00511
Client ID: FRNP005

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

Notes:

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

Column headers are defined as follows:

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

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Report Date: October 31, 2024

Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW396SG4-24
Sample ID: 677449011
Matrix: WG
Collect Date: 24-JUL-24
Receive Date: 25-JUL-24
Collector: Client

Project: FRNP00511
Client ID: FRNP005

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
AlphaSpec Ra226, Liquid "As Received"														
Radium-226		0.994	+/-0.739	0.769	+/-0.743	5.00	pCi/L			CM4	08/22/24	0837	2659829	1
Th-01-RC M, Th Isotopes, Liquid "As Received"														
Thorium-230	U	0.146	+/-0.700	1.39	+/-0.702	50.0	pCi/L			AG2	08/16/24	1041	2646982	2
Rad Gas Flow Proportional Counting														
905.0 Mod, Sr90, liquid "As Received"														
Strontium-90	U	0.415	+/-2.12	3.87	+/-2.12	8.00	pCi/L			JE1	08/13/24	0658	2650332	3
9310,Alpha/Beta Activity, liquid "As Received"														
Alpha	U	3.42	+/-5.05	8.84	+/-5.09	15.0	pCi/L			HH3	08/05/24	1333	2650243	4
Beta	U	1.29	+/-5.43	9.93	+/-5.44	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
906.0 Mod, Tritium Dist, Liquid "As Received"														
Tritium	U	83.6	+/-148	255	+/-149	300	pCi/L			HB2	08/21/24	1712	2649582	5
Tc-02-RC-MOD, Tc99, Liquid "As Received"														
Technetium-99	U	-8.86	+/-9.70	18.2	+/-9.70	25.0	pCi/L			GS3	08/13/24	1702	2647382	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"	2659829	94.8	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2646982	82	(30%-110%)
Strontium Carrier	905.0 Mod, Sr90, liquid "As Received"	2650332	92	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2647382	97	(30%-110%)

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Kevil, Kentucky 42053 Report Date: October 31, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW396SG4-24 Project: FRNP00511
Sample ID: 677449011 Client ID: FRNP005

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

Notes:

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

Column headers are defined as follows:

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

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Report Date: October 31, 2024

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

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW220SG4-24
Sample ID: 677449001
Matrix: WG
Collect Date: 24-JUL-24 08:21
Receive Date: 25-JUL-24
Collector: Client

Project: FRNP00511
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
504.1/8011 Analysis of EDB/DBCP												
8011, VOA Compounds Liquid "As Received"												
1,2-Dibromo-3-chloropropane	U	0.0189	0.00848	0.0189	ug/L	0.943	1	LOF	08/03/24	1535	2647154	2
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	0.758	0.330	2.00	mg/L		1	KB3	08/18/24	2308	2657949	3
Flow Injection Analysis												
9012B, Total Cyanide "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	07/26/24	1200	2646663	4
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens	J	7.16	3.33	10.0	ug/L		1	JS13	08/19/24	1815	2658912	5
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	08/12/24	1229	2654903	6
SW846 9056A Anions (5) "As Received"												
Chloride	J	18.1	0.134	250	mg/L		2	CH6	07/25/24	1904	2646386	7
Nitrate-N	J	1.06	0.0660	10.0	mg/L		2					
Sulfate		21.6	0.266	0.800	mg/L		2					
Bromide	W	0.261	0.0670	0.200	mg/L		1	CH6	07/25/24	1356	2646386	8
Fluoride	J	0.242	0.0330	4.00	mg/L		1					
Mercury Analysis-CVAA												
7470, Mercury Liquid "As Received"												
Mercury	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	JP2	07/29/24	1059	2646459	9
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	08/10/24	2258	2647183	10
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Aluminum	U	0.0500	0.0193	0.0500	mg/L	1.00	1	PRB	08/10/24	2000	2647183	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		0.204	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					
Boron	J	0.00712	0.00520	0.0150	mg/L	1.00	1					
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1					

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Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW220SG4-24 Project: FRNP00511
Sample ID: 677449001 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Calcium		25.5	0.0800	0.200	mg/L	1.00	1					
Chromium	J	0.00902	0.00300	0.0100	mg/L	1.00	1					
Cobalt	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Copper	J	0.00194	0.000300	0.00200	mg/L	1.00	1					
Iron	J	0.0385	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Magnesium		10.4	0.0100	0.0300	mg/L	1.00	1					
Manganese	J	0.00279	0.00100	0.00500	mg/L	1.00	1					
Molybdenum		0.00131	0.000200	0.00100	mg/L	1.00	1					
Nickel		0.00649	0.000600	0.00200	mg/L	1.00	1					
Potassium		11.0	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		46.0	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	0.00543	0.00330	0.0200	mg/L	1.00	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		246	2.38	10.0	mg/L			KLP1	07/30/24	1447	2648069	12
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD	J	13.3	8.95	20.0	mg/L		1	HH2	07/31/24	1733	2647741	13
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	UY2	1.00	0.333	1.00	ug/L		1	JB6	07/26/24	1259	2646976	14
1,1,1-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2-Trichloroethane	UY2	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	UY2	1.00	0.333	1.00	ug/L		1					

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Address : 5600 Hobbs Road

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW220SG4-24 Project: FRNP00511
Sample ID: 677449001 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,2-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,4-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
2-Butanone	U	5.00	1.67	5.00	ug/L		1					
2-Hexanone	UY2	5.00	1.67	5.00	ug/L		1					
4-Methyl-2-pentanone	UY2	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	UY2	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	UY2	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	UY2	1.00	0.333	1.00	ug/L		1					
Tetrachloroethylene	UY2	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	U	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					

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Company : Four Rivers Nuclear Partnership, LLC
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Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW220SG4-24 Project: FRNP00511
Sample ID: 677449001 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
trans-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,3-Dichloropropylene	UY2	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	07/26/24	1100	2646458
SW846 8011 PREP	8011 Prep	LOF	08/03/24	1306	2647153
SW846 3005A	ICP-MS 3005A PREP	BB2	07/31/24	1510	2647182
SW846 9010C Distillation	SW846 9010C Prep	ES2	07/26/24	1134	2646662

The following Analytical Methods were performed:

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

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011, VOA Compounds Liquid "As Received"	6.20 ug/L	6.73	92	(56%-149%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	49.9 ug/L	50.0	100	(74%-123%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	49.2 ug/L	50.0	98	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	50.4 ug/L	50.0	101	(77%-121%)

Notes:

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Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID:	MW220SG4-24	Project:	FRNP00511
Sample ID:	677449001	Client ID:	FRNP005

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

Column headers are defined as follows:

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

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Report Date: October 31, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID:	MW220SG4-24	Project:	FRNP00511
Sample ID:	677449002	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	24-JUL-24 08:21		
Receive Date:	25-JUL-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		0.216	0.000670	0.00400	mg/L	1.00	1	PRB	08/10/24	2004	2647183	1
Chromium	J	0.00844	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	07/26/24	1322	2646414
SW846 3005A	ICP-MS 3005A PREP	BB2	07/31/24	1510	2647182

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: October 31, 2024

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

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW221SG4-24
Sample ID: 677449003
Matrix: WG
Collect Date: 24-JUL-24 07:35
Receive Date: 25-JUL-24
Collector: Client

Project: FRNP00511
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
504.1/8011 Analysis of EDB/DBCP												
8011, VOA Compounds Liquid "As Received"												
1,2-Dibromo-3-chloropropane	U	0.0187	0.00841	0.0187	ug/L	0.934	1	LOF	08/03/24	1606	2647154	1
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	0.652	0.330	2.00	mg/L		1	KB3	08/19/24	0041	2657949	3
Flow Injection Analysis												
9012B, Total Cyanide "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	07/26/24	1201	2646663	4
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens	J	3.64	3.33	10.0	ug/L		1	JS13	08/19/24	1848	2658912	5
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	08/12/24	1242	2654903	6
SW846 9056A Anions (5) "As Received"												
Bromide	W	0.623	0.0670	0.200	mg/L		1	CH6	07/25/24	1426	2646386	7
Fluoride	J	0.190	0.0330	4.00	mg/L		1					
Sulfate		16.1	0.133	0.400	mg/L		1					
Chloride	J	35.0	0.268	250	mg/L		4	CH6	07/25/24	1935	2646386	8
Nitrate-N	J	0.931	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	07/29/24	1100	2646459	9
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Aluminum	U	0.0500	0.0193	0.0500	mg/L	1.00	1	PRB	08/10/24	2007	2647183	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		0.213	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					
Boron		0.0242	0.00520	0.0150	mg/L	1.00	1					
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Calcium		21.3	0.0800	0.200	mg/L	1.00	1					
Chromium	J	0.00721	0.00300	0.0100	mg/L	1.00	1					

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Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW221SG4-24 Project: FRNP00511
Sample ID: 677449003 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Cobalt		0.00112	0.000300	0.00100	mg/L	1.00	1					
Copper		0.00329	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		9.39	0.0100	0.0300	mg/L	1.00	1					
Manganese		0.00541	0.00100	0.00500	mg/L	1.00	1					
Molybdenum		0.00654	0.000200	0.00100	mg/L	1.00	1					
Nickel		0.120	0.000600	0.00200	mg/L	1.00	1					
Potassium		2.32	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		45.3	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	0.0104	0.00330	0.0200	mg/L	1.00	1					
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	08/10/24	2300	2647183	11
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		210	2.38	10.0	mg/L			KLP1	07/30/24	1447	2648069	12
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD	U	20.0	8.95	20.0	mg/L		1	HH2	07/31/24	1733	2647741	13
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	UY2	1.00	0.333	1.00	ug/L		1	JB6	07/26/24	1324	2646976	14
1,1,1-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2-Trichloroethane	UY2	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	UY2	1.00	0.333	1.00	ug/L		1					

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

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW221SG4-24 Project: FRNP00511
Sample ID: 677449003 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,2-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,4-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
2-Butanone	U	5.00	1.67	5.00	ug/L		1					
2-Hexanone	UY2	5.00	1.67	5.00	ug/L		1					
4-Methyl-2-pentanone	UY2	5.00	1.67	5.00	ug/L		1					
Acetone	J	2.45	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	UY2	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	UY2	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	UY2	1.00	0.333	1.00	ug/L		1					
Tetrachloroethylene	UY2	1.00	0.333	1.00	ug/L		1					
Toluene	UY2	1.00	0.333	1.00	ug/L		1					
Trichloroethylene	J	0.350	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)	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					

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

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW221SG4-24 Project: FRNP00511
Sample ID: 677449003 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
trans-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,3-Dichloropropylene	UY2	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	07/31/24	1510	2647182
SW846 8011 PREP	8011 Prep	LOF	08/03/24	1306	2647153
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	07/26/24	1100	2646458
SW846 9010C Distillation	SW846 9010C Prep	ES2	07/26/24	1134	2646662

The following Analytical Methods were performed:

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

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011, VOA Compounds Liquid "As Received"	6.27 ug/L	6.67	94	(56%-149%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	52.1 ug/L	50.0	104	(74%-123%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	50.3 ug/L	50.0	101	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	52.8 ug/L	50.0	106	(77%-121%)

Notes:

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Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID:	MW221SG4-24	Project:	FRNP00511
Sample ID:	677449003	Client ID:	FRNP005

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

Column headers are defined as follows:

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

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Certificate of Analysis

Report Date: October 31, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID:	MW221SG4-24	Project:	FRNP00511
Sample ID:	677449004	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	24-JUL-24 07:35		
Receive Date:	25-JUL-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		0.209	0.000670	0.00400	mg/L	1.00	1	PRB	08/10/24	2011	2647183	1
Chromium	J	0.00497	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	07/31/24	1510	2647182
EPA 160	Laboratory Filtration	SD	07/26/24	1322	2646414

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: October 31, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID:	MW393SG4-24	Project:	FRNP00511
Sample ID:	677449005	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	24-JUL-24 11:18		
Receive Date:	25-JUL-24		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
504.1/8011 Analysis of EDB/DBCP												
8011, VOA Compounds Liquid "As Received"												
1,2-Dibromo-3-chloropropane	U	0.0192	0.00864	0.0192	ug/L	0.960	1	LOF	08/03/24	1636	2647154	2
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	1.91	0.330	2.00	mg/L		1	KB3	08/19/24	0131	2657949	3
Flow Injection Analysis												
9012B, Total Cyanide "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	07/26/24	1202	2646663	4
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens		22.1	3.33	10.0	ug/L		1	JS13	08/19/24	1949	2658912	5
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	08/12/24	1254	2654903	6
SW846 9056A Anions (5) "As Received"												
Nitrate-N	J	0.226	0.0660	10.0	mg/L		2	CH6	07/25/24	2006	2646386	7
Sulfate		23.2	0.266	0.800	mg/L		2					
Bromide	UW	0.200	0.0670	0.200	mg/L		1	CH6	07/25/24	1457	2646386	8
Chloride	J	9.43	0.0670	250	mg/L		1					
Fluoride	J	0.219	0.0330	4.00	mg/L		1					
Mercury Analysis-CVAA												
7470, Mercury Liquid "As Received"												
Mercury	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	JP2	07/29/24	1102	2646459	9
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Aluminum	J	0.0284	0.0193	0.0500	mg/L	1.00	1	PRB	08/10/24	2014	2647183	10
Antimony	U	0.00300	0.00100	0.00300	mg/L	1.00	1					
Arsenic	J	0.00401	0.00200	0.00500	mg/L	1.00	1					
Barium		0.0910	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					
Boron		0.0168	0.00520	0.0150	mg/L	1.00	1					
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Calcium		15.8	0.0800	0.200	mg/L	1.00	1					
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					

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Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW393SG4-24 Project: FRNP00511
Sample ID: 677449005 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Cobalt	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Copper	J	0.000726	0.000300	0.00200	mg/L	1.00	1					
Iron		1.09	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Magnesium		4.01	0.0100	0.0300	mg/L	1.00	1					
Manganese		0.0338	0.00100	0.00500	mg/L	1.00	1					
Molybdenum	J	0.000463	0.000200	0.00100	mg/L	1.00	1					
Nickel	U	0.00200	0.000600	0.00200	mg/L	1.00	1					
Potassium		0.459	0.0800	0.300	mg/L	1.00	1					
Selenium	J	0.00174	0.00150	0.00500	mg/L	1.00	1					
Silver	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Thallium	U	0.00200	0.000600	0.00200	mg/L	1.00	1					
Uranium		0.000213	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					
Sodium		77.9	0.800	2.50	mg/L	1.00	10	PRB	08/11/24	1754	2647183	11
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	08/10/24	2302	2647183	12
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		272	2.38	10.0	mg/L			KLP1	07/30/24	1447	2648069	13
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD	J	15.7	8.95	20.0	mg/L		1	HH2	07/31/24	1733	2647741	14
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	UY2	1.00	0.333	1.00	ug/L		1	JB6	07/26/24	1349	2646976	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	UY2	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	UY2	1.00	0.333	1.00	ug/L		1					

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Address : 5600 Hobbs Road

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW393SG4-24 Project: FRNP00511
Sample ID: 677449005 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,2-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,4-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
2-Butanone	U	5.00	1.67	5.00	ug/L		1					
2-Hexanone	UY2	5.00	1.67	5.00	ug/L		1					
4-Methyl-2-pentanone	UY2	5.00	1.67	5.00	ug/L		1					
Acetone	J	2.39	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	UY2	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	UY2	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	UY2	1.00	0.333	1.00	ug/L		1					
Tetrachloroethylene	UY2	1.00	0.333	1.00	ug/L		1					
Toluene	UY2	1.00	0.333	1.00	ug/L		1					
Trichloroethylene	J	0.830	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)	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					

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Certificate of Analysis

Report Date: October 31, 2024

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

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW393SG4-24 Project: FRNP00511
Sample ID: 677449005 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
trans-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,3-Dichloropropylene	UY2	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	07/26/24	1100	2646458
SW846 9010C Distillation	SW846 9010C Prep	ES2	07/26/24	1134	2646662
SW846 3005A	ICP-MS 3005A PREP	BB2	07/31/24	1510	2647182
SW846 8011 PREP	8011 Prep	LOF	08/03/24	1306	2647153

The following Analytical Methods were performed:

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

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011, VOA Compounds Liquid "As Received"	6.27 ug/L	6.86	91	(56%-149%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	51.1 ug/L	50.0	102	(74%-123%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	49.2 ug/L	50.0	98	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	51.3 ug/L	50.0	103	(77%-121%)

Notes:

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Report Date: October 31, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID:	MW393SG4-24	Project:	FRNP00511
Sample ID:	677449005	Client ID:	FRNP005

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

Column headers are defined as follows:

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

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Report Date: October 31, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID:	MW393SG4-24	Project:	FRNP00511
Sample ID:	677449006	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	24-JUL-24 11:18		
Receive Date:	25-JUL-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		0.0503	0.000670	0.00400	mg/L	1.00	1	PRB	08/10/24	2018	2647183	1
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					
Uranium	J	0.000129	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	07/31/24	1510	2647182
EPA 160	Laboratory Filtration	SD	07/26/24	1322	2646414

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: October 31, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID:	MW394SG4-24	Project:	FRNP00511
Sample ID:	677449007	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	24-JUL-24 09:04		
Receive Date:	25-JUL-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	0.0195	0.00876	0.0195	ug/L	0.974	1	LOF	08/03/24	1707	2647154	1
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	0.590	0.330	2.00	mg/L		1	KB3	08/19/24	1505	2657954	3
Flow Injection Analysis												
9012B, Total Cyanide "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	07/26/24	1209	2646663	4
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens	J	8.76	3.33	10.0	ug/L		1	JS13	08/19/24	1640	2658912	5
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	08/12/24	1307	2654903	6
SW846 9056A Anions (5) "As Received"												
Chloride	J	22.5	0.670	250	mg/L		10	CH6	07/26/24	0826	2646386	7
Bromide	W	0.800	0.0670	0.200	mg/L		1	CH6	07/25/24	1528	2646386	8
Fluoride	J	0.147	0.0330	4.00	mg/L		1					
Sulfate		11.7	0.133	0.400	mg/L		1					
Nitrate-N	J	1.18	0.0660	10.0	mg/L		2	CH6	07/25/24	2036	2646386	9
Mercury Analysis-CVAA												
7470, Mercury Liquid "As Received"												
Mercury	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	JP2	07/29/24	1104	2646459	10
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Aluminum	U	0.0500	0.0193	0.0500	mg/L	1.00	1	PRB	08/10/24	2029	2647183	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		0.284	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		27.5	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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Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW394SG4-24 Project: FRNP00511
Sample ID: 677449007 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Cobalt	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Copper	J	0.00103	0.000300	0.00200	mg/L	1.00	1					
Iron	J	0.0602	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	0.00156	0.00100	0.00500	mg/L	1.00	1					
Molybdenum	U	0.00100	0.000200	0.00100	mg/L	1.00	1					
Nickel		0.00811	0.000600	0.00200	mg/L	1.00	1					
Potassium		1.57	0.0800	0.300	mg/L	1.00	1					
Selenium	U	0.00500	0.00150	0.00500	mg/L	1.00	1					
Silver	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Sodium		33.2	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	0.00357	0.00330	0.0200	mg/L	1.00	1					
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	08/10/24	2308	2647183	12
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		217	2.38	10.0	mg/L			KLP1	07/30/24	1447	2648069	13
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD	J	11.0	8.95	20.0	mg/L		1	HH2	07/31/24	1733	2647741	14
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	UY2	1.00	0.333	1.00	ug/L		1	JB6	07/26/24	1414	2646976	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	UY2	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	UY2	1.00	0.333	1.00	ug/L		1					

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

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW394SG4-24 Project: FRNP00511
Sample ID: 677449007 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,2-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,4-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
2-Butanone	U	5.00	1.67	5.00	ug/L		1					
2-Hexanone	UY2	5.00	1.67	5.00	ug/L		1					
4-Methyl-2-pentanone	UY2	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	UY2	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	UY2	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	UY2	1.00	0.333	1.00	ug/L		1					
Tetrachloroethylene	UY2	1.00	0.333	1.00	ug/L		1					
Toluene	UY2	1.00	0.333	1.00	ug/L		1					
Trichloroethylene		4.23	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)	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					

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

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW394SG4-24 Project: FRNP00511
Sample ID: 677449007 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
trans-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,3-Dichloropropylene	UY2	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	07/31/24	1510	2647182
SW846 9010C Distillation	SW846 9010C Prep	ES2	07/26/24	1134	2646662
SW846 8011 PREP	8011 Prep	LOF	08/03/24	1306	2647153
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	07/26/24	1100	2646458

The following Analytical Methods were performed:

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

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011, VOA Compounds Liquid "As Received"	6.79 ug/L	6.95	98	(56%-149%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	49.7 ug/L	50.0	99	(74%-123%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	48.5 ug/L	50.0	97	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	50.7 ug/L	50.0	101	(77%-121%)

Notes:

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Report Date: October 31, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID:	MW394SG4-24	Project:	FRNP00511
Sample ID:	677449007	Client ID:	FRNP005

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

Column headers are defined as follows:

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

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Report Date: October 31, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID:	MW394SG4-24	Project:	FRNP00511
Sample ID:	677449008	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	24-JUL-24 09:04		
Receive Date:	25-JUL-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		0.280	0.000670	0.00400	mg/L	1.00	1	PRB	08/10/24	2047	2647183	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	07/31/24	1510	2647182
EPA 160	Laboratory Filtration	SD	07/26/24	1322	2646414

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3005A/6020B	

Notes:

Column headers are defined as follows:

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

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Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID:	MW395SG4-24	Project:	FRNP00511
Sample ID:	677449009	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	24-JUL-24 10:04		
Receive Date:	25-JUL-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	08/03/24	1838	2647154	1
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	0.573	0.330	2.00	mg/L		1	KB3	08/19/24	1638	2657954	3
Flow Injection Analysis												
9012B, Total Cyanide "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	07/26/24	1212	2646663	4
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens		18.9	3.33	10.0	ug/L		1	JS13	08/19/24	2029	2658912	5
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	08/12/24	1346	2654903	6
SW846 9056A Anions (5) "As Received"												
Nitrate-N	J	1.27	0.0660	10.0	mg/L		2	CH6	07/25/24	2209	2646386	7
Chloride	J	22.8	0.670	250	mg/L		10	CH6	07/26/24	0959	2646386	8
Bromide	W	0.622	0.0670	0.200	mg/L		1	CH6	07/25/24	1559	2646386	9
Fluoride	J	0.133	0.0330	4.00	mg/L		1					
Sulfate		11.1	0.133	0.400	mg/L		1					
Mercury Analysis-CVAA												
7470, Mercury Liquid "As Received"												
Mercury	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	JP2	07/29/24	1115	2646459	10
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Aluminum	J	0.0325	0.0193	0.0500	mg/L	1.00	1	PRB	08/10/24	2113	2647183	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		0.254	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					
Boron		0.0195	0.00520	0.0150	mg/L	1.00	1					
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Calcium		26.9	0.0800	0.200	mg/L	1.00	1					
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					

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Certificate of Analysis

Report Date: October 31, 2024

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

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW395SG4-24 Project: FRNP00511
Sample ID: 677449009 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Cobalt	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Copper	J	0.000944	0.000300	0.00200	mg/L	1.00	1					
Iron	J	0.0913	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Magnesium		11.3	0.0100	0.0300	mg/L	1.00	1					
Manganese	J	0.00361	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		1.55	0.0800	0.300	mg/L	1.00	1					
Selenium	U	0.00500	0.00150	0.00500	mg/L	1.00	1					
Silver	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Sodium		30.8	0.0800	0.250	mg/L	1.00	1					
Thallium	U	0.00200	0.000600	0.00200	mg/L	1.00	1					
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1					
Vanadium	U	0.0200	0.00330	0.0200	mg/L	1.00	1					
Zinc	U	0.0200	0.00330	0.0200	mg/L	1.00	1					
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	08/10/24	2317	2647183	12
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		214	2.38	10.0	mg/L			KLP1	07/30/24	1447	2648069	13
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD	U	20.0	8.95	20.0	mg/L		1	HH2	07/31/24	1733	2647741	14
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	UY2	1.00	0.333	1.00	ug/L		1	JB6	07/26/24	1439	2646976	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	UY2	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	UY2	1.00	0.333	1.00	ug/L		1					

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Report Date: October 31, 2024

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

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW395SG4-24 Project: FRNP00511
Sample ID: 677449009 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,2-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,4-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
2-Butanone	U	5.00	1.67	5.00	ug/L		1					
2-Hexanone	UY2	5.00	1.67	5.00	ug/L		1					
4-Methyl-2-pentanone	UY2	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	UY2	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	UY2	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	UY2	1.00	0.333	1.00	ug/L		1					
Tetrachloroethylene	UY2	1.00	0.333	1.00	ug/L		1					
Toluene	UY2	1.00	0.333	1.00	ug/L		1					
Trichloroethylene		5.29	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)	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					

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

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW395SG4-24 Project: FRNP00511
Sample ID: 677449009 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
trans-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,3-Dichloropropylene	UY2	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	08/03/24	1306	2647153
SW846 3005A	ICP-MS 3005A PREP	BB2	07/31/24	1510	2647182
SW846 9010C Distillation	SW846 9010C Prep	ES2	07/26/24	1134	2646662
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	07/26/24	1100	2646458

The following Analytical Methods were performed:

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

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011, VOA Compounds Liquid "As Received"	6.25 ug/L	6.78	92	(56%-149%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	49.4 ug/L	50.0	99	(74%-123%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	48.4 ug/L	50.0	97	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	50.2 ug/L	50.0	100	(77%-121%)

Notes:

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Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID:	MW395SG4-24	Project:	FRNP00511
Sample ID:	677449009	Client ID:	FRNP005

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

Column headers are defined as follows:

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

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Report Date: October 31, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID:	MW395SG4-24	Project:	FRNP00511
Sample ID:	677449010	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	24-JUL-24 10:04		
Receive Date:	25-JUL-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		0.252	0.000670	0.00400	mg/L	1.00	1	PRB	08/10/24	2116	2647183	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	07/31/24	1510	2647182
EPA 160	Laboratory Filtration	SD	07/26/24	1322	2646414

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: October 31, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID:	MW396SG4-24	Project:	FRNP00511
Sample ID:	677449011	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	24-JUL-24 10:41		
Receive Date:	25-JUL-24		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
504.1/8011 Analysis of EDB/DBCP												
8011, VOA Compounds Liquid "As Received"												
1,2-Dibromo-3-chloropropane	U	0.0193	0.00868	0.0193	ug/L	0.964	1	LOF	08/03/24	1908	2647154	2
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average		3.51	0.330	2.00	mg/L		1	KB3	08/19/24	1709	2657954	3
Flow Injection Analysis												
9012B, Total Cyanide "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	07/26/24	1213	2646663	4
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens		42.6	3.33	10.0	ug/L		1	JS13	08/19/24	2130	2658912	5
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	08/12/24	1424	2654903	6
SW846 9056A Anions (5) "As Received"												
Bromide	W	1.09	0.0670	0.200	mg/L		1	CH6	07/25/24	1630	2646386	7
Fluoride	J	0.620	0.0330	4.00	mg/L		1					
Nitrate-N	J	0.149	0.0330	10.0	mg/L		1					
Chloride	J	56.8	0.670	250	mg/L		10	CH6	07/26/24	0756	2646386	8
Sulfate		27.5	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	07/29/24	1117	2646459	9
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Aluminum	U	0.0500	0.0193	0.0500	mg/L	1.00	1	PRB	08/10/24	2120	2647183	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		0.353	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					
Boron	J	0.00561	0.00520	0.0150	mg/L	1.00	1					
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Calcium		29.8	0.0800	0.200	mg/L	1.00	1					
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					

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

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW396SG4-24 Project: FRNP00511
Sample ID: 677449011 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Cobalt	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Copper	J	0.000865	0.000300	0.00200	mg/L	1.00	1					
Iron	J	0.0539	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Magnesium		13.3	0.0100	0.0300	mg/L	1.00	1					
Manganese		0.00937	0.00100	0.00500	mg/L	1.00	1					
Molybdenum	J	0.000340	0.000200	0.00100	mg/L	1.00	1					
Nickel	U	0.00200	0.000600	0.00200	mg/L	1.00	1					
Potassium		0.748	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	08/10/24	2319	2647183	11
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Sodium		87.9	0.800	2.50	mg/L	1.00	10	PRB	08/11/24	1756	2647183	12
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		398	2.38	10.0	mg/L			KLP1	07/30/24	1447	2648069	13
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD	J	18.0	8.95	20.0	mg/L		1	HH2	07/31/24	1733	2647741	14
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	UY2	1.00	0.333	1.00	ug/L		1	JB6	07/26/24	1504	2646976	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	UY2	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	UY2	1.00	0.333	1.00	ug/L		1					

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Certificate of Analysis

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

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW396SG4-24 Project: FRNP00511
Sample ID: 677449011 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,2-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,4-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
2-Butanone	U	5.00	1.67	5.00	ug/L		1					
2-Hexanone	UY2	5.00	1.67	5.00	ug/L		1					
4-Methyl-2-pentanone	UY2	5.00	1.67	5.00	ug/L		1					
Acetone	J	1.85	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	UY2	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	UY2	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	UY2	1.00	0.333	1.00	ug/L		1					
Tetrachloroethylene	UY2	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	U	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					

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Certificate of Analysis

Report Date: October 31, 2024

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

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW396SG4-24 Project: FRNP00511
Sample ID: 677449011 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
trans-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,3-Dichloropropylene	UY2	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	07/31/24	1510	2647182
SW846 8011 PREP	8011 Prep	LOF	08/03/24	1306	2647153
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	07/26/24	1100	2646458
SW846 9010C Distillation	SW846 9010C Prep	ES2	07/26/24	1134	2646662

The following Analytical Methods were performed:

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

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011, VOA Compounds Liquid "As Received"	6.47 ug/L	6.89	94	(56%-149%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	49.1 ug/L	50.0	98	(74%-123%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	48.7 ug/L	50.0	97	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	50.6 ug/L	50.0	101	(77%-121%)

Notes:

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Certificate of Analysis

Report Date: October 31, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID:	MW396SG4-24	Project:	FRNP00511
Sample ID:	677449011	Client ID:	FRNP005

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

Column headers are defined as follows:

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

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Report Date: October 31, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID:	MW396SG4-24	Project:	FRNP00511
Sample ID:	677449012	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	24-JUL-24 10:41		
Receive Date:	25-JUL-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		0.351	0.000670	0.00400	mg/L	1.00	1	PRB	08/10/24	2124	2647183	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	07/26/24	1322	2646414
SW846 3005A	ICP-MS 3005A PREP	BB2	07/31/24	1510	2647182

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: October 31, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID:	TB3SG4-24	Project:	FRNP00511
Sample ID:	677449013	Client ID:	FRNP005
Matrix:	WATER		
Collect Date:	24-JUL-24 06:25		
Receive Date:	25-JUL-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	08/03/24	2028	2647154	1
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	UY2	1.00	0.333	1.00	ug/L		1	JB6	07/26/24	1233	2646976	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	UY2	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	UY2	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	UY2	5.00	1.67	5.00	ug/L		1					
4-Methyl-2-pentanone	UY2	5.00	1.67	5.00	ug/L		1					
Acetone	J	2.48	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	UY2	1.00	0.333	1.00	ug/L		1					
Chloroethane	U	1.00	0.333	1.00	ug/L		1					
Chloroform	J	0.370	0.333	1.00	ug/L		1					
Chloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromochloromethane	UY2	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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Certificate of Analysis

Report Date: October 31, 2024

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

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: TB3SG4-24 Project: FRNP00511
Sample ID: 677449013 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
Methylene chloride	U	5.00	0.500	5.00	ug/L		1					
Styrene	UY2	1.00	0.333	1.00	ug/L		1					
Tetrachloroethylene	UY2	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	U	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	UY2	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	08/03/24	1306	2647153

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"	6.58 ug/L	6.81	97	(56%-149%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	50.6 ug/L	50.0	101	(74%-123%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	48.8 ug/L	50.0	98	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	50.6 ug/L	50.0	101	(77%-121%)

Notes:

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Certificate of Analysis

Report Date: October 31, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID:	TB3SG4-24	Project:	FRNP00511
Sample ID:	677449013	Client ID:	FRNP005

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

Column headers are defined as follows:

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

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ATTACHMENT C2

GEL LABORATORIES CERTIFICATE OF ANALYSIS

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Certificate of Analysis

Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road
Kevil, Kentucky 42053
Report Date: October 31, 2024
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW222SG4-24
Sample ID: 677670001
Matrix: WG
Collect Date: 25-JUL-24
Receive Date: 26-JUL-24
Collector: Client
Project: FRNP00511
Client ID: FRNP005

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
AlphaSpec Ra226, Liquid "As Received"														
Radium-226	U	0.168	+/-0.380	0.599	+/-0.380	5.00	pCi/L			CM4	08/22/24	0837	2659829	1
Th-01-RC M, Th Isotopes, Liquid "As Received"														
Thorium-230	U	0.888	+/-1.03	1.51	+/-1.04	50.0	pCi/L			AG2	08/16/24	1041	2646982	2
Rad Gas Flow Proportional Counting														
905.0 Mod, Sr90, liquid "As Received"														
Strontium-90	U	-2.03	+/-2.60	5.34	+/-2.60	8.00	pCi/L			JE1	08/15/24	1415	2650343	3
9310,Alpha/Beta Activity, liquid "As Received"														
Alpha	U	2.84	+/-3.67	6.15	+/-3.70	15.0	pCi/L			HH3	08/08/24	1333	2650299	4
Beta	U	-2.94	+/-6.88	13.1	+/-6.88	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
906.0 Mod, Tritium Dist, Liquid "As Received"														
Tritium	U	-9.46	+/-158	285	+/-158	300	pCi/L			KXA1	08/21/24	0040	2652460	5
Tc-02-RC-MOD, Tc99, Liquid "As Received"														
Technetium-99	U	5.16	+/-10.4	17.9	+/-10.4	25.0	pCi/L			GS3	08/13/24	1719	2647382	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"	2659829	92.1	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2646982	74.3	(30%-110%)
Strontium Carrier	905.0 Mod, Sr90, liquid "As Received"	2650343	74.9	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2647382	97.6	(30%-110%)

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Certificate of Analysis

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

Kevil, Kentucky 42053

Report Date: October 31, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW222SG4-24
Sample ID: 677670001

Project: FRNP00511
Client ID: FRNP005

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

Notes:

The MDC is a sample specific MDC.

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

Column headers are defined as follows:

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

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Certificate of Analysis

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

Kevil, Kentucky 42053

Report Date: October 31, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW223SG4-24
Sample ID: 677670003
Matrix: WG
Collect Date: 25-JUL-24
Receive Date: 26-JUL-24
Collector: Client

Project: FRNP00511
Client ID: FRNP005

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
AlphaSpec Ra226, Liquid "As Received"														
Radium-226	U	0.241	+/-0.444	0.692	+/-0.445	5.00	pCi/L			CM4	08/22/24	0837	2659829	1
Th-01-RC M, Th Isotopes, Liquid "As Received"														
Thorium-230	U	-0.101	+/-0.621	1.49	+/-0.621	50.0	pCi/L			AG2	08/16/24	1041	2646982	2
Rad Gas Flow Proportional Counting														
905.0 Mod, Sr90, liquid "As Received"														
Strontium-90	U	-0.666	+/-2.29	4.59	+/-2.29	8.00	pCi/L			JE1	08/15/24	1415	2650343	3
9310,Alpha/Beta Activity, liquid "As Received"														
Alpha	U	1.68	+/-3.78	7.27	+/-3.79	15.0	pCi/L			HH3	08/08/24	1333	2650299	4
Beta	U	9.73	+/-6.58	10.2	+/-6.78	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
906.0 Mod, Tritium Dist, Liquid "As Received"														
Tritium	U	41.0	+/-163	288	+/-164	300	pCi/L			KXA1	08/21/24	0117	2652460	5
Tc-02-RC-MOD, Tc99, Liquid "As Received"														
Technetium-99	U	8.67	+/-11.0	18.6	+/-11.0	25.0	pCi/L			GS3	08/13/24	1735	2647382	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"	2659829	95.6	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2646982	72.5	(30%-110%)
Strontium Carrier	905.0 Mod, Sr90, liquid "As Received"	2650343	70.6	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2647382	94.4	(30%-110%)

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Certificate of Analysis

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

Kevil, Kentucky 42053 Report Date: October 31, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW223SG4-24 Project: FRNP00511
Sample ID: 677670003 Client ID: FRNP005

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

Notes:

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

Column headers are defined as follows:

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

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Certificate of Analysis

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

Kevil, Kentucky 42053

Report Date: October 31, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW224DSG4-24
Sample ID: 677670005
Matrix: WG
Collect Date: 25-JUL-24
Receive Date: 26-JUL-24
Collector: Client

Project: FRNP00511
Client ID: FRNP005

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
AlphaSpec Ra226, Liquid "As Received"														
Radium-226	U	0.113	+/-0.313	0.338	+/-0.313	5.00	pCi/L			CM4	08/22/24	0837	2659829	1
Th-01-RC M, Th Isotopes, Liquid "As Received"														
Thorium-230	U	1.33	+/-1.32	1.86	+/-1.34	50.0	pCi/L			AG2	08/16/24	1041	2646982	2
Rad Gas Flow Proportional Counting														
905.0 Mod, Sr90, liquid "As Received"														
Strontium-90	U	-0.589	+/-2.73	5.18	+/-2.73	8.00	pCi/L			JE1	08/15/24	1415	2650343	3
9310,Alpha/Beta Activity, liquid "As Received"														
Alpha	U	-0.292	+/-3.09	7.43	+/-3.09	15.0	pCi/L			HH3	08/08/24	1333	2650299	4
Beta	U	7.38	+/-5.55	8.68	+/-5.69	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
906.0 Mod, Tritium Dist, Liquid "As Received"														
Tritium	U	63.2	+/-169	296	+/-170	300	pCi/L			KXA1	08/21/24	0154	2652460	5
Tc-02-RC-MOD, Tc99, Liquid "As Received"														
Technetium-99	U	5.55	+/-10.9	18.7	+/-10.9	25.0	pCi/L			GS3	08/13/24	1752	2647382	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"	2659829	91.2	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2646982	72.2	(30%-110%)
Strontium Carrier	905.0 Mod, Sr90, liquid "As Received"	2650343	79.1	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2647382	93.6	(30%-110%)

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Certificate of Analysis

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

Kevil, Kentucky 42053

Report Date: October 31, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW224DSG4-24
Sample ID: 677670005

Project: FRNP00511
Client ID: FRNP005

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

Notes:

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

Column headers are defined as follows:

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

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Kevil, Kentucky 42053

Report Date: October 31, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW224SG4-24
Sample ID: 677670007
Matrix: WG
Collect Date: 25-JUL-24
Receive Date: 26-JUL-24
Collector: Client

Project: FRNP00511
Client ID: FRNP005

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
AlphaSpec Ra226, Liquid "As Received"														
Radium-226	U	-0.00834	+/-0.299	0.690	+/-0.299	5.00	pCi/L			CM4	08/22/24	0837	2659829	1
Th-01-RC M, Th Isotopes, Liquid "As Received"														
Thorium-230	U	0.385	+/-0.864	1.54	+/-0.869	50.0	pCi/L			AG2	08/16/24	1041	2646982	2
Rad Gas Flow Proportional Counting														
905.0 Mod, Sr90, liquid "As Received"														
Strontium-90	U	1.20	+/-1.63	2.81	+/-1.65	8.00	pCi/L			JE1	08/16/24	1332	2650343	3
9310,Alpha/Beta Activity, liquid "As Received"														
Alpha	U	4.74	+/-4.60	6.95	+/-4.66	15.0	pCi/L			HH3	08/08/24	1333	2650299	4
Beta	U	3.98	+/-5.13	8.71	+/-5.18	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
906.0 Mod, Tritium Dist, Liquid "As Received"														
Tritium	U	1.99	+/-164	296	+/-164	300	pCi/L			KXA1	08/21/24	0348	2652460	5
Tc-02-RC-MOD, Tc99, Liquid "As Received"														
Technetium-99	U	-4.03	+/-9.86	17.9	+/-9.86	25.0	pCi/L			GS3	08/13/24	1809	2647382	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"	2659829	93.8	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2646982	77	(30%-110%)
Strontium Carrier	905.0 Mod, Sr90, liquid "As Received"	2650343	77	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2647382	97.2	(30%-110%)

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Kevil, Kentucky 42053 Report Date: October 31, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW224SG4-24 Project: FRNP00511
Sample ID: 677670007 Client ID: FRNP005

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

Notes:

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

Column headers are defined as follows:

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

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Kevil, Kentucky 42053

Report Date: October 31, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: FB1SG4-24
Sample ID: 677670009
Matrix: WATER
Collect Date: 25-JUL-24
Receive Date: 26-JUL-24
Collector: Client

Project: FRNP00511
Client ID: FRNP005

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
AlphaSpec Ra226, Liquid "As Received"														
Radium-226	U	0.352	+/-0.536	0.798	+/-0.537	5.00	pCi/L			CM4	08/22/24	0837	2659829	1
Th-01-RC M, Th Isotopes, Liquid "As Received"														
Thorium-230	U	0.868	+/-1.11	1.75	+/-1.12	50.0	pCi/L			AG2	08/16/24	1041	2646982	2
Rad Gas Flow Proportional Counting														
905.0 Mod, Sr90, liquid "As Received"														
Strontium-90	U	0.226	+/-2.31	4.35	+/-2.31	8.00	pCi/L			JE1	08/15/24	1415	2650343	3
9310,Alpha/Beta Activity, liquid "As Received"														
Alpha	U	3.41	+/-3.42	5.05	+/-3.47	15.0	pCi/L			HH3	08/08/24	1333	2650299	4
Beta	U	-5.47	+/-5.21	11.0	+/-5.21	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
906.0 Mod, Tritium Dist, Liquid "As Received"														
Tritium	U	38.5	+/-164	290	+/-164	300	pCi/L			KXA1	08/21/24	0425	2652460	5
Tc-02-RC-MOD, Tc99, Liquid "As Received"														
Technetium-99	U	-4.15	+/-9.78	17.8	+/-9.78	25.0	pCi/L			GS3	08/13/24	1825	2647382	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"	2659829	90	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2646982	77.6	(30%-110%)
Strontium Carrier	905.0 Mod, Sr90, liquid "As Received"	2650343	74.9	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2647382	96.9	(30%-110%)

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Kevil, Kentucky 42053 Report Date: October 31, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: FB1SG4-24 Project: FRNP00511
Sample ID: 677670009 Client ID: FRNP005

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

Notes:

The MDC is a sample specific MDC.
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Column headers are defined as follows:

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

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Kevil, Kentucky 42053

Report Date: October 31, 2024

Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: RI1SG4-24
Sample ID: 677670010
Matrix: WATER
Collect Date: 25-JUL-24
Receive Date: 26-JUL-24
Collector: Client

Project: FRNP00511
Client ID: FRNP005

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
AlphaSpec Ra226, Liquid "As Received"														
Radium-226	U	0.207	+/-0.431	0.714	+/-0.431	5.00	pCi/L			CM4	08/22/24	0837	2659829	1
Th-01-RC M, Th Isotopes, Liquid "As Received"														
Thorium-230	U	1.49	+/-1.21	1.53	+/-1.23	50.0	pCi/L			AG2	08/16/24	1041	2646982	2
Rad Gas Flow Proportional Counting														
905.0 Mod, Sr90, liquid "As Received"														
Strontium-90	U	3.51	+/-3.45	5.72	+/-3.50	8.00	pCi/L			JE1	08/15/24	1415	2650343	3
9310,Alpha/Beta Activity, liquid "As Received"														
Alpha	U	-1.01	+/-3.36	8.53	+/-3.36	15.0	pCi/L			HH3	08/08/24	1625	2650299	4
Beta	U	0.746	+/-4.47	8.38	+/-4.47	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
906.0 Mod, Tritium Dist, Liquid "As Received"														
Tritium	U	119	+/-172	293	+/-173	300	pCi/L			KXA1	08/21/24	0502	2652460	5
Tc-02-RC-MOD, Tc99, Liquid "As Received"														
Technetium-99	U	2.04	+/-9.92	17.4	+/-9.92	25.0	pCi/L			GS3	08/13/24	1842	2647382	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"	2659829	97.4	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2646982	79.7	(30%-110%)
Strontium Carrier	905.0 Mod, Sr90, liquid "As Received"	2650343	77	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2647382	99.4	(30%-110%)

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Kevil, Kentucky 42053

Report Date: October 31, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: RI1SG4-24
Sample ID: 677670010

Project: FRNP00511
Client ID: FRNP005

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

Notes:

The MDC is a sample specific MDC.

