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May 29, 2024

Mr. Todd Hendricks
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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 FIRST QUARTER CALENDAR YEAR 2024 (JANUARY–MARCH) COMPLIANCE MONITORING REPORT, PADUCAH GASEOUS DIFFUSION PLANT, PADUCAH, KENTUCKY, FRNP-RPT-0351/V1, PERMIT NUMBER SW07300014, SW07300015, SW07300045, AGENCY INTEREST ID NO. 3059

The subject report for the first quarter calendar year (CY) 2024 has been uploaded to the Kentucky eForms portal via the Kentucky Online Gateway. Other recipients outside the Solid Waste Branch are receiving this document via email distribution (see distribution list). This report is required in accordance with 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 first 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 and magnesium in MW373. This statistical exceedance is a Type 2 Exceedance—Source Unknown. Continued evaluation of calcium and magnesium levels through future quarterly monitoring events is recommended. This report also serves as the statistical exceedance notification for the first quarter CY 2024, in accordance with Monitoring Condition GSTR0001, Standard Requirement 5, of the Permit.

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

Sincerely,

APRIL LADD Digitally signed by APRIL LADD Date: 2024.05.29 09:52:09 -05'00'

April Ladd
Paducah Site Lead
Portsmouth/Paducah Project Office

Enclosure:
C-746-S&T Landfills First Quarter Calendar Year 2024 (January–March) Compliance Monitoring Report, Paducah Gaseous Diffusion Plant, Paducah, Kentucky, FRNP-RPT-0351/V1

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FRNP-RPT-0351/V1

C-746-S&T Landfills
First Quarter Calendar Year 2024
(January–March)
Compliance Monitoring Report,
Paducah Gaseous Diffusion Plant,
Paducah, Kentucky

FOUR RIVERS
NUCLEAR PARTNERSHIP, LLC

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FRNP-RPT-0351/V1

C-746-S&T Landfills
First Quarter Calendar Year 2024
(January–March)
Compliance Monitoring Report,
Paducah Gaseous Diffusion Plant,
Paducah, Kentucky

Date Issued—May 2024

U.S. DEPARTMENT OF ENERGY
Office of Environmental Management

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

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CONTENTS

FIGURES v

TABLES v

ACRONYMS vii

1. INTRODUCTION 1
   1.1 BACKGROUND 1
   1.2 MONITORING PERIOD ACTIVITIES 1
      1.2.1 Groundwater Monitoring 1
      1.2.2 Methane Monitoring 3
      1.2.3 Surface Water Monitoring 4
   1.3 KEY RESULTS 4

2. DATA EVALUATION/STATISTICAL SYNOPSIS 11
   2.1 STATISTICAL ANALYSIS OF GROUNDWATER DATA 12
      2.1.1 Upper Continental Recharge System 12
      2.1.2 Upper Regional Gravel Aquifer 12
      2.1.3 Lower Regional Gravel Aquifer 13
   2.2 DATA VERIFICATION AND VALIDATION 13

3. PROFESSIONAL GEOLOGIST AUTHORIZATION 15

4. REFERENCES 17

APPENDIX A: GROUNDWATER, SURFACE WATER, LEACHATE, AND METHANE MONITORING SAMPLE DATA REPORTING FORM A-1

APPENDIX B: FACILITY INFORMATION SHEET B-1

APPENDIX C: GROUNDWATER SAMPLE ANALYSES AND LABORATORY REPORTS C-1

APPENDIX D: STATISTICAL ANALYSES AND QUALIFICATION STATEMENT D-1

APPENDIX E: GROUNDWATER FLOW RATE AND DIRECTION E-1

APPENDIX F: NOTIFICATIONS F-1

APPENDIX G: CHART OF MCL AND UTL EXCEEDANCES G-1

APPENDIX H: METHANE MONITORING DATA H-1

APPENDIX I: SURFACE WATER ANALYSES AND LABORATORY REPORTS I-1

APPENDIX J: ANALYTICAL LABORATORY CERTIFICATION J-1

APPENDIX K: LABORATORY ANALYTICAL METHODS K-1

APPENDIX L: MICRO-PURGING STABILITY PARAMETERS L-1

FIGURES

1. C-746-S&T Landfills Groundwater Monitoring Well Network 2
2. C-746-S&T Landfills Surface Water Monitoring Locations 5

TABLES

1. Summary of MCL Exceedances 4
2. Exceedances of Statistically Derived Historical Background Concentrations 6
3. Exceedances of Current Background UTL in Downgradient Wells 6
4. C-746-S&T Landfills Downgradient Wells Trend Summary Utilizing the Previous Eight Quarters 7
5. Exceedances of Current Background UTL in Downgradient UCRS Wells 8
6. Monitoring Wells Included in Statistical Analysis 12