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

Column headers are defined as follows:

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

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Report Date: October 31, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID:	MW222SG4-24	Project:	FRNP00511
Sample ID:	677670001	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	25-JUL-24 08:18		
Receive Date:	26-JUL-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	08/03/24	2058	2647154	2
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	0.395	0.330	2.00	mg/L		1	KB3	08/19/24	1726	2657964	3
Flow Injection Analysis												
9012B, Total Cyanide "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	KLP1	07/31/24	1833	2647072	4
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens		17.1	3.33	10.0	ug/L		1	JS13	08/21/24	1456	2660465	5
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	08/12/24	1529	2654906	6
SW846 9056A Anions (5) "As Received"												
Bromide		0.398	0.0670	0.200	mg/L		1	CH6	07/26/24	1226	2646874	7
Fluoride	*J	0.223	0.0330	4.00	mg/L		1					
Nitrate-N	J	1.02	0.0330	10.0	mg/L		1					
Sulfate		12.5	0.133	0.400	mg/L		1					
Chloride	J	32.3	0.335	250	mg/L		5	CH6	07/27/24	0236	2646874	8
Mercury Analysis-CVAA												
7470, Mercury Liquid "As Received"												
Mercury	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	JP2	07/30/24	1438	2647195	9
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Aluminum	U	0.0500	0.0193	0.0500	mg/L	1.00	1	PRB	08/21/24	1517	2647181	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		0.281	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					
Boron	J	0.0129	0.00520	0.0150	mg/L	1.00	1					
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Calcium		21.1	0.0800	0.200	mg/L	1.00	1					
Chromium	J	0.00349	0.00300	0.0100	mg/L	1.00	1					

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Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW222SG4-24 Project: FRNP00511
Sample ID: 677670001 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Cobalt	J	0.000516	0.000300	0.00100	mg/L	1.00	1					
Copper	J	0.00108	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		9.33	0.0100	0.0300	mg/L	1.00	1					
Manganese		0.00769	0.00100	0.00500	mg/L	1.00	1					
Molybdenum		0.00484	0.000200	0.00100	mg/L	1.00	1					
Nickel		0.0446	0.000600	0.00200	mg/L	1.00	1					
Potassium		0.808	0.0800	0.300	mg/L	1.00	1					
Selenium	J	0.00173	0.00150	0.00500	mg/L	1.00	1					
Silver	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Sodium		46.3	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	J	0.00474	0.00330	0.0200	mg/L	1.00	1					
Zinc	J	0.00850	0.00330	0.0200	mg/L	1.00	1					
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	08/21/24	1048	2647181	11
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		218	2.38	10.0	mg/L			KLP1	08/01/24	1450	2649877	12
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD	U	20.0	8.95	20.0	mg/L		1	HH2	07/31/24	1733	2647741	13
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	JB6	07/29/24	1400	2647927	14
1,1,1-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
1,2,3-Trichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dibromoethane	U	1.00	0.333	1.00	ug/L		1					

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Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW222SG4-24 Project: FRNP00511
Sample ID: 677670001 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,2-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,4-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
2-Butanone	U	5.00	1.67	5.00	ug/L		1					
2-Hexanone	U	5.00	1.67	5.00	ug/L		1					
4-Methyl-2-pentanone	U	5.00	1.67	5.00	ug/L		1					
Acetone	U	5.00	1.74	5.00	ug/L		1					
Acrolein	U	5.00	1.67	5.00	ug/L		1					
Acrylonitrile	U	5.00	1.67	5.00	ug/L		1					
Benzene	U	1.00	0.333	1.00	ug/L		1					
Bromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromodichloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromoform	U	1.00	0.333	1.00	ug/L		1					
Bromomethane	U	1.00	0.337	1.00	ug/L		1					
Carbon disulfide	U	5.00	1.67	5.00	ug/L		1					
Carbon tetrachloride	U	1.00	0.333	1.00	ug/L		1					
Chlorobenzene	U	1.00	0.333	1.00	ug/L		1					
Chloroethane	U	1.00	0.333	1.00	ug/L		1					
Chloroform	U	1.00	0.333	1.00	ug/L		1					
Chloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromomethane	U	1.00	0.333	1.00	ug/L		1					
Ethylbenzene	U	1.00	0.333	1.00	ug/L		1					
Iodomethane	U	5.00	1.67	5.00	ug/L		1					
Methylene chloride	U	5.00	0.500	5.00	ug/L		1					
Styrene	U	1.00	0.333	1.00	ug/L		1					
Tetrachloroethylene	U	1.00	0.333	1.00	ug/L		1					
Toluene	U	1.00	0.333	1.00	ug/L		1					
Trichloroethylene	U	1.00	0.333	1.00	ug/L		1					
Trichlorofluoromethane	U	1.00	0.333	1.00	ug/L		1					
Vinyl acetate	U	5.00	1.67	5.00	ug/L		1					
Vinyl chloride	U	1.00	0.333	1.00	ug/L		1					
Xylenes (total)	U	3.00	1.00	3.00	ug/L		1					
cis-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
cis-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					

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Certificate of Analysis

Report Date: October 31, 2024

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

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW222SG4-24 Project: FRNP00511
Sample ID: 677670001 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
trans-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,4-Dichloro-2-butene	U	5.00	1.67	5.00	ug/L		1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 8011 PREP	8011 Prep	LOF	08/03/24	1306	2647153
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	07/29/24	1115	2647192
SW846 3005A	ICP-MS 3005A PREP	BB2	08/14/24	1505	2647179
SW846 9010C Distillation	SW846 9010C Prep	ES2	07/31/24	1157	2647071

The following Analytical Methods were performed:

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

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011, VOA Compounds Liquid "As Received"	6.44 ug/L	6.81	95	(56%-149%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	48.9 ug/L	50.0	98	(74%-123%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	48.7 ug/L	50.0	97	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	49.7 ug/L	50.0	99	(77%-121%)

Notes:

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Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID:	MW222SG4-24	Project:	FRNP00511
Sample ID:	677670001	Client ID:	FRNP005

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

Column headers are defined as follows:

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

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Report Date: October 31, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID:	MW222SG4-24	Project:	FRNP00511
Sample ID:	677670002	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	25-JUL-24 08:18		
Receive Date:	26-JUL-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		0.279	0.000670	0.00400	mg/L	1.00	1	PRB	08/21/24	1543	2647181	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	07/26/24	1321	2647033
SW846 3005A	ICP-MS 3005A PREP	BB2	08/14/24	1505	2647179

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: October 31, 2024

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

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW223SG4-24
Sample ID: 677670003
Matrix: WG
Collect Date: 25-JUL-24 07:33
Receive Date: 26-JUL-24
Collector: Client

Project: FRNP00511
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
504.1/8011 Analysis of EDB/DBCP												
8011, VOA Compounds Liquid "As Received"												
1,2-Dibromo-3-chloropropane	U	0.0187	0.00842	0.0187	ug/L	0.936	1	LOF	08/03/24	2229	2647154	2
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	0.455	0.330	2.00	mg/L		1	KB3	08/19/24	1903	2657964	3
Flow Injection Analysis												
9012B, Total Cyanide "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	KLP1	07/31/24	1836	2647072	4
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens	J	7.18	3.33	10.0	ug/L		1	JS13	08/21/24	1725	2660465	5
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	08/12/24	1607	2654906	6
SW846 9056A Anions (5) "As Received"												
Bromide		0.405	0.0670	0.200	mg/L		1	CH6	07/26/24	1257	2646874	7
Fluoride	*J	0.202	0.0330	4.00	mg/L		1					
Nitrate-N	J	0.897	0.0330	10.0	mg/L		1					
Sulfate		14.5	0.133	0.400	mg/L		1					
Chloride	J	35.9	0.335	250	mg/L		5	CH6	07/27/24	0409	2646874	8
Mercury Analysis-CVAA												
7470, Mercury Liquid "As Received"												
Mercury	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	JP2	07/30/24	1446	2647195	9
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Aluminum	U	0.0500	0.0193	0.0500	mg/L	1.00	1	PRB	08/21/24	1607	2647181	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		0.241	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					
Boron	J	0.0134	0.00520	0.0150	mg/L	1.00	1					
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Calcium		23.4	0.0800	0.200	mg/L	1.00	1					
Chromium		0.0187	0.00300	0.0100	mg/L	1.00	1					

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

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW223SG4-24 Project: FRNP00511
Sample ID: 677670003 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Cobalt		0.00307	0.000300	0.00100	mg/L	1.00	1					
Copper	J	0.00150	0.000300	0.00200	mg/L	1.00	1					
Iron		0.277	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Magnesium		9.96	0.0100	0.0300	mg/L	1.00	1					
Manganese		0.0290	0.00100	0.00500	mg/L	1.00	1					
Molybdenum		0.00323	0.000200	0.00100	mg/L	1.00	1					
Nickel		0.631	0.000600	0.00200	mg/L	1.00	1					
Potassium		1.18	0.0800	0.300	mg/L	1.00	1					
Selenium	U	0.00500	0.00150	0.00500	mg/L	1.00	1					
Silver	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Sodium		46.2	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	J	0.00516	0.00330	0.0200	mg/L	1.00	1					
Zinc	J	0.00503	0.00330	0.0200	mg/L	1.00	1					
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	08/21/24	1102	2647181	11
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		227	2.38	10.0	mg/L			KLP1	08/01/24	1450	2649877	12
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD	U	20.0	8.95	20.0	mg/L		1	HH2	07/31/24	1733	2647741	13
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	JB6	07/29/24	1425	2647927	14
1,1,1-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
1,2,3-Trichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dibromoethane	U	1.00	0.333	1.00	ug/L		1					

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

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW223SG4-24 Project: FRNP00511
Sample ID: 677670003 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,2-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,4-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
2-Butanone	U	5.00	1.67	5.00	ug/L		1					
2-Hexanone	U	5.00	1.67	5.00	ug/L		1					
4-Methyl-2-pentanone	U	5.00	1.67	5.00	ug/L		1					
Acetone	U	5.00	1.74	5.00	ug/L		1					
Acrolein	U	5.00	1.67	5.00	ug/L		1					
Acrylonitrile	U	5.00	1.67	5.00	ug/L		1					
Benzene	U	1.00	0.333	1.00	ug/L		1					
Bromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromodichloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromoform	U	1.00	0.333	1.00	ug/L		1					
Bromomethane	U	1.00	0.337	1.00	ug/L		1					
Carbon disulfide	U	5.00	1.67	5.00	ug/L		1					
Carbon tetrachloride	U	1.00	0.333	1.00	ug/L		1					
Chlorobenzene	U	1.00	0.333	1.00	ug/L		1					
Chloroethane	U	1.00	0.333	1.00	ug/L		1					
Chloroform	U	1.00	0.333	1.00	ug/L		1					
Chloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromomethane	U	1.00	0.333	1.00	ug/L		1					
Ethylbenzene	U	1.00	0.333	1.00	ug/L		1					
Iodomethane	U	5.00	1.67	5.00	ug/L		1					
Methylene chloride	U	5.00	0.500	5.00	ug/L		1					
Styrene	U	1.00	0.333	1.00	ug/L		1					
Tetrachloroethylene	U	1.00	0.333	1.00	ug/L		1					
Toluene	U	1.00	0.333	1.00	ug/L		1					
Trichloroethylene	U	1.00	0.333	1.00	ug/L		1					
Trichlorofluoromethane	U	1.00	0.333	1.00	ug/L		1					
Vinyl acetate	U	5.00	1.67	5.00	ug/L		1					
Vinyl chloride	U	1.00	0.333	1.00	ug/L		1					
Xylenes (total)	U	3.00	1.00	3.00	ug/L		1					
cis-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
cis-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					

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Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW223SG4-24 Project: FRNP00511
Sample ID: 677670003 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
trans-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,4-Dichloro-2-butene	U	5.00	1.67	5.00	ug/L		1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-MS 3005A PREP	BB2	08/14/24	1505	2647179
SW846 8011 PREP	8011 Prep	LOF	08/03/24	1306	2647153
SW846 9010C Distillation	SW846 9010C Prep	ES2	07/31/24	1157	2647071
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	07/29/24	1115	2647192

The following Analytical Methods were performed:

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

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011, VOA Compounds Liquid "As Received"	6.52 ug/L	6.68	98	(56%-149%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	48.3 ug/L	50.0	97	(74%-123%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	47.8 ug/L	50.0	96	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	49.5 ug/L	50.0	99	(77%-121%)

Notes:

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Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID:	MW223SG4-24	Project:	FRNP00511
Sample ID:	677670003	Client ID:	FRNP005

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

Column headers are defined as follows:

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

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Report Date: October 31, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID:	MW223SG4-24	Project:	FRNP00511
Sample ID:	677670004	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	25-JUL-24 07:33		
Receive Date:	26-JUL-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	08/21/24	1611	2647181	1
Chromium		0.0157	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	08/14/24	1505	2647179
EPA 160	Laboratory Filtration	SD	07/26/24	1321	2647033

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3005A/6020B	

Notes:

Column headers are defined as follows:

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

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Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID:	MW224DSG4-24	Project:	FRNP00511
Sample ID:	677670005	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	25-JUL-24 09:20		
Receive Date:	26-JUL-24		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
504.1/8011 Analysis of EDB/DBCP												
8011, VOA Compounds Liquid "As Received"												
1,2-Dibromo-3-chloropropane	U	0.0192	0.00862	0.0192	ug/L	0.958	1	LOF	08/03/24	2259	2647154	2
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	0.777	0.330	2.00	mg/L		1	KB3	08/19/24	1935	2657964	3
Flow Injection Analysis												
9012B, Total Cyanide "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	KLP1	07/31/24	1837	2647072	4
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens	J	9.78	3.33	10.0	ug/L		1	JS13	08/21/24	1820	2660465	5
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	08/12/24	1620	2654906	6
SW846 9056A Anions (5) "As Received"												
Bromide		0.327	0.0670	0.200	mg/L		1	CH6	07/26/24	1328	2646874	7
Fluoride	*J	0.262	0.0330	4.00	mg/L		1					
Nitrate-N	J	0.979	0.0330	10.0	mg/L		1					
Sulfate		19.2	0.133	0.400	mg/L		1					
Chloride	J	24.8	0.335	250	mg/L		5	CH6	07/27/24	0541	2646874	8
Mercury Analysis-CVAA												
7470, Mercury Liquid "As Received"												
Mercury	J	0.000121	0.0000670	0.000200	mg/L	1.00	1	JP2	07/30/24	1448	2647195	9
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Sodium		58.3	0.800	2.50	mg/L	1.00	10	PRB	08/21/24	1636	2647181	10
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	08/21/24	1104	2647181	11
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Aluminum	U	0.0500	0.0193	0.0500	mg/L	1.00	1	PRB	08/21/24	1615	2647181	12
Antimony	U	0.00300	0.00100	0.00300	mg/L	1.00	1					
Arsenic	U	0.00500	0.00200	0.00500	mg/L	1.00	1					
Barium		0.234	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					
Boron		0.0340	0.00520	0.0150	mg/L	1.00	1					

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Certificate of Analysis

Report Date: October 31, 2024

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

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW224DSG4-24 Project: FRNP00511
Sample ID: 677670005 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Calcium		25.8	0.0800	0.200	mg/L	1.00	1					
Chromium	J	0.00406	0.00300	0.0100	mg/L	1.00	1					
Cobalt	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Copper	J	0.00102	0.000300	0.00200	mg/L	1.00	1					
Iron	J	0.0334	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		0.00830	0.00100	0.00500	mg/L	1.00	1					
Molybdenum	J	0.000967	0.000200	0.00100	mg/L	1.00	1					
Nickel		0.0101	0.000600	0.00200	mg/L	1.00	1					
Potassium		1.04	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	J	0.00354	0.00330	0.0200	mg/L	1.00	1					
Zinc	U	0.0200	0.00330	0.0200	mg/L	1.00	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		261	2.38	10.0	mg/L			KLP1	08/01/24	1450	2649877	13
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD	J	11.0	8.95	20.0	mg/L		1	HH2	07/31/24	1733	2647741	14
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	JB6	07/29/24	1219	2647927	15
1,1,1-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
1,2,3-Trichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dibromoethane	U	1.00	0.333	1.00	ug/L		1					

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Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW224DSG4-24 Project: FRNP00511
Sample ID: 677670005 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,2-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,4-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
2-Butanone	U	5.00	1.67	5.00	ug/L		1					
2-Hexanone	U	5.00	1.67	5.00	ug/L		1					
4-Methyl-2-pentanone	U	5.00	1.67	5.00	ug/L		1					
Acetone	U	5.00	1.74	5.00	ug/L		1					
Acrolein	U	5.00	1.67	5.00	ug/L		1					
Acrylonitrile	U	5.00	1.67	5.00	ug/L		1					
Benzene	U	1.00	0.333	1.00	ug/L		1					
Bromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromodichloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromoform	U	1.00	0.333	1.00	ug/L		1					
Bromomethane	U	1.00	0.337	1.00	ug/L		1					
Carbon disulfide	U	5.00	1.67	5.00	ug/L		1					
Carbon tetrachloride	U	1.00	0.333	1.00	ug/L		1					
Chlorobenzene	U	1.00	0.333	1.00	ug/L		1					
Chloroethane	U	1.00	0.333	1.00	ug/L		1					
Chloroform	U	1.00	0.333	1.00	ug/L		1					
Chloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromomethane	U	1.00	0.333	1.00	ug/L		1					
Ethylbenzene	U	1.00	0.333	1.00	ug/L		1					
Iodomethane	U	5.00	1.67	5.00	ug/L		1					
Methylene chloride	U	5.00	0.500	5.00	ug/L		1					
Styrene	U	1.00	0.333	1.00	ug/L		1					
Tetrachloroethylene	U	1.00	0.333	1.00	ug/L		1					
Toluene	U	1.00	0.333	1.00	ug/L		1					
Trichloroethylene	U	1.00	0.333	1.00	ug/L		1					
Trichlorofluoromethane	U	1.00	0.333	1.00	ug/L		1					
Vinyl acetate	U	5.00	1.67	5.00	ug/L		1					
Vinyl chloride	U	1.00	0.333	1.00	ug/L		1					
Xylenes (total)	U	3.00	1.00	3.00	ug/L		1					
cis-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
cis-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					

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Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW224DSG4-24 Project: FRNP00511
Sample ID: 677670005 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
trans-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,4-Dichloro-2-butene	U	5.00	1.67	5.00	ug/L		1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 8011 PREP	8011 Prep	LOF	08/03/24	1306	2647153
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	07/29/24	1115	2647192
SW846 3005A	ICP-MS 3005A PREP	BB2	08/14/24	1505	2647179
SW846 9010C Distillation	SW846 9010C Prep	ES2	07/31/24	1157	2647071

The following Analytical Methods were performed:

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

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011, VOA Compounds Liquid "As Received"	6.43 ug/L	6.84	94	(56%-149%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	48.4 ug/L	50.0	97	(74%-123%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	48.9 ug/L	50.0	98	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	50.4 ug/L	50.0	101	(77%-121%)

Notes:

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Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID:	MW224DSG4-24	Project:	FRNP00511
Sample ID:	677670005	Client ID:	FRNP005

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

Column headers are defined as follows:

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

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Report Date: October 31, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID:	MW224DSG4-24	Project:	FRNP00511
Sample ID:	677670006	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	25-JUL-24 09:20		
Receive Date:	26-JUL-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		0.233	0.000670	0.00400	mg/L	1.00	1	PRB	08/21/24	1618	2647181	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	08/14/24	1505	2647179
EPA 160	Laboratory Filtration	SD	07/26/24	1321	2647033

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3005A/6020B	

Notes:

Column headers are defined as follows:

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

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Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID:	MW224SG4-24	Project:	FRNP00511
Sample ID:	677670007	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	25-JUL-24 09:20		
Receive Date:	26-JUL-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	08/03/24	2329	2647154	2
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	0.799	0.330	2.00	mg/L		1	KB3	08/19/24	2008	2657964	3
Flow Injection Analysis												
9012B, Total Cyanide "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	KLP1	07/31/24	1838	2647072	4
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens		13.1	3.33	10.0	ug/L		1	JS13	08/21/24	1859	2660465	5
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	08/12/24	1633	2654906	6
SW846 9056A Anions (5) "As Received"												
Chloride	J	24.8	0.335	250	mg/L		5	CH6	07/27/24	0612	2646874	7
Bromide		0.330	0.0670	0.200	mg/L		1	CH6	07/26/24	1359	2646874	8
Fluoride	*J	0.259	0.0330	4.00	mg/L		1					
Nitrate-N	J	0.925	0.0330	10.0	mg/L		1					
Sulfate		19.3	0.133	0.400	mg/L		1					
Mercury Analysis-CVAA												
7470, Mercury Liquid "As Received"												
Mercury	J	0.000151	0.0000670	0.000200	mg/L	1.00	1	JP2	07/30/24	1449	2647195	9
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	08/21/24	1105	2647181	10
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Aluminum	U	0.0500	0.0193	0.0500	mg/L	1.00	1	PRB	08/21/24	1622	2647181	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		0.231	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					
Boron		0.0350	0.00520	0.0150	mg/L	1.00	1					
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1					

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Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW224SG4-24 Project: FRNP00511
Sample ID: 677670007 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Calcium		25.9	0.0800	0.200	mg/L	1.00	1					
Chromium	J	0.00571	0.00300	0.0100	mg/L	1.00	1					
Cobalt	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Copper	J	0.00110	0.000300	0.00200	mg/L	1.00	1					
Iron	J	0.0527	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Magnesium		11.3	0.0100	0.0300	mg/L	1.00	1					
Manganese		0.00868	0.00100	0.00500	mg/L	1.00	1					
Molybdenum	J	0.000986	0.000200	0.00100	mg/L	1.00	1					
Nickel		0.0103	0.000600	0.00200	mg/L	1.00	1					
Potassium		1.06	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	J	0.00350	0.00330	0.0200	mg/L	1.00	1					
Zinc	U	0.0200	0.00330	0.0200	mg/L	1.00	1					
Sodium		57.5	0.800	2.50	mg/L	1.00	10	PRB	08/21/24	1640	2647181	12
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		256	2.38	10.0	mg/L			KLP1	08/01/24	1450	2649877	13
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD	J	13.3	8.95	20.0	mg/L		1	HH2	07/31/24	1733	2647741	14
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	JB6	07/29/24	1450	2647927	15
1,1,1-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
1,2,3-Trichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dibromoethane	U	1.00	0.333	1.00	ug/L		1					

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Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW224SG4-24 Project: FRNP00511
Sample ID: 677670007 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,2-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,4-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
2-Butanone	U	5.00	1.67	5.00	ug/L		1					
2-Hexanone	U	5.00	1.67	5.00	ug/L		1					
4-Methyl-2-pentanone	U	5.00	1.67	5.00	ug/L		1					
Acetone	U	5.00	1.74	5.00	ug/L		1					
Acrolein	U	5.00	1.67	5.00	ug/L		1					
Acrylonitrile	U	5.00	1.67	5.00	ug/L		1					
Benzene	U	1.00	0.333	1.00	ug/L		1					
Bromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromodichloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromoform	U	1.00	0.333	1.00	ug/L		1					
Bromomethane	U	1.00	0.337	1.00	ug/L		1					
Carbon disulfide	U	5.00	1.67	5.00	ug/L		1					
Carbon tetrachloride	U	1.00	0.333	1.00	ug/L		1					
Chlorobenzene	U	1.00	0.333	1.00	ug/L		1					
Chloroethane	U	1.00	0.333	1.00	ug/L		1					
Chloroform	U	1.00	0.333	1.00	ug/L		1					
Chloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromomethane	U	1.00	0.333	1.00	ug/L		1					
Ethylbenzene	U	1.00	0.333	1.00	ug/L		1					
Iodomethane	U	5.00	1.67	5.00	ug/L		1					
Methylene chloride	U	5.00	0.500	5.00	ug/L		1					
Styrene	U	1.00	0.333	1.00	ug/L		1					
Tetrachloroethylene	U	1.00	0.333	1.00	ug/L		1					
Toluene	U	1.00	0.333	1.00	ug/L		1					
Trichloroethylene	U	1.00	0.333	1.00	ug/L		1					
Trichlorofluoromethane	U	1.00	0.333	1.00	ug/L		1					
Vinyl acetate	U	5.00	1.67	5.00	ug/L		1					
Vinyl chloride	U	1.00	0.333	1.00	ug/L		1					
Xylenes (total)	U	3.00	1.00	3.00	ug/L		1					
cis-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
cis-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					

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Report Date: October 31, 2024

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

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW224SG4-24 Project: FRNP00511
Sample ID: 677670007 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
trans-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,4-Dichloro-2-butene	U	5.00	1.67	5.00	ug/L		1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 9010C Distillation	SW846 9010C Prep	ES2	07/31/24	1157	2647071
SW846 3005A	ICP-MS 3005A PREP	BB2	08/14/24	1505	2647179
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	07/29/24	1115	2647192
SW846 8011 PREP	8011 Prep	LOF	08/03/24	1306	2647153

The following Analytical Methods were performed:

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

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011, VOA Compounds Liquid "As Received"	6.44 ug/L	6.75	95	(56%-149%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	48.4 ug/L	50.0	97	(74%-123%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	47.3 ug/L	50.0	95	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	49.3 ug/L	50.0	99	(77%-121%)

Notes:

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Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID:	MW224SG4-24	Project:	FRNP00511
Sample ID:	677670007	Client ID:	FRNP005

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

Column headers are defined as follows:

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

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Report Date: October 31, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID:	MW224SG4-24	Project:	FRNP00511
Sample ID:	677670008	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	25-JUL-24 09:20		
Receive Date:	26-JUL-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		0.235	0.000670	0.00400	mg/L	1.00	1	PRB	08/21/24	1625	2647181	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	07/26/24	1321	2647033
SW846 3005A	ICP-MS 3005A PREP	BB2	08/14/24	1505	2647179

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: October 31, 2024

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

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: FB1SG4-24
Sample ID: 677670009
Matrix: WATER
Collect Date: 25-JUL-24 09:24
Receive Date: 26-JUL-24
Collector: Client

Project: FRNP00511
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
504.1/8011 Analysis of EDB/DBCP												
8011, VOA Compounds Liquid "As Received"												
1,2-Dibromo-3-chloropropane	U	0.0190	0.00854	0.0190	ug/L	0.949	1	LOF	08/03/24	2359	2647154	1
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	08/12/24	1646	2654906	3
Mercury Analysis-CVAA												
7470, Mercury Liquid "As Received"												
Mercury	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	JP2	07/30/24	1451	2647195	4
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Aluminum	U	0.0500	0.0193	0.0500	mg/L	1.00	1	PRB	08/21/24	1629	2647181	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					
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1					
Vanadium	J	0.00500	0.00330	0.0200	mg/L	1.00	1					
Zinc	U	0.0200	0.00330	0.0200	mg/L	1.00	1					

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

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: FB1SG4-24 Project: FRNP00511
Sample ID: 677670009 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	08/21/24	1107	2647181	6
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	JB6	07/29/24	1245	2647927	7
1,1,1-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
1,2,3-Trichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dibromoethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,4-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
2-Butanone	U	5.00	1.67	5.00	ug/L		1					
2-Hexanone	U	5.00	1.67	5.00	ug/L		1					
4-Methyl-2-pentanone	U	5.00	1.67	5.00	ug/L		1					
Acetone	U	5.00	1.74	5.00	ug/L		1					
Acrolein	U	5.00	1.67	5.00	ug/L		1					
Acrylonitrile	U	5.00	1.67	5.00	ug/L		1					
Benzene	U	1.00	0.333	1.00	ug/L		1					
Bromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromodichloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromoform	U	1.00	0.333	1.00	ug/L		1					
Bromomethane	U	1.00	0.337	1.00	ug/L		1					
Carbon disulfide	U	5.00	1.67	5.00	ug/L		1					
Carbon tetrachloride	U	1.00	0.333	1.00	ug/L		1					
Chlorobenzene	U	1.00	0.333	1.00	ug/L		1					
Chloroethane	U	1.00	0.333	1.00	ug/L		1					
Chloroform	U	1.00	0.333	1.00	ug/L		1					
Chloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromomethane	U	1.00	0.333	1.00	ug/L		1					
Ethylbenzene	U	1.00	0.333	1.00	ug/L		1					

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

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: FB1SG4-24 Project: FRNP00511
Sample ID: 677670009 Client ID: FRNP005

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

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 8011 PREP	8011 Prep	LOF	08/03/24	1306	2647153
SW846 3005A	ICP-MS 3005A PREP	BB2	08/14/24	1505	2647179
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	07/29/24	1115	2647192

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 8260D	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011, VOA Compounds Liquid "As Received"	6.07 ug/L	6.78	90	(56%-149%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	50.1 ug/L	50.0	100	(74%-123%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	49.1 ug/L	50.0	98	(76%-127%)

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Certificate of Analysis

Report Date: October 31, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID:	FB1SG4-24	Project:	FRNP00511
Sample ID:	677670009	Client ID:	FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst Date	Time	Batch	Method
Toluene-d8		8260D, Volatiles- full suite "As Received"		51.0	ug/L	50.0		102	(77%-121%)		

Notes:

Column headers are defined as follows:

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

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Certificate of Analysis

Report Date: October 31, 2024

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

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: RI1SG4-24
Sample ID: 677670010
Matrix: WATER
Collect Date: 25-JUL-24 06:30
Receive Date: 26-JUL-24
Collector: Client

Project: FRNP00511
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
504.1/8011 Analysis of EDB/DBCP												
8011, VOA Compounds Liquid "As Received"												
1,2-Dibromo-3-chloropropane	U	0.0191	0.00858	0.0191	ug/L	0.953	1	LOF	08/04/24	0029	2647154	1
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	08/12/24	1659	2654906	3
Mercury Analysis-CVAA												
7470, Mercury Liquid "As Received"												
Mercury	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	JP2	07/30/24	1456	2647195	4
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	08/21/24	1109	2647181	5
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Aluminum	U	0.0500	0.0193	0.0500	mg/L	1.00	1	PRB	08/21/24	1632	2647181	6
Antimony	U	0.00300	0.00100	0.00300	mg/L	1.00	1					
Arsenic	U	0.00500	0.00200	0.00500	mg/L	1.00	1					
Barium	U	0.00400	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					
Boron	U	0.0150	0.00520	0.0150	mg/L	1.00	1					
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Calcium	U	0.200	0.0800	0.200	mg/L	1.00	1					
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					
Cobalt	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Copper	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					
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1					

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Address : 5600 Hobbs Road

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: RI1SG4-24 Project: FRNP00511
Sample ID: 677670010 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Vanadium	J	0.00524	0.00330	0.0200	mg/L	1.00	1					
Zinc	U	0.0200	0.00330	0.0200	mg/L	1.00	1					
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	JB6	07/29/24	1310	2647927	7
1,1,1-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
1,2,3-Trichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dibromoethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,4-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
2-Butanone	U	5.00	1.67	5.00	ug/L		1					
2-Hexanone	U	5.00	1.67	5.00	ug/L		1					
4-Methyl-2-pentanone	U	5.00	1.67	5.00	ug/L		1					
Acetone	U	5.00	1.74	5.00	ug/L		1					
Acrolein	U	5.00	1.67	5.00	ug/L		1					
Acrylonitrile	U	5.00	1.67	5.00	ug/L		1					
Benzene	U	1.00	0.333	1.00	ug/L		1					
Bromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromodichloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromoform	U	1.00	0.333	1.00	ug/L		1					
Bromomethane	U	1.00	0.337	1.00	ug/L		1					
Carbon disulfide	U	5.00	1.67	5.00	ug/L		1					
Carbon tetrachloride	U	1.00	0.333	1.00	ug/L		1					
Chlorobenzene	U	1.00	0.333	1.00	ug/L		1					
Chloroethane	U	1.00	0.333	1.00	ug/L		1					
Chloroform	J	0.430	0.333	1.00	ug/L		1					
Chloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromomethane	U	1.00	0.333	1.00	ug/L		1					
Ethylbenzene	U	1.00	0.333	1.00	ug/L		1					

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Certificate of Analysis

Report Date: October 31, 2024

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

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: RI1SG4-24 Project: FRNP00511
Sample ID: 677670010 Client ID: FRNP005

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

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 8011 PREP	8011 Prep	LOF	08/03/24	1306	2647153
SW846 3005A	ICP-MS 3005A PREP	BB2	08/14/24	1505	2647179
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	07/29/24	1115	2647192

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 8260D	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011, VOA Compounds Liquid "As Received"	6.66 ug/L	6.81	98	(56%-149%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	49.4 ug/L	50.0	99	(74%-123%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	48.9 ug/L	50.0	98	(76%-127%)

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Certificate of Analysis

Report Date: October 31, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID:	RI1SG4-24	Project:	FRNP00511
Sample ID:	677670010	Client ID:	FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst Date	Time	Batch	Method
Toluene-d8		8260D, Volatiles- full suite "As Received"		49.5	ug/L	50.0		99	(77%-121%)		

Notes:

Column headers are defined as follows:

DF: Dilution Factor
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: October 31, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID:	TB4SG4-24	Project:	FRNP00511
Sample ID:	677670011	Client ID:	FRNP005
Matrix:	WATER		
Collect Date:	25-JUL-24 06:25		
Receive Date:	26-JUL-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	0.0195	0.00876	0.0195	ug/L	0.974	1	LOF	08/04/24	0100	2647154	2
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	JB6	07/29/24	1335	2647927	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	J	0.420	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: October 31, 2024

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

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: TB4SG4-24 Project: FRNP00511
Sample ID: 677670011 Client ID: FRNP005

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

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 8011 PREP	8011 Prep	LOF	08/03/24	1306	2647153

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"	6.36 ug/L	6.95	91	(56%-149%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	50.7 ug/L	50.0	101	(74%-123%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	49.9 ug/L	50.0	100	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	51.0 ug/L	50.0	102	(77%-121%)

Notes:

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Certificate of Analysis

Report Date: October 31, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID:	TB4SG4-24	Project:	FRNP00511
Sample ID:	677670011	Client ID:	FRNP005

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

Column headers are defined as follows:

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

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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: October 31, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW384SG4-24
Sample ID: 677151001
Matrix: WG
Collect Date: 23-JUL-24
Receive Date: 24-JUL-24
Collector: Client

Project: FRNP00511
Client ID: FRNP005

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
AlphaSpec Ra226, Liquid "As Received"														
Radium-226		1.08	+/-0.753	0.751	+/-0.757	5.00	pCi/L			CM4	08/22/24	0837	2659829	1
Th-01-RC M, Th Isotopes, Liquid "As Received"														
Thorium-230	U	0.0246	+/-0.803	1.76	+/-0.805	50.0	pCi/L			AG2	08/15/24	1232	2646982	2
Rad Gas Flow Proportional Counting														
905.0 Mod, Sr90, liquid "As Received"														
Strontium-90	U	0.716	+/-3.94	7.17	+/-3.94	8.00	pCi/L			JE1	08/12/24	1653	2650326	3
9310,Alpha/Beta Activity, liquid "As Received"														
Alpha	U	1.32	+/-3.11	6.18	+/-3.12	15.0	pCi/L			HH3	08/05/24	0952	2650233	4
Beta		27.5	+/-7.94	9.07	+/-9.16	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
906.0 Mod, Tritium Dist, Liquid "As Received"														
Tritium	U	143	+/-164	276	+/-166	300	pCi/L			HB2	08/20/24	1835	2649580	5
Tc-02-RC-MOD, Tc99, Liquid "As Received"														
Technetium-99		47.6	+/-11.7	15.7	+/-12.8	25.0	pCi/L			GS3	08/14/24	2057	2647381	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"	2659829	92	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2646982	79.9	(30%-110%)
Strontium Carrier	905.0 Mod, Sr90, liquid "As Received"	2650326	47.1	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2647381	98.1	(30%-110%)

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Certificate of Analysis

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

Kevil, Kentucky 42053

Report Date: October 31, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW384SG4-24
Sample ID: 677151001

Project: FRNP00511
Client ID: FRNP005

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

Notes:

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

Column headers are defined as follows:

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

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

Kevil, Kentucky 42053

Report Date: October 31, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW385SG4-24
Sample ID: 677151003
Matrix: WG
Collect Date: 23-JUL-24
Receive Date: 24-JUL-24
Collector: Client

Project: FRNP00511
Client ID: FRNP005

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
AlphaSpec Ra226, Liquid "As Received"														
Radium-226	U	0.457	+/-0.549	0.726	+/-0.550	5.00	pCi/L			CM4	08/22/24	0837	2659829	1
Th-01-RC M, Th Isotopes, Liquid "As Received"														
Thorium-230	U	-0.205	+/-0.664	1.76	+/-0.665	50.0	pCi/L			AG2	08/15/24	1233	2646982	2
Rad Gas Flow Proportional Counting														
905.0 Mod, Sr90, liquid "As Received"														
Strontium-90	U	-1.05	+/-2.34	4.55	+/-2.34	8.00	pCi/L			JE1	08/12/24	1653	2650326	3
9310,Alpha/Beta Activity, liquid "As Received"														
Alpha	U	2.92	+/-3.84	6.44	+/-3.87	15.0	pCi/L			HH3	08/05/24	0952	2650233	4
Beta		13.4	+/-6.64	9.43	+/-7.02	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
906.0 Mod, Tritium Dist, Liquid "As Received"														
Tritium	U	-15.6	+/-149	271	+/-149	300	pCi/L			HB2	08/20/24	1912	2649580	5
Tc-02-RC-MOD, Tc99, Liquid "As Received"														
Technetium-99		45.9	+/-11.5	15.5	+/-12.6	25.0	pCi/L			GS3	08/14/24	2113	2647381	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"	2659829	92.8	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2646982	79.1	(30%-110%)
Strontium Carrier	905.0 Mod, Sr90, liquid "As Received"	2650326	74.9	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2647381	98.8	(30%-110%)

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Address : 5600 Hobbs Road
Kevil, Kentucky 42053

Report Date: October 31, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW385SG4-24
Sample ID: 677151003

Project: FRNP00511
Client ID: FRNP005

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

Notes:

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

Column headers are defined as follows:

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

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

Kevil, Kentucky 42053

Report Date: October 31, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW386SG4-24
Sample ID: 677151005
Matrix: WG
Collect Date: 23-JUL-24
Receive Date: 24-JUL-24
Collector: Client

Project: FRNP00511
Client ID: FRNP005

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
AlphaSpec Ra226, Liquid "As Received"														
Radium-226	U	0.412	+/-0.555	0.747	+/-0.556	5.00	pCi/L			CM4	08/22/24	0837	2659829	1
Th-01-RC M, Th Isotopes, Liquid "As Received"														
Thorium-230	U	-0.491	+/-0.500	1.84	+/-0.501	50.0	pCi/L			AG2	08/15/24	1233	2646982	2
Rad Gas Flow Proportional Counting														
905.0 Mod, Sr90, liquid "As Received"														
Strontium-90	U	0.244	+/-1.74	3.35	+/-1.74	8.00	pCi/L			JE1	08/12/24	1653	2650326	3
9310,Alpha/Beta Activity, liquid "As Received"														
Alpha	U	1.16	+/-4.72	9.53	+/-4.73	15.0	pCi/L			HH3	08/05/24	0952	2650233	4
Beta	U	-2.69	+/-4.48	9.32	+/-4.48	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
906.0 Mod, Tritium Dist, Liquid "As Received"														
Tritium	U	118	+/-164	280	+/-166	300	pCi/L			HB2	08/20/24	1949	2649580	5
Tc-02-RC-MOD, Tc99, Liquid "As Received"														
Technetium-99	U	-9.74	+/-7.87	15.4	+/-7.87	25.0	pCi/L			GS3	08/14/24	2130	2647381	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"	2659829	95.1	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2646982	91.3	(30%-110%)
Strontium Carrier	905.0 Mod, Sr90, liquid "As Received"	2650326	57.8	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2647381	98	(30%-110%)

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Certificate of Analysis

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

Kevil, Kentucky 42053 Report Date: October 31, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW386SG4-24 Project: FRNP00511
Sample ID: 677151005 Client ID: FRNP005

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

Notes:

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

Column headers are defined as follows:

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

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Kevil, Kentucky 42053

Report Date: October 31, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW390SG4-24
Sample ID: 677151007
Matrix: WG
Collect Date: 23-JUL-24
Receive Date: 24-JUL-24
Collector: Client

Project: FRNP00511
Client ID: FRNP005

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
AlphaSpec Ra226, Liquid "As Received"														
Radium-226		0.771	+/-0.671	0.686	+/-0.674	5.00	pCi/L			CM4	08/22/24	0837	2659829	1
Th-01-RC M, Th Isotopes, Liquid "As Received"														
Thorium-230	U	0.137	+/-0.921	1.89	+/-0.923	50.0	pCi/L			AG2	08/15/24	1233	2646982	2
Rad Gas Flow Proportional Counting														
905.0 Mod, Sr90, liquid "As Received"														
Strontium-90	U	-0.836	+/-1.41	3.06	+/-1.41	8.00	pCi/L			JE1	08/12/24	1653	2650326	3
9310,Alpha/Beta Activity, liquid "As Received"														
Alpha	U	5.03	+/-4.95	7.18	+/-5.02	15.0	pCi/L			HH3	08/05/24	1330	2650233	4
Beta		39.1	+/-8.93	9.13	+/-11.0	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
906.0 Mod, Tritium Dist, Liquid "As Received"														
Tritium	U	78.2	+/-161	280	+/-162	300	pCi/L			HB2	08/20/24	2026	2649580	5
Tc-02-RC-MOD, Tc99, Liquid "As Received"														
Technetium-99		57.4	+/-12.5	16.1	+/-14.0	25.0	pCi/L			GS3	08/14/24	2147	2647381	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"	2659829	94	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2646982	80.2	(30%-110%)
Strontium Carrier	905.0 Mod, Sr90, liquid "As Received"	2650326	70.6	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2647381	95.3	(30%-110%)

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Kevil, Kentucky 42053 Report Date: October 31, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW390SG4-24 Project: FRNP00511
Sample ID: 677151007 Client ID: FRNP005

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

Notes:

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

Column headers are defined as follows:

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

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Kevil, Kentucky 42053

Report Date: October 31, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW391SG4-24
Sample ID: 677151009
Matrix: WG
Collect Date: 23-JUL-24
Receive Date: 24-JUL-24
Collector: Client

Project: FRNP00511
Client ID: FRNP005

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
AlphaSpec Ra226, Liquid "As Received"														
Radium-226	U	0.411	+/-0.562	0.828	+/-0.563	5.00	pCi/L			CM4	08/22/24	0837	2659829	1
Th-01-RC M, Th Isotopes, Liquid "As Received"														
Thorium-230	U	-0.0222	+/-0.955	2.11	+/-0.956	50.0	pCi/L			AG2	08/15/24	1233	2646982	2
Rad Gas Flow Proportional Counting														
905.0 Mod, Sr90, liquid "As Received"														
Strontium-90	U	0.710	+/-1.36	2.45	+/-1.36	8.00	pCi/L			JE1	08/12/24	1653	2650326	3
9310,Alpha/Beta Activity, liquid "As Received"														
Alpha	U	-0.555	+/-3.39	8.00	+/-3.39	15.0	pCi/L			HH3	08/05/24	0952	2650233	4
Beta	U	6.69	+/-6.06	9.83	+/-6.16	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
906.0 Mod, Tritium Dist, Liquid "As Received"														
Tritium	U	16.4	+/-153	274	+/-153	300	pCi/L			HB2	08/20/24	2103	2649580	5
Tc-02-RC-MOD, Tc99, Liquid "As Received"														
Technetium-99	U	9.87	+/-9.18	15.2	+/-9.25	25.0	pCi/L			GS3	08/14/24	2203	2647381	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"	2659829	96.3	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2646982	79.6	(30%-110%)
Strontium Carrier	905.0 Mod, Sr90, liquid "As Received"	2650326	74.9	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2647381	99.6	(30%-110%)

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Report Date: October 31, 2024

Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW391SG4-24
Sample ID: 677151009

Project: FRNP00511
Client ID: FRNP005

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

Notes:

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Column headers are defined as follows:

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

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Report Date: October 31, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW392SG4-24
Sample ID: 677151011
Matrix: WG
Collect Date: 23-JUL-24
Receive Date: 24-JUL-24
Collector: Client

Project: FRNP00511
Client ID: FRNP005

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
AlphaSpec Ra226, Liquid "As Received"														
Radium-226	U	0.313	+/-0.520	0.817	+/-0.521	5.00	pCi/L			CM4	08/22/24	0837	2659829	1
Th-01-RC M, Th Isotopes, Liquid "As Received"														
Thorium-230	U	0.0853	+/-0.933	1.97	+/-0.935	50.0	pCi/L			AG2	08/15/24	1233	2646982	2
Rad Gas Flow Proportional Counting														
905.0 Mod, Sr90, liquid "As Received"														
Strontium-90	U	2.64	+/-2.09	3.29	+/-2.13	8.00	pCi/L			JE1	08/12/24	1653	2650326	3
9310,Alpha/Beta Activity, liquid "As Received"														
Alpha	U	-1.57	+/-3.06	8.11	+/-3.07	15.0	pCi/L			HH3	08/05/24	0952	2650233	4
Beta	U	5.11	+/-5.82	9.76	+/-5.88	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
906.0 Mod, Tritium Dist, Liquid "As Received"														
Tritium	U	192	+/-172	283	+/-176	300	pCi/L			HB2	08/20/24	2140	2649580	5
Tc-02-RC-MOD, Tc99, Liquid "As Received"														
Technetium-99	U	0.664	+/-8.51	15.2	+/-8.51	25.0	pCi/L			GS3	08/14/24	2220	2647381	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"	2659829	98.8	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2646982	80.7	(30%-110%)
Strontium Carrier	905.0 Mod, Sr90, liquid "As Received"	2650326	66.3	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2647381	99.7	(30%-110%)

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Report Date: October 31, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW392SG4-24
Sample ID: 677151011

Project: FRNP00511
Client ID: FRNP005

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

Notes:

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MDC: Minimum Detectable Concentration
Mtd.: Method
PF: Prep Factor
RL: Reporting Limit
TPU: Total Propagated Uncertainty

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Report Date: October 31, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID:	MW384SG4-24	Project:	FRNP00511
Sample ID:	677151001	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	23-JUL-24 08:06		
Receive Date:	24-JUL-24		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
504.1/8011 Analysis of EDB/DBCP												
8011, VOA Compounds Liquid "As Received"												
1,2-Dibromo-3-chloropropane	U	0.0193	0.00868	0.0193	ug/L	0.964	1	LOF	07/26/24	2312	2645909	1
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	0.813	0.330	2.00	mg/L		1	KB3	08/16/24	1138	2656554	2
Flow Injection Analysis												
9012B, Total Cyanide "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	07/26/24	0825	2645990	3
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens	J	8.58	3.33	10.0	ug/L		1	JS13	08/09/24	1608	2653933	4
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	08/08/24	1723	2653275	5
SW846 9056A Anions (5) "As Received"												
Chloride	BJ	21.3	0.335	250	mg/L		5	TXT1	07/24/24	1621	2645599	6
Nitrate-N	J	0.784	0.165	10.0	mg/L		5					
Bromide		0.257	0.0670	0.200	mg/L		1	TXT1	07/24/24	1310	2645599	7
Fluoride	JW	0.174	0.0330	4.00	mg/L		1					
Sulfate		17.9	0.133	0.400	mg/L		1					
Mercury Analysis-CVAA												
7470, Mercury Liquid "As Received"												
Mercury	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	JP2	07/26/24	1235	2646041	8
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Aluminum	J	0.0402	0.0193	0.0500	mg/L	1.00	1	PRB	08/10/24	1627	2645663	9
Antimony	U	0.00300	0.00100	0.00300	mg/L	1.00	1					
Arsenic	U	0.00500	0.00200	0.00500	mg/L	1.00	1					
Barium		0.196	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					
Boron		0.0599	0.00520	0.0150	mg/L	1.00	1					
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Calcium		23.3	0.0800	0.200	mg/L	1.00	1					
Chromium	J	0.00405	0.00300	0.0100	mg/L	1.00	1					

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Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW384SG4-24 Project: FRNP00511
Sample ID: 677151001 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Cobalt	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Copper	J	0.00139	0.000300	0.00200	mg/L	1.00	1					
Iron		0.554	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Magnesium		9.62	0.0100	0.0300	mg/L	1.00	1					
Manganese		0.0111	0.00100	0.00500	mg/L	1.00	1					
Molybdenum	U	0.00100	0.000200	0.00100	mg/L	1.00	1					
Nickel	J	0.000912	0.000600	0.00200	mg/L	1.00	1					
Potassium		1.33	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		43.7	0.0800	0.250	mg/L	1.00	1					
Thallium	U	0.00200	0.000600	0.00200	mg/L	1.00	1					
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1					
Vanadium	U	0.0200	0.00330	0.0200	mg/L	1.00	1					
Zinc	J	0.00423	0.00330	0.0200	mg/L	1.00	1					
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	08/10/24	1237	2645663	10
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		184	2.38	10.0	mg/L			KLP1	07/29/24	1242	2647734	11
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD	UN	20.0	8.95	20.0	mg/L		1	HH2	07/26/24	1908	2646268	12
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	JB6	07/29/24	0157	2647144	13
1,1,1-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
1,2,3-Trichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dibromoethane	U	1.00	0.333	1.00	ug/L		1					