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

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

1.1 BACKGROUND

The C-746-S&T Landfills are closed, solid waste landfills located north of the Paducah Site and south of the C-746-U Landfill. Construction and operation of the C-746-S Residential Landfill were permitted in April 1981 under Solid Waste Landfill Permit No. 073-00014. The permitted C-746-S Landfill area covers about 16 acres and contains a clay liner with a final cover of compacted soil. The C-746-S Landfill was a sanitary landfill for the Paducah Gaseous Diffusion Plant operations. The C-746-S Landfill is closed and has been inactive since July 1995.

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

1.2 MONITORING PERIOD ACTIVITIES

1.2.1 Groundwater Monitoring

Three zones are monitored at the site: the Upper Continental Recharge System (UCRS), the Upper Regional Gravel Aquifer (URGA), and the Lower Regional Gravel Aquifer (LRGA). There are 23 monitoring wells (MWs) under permit for the C-746-S&T Landfills: 5 UCRS wells, 11 URGA wells, and 7 LRGA wells. A map of the MW locations is presented in Figure 1. All MWs listed on the permit were sampled this quarter, except MW389 and MW390 (screened in the UCRS), which had insufficient amounts of water to obtain samples.

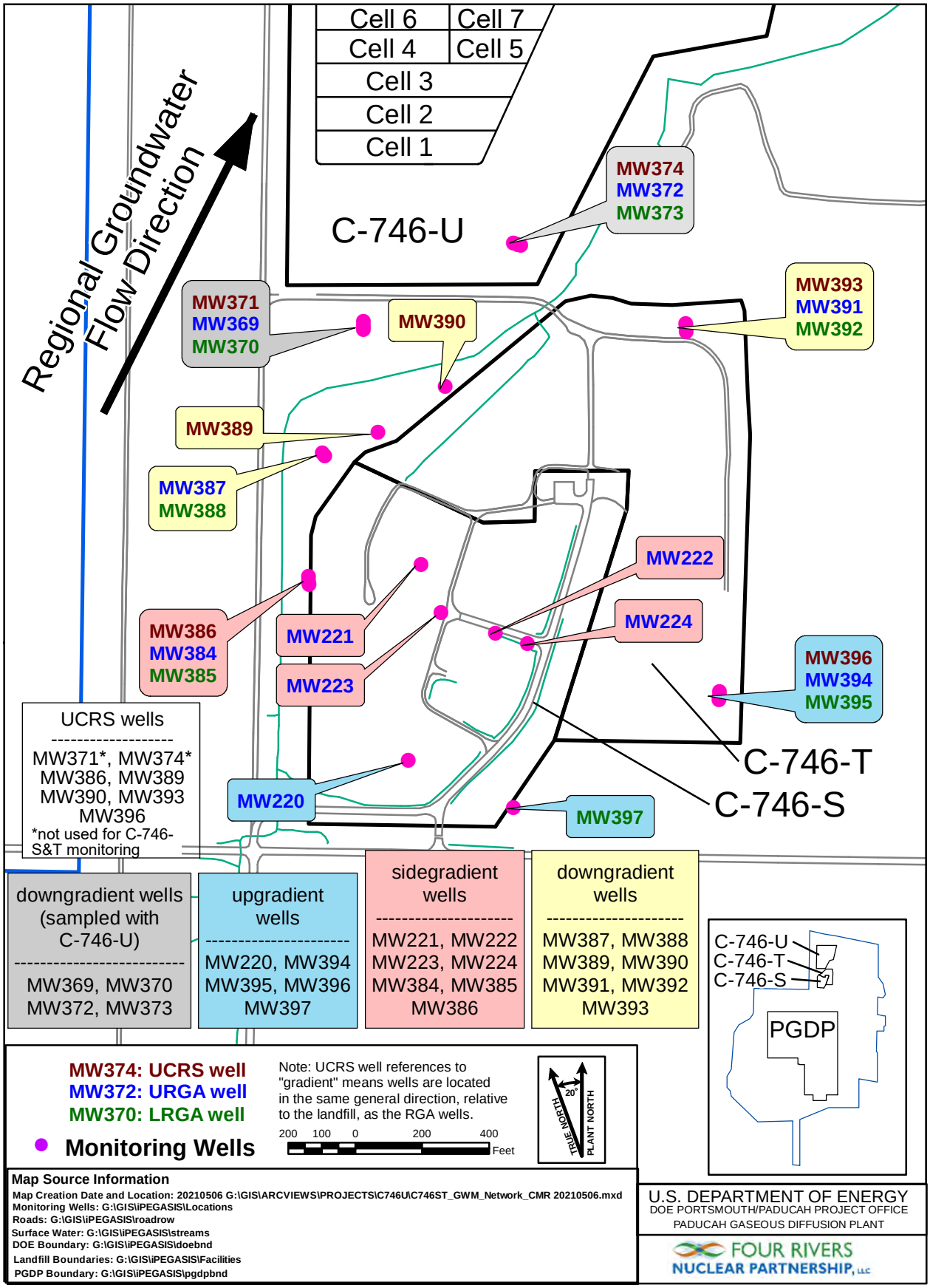

Figure 1. C-746-S&T Landfills Groundwater Monitoring Well Network

Consistent with the approved *Groundwater Monitoring Plan for the Solid Waste Permitted Landfills (C-746-S Residential Landfill, C-746-T Inert Landfill, and C-746-U Contained Landfill) at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky,* PAD-PROJ-0139 (Groundwater Monitoring Plan), UCRS wells are included in the monitoring program (LATA Kentucky 2014). Groundwater flow gradients are downward through the UCRS, but the underlying Regional Gravel Aquifer (RGA) flows laterally. Groundwater flow in the RGA is typically in a north-northeasterly direction in the vicinity of the C-746-S&T Landfills. The Ohio River and lower reaches of Little Bayou Creek are the discharge areas for the RGA flow system from the vicinity of the landfills. Consistent with the conceptual site model, the constituent concentrations in UCRS wells are considered to be representative only of the conditions local to the well or sourced from overlying soils; thus, no discussion of potential "upgradient" sources is relevant to the discussion for the UCRS. Nevertheless, a UTL for background also has