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Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW384SG4-24 Project: FRNP00511
Sample ID: 677151001 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,2-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,4-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
2-Butanone	U	5.00	1.67	5.00	ug/L		1					
2-Hexanone	U	5.00	1.67	5.00	ug/L		1					
4-Methyl-2-pentanone	U	5.00	1.67	5.00	ug/L		1					
Acetone	U	5.00	1.74	5.00	ug/L		1					
Acrolein	U	5.00	1.67	5.00	ug/L		1					
Acrylonitrile	U	5.00	1.67	5.00	ug/L		1					
Benzene	U	1.00	0.333	1.00	ug/L		1					
Bromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromodichloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromoform	U	1.00	0.333	1.00	ug/L		1					
Bromomethane	U	1.00	0.337	1.00	ug/L		1					
Carbon disulfide	U	5.00	1.67	5.00	ug/L		1					
Carbon tetrachloride	U	1.00	0.333	1.00	ug/L		1					
Chlorobenzene	U	1.00	0.333	1.00	ug/L		1					
Chloroethane	U	1.00	0.333	1.00	ug/L		1					
Chloroform	U	1.00	0.333	1.00	ug/L		1					
Chloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromomethane	U	1.00	0.333	1.00	ug/L		1					
Ethylbenzene	U	1.00	0.333	1.00	ug/L		1					
Iodomethane	U	5.00	1.67	5.00	ug/L		1					
Methylene chloride	U	5.00	0.500	5.00	ug/L		1					
Styrene	U	1.00	0.333	1.00	ug/L		1					
Tetrachloroethylene	U	1.00	0.333	1.00	ug/L		1					
Toluene	U	1.00	0.333	1.00	ug/L		1					
Trichloroethylene		1.98	0.333	1.00	ug/L		1					
Trichlorofluoromethane	U	1.00	0.333	1.00	ug/L		1					
Vinyl acetate	U	5.00	1.67	5.00	ug/L		1					
Vinyl chloride	U	1.00	0.333	1.00	ug/L		1					
Xylenes (total)	U	3.00	1.00	3.00	ug/L		1					
cis-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
cis-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					

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Address : 5600 Hobbs Road

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW384SG4-24 Project: FRNP00511
Sample ID: 677151001 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
trans-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,4-Dichloro-2-butene	U	5.00	1.67	5.00	ug/L		1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 9010C Distillation	SW846 9010C Prep	ES2	07/25/24	1251	2645989
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	07/25/24	1130	2646040
SW846 8011 PREP	8011 Prep	LOF	07/26/24	1451	2645907
SW846 3005A	ICP-MS 3005A PREP	BB2	07/26/24	1455	2645662

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 8011	
2	SW846 9060A	
3	SW846 9012B	
4	SW846 9020B	
5	EPA 300.0	
6	SW846 9056A	
7	SW846 9056A	
8	SW846 7470A	
9	SW846 3005A/6020B	
10	SW846 3005A/6020B	
11	EPA 160.1	
12	EPA 410.4	
13	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	6.89	99	(56%-149%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	50.9 ug/L	50.0	102	(74%-123%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	50.1 ug/L	50.0	100	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	51.6 ug/L	50.0	103	(77%-121%)

Notes:

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Report Date: October 31, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID:	MW384SG4-24	Project:	FRNP00511
Sample ID:	677151001	Client ID:	FRNP005

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

Column headers are defined as follows:

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

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Report Date: October 31, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID:	MW384SG4-24	Project:	FRNP00511
Sample ID:	677151002	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	23-JUL-24 08:06		
Receive Date:	24-JUL-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		0.194	0.000670	0.00400	mg/L	1.00	1	PRB	08/10/24	1631	2645663	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	07/26/24	1455	2645662
EPA 160	Laboratory Filtration	SD	07/24/24	1257	2645596

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3005A/6020B	

Notes:

Column headers are defined as follows:

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

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Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID:	MW385SG4-24	Project:	FRNP00511
Sample ID:	677151003	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	23-JUL-24 08:48		
Receive Date:	24-JUL-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	0.00848	0.0188	ug/L	0.942	1	LOF	07/26/24	2342	2645909	1
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	0.697	0.330	2.00	mg/L		1	KB3	08/16/24	1209	2656554	2
Flow Injection Analysis												
9012B, Total Cyanide "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	07/26/24	0826	2645990	3
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens		16.5	3.33	10.0	ug/L		1	RMJ	08/18/24	1903	2658389	4
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	08/08/24	1736	2653275	5
SW846 9056A Anions (5) "As Received"												
Bromide		0.215	0.0670	0.200	mg/L		1	TXT1	07/24/24	1342	2645599	6
Fluoride	JW	0.142	0.0330	4.00	mg/L		1					
Sulfate		19.2	0.133	0.400	mg/L		1					
Chloride	BJ	20.9	0.335	250	mg/L		5	TXT1	07/24/24	1653	2645599	7
Nitrate-N	J	0.658	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	07/26/24	1237	2646041	8
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Aluminum	U	0.0500	0.0193	0.0500	mg/L	1.00	1	PRB	08/10/24	1635	2645663	9
Antimony	U	0.00300	0.00100	0.00300	mg/L	1.00	1					
Arsenic	U	0.00500	0.00200	0.00500	mg/L	1.00	1					
Barium		0.201	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					
Boron		0.0767	0.00520	0.0150	mg/L	1.00	1					
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Calcium		24.1	0.0800	0.200	mg/L	1.00	1					
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					

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

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW385SG4-24 Project: FRNP00511
Sample ID: 677151003 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Cobalt	J	0.000461	0.000300	0.00100	mg/L	1.00	1					
Copper	J	0.00111	0.000300	0.00200	mg/L	1.00	1					
Iron	J	0.0381	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Magnesium		9.36	0.0100	0.0300	mg/L	1.00	1					
Manganese	J	0.00291	0.00100	0.00500	mg/L	1.00	1					
Molybdenum	J	0.000225	0.000200	0.00100	mg/L	1.00	1					
Nickel	J	0.00110	0.000600	0.00200	mg/L	1.00	1					
Potassium		1.52	0.0800	0.300	mg/L	1.00	1					
Selenium	U	0.00500	0.00150	0.00500	mg/L	1.00	1					
Silver	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Sodium		41.9	0.0800	0.250	mg/L	1.00	1					
Thallium	U	0.00200	0.000600	0.00200	mg/L	1.00	1					
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	08/10/24	1239	2645663	10
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		201	2.38	10.0	mg/L			KLP1	07/29/24	1242	2647734	11
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD	UN	20.0	8.95	20.0	mg/L		1	HH2	07/26/24	1908	2646268	12
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	JB6	07/29/24	0223	2647144	13
1,1,1-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
1,2,3-Trichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dibromoethane	U	1.00	0.333	1.00	ug/L		1					

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Address : 5600 Hobbs Road

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW385SG4-24 Project: FRNP00511
Sample ID: 677151003 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,2-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,4-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
2-Butanone	U	5.00	1.67	5.00	ug/L		1					
2-Hexanone	U	5.00	1.67	5.00	ug/L		1					
4-Methyl-2-pentanone	U	5.00	1.67	5.00	ug/L		1					
Acetone	U	5.00	1.74	5.00	ug/L		1					
Acrolein	U	5.00	1.67	5.00	ug/L		1					
Acrylonitrile	U	5.00	1.67	5.00	ug/L		1					
Benzene	U	1.00	0.333	1.00	ug/L		1					
Bromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromodichloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromoform	U	1.00	0.333	1.00	ug/L		1					
Bromomethane	U	1.00	0.337	1.00	ug/L		1					
Carbon disulfide	U	5.00	1.67	5.00	ug/L		1					
Carbon tetrachloride	U	1.00	0.333	1.00	ug/L		1					
Chlorobenzene	U	1.00	0.333	1.00	ug/L		1					
Chloroethane	U	1.00	0.333	1.00	ug/L		1					
Chloroform	U	1.00	0.333	1.00	ug/L		1					
Chloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromomethane	U	1.00	0.333	1.00	ug/L		1					
Ethylbenzene	U	1.00	0.333	1.00	ug/L		1					
Iodomethane	U	5.00	1.67	5.00	ug/L		1					
Methylene chloride	U	5.00	0.500	5.00	ug/L		1					
Styrene	U	1.00	0.333	1.00	ug/L		1					
Tetrachloroethylene	U	1.00	0.333	1.00	ug/L		1					
Toluene	U	1.00	0.333	1.00	ug/L		1					
Trichloroethylene	U	1.00	0.333	1.00	ug/L		1					
Trichlorofluoromethane	U	1.00	0.333	1.00	ug/L		1					
Vinyl acetate	U	5.00	1.67	5.00	ug/L		1					
Vinyl chloride	U	1.00	0.333	1.00	ug/L		1					
Xylenes (total)	U	3.00	1.00	3.00	ug/L		1					
cis-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
cis-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					

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

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW385SG4-24 Project: FRNP00511
Sample ID: 677151003 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
trans-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,4-Dichloro-2-butene	U	5.00	1.67	5.00	ug/L		1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 8011 PREP	8011 Prep	LOF	07/26/24	1451	2645907
SW846 3005A	ICP-MS 3005A PREP	BB2	07/26/24	1455	2645662
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	07/25/24	1130	2646040
SW846 9010C Distillation	SW846 9010C Prep	ES2	07/25/24	1251	2645989

The following Analytical Methods were performed:

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

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011, VOA Compounds Liquid "As Received"	7.01 ug/L	6.73	104	(56%-149%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	48.2 ug/L	50.0	96	(74%-123%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	49.0 ug/L	50.0	98	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	49.3 ug/L	50.0	99	(77%-121%)

Notes:

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Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID:	MW385SG4-24	Project:	FRNP00511
Sample ID:	677151003	Client ID:	FRNP005

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

Column headers are defined as follows:

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

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Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID:	MW385SG4-24	Project:	FRNP00511
Sample ID:	677151004	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	23-JUL-24 08:48		
Receive Date:	24-JUL-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		0.199	0.000670	0.00400	mg/L	1.00	1	PRB	08/10/24	1700	2645663	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	07/24/24	1257	2645596
SW846 3005A	ICP-MS 3005A PREP	BB2	07/26/24	1455	2645662

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3005A/6020B	

Notes:

Column headers are defined as follows:

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

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

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW386SG4-24
Sample ID: 677151005
Matrix: WG
Collect Date: 23-JUL-24 09:45
Receive Date: 24-JUL-24
Collector: Client

Project: FRNP00511
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
504.1/8011 Analysis of EDB/DBCP												
8011, VOA Compounds Liquid "As Received"												
1,2-Dibromo-3-chloropropane	U	0.0193	0.00869	0.0193	ug/L	0.966	1	LOF	07/27/24	0112	2645909	1
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average		5.53	0.330	2.00	mg/L		1	KB3	08/16/24	1342	2656554	2
Flow Injection Analysis												
9012B, Total Cyanide "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	07/26/24	0835	2645990	3
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens		146	3.33	10.0	ug/L		1	JS13	08/09/24	1654	2653933	4
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	08/08/24	1814	2653275	5
SW846 9056A Anions (5) "As Received"												
Nitrate-N	U	10.0	0.132	10.0	mg/L		4	TXT1	07/25/24	0019	2645599	6
Bromide	J	0.109	0.0670	0.200	mg/L		1	TXT1	07/24/24	1414	2645599	7
Fluoride	JW	0.784	0.0330	4.00	mg/L		1					
Chloride	BJ	9.94	0.134	250	mg/L		2	TXT1	07/24/24	1725	2645599	8
Sulfate		38.8	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	07/26/24	1245	2646041	9
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	08/10/24	1253	2645663	10
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Manganese		1.17	0.0100	0.0500	mg/L	1.00	10	PRB	08/10/24	1802	2645663	11
Sodium		110	0.800	2.50	mg/L	1.00	10					
Aluminum	U	0.0500	0.0193	0.0500	mg/L	1.00	1	PRB	08/10/24	1726	2645663	12
Antimony	U	0.00300	0.00100	0.00300	mg/L	1.00	1					
Arsenic	J	0.00240	0.00200	0.00500	mg/L	1.00	1					
Barium		0.157	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					

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Report Date: October 31, 2024

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

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW386SG4-24 Project: FRNP00511
Sample ID: 677151005 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Boron		0.0186	0.00520	0.0150	mg/L	1.00	1					
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Calcium		20.3	0.0800	0.200	mg/L	1.00	1					
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					
Cobalt		0.00466	0.000300	0.00100	mg/L	1.00	1					
Copper	J	0.00152	0.000300	0.00200	mg/L	1.00	1					
Iron		0.132	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Magnesium		8.31	0.0100	0.0300	mg/L	1.00	1					
Molybdenum	J	0.000917	0.000200	0.00100	mg/L	1.00	1					
Nickel		0.00353	0.000600	0.00200	mg/L	1.00	1					
Potassium	J	0.281	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					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		364	2.38	10.0	mg/L			KLP1	07/29/24	1242	2647734	13
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD	N	22.4	8.95	20.0	mg/L		1	HH2	07/26/24	1909	2646268	14
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	JB6	07/29/24	0248	2647144	15
1,1,1-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
1,2,3-Trichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dibromoethane	U	1.00	0.333	1.00	ug/L		1					

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

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW386SG4-24 Project: FRNP00511
Sample ID: 677151005 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,2-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,4-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
2-Butanone	U	5.00	1.67	5.00	ug/L		1					
2-Hexanone	U	5.00	1.67	5.00	ug/L		1					
4-Methyl-2-pentanone	U	5.00	1.67	5.00	ug/L		1					
Acetone	U	5.00	1.74	5.00	ug/L		1					
Acrolein	U	5.00	1.67	5.00	ug/L		1					
Acrylonitrile	U	5.00	1.67	5.00	ug/L		1					
Benzene	U	1.00	0.333	1.00	ug/L		1					
Bromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromodichloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromoform	U	1.00	0.333	1.00	ug/L		1					
Bromomethane	U	1.00	0.337	1.00	ug/L		1					
Carbon disulfide	U	5.00	1.67	5.00	ug/L		1					
Carbon tetrachloride	U	1.00	0.333	1.00	ug/L		1					
Chlorobenzene	U	1.00	0.333	1.00	ug/L		1					
Chloroethane	U	1.00	0.333	1.00	ug/L		1					
Chloroform	U	1.00	0.333	1.00	ug/L		1					
Chloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromomethane	U	1.00	0.333	1.00	ug/L		1					
Ethylbenzene	U	1.00	0.333	1.00	ug/L		1					
Iodomethane	U	5.00	1.67	5.00	ug/L		1					
Methylene chloride	U	5.00	0.500	5.00	ug/L		1					
Styrene	U	1.00	0.333	1.00	ug/L		1					
Tetrachloroethylene	U	1.00	0.333	1.00	ug/L		1					
Toluene	U	1.00	0.333	1.00	ug/L		1					
Trichloroethylene	U	1.00	0.333	1.00	ug/L		1					
Trichlorofluoromethane	U	1.00	0.333	1.00	ug/L		1					
Vinyl acetate	U	5.00	1.67	5.00	ug/L		1					
Vinyl chloride	U	1.00	0.333	1.00	ug/L		1					
Xylenes (total)	U	3.00	1.00	3.00	ug/L		1					
cis-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
cis-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					

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Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW386SG4-24 Project: FRNP00511
Sample ID: 677151005 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
trans-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,4-Dichloro-2-butene	U	5.00	1.67	5.00	ug/L		1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-MS 3005A PREP	BB2	07/26/24	1455	2645662
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	07/25/24	1130	2646040
SW846 8011 PREP	8011 Prep	LOF	07/26/24	1451	2645907
SW846 9010C Distillation	SW846 9010C Prep	ES2	07/25/24	1251	2645989

The following Analytical Methods were performed:

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

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011, VOA Compounds Liquid "As Received"	6.79 ug/L	6.90	98	(56%-149%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	48.7 ug/L	50.0	97	(74%-123%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	49.3 ug/L	50.0	99	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	51.0 ug/L	50.0	102	(77%-121%)

Notes:

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Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID:	MW386SG4-24	Project:	FRNP00511
Sample ID:	677151005	Client ID:	FRNP005

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

Column headers are defined as follows:

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

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Company :	Four Rivers Nuclear Partnership, LLC
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	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID:	MW386SG4-24	Project:	FRNP00511
Sample ID:	677151006	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	23-JUL-24 09:45		
Receive Date:	24-JUL-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		0.151	0.000670	0.00400	mg/L	1.00	1	PRB	08/10/24	1729	2645663	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	07/24/24	1257	2645596
SW846 3005A	ICP-MS 3005A PREP	BB2	07/26/24	1455	2645662

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3005A/6020B	

Notes:

Column headers are defined as follows:

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

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Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID:	MW390SG4-24	Project:	FRNP00511
Sample ID:	677151007	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	23-JUL-24 07:23		
Receive Date:	24-JUL-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	0.00846	0.0188	ug/L	0.940	1	LOF	07/27/24	0143	2645909	1
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	1.93	0.330	2.00	mg/L		1	KB3	08/16/24	1413	2656554	2
Flow Injection Analysis												
9012B, Total Cyanide "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	07/26/24	0836	2645990	3
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens		12.0	3.33	10.0	ug/L		1	JS13	08/09/24	1755	2653933	4
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	08/08/24	1827	2653275	5
SW846 9056A Anions (5) "As Received"												
Chloride	BJ	20.7	0.335	250	mg/L		5	TXT1	07/24/24	1756	2645599	6
Nitrate-N	J	1.12	0.165	10.0	mg/L		5					
Sulfate		33.6	0.665	2.00	mg/L		5					
Bromide		0.235	0.0670	0.200	mg/L		1	TXT1	07/24/24	1446	2645599	7
Fluoride	JW	0.253	0.0330	4.00	mg/L		1					
Mercury Analysis-CVAA												
7470, Mercury Liquid "As Received"												
Mercury	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	JP2	07/26/24	1246	2646041	8
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Sodium		91.0	0.800	2.50	mg/L	1.00	10	PRB	08/10/24	1809	2645663	9
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	08/10/24	1255	2645663	10
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Aluminum		0.100	0.0193	0.0500	mg/L	1.00	1	PRB	08/10/24	1733	2645663	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		0.225	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					
Boron		0.0221	0.00520	0.0150	mg/L	1.00	1					

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Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW390SG4-24 Project: FRNP00511
Sample ID: 677151007 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Calcium		27.7	0.0800	0.200	mg/L	1.00	1					
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					
Cobalt	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Copper	J	0.00173	0.000300	0.00200	mg/L	1.00	1					
Iron		0.101	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	0.00150	0.00100	0.00500	mg/L	1.00	1					
Molybdenum	J	0.000333	0.000200	0.00100	mg/L	1.00	1					
Nickel	J	0.00150	0.000600	0.00200	mg/L	1.00	1					
Potassium		0.347	0.0800	0.300	mg/L	1.00	1					
Selenium	U	0.00500	0.00150	0.00500	mg/L	1.00	1					
Silver	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Thallium	U	0.00200	0.000600	0.00200	mg/L	1.00	1					
Uranium	J	0.000197	0.0000670	0.000200	mg/L	1.00	1					
Vanadium	U	0.0200	0.00330	0.0200	mg/L	1.00	1					
Zinc	J	0.00648	0.00330	0.0200	mg/L	1.00	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		355	2.38	10.0	mg/L			KLP1	07/29/24	1242	2647734	12
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD	JN	10.8	8.95	20.0	mg/L		1	HH2	07/26/24	1909	2646268	13
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	JB6	07/29/24	0313	2647144	14
1,1,1-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
1,2,3-Trichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dibromoethane	U	1.00	0.333	1.00	ug/L		1					

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Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW390SG4-24 Project: FRNP00511
Sample ID: 677151007 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,2-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,4-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
2-Butanone	U	5.00	1.67	5.00	ug/L		1					
2-Hexanone	U	5.00	1.67	5.00	ug/L		1					
4-Methyl-2-pentanone	U	5.00	1.67	5.00	ug/L		1					
Acetone	U	5.00	1.74	5.00	ug/L		1					
Acrolein	U	5.00	1.67	5.00	ug/L		1					
Acrylonitrile	U	5.00	1.67	5.00	ug/L		1					
Benzene	U	1.00	0.333	1.00	ug/L		1					
Bromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromodichloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromoform	U	1.00	0.333	1.00	ug/L		1					
Bromomethane	U	1.00	0.337	1.00	ug/L		1					
Carbon disulfide	U	5.00	1.67	5.00	ug/L		1					
Carbon tetrachloride	U	1.00	0.333	1.00	ug/L		1					
Chlorobenzene	U	1.00	0.333	1.00	ug/L		1					
Chloroethane	U	1.00	0.333	1.00	ug/L		1					
Chloroform	U	1.00	0.333	1.00	ug/L		1					
Chloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromomethane	U	1.00	0.333	1.00	ug/L		1					
Ethylbenzene	U	1.00	0.333	1.00	ug/L		1					
Iodomethane	U	5.00	1.67	5.00	ug/L		1					
Methylene chloride	U	5.00	0.500	5.00	ug/L		1					
Styrene	U	1.00	0.333	1.00	ug/L		1					
Tetrachloroethylene	U	1.00	0.333	1.00	ug/L		1					
Toluene	U	1.00	0.333	1.00	ug/L		1					
Trichloroethylene	U	1.00	0.333	1.00	ug/L		1					
Trichlorofluoromethane	U	1.00	0.333	1.00	ug/L		1					
Vinyl acetate	U	5.00	1.67	5.00	ug/L		1					
Vinyl chloride	U	1.00	0.333	1.00	ug/L		1					
Xylenes (total)	U	3.00	1.00	3.00	ug/L		1					
cis-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
cis-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					

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Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW390SG4-24 Project: FRNP00511
Sample ID: 677151007 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
trans-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,4-Dichloro-2-butene	U	5.00	1.67	5.00	ug/L		1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 8011 PREP	8011 Prep	LOF	07/26/24	1451	2645907
SW846 3005A	ICP-MS 3005A PREP	BB2	07/26/24	1455	2645662
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	07/25/24	1130	2646040
SW846 9010C Distillation	SW846 9010C Prep	ES2	07/25/24	1251	2645989

The following Analytical Methods were performed:

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

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011, VOA Compounds Liquid "As Received"	7.22 ug/L	6.72	107	(56%-149%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	50.3 ug/L	50.0	101	(74%-123%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	49.8 ug/L	50.0	100	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	51.1 ug/L	50.0	102	(77%-121%)

Notes:

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Certificate of Analysis

Report Date: October 31, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID:	MW390SG4-24	Project:	FRNP00511
Sample ID:	677151007	Client ID:	FRNP005

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

Column headers are defined as follows:

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

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Certificate of Analysis

Report Date: October 31, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID:	MW390SG4-24	Project:	FRNP00511
Sample ID:	677151008	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	23-JUL-24 07:23		
Receive Date:	24-JUL-24		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Dissolved Metals (3 Elements) "As Received"												
Barium		0.230	0.000670	0.00400	mg/L	1.00	1	PRB	08/10/24	1737	2645663	1
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					
Uranium	J	0.000190	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	07/24/24	1257	2645596
SW846 3005A	ICP-MS 3005A PREP	BB2	07/26/24	1455	2645662

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3005A/6020B	

Notes:

Column headers are defined as follows:

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

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Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID:	MW391SG4-24	Project:	FRNP00511
Sample ID:	677151009	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	23-JUL-24 10:28		
Receive Date:	24-JUL-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	0.0186	0.00836	0.0186	ug/L	0.928	1	LOF	07/27/24	0213	2645909	1
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	0.462	0.330	2.00	mg/L		1	KB3	08/16/24	1444	2656554	2
Flow Injection Analysis												
9012B, Total Cyanide "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	07/26/24	0837	2645990	3
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens		21.0	3.33	10.0	ug/L		1	JS13	08/09/24	1834	2653933	4
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	08/08/24	1840	2653275	5
SW846 9056A Anions (5) "As Received"												
Chloride	BJ	42.0	0.335	250	mg/L		5	TXT1	07/24/24	1932	2645599	6
Nitrate-N	J	1.19	0.165	10.0	mg/L		5					
Bromide		0.490	0.0670	0.200	mg/L		1	TXT1	07/24/24	1518	2645599	7
Fluoride	JW	0.129	0.0330	4.00	mg/L		1					
Sulfate		12.2	0.133	0.400	mg/L		1					
Mercury Analysis-CVAA												
7470, Mercury Liquid "As Received"												
Mercury	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	JP2	07/26/24	1252	2646041	8
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	08/10/24	1257	2645663	9
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Aluminum	J	0.0224	0.0193	0.0500	mg/L	1.00	1	PRB	08/10/24	1740	2645663	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		0.210	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					
Boron		0.0241	0.00520	0.0150	mg/L	1.00	1					
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1					

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

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW391SG4-24 Project: FRNP00511
Sample ID: 677151009 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Calcium		24.7	0.0800	0.200	mg/L	1.00	1					
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					
Cobalt	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Copper	J	0.000621	0.000300	0.00200	mg/L	1.00	1					
Iron		0.125	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Magnesium		10.3	0.0100	0.0300	mg/L	1.00	1					
Manganese	J	0.00221	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		1.41	0.0800	0.300	mg/L	1.00	1					
Selenium	U	0.00500	0.00150	0.00500	mg/L	1.00	1					
Silver	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Sodium		31.4	0.0800	0.250	mg/L	1.00	1					
Thallium	U	0.00200	0.000600	0.00200	mg/L	1.00	1					
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1					
Vanadium	U	0.0200	0.00330	0.0200	mg/L	1.00	1					
Zinc	U	0.0200	0.00330	0.0200	mg/L	1.00	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		182	2.38	10.0	mg/L			KLP1	07/29/24	1242	2647734	11
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD	JN	10.8	8.95	20.0	mg/L		1	HH2	07/26/24	1909	2646268	12
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	JB6	07/26/24	2005	2647144	13
1,1,1-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
1,2,3-Trichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dibromoethane	U	1.00	0.333	1.00	ug/L		1					

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

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW391SG4-24 Project: FRNP00511
Sample ID: 677151009 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,2-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,4-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
2-Butanone	U	5.00	1.67	5.00	ug/L		1					
2-Hexanone	U	5.00	1.67	5.00	ug/L		1					
4-Methyl-2-pentanone	U	5.00	1.67	5.00	ug/L		1					
Acetone	U	5.00	1.74	5.00	ug/L		1					
Acrolein	U	5.00	1.67	5.00	ug/L		1					
Acrylonitrile	U	5.00	1.67	5.00	ug/L		1					
Benzene	U	1.00	0.333	1.00	ug/L		1					
Bromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromodichloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromoform	U	1.00	0.333	1.00	ug/L		1					
Bromomethane	U	1.00	0.337	1.00	ug/L		1					
Carbon disulfide	U	5.00	1.67	5.00	ug/L		1					
Carbon tetrachloride	U	1.00	0.333	1.00	ug/L		1					
Chlorobenzene	U	1.00	0.333	1.00	ug/L		1					
Chloroethane	U	1.00	0.333	1.00	ug/L		1					
Chloroform	U	1.00	0.333	1.00	ug/L		1					
Chloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromomethane	U	1.00	0.333	1.00	ug/L		1					
Ethylbenzene	U	1.00	0.333	1.00	ug/L		1					
Iodomethane	U	5.00	1.67	5.00	ug/L		1					
Methylene chloride	U	5.00	0.500	5.00	ug/L		1					
Styrene	U	1.00	0.333	1.00	ug/L		1					
Tetrachloroethylene	U	1.00	0.333	1.00	ug/L		1					
Toluene	U	1.00	0.333	1.00	ug/L		1					
Trichloroethylene	J	0.470	0.333	1.00	ug/L		1					
Trichlorofluoromethane	U	1.00	0.333	1.00	ug/L		1					
Vinyl acetate	U	5.00	1.67	5.00	ug/L		1					
Vinyl chloride	U	1.00	0.333	1.00	ug/L		1					
Xylenes (total)	U	3.00	1.00	3.00	ug/L		1					
cis-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
cis-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					

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

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW391SG4-24 Project: FRNP00511
Sample ID: 677151009 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
trans-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,4-Dichloro-2-butene	U	5.00	1.67	5.00	ug/L		1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-MS 3005A PREP	BB2	07/26/24	1455	2645662
SW846 9010C Distillation	SW846 9010C Prep	ES2	07/25/24	1251	2645989
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	07/25/24	1130	2646040
SW846 8011 PREP	8011 Prep	LOF	07/26/24	1451	2645907

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 8011	
2	SW846 9060A	
3	SW846 9012B	
4	SW846 9020B	
5	EPA 300.0	
6	SW846 9056A	
7	SW846 9056A	
8	SW846 7470A	
9	SW846 3005A/6020B	
10	SW846 3005A/6020B	
11	EPA 160.1	
12	EPA 410.4	
13	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	6.63	102	(56%-149%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	48.9 ug/L	50.0	98	(74%-123%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	49.2 ug/L	50.0	98	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	51.1 ug/L	50.0	102	(77%-121%)

Notes:

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Report Date: October 31, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID:	MW391SG4-24	Project:	FRNP00511
Sample ID:	677151009	Client ID:	FRNP005

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

Column headers are defined as follows:

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

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Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID:	MW391SG4-24	Project:	FRNP00511
Sample ID:	677151010	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	23-JUL-24 10:28		
Receive Date:	24-JUL-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		0.214	0.000670	0.00400	mg/L	1.00	1	PRB	08/10/24	1744	2645663	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	07/24/24	1257	2645596
SW846 3005A	ICP-MS 3005A PREP	BB2	07/26/24	1455	2645662

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: October 31, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID:	MW392SG4-24	Project:	FRNP00511
Sample ID:	677151011	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	23-JUL-24 11:10		
Receive Date:	24-JUL-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	07/27/24	0243	2645909	1
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	0.510	0.330	2.00	mg/L		1	KB3	08/16/24	1515	2656554	2
Flow Injection Analysis												
9012B, Total Cyanide "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	07/26/24	0838	2645990	3
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens	J	8.76	3.33	10.0	ug/L		1	JS13	08/09/24	1935	2653933	4
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	08/12/24	1216	2654903	5
SW846 9056A Anions (5) "As Received"												
Chloride	BJ	41.6	0.670	250	mg/L		10	TXT1	07/24/24	2036	2645599	6
Bromide		0.525	0.0670	0.200	mg/L		1	TXT1	07/24/24	1549	2645599	7
Fluoride	JW	0.167	0.0330	4.00	mg/L		1					
Sulfate		7.73	0.133	0.400	mg/L		1					
Nitrate-N	J	0.677	0.0660	10.0	mg/L		2	TXT1	07/24/24	2004	2645599	8
Mercury Analysis-CVAA												
7470, Mercury Liquid "As Received"												
Mercury	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	JP2	07/26/24	1253	2646041	9
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	08/10/24	1259	2645663	10
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Aluminum	J	0.0219	0.0193	0.0500	mg/L	1.00	1	PRB	08/10/24	1747	2645663	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		0.305	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					
Boron		0.0211	0.00520	0.0150	mg/L	1.00	1					
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1					

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

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW392SG4-24 Project: FRNP00511
Sample ID: 677151011 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Calcium		22.7	0.0800	0.200	mg/L	1.00	1					
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					
Cobalt	J	0.000313	0.000300	0.00100	mg/L	1.00	1					
Copper	J	0.000956	0.000300	0.00200	mg/L	1.00	1					
Iron		0.202	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Magnesium		9.70	0.0100	0.0300	mg/L	1.00	1					
Manganese		0.198	0.00100	0.00500	mg/L	1.00	1					
Molybdenum	U	0.00100	0.000200	0.00100	mg/L	1.00	1					
Nickel		0.00223	0.000600	0.00200	mg/L	1.00	1					
Potassium		2.03	0.0800	0.300	mg/L	1.00	1					
Selenium	U	0.00500	0.00150	0.00500	mg/L	1.00	1					
Silver	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Sodium		23.5	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	U	0.0200	0.00330	0.0200	mg/L	1.00	1					
Zinc	U	0.0200	0.00330	0.0200	mg/L	1.00	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		172	2.38	10.0	mg/L			KLP1	07/29/24	1242	2647734	12
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD	UN	20.0	8.95	20.0	mg/L		1	HH2	07/26/24	1909	2646268	13
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	JB6	07/29/24	0338	2647144	14
1,1,1-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
1,2,3-Trichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dibromoethane	U	1.00	0.333	1.00	ug/L		1					

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Certificate of Analysis

Report Date: October 31, 2024

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

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW392SG4-24 Project: FRNP00511
Sample ID: 677151011 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,2-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,4-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
2-Butanone	U	5.00	1.67	5.00	ug/L		1					
2-Hexanone	U	5.00	1.67	5.00	ug/L		1					
4-Methyl-2-pentanone	U	5.00	1.67	5.00	ug/L		1					
Acetone	U	5.00	1.74	5.00	ug/L		1					
Acrolein	U	5.00	1.67	5.00	ug/L		1					
Acrylonitrile	U	5.00	1.67	5.00	ug/L		1					
Benzene	U	1.00	0.333	1.00	ug/L		1					
Bromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromodichloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromoform	U	1.00	0.333	1.00	ug/L		1					
Bromomethane	U	1.00	0.337	1.00	ug/L		1					
Carbon disulfide	U	5.00	1.67	5.00	ug/L		1					
Carbon tetrachloride	U	1.00	0.333	1.00	ug/L		1					
Chlorobenzene	U	1.00	0.333	1.00	ug/L		1					
Chloroethane	U	1.00	0.333	1.00	ug/L		1					
Chloroform	U	1.00	0.333	1.00	ug/L		1					
Chloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromomethane	U	1.00	0.333	1.00	ug/L		1					
Ethylbenzene	U	1.00	0.333	1.00	ug/L		1					
Iodomethane	U	5.00	1.67	5.00	ug/L		1					
Methylene chloride	U	5.00	0.500	5.00	ug/L		1					
Styrene	U	1.00	0.333	1.00	ug/L		1					
Tetrachloroethylene	U	1.00	0.333	1.00	ug/L		1					
Toluene	U	1.00	0.333	1.00	ug/L		1					
Trichloroethylene		4.04	0.333	1.00	ug/L		1					
Trichlorofluoromethane	U	1.00	0.333	1.00	ug/L		1					
Vinyl acetate	U	5.00	1.67	5.00	ug/L		1					
Vinyl chloride	U	1.00	0.333	1.00	ug/L		1					
Xylenes (total)	U	3.00	1.00	3.00	ug/L		1					
cis-1,2-Dichloroethylene	J	0.440	0.333	1.00	ug/L		1					
cis-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					

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Certificate of Analysis

Report Date: October 31, 2024

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

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW392SG4-24 Project: FRNP00511
Sample ID: 677151011 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
trans-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,4-Dichloro-2-butene	U	5.00	1.67	5.00	ug/L		1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 8011 PREP	8011 Prep	LOF	07/26/24	1451	2645907
SW846 3005A	ICP-MS 3005A PREP	BB2	07/26/24	1455	2645662
SW846 9010C Distillation	SW846 9010C Prep	ES2	07/25/24	1251	2645989
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	07/25/24	1130	2646040

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	EPA 160.1	
13	EPA 410.4	
14	SW846 8260D	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011, VOA Compounds Liquid "As Received"	7.11 ug/L	6.81	105	(56%-149%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	51.7 ug/L	50.0	103	(74%-123%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	50.8 ug/L	50.0	102	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	51.0 ug/L	50.0	102	(77%-121%)

Notes:

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Certificate of Analysis

Report Date: October 31, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID:	MW392SG4-24	Project:	FRNP00511
Sample ID:	677151011	Client ID:	FRNP005

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

Column headers are defined as follows:

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

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Report Date: October 31, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID:	MW392SG4-24	Project:	FRNP00511
Sample ID:	677151012	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	23-JUL-24 11:10		
Receive Date:	24-JUL-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		0.295	0.000670	0.00400	mg/L	1.00	1	PRB	08/10/24	1751	2645663	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	07/26/24	1455	2645662
EPA 160	Laboratory Filtration	SD	07/24/24	1257	2645596

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: October 31, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID:	TB2SG4-24	Project:	FRNP00511
Sample ID:	677151013	Client ID:	FRNP005
Matrix:	WATER		
Collect Date:	23-JUL-24 06:45		
Receive Date:	24-JUL-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	07/27/24	0313	2645909	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	07/26/24	1554	2647144	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	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: October 31, 2024

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

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: TB2SG4-24 Project: FRNP00511
Sample ID: 677151013 Client ID: FRNP005

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

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 8011 PREP	8011 Prep	LOF	07/26/24	1451	2645907

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"	5.99 ug/L	6.83	88	(56%-149%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	50.8 ug/L	50.0	102	(74%-123%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	49.4 ug/L	50.0	99	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	51.3 ug/L	50.0	103	(77%-121%)

Notes:

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Certificate of Analysis

Report Date: October 31, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID:	TB2SG4-24	Project:	FRNP00511
Sample ID:	677151013	Client ID:	FRNP005

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

Column headers are defined as follows:

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

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ATTACHMENT C4

GEL LABORATORIES CERTIFICATE OF ANALYSIS

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Certificate of Analysis

Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road
Kevil, Kentucky 42053
Report Date: October 31, 2024
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW387SG4-24
Sample ID: 676868001
Matrix: WG
Collect Date: 22-JUL-24
Receive Date: 23-JUL-24
Collector: Client
Project: FRNP00511
Client ID: FRNP005

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
AlphaSpec Ra226, Liquid "As Received"														
Radium-226	U	0.892	+/-0.759	0.954	+/-0.761	5.00	pCi/L			CM4	08/04/24	1301	2646943	1
Th-01-RC M, Th Isotopes, Liquid "As Received"														
Thorium-230	U	0.0878	+/-0.375	0.736	+/-0.377	50.0	pCi/L			MB3	08/01/24	1351	2646941	2
Rad Gas Flow Proportional Counting														
905.0 Mod, Sr90, liquid "As Received"														
Strontium-90	U	-2.32	+/-2.29	5.02	+/-2.29	8.00	pCi/L			JE1	08/08/24	1306	2645922	3
9310,Alpha/Beta Activity, liquid "As Received"														
Alpha	U	6.61	+/-5.12	6.95	+/-5.24	15.0	pCi/L			HH3	07/31/24	1512	2645901	4
Beta		38.7	+/-8.97	9.35	+/-11.0	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
906.0 Mod, Tritium Dist, Liquid "As Received"														
Tritium	U	-75.2	+/-132	240	+/-132	300	pCi/L			HB2	08/17/24	1952	2649579	5
Tc-02-RC-MOD, Tc99, Liquid "As Received"														
Technetium-99		34.6	+/-10.9	15.6	+/-11.6	25.0	pCi/L			GS3	08/14/24	1916	2647381	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"	2646943	95.6	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2646941	73.2	(30%-110%)
Strontium Carrier	905.0 Mod, Sr90, liquid "As Received"	2645922	81.3	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2647381	99	(30%-110%)

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Certificate of Analysis

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

Kevil, Kentucky 42053

Report Date: October 31, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW387SG4-24
Sample ID: 676868001

Project: FRNP00511
Client ID: FRNP005

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

Notes:

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

Column headers are defined as follows:

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

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: October 31, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW388SG4-24
Sample ID: 676868003
Matrix: WG
Collect Date: 22-JUL-24
Receive Date: 23-JUL-24
Collector: Client

Project: FRNP00511
Client ID: FRNP005

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
AlphaSpec Ra226, Liquid "As Received"														
Radium-226		1.85	+/-0.984	0.822	+/-0.992	5.00	pCi/L			CM4	08/04/24	1301	2646943	1
Th-01-RC M, Th Isotopes, Liquid "As Received"														
Thorium-230	U	0.193	+/-0.608	1.14	+/-0.611	50.0	pCi/L			MB3	08/05/24	1247	2646941	2
Rad Gas Flow Proportional Counting														
905.0 Mod, Sr90, liquid "As Received"														
Strontium-90	U	-0.500	+/-3.89	7.27	+/-3.89	8.00	pCi/L			JE1	08/08/24	1306	2645922	3
9310,Alpha/Beta Activity, liquid "As Received"														
Alpha	U	2.16	+/-3.56	6.41	+/-3.59	15.0	pCi/L			HH3	07/31/24	1512	2645901	4
Beta		25.8	+/-7.82	9.26	+/-8.93	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
906.0 Mod, Tritium Dist, Liquid "As Received"														
Tritium	U	-72.0	+/-145	263	+/-145	300	pCi/L			HB2	08/17/24	2038	2649579	5
Tc-02-RC-MOD, Tc99, Liquid "As Received"														
Technetium-99	U	2.57	+/-10.7	18.7	+/-10.7	25.0	pCi/L			GS3	08/16/24	0542	2647381	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"	2646943	90.4	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2646941	87.3	(30%-110%)
Strontium Carrier	905.0 Mod, Sr90, liquid "As Received"	2645922	72.7	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2647381	97.8	(30%-110%)

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Certificate of Analysis

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

Kevil, Kentucky 42053

Report Date: October 31, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW388SG4-24
Sample ID: 676868003

Project: FRNP00511
Client ID: FRNP005

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

Notes:

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

Column headers are defined as follows:

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

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

Kevil, Kentucky 42053

Report Date: October 31, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW397SG4-24
Sample ID: 676868005
Matrix: WG
Collect Date: 22-JUL-24
Receive Date: 23-JUL-24
Collector: Client

Project: FRNP00511
Client ID: FRNP005

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
AlphaSpec Ra226, Liquid "As Received"														
Radium-226		0.886	+/-0.700	0.653	+/-0.702	5.00	pCi/L			CM4	08/04/24	1301	2646943	1
Th-01-RC M, Th Isotopes, Liquid "As Received"														
Thorium-230	U	0.228	+/-0.339	0.536	+/-0.342	50.0	pCi/L			MB3	08/02/24	0803	2646941	2
Rad Gas Flow Proportional Counting														
905.0 Mod, Sr90, liquid "As Received"														
Strontium-90	U	-0.659	+/-3.54	6.69	+/-3.54	8.00	pCi/L			JE1	08/08/24	1306	2645922	3
9310,Alpha/Beta Activity, liquid "As Received"														
Alpha	U	5.23	+/-5.52	8.91	+/-5.59	15.0	pCi/L			HH3	07/31/24	1512	2645901	4
Beta		16.4	+/-7.04	9.54	+/-7.55	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
906.0 Mod, Tritium Dist, Liquid "As Received"														
Tritium	U	44.2	+/-143	248	+/-143	300	pCi/L			HB2	08/17/24	2125	2649579	5
Tc-02-RC-MOD, Tc99, Liquid "As Received"														
Technetium-99	U	9.13	+/-9.42	15.7	+/-9.47	25.0	pCi/L			GS3	08/14/24	1950	2647381	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"	2646943	97	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2646941	83.3	(30%-110%)
Strontium Carrier	905.0 Mod, Sr90, liquid "As Received"	2645922	77	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2647381	98.4	(30%-110%)

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Certificate of Analysis

Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road
Kevil, Kentucky 42053

Report Date: October 31, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW397SG4-24
Sample ID: 676868005

Project: FRNP00511
Client ID: FRNP005

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

Notes:

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

Column headers are defined as follows:

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

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Report Date: October 31, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID:	MW387SG4-24	Project:	FRNP00511
Sample ID:	676868001	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	22-JUL-24 13:17		
Receive Date:	23-JUL-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	07/26/24	1749	2645909	1
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	0.887	0.330	2.00	mg/L		1	KB3	08/15/24	1540	2656541	2
Flow Injection Analysis												
9012B, Total Cyanide "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	07/25/24	0828	2645248	3
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens	J	7.58	3.33	10.0	ug/L		1	JS13	08/07/24	1708	2652304	4
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	08/08/24	1527	2653275	5
SW846 9056A Anions (5) "As Received"												
Chloride	JW	36.9	0.335	250	mg/L		5	CH6	07/23/24	1803	2644782	6
Nitrate-N	J	0.899	0.165	10.0	mg/L		5					
Sulfate		27.3	0.665	2.00	mg/L		5					
Bromide		0.475	0.0670	0.200	mg/L		1	CH6	07/23/24	1153	2644782	7
Fluoride	*J	0.903	0.0330	4.00	mg/L		1					
Mercury Analysis-CVAA												
7470, Mercury Liquid "As Received"												
Mercury	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	JP2	07/25/24	1159	2645310	8
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	08/11/24	2158	2644909	9
Tantalum	UN	0.00500	0.00100	0.00500	mg/L	1.00	1					
Sodium		48.6	0.800	2.50	mg/L	1.00	10	PRB	08/12/24	0945	2644909	10
Aluminum		0.230	0.0193	0.0500	mg/L	1.00	1	PRB	08/11/24	2038	2644909	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		0.117	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					
Boron		0.0458	0.00520	0.0150	mg/L	1.00	1					

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Company : Four Rivers Nuclear Partnership, LLC
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Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW387SG4-24 Project: FRNP00511
Sample ID: 676868001 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Calcium		37.4	0.0800	0.200	mg/L	1.00	1					
Chromium	J	0.00464	0.00300	0.0100	mg/L	1.00	1					
Cobalt	J	0.000371	0.000300	0.00100	mg/L	1.00	1					
Copper	J	0.00148	0.000300	0.00200	mg/L	1.00	1					
Iron		0.821	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Magnesium		16.3	0.0100	0.0300	mg/L	1.00	1					
Manganese		0.0333	0.00100	0.00500	mg/L	1.00	1					
Molybdenum	U	0.00100	0.000200	0.00100	mg/L	1.00	1					
Nickel	J	0.00117	0.000600	0.00200	mg/L	1.00	1					
Potassium		1.82	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	0.00730	0.00330	0.0200	mg/L	1.00	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		300	2.38	10.0	mg/L			KLP1	07/29/24	1242	2647734	12
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD		42.1	8.95	20.0	mg/L		1	HH2	07/24/24	1919	2644792	13
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	PXY1	07/25/24	1523	2646434	14
1,1,1-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
1,2,3-Trichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dibromoethane	U	1.00	0.333	1.00	ug/L		1					

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Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW387SG4-24 Project: FRNP00511
Sample ID: 676868001 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,2-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,4-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
2-Butanone	U	5.00	1.67	5.00	ug/L		1					
2-Hexanone	U	5.00	1.67	5.00	ug/L		1					
4-Methyl-2-pentanone	U	5.00	1.67	5.00	ug/L		1					
Acetone	U	5.00	1.74	5.00	ug/L		1					
Acrolein	U	5.00	1.67	5.00	ug/L		1					
Acrylonitrile	U	5.00	1.67	5.00	ug/L		1					
Benzene	U	1.00	0.333	1.00	ug/L		1					
Bromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromodichloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromoform	U	1.00	0.333	1.00	ug/L		1					
Bromomethane	U	1.00	0.337	1.00	ug/L		1					
Carbon disulfide	U	5.00	1.67	5.00	ug/L		1					
Carbon tetrachloride	U	1.00	0.333	1.00	ug/L		1					
Chlorobenzene	U	1.00	0.333	1.00	ug/L		1					
Chloroethane	U	1.00	0.333	1.00	ug/L		1					
Chloroform	U	1.00	0.333	1.00	ug/L		1					
Chloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromomethane	U	1.00	0.333	1.00	ug/L		1					
Ethylbenzene	U	1.00	0.333	1.00	ug/L		1					
Iodomethane	U	5.00	1.67	5.00	ug/L		1					
Methylene chloride	J	0.790	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	0.460	0.333	1.00	ug/L		1					
Trichlorofluoromethane	U	1.00	0.333	1.00	ug/L		1					
Vinyl acetate	U	5.00	1.67	5.00	ug/L		1					
Vinyl chloride	U	1.00	0.333	1.00	ug/L		1					
Xylenes (total)	U	3.00	1.00	3.00	ug/L		1					
cis-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
cis-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					

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Company : Four Rivers Nuclear Partnership, LLC
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Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW387SG4-24 Project: FRNP00511
Sample ID: 676868001 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
trans-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,4-Dichloro-2-butene	U	5.00	1.67	5.00	ug/L		1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	07/24/24	1115	2645309
SW846 9010C Distillation	SW846 9010C Prep	ES2	07/24/24	1156	2645247
SW846 3005A	ICP-MS 3005A PREP	AB5	07/29/24	0820	2644908
SW846 8011 PREP	8011 Prep	LOF	07/26/24	1451	2645907

The following Analytical Methods were performed:

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

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011, VOA Compounds Liquid "As Received"	7.42 ug/L	6.78	109	(56%-149%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	54.1 ug/L	50.0	108	(74%-123%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	61.6 ug/L	50.0	123	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	55.2 ug/L	50.0	110	(77%-121%)

Notes:

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Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID:	MW387SG4-24	Project:	FRNP00511
Sample ID:	676868001	Client ID:	FRNP005

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

Column headers are defined as follows:

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

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Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID:	MW387SG4-24	Project:	FRNP00511
Sample ID:	676868002	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	22-JUL-24 13:17		
Receive Date:	23-JUL-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		0.113	0.000670	0.00400	mg/L	1.00	1	PRB	08/11/24	2103	2644909	1
Chromium	J	0.00367	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	07/23/24	1208	2644812
SW846 3005A	ICP-MS 3005A PREP	AB5	07/29/24	0820	2644908

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3005A/6020B	

Notes:

Column headers are defined as follows:

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

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Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID:	MW388SG4-24	Project:	FRNP00511
Sample ID:	676868003	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	22-JUL-24 14:08		
Receive Date:	23-JUL-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	0.00848	0.0189	ug/L	0.943	1	LOF	07/26/24	1820	2645909	1
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	0.908	0.330	2.00	mg/L		1	KB3	08/16/24	1358	2656542	2
Flow Injection Analysis												
9012B, Total Cyanide "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	07/25/24	0829	2645248	3
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens		12.1	3.33	10.0	ug/L		1	JS13	08/07/24	1806	2652304	4
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	08/08/24	1540	2653275	5
SW846 9056A Anions (5) "As Received"												
Chloride	JW	33.2	0.335	250	mg/L		5	CH6	07/23/24	1834	2644782	6
Nitrate-N	J	0.889	0.165	10.0	mg/L		5					
Sulfate		20.6	0.665	2.00	mg/L		5					
Bromide		0.429	0.0670	0.200	mg/L		1	CH6	07/23/24	1223	2644782	7
Fluoride	*J	0.378	0.0330	4.00	mg/L		1					
Mercury Analysis-CVAA												
7470, Mercury Liquid "As Received"												
Mercury	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	JP2	07/25/24	1200	2645310	8
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Aluminum		0.0518	0.0193	0.0500	mg/L	1.00	1	PRB	08/11/24	2107	2644909	9
Antimony	U	0.00300	0.00100	0.00300	mg/L	1.00	1					
Arsenic	U	0.00500	0.00200	0.00500	mg/L	1.00	1					
Barium		0.177	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					
Boron		0.0346	0.00520	0.0150	mg/L	1.00	1					
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Calcium		29.3	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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Certificate of Analysis

Report Date: October 31, 2024

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

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW388SG4-24 Project: FRNP00511
Sample ID: 676868003 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Cobalt	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Copper	J	0.000981	0.000300	0.00200	mg/L	1.00	1					
Iron		0.251	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Magnesium		13.2	0.0100	0.0300	mg/L	1.00	1					
Manganese	J	0.00373	0.00100	0.00500	mg/L	1.00	1					
Molybdenum	U	0.00100	0.000200	0.00100	mg/L	1.00	1					
Nickel	J	0.000774	0.000600	0.00200	mg/L	1.00	1					
Potassium		1.80	0.0800	0.300	mg/L	1.00	1					
Selenium	U	0.00500	0.00150	0.00500	mg/L	1.00	1					
Silver	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Sodium		48.2	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	0.00462	0.00330	0.0200	mg/L	1.00	1					
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	08/11/24	2208	2644909	10
Tantalum	UN	0.00500	0.00100	0.00500	mg/L	1.00	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		248	2.38	10.0	mg/L			KLP1	07/29/24	1242	2647734	11
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD	U	20.0	8.95	20.0	mg/L		1	HH2	07/24/24	1919	2644792	12
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	PXY1	07/29/24	1227	2646434	13
1,1,1-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
1,2,3-Trichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dibromoethane	U	1.00	0.333	1.00	ug/L		1					

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	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID:	MW388SG4-24	Project:	FRNP00511
Sample ID:	676868003	Client ID:	FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,2-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,4-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
2-Butanone	U	5.00	1.67	5.00	ug/L		1					
2-Hexanone	U	5.00	1.67	5.00	ug/L		1					
4-Methyl-2-pentanone	U	5.00	1.67	5.00	ug/L		1					
Acetone	U	5.00	1.74	5.00	ug/L		1					
Acrolein	U	5.00	1.67	5.00	ug/L		1					
Acrylonitrile	U	5.00	1.67	5.00	ug/L		1					
Benzene	U	1.00	0.333	1.00	ug/L		1					
Bromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromodichloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromoform	U	1.00	0.333	1.00	ug/L		1					
Bromomethane	U	1.00	0.337	1.00	ug/L		1					
Carbon disulfide	U	5.00	1.67	5.00	ug/L		1					
Carbon tetrachloride	U	1.00	0.333	1.00	ug/L		1					
Chlorobenzene	U	1.00	0.333	1.00	ug/L		1					
Chloroethane	U	1.00	0.333	1.00	ug/L		1					
Chloroform	U	1.00	0.333	1.00	ug/L		1					
Chloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromomethane	U	1.00	0.333	1.00	ug/L		1					
Ethylbenzene	U	1.00	0.333	1.00	ug/L		1					
Iodomethane	U	5.00	1.67	5.00	ug/L		1					
Methylene chloride	U	5.00	0.500	5.00	ug/L		1					
Styrene	U	1.00	0.333	1.00	ug/L		1					
Tetrachloroethylene	U	1.00	0.333	1.00	ug/L		1					
Toluene	U	1.00	0.333	1.00	ug/L		1					
Trichloroethylene	U	1.00	0.333	1.00	ug/L		1					
Trichlorofluoromethane	U	1.00	0.333	1.00	ug/L		1					
Vinyl acetate	U	5.00	1.67	5.00	ug/L		1					
Vinyl chloride	U	1.00	0.333	1.00	ug/L		1					
Xylenes (total)	U	3.00	1.00	3.00	ug/L		1					
cis-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
cis-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					

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Company : Four Rivers Nuclear Partnership, LLC
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Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW388SG4-24 Project: FRNP00511
Sample ID: 676868003 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
trans-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,4-Dichloro-2-butene	U	5.00	1.67	5.00	ug/L		1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 9010C Distillation	SW846 9010C Prep	ES2	07/24/24	1156	2645247
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	07/24/24	1115	2645309
SW846 3005A	ICP-MS 3005A PREP	AB5	07/29/24	0820	2644908
SW846 8011 PREP	8011 Prep	LOF	07/26/24	1451	2645907

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 8011	
2	SW846 9060A	
3	SW846 9012B	
4	SW846 9020B	
5	EPA 300.0	
6	SW846 9056A	
7	SW846 9056A	
8	SW846 7470A	
9	SW846 3005A/6020B	
10	SW846 3005A/6020B	
11	EPA 160.1	
12	EPA 410.4	
13	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	6.73	101	(56%-149%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	53.2 ug/L	50.0	106	(74%-123%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	57.3 ug/L	50.0	115	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	54.3 ug/L	50.0	109	(77%-121%)

Notes:

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Address :	5600 Hobbs Road
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Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID:	MW388SG4-24	Project:	FRNP00511
Sample ID:	676868003	Client ID:	FRNP005

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

Column headers are defined as follows:

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

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Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID:	MW388SG4-24	Project:	FRNP00511
Sample ID:	676868004	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	22-JUL-24 14:08		
Receive Date:	23-JUL-24		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Dissolved Metals (3 Elements) "As Received"												
Barium		0.171	0.000670	0.00400	mg/L	1.00	1	PRB	08/11/24	2111	2644909	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	07/23/24	1208	2644812
SW846 3005A	ICP-MS 3005A PREP	AB5	07/29/24	0820	2644908

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: October 31, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID:	MW397SG4-24	Project:	FRNP00511
Sample ID:	676868005	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	22-JUL-24 15:02		
Receive Date:	23-JUL-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	07/26/24	1850	2645909	1
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	0.536	0.330	2.00	mg/L		1	KB3	08/16/24	1536	2656542	2
Flow Injection Analysis												
9012B, Total Cyanide "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	07/25/24	0830	2645248	3
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens	J	5.00	3.33	10.0	ug/L		1	JS13	08/07/24	1841	2652304	4
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	08/08/24	1553	2653275	5
SW846 9056A Anions (5) "As Received"												
Bromide		0.370	0.0670	0.200	mg/L		1	CH6	07/23/24	1254	2644782	6
Fluoride	*J	0.202	0.0330	4.00	mg/L		1					
Sulfate		11.8	0.133	0.400	mg/L		1					
Chloride	JW	33.4	0.335	250	mg/L		5	CH6	07/23/24	1905	2644782	7
Nitrate-N	J	1.03	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	07/25/24	1202	2645310	8
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	08/11/24	2209	2644909	9
Tantalum	UN	0.00500	0.00100	0.00500	mg/L	1.00	1					
Aluminum		0.205	0.0193	0.0500	mg/L	1.00	1	PRB	08/11/24	2114	2644909	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		0.131	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					
Boron	J	0.00783	0.00520	0.0150	mg/L	1.00	1					
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1					

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Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW397SG4-24 Project: FRNP00511
Sample ID: 676868005 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Calcium		18.4	0.0800	0.200	mg/L	1.00	1					
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					
Cobalt	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Copper	J	0.000920	0.000300	0.00200	mg/L	1.00	1					
Iron		0.560	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Magnesium		7.52	0.0100	0.0300	mg/L	1.00	1					
Manganese		0.0102	0.00100	0.00500	mg/L	1.00	1					
Molybdenum	U	0.00100	0.000200	0.00100	mg/L	1.00	1					
Nickel	J	0.000875	0.000600	0.00200	mg/L	1.00	1					
Potassium		1.77	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		32.3	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	0.00387	0.00330	0.0200	mg/L	1.00	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		160	2.38	10.0	mg/L			KLP1	07/29/24	1242	2647734	11
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD	U	20.0	8.95	20.0	mg/L		1	HH2	07/24/24	1919	2644792	12
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	PXY1	07/25/24	1615	2646434	13
1,1,1-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
1,2,3-Trichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dibromoethane	U	1.00	0.333	1.00	ug/L		1					

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Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW397SG4-24 Project: FRNP00511
Sample ID: 676868005 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,2-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,4-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
2-Butanone	U	5.00	1.67	5.00	ug/L		1					
2-Hexanone	U	5.00	1.67	5.00	ug/L		1					
4-Methyl-2-pentanone	U	5.00	1.67	5.00	ug/L		1					
Acetone	U	5.00	1.74	5.00	ug/L		1					
Acrolein	U	5.00	1.67	5.00	ug/L		1					
Acrylonitrile	U	5.00	1.67	5.00	ug/L		1					
Benzene	U	1.00	0.333	1.00	ug/L		1					
Bromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromodichloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromoform	U	1.00	0.333	1.00	ug/L		1					
Bromomethane	U	1.00	0.337	1.00	ug/L		1					
Carbon disulfide	U	5.00	1.67	5.00	ug/L		1					
Carbon tetrachloride	U	1.00	0.333	1.00	ug/L		1					
Chlorobenzene	U	1.00	0.333	1.00	ug/L		1					
Chloroethane	U	1.00	0.333	1.00	ug/L		1					
Chloroform	U	1.00	0.333	1.00	ug/L		1					
Chloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromomethane	U	1.00	0.333	1.00	ug/L		1					
Ethylbenzene	U	1.00	0.333	1.00	ug/L		1					
Iodomethane	U	5.00	1.67	5.00	ug/L		1					
Methylene chloride	J	0.690	0.500	5.00	ug/L		1					
Styrene	U	1.00	0.333	1.00	ug/L		1					
Tetrachloroethylene	U	1.00	0.333	1.00	ug/L		1					
Toluene	U	1.00	0.333	1.00	ug/L		1					
Trichloroethylene	U	1.00	0.333	1.00	ug/L		1					
Trichlorofluoromethane	U	1.00	0.333	1.00	ug/L		1					
Vinyl acetate	U	5.00	1.67	5.00	ug/L		1					
Vinyl chloride	U	1.00	0.333	1.00	ug/L		1					
Xylenes (total)	U	3.00	1.00	3.00	ug/L		1					
cis-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
cis-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					

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Certificate of Analysis

Report Date: October 31, 2024

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

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: MW397SG4-24 Project: FRNP00511
Sample ID: 676868005 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
trans-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,4-Dichloro-2-butene	U	5.00	1.67	5.00	ug/L		1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 8011 PREP	8011 Prep	LOF	07/26/24	1451	2645907
SW846 3005A	ICP-MS 3005A PREP	AB5	07/29/24	0820	2644908
SW846 9010C Distillation	SW846 9010C Prep	ES2	07/24/24	1156	2645247
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	07/24/24	1115	2645309

The following Analytical Methods were performed:

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

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011, VOA Compounds Liquid "As Received"	6.68 ug/L	6.78	99	(56%-149%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	53.1 ug/L	50.0	106	(74%-123%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	59.8 ug/L	50.0	120	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	56.3 ug/L	50.0	113	(77%-121%)

Notes:

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Certificate of Analysis

Report Date: October 31, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID:	MW397SG4-24	Project:	FRNP00511
Sample ID:	676868005	Client ID:	FRNP005

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

Column headers are defined as follows:

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

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Report Date: October 31, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID:	MW397SG4-24	Project:	FRNP00511
Sample ID:	676868006	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	22-JUL-24 15:02		
Receive Date:	23-JUL-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		0.127	0.000670	0.00400	mg/L	1.00	1	PRB	08/11/24	2118	2644909	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	07/23/24	1208	2644812
SW846 3005A	ICP-MS 3005A PREP	AB5	07/29/24	0820	2644908

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: October 31, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID:	TB1SG4-24	Project:	FRNP00511
Sample ID:	676868007	Client ID:	FRNP005
Matrix:	WATER		
Collect Date:	22-JUL-24 12:15		
Receive Date:	23-JUL-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	0.00849	0.0189	ug/L	0.943	1	LOF	07/26/24	1921	2645909	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	07/25/24	1641	2646434	2
1,1,1-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
1,2,3-Trichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dibromoethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,4-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
2-Butanone	U	5.00	1.67	5.00	ug/L		1					
2-Hexanone	U	5.00	1.67	5.00	ug/L		1					
4-Methyl-2-pentanone	U	5.00	1.67	5.00	ug/L		1					
Acetone	J	3.34	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: October 31, 2024

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

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID: TB1SG4-24 Project: FRNP00511
Sample ID: 676868007 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
Methylene chloride	J	0.850	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	07/26/24	1451	2645907

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 8011	
2	SW846 8260D	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011, VOA Compounds Liquid "As Received"	7.31 ug/L	6.74	108	(56%-149%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	56.5 ug/L	50.0	113	(74%-123%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	56.9 ug/L	50.0	114	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	59.0 ug/L	50.0	118	(77%-121%)

Notes:

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Certificate of Analysis

Report Date: October 31, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-04)

Client Sample ID:	TB1SG4-24	Project:	FRNP00511
Sample ID:	676868007	Client ID:	FRNP005

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

Column headers are defined as follows:

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

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ATTACHMENT C5

GEL LABORATORIES CERTIFICATE OF ANALYSIS

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Certificate of Analysis

Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road
Kevil, Kentucky 42053
Report Date: October 31, 2024
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-04)

Client Sample ID: MW369UG4-24
Sample ID: 676265001
Matrix: WG
Collect Date: 17-JUL-24
Receive Date: 19-JUL-24
Collector: Client
Project: FRNP00507
Client ID: FRNP005

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
AN-1418 AlphaSpec Ra226, Liquid "As Received"														
Radium-226	U	0.377	+/-0.749	1.22	+/-0.750	5.00	pCi/L			CM4	08/04/24	1300	2646943	1
Th-01-RC M, Th Isotopes, Liquid "As Received"														
Thorium-230	U	0.139	+/-0.354	0.649	+/-0.355	50.0	pCi/L			MB3	08/01/24	1340	2646941	2
Thorium-232	U	-0.0533	+/-0.202	0.518	+/-0.202		pCi/L							
Rad Gas Flow Proportional Counting														
904.0Mod, Ra228, Liquid "As Received"														
Radium-228	U	4.57	+/-2.94	4.61	+/-3.17	4.99	pCi/L			KP1	08/05/24	1615	2643862	3
905.0Mod, Sr90, liquid "As Received"														
Strontium-90	U	0.861	+/-3.67	6.81	+/-3.68	8.00	pCi/L			JE1	08/01/24	0833	2645055	4
9310, Alpha/Beta Activity, liquid "As Received"														
Alpha	U	-0.865	+/-2.38	6.58	+/-2.39	15.0	pCi/L			HH3	08/01/24	1351	2643718	5
Beta		31.5	+/-8.17	9.06	+/-9.70	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
Tc-02-RC-MOD, Tc99, Liquid "As Received"														
Technetium-99		42.7	+/-11.5	17.7	+/-12.5	25.0	pCi/L			GS3	08/11/24	1454	2645965	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 904.0/SW846 9320 Modified
4	EPA 905.0 Modified/DOE RP501 Rev. 1 Modified
5	EPA 900.0/SW846 9310
6	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"	2646943	93.4	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2646941	83.1	(30%-110%)
Barium-133 Tracer	904.0Mod, Ra228, Liquid "As Received"	2643862	80.2	(30%-110%)
Strontium Carrier	905.0Mod, Sr90, liquid "As Received"	2645055	59.9	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2645965	102	(30%-110%)

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Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road
Kevil, Kentucky 42053

Report Date: October 31, 2024

Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-04)

Client Sample ID: MW369UG4-24
Sample ID: 676265001

Project: FRNP00507
Client ID: FRNP005

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

Notes:

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

Column headers are defined as follows:

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

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Certificate of Analysis

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

Kevil, Kentucky 42053

Report Date: October 31, 2024

Contact: Ms. Jaime Morrow

Project: C-746-U Landfill Quarterly(UG24-04)

Client Sample ID: MW370UG4-24
Sample ID: 676265003
Matrix: WG
Collect Date: 17-JUL-24
Receive Date: 19-JUL-24
Collector: Client

Project: FRNP00507
Client ID: FRNP005

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
AN-1418 AlphaSpec Ra226, Liquid "As Received"														
Radium-226	U	0.683	+/-0.887	1.26	+/-0.888	5.00	pCi/L			CM4	08/04/24	1300	2646943	1
Th-01-RC M, Th Isotopes, Liquid "As Received"														
Thorium-230	U	0.384	+/-0.627	1.06	+/-0.632	50.0	pCi/L			MB3	08/01/24	1340	2646941	2
Thorium-232	U	0.0942	+/-0.286	0.397	+/-0.287		pCi/L							
Rad Gas Flow Proportional Counting														
904.0Mod, Ra228, Liquid "As Received"														
Radium-228	U	2.78	+/-2.98	4.98	+/-3.07	4.99	pCi/L			KP1	08/05/24	1314	2643862	3
905.0Mod, Sr90, liquid "As Received"														
Strontium-90	U	2.56	+/-2.06	3.29	+/-2.10	8.00	pCi/L			JE1	08/08/24	1258	2645055	4
9310, Alpha/Beta Activity, liquid "As Received"														
Alpha	U	0.184	+/-2.70	6.29	+/-2.70	15.0	pCi/L			HH3	08/01/24	1351	2643718	5
Beta		14.1	+/-6.40	8.83	+/-6.82	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
906.0M, Tritium Dist, Liquid "As Received"														
Tritium	U	-40.0	+/-160	290	+/-160	300	pCi/L			HB2	08/06/24	2150	2644436	6
Tc-02-RC-MOD, Tc99, Liquid "As Received"														
Technetium-99	U	-4.19	+/-10.4	18.8	+/-10.4	25.0	pCi/L			GS3	08/05/24	2018	2645965	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"	2646943	94.6	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2646941	55.1	(30%-110%)
Barium-133 Tracer	904.0Mod, Ra228, Liquid "As Received"	2643862	80.1	(30%-110%)
Strontium Carrier	905.0Mod, Sr90, liquid "As Received"	2645055	70.6	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2645965	96.8	(30%-110%)

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Certificate of Analysis

Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road
Kevil, Kentucky 42053

Report Date: October 31, 2024

Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-04)

Client Sample ID: MW370UG4-24
Sample ID: 676265003

Project: FRNP00507
Client ID: FRNP005

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

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

Column headers are defined as follows:

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

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Certificate of Analysis

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

Kevil, Kentucky 42053

Report Date: October 31, 2024

Contact: Ms. Jaime Morrow

Project: C-746-U Landfill Quarterly(UG24-04)

Client Sample ID: MW371UG4-24
Sample ID: 676265005
Matrix: WG
Collect Date: 17-JUL-24
Receive Date: 19-JUL-24
Collector: Client

Project: FRNP00507
Client ID: FRNP005

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
AN-1418 AlphaSpec Ra226, Liquid "As Received"														
Radium-226	U	1.31	+/-1.28	1.80	+/-1.28	5.00	pCi/L			CM4	08/04/24	1300	2646943	1
Th-01-RC M, Th Isotopes, Liquid "As Received"														
Thorium-230	U	0.125	+/-0.570	1.12	+/-0.572	50.0	pCi/L			MB3	08/05/24	1247	2646941	2
Thorium-232	U	-0.0482	+/-0.331	0.804	+/-0.333		pCi/L							
Rad Gas Flow Proportional Counting														
904.0Mod, Ra228, Liquid "As Received"														
Radium-228	U	-2.37	+/-2.30	4.85	+/-2.30	4.99	pCi/L			KP1	08/05/24	1314	2643862	3
905.0Mod, Sr90, liquid "As Received"														
Strontium-90	U	-2.24	+/-2.00	4.55	+/-2.00	8.00	pCi/L			JE1	08/01/24	0833	2645055	4
9310, Alpha/Beta Activity, liquid "As Received"														
Alpha	U	6.55	+/-6.26	9.84	+/-6.37	15.0	pCi/L			HH3	08/01/24	1351	2643718	5
Beta	U	0.402	+/-4.92	9.25	+/-4.93	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
906.0M, Tritium Dist, Liquid "As Received"														
Tritium	U	60.6	+/-168	292	+/-168	300	pCi/L			HB2	08/06/24	2227	2644436	6
Tc-02-RC-MOD, Tc99, Liquid "As Received"														
Technetium-99	U	1.76	+/-10.8	18.6	+/-10.8	25.0	pCi/L			GS3	08/11/24	1531	2645965	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"	2646943	92.6	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2646941	85.3	(30%-110%)
Barium-133 Tracer	904.0Mod, Ra228, Liquid "As Received"	2643862	81.3	(30%-110%)
Strontium Carrier	905.0Mod, Sr90, liquid "As Received"	2645055	85.6	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2645965	98.4	(30%-110%)

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Certificate of Analysis

Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road
Kevil, Kentucky 42053

Report Date: October 31, 2024

Contact: Ms. Jaime Morrow

Project: C-746-U Landfill Quarterly(UG24-04)

Client Sample ID: MW371UG4-24
Sample ID: 676265005

Project: FRNP00507
Client ID: FRNP005

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

Notes:

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

Column headers are defined as follows:

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

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Certificate of Analysis

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

Kevil, Kentucky 42053

Report Date: October 31, 2024

Contact: Ms. Jaime Morrow

Project: C-746-U Landfill Quarterly(UG24-04)

Client Sample ID: MW372UG4-24
Sample ID: 676265007
Matrix: WG
Collect Date: 17-JUL-24
Receive Date: 19-JUL-24
Collector: Client

Project: FRNP00507
Client ID: FRNP005

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
AN-1418 AlphaSpec Ra226, Liquid "As Received"														
Radium-226	U	0.0157	+/-0.721	1.58	+/-0.722	5.00	pCi/L			CM4	08/04/24	1300	2646943	1
Th-01-RC M, Th Isotopes, Liquid "As Received"														
Thorium-230	U	0.309	+/-0.392	0.588	+/-0.396	50.0	pCi/L			MB3	08/01/24	1340	2646941	2
Thorium-232	U	-0.0419	+/-0.147	0.402	+/-0.148		pCi/L							
Rad Gas Flow Proportional Counting														
904.0Mod, Ra228, Liquid "As Received"														
Radium-228	U	0.0188	+/-2.12	4.25	+/-2.12	4.99	pCi/L			KP1	08/05/24	1314	2643862	3
905.0Mod, Sr90, liquid "As Received"														
Strontium-90	U	-2.62	+/-1.73	4.13	+/-1.73	8.00	pCi/L			JE1	08/01/24	0833	2645055	4
9310, Alpha/Beta Activity, liquid "As Received"														
Alpha	U	0.0672	+/-3.91	9.40	+/-3.92	15.0	pCi/L			HH3	08/08/24	1154	2643718	5
Beta	U	7.82	+/-7.21	11.8	+/-7.33	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
906.0M, Tritium Dist, Liquid "As Received"														
Tritium	U	-87.0	+/-155	287	+/-155	300	pCi/L			HB2	08/06/24	2303	2644436	6
Tc-02-RC-MOD, Tc99, Liquid "As Received"														
Technetium-99	U	17.5	+/-11.1	18.2	+/-11.2	25.0	pCi/L			GS3	08/11/24	1608	2645965	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"	2646943	93.8	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2646941	71.4	(30%-110%)
Barium-133 Tracer	904.0Mod, Ra228, Liquid "As Received"	2643862	73.7	(30%-110%)
Strontium Carrier	905.0Mod, Sr90, liquid "As Received"	2645055	96.3	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2645965	99.5	(30%-110%)

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Certificate of Analysis

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

Kevil, Kentucky 42053 Report Date: October 31, 2024

Contact: Ms. Jaime Morrow

Project: C-746-U Landfill Quarterly(UG24-04)

Client Sample ID: MW372UG4-24 Project: FRNP00507
Sample ID: 676265007 Client ID: FRNP005

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

Notes:

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

Column headers are defined as follows:

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

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Certificate of Analysis

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

Kevil, Kentucky 42053

Report Date: October 31, 2024

Contact: Ms. Jaime Morrow

Project: C-746-U Landfill Quarterly(UG24-04)

Client Sample ID: MW373UG4-24
Sample ID: 676265009
Matrix: WG
Collect Date: 17-JUL-24
Receive Date: 19-JUL-24
Collector: Client

Project: FRNP00507
Client ID: FRNP005

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
AN-1418 AlphaSpec Ra226, Liquid "As Received"														
Radium-226	U	0.529	+/-0.937	1.56	+/-0.937	5.00	pCi/L			CM4	08/04/24	1300	2646943	1
Th-01-RC M, Th Isotopes, Liquid "As Received"														
Thorium-230	U	0.449	+/-0.462	0.648	+/-0.468	50.0	pCi/L			MB3	08/01/24	1340	2646941	2
Thorium-232	U	-0.00523	+/-0.217	0.494	+/-0.217		pCi/L							
Rad Gas Flow Proportional Counting														
904.0Mod, Ra228, Liquid "As Received"														
Radium-228	U	0.00453	+/-2.33	4.59	+/-2.33	4.99	pCi/L			KP1	08/05/24	1314	2643862	3
905.0Mod, Sr90, liquid "As Received"														
Strontium-90	U	4.11	+/-3.90	6.42	+/-3.95	8.00	pCi/L			JE1	08/01/24	0833	2645055	4
9310, Alpha/Beta Activity, liquid "As Received"														
Alpha	U	-0.776	+/-3.21	8.15	+/-3.22	15.0	pCi/L			HH3	08/01/24	1351	2643718	5
Beta	U	7.68	+/-6.20	9.88	+/-6.33	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
906.0M, Tritium Dist, Liquid "As Received"														
Tritium	U	136	+/-169	285	+/-171	300	pCi/L			HB2	08/06/24	2340	2644436	6
Tc-02-RC-MOD, Tc99, Liquid "As Received"														
Technetium-99	U	-8.77	+/-10.1	18.9	+/-10.1	25.0	pCi/L			GS3	08/05/24	2108	2645965	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"	2646943	94.3	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2646941	64.4	(30%-110%)
Barium-133 Tracer	904.0Mod, Ra228, Liquid "As Received"	2643862	77.2	(30%-110%)
Strontium Carrier	905.0Mod, Sr90, liquid "As Received"	2645055	87.7	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2645965	96.3	(30%-110%)

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Company : Four Rivers Nuclear Partnership, LLC
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Report Date: October 31, 2024

Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-04)

Client Sample ID: MW373UG4-24
Sample ID: 676265009

Project: FRNP00507
Client ID: FRNP005

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

Notes:

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

Column headers are defined as follows:

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

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Certificate of Analysis

Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road
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Report Date: October 31, 2024

Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-04)

Client Sample ID: MW374UG4-24
Sample ID: 676265011
Matrix: WG
Collect Date: 17-JUL-24
Receive Date: 19-JUL-24
Collector: Client

Project: FRNP00507
Client ID: FRNP005

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
AN-1418 AlphaSpec Ra226, Liquid "As Received"														
Radium-226	U	0.272	+/-1.06	2.04	+/-1.06	5.00	pCi/L			CM4	08/04/24	1300	2646943	1
Th-01-RC M, Th Isotopes, Liquid "As Received"														
Thorium-230	U	0.433	+/-0.403	0.542	+/-0.409	50.0	pCi/L			MB3	08/01/24	1340	2646941	2
Thorium-232	U	0.161	+/-0.243	0.315	+/-0.244		pCi/L							
Rad Gas Flow Proportional Counting														
904.0Mod, Ra228, Liquid "As Received"														
Radium-228	U	0.372	+/-2.70	4.88	+/-2.70	4.99	pCi/L			KP1	08/05/24	1314	2643862	3
905.0Mod, Sr90, liquid "As Received"														
Strontium-90	U	2.41	+/-2.38	3.90	+/-2.41	8.00	pCi/L			JE1	08/01/24	0833	2645055	4
9310, Alpha/Beta Activity, liquid "As Received"														
Alpha	U	0.694	+/-5.06	10.4	+/-5.06	15.0	pCi/L			HH3	08/01/24	1351	2643718	5
Beta	U	-1.61	+/-5.29	10.4	+/-5.29	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
906.0M, Tritium Dist, Liquid "As Received"														
Tritium	U	-111	+/-157	293	+/-157	300	pCi/L			HB2	08/07/24	0017	2644436	6
Tc-02-RC-MOD, Tc99, Liquid "As Received"														
Technetium-99	U	-13.4	+/-9.94	19.1	+/-9.94	25.0	pCi/L			GS3	08/05/24	2125	2645965	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"	2646943	96.1	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2646941	85.5	(30%-110%)
Barium-133 Tracer	904.0Mod, Ra228, Liquid "As Received"	2643862	82.1	(30%-110%)
Strontium Carrier	905.0Mod, Sr90, liquid "As Received"	2645055	92	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2645965	95.4	(30%-110%)

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Address : 5600 Hobbs Road
Kevil, Kentucky 42053

Report Date: October 31, 2024

Contact: Ms. Jaime Morrow

Project: C-746-U Landfill Quarterly(UG24-04)

Client Sample ID: MW374UG4-24
Sample ID: 676265011

Project: FRNP00507
Client ID: FRNP005

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

Notes:

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

Column headers are defined as follows:

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

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Certificate of Analysis

Report Date: October 31, 2024

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

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-04)

Client Sample ID: MW369UG4-24
Sample ID: 676265001
Matrix: WG
Collect Date: 17-JUL-24 12:41
Receive Date: 19-JUL-24
Collector: Client

Project: FRNP00507
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Mercury Analysis-CVAA												
7470, Mercury Liquid "As Received"												
Mercury	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	JP2	07/24/24	1104	2644397	1
Metals Analysis-ICP-MS												
6020, Metals (15+ elements) "As Received"												
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	PRB	07/31/24	1713	2643653	2
Aluminum	J	0.0269	0.0193	0.0500	mg/L	1.00	1	PRB	07/30/24	2105	2643653	3
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		0.359	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					
Boron	J	0.0137	0.00520	0.0150	mg/L	1.00	1					
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Calcium		15.1	0.0800	0.200	mg/L	1.00	1					
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					
Cobalt		0.00431	0.000300	0.00100	mg/L	1.00	1					
Copper		0.00295	0.000300	0.00200	mg/L	1.00	1					
Iron	J	0.0486	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Magnesium		6.22	0.0100	0.0300	mg/L	1.00	1					
Manganese	J	0.00423	0.00100	0.00500	mg/L	1.00	1					
Molybdenum	U	0.00100	0.000200	0.00100	mg/L	1.00	1					
Nickel		0.00432	0.000600	0.00200	mg/L	1.00	1					
Potassium		0.499	0.0800	0.300	mg/L	1.00	1					
Selenium	J	0.00200	0.00150	0.00500	mg/L	1.00	1					
Silver	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Sodium		48.4	0.0800	0.250	mg/L	1.00	1					
Thallium	U	0.00200	0.000600	0.00200	mg/L	1.00	1					
Vanadium	U	0.0200	0.00330	0.0200	mg/L	1.00	1					
Zinc	J	0.00676	0.00330	0.0200	mg/L	1.00	1					
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	07/30/24	1824	2643653	4
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	07/23/24	1110	2644396
SW846 3005A	ICP-MS 3005A PREP	BB2	07/23/24	1445	2643652

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Report Date: October 31, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-U Landfill Quarterly(UG24-04)

Client Sample ID:	MW369UG4-24	Project:	FRNP00507
Sample ID:	676265001	Client ID:	FRNP005

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

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 7470A	
2	SW846 3005A/6020B	
3	SW846 3005A/6020B	
4	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: October 31, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-U Landfill Quarterly(UG24-04)

Client Sample ID:	MW369UG4-24	Project:	FRNP00507
Sample ID:	676265002	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	17-JUL-24 12:41		
Receive Date:	19-JUL-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		0.349	0.000670	0.00400	mg/L	1.00	1	PRB	07/30/24	2109	2643653	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	07/31/24	1714	2643653	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-MS 3005A PREP	BB2	07/23/24	1445	2643652
EPA 160	Laboratory Filtration	JP2	07/19/24	1435	2643642

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3005A/6020B	
2	SW846 3005A/6020B	

Notes:

Column headers are defined as follows:

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

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Certificate of Analysis

Report Date: October 31, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-U Landfill Quarterly(UG24-04)

Client Sample ID:	MW370UG4-24	Project:	FRNP00507
Sample ID:	676265003	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	17-JUL-24 14:54		
Receive Date:	19-JUL-24		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Mercury Analysis-CVAA												
7470, Mercury Liquid "As Received"												
Mercury	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	JP2	07/24/24	1106	2644397	1
Metals Analysis-ICP-MS												
6020, Metals (15+ elements) "As Received"												
Aluminum		0.814	0.0193	0.0500	mg/L	1.00	1	PRB	07/30/24	2113	2643653	2
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		0.0977	0.00520	0.0150	mg/L	1.00	1					
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Calcium		29.0	0.0800	0.200	mg/L	1.00	1					
Chromium	J	0.00371	0.00300	0.0100	mg/L	1.00	1					
Cobalt	J	0.000355	0.000300	0.00100	mg/L	1.00	1					
Copper	J	0.00111	0.000300	0.00200	mg/L	1.00	1					
Iron		1.70	0.0330	0.100	mg/L	1.00	1					
Lead	J	0.000518	0.000500	0.00200	mg/L	1.00	1					
Magnesium		12.1	0.0100	0.0300	mg/L	1.00	1					
Manganese		0.0587	0.00100	0.00500	mg/L	1.00	1					
Molybdenum	J	0.000285	0.000200	0.00100	mg/L	1.00	1					
Nickel	J	0.000938	0.000600	0.00200	mg/L	1.00	1					
Potassium		2.36	0.0800	0.300	mg/L	1.00	1					
Selenium	U	0.00500	0.00150	0.00500	mg/L	1.00	1					
Silver	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Sodium		41.9	0.0800	0.250	mg/L	1.00	1					
Thallium	U	0.00200	0.000600	0.00200	mg/L	1.00	1					
Vanadium	U	0.0200	0.00330	0.0200	mg/L	1.00	1					
Zinc	J	0.00377	0.00330	0.0200	mg/L	1.00	1					
Uranium	J	0.000108	0.0000670	0.000200	mg/L	1.00	1	PRB	07/31/24	1716	2643653	3
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	07/30/24	1826	2643653	4
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	07/23/24	1110	2644396
SW846 3005A	ICP-MS 3005A PREP	BB2	07/23/24	1445	2643652

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Certificate of Analysis

Report Date: October 31, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-U Landfill Quarterly(UG24-04)

Client Sample ID:	MW370UG4-24	Project:	FRNP00507
Sample ID:	676265003	Client ID:	FRNP005

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

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 7470A	
2	SW846 3005A/6020B	
3	SW846 3005A/6020B	
4	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: October 31, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-U Landfill Quarterly(UG24-04)

Client Sample ID:	MW370UG4-24	Project:	FRNP00507
Sample ID:	676265004	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	17-JUL-24 14:54		
Receive Date:	19-JUL-24		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Dissolved Metals (3 Elements) "As Received"												
Barium		0.207	0.000670	0.00400	mg/L	1.00	1	PRB	07/30/24	2116	2643653	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	07/31/24	1718	2643653	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 160	Laboratory Filtration	JP2	07/19/24	1435	2643642
SW846 3005A	ICP-MS 3005A PREP	BB2	07/23/24	1445	2643652

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: October 31, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-U Landfill Quarterly(UG24-04)

Client Sample ID:	MW371UG4-24	Project:	FRNP00507
Sample ID:	676265005	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	17-JUL-24 13:59		
Receive Date:	19-JUL-24		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Mercury Analysis-CVAA												
7470, Mercury Liquid "As Received"												
Mercury	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	JP2	07/24/24	1108	2644397	1
Metals Analysis-ICP-MS												
6020, Metals (15+ elements) "As Received"												
Aluminum		0.104	0.0193	0.0500	mg/L	1.00	1	PRB	07/30/24	2120	2643653	2
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		0.157	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					
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	0.000961	0.000300	0.00200	mg/L	1.00	1					
Iron	J	0.0921	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Magnesium		16.2	0.0100	0.0300	mg/L	1.00	1					
Manganese		0.00570	0.00100	0.00500	mg/L	1.00	1					
Molybdenum	J	0.000438	0.000200	0.00100	mg/L	1.00	1					
Nickel	J	0.00147	0.000600	0.00200	mg/L	1.00	1					
Potassium		0.359	0.0800	0.300	mg/L	1.00	1					
Selenium	U	0.00500	0.00150	0.00500	mg/L	1.00	1					
Silver	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Thallium	U	0.00200	0.000600	0.00200	mg/L	1.00	1					
Vanadium	J	0.00526	0.00330	0.0200	mg/L	1.00	1					
Zinc	U	0.0200	0.00330	0.0200	mg/L	1.00	1					
Calcium		56.8	0.800	2.00	mg/L	1.00	10	PRB	07/30/24	2124	2643653	3
Sodium		74.2	0.800	2.50	mg/L	1.00	10					
Uranium		0.00194	0.0000670	0.000200	mg/L	1.00	1	PRB	07/31/24	1720	2643653	4
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	07/30/24	1828	2643653	5
Tantalum	U	0.00500	0.00100	0.00500	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	07/23/24	1445	2643652
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	07/23/24	1110	2644396

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Certificate of Analysis

Report Date: October 31, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-U Landfill Quarterly(UG24-04)

Client Sample ID:	MW371UG4-24	Project:	FRNP00507
Sample ID:	676265005	Client ID:	FRNP005

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

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 7470A	
2	SW846 3005A/6020B	
3	SW846 3005A/6020B	
4	SW846 3005A/6020B	
5	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: October 31, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-U Landfill Quarterly(UG24-04)

Client Sample ID:	MW371UG4-24	Project:	FRNP00507
Sample ID:	676265006	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	17-JUL-24 13:59		
Receive Date:	19-JUL-24		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Dissolved Metals (3 Elements) "As Received"												
Uranium		0.00188	0.0000670	0.000200	mg/L	1.00	1	PRB	07/31/24	1722	2643653	1
Barium		0.158	0.000670	0.00400	mg/L	1.00	1	PRB	07/30/24	2135	2643653	2
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 160	Laboratory Filtration	JP2	07/19/24	1435	2643642
SW846 3005A	ICP-MS 3005A PREP	BB2	07/23/24	1445	2643652

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: October 31, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-U Landfill Quarterly(UG24-04)

Client Sample ID:	MW372UG4-24	Project:	FRNP00507
Sample ID:	676265007	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	17-JUL-24 10:27		
Receive Date:	19-JUL-24		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Mercury Analysis-CVAA												
7470, Mercury Liquid "As Received"												
Mercury	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	JP2	07/24/24	1109	2644397	1
Metals Analysis-ICP-MS												
6020, Metals (15+ elements) "As Received"												
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	PRB	07/31/24	1727	2643653	2
Boron		1.86	0.104	0.300	mg/L	1.00	20	PRB	07/30/24	2142	2643653	3
Calcium		65.9	1.60	4.00	mg/L	1.00	20					
Sodium		57.7	1.60	5.00	mg/L	1.00	20					
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	07/30/24	1830	2643653	4
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Aluminum	U	0.0500	0.0193	0.0500	mg/L	1.00	1	PRB	07/30/24	2138	2643653	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		0.0622	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					
Cobalt	J	0.000387	0.000300	0.00100	mg/L	1.00	1					
Copper	J	0.00135	0.000300	0.00200	mg/L	1.00	1					
Iron	J	0.0680	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Magnesium		22.6	0.0100	0.0300	mg/L	1.00	1					
Manganese	J	0.00400	0.00100	0.00500	mg/L	1.00	1					
Molybdenum	J	0.000312	0.000200	0.00100	mg/L	1.00	1					
Nickel	J	0.000937	0.000600	0.00200	mg/L	1.00	1					
Potassium		2.26	0.0800	0.300	mg/L	1.00	1					
Selenium	U	0.00500	0.00150	0.00500	mg/L	1.00	1					
Silver	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Thallium	U	0.00200	0.000600	0.00200	mg/L	1.00	1					
Vanadium	U	0.0200	0.00330	0.0200	mg/L	1.00	1					
Zinc	U	0.0200	0.00330	0.0200	mg/L	1.00	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-MS 3005A PREP	BB2	07/23/24	1445	2643652
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	07/23/24	1110	2644396

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Certificate of Analysis

Report Date: October 31, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-U Landfill Quarterly(UG24-04)

Client Sample ID:	MW372UG4-24	Project:	FRNP00507
Sample ID:	676265007	Client ID:	FRNP005

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

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 7470A	
2	SW846 3005A/6020B	
3	SW846 3005A/6020B	
4	SW846 3005A/6020B	
5	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: October 31, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-U Landfill Quarterly(UG24-04)

Client Sample ID:	MW372UG4-24	Project:	FRNP00507
Sample ID:	676265008	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	17-JUL-24 10:27		
Receive Date:	19-JUL-24		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Dissolved Metals (3 Elements) "As Received"												
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	PRB	07/31/24	1729	2643653	1
Barium		0.0608	0.000670	0.00400	mg/L	1.00	1	PRB	07/30/24	2153	2643653	2
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-MS 3005A PREP	BB2	07/23/24	1445	2643652
EPA 160	Laboratory Filtration	JP2	07/19/24	1435	2643642

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3005A/6020B	
2	SW846 3005A/6020B	

Notes:

Column headers are defined as follows:

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

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Certificate of Analysis

Report Date: October 31, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-U Landfill Quarterly(UG24-04)

Client Sample ID:	MW373UG4-24	Project:	FRNP00507
Sample ID:	676265009	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	17-JUL-24 08:38		
Receive Date:	19-JUL-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	J	1.14	0.330	2.00	mg/L		1	KB3	08/12/24	0921	2653004	1
Flow Injection Analysis												
9012B, Cyanide, Total "As Received"												
Cyanide, Total	UN	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	07/24/24	0645	2644044	2
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens	H	36.6	3.33	10.0	ug/L		1	JS13	08/27/24	1313	2663174	3
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	08/08/24	1253	2653275	4
SW846 9056A Anions (5 elements) "As Received"												
Chloride	J	29.7	1.34	250	mg/L		20	CH6	07/19/24	2205	2643498	5
Sulfate		213	2.66	8.00	mg/L		20					
Bromide		0.464	0.0670	0.200	mg/L		1	CH6	07/19/24	1554	2643498	6
Fluoride	J	0.182	0.0330	4.00	mg/L		1					
Nitrate-N	HJ	0.810	0.0330	10.0	mg/L		1					
Mercury Analysis-CVAA												
7470, Mercury Liquid "As Received"												
Mercury	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	JP2	07/24/24	1147	2643934	7
Metals Analysis-ICP-MS												
6020, Metals (15+ elements) "As Received"												
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	07/30/24	1836	2643653	8
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Boron		2.81	0.104	0.300	mg/L	1.00	20	PRB	07/30/24	2215	2643653	9
Calcium		85.9	1.60	4.00	mg/L	1.00	20					
Sodium		71.4	1.60	5.00	mg/L	1.00	20					
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	PRB	07/31/24	1730	2643653	10
Aluminum	J	0.0198	0.0193	0.0500	mg/L	1.00	1	PRB	07/30/24	2157	2643653	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		0.0356	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1					

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Certificate of Analysis

Report Date: October 31, 2024

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

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-04)

Client Sample ID: MW373UG4-24 Project: FRNP00507
Sample ID: 676265009 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Metals (15+ elements) "As Received"												
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	0.00119	0.000300	0.00200	mg/L	1.00	1					
Iron	J	0.0849	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		0.0356	0.00100	0.00500	mg/L	1.00	1					
Molybdenum	J	0.000383	0.000200	0.00100	mg/L	1.00	1					
Nickel	J	0.00140	0.000600	0.00200	mg/L	1.00	1					
Potassium		2.67	0.0800	0.300	mg/L	1.00	1					
Selenium	U	0.00500	0.00150	0.00500	mg/L	1.00	1					
Silver	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Thallium	U	0.00200	0.000600	0.00200	mg/L	1.00	1					
Vanadium	U	0.0200	0.00330	0.0200	mg/L	1.00	1					
Zinc	U	0.0200	0.00330	0.0200	mg/L	1.00	1					
Semi-Volatiles-PCB												
8082A, PCB Liquids "As Received"												
Aroclor-1016	U	0.100	0.0333	0.100	ug/L	0.00100	1	LOF	08/11/24	0131	2654126	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		585	2.38	10.0	mg/L			KLP1	07/23/24	1133	2644678	13
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD	J	12.9	8.95	20.0	mg/L		1	HH2	07/22/24	1401	2644120	14

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch

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Certificate of Analysis

Report Date: October 31, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-U Landfill Quarterly(UG24-04)

Client Sample ID:	MW373UG4-24	Project:	FRNP00507
Sample ID:	676265009	Client ID:	FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
SW846 9010C Distillation		SW846 9010C Prep		ES2	07/23/24		1018	2644036				
SW846 7470A Prep		EPA 7470A Mercury Prep Liquid		JM13	07/23/24		1110	2643933				
SW846 3005A		ICP-MS 3005A PREP		BB2	07/23/24		1445	2643652				
SW846 3535A		SW3535A PCB SPE Extraction		DXF4	08/10/24		0531	2654123				

The following Analytical Methods were performed:

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

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Decachlorobiphenyl	8082A, PCB Liquids "As Received"	0.150 ug/L	0.200	75	(30%-135%)
4cmx	8082A, PCB Liquids "As Received"	0.149 ug/L	0.200	74	(26%-108%)

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: October 31, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-U Landfill Quarterly(UG24-04)

Client Sample ID:	MW373UG4-24	Project:	FRNP00507
Sample ID:	676265010	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	17-JUL-24 08:38		
Receive Date:	19-JUL-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		0.0341	0.000670	0.00400	mg/L	1.00	1	PRB	07/30/24	2237	2643653	1
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					
Uranium	J	0.0000740	0.0000670	0.000200	mg/L	1.00	1	PRB	07/31/24	1743	2643653	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-MS 3005A PREP	BB2	07/23/24	1445	2643652
EPA 160	Laboratory Filtration	JP2	07/19/24	1435	2643642

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3005A/6020B	
2	SW846 3005A/6020B	

Notes:

Column headers are defined as follows:

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

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Certificate of Analysis

Report Date: October 31, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-U Landfill Quarterly(UG24-04)

Client Sample ID:	MW374UG4-24	Project:	FRNP00507
Sample ID:	676265011	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	17-JUL-24 09:34		
Receive Date:	19-JUL-24		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Mercury Analysis-CVAA												
7470, Mercury Liquid "As Received"												
Mercury	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	JP2	07/24/24	1111	2644397	1
Metals Analysis-ICP-MS												
6020, Metals (15+ elements) "As Received"												
Aluminum		0.127	0.0193	0.0500	mg/L	1.00	1	PRB	07/30/24	2255	2643653	2
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		0.138	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					
Boron		0.0439	0.00520	0.0150	mg/L	1.00	1					
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Calcium		21.9	0.0800	0.200	mg/L	1.00	1					
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					
Cobalt	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Copper	J	0.000922	0.000300	0.00200	mg/L	1.00	1					
Iron		1.13	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Magnesium		5.49	0.0100	0.0300	mg/L	1.00	1					
Manganese		0.143	0.00100	0.00500	mg/L	1.00	1					
Molybdenum	J	0.000319	0.000200	0.00100	mg/L	1.00	1					
Nickel	J	0.000827	0.000600	0.00200	mg/L	1.00	1					
Potassium		0.365	0.0800	0.300	mg/L	1.00	1					
Selenium		0.00923	0.00150	0.00500	mg/L	1.00	1					
Silver	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Thallium	U	0.00200	0.000600	0.00200	mg/L	1.00	1					
Vanadium	U	0.0200	0.00330	0.0200	mg/L	1.00	1					
Zinc	U	0.0200	0.00330	0.0200	mg/L	1.00	1					
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	07/30/24	1845	2643653	3
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Uranium		0.000522	0.0000670	0.000200	mg/L	1.00	1	PRB	07/31/24	1752	2643653	4
Sodium		110	0.800	2.50	mg/L	1.00	10	PRB	07/30/24	2259	2643653	5

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-MS 3005A PREP	BB2	07/23/24	1445	2643652
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	07/23/24	1110	2644396

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	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-U Landfill Quarterly(UG24-04)

Client Sample ID:	MW374UG4-24	Project:	FRNP00507
Sample ID:	676265011	Client ID:	FRNP005

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

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 7470A	
2	SW846 3005A/6020B	
3	SW846 3005A/6020B	
4	SW846 3005A/6020B	
5	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: October 31, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-U Landfill Quarterly(UG24-04)

Client Sample ID:	MW374UG4-24	Project:	FRNP00507
Sample ID:	676265012	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	17-JUL-24 09:34		
Receive Date:	19-JUL-24		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Dissolved Metals (3 Elements) "As Received"												
Uranium		0.000505	0.0000670	0.000200	mg/L	1.00	1	PRB	07/31/24	1754	2643653	1
Barium		0.136	0.000670	0.00400	mg/L	1.00	1	PRB	07/30/24	2303	2643653	2
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 160	Laboratory Filtration	JP2	07/19/24	1435	2643642
SW846 3005A	ICP-MS 3005A PREP	BB2	07/23/24	1445	2643652

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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APPENDIX D

STATISTICAL ANALYSES AND QUALIFICATION STATEMENT

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RESIDENTIAL/INERT—QUARTERLY, 3rd CY 2024 Finds/Unit: KY8-980-008-982/1
Facility: U.S. DOE—Paducah Gaseous Diffusion Plant Lab ID: None
Permit Number: SW07300014, SW07300015, SW07300045

GROUNDWATER STATISTICAL COMMENTS

Introduction

The statistical analyses conducted on the third 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 third quarter 2024 data used to conduct the statistical analyses were collected in July 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 ≤ 1.0, then the data are assumed to be normally distributed. Data sets with CV > 1.0 are assumed to be log-normally distributed; for data sets with CV > 1.0, the data are log-transformed and analyzed.