been calculated for UCRS wells using concentrations from UCRS wells located in the same direction (relative to the landfill) as those RGA wells identified as upgradient. The results from these wells are considered to represent historical "background" for UCRS water quality. Similarly, other gradient references for UCRS wells are identified using the same gradient references (relative to the landfill) that are attributed to nearby RGA wells. Results from UCRS wells are compared to this UTL (for background), and exceedances of these values are reported in the quarterly report.

Groundwater sampling was conducted within the first quarter 2024 in accordance with the Groundwater Monitoring Plan (LATA Kentucky 2014) using the Deactivation and Remediation Contractor, procedure CP4-ES-2101, *Groundwater Sampling*. Groundwater sampling for the first quarter 2024 was conducted on January 24–30, 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 January 22, 2024, in MWs of the C-746-S&T Landfills (see Appendix E, Table E.1); in MWs of the C-746-U Landfill; and in MWs of the surrounding region (shown on Appendix E, Figure E.3). Water level measurements in 39 vicinity wells define the potentiometric surface for the RGA. Typical regional flow in the RGA is northeastward, toward the Ohio River. During January 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 January 2024 was 3.19×10^{-4} ft/ft, while the gradient beneath the C-746-S&T Landfills was approximately 2.73×10^{-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 0.464 to 0.926 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 February 8, 2024. Appendix H provides a map of the monitoring locations (Appendix H, Figure H.1). Monitoring results identified that all locations were compliant with the regulatory requirement of < 100% lower explosive limit (LEL) at boundary locations and < 25% LEL at all other locations. The results are documented on the C-746-S&T Landfills Methane Monitoring Report provided in Appendix H.

1.2.3 Surface Water Monitoring

Surface water sampling was performed on January 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 exceeded their MCL and also exceeded their historical background UTL, as well as other parameters that do not have MCLs but have concentrations that exceeded the statistically derived historical background UTL[1] during the first quarter 2024. 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	MW394: Trichloroethene	MW392: Trichloroethene
		MW395: Trichloroethene