    - The factor (K) for one-sided upper TL with 95% minimum coverage is determined (Table 5, Appendix B; *EPA Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Interim Final Guidance*, 1989) based on the number of background data points.

    - The one-sided upper TL is calculated using the following equation:

      $TL = X + (K \times S)$

2. Each observation from downgradient wells is compared to the calculated one-sided upper TL in Step 1. If an observation value exceeds the TL (or is below the LTL for pH), then there is statistically significant evidence that the well concentration exceeds the historical background.

Type of Data Used

Exhibit D.1 presents the background wells (identified as "BG"), the compliance or test wells (identified as "TW"), and the sidegradient wells (identified as "SG") for the C-746-S&T Residential and Inert Landfills. Exhibit D.2 presents the parameters from the available data set for which a statistical test was performed using the one-sided tolerance interval.

Exhibits D.3, D.4, and D.5 list the number of analyses (observations), nondetects (censored observations), and detects (uncensored observations) by parameter in the UCRS, the URGA, and the LRGA, respectively. Those parameters displayed with bold-face type indicate the one-sided tolerance interval statistical test was performed. The data presented in Exhibits D.3, D.4, and D.5 were collected during the current quarter, third 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.
upper TL = X + (K × S)
lower TL = X - (K × S)

Exhibit D.2. List of Parameters Tested Using the One-Sided Upper Tolerance Level Test with Historical Background

Parameters
Acetone
Aluminum
Boron
Bromide
Calcium
Chemical Oxygen Demand (COD)
Chloride
cis-1,2-Dichloroethene
Cobalt
Conductivity
Copper
Dissolved Oxygen
Dissolved Solids
Iron
Magnesium
Manganese
Methylene Chloride
Molybdenum
Nickel
Oxidation-Reduction Potential[1]
pH[2]
Potassium
Radium-226
Sodium
Sulfate
Technetium-99
Total Organic Carbon (TOC)
Total Organic Halides (TOX)
Trichloroethene
Vanadium
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**	**2**	**2**	**Yes**
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**	**0**	**4**	**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**	**0**	**4**	**Yes**
Chloride	**4**	**2**	**2**	**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**	**3**	**1**	**Yes**
Conductivity	**4**	**0**	**4**	**Yes**
Copper	**4**	**0**	**4**	**Yes**
Cyanide	4	4	0	No
Dibromochloromethane	4	4	0	No
Dibromomethane	4	4	0	No
Dimethylbenzene, Total	4	4	0	No
Dissolved Oxygen	**4**	**0**	**4**	**Yes**
Dissolved Solids	**4**	**0**	**4**	**Yes**
Ethylbenzene	4	4	0	No
Iodide	4	4	0	No

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**	**0**	**4**	**Yes**
Nickel	**4**	**2**	**2**	**Yes**
Oxidation-Reduction Potential	**4**	**0**	**4**	**Yes**
pH	**4**	**0**	**4**	**Yes**
Potassium	**4**	**0**	**4**	**Yes**
Radium-226	**4**	**2**	**2**	**Yes**
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	4	0	No
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**	**3**	**1**	**Yes**

Bold denotes parameters with at least one uncensored observation.

Exhibit D.4. Summary of Censored and Uncensored Data—URGA

Parameters	Observations	Censored Observation	Uncensored Observation	Statistical Analysis?
1,1,1,2-Tetrachloroethane	11	11	0	No
1,1,2,2-Tetrachloroethane	11	11	0	No
1,1,2-Trichloroethane	11	11	0	No
1,1-Dichloroethane	11	11	0	No
1,2,3-Trichloropropane	11	11	0	No
1,2-Dibromo-3-chloropropane	11	11	0	No
1,2-Dibromoethane	11	11	0	No
1,2-Dichlorobenzene	11	11	0	No
1,2-Dichloropropane	11	11	0	No
2-Butanone	11	11	0	No
2-Hexanone	11	11	0	No
4-Methyl-2-pentanone	11	11	0	No
Acetone	**11**	**10**	**1**	**Yes**
Acrolein	11	11	0	No
Acrylonitrile	11	11	0	No
Aluminum	**11**	**7**	**4**	**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**	**5**	**6**	**Yes**
Chloride	**11**	**2**	**9**	**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**	**5**	**6**	**Yes**
Conductivity	**11**	**0**	**11**	**Yes**
Copper	**11**	**0**	**11**	**Yes**
Cyanide	11	11	0	No
Dibromochloromethane	11	11	0	No
Dibromomethane	11	11	0	No
Dimethylbenzene, Total	11	11	0	No
Dissolved Oxygen	**11**	**0**	**11**	**Yes**
Dissolved Solids	**11**	**0**	**11**	**Yes**
Ethylbenzene	11	11	0	No
Iodide	11	11	0	No

Exhibit D.4. Summary of Censored and Uncensored Data—URGA (Continued)

Parameters	Observations	Censored Observation	Uncensored Observation	Statistical Analysis?
Iodomethane	11	11	0	No
Iron	**11**	**2**	**9**	**Yes**
Magnesium	**11**	**0**	**11**	**Yes**
Manganese	**11**	**0**	**11**	**Yes**
Methylene chloride	**11**	**10**	**1**	**Yes**
Molybdenum	**11**	**5**	**6**	**Yes**
Nickel	**11**	**1**	**10**	**Yes**
Oxidation-Reduction Potential	**11**	**0**	**11**	**Yes**
pH	**11**	**0**	**11**	**Yes**
Potassium	**11**	**0**	**11**	**Yes**
Radium-226	**11**	**9**	**2**	**Yes**
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**	**8**	**3**	**Yes**
Tetrachloroethene	11	11	0	No
Thallium	11	11	0	No
Thorium-230	11	11	0	No
Toluene	11	11	0	No
Total Organic Carbon (TOC)	**11**	**0**	**11**	**Yes**
Total Organic Halides (TOX)	**11**	**0**	**11**	**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**	**8**	**3**	**Yes**
Vinyl Acetate	11	11	0	No
Zinc	**11**	**3**	**8**	**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**	**1**	**6**	**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**	**2**	**5**	**Yes**
Chlorobenzene	7	7	0	No
Chloroethane	7	7	0	No
Chloroform	7	7	0	No
Chloromethane	7	7	0	No
***cis*-1,2-Dichloroethene**	**7**	**6**	**1**	**Yes**
cis-1,3-Dichloropropene	7	7	0	No
Cobalt	**7**	**4**	**3**	**Yes**
Conductivity	**7**	**0**	**7**	**Yes**
Copper	**7**	**0**	**7**	**Yes**
Cyanide	7	7	0	No
Dibromochloromethane	7	7	0	No
Dibromomethane	7	7	0	No
Dimethylbenzene, Total	7	7	0	No
Dissolved Oxygen	**7**	**0**	**7**	**Yes**
Dissolved Solids	**7**	**0**	**7**	**Yes**
Ethylbenzene	7	7	0	No
Iodide	7	7	0	No
Iodomethane	7	7	0	No
Iron	**7**	**0**	**7**	**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**	**0**	**7**	**Yes**
Methylene chloride	**7**	**6**	**1**	**Yes**
Molybdenum	**7**	**5**	**2**	**Yes**
Nickel	**7**	**1**	**6**	**Yes**
Oxidation-Reduction Potential	**7**	**0**	**7**	**Yes**
pH	**7**	**0**	**7**	**Yes**
Potassium	**7**	**0**	**7**	**Yes**
Radium-226	**7**	**5**	**2**	**Yes**
Rhodium	7	7	0	No
Sodium	**7**	**0**	**7**	**Yes**
Styrene	7	7	0	No
Sulfate	**7**	**0**	**7**	**Yes**
Tantalum	7	7	0	No
Technetium-99	**7**	**6**	**1**	**Yes**
Tetrachloroethene	7	7	0	No
Thallium	7	7	0	No
Thorium-230	7	7	0	No
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
Trichloroethene	**7**	**3**	**4**	**Yes**
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 uncensoredobservation.

Discussion of Results from Historical Background Comparison

For the UCRS, URGA, and LRGA, the concentrations of this quarter were compared to the results of the one-sided tolerance interval tests that were calculated using historical background and presented in Attachment D1. For the UCRS, URGA, and LRGA, the test was applied to 27, 29, and 29 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, radium-226, and technetium-99.

URGA

This quarter's results identified exceedances of historical background UTL for calcium, COD, conductivity, dissolved solids, magnesium, oxidation-reduction potential, radium-226, sodium, sulfate, and technetium-99.

LRGA

This quarter's results identified exceedances of historical background UTL for calcium, conductivity, dissolved solids, magnesium, oxidation-reduction potential, radium-226, sodium, sulfate, and technetium-99.

Statistical Summary

Summaries of the results of the statistical tests conducted on data obtained from wells in the UCRS, the URGA, and in the LRGA are presented in Exhibit D.7, Exhibit D.8, and Exhibit D.9, respectively.

Exhibit D.6. Summary of Exceedances of Statistically Derived Historical Background Concentrations

UCRS	URGA	LRGA
MW386: Oxidation-reduction potential*	**MW220:** Sulfate	**MW370:** Oxidation-reduction potential* and sulfate
MW390: Oxidation-reduction potential,* radium-226, and technetium-99	**MW221:** Oxidation-reduction potential* and radium-226	**MW373:** Calcium, conductivity, dissolved solids, magnesium, oxidation-reduction potential,* sodium, and sulfate
MW393: Oxidation-reduction potential*	**MW223:** Oxidation-reduction potential*	
MW396: Oxidation-reduction potential* and radium-226	**MW224:** Sodium and sulfate	**MW385:** Oxidation-reduction potential,* sulfate, and technetium-99
	MW369: Oxidation-reduction potential* and technetium-99	
	MW372: Calcium, conductivity, dissolved solids, magnesium, oxidation-reduction potential,* and sulfate	**MW388:** Oxidation-reduction potential,* radium-226, and sulfate
	MW384: Oxidation-reduction potential,* radium-226, sulfate, and technetium-99	**MW392:** Oxidation-reduction potential*
	MW387: COD, magnesium, oxidation-reduction potential,* sulfate, and technetium-99	**MW395:** Oxidation-reduction potential*
	MW394: Oxidation-reduction potential*	**MW397:** Oxidation-reduction potential* and radium-226

*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
Acetone	Tolerance Interval	1.73	No exceedance of statistically derived historical background concentration.
Aluminum	Tolerance Interval	0.57	No exceedance of statistically derived historical background concentration.
Boron	Tolerance Interval	1.28	No exceedance of statistically derived historical background concentration.
Bromide	Tolerance Interval	0.24	No exceedance of statistically derived historical background concentration.
Calcium	Tolerance Interval	0.20	No exceedance of statistically derived historical background concentration.
Chloride	Tolerance Interval	0.05	No exceedance of statistically derived historical background concentration.
Cobalt	Tolerance Interval	1.34	No exceedance of statistically derived historical background concentration.
COD	Tolerance Interval	0.02	No exceedance of statistically derived historical background concentration.
Conductivity	Tolerance Interval	0.12	No exceedance of statistically derived historical background concentration.
Copper	Tolerance Interval	0.48	No exceedance of statistically derived historical background concentration.
Dissolved Oxygen	Tolerance Interval	1.20	No exceedance of statistically derived historical background concentration.
Dissolved Solids	Tolerance Interval	0.19	No exceedance of statistically derived historical background concentration.
Iron	Tolerance Interval	0.48	No exceedance of statistically derived historical background concentration.
Magnesium	Tolerance Interval	0.20	No exceedance of statistically derived historical background concentration.
Manganese	Tolerance Interval	0.46	No exceedance of statistically derived historical background concentration.
Molybdenum	Tolerance Interval	1.51	No exceedance of statistically derived historical background concentration.
Nickel	Tolerance Interval	1.27	No exceedance of statistically derived historical background concentration.
Oxidation-Reduction Potential[b]	Tolerance Interval	4.77	Current results exceed statistically derived historical background concentration in MW386, 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.
Radium-226	Tolerance Interval	1.78	Current results exceed statistically derived historical background concentration in MW390 and MW396.
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.
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
Acetone	Tolerance Interval	0.10	No exceedance of statistically derived historical background concentration.
Aluminum	Tolerance Interval	0.28	No exceedance of statistically derived historical background concentration.
Boron	Tolerance Interval	1.45	No exceedance of statistically derived historical background concentration.
Bromide	Tolerance Interval	0.00	No exceedance of statistically derived historical background concentration.
Calcium	Tolerance Interval	0.17	Current results exceed statistically derived historical background concentrations in MW372.
Chloride	Tolerance Interval	0.23	No exceedance of statistically derived historical background concentration.
Cobalt	Tolerance Interval	2.44	No exceedance of statistically derived historical background concentration.
COD	Tolerance Interval	0.00	Current results exceed statistically derived historical background concentration in MW387.
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.
Methylene Chloride	Tolerance Interval	0.16	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 MW221, MW223, MW369, MW372, MW384, MW387, 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.
Radium-226	Tolerance Interval	10.6	Current results exceed statistically derived historical background concentration in MW221 and MW384.
Sodium	Tolerance Interval	0.24	Current results exceed statistically derived historical background concentration in MW224.

Exhibit D.8. Test Summaries for Qualified Parameters for Historical Background—URGA (Continued)

Parameter	Performed Test	CV Normality Test[a]	Results of Tolerance Interval Test Conducted
Sulfate	Tolerance Interval	0.25	Current results exceed statistically derived historical background concentration in MW220, MW224, MW372, MW384, and MW387.
Technetium-99	Tolerance Interval	0.99	Current results exceed statistically derived historical background concentration in MW369, MW384, and MW387.
TOC	Tolerance Interval	0.49	No exceedance of statistically derived historical background concentration.
TOX	Tolerance Interval	2.57	No exceedance of statistically derived historical background concentration.
Vanadium	Tolerance Interval	0.08	No exceedance of statistically derived historical background concentration.
Zinc	Tolerance Interval	0.72	No exceedance of statistically derived historical background concentration.

CV: coefficient of variation
[a] If CV > 1.0, used log-transformed data.
[b] Oxidation-Reduction Potential calibrated as Eh.
[c] Tolerance interval was calculated based on an MCL exceedance.

Exhibit D.9. Test Summaries for Qualified Parameters for Historical Background—LRGA

Parameter	Performed Test	CV Normality Test[a]	Results of Tolerance Interval Test Conducted
Aluminum	Tolerance Interval	0.86	No exceedance of statistically derived historical background concentration.
Boron	Tolerance Interval	1.24	No exceedance of statistically derived historical background concentration.
Bromide	Tolerance Interval	0.00	No exceedance of statistically derived historical background concentration.
Calcium	Tolerance Interval	0.50	Current results exceed statistically derived historical background concentration in MW373.
Chloride	Tolerance Interval	0.22	No exceedance of statistically derived historical background concentration.
cis-1,2-Dichloroethene	Tolerance Interval	0.00	No exceedance of statistically derived historical background concentration.
Cobalt	Tolerance Interval	1.51	No exceedance of statistically derived historical background concentration.
COD	Tolerance Interval	0.04	No exceedance of statistically derived historical background concentration.
Conductivity	Tolerance Interval	0.14	Current results exceed statistically derived historical background concentration in MW373.
Copper	Tolerance Interval	0.47	No exceedance of statistically derived historical background concentration.
Dissolved Oxygen	Tolerance Interval	0.52	No exceedance of statistically derived historical background concentration.
Dissolved Solids	Tolerance Interval	0.16	Current results exceed statistically derived historical background concentration in MW373.
Iron	Tolerance Interval	1.29	No exceedance of statistically derived historical background concentration.
Magnesium	Tolerance Interval	0.51	Current results exceed statistically derived historical background concentration in MW373.
Manganese	Tolerance Interval	1.49	No exceedance of statistically derived historical background concentration.
Methylene Chloride	Tolerance Interval	0.55	No exceedance of statistically derived historical background concentration.
Molybdenum	Tolerance Interval	1.45	No exceedance of statistically derived historical background concentration.
Nickel	Tolerance Interval	1.09	No exceedance of statistically derived historical background concentration.
Oxidation-Reduction Potential[b]	Tolerance Interval	0.33	Current results exceed statistically derived historical background concentration in MW370, MW373, MW385, MW388, MW392, MW395, and MW397.
pH	Tolerance Interval	0.04	No exceedance of statistically derived historical background concentration.
Potassium	Tolerance Interval	0.40	No exceedance of statistically derived historical background concentration.
Radium-226	Tolerance Interval	10.7	Current results exceed statistically derived historical background concentration in MW388 and MW397.

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.
TOC	Tolerance Interval	0.55	No exceedance of statistically derived historical background concentration.
TOX	Tolerance Interval	0.59	No exceedance of statistically derived historical background concentration.
Trichloroethene[c]	Tolerance Interval	0.78	No exceedance of statistically derived historical background concentration.
Zinc	Tolerance Interval	0.76	No exceedance of statistically derived historical background concentration.

CV: coefficient of variation
[a] If CV > 1.0, used log-transformed data.
[b] Oxidation-Reduction Potential calibrated as Eh.
[c] Tolerance interval was calculated based on an MCL exceedance.

Discussion of Results from Current Background Comparison

For concentrations in wells in the UCRS, URGA, and LRGA that exceeded the TL test using historical background, the concentrations were compared to the one-sided TL calculated using the most recent eight quarters of data and are presented in Attachment D2. For the UCRS, URGA, and LRGA, the test was applied to 3, 10, and 9 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 well MW390 for oxidation-reduction potential and technetium-99.

URGA

This quarter's results identified current background exceedances in downgradient wells for calcium, conductivity, dissolved solids, magnesium, sulfate, and technetium-99.

LRGA

This quarter's results identified current background exceedances in downgradient wells for calcium, conductivity, dissolved solids, magnesium, radium-226, sodium, and sulfate.

Statistical Summary

Summaries of the statistical tests conducted on data obtained from wells in the UCRS, the URGA, and the LRGA are presented in Exhibit D.11, Exhibit D.12, and Exhibit D.13, respectively.

Exhibit D.10. Summary of Exceedances (Downgradient Wells) of the TL Calculated Using Current Background Concentrations

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

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	0.20	MW390 exceeded the upper TL, which is evidence of elevated concentration with respect to current background data.
Radium-226	Tolerance Interval	0.77	MW396 exceeded the upper TL, which is evidence of elevated concentration with respect to current background data.
Technetium-99	Tolerance Interval	13.5	None of the test wells exceeded the upper TL, which is evidence that concentrations in these wells are not different from current background concentrations to a statistically significant level.

[a] If CV > 1.0, used log-transformed data.
[b] Oxidation-Reduction Potential calibrated as Eh.

Exhibit D.12. Test Summaries for Qualified Parameters for Current Background—URGA

Parameter	Performed Test	CV Normality Test[a]	Results of Tolerance Interval Test Conducted
Calcium	Tolerance Interval	0.13	MW372 exceeded the upper TL, which is evidence of elevated concentration with respect to current background data.
COD	Tolerance Interval	0.64	None of the test wells exceeded the upper TL, which is evidence that concentrations in these wells are not different from current background concentrations to a statistically significant level.
Conductivity	Tolerance Interval	0.10	MW372 exceeded the upper TL, which is evidence of elevated concentration with respect to current background data.
Dissolved Solids	Tolerance Interval	0.08	MW372 exceeded the upper TL, which is evidence of elevated concentration with respect to current background data.
Magnesium	Tolerance Interval	0.14	MW372 and MW387 exceeded the upper TL, which is evidence of elevated concentration with respect to current background data.
Oxidation-Reduction Potential[b]	Tolerance Interval	0.12	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.
Radium-226	Tolerance Interval	0.74	MW221 and MW384 exceeded the upper TL, which is evidence of elevated concentration with respect to current background data.
Sodium	Tolerance Interval	0.14	MW224 exceeded the upper TL, which is evidence of elevated concentration with respect to current background data.
Sulfate	Tolerance Interval	0.20	MW372 and MW387 exceeded the upper TL, which is evidence of elevated concentration with respect to current background data.
Technetium-99	Tolerance Interval	0.55	MW369, MW384, and MW387 exceeded the upper TL, which is evidence of elevated concentration with respect to current background data.

CV: coefficient of variation
[a] If CV > 1.0, used log-transformed data.
[b] Oxidation-Reduction Potential calibrated as Eh.

Exhibit D.13. Test Summaries for Qualified Parameters for Current Background—LRGA

Parameter	Performed Test	CV Normality Test[a]	Results of Tolerance Interval Test Conducted
Calcium	Tolerance Interval	0.20	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.
Radium-226	Tolerance Interval	0.67	MW388 and MW397 exceeded the upper TL, which is evidence of elevated concentration with respect to current background data.
Sodium	Tolerance Interval	0.06	MW373 exceeded the upper TL, which is evidence of elevated concentration with respect to current background data.
Sulfate	Tolerance Interval	0.03	MW370, MW373, MW385, and MW388 exceeded the upper TL, which is evidence of elevated concentration with respect to current background data.
Technetium-99	Tolerance Interval	0.66	MW385 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 Third Quarter 2024 Statistical Analysis Historical Background Comparison

Acetone 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=** 28.375 **S=** 49.188 **CV(1)=** 1.733 **K factor**=** 3.188 **TL(1)=** 1.85E+02 **LL(1)=**N/A

Statistics-Transformed Background Data **X=** 2.712 **S=** 0.943 **CV(2)=** 0.348 **K factor**=** 3.188 **TL(2)=** 5.72E+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+02	5.01E+00
9/30/2002	1.60E+01	2.77E+00
10/16/2002	1.00E+01	2.30E+00
1/13/2003	1.00E+01	2.30E+00
4/8/2003	1.00E+01	2.30E+00
7/16/2003	1.00E+01	2.30E+00
10/14/2003	1.10E+01	2.40E+00
4/12/2004	1.00E+01	2.30E+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	No	5.00E+00	N/A	1.61E+00	N/A
MW390	Downgradient	No	5.00E+00	N/A	1.61E+00	N/A
MW393	Downgradient	Yes	2.39E+00	N/A	8.71E-01	NO
MW396	Upgradient	Yes	1.85E+00	N/A	6.15E-01	NO

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-S/T Third 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	1.00E-01	NO	-2.30E+00	N/A
MW393	Downgradient	Yes	2.84E-02	NO	-3.56E+00	N/A
MW396	Upgradient	No	5.00E-02	N/A	-3.00E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-S/T Third 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	1.86E-02	N/A	-3.98E+00	NO
MW390	Downgradient	Yes	2.21E-02	N/A	-3.81E+00	NO
MW393	Downgradient	Yes	1.68E-02	N/A	-4.09E+00	NO
MW396	Upgradient	Yes	5.61E-03	N/A	-5.18E+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 Third 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	1.09E-01	NO	-2.22E+00	N/A
MW390	Downgradient	Yes	2.35E-01	NO	-1.45E+00	N/A
MW393	Downgradient	No	2.00E-01	N/A	-1.61E+00	N/A
MW396	Upgradient	Yes	1.09E+00	NO	8.62E-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 Third Quarter 2024 Statistical Analysis Historical Background Comparison

Calcium UNITS: mg/L UCRS

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 41.825	**S=** 8.445	**CV(1)=** 0.202	**K factor**=** 3.188	**TL(1)=** 6.87E+01	**LL(1)=**N/A
Statistics-Transformed Background Data	**X=** 3.711	**S=** 0.241	**CV(2)=** 0.065	**K factor**=** 3.188	**TL(2)=** 4.48E+00	**LL(2)=**N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW396	
Date Collected	Result	LN(Result)
8/13/2002	3.84E+01	3.65E+00
9/16/2002	4.29E+01	3.76E+00
10/16/2002	4.02E+01	3.69E+00
1/13/2003	4.67E+01	3.84E+00
4/8/2003	4.98E+01	3.91E+00
7/16/2003	4.33E+01	3.77E+00
10/14/2003	4.97E+01	3.91E+00
1/14/2004	2.36E+01	3.16E+00

Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient

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	2.03E+01	NO	3.01E+00	N/A
MW390	Downgradient	Yes	2.77E+01	NO	3.32E+00	N/A
MW393	Downgradient	Yes	1.58E+01	NO	2.76E+00	N/A
MW396	Upgradient	Yes	2.98E+01	NO	3.39E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-S/T Third 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	2.24E+01	NO	3.11E+00	N/A
MW390	Downgradient	Yes	1.08E+01	NO	2.38E+00	N/A
MW393	Downgradient	Yes	1.57E+01	NO	2.75E+00	N/A
MW396	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

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 Third Quarter 2024 Statistical Analysis Historical Background Comparison

Chloride UNITS: mg/L UCRS

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 101.725	**S=** 5.245	**CV(1)=** 0.052	**K factor**=** 3.188	**TL(1)=** 1.18E+02	**LL(1)=** N/A
Statistics-Transformed Background Data	**X=** 4.621	**S=** 0.053	**CV(2)=** 0.011	**K factor**=** 3.188	**TL(2)=** 4.79E+00	**LL(2)=** N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW396	
Date Collected	Result	LN(Result)
8/13/2002	9.16E+01	4.52E+00
9/16/2002	9.83E+01	4.59E+00
10/16/2002	1.01E+02	4.62E+00
1/13/2003	1.08E+02	4.68E+00
4/8/2003	1.01E+02	4.61E+00
7/16/2003	1.03E+02	4.63E+00
10/14/2003	1.07E+02	4.67E+00
1/14/2004	1.04E+02	4.65E+00

Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient

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	9.94E+00	N/A	2.30E+00	N/A
MW390	Downgradient	No	2.07E+01	N/A	3.03E+00	N/A
MW393	Downgradient	Yes	9.43E+00	NO	2.24E+00	N/A
MW396	Upgradient	Yes	5.68E+01	NO	4.04E+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

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 Third 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	4.66E-03	N/A	-5.37E+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	No	1.00E-03	N/A	-6.91E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-S/T Third 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	5.86E+02	NO	6.37E+00	N/A
MW390	Downgradient	Yes	6.00E+02	NO	6.40E+00	N/A
MW393	Downgradient	Yes	4.60E+02	NO	6.13E+00	N/A
MW396	Upgradient	Yes	6.43E+02	NO	6.47E+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 Third 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	1.52E-03	NO	-6.49E+00	N/A
MW390	Downgradient	Yes	1.73E-03	NO	-6.36E+00	N/A
MW393	Downgradient	Yes	7.26E-04	NO	-7.23E+00	N/A
MW396	Upgradient	Yes	8.65E-04	NO	-7.05E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

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 Third 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	2.10E+00	N/A	7.42E-01	NO
MW390	Downgradient	Yes	3.00E+00	N/A	1.10E+00	NO
MW393	Downgradient	Yes	1.00E+00	N/A	0.00E+00	NO
MW396	Upgradient	Yes	2.61E+00	N/A	9.59E-01	NO

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-S/T Third 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	3.64E+02	NO	5.90E+00	N/A
MW390	Downgradient	Yes	3.55E+02	NO	5.87E+00	N/A
MW393	Downgradient	Yes	2.72E+02	NO	5.61E+00	N/A
MW396	Upgradient	Yes	3.98E+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

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 Third 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	1.32E-01	NO	-2.02E+00	N/A
MW390	Downgradient	Yes	1.01E-01	NO	-2.29E+00	N/A
MW393	Downgradient	Yes	1.09E+00	NO	8.62E-02	N/A
MW396	Upgradient	Yes	5.39E-02	NO	-2.92E+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

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 Third Quarter 2024 Statistical Analysis Historical Background Comparison

Magnesium UNITS: mg/L UCRS

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 16.876	**S=** 3.313	**CV(1)=** 0.196	**K factor**=** 3.188	**TL(1)=** 2.74E+01	**LL(1)=** N/A
Statistics-Transformed Background Data	**X=** 2.804	**S=** 0.240	**CV(2)=** 0.086	**K factor**=** 3.188	**TL(2)=** 3.57E+00	**LL(2)=** N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW396	
Date Collected	Result	LN(Result)
8/13/2002	1.55E+01	2.74E+00
9/16/2002	1.73E+01	2.85E+00
10/16/2002	1.78E+01	2.88E+00
1/13/2003	1.92E+01	2.95E+00
4/8/2003	1.78E+01	2.88E+00
7/16/2003	1.78E+01	2.88E+00
10/14/2003	2.02E+01	3.01E+00
1/14/2004	9.41E+00	2.24E+00

Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient

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	8.31E+00	NO	2.12E+00	N/A
MW390	Downgradient	Yes	1.18E+01	NO	2.47E+00	N/A
MW393	Downgradient	Yes	4.01E+00	NO	1.39E+00	N/A
MW396	Upgradient	Yes	1.33E+01	NO	2.59E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

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 Third 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	1.17E+00	NO	1.57E-01	N/A
MW390	Downgradient	Yes	1.50E-03	NO	-6.50E+00	N/A
MW393	Downgradient	Yes	3.38E-02	NO	-3.39E+00	N/A
MW396	Upgradient	Yes	9.37E-03	NO	-4.67E+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 Third Quarter 2024 Statistical Analysis Historical Background Comparison

Molybdenum UNITS: mg/L UCRS

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 0.007	**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	9.17E-04	N/A	-6.99E+00	NO
MW390	Downgradient	Yes	3.33E-04	N/A	-8.01E+00	NO
MW393	Downgradient	Yes	4.63E-04	N/A	-7.68E+00	NO
MW396	Upgradient	Yes	3.40E-04	N/A	-7.99E+00	NO

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

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Nickel UNITS: mg/L UCRS

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 0.016	**S=** 0.021	**CV(1)=** 1.272	**K factor**=** 3.188	**TL(1)=** 8.26E-02	**LL(1)=**N/A
Statistics-Transformed Background Data	**X=** -4.706	**S=** 1.057	**CV(2)=** -0.225	**K factor**=** 3.188	**TL(2)=** -1.34E+00	**LL(2)=**N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW396	
Date Collected	Result	LN(Result)
8/13/2002	5.00E-02	-3.00E+00
9/16/2002	5.00E-02	-3.00E+00
10/16/2002	5.00E-03	-5.30E+00
1/13/2003	5.00E-03	-5.30E+00
4/8/2003	5.71E-03	-5.17E+00
7/16/2003	5.00E-03	-5.30E+00
10/14/2003	5.00E-03	-5.30E+00
1/14/2004	5.00E-03	-5.30E+00

Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient

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	3.53E-03	N/A	-5.65E+00	NO
MW390	Downgradient	Yes	1.50E-03	N/A	-6.50E+00	NO
MW393	Downgradient	No	2.00E-03	N/A	-6.21E+00	N/A
MW396	Upgradient	No	2.00E-03	N/A	-6.21E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

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Oxidation-Reduction Potential UNITS: mV UCRS

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 13.000	**S=** 61.952	**CV(1)=** 4.766	**K factor**=** 3.188	**TL(1)=** 2.11E+02	**LL(1)=** N/A
Statistics-Transformed Background Data	**X=** 4.364	**S=** 0.333	**CV(2)=** 0.076	**K factor**=** 3.188	**TL(2)=** 4.74E+00	**LL(2)=** N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW396	
Date Collected	Result	LN(Result)
8/13/2002	6.00E+01	4.09E+00
4/8/2003	7.10E+01	4.26E+00
7/16/2003	-5.60E+01	#Func!
10/14/2003	-5.40E+01	#Func!
1/14/2004	-2.20E+01	#Func!
4/12/2004	-6.00E+00	#Func!
7/20/2004	-3.00E+00	#Func!
10/12/2004	1.14E+02	4.74E+00

Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient

Because CV(1) is greater than 1, the natural logarithm of background and test well results were calculated utilizing TL(2) for comparison.

#Because the natural log was not possible for all background values, the TL was considered equal to the maximum background value.

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW386	Sidegradient	Yes	3.31E+02	N/A	5.80E+00	YES
MW390	Downgradient	Yes	4.79E+02	N/A	6.17E+00	YES
MW393	Downgradient	Yes	3.83E+02	N/A	5.95E+00	YES
MW396	Upgradient	Yes	3.73E+02	N/A	5.92E+00	YES

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

The test well(s) listed exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to historical background data.

Wells with Exceedances

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 = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

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pH UNITS: Std Unit 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	6.34E+00	NO	1.85E+00	N/A
MW393	Downgradient	Yes	6.37E+00	NO	1.85E+00	N/A
MW396	Upgradient	Yes	6.58E+00	NO	1.88E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

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Potassium UNITS: mg/L 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	2.81E-01	NO	-1.27E+00	N/A
MW390	Downgradient	Yes	3.47E-01	NO	-1.06E+00	N/A
MW393	Downgradient	Yes	4.59E-01	NO	-7.79E-01	N/A
MW396	Upgradient	Yes	7.48E-01	NO	-2.90E-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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Radium-226 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=** 0.157	**S=** 0.280	**CV(1)=** 1.782	**K factor**=** 3.188	**TL(1)=** 1.05E+00	**LL(1)=**N/A
Statistics-Transformed Background Data	**X=** -1.836	**S=** 1.229	**CV(2)=** -0.669	**K factor**=** 3.188	**TL(2)=** -3.71E-01	**LL(2)=**N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW396	
Date Collected	Result	LN(Result)
10/16/2002	6.90E-01	-3.71E-01
1/13/2003	-6.93E-03	#Func!
10/14/2003	-5.14E-02	#Func!
1/14/2004	4.94E-01	-7.05E-01
4/12/2004	-8.20E-02	#Func!
7/20/2004	8.79E-02	-2.43E+00
10/12/2004	4.08E-02	-3.20E+00
1/18/2005	8.44E-02	-2.47E+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	No	4.12E-01	N/A	-8.87E-01	N/A
MW390	Downgradient	Yes	7.71E-01	N/A	-2.60E-01	YES
MW393	Downgradient	No	1.78E-01	N/A	-1.73E+00	N/A
MW396	Upgradient	Yes	9.94E-01	N/A	-6.02E-03	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

MW390
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 = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

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Sodium UNITS: mg/L 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	1.10E+02	NO	4.70E+00	N/A
MW390	Downgradient	Yes	9.10E+01	NO	4.51E+00	N/A
MW393	Downgradient	Yes	7.79E+01	NO	4.36E+00	N/A
MW396	Upgradient	Yes	8.79E+01	NO	4.48E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

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 Third 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	3.88E+01	NO	3.66E+00	N/A
MW390	Downgradient	Yes	3.36E+01	NO	3.51E+00	N/A
MW393	Downgradient	Yes	2.32E+01	NO	3.14E+00	N/A
MW396	Upgradient	Yes	2.75E+01	NO	3.31E+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 Third 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	-9.74E+00	N/A	#Error	N/A
MW390	Downgradient	Yes	5.74E+01	YES	4.05E+00	N/A
MW393	Downgradient	No	-8.36E+00	N/A	#Error	N/A
MW396	Upgradient	No	-8.86E+00	N/A	#Error	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 = [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 Third Quarter 2024 Statistical Analysis 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	5.53E+00	NO	1.71E+00	N/A
MW390	Downgradient	Yes	1.93E+00	NO	6.58E-01	N/A
MW393	Downgradient	Yes	1.91E+00	NO	6.47E-01	N/A
MW396	Upgradient	Yes	3.51E+00	NO	1.26E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-S/T Third 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	1.46E+02	NO	4.98E+00	N/A
MW390	Downgradient	Yes	1.20E+01	NO	2.48E+00	N/A
MW393	Downgradient	Yes	2.21E+01	NO	3.10E+00	N/A
MW396	Upgradient	Yes	4.26E+01	NO	3.75E+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

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 Third 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	6.48E-03	NO	-5.04E+00	N/A
MW393	Downgradient	No	2.00E-02	N/A	-3.91E+00	N/A
MW396	Upgradient	No	2.00E-02	N/A	-3.91E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-S/T Third Quarter 2024 Statistical Analysis Historical Background Comparison

Acetone UNITS: ug/L URGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 10.250	**S=** 1.000	**CV(1)=** 0.098	**K factor**=** 2.523	**TL(1)=** 1.28E+01	**LL(1)=** N/A
Statistics-Transformed Background Data	**X=** 2.324	**S=** 0.084	**CV(2)=** 0.036	**K factor**=** 2.523	**TL(2)=** 2.54E+00	**LL(2)=** N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number: MW220

Date Collected	Result	LN(Result)
10/14/2002	1.00E+01	2.30E+00
1/15/2003	1.00E+01	2.30E+00
4/10/2003	1.00E+01	2.30E+00
7/14/2003	1.00E+01	2.30E+00
10/13/2003	1.00E+01	2.30E+00
4/13/2004	1.00E+01	2.30E+00
7/21/2004	1.00E+01	2.30E+00
10/11/2004	1.00E+01	2.30E+00

Well Number: MW394

Date Collected	Result	LN(Result)
8/13/2002	1.00E+01	2.30E+00
9/30/2002	1.00E+01	2.30E+00
10/16/2002	1.00E+01	2.30E+00
1/13/2003	1.00E+01	2.30E+00
4/10/2003	1.00E+01	2.30E+00
7/16/2003	1.00E+01	2.30E+00
10/14/2003	1.40E+01	2.64E+00
4/12/2004	1.00E+01	2.30E+00

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)
MW220	Upgradient	No	5.00E+00	N/A	1.61E+00	N/A
MW221	Sidegradient	Yes	2.45E+00	NO	8.96E-01	N/A
MW222	Sidegradient	No	5.00E+00	N/A	1.61E+00	N/A
MW223	Sidegradient	No	5.00E+00	N/A	1.61E+00	N/A
MW224	Sidegradient	No	5.00E+00	N/A	1.61E+00	N/A
MW369	Downgradient	No	5.00E+00	N/A	1.61E+00	N/A
MW372	Downgradient	No	5.00E+00	N/A	1.61E+00	N/A
MW384	Sidegradient	No	5.00E+00	N/A	1.61E+00	N/A
MW387	Downgradient	No	5.00E+00	N/A	1.61E+00	N/A
MW391	Downgradient	No	5.00E+00	N/A	1.61E+00	N/A
MW394	Upgradient	No	5.00E+00	N/A	1.61E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

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Aluminum UNITS: mg/L URGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 0.221	**S=** 0.061	**CV(1)=** 0.277	**K factor**=** 2.523	**TL(1)=** 3.76E-01	**LL(1)=** N/A
Statistics-Transformed Background Data	**X=** -1.534	**S=** 0.212	**CV(2)=** -0.138	**K factor**=** 2.523	**TL(2)=** -9.99E-01	**LL(2)=** N/A

Historical Background Data from Upgradient Wells with Transformed Result

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

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)
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	2.69E-02	NO	-3.62E+00	N/A
MW372	Downgradient	No	5.00E-02	N/A	-3.00E+00	N/A
MW384	Sidegradient	Yes	4.02E-02	NO	-3.21E+00	N/A
MW387	Downgradient	Yes	2.30E-01	NO	-1.47E+00	N/A
MW391	Downgradient	Yes	2.24E-02	NO	-3.80E+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 = [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 Third 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

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

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)
MW220	Upgradient	Yes	7.12E-03	N/A	-4.94E+00	NO
MW221	Sidegradient	Yes	2.42E-02	N/A	-3.72E+00	NO
MW222	Sidegradient	Yes	1.29E-02	N/A	-4.35E+00	NO
MW223	Sidegradient	Yes	1.34E-02	N/A	-4.31E+00	NO
MW224	Sidegradient	Yes	3.50E-02	N/A	-3.35E+00	NO
MW369	Downgradient	Yes	1.37E-02	N/A	-4.29E+00	NO
MW372	Downgradient	Yes	1.86E+00	N/A	6.21E-01	NO
MW384	Sidegradient	Yes	5.99E-02	N/A	-2.82E+00	NO
MW387	Downgradient	Yes	4.58E-02	N/A	-3.08E+00	NO
MW391	Downgradient	Yes	2.41E-02	N/A	-3.73E+00	NO
MW394	Upgradient	Yes	2.06E-02	N/A	-3.88E+00	NO

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-S/T Third Quarter 2024 Statistical Analysis Historical Background Comparison

Bromide UNITS: mg/L URGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 1.000	**S=** 0.000	**CV(1)=** 0.000	**K factor**=** 2.523	**TL(1)=** 1.00E+00	**LL(1)=** N/A
Statistics-Transformed Background Data	**X=** 0.000	**S=** 0.000	**CV(2)=** #Num!	**K factor**=** 2.523	**TL(2)=** 0.00E+00	**LL(2)=** N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number: 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

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)
MW220	Upgradient	Yes	2.61E-01	NO	-1.34E+00	N/A
MW221	Sidegradient	Yes	6.23E-01	NO	-4.73E-01	N/A
MW222	Sidegradient	Yes	3.98E-01	NO	-9.21E-01	N/A
MW223	Sidegradient	Yes	4.05E-01	NO	-9.04E-01	N/A
MW224	Sidegradient	Yes	3.30E-01	NO	-1.11E+00	N/A
MW369	Downgradient	Yes	3.25E-01	NO	-1.12E+00	N/A
MW372	Downgradient	Yes	4.86E-01	NO	-7.22E-01	N/A
MW384	Sidegradient	Yes	2.57E-01	NO	-1.36E+00	N/A
MW387	Downgradient	Yes	4.75E-01	NO	-7.44E-01	N/A
MW391	Downgradient	Yes	4.90E-01	NO	-7.13E-01	N/A
MW394	Upgradient	Yes	8.00E-01	NO	-2.23E-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 Third Quarter 2024 Statistical Analysis Historical Background Comparison

Calcium UNITS: mg/L URGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 27.638	**S=** 4.743	**CV(1)=** 0.172	**K factor**=** 2.523	**TL(1)=** 3.96E+01	**LL(1)=**N/A
Statistics-Transformed Background Data	**X=** 3.304	**S=** 0.183	**CV(2)=** 0.055	**K factor**=** 2.523	**TL(2)=** 3.76E+00	**LL(2)=**N/A

Historical Background Data from Upgradient Wells with Transformed Result

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

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)
MW220	Upgradient	Yes	2.55E+01	NO	3.24E+00	N/A
MW221	Sidegradient	Yes	2.13E+01	NO	3.06E+00	N/A
MW222	Sidegradient	Yes	2.11E+01	NO	3.05E+00	N/A
MW223	Sidegradient	Yes	2.34E+01	NO	3.15E+00	N/A
MW224	Sidegradient	Yes	2.59E+01	NO	3.25E+00	N/A
MW369	Downgradient	Yes	1.51E+01	NO	2.71E+00	N/A
MW372	Downgradient	Yes	6.59E+01	YES	4.19E+00	N/A
MW384	Sidegradient	Yes	2.33E+01	NO	3.15E+00	N/A
MW387	Downgradient	Yes	3.74E+01	NO	3.62E+00	N/A
MW391	Downgradient	Yes	2.47E+01	NO	3.21E+00	N/A
MW394	Upgradient	Yes	2.75E+01	NO	3.31E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

The test well(s) listed exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to historical background data.