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

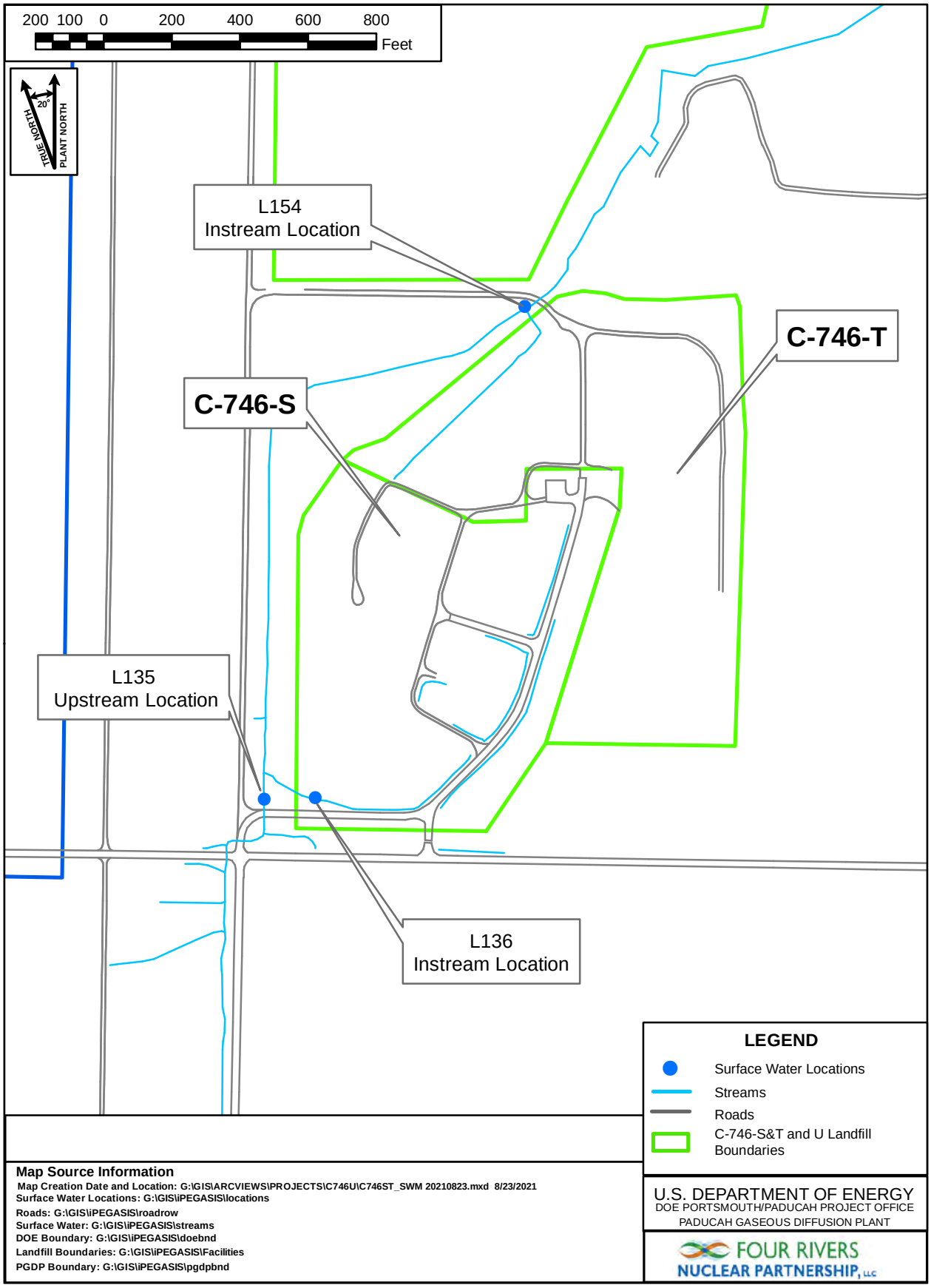

Figure 2. C-746-S&T Landfill Surface Water Monitoring Locations

Table 2. Exceedances of Statistically Derived Historical Background Concentrations

UCRS[a]	URGA	LRGA
MW386: Oxidation-reduction potential[b]	MW220: Oxidation-reduction potential[b]	MW370: Oxidation-reduction potential[b] and sulfate
MW393: Oxidation-reduction potential[b]	MW221: Oxidation-reduction potential[b]	MW373: Calcium, conductivity, dissolved solids, magnesium, oxidation-reduction potential,[b] and sulfate
MW396: Oxidation-reduction potential[b]	MW222: Oxidation-reduction potential[b]	MW385: Oxidation-reduction potential[b] and sulfate
	MW223: Oxidation-reduction potential[b]	MW388: Oxidation-reduction potential[b] and sulfate
	MW224: Oxidation-reduction potential[b]	MW392: Oxidation-reduction potential[b]
	MW369: Oxidation-reduction potential[b] and technetium-99	MW395: Oxidation-reduction potential[b]
	MW372: Calcium, conductivity, dissolved solids, magnesium, oxidation-reduction potential,[b] sodium, sulfate, and technetium-99	MW397: Oxidation-reduction potential[b]
	MW384: Oxidation-reduction potential[b] and sulfate	
	MW387: Magnesium, oxidation-reduction potential,[b] sulfate, and technetium-99	
	MW391: Oxidation-reduction potential[b]	
	MW394: Oxidation-reduction potential[b]	