Wells with Exceedances

MW372

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-S/T Third Quarter 2024 Statistical Analysis Historical Background Comparison

Chemical Oxygen Demand (COD) UNITS: mg/L URGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is 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

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

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)
MW220	Upgradient	Yes	1.33E+01	NO	2.59E+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	1.33E+01	NO	2.59E+00	N/A
MW369	Downgradient	No	2.00E+01	N/A	3.00E+00	N/A
MW372	Downgradient	Yes	2.57E+01	NO	3.25E+00	N/A
MW384	Sidegradient	No	2.00E+01	N/A	3.00E+00	N/A
MW387	Downgradient	Yes	4.21E+01	YES	3.74E+00	N/A
MW391	Downgradient	Yes	1.08E+01	NO	2.38E+00	N/A
MW394	Upgradient	Yes	1.10E+01	NO	2.40E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

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.*

C-746-S/T Third Quarter 2024 Statistical Analysis Historical Background Comparison

Chloride UNITS: mg/L URGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 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

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

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)
MW220	Upgradient	Yes	1.81E+01	NO	2.90E+00	N/A
MW221	Sidegradient	Yes	3.50E+01	NO	3.56E+00	N/A
MW222	Sidegradient	Yes	3.23E+01	NO	3.48E+00	N/A
MW223	Sidegradient	Yes	3.59E+01	NO	3.58E+00	N/A
MW224	Sidegradient	Yes	2.48E+01	NO	3.21E+00	N/A
MW369	Downgradient	Yes	2.94E+01	NO	3.38E+00	N/A
MW372	Downgradient	Yes	3.52E+01	NO	3.56E+00	N/A
MW384	Sidegradient	No	2.13E+01	N/A	3.06E+00	N/A
MW387	Downgradient	Yes	3.69E+01	NO	3.61E+00	N/A
MW391	Downgradient	No	4.20E+01	N/A	3.74E+00	N/A
MW394	Upgradient	Yes	2.25E+01	NO	3.11E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-S/T Third Quarter 2024 Statistical Analysis Historical Background Comparison

Cobalt UNITS: mg/L URGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 0.016	**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

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

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)
MW220	Upgradient	No	1.00E-03	N/A	-6.91E+00	N/A
MW221	Sidegradient	Yes	1.12E-03	N/A	-6.79E+00	NO
MW222	Sidegradient	Yes	5.16E-04	N/A	-7.57E+00	NO
MW223	Sidegradient	Yes	3.07E-03	N/A	-5.79E+00	NO
MW224	Sidegradient	No	1.00E-03	N/A	-6.91E+00	N/A
MW369	Downgradient	Yes	4.31E-03	N/A	-5.45E+00	NO
MW372	Downgradient	Yes	3.87E-04	N/A	-7.86E+00	NO
MW384	Sidegradient	No	1.00E-03	N/A	-6.91E+00	N/A
MW387	Downgradient	Yes	3.71E-04	N/A	-7.90E+00	NO
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.*

C-746-S/T Third Quarter 2024 Statistical Analysis Historical Background Comparison

Conductivity UNITS: umho/cm URGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data **X=** 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

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

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)
MW220	Upgradient	Yes	4.17E+02	NO	6.03E+00	N/A
MW221	Sidegradient	Yes	3.96E+02	NO	5.98E+00	N/A
MW222	Sidegradient	Yes	3.89E+02	NO	5.96E+00	N/A
MW223	Sidegradient	Yes	3.96E+02	NO	5.98E+00	N/A
MW224	Sidegradient	Yes	4.60E+02	NO	6.13E+00	N/A
MW369	Downgradient	Yes	3.36E+02	NO	5.82E+00	N/A
MW372	Downgradient	Yes	7.49E+02	YES	6.62E+00	N/A
MW384	Sidegradient	Yes	4.20E+02	NO	6.04E+00	N/A
MW387	Downgradient	Yes	5.66E+02	NO	6.34E+00	N/A
MW391	Downgradient	Yes	3.84E+02	NO	5.95E+00	N/A
MW394	Upgradient	Yes	4.00E+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.*

C-746-S/T Third 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

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

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)
MW220	Upgradient	Yes	1.94E-03	NO	-6.25E+00	N/A
MW221	Sidegradient	Yes	3.29E-03	NO	-5.72E+00	N/A
MW222	Sidegradient	Yes	1.08E-03	NO	-6.83E+00	N/A
MW223	Sidegradient	Yes	1.50E-03	NO	-6.50E+00	N/A
MW224	Sidegradient	Yes	1.10E-03	NO	-6.81E+00	N/A
MW369	Downgradient	Yes	2.95E-03	NO	-5.83E+00	N/A
MW372	Downgradient	Yes	1.35E-03	NO	-6.61E+00	N/A
MW384	Sidegradient	Yes	1.39E-03	NO	-6.58E+00	N/A
MW387	Downgradient	Yes	1.48E-03	NO	-6.52E+00	N/A
MW391	Downgradient	Yes	6.21E-04	NO	-7.38E+00	N/A
MW394	Upgradient	Yes	1.03E-03	NO	-6.88E+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 Third Quarter 2024 Statistical Analysis Historical Background Comparison

Dissolved Oxygen UNITS: mg/L URGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 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

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

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)
MW220	Upgradient	Yes	3.55E+00	NO	1.27E+00	N/A
MW221	Sidegradient	Yes	4.90E+00	NO	1.59E+00	N/A
MW222	Sidegradient	Yes	4.32E+00	NO	1.46E+00	N/A
MW223	Sidegradient	Yes	2.41E+00	NO	8.80E-01	N/A
MW224	Sidegradient	Yes	4.57E+00	NO	1.52E+00	N/A
MW369	Downgradient	Yes	3.00E+00	NO	1.10E+00	N/A
MW372	Downgradient	Yes	1.57E+00	NO	4.51E-01	N/A
MW384	Sidegradient	Yes	4.70E+00	NO	1.55E+00	N/A
MW387	Downgradient	Yes	4.53E+00	NO	1.51E+00	N/A
MW391	Downgradient	Yes	5.02E+00	NO	1.61E+00	N/A
MW394	Upgradient	Yes	4.66E+00	NO	1.54E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-S/T Third 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

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

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)
MW220	Upgradient	Yes	2.46E+02	NO	5.51E+00	N/A
MW221	Sidegradient	Yes	2.10E+02	NO	5.35E+00	N/A
MW222	Sidegradient	Yes	2.18E+02	NO	5.38E+00	N/A
MW223	Sidegradient	Yes	2.27E+02	NO	5.42E+00	N/A
MW224	Sidegradient	Yes	2.61E+02	NO	5.56E+00	N/A
MW369	Downgradient	Yes	2.13E+02	NO	5.36E+00	N/A
MW372	Downgradient	Yes	4.96E+02	YES	6.21E+00	N/A
MW384	Sidegradient	Yes	1.84E+02	NO	5.21E+00	N/A
MW387	Downgradient	Yes	3.00E+02	NO	5.70E+00	N/A
MW391	Downgradient	Yes	1.82E+02	NO	5.20E+00	N/A
MW394	Upgradient	Yes	2.17E+02	NO	5.38E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

The test well(s) listed exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to historical background data.

Wells with Exceedances

MW372

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-S/T Third 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	Yes	3.85E-02	N/A	-3.26E+00	NO
MW221	Sidegradient	No	1.00E-01	N/A	-2.30E+00	N/A
MW222	Sidegradient	No	1.00E-01	N/A	-2.30E+00	N/A
MW223	Sidegradient	Yes	2.77E-01	N/A	-1.28E+00	NO
MW224	Sidegradient	Yes	5.27E-02	N/A	-2.94E+00	NO
MW369	Downgradient	Yes	4.86E-02	N/A	-3.02E+00	NO
MW372	Downgradient	Yes	6.80E-02	N/A	-2.69E+00	NO
MW384	Sidegradient	Yes	5.54E-01	N/A	-5.91E-01	NO
MW387	Downgradient	Yes	8.21E-01	N/A	-1.97E-01	NO
MW391	Downgradient	Yes	1.25E-01	N/A	-2.08E+00	NO
MW394	Upgradient	Yes	6.02E-02	N/A	-2.81E+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 Third 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

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

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)
MW220	Upgradient	Yes	1.04E+01	NO	2.34E+00	N/A
MW221	Sidegradient	Yes	9.39E+00	NO	2.24E+00	N/A
MW222	Sidegradient	Yes	9.33E+00	NO	2.23E+00	N/A
MW223	Sidegradient	Yes	9.96E+00	NO	2.30E+00	N/A
MW224	Sidegradient	Yes	1.14E+01	NO	2.43E+00	N/A
MW369	Downgradient	Yes	6.22E+00	NO	1.83E+00	N/A
MW372	Downgradient	Yes	2.26E+01	YES	3.12E+00	N/A
MW384	Sidegradient	Yes	9.62E+00	NO	2.26E+00	N/A
MW387	Downgradient	Yes	1.63E+01	YES	2.79E+00	N/A
MW391	Downgradient	Yes	1.03E+01	NO	2.33E+00	N/A
MW394	Upgradient	Yes	1.15E+01	NO	2.44E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

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.*

C-746-S/T Third 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	Yes	2.79E-03	N/A	-5.88E+00	NO
MW221	Sidegradient	Yes	5.41E-03	N/A	-5.22E+00	NO
MW222	Sidegradient	Yes	7.69E-03	N/A	-4.87E+00	NO
MW223	Sidegradient	Yes	2.90E-02	N/A	-3.54E+00	NO
MW224	Sidegradient	Yes	8.68E-03	N/A	-4.75E+00	NO
MW369	Downgradient	Yes	4.23E-03	N/A	-5.47E+00	NO
MW372	Downgradient	Yes	4.00E-03	N/A	-5.52E+00	NO
MW384	Sidegradient	Yes	1.11E-02	N/A	-4.50E+00	NO
MW387	Downgradient	Yes	3.33E-02	N/A	-3.40E+00	NO
MW391	Downgradient	Yes	2.21E-03	N/A	-6.11E+00	NO
MW394	Upgradient	Yes	1.56E-03	N/A	-6.46E+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 Third Quarter 2024 Statistical Analysis Historical Background Comparison

Methylene chloride UNITS: ug/L URGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 4.813	**S=** 0.750	**CV(1)=** 0.156	**K factor**=** 2.523	**TL(1)=** 6.70E+00	**LL(1)=** N/A
Statistics-Transformed Background Data	**X=** 1.552	**S=** 0.229	**CV(2)=** 0.148	**K factor**=** 2.523	**TL(2)=** 2.13E+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	5.00E+00	1.61E+00
1/15/2003	5.00E+00	1.61E+00
4/10/2003	5.00E+00	1.61E+00
7/14/2003	5.00E+00	1.61E+00
10/13/2003	5.00E+00	1.61E+00
1/13/2004	5.00E+00	1.61E+00
4/13/2004	5.00E+00	1.61E+00
7/21/2004	5.00E+00	1.61E+00

Well Number:	MW394	
Date Collected	Result	LN(Result)
8/13/2002	5.00E+00	1.61E+00
9/30/2002	2.00E+00	6.93E-01
10/16/2002	5.00E+00	1.61E+00
1/13/2003	5.00E+00	1.61E+00
4/10/2003	5.00E+00	1.61E+00
7/16/2003	5.00E+00	1.61E+00
10/14/2003	5.00E+00	1.61E+00
1/13/2004	5.00E+00	1.61E+00

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)
MW220	Upgradient	No	5.00E+00	N/A	1.61E+00	N/A
MW221	Sidegradient	No	5.00E+00	N/A	1.61E+00	N/A
MW222	Sidegradient	No	5.00E+00	N/A	1.61E+00	N/A
MW223	Sidegradient	No	5.00E+00	N/A	1.61E+00	N/A
MW224	Sidegradient	No	5.00E+00	N/A	1.61E+00	N/A
MW369	Downgradient	No	5.00E+00	N/A	1.61E+00	N/A
MW372	Downgradient	No	5.00E+00	N/A	1.61E+00	N/A
MW384	Sidegradient	No	5.00E+00	N/A	1.61E+00	N/A
MW387	Downgradient	Yes	7.90E-01	NO	-2.36E-01	N/A
MW391	Downgradient	No	5.00E+00	N/A	1.61E+00	N/A
MW394	Upgradient	No	5.00E+00	N/A	1.61E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-S/T Third Quarter 2024 Statistical Analysis Historical Background Comparison

Molybdenum UNITS: mg/L URGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 0.006	**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

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

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)
MW220	Upgradient	Yes	1.31E-03	N/A	-6.64E+00	NO
MW221	Sidegradient	Yes	6.54E-03	N/A	-5.03E+00	NO
MW222	Sidegradient	Yes	4.84E-03	N/A	-5.33E+00	NO
MW223	Sidegradient	Yes	3.23E-03	N/A	-5.74E+00	NO
MW224	Sidegradient	Yes	9.86E-04	N/A	-6.92E+00	NO
MW369	Downgradient	No	1.00E-03	N/A	-6.91E+00	N/A
MW372	Downgradient	Yes	3.12E-04	N/A	-8.07E+00	NO
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.*

C-746-S/T Third 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

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

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)
MW220	Upgradient	Yes	6.49E-03	N/A	-5.04E+00	NO
MW221	Sidegradient	Yes	1.20E-01	N/A	-2.12E+00	NO
MW222	Sidegradient	Yes	4.46E-02	N/A	-3.11E+00	NO
MW223	Sidegradient	Yes	6.31E-01	N/A	-4.60E-01	NO
MW224	Sidegradient	Yes	1.03E-02	N/A	-4.58E+00	NO
MW369	Downgradient	Yes	4.32E-03	N/A	-5.44E+00	NO
MW372	Downgradient	Yes	9.37E-04	N/A	-6.97E+00	NO
MW384	Sidegradient	Yes	9.12E-04	N/A	-7.00E+00	NO
MW387	Downgradient	Yes	1.17E-03	N/A	-6.75E+00	NO
MW391	Downgradient	No	2.00E-03	N/A	-6.21E+00	N/A
MW394	Upgradient	Yes	8.11E-03	N/A	-4.81E+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 Third 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

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

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)
MW220	Upgradient	Yes	3.92E+02	NO	5.97E+00	N/A
MW221	Sidegradient	Yes	4.39E+02	YES	6.08E+00	N/A
MW222	Sidegradient	Yes	3.83E+02	NO	5.95E+00	N/A
MW223	Sidegradient	Yes	4.19E+02	YES	6.04E+00	N/A
MW224	Sidegradient	Yes	3.91E+02	NO	5.97E+00	N/A
MW369	Downgradient	Yes	4.62E+02	YES	6.14E+00	N/A
MW372	Downgradient	Yes	4.52E+02	YES	6.11E+00	N/A
MW384	Sidegradient	Yes	4.28E+02	YES	6.06E+00	N/A
MW387	Downgradient	Yes	4.13E+02	YES	6.02E+00	N/A
MW391	Downgradient	Yes	3.73E+02	NO	5.92E+00	N/A
MW394	Upgradient	Yes	4.04E+02	YES	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

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

MW221
MW223
MW369
MW372
MW384
MW387
MW394

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-S/T Third 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

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

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)?
MW220	Upgradient	Yes	6.23E+00	NO	1.83E+00	N/A
MW221	Sidegradient	Yes	6.22E+00	NO	1.83E+00	N/A
MW222	Sidegradient	Yes	6.10E+00	NO	1.81E+00	N/A
MW223	Sidegradient	Yes	6.03E+00	NO	1.80E+00	N/A
MW224	Sidegradient	Yes	6.11E+00	NO	1.81E+00	N/A
MW369	Downgradient	Yes	6.06E+00	NO	1.80E+00	N/A
MW372	Downgradient	Yes	6.06E+00	NO	1.80E+00	N/A
MW384	Sidegradient	Yes	6.11E+00	NO	1.81E+00	N/A
MW387	Downgradient	Yes	6.19E+00	NO	1.82E+00	N/A
MW391	Downgradient	Yes	6.13E+00	NO	1.81E+00	N/A
MW394	Upgradient	Yes	6.03E+00	NO	1.80E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-S/T Third Quarter 2024 Statistical Analysis Historical Background Comparison

Potassium UNITS: mg/L URGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 6.654	**S=** 9.310	**CV(1)=** 1.399	**K factor**=** 2.523	**TL(1)=** 3.01E+01	**LL(1)=**N/A
Statistics-Transformed Background Data	**X=** 1.130	**S=** 1.208	**CV(2)=** 1.069	**K factor**=** 2.523	**TL(2)=** 4.18E+00	**LL(2)=**N/A

Historical Background Data from Upgradient Wells with Transformed Result

Because CV(1) is greater than 1, the natural logarithm of background and test well results were calculated utilizing TL(2) for comparison.

Well Number: MW220

Date Collected	Result	LN(Result)
10/14/2002	6.70E+00	1.90E+00
1/15/2003	2.97E+01	3.39E+00
4/10/2003	2.49E+01	3.21E+00
7/14/2003	1.13E+00	1.22E-01
10/13/2003	3.43E+00	1.23E+00
1/13/2004	6.71E+00	1.90E+00
4/13/2004	1.93E+01	2.96E+00
7/21/2004	3.97E+00	1.38E+00

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	1.10E+01	N/A	2.40E+00	NO
MW221	Sidegradient	Yes	2.32E+00	N/A	8.42E-01	NO
MW222	Sidegradient	Yes	8.08E-01	N/A	-2.13E-01	NO
MW223	Sidegradient	Yes	1.18E+00	N/A	1.66E-01	NO
MW224	Sidegradient	Yes	1.06E+00	N/A	5.83E-02	NO
MW369	Downgradient	Yes	4.99E-01	N/A	-6.95E-01	NO
MW372	Downgradient	Yes	2.26E+00	N/A	8.15E-01	NO
MW384	Sidegradient	Yes	1.33E+00	N/A	2.85E-01	NO
MW387	Downgradient	Yes	1.82E+00	N/A	5.99E-01	NO
MW391	Downgradient	Yes	1.41E+00	N/A	3.44E-01	NO
MW394	Upgradient	Yes	1.57E+00	N/A	4.51E-01	NO

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-S/T Third Quarter 2024 Statistical Analysis Historical Background Comparison

Radium-226 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=** 0.036	**S=** 0.382	**CV(1)=** 10.588	**K factor**=** 2.523	**TL(1)=** 1.00E+00	**LL(1)=**N/A
Statistics-Transformed Background Data	**X=** -1.873	**S=** 1.110	**CV(2)=** -0.592	**K factor**=** 2.523	**TL(2)=** -5.38E-01	**LL(2)=**N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW220	
Date Collected	Result	LN(Result)
10/14/2002	-8.04E-01	#Func!
1/15/2003	0.00E+00	#Func!
10/13/2003	3.89E-01	-9.44E-01
1/13/2004	-1.20E-01	#Func!
4/13/2004	1.59E-01	-1.84E+00
7/21/2004	3.82E-01	-9.62E-01
10/11/2004	2.11E-01	-1.56E+00
1/20/2005	2.29E-01	-1.47E+00

Well Number:	MW394	
Date Collected	Result	LN(Result)
10/16/2002	5.84E-01	-5.38E-01
1/13/2003	-8.39E-01	#Func!
10/14/2003	3.25E-02	-3.43E+00
1/13/2004	-4.02E-03	#Func!
4/12/2004	-3.37E-04	#Func!
7/20/2004	2.90E-01	-1.24E+00
10/12/2004	3.66E-02	-3.31E+00
1/18/2005	3.19E-02	-3.45E+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	6.00E-01	N/A	-5.11E-01	N/A
MW221	Sidegradient	Yes	1.07E+00	N/A	6.77E-02	YES
MW222	Sidegradient	No	1.68E-01	N/A	-1.78E+00	N/A
MW223	Sidegradient	No	2.41E-01	N/A	-1.42E+00	N/A
MW224	Sidegradient	No	1.13E-01	N/A	-2.18E+00	N/A
MW369	Downgradient	No	3.77E-01	N/A	-9.76E-01	N/A
MW372	Downgradient	No	1.57E-02	N/A	-4.15E+00	N/A
MW384	Sidegradient	Yes	1.08E+00	N/A	7.70E-02	YES
MW387	Downgradient	No	8.92E-01	N/A	-1.14E-01	N/A
MW391	Downgradient	No	4.11E-01	N/A	-8.89E-01	N/A
MW394	Upgradient	No	4.48E-01	N/A	-8.03E-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

MW221
MW384

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the 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 Third 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

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

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)
MW220	Upgradient	Yes	4.60E+01	NO	3.83E+00	N/A
MW221	Sidegradient	Yes	4.53E+01	NO	3.81E+00	N/A
MW222	Sidegradient	Yes	4.63E+01	NO	3.84E+00	N/A
MW223	Sidegradient	Yes	4.62E+01	NO	3.83E+00	N/A
MW224	Sidegradient	Yes	5.83E+01	YES	4.07E+00	N/A
MW369	Downgradient	Yes	4.84E+01	NO	3.88E+00	N/A
MW372	Downgradient	Yes	5.77E+01	NO	4.06E+00	N/A
MW384	Sidegradient	Yes	4.37E+01	NO	3.78E+00	N/A
MW387	Downgradient	Yes	4.86E+01	NO	3.88E+00	N/A
MW391	Downgradient	Yes	3.14E+01	NO	3.45E+00	N/A
MW394	Upgradient	Yes	3.32E+01	NO	3.50E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

The test well(s) listed exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to historical background data.

Wells with Exceedances

MW224

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the 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 Third 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

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

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)
MW220	Upgradient	Yes	2.16E+01	YES	3.07E+00	N/A
MW221	Sidegradient	Yes	1.61E+01	NO	2.78E+00	N/A
MW222	Sidegradient	Yes	1.25E+01	NO	2.53E+00	N/A
MW223	Sidegradient	Yes	1.45E+01	NO	2.67E+00	N/A
MW224	Sidegradient	Yes	1.93E+01	YES	2.96E+00	N/A
MW369	Downgradient	Yes	7.92E+00	NO	2.07E+00	N/A
MW372	Downgradient	Yes	1.64E+02	YES	5.10E+00	N/A
MW384	Sidegradient	Yes	1.79E+01	YES	2.88E+00	N/A
MW387	Downgradient	Yes	2.73E+01	YES	3.31E+00	N/A
MW391	Downgradient	Yes	1.22E+01	NO	2.50E+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

MW220
MW224
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.*

C-746-S/T Third Quarter 2024 Statistical Analysis Historical 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 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	2.79E+00	N/A	1.03E+00	N/A
MW221	Sidegradient	No	1.01E+01	N/A	2.31E+00	N/A
MW222	Sidegradient	No	5.16E+00	N/A	1.64E+00	N/A
MW223	Sidegradient	No	8.67E+00	N/A	2.16E+00	N/A
MW224	Sidegradient	No	5.55E+00	N/A	1.71E+00	N/A
MW369	Downgradient	Yes	4.27E+01	YES	3.75E+00	N/A
MW372	Downgradient	No	1.75E+01	N/A	2.86E+00	N/A
MW384	Sidegradient	Yes	4.76E+01	YES	3.86E+00	N/A
MW387	Downgradient	Yes	3.46E+01	YES	3.54E+00	N/A
MW391	Downgradient	No	9.87E+00	N/A	2.29E+00	N/A
MW394	Upgradient	No	6.82E+00	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
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.*

C-746-S/T Third 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

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Historical Background Data from Upgradient Wells with Transformed Result

Well Number: 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	7.58E-01	NO	-2.77E-01	N/A
MW221	Sidegradient	Yes	6.52E-01	NO	-4.28E-01	N/A
MW222	Sidegradient	Yes	3.95E-01	NO	-9.29E-01	N/A
MW223	Sidegradient	Yes	4.55E-01	NO	-7.87E-01	N/A
MW224	Sidegradient	Yes	7.99E-01	NO	-2.24E-01	N/A
MW369	Downgradient	Yes	7.57E-01	NO	-2.78E-01	N/A
MW372	Downgradient	Yes	7.98E-01	NO	-2.26E-01	N/A
MW384	Sidegradient	Yes	8.13E-01	NO	-2.07E-01	N/A
MW387	Downgradient	Yes	8.87E-01	NO	-1.20E-01	N/A
MW391	Downgradient	Yes	4.62E-01	NO	-7.72E-01	N/A
MW394	Upgradient	Yes	5.90E-01	NO	-5.28E-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 Third 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	Yes	7.16E+00	N/A	1.97E+00	NO
MW221	Sidegradient	Yes	3.64E+00	N/A	1.29E+00	NO
MW222	Sidegradient	Yes	1.71E+01	N/A	2.84E+00	NO
MW223	Sidegradient	Yes	7.18E+00	N/A	1.97E+00	NO
MW224	Sidegradient	Yes	1.31E+01	N/A	2.57E+00	NO
MW369	Downgradient	Yes	1.83E+01	N/A	2.91E+00	NO
MW372	Downgradient	Yes	6.46E+00	N/A	1.87E+00	NO
MW384	Sidegradient	Yes	8.58E+00	N/A	2.15E+00	NO
MW387	Downgradient	Yes	7.58E+00	N/A	2.03E+00	NO
MW391	Downgradient	Yes	2.10E+01	N/A	3.04E+00	NO
MW394	Upgradient	Yes	8.76E+00	N/A	2.17E+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 Third Quarter 2024 Statistical Analysis Historical Background Comparison

Vanadium UNITS: mg/L URGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 0.021	**S=** 0.002	**CV(1)=** 0.083	**K factor**=** 2.523	**TL(1)=** 2.49E-02	**LL(1)=** N/A
Statistics-Transformed Background Data	**X=** -3.884	**S=** 0.076	**CV(2)=** -0.020	**K factor**=** 2.523	**TL(2)=** -3.69E+00	**LL(2)=** N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW220	
Date Collected	Result	LN(Result)
10/14/2002	2.00E-02	-3.91E+00
1/15/2003	2.00E-02	-3.91E+00
4/10/2003	2.00E-02	-3.91E+00
7/14/2003	2.00E-02	-3.91E+00
10/13/2003	2.00E-02	-3.91E+00
1/13/2004	2.00E-02	-3.91E+00
4/13/2004	2.00E-02	-3.91E+00
7/21/2004	2.00E-02	-3.91E+00

Well Number:	MW394	
Date Collected	Result	LN(Result)
8/13/2002	2.50E-02	-3.69E+00
9/16/2002	2.50E-02	-3.69E+00
10/16/2002	2.00E-02	-3.91E+00
1/13/2003	2.00E-02	-3.91E+00
4/10/2003	2.00E-02	-3.91E+00
7/16/2003	2.00E-02	-3.91E+00
10/14/2003	2.00E-02	-3.91E+00
1/13/2004	2.00E-02	-3.91E+00

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)
MW220	Upgradient	No	2.00E-02	N/A	-3.91E+00	N/A
MW221	Sidegradient	No	2.00E-02	N/A	-3.91E+00	N/A
MW222	Sidegradient	Yes	4.74E-03	NO	-5.35E+00	N/A
MW223	Sidegradient	Yes	5.16E-03	NO	-5.27E+00	N/A
MW224	Sidegradient	Yes	3.54E-03	NO	-5.64E+00	N/A
MW369	Downgradient	No	2.00E-02	N/A	-3.91E+00	N/A
MW372	Downgradient	No	2.00E-02	N/A	-3.91E+00	N/A
MW384	Sidegradient	No	2.00E-02	N/A	-3.91E+00	N/A
MW387	Downgradient	No	2.00E-02	N/A	-3.91E+00	N/A
MW391	Downgradient	No	2.00E-02	N/A	-3.91E+00	N/A
MW394	Upgradient	No	2.00E-02	N/A	-3.91E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

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 Third 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

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

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)
MW220	Upgradient	Yes	5.43E-03	NO	-5.22E+00	N/A
MW221	Sidegradient	Yes	1.04E-02	NO	-4.57E+00	N/A
MW222	Sidegradient	Yes	8.50E-03	NO	-4.77E+00	N/A
MW223	Sidegradient	Yes	5.03E-03	NO	-5.29E+00	N/A
MW224	Sidegradient	No	2.00E-02	N/A	-3.91E+00	N/A
MW369	Downgradient	Yes	6.76E-03	NO	-5.00E+00	N/A
MW372	Downgradient	No	2.00E-02	N/A	-3.91E+00	N/A
MW384	Sidegradient	Yes	4.23E-03	NO	-5.47E+00	N/A
MW387	Downgradient	Yes	7.30E-03	NO	-4.92E+00	N/A
MW391	Downgradient	No	2.00E-02	N/A	-3.91E+00	N/A
MW394	Upgradient	Yes	3.57E-03	NO	-5.64E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-S/T Third 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

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

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	8.14E-01	NO	-2.06E-01	N/A
MW373	Downgradient	Yes	1.98E-02	NO	-3.92E+00	N/A
MW385	Sidegradient	No	5.00E-02	N/A	-3.00E+00	N/A
MW388	Downgradient	Yes	5.18E-02	NO	-2.96E+00	N/A
MW392	Downgradient	Yes	2.19E-02	NO	-3.82E+00	N/A
MW395	Upgradient	Yes	3.25E-02	NO	-3.43E+00	N/A
MW397	Upgradient	Yes	2.05E-01	NO	-1.58E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-S/T Third 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

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

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	Yes	9.77E-02	N/A	-2.33E+00	NO
MW373	Downgradient	Yes	2.81E+00	N/A	1.03E+00	NO
MW385	Sidegradient	Yes	7.67E-02	N/A	-2.57E+00	NO
MW388	Downgradient	Yes	3.46E-02	N/A	-3.36E+00	NO
MW392	Downgradient	Yes	2.11E-02	N/A	-3.86E+00	NO
MW395	Upgradient	Yes	1.95E-02	N/A	-3.94E+00	NO
MW397	Upgradient	Yes	7.83E-03	N/A	-4.85E+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.*

C-746-S/T Third Quarter 2024 Statistical Analysis Historical Background Comparison

Bromide UNITS: mg/L LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 1.000	**S=** 0.000	**CV(1)=** 0.000	**K factor**=** 2.523	**TL(1)=** 1.00E+00	**LL(1)=** N/A
Statistics-Transformed Background Data	**X=** 0.000	**S=** 0.000	**CV(2)=** #Num!	**K factor**=** 2.523	**TL(2)=** 0.00E+00	**LL(2)=** N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number: 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

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	5.46E-01	NO	-6.05E-01	N/A
MW373	Downgradient	Yes	4.64E-01	NO	-7.68E-01	N/A
MW385	Sidegradient	Yes	2.15E-01	NO	-1.54E+00	N/A
MW388	Downgradient	Yes	4.29E-01	NO	-8.46E-01	N/A
MW392	Downgradient	Yes	5.25E-01	NO	-6.44E-01	N/A
MW395	Upgradient	Yes	6.22E-01	NO	-4.75E-01	N/A
MW397	Upgradient	Yes	3.70E-01	NO	-9.94E-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.*

C-746-S/T Third 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

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

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	2.90E+01	NO	3.37E+00	N/A
MW373	Downgradient	Yes	8.59E+01	YES	4.45E+00	N/A
MW385	Sidegradient	Yes	2.41E+01	NO	3.18E+00	N/A
MW388	Downgradient	Yes	2.93E+01	NO	3.38E+00	N/A
MW392	Downgradient	Yes	2.27E+01	NO	3.12E+00	N/A
MW395	Upgradient	Yes	2.69E+01	NO	3.29E+00	N/A
MW397	Upgradient	Yes	1.84E+01	NO	2.91E+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

The test well(s) listed exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to historical background data.

Wells with Exceedances

MW373

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-S/T Third Quarter 2024 Statistical Analysis Historical Background Comparison

Chemical Oxygen Demand (COD) UNITS: mg/L LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 35.313	**S=** 1.250	**CV(1)=** 0.035	**K factor**=** 2.523	**TL(1)=** 3.85E+01	**LL(1)=**N/A
Statistics-Transformed Background Data	**X=** 3.564	**S=** 0.033	**CV(2)=** 0.009	**K factor**=** 2.523	**TL(2)=** 3.65E+00	**LL(2)=**N/A

Historical Background Data from Upgradient Wells with Transformed Result

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

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	No	2.00E+01	N/A	3.00E+00	N/A
MW373	Downgradient	Yes	1.29E+01	NO	2.56E+00	N/A
MW385	Sidegradient	No	2.00E+01	N/A	3.00E+00	N/A
MW388	Downgradient	No	2.00E+01	N/A	3.00E+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.*

C-746-S/T Third 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

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

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	4.20E+01	NO	3.74E+00	N/A
MW373	Downgradient	Yes	2.97E+01	NO	3.39E+00	N/A
MW385	Sidegradient	No	2.09E+01	N/A	3.04E+00	N/A
MW388	Downgradient	Yes	3.32E+01	NO	3.50E+00	N/A
MW392	Downgradient	No	4.16E+01	N/A	3.73E+00	N/A
MW395	Upgradient	Yes	2.28E+01	NO	3.13E+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 = [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 Third Quarter 2024 Statistical Analysis Historical Background Comparison

cis-1,2-Dichloroethene UNITS: ug/L LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 5.000	**S=** 0.000	**CV(1)=** 0.000	**K factor**=** 2.523	**TL(1)=** 5.00E+00	**LL(1)=**N/A
Statistics-Transformed Background Data	**X=** 1.609	**S=** 0.000	**CV(2)=** 0.000	**K factor**=** 2.523	**TL(2)=** 1.61E+00	**LL(2)=**N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW395	
Date Collected	Result	LN(Result)
8/13/2002	5.00E+00	1.61E+00
9/30/2002	5.00E+00	1.61E+00
10/16/2002	5.00E+00	1.61E+00
1/13/2003	5.00E+00	1.61E+00
4/10/2003	5.00E+00	1.61E+00
7/16/2003	5.00E+00	1.61E+00
10/14/2003	5.00E+00	1.61E+00
1/13/2004	5.00E+00	1.61E+00

Well Number:	MW397	
Date Collected	Result	LN(Result)
8/13/2002	5.00E+00	1.61E+00
9/30/2002	5.00E+00	1.61E+00
10/17/2002	5.00E+00	1.61E+00
1/13/2003	5.00E+00	1.61E+00
4/8/2003	5.00E+00	1.61E+00
7/16/2003	5.00E+00	1.61E+00
10/14/2003	5.00E+00	1.61E+00
1/13/2004	5.00E+00	1.61E+00

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	No	1.00E+00	N/A	0.00E+00	N/A
MW373	Downgradient	No	1.00E+00	N/A	0.00E+00	N/A
MW385	Sidegradient	No	1.00E+00	N/A	0.00E+00	N/A
MW388	Downgradient	No	1.00E+00	N/A	0.00E+00	N/A
MW392	Downgradient	Yes	4.40E-01	NO	-8.21E-01	N/A
MW395	Upgradient	No	1.00E+00	N/A	0.00E+00	N/A
MW397	Upgradient	No	1.00E+00	N/A	0.00E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

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 Third 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

Because CV(1) is greater than 1, the natural logarithm of background and test well results were calculated utilizing TL(2) for comparison.

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	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	Yes	3.55E-04	N/A	-7.94E+00	NO
MW373	Downgradient	No	1.00E-03	N/A	-6.91E+00	N/A
MW385	Sidegradient	Yes	4.61E-04	N/A	-7.68E+00	NO
MW388	Downgradient	No	1.00E-03	N/A	-6.91E+00	N/A
MW392	Downgradient	Yes	3.13E-04	N/A	-8.07E+00	NO
MW395	Upgradient	No	1.00E-03	N/A	-6.91E+00	N/A
MW397	Upgradient	No	1.00E-03	N/A	-6.91E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

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 Third 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

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

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	4.39E+02	NO	6.08E+00	N/A
MW373	Downgradient	Yes	9.43E+02	YES	6.85E+00	N/A
MW385	Sidegradient	Yes	4.10E+02	NO	6.02E+00	N/A
MW388	Downgradient	Yes	4.66E+02	NO	6.14E+00	N/A
MW392	Downgradient	Yes	3.29E+02	NO	5.80E+00	N/A
MW395	Upgradient	Yes	3.91E+02	NO	5.97E+00	N/A
MW397	Upgradient	Yes	3.18E+02	NO	5.76E+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

The test well(s) listed exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to historical background data.

Wells with Exceedances

MW373

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-S/T Third 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

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

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	1.11E-03	NO	-6.80E+00	N/A
MW373	Downgradient	Yes	1.19E-03	NO	-6.73E+00	N/A
MW385	Sidegradient	Yes	1.11E-03	NO	-6.80E+00	N/A
MW388	Downgradient	Yes	9.81E-04	NO	-6.93E+00	N/A
MW392	Downgradient	Yes	9.56E-04	NO	-6.95E+00	N/A
MW395	Upgradient	Yes	9.44E-04	NO	-6.97E+00	N/A
MW397	Upgradient	Yes	9.20E-04	NO	-6.99E+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

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 Third 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

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

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	4.22E+00	NO	1.44E+00	N/A
MW373	Downgradient	Yes	1.14E+00	NO	1.31E-01	N/A
MW385	Sidegradient	Yes	1.79E+00	NO	5.82E-01	N/A
MW388	Downgradient	Yes	4.38E+00	NO	1.48E+00	N/A
MW392	Downgradient	Yes	1.87E+00	NO	6.26E-01	N/A
MW395	Upgradient	Yes	3.50E+00	NO	1.25E+00	N/A
MW397	Upgradient	Yes	6.17E+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 Third 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

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

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	2.47E+02	NO	5.51E+00	N/A
MW373	Downgradient	Yes	5.85E+02	YES	6.37E+00	N/A
MW385	Sidegradient	Yes	2.01E+02	NO	5.30E+00	N/A
MW388	Downgradient	Yes	2.48E+02	NO	5.51E+00	N/A
MW392	Downgradient	Yes	1.72E+02	NO	5.15E+00	N/A
MW395	Upgradient	Yes	2.14E+02	NO	5.37E+00	N/A
MW397	Upgradient	Yes	1.60E+02	NO	5.08E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

The test well(s) listed exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to historical background data.

Wells with Exceedances

MW373

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-S/T Third 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	1.70E+00	N/A	5.31E-01	NO
MW373	Downgradient	Yes	8.49E-02	N/A	-2.47E+00	NO
MW385	Sidegradient	Yes	3.81E-02	N/A	-3.27E+00	NO
MW388	Downgradient	Yes	2.51E-01	N/A	-1.38E+00	NO
MW392	Downgradient	Yes	2.02E-01	N/A	-1.60E+00	NO
MW395	Upgradient	Yes	9.13E-02	N/A	-2.39E+00	NO
MW397	Upgradient	Yes	5.60E-01	N/A	-5.80E-01	NO

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-S/T Third 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

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

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	1.21E+01	NO	2.49E+00	N/A
MW373	Downgradient	Yes	2.91E+01	YES	3.37E+00	N/A
MW385	Sidegradient	Yes	9.36E+00	NO	2.24E+00	N/A
MW388	Downgradient	Yes	1.32E+01	NO	2.58E+00	N/A
MW392	Downgradient	Yes	9.70E+00	NO	2.27E+00	N/A
MW395	Upgradient	Yes	1.13E+01	NO	2.42E+00	N/A
MW397	Upgradient	Yes	7.52E+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 = [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 Third 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

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

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	Yes	5.87E-02	N/A	-2.84E+00	NO
MW373	Downgradient	Yes	3.56E-02	N/A	-3.34E+00	NO
MW385	Sidegradient	Yes	2.91E-03	N/A	-5.84E+00	NO
MW388	Downgradient	Yes	3.73E-03	N/A	-5.59E+00	NO
MW392	Downgradient	Yes	1.98E-01	N/A	-1.62E+00	NO
MW395	Upgradient	Yes	3.61E-03	N/A	-5.62E+00	NO
MW397	Upgradient	Yes	1.02E-02	N/A	-4.59E+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 Third Quarter 2024 Statistical Analysis Historical Background Comparison

Methylene chloride UNITS: ug/L LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 5.625	**S=** 3.074	**CV(1)=** 0.547	**K factor**=** 2.523	**TL(1)=** 1.34E+01	**LL(1)=**N/A
Statistics-Transformed Background Data	**X=** 1.614	**S=** 0.483	**CV(2)=** 0.300	**K factor**=** 2.523	**TL(2)=** 2.83E+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	1.40E+01	2.64E+00
9/30/2002	2.00E+00	6.93E-01
10/16/2002	5.00E+00	1.61E+00
1/13/2003	5.00E+00	1.61E+00
4/10/2003	5.00E+00	1.61E+00
7/16/2003	5.00E+00	1.61E+00
10/14/2003	5.00E+00	1.61E+00
1/13/2004	5.00E+00	1.61E+00

Well Number:	MW397	
Date Collected	Result	LN(Result)
8/13/2002	1.20E+01	2.48E+00
9/30/2002	2.00E+00	6.93E-01
10/17/2002	5.00E+00	1.61E+00
1/13/2003	5.00E+00	1.61E+00
4/8/2003	5.00E+00	1.61E+00
7/16/2003	5.00E+00	1.61E+00
10/14/2003	5.00E+00	1.61E+00
1/13/2004	5.00E+00	1.61E+00

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	No	5.00E+00	N/A	1.61E+00	N/A
MW373	Downgradient	No	5.00E+00	N/A	1.61E+00	N/A
MW385	Sidegradient	No	5.00E+00	N/A	1.61E+00	N/A
MW388	Downgradient	No	5.00E+00	N/A	1.61E+00	N/A
MW392	Downgradient	No	5.00E+00	N/A	1.61E+00	N/A
MW395	Upgradient	No	5.00E+00	N/A	1.61E+00	N/A
MW397	Upgradient	Yes	6.90E-01	NO	-3.71E-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 Third 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

Because CV(1) is greater than 1, the natural logarithm of background and test well results were calculated utilizing TL(2) for comparison.

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

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW370	Downgradient	No	2.85E-04	N/A	-8.16E+00	N/A
MW373	Downgradient	Yes	3.83E-04	N/A	-7.87E+00	NO
MW385	Sidegradient	Yes	2.25E-04	N/A	-8.40E+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.*

C-746-S/T Third 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

Because CV(1) is greater than 1, the natural logarithm of background and test well results were calculated utilizing TL(2) for comparison.

Historical Background Data from Upgradient Wells with Transformed Result

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	Yes	9.38E-04	N/A	-6.97E+00	NO
MW373	Downgradient	Yes	1.40E-03	N/A	-6.57E+00	NO
MW385	Sidegradient	Yes	1.10E-03	N/A	-6.81E+00	NO
MW388	Downgradient	Yes	7.74E-04	N/A	-7.16E+00	NO
MW392	Downgradient	Yes	2.23E-03	N/A	-6.11E+00	NO
MW395	Upgradient	No	2.00E-03	N/A	-6.21E+00	N/A
MW397	Upgradient	Yes	8.75E-04	N/A	-7.04E+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 Third 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

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

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	4.64E+02	YES	6.14E+00	N/A
MW373	Downgradient	Yes	4.37E+02	YES	6.08E+00	N/A
MW385	Sidegradient	Yes	3.90E+02	YES	5.97E+00	N/A
MW388	Downgradient	Yes	3.96E+02	YES	5.98E+00	N/A
MW392	Downgradient	Yes	3.68E+02	YES	5.91E+00	N/A
MW395	Upgradient	Yes	3.93E+02	YES	5.97E+00	N/A
MW397	Upgradient	Yes	3.97E+02	YES	5.98E+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 = [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 Third 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

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

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)?
MW370	Downgradient	Yes	6.06E+00	NO	1.80E+00	N/A
MW373	Downgradient	Yes	6.04E+00	NO	1.80E+00	N/A
MW385	Sidegradient	Yes	6.32E+00	NO	1.84E+00	N/A
MW388	Downgradient	Yes	5.99E+00	NO	1.79E+00	N/A
MW392	Downgradient	Yes	5.97E+00	NO	1.79E+00	N/A
MW395	Upgradient	Yes	6.09E+00	NO	1.81E+00	N/A
MW397	Upgradient	Yes	5.95E+00	NO	1.78E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

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 Third Quarter 2024 Statistical Analysis Historical Background Comparison

Potassium UNITS: mg/L LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 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

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

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	2.36E+00	NO	8.59E-01	N/A
MW373	Downgradient	Yes	2.67E+00	NO	9.82E-01	N/A
MW385	Sidegradient	Yes	1.52E+00	NO	4.19E-01	N/A
MW388	Downgradient	Yes	1.80E+00	NO	5.88E-01	N/A
MW392	Downgradient	Yes	2.03E+00	NO	7.08E-01	N/A
MW395	Upgradient	Yes	1.55E+00	NO	4.38E-01	N/A
MW397	Upgradient	Yes	1.77E+00	NO	5.71E-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 Third Quarter 2024 Statistical Analysis Historical Background Comparison

Radium-226 UNITS: pC/L LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 0.039	**S=** 0.419	**CV(1)=** 10.740	**K factor**=** 2.523	**TL(1)=** 1.10E+00	**LL(1)=**N/A
Statistics-Transformed Background Data	**X=** -1.695	**S=** 1.043	**CV(2)=** -0.615	**K factor**=** 2.523	**TL(2)=** -4.14E-01	**LL(2)=**N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW395	
Date Collected	Result	LN(Result)
10/16/2002	6.61E-01	-4.14E-01
1/13/2003	-8.39E-01	#Func!
10/14/2003	2.66E-02	-3.63E+00
1/13/2004	-7.77E-02	#Func!
4/12/2004	-1.15E-01	#Func!
7/20/2004	1.05E-01	-2.25E+00
10/12/2004	4.08E-01	-8.96E-01
1/18/2005	5.64E-02	-2.88E+00

Well Number:	MW397	
Date Collected	Result	LN(Result)
10/17/2002	5.76E-01	-5.52E-01
1/13/2003	-8.41E-01	#Func!
10/14/2003	-1.79E-01	#Func!
1/13/2004	-5.64E-02	#Func!
4/12/2004	1.74E-01	-1.75E+00
7/21/2004	2.27E-01	-1.48E+00
10/12/2004	3.79E-01	-9.70E-01
1/20/2005	1.19E-01	-2.13E+00

Because CV(1) is greater than 1, the natural logarithm of background and test well results were calculated utilizing TL(2) for comparison.

#Because the natural log was not possible for all background values, the TL was considered equal to the maximum background value.

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW370	Downgradient	No	6.83E-01	N/A	-3.81E-01	N/A
MW373	Downgradient	No	5.29E-01	N/A	-6.37E-01	N/A
MW385	Sidegradient	No	4.57E-01	N/A	-7.83E-01	N/A
MW388	Downgradient	Yes	1.85E+00	N/A	6.15E-01	YES
MW392	Downgradient	No	3.13E-01	N/A	-1.16E+00	N/A
MW395	Upgradient	No	4.93E-01	N/A	-7.07E-01	N/A
MW397	Upgradient	Yes	8.86E-01	N/A	-1.21E-01	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

MW388
MW397

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-S/T Third 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

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

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	4.19E+01	NO	3.74E+00	N/A
MW373	Downgradient	Yes	7.14E+01	YES	4.27E+00	N/A
MW385	Sidegradient	Yes	4.19E+01	NO	3.74E+00	N/A
MW388	Downgradient	Yes	4.82E+01	NO	3.88E+00	N/A
MW392	Downgradient	Yes	2.35E+01	NO	3.16E+00	N/A
MW395	Upgradient	Yes	3.08E+01	NO	3.43E+00	N/A
MW397	Upgradient	Yes	3.23E+01	NO	3.48E+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

The test well(s) listed exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to historical background data.

Wells with Exceedances

MW373

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-S/T Third 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

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

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	2.08E+01	YES	3.03E+00	N/A
MW373	Downgradient	Yes	2.13E+02	YES	5.36E+00	N/A
MW385	Sidegradient	Yes	1.92E+01	YES	2.95E+00	N/A
MW388	Downgradient	Yes	2.06E+01	YES	3.03E+00	N/A
MW392	Downgradient	Yes	7.73E+00	NO	2.05E+00	N/A
MW395	Upgradient	Yes	1.11E+01	NO	2.41E+00	N/A
MW397	Upgradient	Yes	1.18E+01	NO	2.47E+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 = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

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Technetium-99 UNITS: pC/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	No	-4.19E+00	N/A	#Error	N/A
MW373	Downgradient	No	-8.77E+00	N/A	#Error	N/A
MW385	Sidegradient	Yes	4.59E+01	YES	3.83E+00	N/A
MW388	Downgradient	No	2.57E+00	N/A	9.44E-01	N/A
MW392	Downgradient	No	6.64E-01	N/A	-4.09E-01	N/A
MW395	Upgradient	No	3.05E+00	N/A	1.12E+00	N/A
MW397	Upgradient	No	9.13E+00	N/A	2.21E+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

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 = [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 Third 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

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

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	7.98E-01	NO	-2.26E-01	N/A
MW373	Downgradient	Yes	1.14E+00	NO	1.31E-01	N/A
MW385	Sidegradient	Yes	6.97E-01	NO	-3.61E-01	N/A
MW388	Downgradient	Yes	9.08E-01	NO	-9.65E-02	N/A
MW392	Downgradient	Yes	5.10E-01	NO	-6.73E-01	N/A
MW395	Upgradient	Yes	5.73E-01	NO	-5.57E-01	N/A
MW397	Upgradient	Yes	5.36E-01	NO	-6.24E-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 Third 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

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

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	1.11E+01	NO	2.41E+00	N/A
MW373	Downgradient	Yes	3.66E+01	NO	3.60E+00	N/A
MW385	Sidegradient	Yes	1.65E+01	NO	2.80E+00	N/A
MW388	Downgradient	Yes	1.21E+01	NO	2.49E+00	N/A
MW392	Downgradient	Yes	8.76E+00	NO	2.17E+00	N/A
MW395	Upgradient	Yes	1.89E+01	NO	2.94E+00	N/A
MW397	Upgradient	Yes	5.00E+00	NO	1.61E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

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 Third Quarter 2024 Statistical Analysis Historical Background Comparison

Trichloroethene 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=** 7.313	**S=** 5.701	**CV(1)=** 0.780	**K factor**=** 2.523	**TL(1)=** 2.17E+01	**LL(1)=** N/A
Statistics-Transformed Background Data	**X=** 1.467	**S=** 1.213	**CV(2)=** 0.827	**K factor**=** 2.523	**TL(2)=** 4.53E+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	1.10E+01	2.40E+00
9/30/2002	1.40E+01	2.64E+00
10/16/2002	1.20E+01	2.48E+00
1/13/2003	1.40E+01	2.64E+00
4/10/2003	1.40E+01	2.64E+00
7/16/2003	1.30E+01	2.56E+00
10/14/2003	1.20E+01	2.48E+00
1/13/2004	1.10E+01	2.40E+00

Well Number: MW397

Date Collected	Result	LN(Result)
8/13/2002	5.00E+00	1.61E+00
9/30/2002	5.00E+00	1.61E+00
10/17/2002	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	2.10E+00	N/A	7.42E-01	N/A
MW373	Downgradient	Yes	2.54E+00	N/A	9.32E-01	N/A
MW385	Sidegradient	No	1.00E+00	N/A	0.00E+00	N/A
MW388	Downgradient	No	1.00E+00	N/A	0.00E+00	N/A
MW392	Downgradient	Yes	4.04E+00	N/A	1.40E+00	N/A
MW395	Upgradient	Yes	5.29E+00	NO	1.67E+00	N/A
MW397	Upgradient	No	1.00E+00	N/A	0.00E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

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 Third 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

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

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	3.77E-03	NO	-5.58E+00	N/A
MW373	Downgradient	No	2.00E-02	N/A	-3.91E+00	N/A
MW385	Sidegradient	No	2.00E-02	N/A	-3.91E+00	N/A
MW388	Downgradient	Yes	4.62E-03	NO	-5.38E+00	N/A
MW392	Downgradient	No	2.00E-02	N/A	-3.91E+00	N/A
MW395	Upgradient	No	2.00E-02	N/A	-3.91E+00	N/A
MW397	Upgradient	Yes	3.87E-03	NO	-5.55E+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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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 Third Quarter 2024 Statistical Analysis — Current Background Comparison

Oxidation-Reduction Potential — UNITS: mV — UCRS

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is statistically significant evidence of elevated concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 291.000	**S=** 58.275	**CV(1)=** 0.200	**K factor**=** 3.188	**TL(1)=** 4.77E+02	**LL(1)=** N/A
Statistics-Transformed Background Data	**X=** 5.656	**S=** 0.199	**CV(2)=** 0.035	**K factor**=** 3.188	**TL(2)=** 6.29E+00	**LL(2)=** N/A

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Background Data from Upgradient Wells with Transformed Result

Well Number: MW396

Date Collected	Result	LN(Result)
7/20/2022	3.83E+02	5.95E+00
10/17/2022	2.17E+02	5.38E+00
1/25/2023	2.40E+02	5.48E+00
4/27/2023	2.50E+02	5.52E+00
7/27/2023	3.15E+02	5.75E+00
10/18/2023	2.62E+02	5.57E+00
1/30/2024	3.08E+02	5.73E+00
4/16/2024	3.53E+02	5.87E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW386	Sidegradient	Yes	3.31E+02	NO	5.80E+00	N/A
MW390	Downgradient	Yes	4.79E+02	YES	6.17E+00	N/A
MW393	Downgradient	Yes	3.83E+02	NO	5.95E+00	N/A
MW396	Upgradient	Yes	3.73E+02	NO	5.92E+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 = [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 Third Quarter 2024 Statistical Analysis — Current Background Comparison

Radium-226 — 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=** 0.272	**S=** 0.209	**CV(1)=** 0.767	**K factor**=** 3.188	**TL(1)=** 9.38E-01	**LL(1)=**N/A
Statistics-Transformed Background Data	**X=** -1.605	**S=** 0.896	**CV(2)=** -0.559	**K factor**=** 3.188	**TL(2)=** 1.25E+00	**LL(2)=**N/A

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Background Data from Upgradient Wells with Transformed Result

Well Number: MW396

Date Collected	Result	LN(Result)
7/20/2022	1.89E-01	-1.67E+00
10/17/2022	3.89E-01	-9.44E-01
1/25/2023	4.09E-01	-8.94E-01
4/27/2023	4.36E-02	-3.13E+00
7/27/2023	1.33E-01	-2.02E+00
10/18/2023	8.92E-02	-2.42E+00
1/30/2024	6.73E-01	-3.96E-01
4/16/2024	2.54E-01	-1.37E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW390	Downgradient	Yes	7.71E-01	NO	-2.60E-01	N/A
MW396	Upgradient	Yes	9.94E-01	YES	-6.02E-03	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

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 = [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 Third 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=** 0.498	**S=** 6.694	**CV(1)=** 13.455	**K factor**=** 3.188	**TL(1)=** 2.18E+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)
7/20/2022	-1.59E+00	#Func!
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!

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)
MW390	Downgradient	Yes	5.74E+01	N/A	4.05E+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

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 = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

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Calcium — UNITS: mg/L — 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=** 24.500	**S=** 3.171	**CV(1)=** 0.129	**K factor**=** 2.523	**TL(1)=** 3.25E+01	**LL(1)=**N/A
Statistics-Transformed Background Data	**X=** 3.191	**S=** 0.133	**CV(2)=** 0.042	**K factor**=** 2.523	**TL(2)=** 3.53E+00	**LL(2)=**N/A

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Background Data from Upgradient Wells with Transformed Result

Well Number: MW220

Date Collected	Result	LN(Result)
7/18/2022	2.04E+01	3.02E+00
10/18/2022	2.05E+01	3.02E+00
1/23/2023	2.01E+01	3.00E+00
5/1/2023	2.82E+01	3.34E+00
7/28/2023	2.21E+01	3.10E+00
10/16/2023	2.16E+01	3.07E+00
1/29/2024	2.02E+01	3.01E+00
4/11/2024	2.33E+01	3.15E+00

Well Number: MW394

Date Collected	Result	LN(Result)
7/20/2022	2.61E+01	3.26E+00
10/17/2022	2.66E+01	3.28E+00
1/25/2023	2.69E+01	3.29E+00
4/27/2023	2.69E+01	3.29E+00
7/27/2023	2.65E+01	3.28E+00
10/17/2023	2.79E+01	3.33E+00
1/30/2024	2.68E+01	3.29E+00
4/16/2024	2.79E+01	3.33E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW372	Downgradient	Yes	6.59E+01	YES	4.19E+00	N/A

Conclusion of Statistical Analysis on Current Data

The test well(s) listed exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to current background data.

Wells with Exceedances

MW372

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

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Chemical Oxygen Demand (COD) UNITS: mg/L URGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is statistically significant evidence of elevated concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 23.481	**S=** 14.944	**CV(1)=** 0.636	**K factor**=** 2.523	**TL(1)=** 6.12E+01	**LL(1)=**N/A
Statistics-Transformed Background Data	**X=** 3.065	**S=** 0.367	**CV(2)=** 0.120	**K factor**=** 2.523	**TL(2)=** 3.99E+00	**LL(2)=**N/A

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Background Data from Upgradient Wells with Transformed Result

Well Number: MW220

Date Collected	Result	LN(Result)
7/18/2022	2.00E+01	3.00E+00
10/18/2022	1.30E+01	2.56E+00
1/23/2023	2.00E+01	3.00E+00
5/1/2023	2.00E+01	3.00E+00
7/31/2023	2.00E+01	3.00E+00
10/16/2023	2.00E+01	3.00E+00
1/29/2024	2.00E+01	3.00E+00
4/11/2024	2.00E+01	3.00E+00

Well Number: MW394

Date Collected	Result	LN(Result)
7/20/2022	2.00E+01	3.00E+00
10/17/2022	2.37E+01	3.17E+00
1/25/2023	2.00E+01	3.00E+00
4/27/2023	2.00E+01	3.00E+00
7/27/2023	2.00E+01	3.00E+00
10/17/2023	2.00E+01	3.00E+00
1/30/2024	2.00E+01	3.00E+00
4/16/2024	7.90E+01	4.37E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW387	Downgradient	Yes	4.21E+01	NO	3.74E+00	N/A

Conclusion of Statistical Analysis on Current Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from current background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

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Conductivity — UNITS: umho/cm — URGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is 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=** 379.875	**S=** 36.262	**CV(1)=** 0.095	**K factor**=** 2.523	**TL(1)=** 4.71E+02	**LL(1)=**N/A
Statistics-Transformed Background Data	**X=** 5.935	**S=** 0.098	**CV(2)=** 0.016	**K factor**=** 2.523	**TL(2)=** 6.18E+00	**LL(2)=**N/A

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Background Data from Upgradient Wells with Transformed Result

Well Number: MW220

Date Collected	Result	LN(Result)
7/18/2022	3.50E+02	5.86E+00
10/18/2022	3.32E+02	5.81E+00
1/23/2023	3.34E+02	5.81E+00
5/1/2023	4.20E+02	6.04E+00
7/31/2023	3.54E+02	5.87E+00
10/16/2023	3.23E+02	5.78E+00
1/29/2024	3.31E+02	5.80E+00
4/11/2024	3.78E+02	5.93E+00

Well Number: MW394

Date Collected	Result	LN(Result)
7/20/2022	3.87E+02	5.96E+00
10/17/2022	4.17E+02	6.03E+00
1/25/2023	4.04E+02	6.00E+00
4/27/2023	4.09E+02	6.01E+00
7/27/2023	4.15E+02	6.03E+00
10/17/2023	4.03E+02	6.00E+00
1/30/2024	4.07E+02	6.01E+00
4/16/2024	4.14E+02	6.03E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW372	Downgradient	Yes	7.49E+02	YES	6.62E+00	N/A

Conclusion of Statistical Analysis on Current Data

The test well(s) listed exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to current background data.

Wells with Exceedances

MW372

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

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Dissolved Solids — **UNITS: mg/L** — **URGA**

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is 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=** 185.813	**S=** 14.232	**CV(1)=** 0.077	**K factor**=** 2.523	**TL(1)=** 2.22E+02	**LL(1)=**N/A
Statistics-Transformed Background Data	**X=** 5.222	**S=** 0.079	**CV(2)=** 0.015	**K factor**=** 2.523	**TL(2)=** 5.42E+00	**LL(2)=**N/A

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Background Data from Upgradient Wells with Transformed Result

Well Number: MW220

Date Collected	Result	LN(Result)
7/18/2022	1.64E+02	5.10E+00
10/18/2022	1.79E+02	5.19E+00
1/23/2023	1.72E+02	5.15E+00
5/1/2023	2.02E+02	5.31E+00
7/31/2023	1.76E+02	5.17E+00
10/16/2023	1.58E+02	5.06E+00
1/29/2024	1.90E+02	5.25E+00
4/11/2024	1.98E+02	5.29E+00

Well Number: MW394

Date Collected	Result	LN(Result)
7/20/2022	1.93E+02	5.26E+00
10/17/2022	1.98E+02	5.29E+00
1/25/2023	1.84E+02	5.21E+00
4/27/2023	1.96E+02	5.28E+00
7/27/2023	2.01E+02	5.30E+00
10/17/2023	1.70E+02	5.14E+00
1/30/2024	2.00E+02	5.30E+00
4/16/2024	1.92E+02	5.26E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW372	Downgradient	Yes	4.96E+02	YES	6.21E+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

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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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=** 10.233	**S=** 1.421	**CV(1)=** 0.139	**K factor**=** 2.523	**TL(1)=** 1.38E+01	**LL(1)=**N/A
Statistics-Transformed Background Data	**X=** 2.316	**S=** 0.143	**CV(2)=** 0.062	**K factor**=** 2.523	**TL(2)=** 2.68E+00	**LL(2)=**N/A

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Background Data from Upgradient Wells with Transformed Result

Well Number: MW220

Date Collected	Result	LN(Result)
7/18/2022	8.67E+00	2.16E+00
10/18/2022	8.36E+00	2.12E+00
1/23/2023	8.28E+00	2.11E+00
5/1/2023	1.19E+01	2.48E+00
7/28/2023	8.97E+00	2.19E+00
10/16/2023	8.85E+00	2.18E+00
1/29/2024	8.23E+00	2.11E+00
4/11/2024	9.96E+00	2.30E+00

Well Number: MW394

Date Collected	Result	LN(Result)
7/20/2022	1.17E+01	2.46E+00
10/17/2022	1.12E+01	2.42E+00
1/25/2023	1.14E+01	2.43E+00
4/27/2023	1.13E+01	2.42E+00
7/27/2023	1.07E+01	2.37E+00
10/17/2023	1.16E+01	2.45E+00
1/30/2024	1.10E+01	2.40E+00
4/16/2024	1.16E+01	2.45E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW372	Downgradient	Yes	2.26E+01	YES	3.12E+00	N/A
MW387	Downgradient	Yes	1.63E+01	YES	2.79E+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 = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

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Oxidation-Reduction Potential — UNITS: mV — URGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is 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=** 431.375	**S=** 52.676	**CV(1)=** 0.122	**K factor**=** 2.523	**TL(1)=** 5.64E+02	**LL(1)=**N/A
Statistics-Transformed Background Data	**X=** 6.060	**S=** 0.124	**CV(2)=** 0.020	**K factor**=** 2.523	**TL(2)=** 6.37E+00	**LL(2)=**N/A

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Background Data from Upgradient Wells with Transformed Result

Well Number: MW220

Date Collected	Result	LN(Result)
7/18/2022	4.11E+02	6.02E+00
10/18/2022	3.98E+02	5.99E+00
1/23/2023	3.66E+02	5.90E+00
5/1/2023	4.77E+02	6.17E+00
7/31/2023	3.77E+02	5.93E+00
10/16/2023	4.06E+02	6.01E+00
1/29/2024	4.63E+02	6.14E+00
4/11/2024	3.66E+02	5.90E+00

Well Number: MW394

Date Collected	Result	LN(Result)
7/20/2022	4.87E+02	6.19E+00
10/17/2022	3.46E+02	5.85E+00
1/25/2023	4.69E+02	6.15E+00
4/27/2023	4.51E+02	6.11E+00
7/27/2023	4.94E+02	6.20E+00
10/17/2023	4.61E+02	6.13E+00
1/30/2024	5.18E+02	6.25E+00
4/16/2024	4.12E+02	6.02E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW221	Sidegradient	Yes	4.39E+02	NO	6.08E+00	N/A
MW223	Sidegradient	Yes	4.19E+02	NO	6.04E+00	N/A
MW369	Downgradient	Yes	4.62E+02	NO	6.14E+00	N/A
MW372	Downgradient	Yes	4.52E+02	NO	6.11E+00	N/A
MW384	Sidegradient	Yes	4.28E+02	NO	6.06E+00	N/A
MW387	Downgradient	Yes	4.13E+02	NO	6.02E+00	N/A
MW394	Upgradient	Yes	4.04E+02	NO	6.00E+00	N/A

Conclusion of Statistical Analysis on Current Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from current background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

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Radium-226 — 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=** 0.266	**S=** 0.197	**CV(1)=** 0.740	**K factor**=** 2.523	**TL(1)=** 7.62E-01	**LL(1)=**N/A
Statistics-Transformed Background Data	**X=** -1.316	**S=** 0.646	**CV(2)=** -0.491	**K factor**=** 2.523	**TL(2)=** -4.88E-01	**LL(2)=**N/A

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

#Because the natural log was not possible for all background values, the TL was considered equal to the maximum background value.

Current Background Data from Upgradient Wells with Transformed Result

Well Number: MW220

Date Collected	Result	LN(Result)
7/18/2022	3.34E-01	-1.10E+00
10/18/2022	2.70E-01	-1.31E+00
1/23/2023	2.40E-01	-1.43E+00
5/1/2023	3.24E-01	-1.13E+00
7/28/2023	5.51E-01	-5.96E-01
10/16/2023	5.31E-01	-6.33E-01
1/29/2024	1.75E-01	-1.74E+00
4/11/2024	3.34E-01	-1.10E+00

Well Number: MW394

Date Collected	Result	LN(Result)
7/20/2022	1.77E-01	-1.73E+00
10/17/2022	1.79E-01	-1.72E+00
1/25/2023	6.14E-01	-4.88E-01
4/27/2023	4.67E-02	-3.06E+00
7/27/2023	-1.02E-01	#Func!
10/17/2023	2.82E-01	-1.27E+00
1/30/2024	3.24E-01	-1.13E+00
4/16/2024	-2.39E-02	#Func!

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW221	Sidegradient	Yes	1.07E+00	YES	6.77E-02	N/A
MW384	Sidegradient	Yes	1.08E+00	YES	7.70E-02	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

MW221
MW384

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

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Sodium — **UNITS: mg/L** — **URGA**

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is statistically significant evidence of elevated concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 36.744	**S=** 5.260	**CV(1)=** 0.143	**K factor**=** 2.523	**TL(1)=** 5.00E+01	**LL(1)=**N/A
Statistics-Transformed Background Data	**X=** 3.596	**S=** 0.129	**CV(2)=** 0.036	**K factor**=** 2.523	**TL(2)=** 3.92E+00	**LL(2)=**N/A

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Background Data from Upgradient Wells with Transformed Result

Well Number: MW220

Date Collected	Result	LN(Result)
7/18/2022	3.81E+01	3.64E+00
10/18/2022	3.72E+01	3.62E+00
1/23/2023	3.77E+01	3.63E+00
5/1/2023	5.30E+01	3.97E+00
7/28/2023	3.85E+01	3.65E+00
10/16/2023	3.72E+01	3.62E+00
1/29/2024	3.58E+01	3.58E+00
4/11/2024	4.34E+01	3.77E+00

Well Number: MW394

Date Collected	Result	LN(Result)
7/20/2022	3.41E+01	3.53E+00
10/17/2022	3.37E+01	3.52E+00
1/25/2023	3.40E+01	3.53E+00
4/27/2023	3.32E+01	3.50E+00
7/27/2023	3.18E+01	3.46E+00
10/17/2023	3.45E+01	3.54E+00
1/30/2024	3.16E+01	3.45E+00
4/16/2024	3.41E+01	3.53E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW224	Sidegradient	Yes	5.83E+01	YES	4.07E+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

MW224

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the 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 Third Quarter 2024 Statistical Analysis — Current Background Comparison

Sulfate — **UNITS: mg/L** — **URGA**

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is statistically significant evidence of elevated concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 14.550	**S=** 2.971	**CV(1)=** 0.204	**K factor**=** 2.523	**TL(1)=** 2.20E+01	**LL(1)=**N/A
Statistics-Transformed Background Data	**X=** 2.659	**S=** 0.199	**CV(2)=** 0.075	**K factor**=** 2.523	**TL(2)=** 3.16E+00	**LL(2)=**N/A

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Background Data from Upgradient Wells with Transformed Result

Well Number: MW220

Date Collected	Result	LN(Result)
7/18/2022	1.85E+01	2.92E+00
10/18/2022	1.57E+01	2.75E+00
1/23/2023	1.64E+01	2.80E+00
5/1/2023	2.00E+01	3.00E+00
7/31/2023	1.78E+01	2.88E+00
10/16/2023	1.55E+01	2.74E+00
1/29/2024	1.47E+01	2.69E+00
4/11/2024	1.86E+01	2.92E+00

Well Number: MW394

Date Collected	Result	LN(Result)
7/20/2022	1.22E+01	2.50E+00
10/17/2022	1.21E+01	2.49E+00
1/25/2023	1.21E+01	2.49E+00
4/27/2023	1.17E+01	2.46E+00
7/27/2023	1.22E+01	2.50E+00
10/17/2023	1.17E+01	2.46E+00
1/30/2024	1.16E+01	2.45E+00
4/16/2024	1.20E+01	2.48E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW220	Upgradient	Yes	2.16E+01	NO	3.07E+00	N/A
MW224	Sidegradient	Yes	1.93E+01	NO	2.96E+00	N/A
MW372	Downgradient	Yes	1.64E+02	YES	5.10E+00	N/A
MW384	Sidegradient	Yes	1.79E+01	NO	2.88E+00	N/A
MW387	Downgradient	Yes	2.73E+01	YES	3.31E+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 = [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 Third Quarter 2024 Statistical Analysis 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=** 12.023	**S=** 6.651	**CV(1)=** 0.553	**K factor**=** 2.523	**TL(1)=** 2.88E+01	**LL(1)=**N/A
Statistics-Transformed Background Data	**X=** 2.262	**S=** 0.791	**CV(2)=** 0.350	**K factor**=** 2.523	**TL(2)=** 4.26E+00	**LL(2)=**N/A

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Background Data from Upgradient Wells with Transformed Result

Well Number: MW220

Date Collected	Result	LN(Result)
7/18/2022	1.92E+01	2.95E+00
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

Well Number: MW394

Date Collected	Result	LN(Result)
7/20/2022	6.73E+00	1.91E+00
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

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW369	Downgradient	Yes	4.27E+01	YES	3.75E+00	N/A
MW384	Sidegradient	Yes	4.76E+01	YES	3.86E+00	N/A
MW387	Downgradient	Yes	3.46E+01	YES	3.54E+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
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.*

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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=** 22.538	**S=** 4.440	**CV(1)=** 0.197	**K factor**=** 2.523	**TL(1)=** 3.37E+01	**LL(1)=**N/A
Statistics-Transformed Background Data	**X=** 3.097	**S=** 0.199	**CV(2)=** 0.064	**K factor**=** 2.523	**TL(2)=** 3.60E+00	**LL(2)=**N/A

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Background Data from Upgradient Wells with Transformed Result

Well Number: MW395

Date Collected	Result	LN(Result)
7/20/2022	2.49E+01	3.21E+00
10/17/2022	2.69E+01	3.29E+00
1/25/2023	2.69E+01	3.29E+00
4/27/2023	2.71E+01	3.30E+00
7/27/2023	2.62E+01	3.27E+00
10/18/2023	2.78E+01	3.33E+00
1/30/2024	2.66E+01	3.28E+00
4/16/2024	2.78E+01	3.33E+00

Well Number: MW397

Date Collected	Result	LN(Result)
7/18/2022	1.85E+01	2.92E+00
10/18/2022	1.87E+01	2.93E+00
1/23/2023	1.81E+01	2.90E+00
5/1/2023	1.87E+01	2.93E+00
7/27/2023	1.76E+01	2.87E+00
10/16/2023	1.86E+01	2.92E+00
1/30/2024	1.73E+01	2.85E+00
4/15/2024	1.89E+01	2.94E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW373	Downgradient	Yes	8.59E+01	YES	4.45E+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 = [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 Third Quarter 2024 Statistical Analysis — Current Background Comparison

Conductivity — UNITS: umho/cm — LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is statistically significant evidence of elevated concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 354.250	**S=** 37.925	**CV(1)=** 0.107	**K factor**=** 2.523	**TL(1)=** 4.50E+02	**LL(1)=**N/A
Statistics-Transformed Background Data	**X=** 5.865	**S=** 0.107	**CV(2)=** 0.018	**K factor**=** 2.523	**TL(2)=** 6.14E+00	**LL(2)=**N/A

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Background Data from Upgradient Wells with Transformed Result

Well Number: MW395

Date Collected	Result	LN(Result)
7/20/2022	3.80E+02	5.94E+00
10/17/2022	3.88E+02	5.96E+00
1/25/2023	3.93E+02	5.97E+00
4/27/2023	4.05E+02	6.00E+00
7/27/2023	3.85E+02	5.95E+00
10/18/2023	3.83E+02	5.95E+00
1/30/2024	3.88E+02	5.96E+00
4/16/2024	4.01E+02	5.99E+00

Well Number: MW397

Date Collected	Result	LN(Result)
7/18/2022	3.20E+02	5.77E+00
10/18/2022	3.24E+02	5.78E+00
1/23/2023	3.22E+02	5.77E+00
5/1/2023	3.20E+02	5.77E+00
7/27/2023	3.19E+02	5.77E+00
10/16/2023	3.09E+02	5.73E+00
1/30/2024	3.17E+02	5.76E+00
4/15/2024	3.14E+02	5.75E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW373	Downgradient	Yes	9.43E+02	YES	6.85E+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

MW373

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

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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=** 173.438	**S=** 22.885	**CV(1)=** 0.132	**K factor**=** 2.523	**TL(1)=** 2.31E+02	**LL(1)=**N/A
Statistics-Transformed Background Data	**X=** 5.147	**S=** 0.136	**CV(2)=** 0.026	**K factor**=** 2.523	**TL(2)=** 5.49E+00	**LL(2)=**N/A

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Background Data from Upgradient Wells with Transformed Result

Well Number: MW395

Date Collected	Result	LN(Result)
7/20/2022	1.99E+02	5.29E+00
10/17/2022	1.96E+02	5.28E+00
1/25/2023	1.80E+02	5.19E+00
4/27/2023	1.94E+02	5.27E+00
7/27/2023	1.88E+02	5.24E+00
10/18/2023	1.76E+02	5.17E+00
1/30/2024	2.07E+02	5.33E+00
4/16/2024	2.02E+02	5.31E+00

Well Number: MW397

Date Collected	Result	LN(Result)
7/18/2022	1.46E+02	4.98E+00
10/18/2022	1.57E+02	5.06E+00
1/23/2023	1.58E+02	5.06E+00
5/1/2023	1.28E+02	4.85E+00
7/27/2023	1.52E+02	5.02E+00
10/16/2023	1.65E+02	5.11E+00
1/30/2024	1.61E+02	5.08E+00
4/15/2024	1.66E+02	5.11E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW373	Downgradient	Yes	5.85E+02	YES	6.37E+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 = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

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Magnesium — **UNITS: mg/L** — **LRGA**

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is 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=** 9.436	**S=** 1.862	**CV(1)=** 0.197	**K factor**=** 2.523	**TL(1)=** 1.41E+01	**LL(1)=**N/A
Statistics-Transformed Background Data	**X=** 2.226	**S=** 0.200	**CV(2)=** 0.090	**K factor**=** 2.523	**TL(2)=** 2.73E+00	**LL(2)=**N/A

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Background Data from Upgradient Wells with Transformed Result

Well Number: MW395

Date Collected	Result	LN(Result)
7/20/2022	1.12E+01	2.42E+00
10/17/2022	1.13E+01	2.42E+00
1/25/2023	1.14E+01	2.43E+00
4/27/2023	1.14E+01	2.43E+00
7/27/2023	1.05E+01	2.35E+00
10/18/2023	1.15E+01	2.44E+00
1/30/2024	1.08E+01	2.38E+00
4/16/2024	1.16E+01	2.45E+00

Well Number: MW397

Date Collected	Result	LN(Result)
7/18/2022	7.71E+00	2.04E+00
10/18/2022	7.84E+00	2.06E+00
1/23/2023	7.66E+00	2.04E+00
5/1/2023	7.95E+00	2.07E+00
7/27/2023	7.07E+00	1.96E+00
10/16/2023	7.83E+00	2.06E+00
1/30/2024	7.49E+00	2.01E+00
4/15/2024	7.73E+00	2.05E+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 = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

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Oxidation-Reduction Potential — UNITS: mV — LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is 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=** 401.875	**S=** 84.687	**CV(1)=** 0.211	**K factor**=** 2.523	**TL(1)=** 6.16E+02	**LL(1)=**N/A
Statistics-Transformed Background Data	**X=** 5.971	**S=** 0.246	**CV(2)=** 0.041	**K factor**=** 2.523	**TL(2)=** 6.59E+00	**LL(2)=**N/A

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Background Data from Upgradient Wells with Transformed Result

Well Number: MW395

Date Collected	Result	LN(Result)
7/20/2022	4.25E+02	6.05E+00
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

Well Number: MW397

Date Collected	Result	LN(Result)
7/18/2022	4.15E+02	6.03E+00
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

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW370	Downgradient	Yes	4.64E+02	NO	6.14E+00	N/A
MW373	Downgradient	Yes	4.37E+02	NO	6.08E+00	N/A
MW385	Sidegradient	Yes	3.90E+02	NO	5.97E+00	N/A
MW388	Downgradient	Yes	3.96E+02	NO	5.98E+00	N/A
MW392	Downgradient	Yes	3.68E+02	NO	5.91E+00	N/A
MW395	Upgradient	Yes	3.93E+02	NO	5.97E+00	N/A
MW397	Upgradient	Yes	3.97E+02	NO	5.98E+00	N/A

Conclusion of Statistical Analysis on Current Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from current background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-S/T Third Quarter 2024 Statistical Analysis — Current Background Comparison

Radium-226 — UNITS: pCi/L — LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is statistically significant evidence of elevated concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 0.308	**S=** 0.207	**CV(1)=** 0.674	**K factor**=** 2.523	**TL(1)=** 8.31E-01	**LL(1)=**N/A
Statistics-Transformed Background Data	**X=** -1.150	**S=** 0.544	**CV(2)=** -0.473	**K factor**=** 2.523	**TL(2)=** -3.05E-01	**LL(2)=**N/A

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

#Because the natural log was not possible for all background values, the TL was considered equal to the maximum background value.

Current Background Data from Upgradient Wells with Transformed Result

Well Number: MW395

Date Collected	Result	LN(Result)
7/20/2022	4.22E-01	-8.63E-01
10/17/2022	3.06E-01	-1.18E+00
1/25/2023	3.49E-01	-1.05E+00
4/27/2023	2.36E-01	-1.44E+00
7/27/2023	3.24E-01	-1.13E+00
10/18/2023	3.33E-01	-1.10E+00
1/30/2024	3.26E-01	-1.12E+00
4/16/2024	7.37E-01	-3.05E-01

Well Number: MW397

Date Collected	Result	LN(Result)
7/18/2022	8.05E-02	-2.52E+00
10/18/2022	-3.26E-02	#Func!
1/23/2023	1.88E-01	-1.67E+00
5/1/2023	2.11E-01	-1.56E+00
7/27/2023	-4.09E-02	#Func!
10/16/2023	4.02E-01	-9.11E-01
1/30/2024	4.68E-01	-7.59E-01
4/15/2024	6.11E-01	-4.93E-01

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW388	Downgradient	Yes	1.85E+00	YES	6.15E-01	N/A
MW397	Upgradient	Yes	8.86E-01	YES	-1.21E-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

MW388
MW397

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-S/T Third 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=** 31.550	**S=** 1.791	**CV(1)=** 0.057	**K factor**=** 2.523	**TL(1)=** 3.61E+01	**LL(1)=**N/A
Statistics-Transformed Background Data	**X=** 3.450	**S=** 0.056	**CV(2)=** 0.016	**K factor**=** 2.523	**TL(2)=** 3.59E+00	**LL(2)=**N/A

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Background Data from Upgradient Wells with Transformed Result

Well Number: MW395

Date Collected	Result	LN(Result)
7/20/2022	3.09E+01	3.43E+00
10/17/2022	3.20E+01	3.47E+00
1/25/2023	3.24E+01	3.48E+00
4/27/2023	3.10E+01	3.43E+00
7/27/2023	2.85E+01	3.35E+00
10/18/2023	3.06E+01	3.42E+00
1/30/2024	2.92E+01	3.37E+00
4/16/2024	3.14E+01	3.45E+00

Well Number: MW397

Date Collected	Result	LN(Result)
7/18/2022	3.34E+01	3.51E+00
10/18/2022	3.32E+01	3.50E+00
1/23/2023	3.31E+01	3.50E+00
5/1/2023	3.57E+01	3.58E+00
7/27/2023	3.00E+01	3.40E+00
10/16/2023	3.15E+01	3.45E+00
1/30/2024	3.00E+01	3.40E+00
4/15/2024	3.19E+01	3.46E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW373	Downgradient	Yes	7.14E+01	YES	4.27E+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 = [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 Third 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=** 11.600	**S=** 0.356	**CV(1)=** 0.031	**K factor**=** 2.523	**TL(1)=** 1.25E+01	**LL(1)=**N/A
Statistics-Transformed Background Data	**X=** 2.451	**S=** 0.031	**CV(2)=** 0.013	**K factor**=** 2.523	**TL(2)=** 2.53E+00	**LL(2)=**N/A

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Background Data from Upgradient Wells with Transformed Result

Well Number: MW395

Date Collected	Result	LN(Result)
7/20/2022	1.19E+01	2.48E+00
10/17/2022	1.17E+01	2.46E+00
1/25/2023	1.17E+01	2.46E+00
4/27/2023	1.10E+01	2.40E+00
7/27/2023	1.15E+01	2.44E+00
10/18/2023	1.10E+01	2.40E+00
1/30/2024	1.12E+01	2.42E+00
4/16/2024	1.13E+01	2.42E+00

Well Number: MW397

Date Collected	Result	LN(Result)
7/18/2022	1.19E+01	2.48E+00
10/18/2022	1.14E+01	2.43E+00
1/23/2023	1.20E+01	2.48E+00
5/1/2023	1.21E+01	2.49E+00
7/27/2023	1.21E+01	2.49E+00
10/16/2023	1.15E+01	2.44E+00
1/30/2024	1.16E+01	2.45E+00
4/15/2024	1.17E+01	2.46E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW370	Downgradient	Yes	2.08E+01	YES	3.03E+00	N/A
MW373	Downgradient	Yes	2.13E+02	YES	5.36E+00	N/A
MW385	Sidegradient	Yes	1.92E+01	YES	2.95E+00	N/A
MW388	Downgradient	Yes	2.06E+01	YES	3.03E+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 = [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 Third 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=** 11.576	**S=** 7.648	**CV(1)=** 0.661	**K factor**=** 2.523	**TL(1)=** 3.09E+01	**LL(1)=**N/A
Statistics-Transformed Background Data	**X=** 2.211	**S=** 0.762	**CV(2)=** 0.345	**K factor**=** 2.523	**TL(2)=** 4.13E+00	**LL(2)=**N/A

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Background Data from Upgradient Wells with Transformed Result

Well Number: MW395

Date Collected	Result	LN(Result)
7/20/2022	1.11E+01	2.41E+00
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

Well Number: MW397

Date Collected	Result	LN(Result)
7/18/2022	1.04E+01	2.34E+00
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

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW385	Sidegradient	Yes	4.59E+01	YES	3.83E+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 = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

ATTACHMENT D3

STATISTICIAN QUALIFICATION STATEMENT

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FOUR RIVERS NUCLEAR PARTNERSHIP, LLC

Four Rivers Nuclear Partnership, LLC
5511 Hobbs Road
Kevil, KY 42053
www.fourriversnuclearpartnership.com

October 28, 2024

Mr. Dennis Greene
Four Rivers Nuclear Partnership, LLC
5511 Hobbs Road
Kevil, KY 42053

Dear Mr. Greene:

As an Environmental Scientist, with a bachelor's degree in Earth Sciences/Geology, I have over 30 years of experience in reviewing and assessing laboratory analytical results associated with environmental sampling and investigation activities. For the generation of these statistical analyses, my work was reviewed by a qualified independent technical reviewer with Four Rivers Nuclear Partnership, LLC.

For this project, the statistical analyses conducted on the third 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 third quarter 2024 and to determine the groundwater flow rate and direction.

Water levels during this reporting period were measured on July 23, 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 July, 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 1.99×10^{-4} ft/ft. Additional water level measurements in July (Figure E.3) document the vicinity groundwater hydraulic gradient for the RGA to be 3.13×10^{-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 July 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.

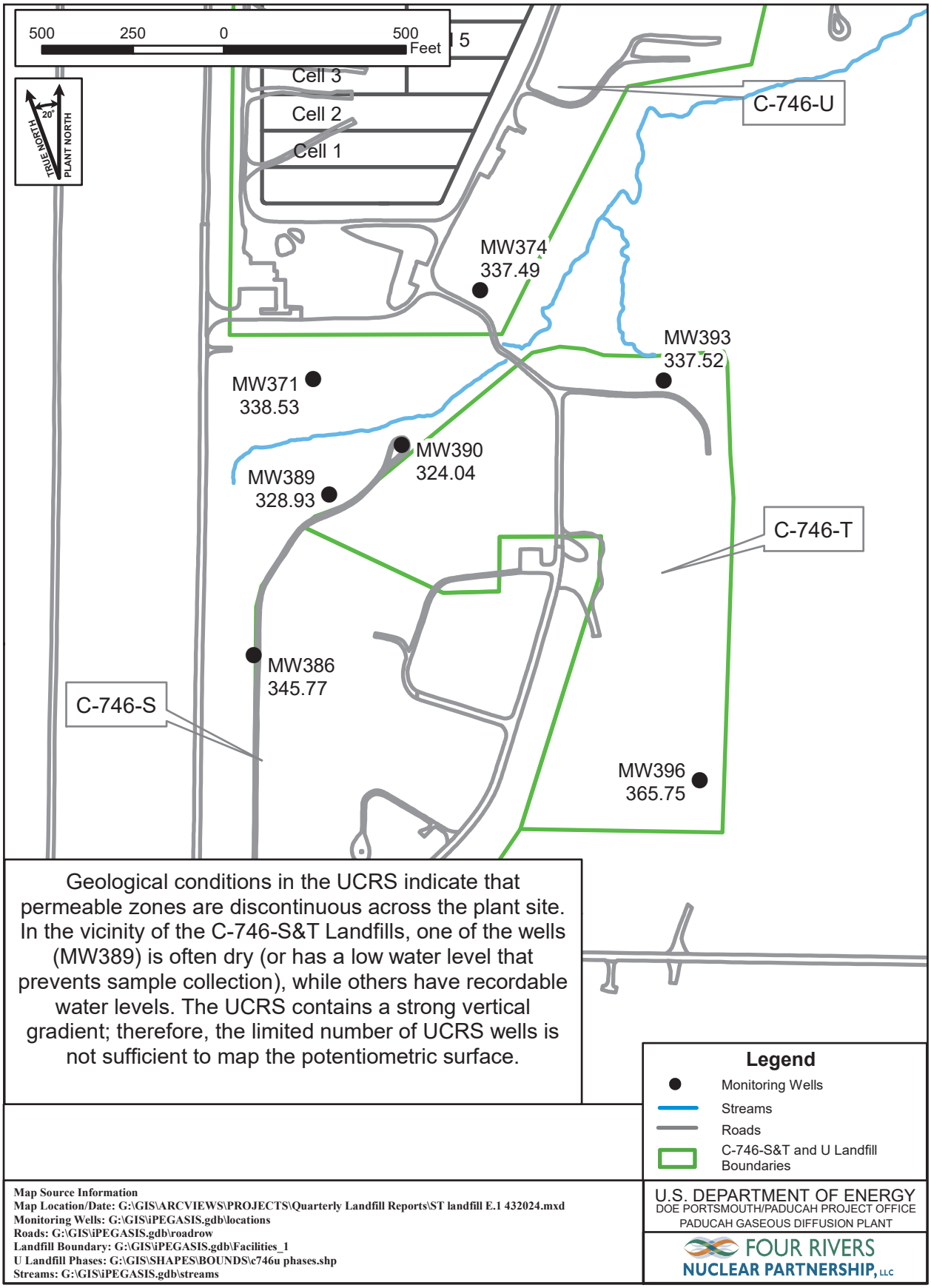

Figure E.1. Potentiometric Measurements of the Upper Continental Recharge System at the C-746-S&T Landfills, July 23, 2024

Table E.1. C-746-S&T Landfills Third Quarter 2024 (July) Water Levels

C-746-S&T Landfills (July 2024) Water Levels										
							Raw Data		*Corrected Data	
Date	Time	Well	Formation	Datum Elev (ft amsl)	BP (in Hg)	Delta BP (ft H20)	DTW (ft)	Elev (ft amsl)	DTW (ft)	Elev (ft amsl)
7/23/2024	8:31	MW220	URGA	382.01	30.05	0.00	57.84	324.17	57.84	324.17
7/23/2024	8:21	MW221	URGA	391.38	30.05	0.00	67.32	324.06	67.32	324.06
7/23/2024	8:25	MW222	URGA	395.27	30.05	0.00	71.26	324.01	71.26	324.01
7/23/2024	8:23	MW223	URGA	394.38	30.05	0.00	70.37	324.01	70.37	324.01
7/23/2024	8:28	MW224	URGA	395.69	30.05	0.00	71.60	324.09	71.60	324.09
7/23/2024	8:35	MW225	URGA	385.73	30.05	0.00	61.71	324.02	61.71	324.02
7/23/2024	10:07	MW353	LRGA	375.05	30.08	-0.03	50.90	324.15	50.87	324.18
7/23/2024	7:55	MW369	URGA	364.23	30.05	0.00	40.06	324.17	40.06	324.17
7/23/2024	7:57	MW370	LRGA	365.12	30.05	0.00	40.95	324.17	40.95	324.17
7/23/2024	7:56	MW371	UCRS	364.64	30.05	0.00	26.11	338.53	26.11	338.53
7/23/2024	7:43	MW372	URGA	359.42	30.04	0.01	35.26	324.16	35.27	324.15
7/23/2024	7:41	MW373	LRGA	359.73	30.04	0.01	35.58	324.15	35.59	324.14
7/23/2024	7:42	MW374	UCRS	359.44	30.04	0.01	21.94	337.50	21.95	337.49
7/23/2024	8:54	MW384	URGA	365.29	30.06	-0.01	41.15	324.14	41.14	324.15
7/23/2024	8:52	MW385	LRGA	365.74	30.05	0.00	41.54	324.20	41.54	324.20
7/23/2024	8:53	MW386	UCRS	365.32	30.06	-0.01	19.56	345.76	19.55	345.77
7/23/2024	8:49	MW387	URGA	363.48	30.05	0.00	39.37	324.11	39.37	324.11
7/23/2024	8:48	MW388	LRGA	363.45	30.05	0.00	39.34	324.11	39.34	324.11
7/23/2024	8:44	MW389	UCRS	364.11	30.05	0.00	35.18	328.93	35.18	328.93
7/23/2024	8:42	MW390	UCRS	360.39	30.05	0.00	36.35	324.04	36.35	324.04
7/23/2024	8:00	MW391	URGA	366.67	30.05	0.00	42.62	324.05	42.62	324.05
7/23/2024	8:03	MW392	LRGA	365.85	30.05	0.00	41.81	324.04	41.81	324.04
7/23/2024	8:02	MW393	UCRS	366.62	30.05	0.00	29.10	337.52	29.10	337.52
7/23/2024	8:10	MW394	URGA	378.46	30.05	0.00	54.29	324.17	54.29	324.17
7/23/2024	8:08	MW395	LRGA	379.12	30.05	0.00	54.98	324.14	54.98	324.14
7/23/2024	8:09	MW396	UCRS	378.75	30.05	0.00	13.00	365.75	13.00	365.75
7/23/2024	9:21	MW397	LRGA	387.00	30.06	-0.01	62.88	324.12	62.87	324.13
7/23/2024	8:17	MW418	URGA	367.21	30.05	0.00	43.07	324.14	43.07	324.14
7/23/2024	8:16	MW419	LRGA	367.05	30.05	0.00	42.91	324.14	42.91	324.14
Reference Barometric Pressure					**30.05**					

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

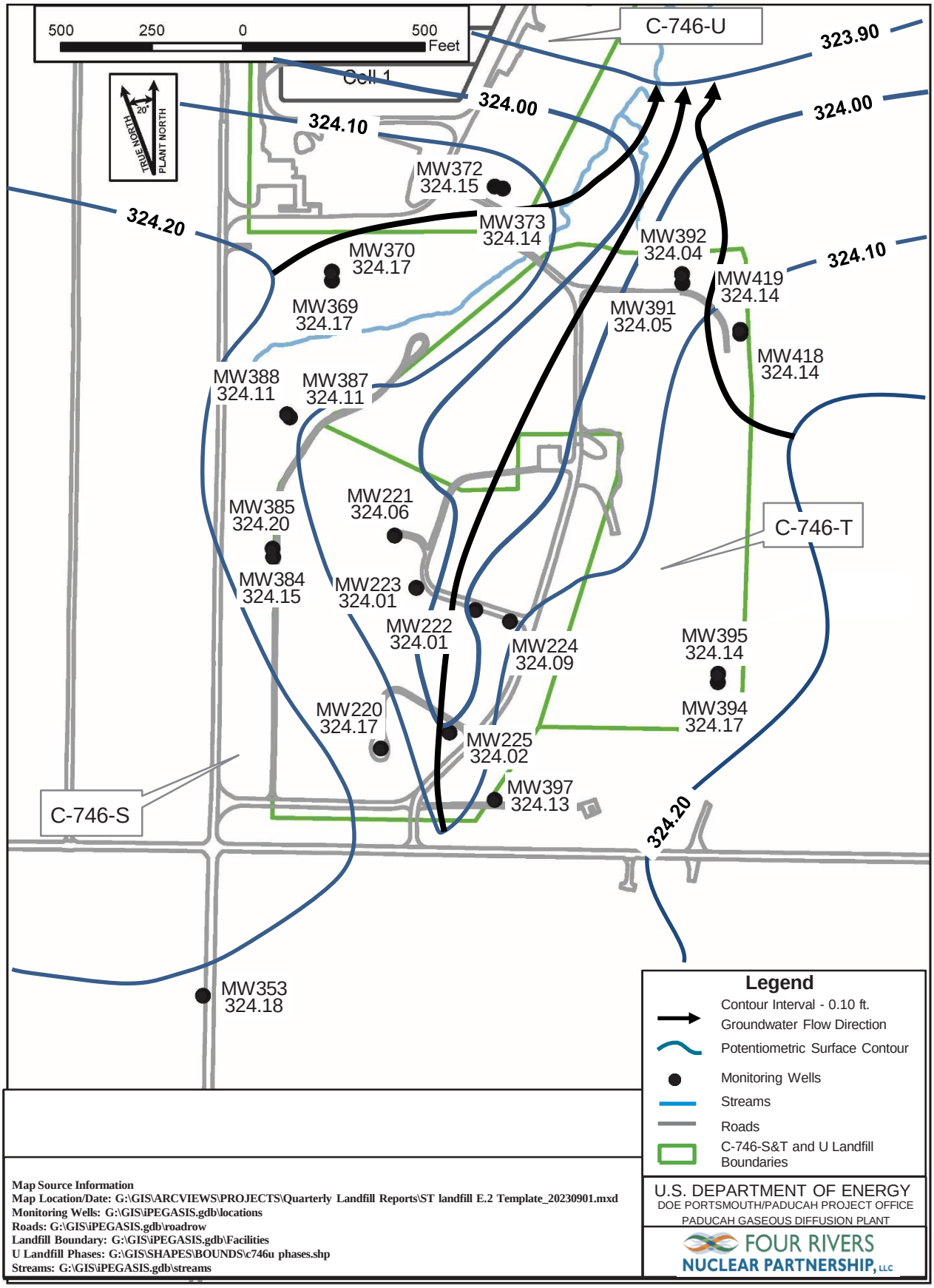

Figure E.2. Composite Potentiometric Surface of the Regional Gravel Aquifer at the C-746-S&T Landfills, July 23, 2024

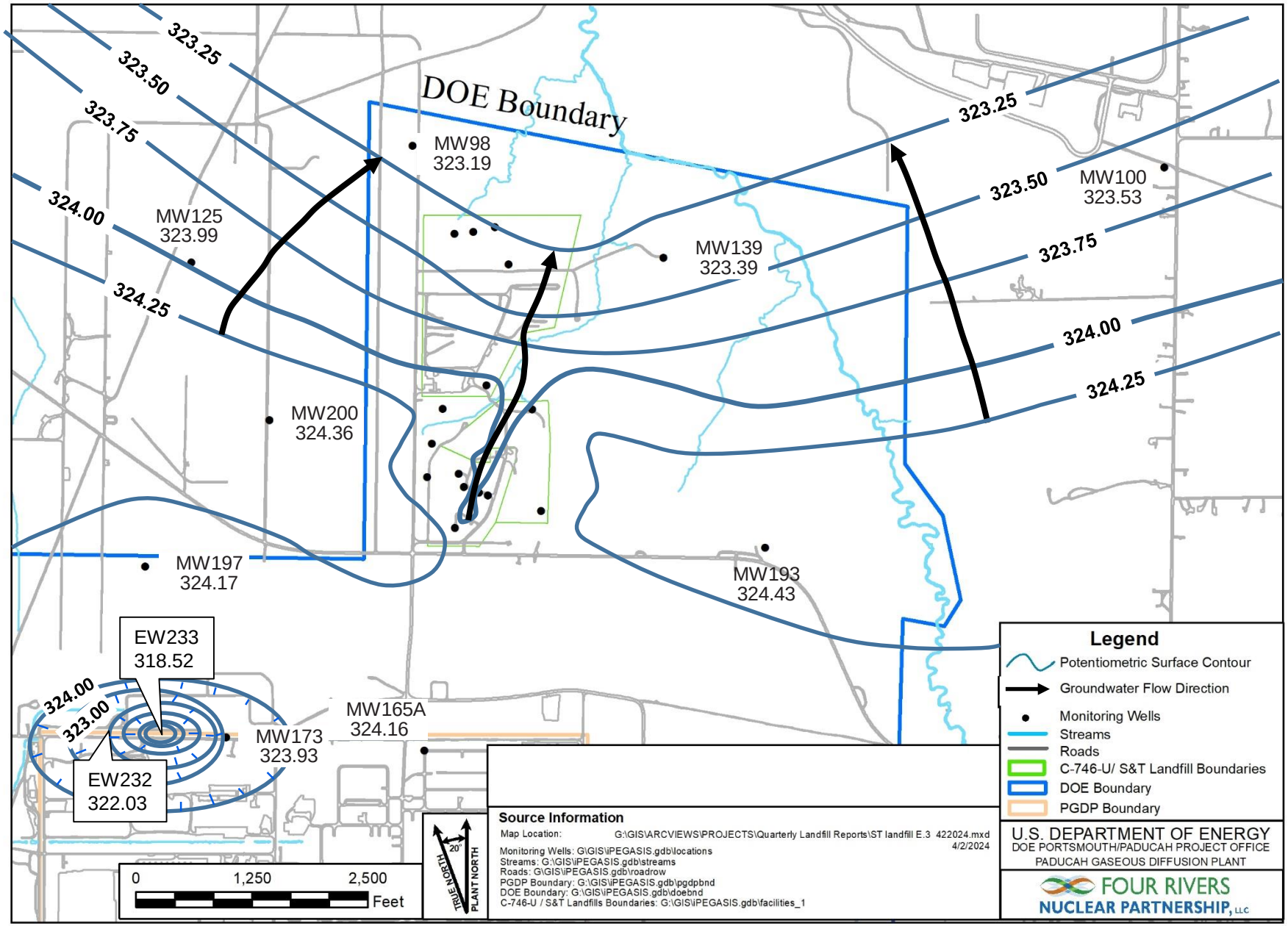

Figure E.3. Vicinity Potentiometric Surface of the Regional Gravel Aquifer, July 23, 2024

Table E.2. C-746-S&T Landfills Hydraulic Gradients

	ft/ft
Beneath Landfill Mound	1.99×10^{-4}
Vicinity	3.13×10^{-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
Beneath Landfill Mound					
7.25×10^{2}	2.56×10^{-1}	1.44×10^{-1}	5.09×10^{-5}	5.77×10^{-1}	2.04×10^{-4}
4.25×10^{2}	1.50×10^{-1}	8.46×10^{-2}	2.98×10^{-5}	3.38×10^{-1}	1.19×10^{-4}
Vicinity					
7.25×10^{2}	2.56×10^{-1}	2.27×10^{-1}	8.01×10^{-5}	9.07×10^{-1}	3.20×10^{-4}
4.25×10^{2}	1.50×10^{-1}	1.33×10^{-1}	4.69×10^{-5}	5.32×10^{-1}	1.88×10^{-4}

APPENDIX F

NOTIFICATIONS

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NOTIFICATIONS

In accordance with 401 *KAR* 48:300 § 7, the notification for parameters that 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 third 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.

	Parameter	**Monitoring Well**
Upper Continental Recharge System	Radium-226	MW390, MW396
	Technetium-99	MW390
Upper Regional Gravel Aquifer	Radium-226	MW221, MW384
	Sodium	MW224
	Technetium-99	MW369, MW384, MW387
Lower Regional Gravel Aquifer	Radium-226	MW388, MW397
	Sodium	MW373
	Technetium-99	MW385

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.

8/28/2024

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
8004-4801	MW395	Trichloroethene	8260D	5.29	ug/L	5

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 4, 2005			✱				✱				✱												
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Quarter 4, 2006			✱				✱																
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Quarter 1, 2020													✱										
BARIUM																							
Quarter 3, 2003							■	■															
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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			■	■													■			■			
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Quarter 1, 2005			■							■			■				■						
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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						
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 4, 2018										■		■	■					■		■			
Quarter 1, 2019										■			■				■	■		■			
Quarter 2, 2019										■	■		■				■	■		■			
Quarter 3, 2019										■	■	■	■				■	■					
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Quarter 2, 2020													■				■	■		■			
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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																							
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CARBON DISULFIDE																							
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CHEMICAL OXYGEN DEMAND																							
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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
CHEMICAL OXYGEN DEMAND																							
Quarter 3, 2008	*																						
Quarter 4, 2008	*																						
Quarter 1, 2009	*																						
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CHLORIDE																							
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Quarter 1, 2004			*																				
Quarter 2, 2004			*																				
Quarter 3, 2004			*																				
Quarter 4, 2004			*																				
Quarter 1, 2005			*																				
Quarter 2, 2005			*																				
Quarter 3, 2005			*																				
Quarter 4, 2005			*																				
Quarter 1, 2006																		*					
Quarter 2, 2006			*																				
Quarter 3, 2006			*																				
Quarter 4, 2006			*																				
Quarter 1, 2007			*																				
Quarter 2, 2007			*																				
Quarter 3, 2007			*																				
Quarter 4, 2007			*																				
Quarter 1, 2008			*																				
Quarter 2, 2008			*																				
Quarter 3, 2008			*																				
Quarter 4, 2008			*																				

Chart of MCL and Historical UTL Exceedances for the C-746-S&T Landfills (Continued)

Groundwater Flow System	UCRS					URGA											LRGA						
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												*							*				
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	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												*							*				
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						
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
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	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
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												*	*						*				
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	*		*	*	*	*		*		*	*	*	*			*	*	*	*	*	*	*	*
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	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
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									*										*				
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									*	*		*	*		*		*	*	*	*			
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			*							*	*		*				*						
THORIUM-230																							
Quarter 1, 2012	*								*					*									
Quarter 4, 2014	*		*																				
Quarter 3, 2015	*								*	*			*		*								
Quarter 1, 2017			*							*							*						
THORIUM-234																							
Quarter 2, 2003						*			*					*									
Quarter 4, 2007									*														
TOLUENE																							
Quarter 2, 2014										*	*		*										
TOTAL ORGANIC CARBON																							
Quarter 4, 2002																					*		
Quarter 1, 2003				*						*	*							*	*		*		
Quarter 2, 2003										*	*		*								*		
Quarter 3, 2003							*	*	*	*	*	*											
Quarter 4, 2003							*		*	*													
Quarter 1, 2004										*													
Quarter 2, 2004										*	*												
Quarter 3, 2004										*													
Quarter 4, 2004										*													
Quarter 1, 2005										*													
Quarter 2, 2005										*											*		
Quarter 3, 2005										*		*									*		
Quarter 4, 2005										*											*		
Quarter 1, 2006										*													
Quarter 2, 2006										*		*											
Quarter 4, 2006																	*						
Quarter 1, 2007	*									*													
Quarter 3, 2007	*					*	*	*	*	*			*	*			*						
Quarter 2, 2011											*												
Quarter 3, 2012	*																						
Quarter 3, 2016																			*				
TOTAL ORGANIC HALIDES																							
Quarter 4, 2002																		*	*		*		
Quarter 1, 2003				*														*			*		
Quarter 3, 2003				*																	*		
Quarter 2, 2004																					*		
Quarter 3, 2004	*																						
Quarter 1, 2005	*																						
Quarter 2, 2005	*																						
Quarter 3, 2005	*																						
Quarter 4, 2005	*																						
Quarter 1, 2006	*																						
Quarter 2, 2006	*																						
Quarter 3, 2006	*																						
Quarter 4, 2006																	*						
Quarter 1, 2007	*																						
Quarter 2, 2007	*																						
Quarter 3, 2007	*																						
Quarter 4, 2007	*																				*		
Quarter 1, 2008	*																						
Quarter 4, 2008	*																						
Quarter 4, 2008	*																						
Quarter 1, 2009	*																						
Quarter 2, 2009	*																				*		
Quarter 3, 2009	*																						
Quarter 4, 2009	*																						
Quarter 1, 2010	*																						
Quarter 2, 2010	*																						
Quarter 3, 2010	*																						

Chart of MCL and Historical UTL Exceedances for the C-746-S&T Landfills (Continued)

Groundwater Flow System	UCRS					URGA											LRGA						
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																					*		
TRICHLOROETHENE																							
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 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												■		■		■			■		■		

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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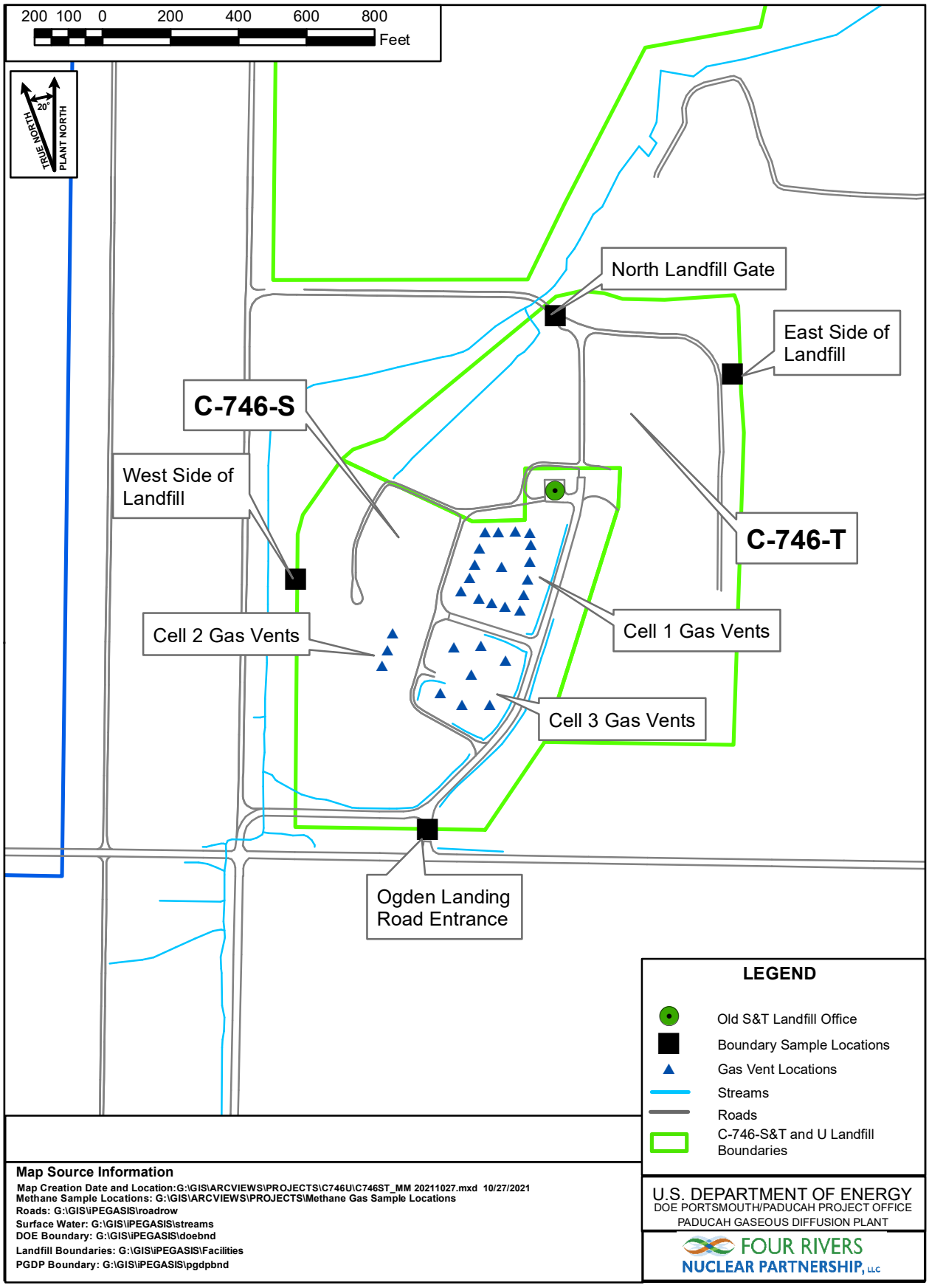

Figure H.1. C-746-S&T Landfill Methane Monitoring Locations

CP3-WM-0017-F03 - C-746-S & T LANDFILL METHANE MONITORING REPORT

Date:	August 20, 2024	Time:	0830	Monitor:	Michael Hideg

Weather Conditions: Mostly Sunny, Approximately 69° F, humidity: 68%

Monitoring Equipment: Multi RAE – Serial # 11881

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)	10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170	0
Cell 2 Gas Vent (3)	10 20 30	0
Cell 3 Gas Vent (7)	10 20 30 40 50 60 70	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: Michael Hideg 8.29.24

Signature Date

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:** 3rd Quarter 2024

SAMPLE ID: L135SS4-24 Sample Type: REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Chloride		2.47	mg/L	0.2	7/9/2024			EPA-300.0	X
Sulfate		3.44	mg/L	0.4	7/9/2024			EPA-300.0	X
Conductivity		115	µmhos/cm		7/9/2024				X
pH		7.13	Std Unit		7/9/2024				X
Iron		0.936	mg/L	0.1	7/9/2024			EPA-200.8	X
Sodium		2.62	mg/L	0.25	7/9/2024			EPA-200.8	X
Uranium		0.00161	mg/L	0.0002	7/9/2024			EPA-200.8	X
Alpha activity	U	-0.4	pCi/L	7.92	7/9/2024	3.53	3.53	SW846-9310	X
Beta activity		20.7	pCi/L	9.53	7/9/2024	7.4	8.13	SW846-9310	X
Dissolved Solids		118	mg/L	10	7/9/2024			EPA-160.1	X
Suspended Solids		22.4	mg/L	6.58	7/9/2024			EPA-160.2	X
Chemical Oxygen Demand (COD)		57.1	mg/L	20	7/9/2024			EPA-410.4	X
Total Solids		152	mg/L	10	7/9/2024			SM-2540B	X
Total Organic Carbon (TOC)		17.4	mg/L	2	7/9/2024			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:** 3rd Quarter 2024

SAMPLE ID: L136SS4-24 Sample Type: REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Chloride		1.42	mg/L	0.2	7/9/2024			EPA-300.0	X
Sulfate		4.83	mg/L	0.4	7/9/2024			EPA-300.0	X
Conductivity		190	µmhos/cm		7/9/2024				X
pH		7.38	Std Unit		7/9/2024				X
Iron		0.158	mg/L	0.1	7/9/2024			EPA-200.8	X
Sodium		0.939	mg/L	0.25	7/9/2024			EPA-200.8	X
Uranium		0.000341	mg/L	0.0002	7/9/2024			EPA-200.8	X
Alpha activity	U	4.35	pCi/L	6.32	7/9/2024	4.16	4.23	SW846-9310	X
Beta activity		12	pCi/L	8.95	7/9/2024	6.2	6.53	SW846-9310	X
Dissolved Solids		163	mg/L	10	7/9/2024			EPA-160.1	X
Suspended Solids		3	mg/L	2.5	7/9/2024			EPA-160.2	X
Chemical Oxygen Demand (COD)		78	mg/L	20	7/9/2024			EPA-410.4	X
Total Solids		179	mg/L	10	7/9/2024			SM-2540B	X
Total Organic Carbon (TOC)	H	22.2	mg/L	2	7/9/2024			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:** 3rd Quarter 2024

SAMPLE ID: L154US4-24 Sample Type: REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Chloride		1.93	mg/L	0.2	7/9/2024			EPA-300.0	X
Sulfate		3.22	mg/L	0.4	7/9/2024			EPA-300.0	X
Conductivity		121	µmhos/cm		7/9/2024				X
pH		7.3	Std Unit		7/9/2024				X
Iron		1.14	mg/L	0.1	7/9/2024			EPA-200.8	X
Sodium		1.79	mg/L	0.25	7/9/2024			EPA-200.8	X
Uranium		0.00152	mg/L	0.0002	7/9/2024			EPA-200.8	X
Alpha activity	U	3	pCi/L	7.37	7/9/2024	4.25	4.29	SW846-9310	X
Beta activity		23.6	pCi/L	8.96	7/9/2024	7.39	8.35	SW846-9310	X
Dissolved Solids		132	mg/L	10	7/9/2024			EPA-160.1	X
Suspended Solids		28.7	mg/L	5.56	7/9/2024			EPA-160.2	X
Chemical Oxygen Demand (COD)		78	mg/L	20	7/9/2024			EPA-410.4	X
Total Solids		159	mg/L	10	7/9/2024			SM-2540B	X
Total Organic Carbon (TOC)		22.6	mg/L	2	7/9/2024			SW846-9060A	X

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

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

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

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

ATTACHMENT I1

GEL LABORATORIES CERTIFICATE OF ANALYSIS

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

Certificate of Analysis

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

Kevil, Kentucky 42053 Report Date: October 30, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Surface Water Quarterly(SS24-04)

Client Sample ID: L135SS4-24
Sample ID: 674864001
Matrix: WS
Collect Date: 09-JUL-24
Receive Date: 10-JUL-24
Collector: Client

Project: FRNP00515
Client ID: FRNP005

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gas Flow Proportional Counting														
GFPC, Gross A/B, liquid "As Received"														
Alpha	U	-0.400	+/-3.53	7.92	+/-3.53	15.0	pCi/L			HH3	07/16/24	1206	2638857	1
Beta		20.7	+/-7.40	9.53	+/-8.13	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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Certificate of Analysis

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

Kevil, Kentucky 42053 Report Date: October 30, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Surface Water Quarterly(SS24-04)

Client Sample ID: L136SS4-24
Sample ID: 674864002
Matrix: WS
Collect Date: 09-JUL-24
Receive Date: 10-JUL-24
Collector: Client

Project: FRNP00515
Client ID: FRNP005

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gas Flow Proportional Counting														
GFPC, Gross A/B, liquid "As Received"														
Alpha	U	4.35	+/-4.16	6.32	+/-4.23	15.0	pCi/L			HH3	07/16/24	1206	2638857	1
Beta		12.0	+/-6.20	8.95	+/-6.53	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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Certificate of Analysis

Report Date: October 30, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Surface Water Quarterly(SS24-04)

Client Sample ID:	L135SS4-24	Project:	FRNP00515
Sample ID:	674864001	Client ID:	FRNP005
Matrix:	WS		
Collect Date:	09-JUL-24 09:41		
Receive Date:	10-JUL-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		17.4	0.330	2.00	mg/L		1	KB3	08/06/24	1710	2641341	1
Ion Chromatography												
EPA 300.0 Anions (Chloride and Sulfate) "As Received"												
Chloride		2.47	0.0670	0.200	mg/L		1	TXT1	07/13/24	1340	2640093	2
Sulfate		3.44	0.133	0.400	mg/L		1					
Metals Analysis-ICP-MS												
200.8/200.2 MIMICP Metals- Fe Na U "As Received"												
Iron		0.936	0.0330	0.100	mg/L	1.00	1	BAJ	07/26/24	1745	2638503	3
Sodium		2.62	0.0800	0.250	mg/L	1.00	1					
Uranium		0.00161	0.0000670	0.000200	mg/L	1.00	1					
Solids Analysis												
EPA 160.1 Solids, Dissolved "As Received"												
Total Dissolved Solids		118	2.38	10.0	mg/L			KLP1	07/15/24	1557	2640404	4
EPA 160.2 Total Suspended Liq "As Received"												
Total Suspended Solids		22.4	1.50	6.58	mg/L			AXH3	07/11/24	0759	2638784	5
SM 2540 B Solids, Total "As Received"												
Total Solids		152	6.29	10.0	mg/L			KLP1	07/15/24	1341	2640407	6
Spectrometric Analysis												
EPA 410.4 Chem. Oxygen Demand "As Received"												
COD		57.1	8.95	20.0	mg/L		1	JW2	07/10/24	1549	2638268	7

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	BB2	07/16/24	1545	2638502

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Certificate of Analysis

Report Date: October 30, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Surface Water Quarterly(SS24-04)

Client Sample ID:	L135SS4-24	Project:	FRNP00515
Sample ID:	674864001	Client ID:	FRNP005

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

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9060A	
2	EPA 300.0	
3	EPA 200.8	
4	EPA 160.1	
5	EPA 160.2	
6	SM 2540B	
7	EPA 410.4	

Notes:

Column headers are defined as follows:

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

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Report Date: October 30, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Surface Water Quarterly(SS24-04)

Client Sample ID:	L136SS4-24	Project:	FRNP00515
Sample ID:	674864002	Client ID:	FRNP005
Matrix:	WS		
Collect Date:	09-JUL-24 09:30		
Receive Date:	10-JUL-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	H	22.2	0.660	2.00	mg/L		2	KB3	08/07/24	1939	2641341	1
Ion Chromatography												
EPA 300.0 Anions (Chloride and Sulfate) "As Received"												
Chloride		1.42	0.0670	0.200	mg/L		1	TXT1	07/14/24	0316	2640093	2
Sulfate		4.83	0.133	0.400	mg/L		1					
Metals Analysis-ICP-MS												
200.8/200.2 MIMICP Metals- Fe Na U "As Received"												
Iron		0.158	0.0330	0.100	mg/L	1.00	1	BAJ	07/26/24	1748	2638503	3
Sodium		0.939	0.0800	0.250	mg/L	1.00	1					
Uranium		0.000341	0.0000670	0.000200	mg/L	1.00	1					
Solids Analysis												
EPA 160.1 Solids, Dissolved "As Received"												
Total Dissolved Solids		163	2.38	10.0	mg/L			KLP1	07/15/24	1557	2640404	4
EPA 160.2 Total Suspended Liq "As Received"												
Total Suspended Solids		3.00	0.570	2.50	mg/L			AXH3	07/11/24	0759	2638784	5
SM 2540 B Solids, Total "As Received"												
Total Solids		179	6.29	10.0	mg/L			KLP1	07/15/24	1341	2640407	6
Spectrometric Analysis												
EPA 410.4 Chem. Oxygen Demand "As Received"												
COD		78.0	8.95	20.0	mg/L		1	JW2	07/10/24	1549	2638268	7

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	BB2	07/16/24	1545	2638502

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Report Date: October 30, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Surface Water Quarterly(SS24-04)

Client Sample ID:	L136SS4-24	Project:	FRNP00515
Sample ID:	674864002	Client ID:	FRNP005

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

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9060A	
2	EPA 300.0	
3	EPA 200.8	
4	EPA 160.1	
5	EPA 160.2	
6	SM 2540B	
7	EPA 410.4	

Notes:

Column headers are defined as follows:

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

ATTACHMENT I2

GEL LABORATORIES CERTIFICATE OF ANALYSIS

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Certificate of Analysis

Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road
Kevil, Kentucky 42053
Report Date: October 30, 2024
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Surface Water Quarterly(US24-04)

Client Sample ID: L150US4-24
Sample ID: 674868001
Matrix: WS
Collect Date: 09-JUL-24
Receive Date: 10-JUL-24
Collector: Client

Project: FRNP00514
Client ID: FRNP005

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gas Flow Proportional Counting														
GFPC, Gross A/B, liquid "As Received"														
Alpha	U	2.28	+/-3.47	6.17	+/-3.49	15.0	pCi/L			HH3	07/25/24	1806	2638857	1
Beta	U	8.46	+/-6.66	10.7	+/-6.80	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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Certificate of Analysis

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

Kevil, Kentucky 42053 Report Date: October 30, 2024

Contact: Ms. Jaime Morrow

Project: C-746-U Landfill Surface Water Quarterly(US24-04)

Client Sample ID: L154US4-24 Project: FRNP00514
Sample ID: 674868002 Client ID: FRNP005
Matrix: WS
Collect Date: 09-JUL-24
Receive Date: 10-JUL-24
Collector: Client

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gas Flow Proportional Counting														
GFPC, Gross A/B, liquid "As Received"														
Alpha	U	3.00	+/-4.25	7.37	+/-4.29	15.0	pCi/L			HH3	07/16/24	1206	2638857	1
Beta		23.6	+/-7.39	8.96	+/-8.35	50.0	pCi/L							

The following Analytical Methods were performed

Method	Description
1	EPA 900.0/SW846 9310

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

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

Column headers are defined as follows:

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

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

Kevil, Kentucky 42053 Report Date: October 30, 2024

Contact: Ms. Jaime Morrow

Project: C-746-U Landfill Surface Water Quarterly(US24-04)

Client Sample ID: L351US4-24 Project: FRNP00514
Sample ID: 674868003 Client ID: FRNP005
Matrix: WS
Collect Date: 09-JUL-24
Receive Date: 10-JUL-24
Collector: Client

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gas Flow Proportional Counting														
GFPC, Gross A/B, liquid "As Received"														
Alpha	U	5.10	+/-4.49	6.58	+/-4.59	15.0	pCi/L			HH3	07/16/24	1206	2638857	1
Beta		20.4	+/-7.03	8.83	+/-7.84	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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Certificate of Analysis

Report Date: October 30, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-U Landfill Surface Water Quarterly(US24-04)

Client Sample ID:	L150US4-24	Project:	FRNP00514
Sample ID:	674868001	Client ID:	FRNP005
Matrix:	WS		
Collect Date:	09-JUL-24 09:06		
Receive Date:	10-JUL-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		13.5	0.330	1.00	mg/L		1	KB3	08/06/24	0427	2641337	1
Ion Chromatography												
EPA 300.0 Anions (Chloride and Sulfate) "As Received"												
Chloride		36.9	0.335	1.00	mg/L		5	TXT1	07/13/24	1442	2640093	2
Sulfate		8.05	0.665	2.00	mg/L		5					
Metals Analysis-ICP-MS												
200.8/200.2 MIMICP Metals- Fe Na U "As Received"												
Iron		3.95	0.0330	0.100	mg/L	1.00	1	BAJ	07/26/24	1751	2638503	3
Sodium		23.3	0.0800	0.250	mg/L	1.00	1					
Uranium		0.000319	0.0000670	0.000200	mg/L	1.00	1					
Solids Analysis												
EPA 160.1 Solids, Dissolved "As Received"												
Total Dissolved Solids		200	2.38	10.0	mg/L			KLP1	07/15/24	1557	2640404	4
EPA 160.2 Total Suspended Liq "As Received"												
Total Suspended Solids		63.4	1.78	7.81	mg/L			AXH3	07/11/24	0759	2638784	5
SM 2540 B Solids, Total "As Received"												
Total Solids		273	6.29	10.0	mg/L			KLP1	07/15/24	1341	2640407	6
Spectrometric Analysis												
EPA 410.4 Chem. Oxygen Demand "As Received"												
COD		45.5	8.95	20.0	mg/L		1	JW2	07/10/24	1549	2638268	7

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	BB2	07/16/24	1545	2638502

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Certificate of Analysis

Report Date: October 30, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-U Landfill Surface Water Quarterly(US24-04)

Client Sample ID:	L150US4-24	Project:	FRNP00514
Sample ID:	674868001	Client ID:	FRNP005

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

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9060A	
2	EPA 300.0	
3	EPA 200.8	
4	EPA 160.1	
5	EPA 160.2	
6	SM 2540B	
7	EPA 410.4	

Notes:

Column headers are defined as follows:

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

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Certificate of Analysis

Report Date: October 30, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-U Landfill Surface Water Quarterly(US24-04)

Client Sample ID:	L154US4-24	Project:	FRNP00514
Sample ID:	674868002	Client ID:	FRNP005
Matrix:	WS		
Collect Date:	09-JUL-24 09:17		
Receive Date:	10-JUL-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		22.6	0.660	2.00	mg/L		2	KB3	08/06/24	1054	2641337	1
Ion Chromatography												
EPA 300.0 Anions (Chloride and Sulfate) "As Received"												
Chloride		1.93	0.0670	0.200	mg/L		1	TXT1	07/14/24	0418	2640093	2
Sulfate		3.22	0.133	0.400	mg/L		1					
Metals Analysis-ICP-MS												
200.8/200.2 MIMICP Metals- Fe Na U "As Received"												
Iron		1.14	0.0330	0.100	mg/L	1.00	1	BAJ	07/26/24	1754	2638503	3
Sodium		1.79	0.0800	0.250	mg/L	1.00	1					
Uranium		0.00152	0.0000670	0.000200	mg/L	1.00	1					
Solids Analysis												
EPA 160.1 Solids, Dissolved "As Received"												
Total Dissolved Solids		132	2.38	10.0	mg/L			KLP1	07/15/24	1557	2640404	4
EPA 160.2 Total Suspended Liq "As Received"												
Total Suspended Solids		28.7	1.27	5.56	mg/L			AXH3	07/11/24	0759	2638784	5
SM 2540 B Solids, Total "As Received"												
Total Solids		159	6.29	10.0	mg/L			KLP1	07/15/24	1341	2640407	6
Spectrometric Analysis												
EPA 410.4 Chem. Oxygen Demand "As Received"												
COD		78.0	8.95	20.0	mg/L		1	JW2	07/10/24	1549	2638268	7

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	BB2	07/16/24	1545	2638502

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Certificate of Analysis

Report Date: October 30, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-U Landfill Surface Water Quarterly(US24-04)

Client Sample ID:	L154US4-24	Project:	FRNP00514
Sample ID:	674868002	Client ID:	FRNP005

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

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9060A	
2	EPA 300.0	
3	EPA 200.8	
4	EPA 160.1	
5	EPA 160.2	
6	SM 2540B	
7	EPA 410.4	

Notes:

Column headers are defined as follows:

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

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Certificate of Analysis

Report Date: October 30, 2024

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

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Surface Water Quarterly(US24-04)

Client Sample ID: L351US4-24
Sample ID: 674868003
Matrix: WS
Collect Date: 09-JUL-24 08:54
Receive Date: 10-JUL-24
Collector: Client

Project: FRNP00514
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	H	27.8	0.660	2.00	mg/L		2	KB3	08/07/24	2020	2641341	1
Ion Chromatography												
EPA 300.0 Anions (Chloride and Sulfate) "As Received"												
Chloride		2.14	0.0670	0.200	mg/L		1	TXT1	07/14/24	0450	2640093	2
Sulfate		3.55	0.133	0.400	mg/L		1					
Metals Analysis-ICP-MS												
200.8/200.2 MIMICP Metals- Fe Na U "As Received"												
Iron		1.33	0.0330	0.100	mg/L	1.00	1	BAJ	07/26/24	1756	2638503	3
Sodium		2.10	0.0800	0.250	mg/L	1.00	1					
Uranium		0.000987	0.0000670	0.000200	mg/L	1.00	1					
Solids Analysis												
EPA 160.1 Solids, Dissolved "As Received"												
Total Dissolved Solids		118	2.38	10.0	mg/L			KLP1	07/15/24	1557	2640404	4
EPA 160.2 Total Suspended Liq "As Received"												
Total Suspended Solids		45.5	1.50	6.58	mg/L			AXH3	07/11/24	0759	2638784	5
SM 2540 B Solids, Total "As Received"												
Total Solids		179	6.29	10.0	mg/L			KLP1	07/15/24	1341	2640407	6
Spectrometric Analysis												
EPA 410.4 Chem. Oxygen Demand "As Received"												
COD		92.0	8.95	20.0	mg/L		1	JW2	07/10/24	1549	2638268	7

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	BB2	07/16/24	1545	2638502

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Report Date: October 30, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-U Landfill Surface Water Quarterly(US24-04)

Client Sample ID:	L351US4-24	Project:	FRNP00514
Sample ID:	674868003	Client ID:	FRNP005

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

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9060A	
2	EPA 300.0	
3	EPA 200.8	
4	EPA 160.1	
5	EPA 160.2	
6	SM 2540B	
7	EPA 410.4	

Notes:

Column headers are defined as follows:

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

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APPENDIX J

ANALYTICAL LABORATORY CERTIFICATION

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Accredited Laboratory

A2LA has accredited

GEL LABORATORIES, LLC

Charleston, SC

for technical competence in the field of

Environmental Testing

In recognition of the successful completion of the A2LA evaluation process that includes an assessment of the laboratory's compliance with ISO/IEC 17025:2017, the 2009 and 2016 TNI Environmental Testing Laboratory Standard, the requirements of the Department of Defense Environmental Laboratory Accreditation Program (DoD ELAP), and the requirements of the Department of Energy Consolidated Audit Program (DOECAP) as detailed in Version 5.4 of the DoD/DOE Quality System Manual for Environmental Laboratories (QSM), accreditation is granted to this laboratory to perform recognized EPA methods as defined on the associated A2LA Environmental Scope of Accreditation. This accreditation demonstrates technical competence for this defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated April 2017).

Presented this 26th day of June 2023.

Mr. Trace McInturff, Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 2567.01
Valid to June 30, 2025

For the tests to which this accreditation applies, please refer to the laboratory's Environmental Scope of Accreditation.

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APPENDIX K

LABORATORY ANALYTICAL METHODS

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LABORATORY ANALYTICAL METHODS

Analytical Method	Preparation Method	Product
SM 2540B		Solids, Total
SW846 8260D		Volatile Organic Compounds (VOC) by Gas Chromatograph/Mass Spectrometer
SW846 8011	SW846 8011 PREP	Analysis of 1,2-Dibromoethane (EDB), 1,2-Dibromo-3-Chloropropane (DBCP) and 1,2,3-Trichloropropane in Water by GC/ECD Using Methods 504.1 or 8011
SW846 8082A	SW846 3535A	Analysis of Polychlorinated Biphenyls by GC/ECD by ECD
SW846 6020B	SW846 3005A	Determination of Metals by ICP-MS
SW846 7470A	SW846 7470A Prep	Mercury Analysis Using the Perkin Elmer Automated Mercury Analyzer
SW846 9060A		Carbon, Total Organic
SW846 9012B	SW846 9010C Distillation	Cyanide, Total
EPA 300.0		Ion Chromatography Iodide
SW846 9056A		Ion Chromatography
EPA 160.1		Solids, Total Dissolved
EPA 160.2		Solids, Total Suspended
EPA 200.8	EPA 200.2	Determination of Metals by ICP-MS
EPA 410.4		COD
Eichrom Industries, AN-1418		AlphaSpec Ra226, Liquid
DOE EML HASL-300, Th-01-RC Modified		Th-01-RC M, Th Isotopes, Liquid
EPA 904.0 Modified		904.0 Mod, Ra228, Liquid
SW846 9310		9310, Alpha/Beta Activity, liquid
EPA 905.0 Modified		905.0 Mod, Sr90, liquid
DOE EML HASL-300, Tc-02-RC Modified		Tc-02-RC-MOD, Tc99, Liquid
EPA 906.0 Modified		906.0M, Tritium Dist, Liquid
SW846 9020B		Total Organic Halogens (TOX)

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APPENDIX L

MICRO-PURGING STABILITY PARAMETERS

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Micro-Purge Stability Parameters
for the C-746-S&T Landfills

	Temperature (°F)	Conductivity (µmhos/cm)	pH (Std Unit)	Dissolved oxygen (mg/L)	Turbidity (NTU)
MW220					
Date Collected: 7/24/24					
0814	62.6	416	6.25	4.40	2.81
0817	62.8	416	6.24	3.65	1.64
0820	62.8	417	6.23	3.55	1.11
MW222					
Date Collected: 7/25/24					
0811	64.2	388	6.14	5.80	0.00
0814	64.4	388	6.10	4.40	0.00
0817	64.6	389	6.10	4.32	0.00
MW224					
Date Collected: 7/25/24					
0913	65.5	452	6.18	6.49	1.30
0916	65.2	458	6.13	4.65	1.11
0919	65.0	460	6.11	4.57	1.06
MW370					
Date Collected: 7/17/24					
1447	65.7	463	6.06	3.88	-3.45
1450	66.3	457	6.05	3.71	-3.41
1453	66.7	454	6.05	3.66	-3.39
MW373					
Date Collected: 7/17/24					
0831	64.1	945	6.03	1.32	-2.18
0834	64.7	951	6.02	0.82	-2.16
0837	64.9	949	6.02	0.81	-2.17
MW385					
Date Collected: 7/23/24					
0841	63.3	410	6.31	3.21	1.12
0844	63.1	409	6.31	1.89	1.22
0847	62.9	410	6.32	1.79	1.16
MW387					
Date Collected: 7/22/24					
1310	67.4	569	6.24	5.02	0.34
1313	67.0	565	6.19	4.59	0.07
1316	66.7	566	6.19	4.53	0.06
MW390					
Date Collected: 7/23/24					
0716	63.7	593	6.32	3.78	0.00
0719	63.2	594	6.33	3.06	0.00
0722	63.2	600	6.34	3.00	0.00
MW392					
Date Collected: 7/23/24					
1103	63.9	331	6.02	3.40	0.00
1106	63.7	330	5.97	1.91	0.00
1109	63.5	329	5.97	1.87	0.00
MW394					
Date Collected: 7/24/24					
0857	64.1	404	6.07	5.61	0.00
0900	63.7	402	6.02	4.71	0.00
0903	63.8	400	6.03	4.66	0.00
MW396					
Date Collected: 7/24/24					
1034	63.5	644	6.55	3.77	0.00
1037	63.6	642	6.57	2.68	0.00
1040	63.6	643	6.58	2.61	0.00
MW369 Resample					
Date Collected: 7-30-24					
0725	71.0	321	6.09	6.83	0.0
0728	69.7	330	6.06	3.06	0.0
0731	69.9	336	6.06	3.00	0.0
MW372 Resample					
Date Collected: 7-30-24					
0914	65.6	745	6.17	3.13	0.00
0917	66.0	748	6.09	1.64	0.00
0920	66.5	749	6.06	1.57	0.00

	Temperature (°F)	Conductivity (µmhos/cm)	pH (Std. Unit)	Dissolved oxygen (mg/L)	Turbidity (NTU)
MW221					
Date Collected: 7/24/24					
0728	64.8	394	6.17	4.80	2.40
0731	65.0	396	6.20	4.86	2.30
0734	65.4	396	6.22	4.90	2.50
MW223					
Date Collected: 7/25/24					
0726	64.9	392	6.09	5.00	4.36
0729	63.5	395	6.04	2.52	3.48
0732	63.7	396	6.03	2.41	3.33
MW369					
Date Collected: 7/17/24					
1234	70.9	375	6.26	7.01	-2.73
1237	68.6	341	6.11	2.01	-3.52
1240	68.3	342	6.09	1.95	-3.60
MW372					
Date Collected: 7/17/24					
1020	64.5	761	6.03	0.69	-4.06
1023	65.9	761	6.02	0.69	-4.11
1026	66.3	762	6.02	0.68	-4.13
MW384					
Date Collected: 7/23/24					
0759	63.6	428	6.14	5.07	0.00
0802	63.7	425	6.13	4.75	0.00
0805	63.8	420	6.11	4.70	0.00
MW386					
Date Collected: 7/23/24					
0938	62.6	579	6.80	2.99	0.00
0941	62.5	583	6.76	2.20	0.00
0944	62.7	586	6.75	2.10	0.00
MW388					
Date Collected: 7/22/24					
1401	63.6	466	6.02	4.45	4.02
1404	63.6	466	6.01	4.39	3.87
1407	63.7	466	5.99	4.38	3.66
MW391					
Date Collected: 7/23/24					
1021	63.6	387	6.28	5.99	0.00
1024	63.0	383	6.17	5.12	0.00
1027	63.1	384	6.13	5.02	0.00
MW393					
Date Collected: 7/24/24					
1111	65.9	462	6.53	3.41	19.67
1114	66.0	460	6.40	1.09	18.01
1117	66.1	460	6.37	1.00	18.09
MW395					
Date Collected: 7/24/24					
0957	62.3	385	6.06	4.55	2.00
1000	62.6	390	6.08	3.59	1.04
1003	62.9	391	6.09	3.50	1.09
MW397					
Date Collected: 7/22/24					
1455	66.2	325	5.99	6.61	1.35
1458	65.8	320	5.97	6.22	2.21
1501	65.7	318	5.95	6.17	3.02
MW370 Resample					
Date Collected: 7-30-24					
0803	66.7	434	6.06	4.78	0.00
0806	69.5	438	6.07	4.20	0.00
0809	69.6	439	6.06	4.22	0.00
MW373 Resample					
Date Collected: 7-30-24					
0953	65.6	943	6.09	1.46	0.0
0956	65.4	944	6.05	1.24	0.0
0959	65.9	943	6.04	1.14	0.0

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