[a] Gradients in the UCRS are downward. UCRS gradient designations are identified using the same gradient reference (relative to the landfill) that is attributed to nearby RGA wells.
[b] Oxidation-reduction potential calibrated as Eh.
Sidegradient wells: MW221, MW222, MW223, MW224, MW384, MW385, and MW386.
Downgradient wells: MW369, MW370, MW372, MW373, MW387, MW388, MW389, MW390, MW391, MW392, and MW393.
Background wells: MW220, MW394, MW395, MW396, and MW397.

Table 3. Exceedances of Current Background UTL in Downgradient Wells

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

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 downgradient well MW392 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.

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. Sixteen 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	0.119	8	No Trend
	MW370	Sulfate	8	0.05	0.054	-14	No Trend
	MW372	Calcium	8	0.05	0.119	8	No Trend
		Conductivity	8	0.05	0.452	-2	No Trend
		Dissolved Solids	8	0.05	0.089	-13	No Trend
		Magnesium	8	0.05	0.089	-12	No Trend
		Sodium	8	0.05	0.452	2	No Trend
		Sulfate	8	0.05	0.274	7	No Trend
		Technetium-99	8	0.05	0.054	-14	No Trend

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

Location	Well ID	Parameter	Sample Size	Alpha[a]	p-Value[b]	S[c]	Decision[d]
C-746-S&T Landfills	MW373	Calcium	8	0.05	0.001	25	Increasing
		Conductivity	8	0.05	0.089	12	No Trend
		Dissolved Solids	8	0.05	0.089	13	No Trend
		Magnesium	8	0.05	0.001	24	Increasing
		Sulfate	8	0.05	0.138	10	No Trend
	MW387	Magnesium	8	0.05	0.022	-21	Decreasing
		Sulfate	8	0.05	0.36	-5	No Trend
		Technetium-99	8	0.05	0.138	-10	No Trend
	MW388	Sulfate	8	0.05	0.119	-9	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.

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

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

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

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

UCRS
None

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

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

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2. DATA EVALUATION/STATISTICAL SYNOPSIS

The statistical analyses conducted on the first 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 were documented and evaluated further as follows. Exceedances were reviewed against historical background results (UTL). If the MCL exceedance was found not to exceed the historical UTL, the exceedance was noted as a Type 1 exceedance—an exceedance not attributable to the landfills. If there was an exceedance of the MCL in a downgradient well and this constituent also exceeded the historical background, the quarterly result was compared to the current background UTL (developed using the most recent eight quarters of data from wells identified as downgradient wells) to identify if this exceedance is attributable to upgradient/non-landfill sources. If the downgradient well concentration was less than the current background, the exceedance was noted as a Type 1 exceedance. If a constituent exceeds its Kentucky solid waste facility MCL, historical background UTL, and current background UTL, it was reported as a Type 2 exceedance—source undetermined. Type 2 exceedances (undetermined source) were further evaluated using the Mann-Kendall test for trend. If there was not a statistically significant increasing trend for a constituent in a downgradient well, the exceedance was 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 was used. If a constituent without an MCL exceeded its historical background UTL and its current background UTL, it was evaluated further to identify the source of the exceedance, if possible. If the source of the exceedance—could not be identified, it was reported as a Type 2 exceedance—source undetermined. Type 2 exceedances (undetermined source) were further evaluated using the Mann-Kendall test for trend. If there was not a statistically significant increasing trend for a constituent in a downgradient well, the exceedance was reclassified as a Type 1 exceedance—not attributable to the landfills.

To calculate the UTL, the data were divided into censored (non-detects) and uncensored (detected) observations. The one-sided tolerance interval statistical test was conducted only on parameters that had at least one uncensored observation. Results of the one-sided tolerance interval statistical test were used to determine whether the data 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 was conducted. The test well results were compared to both the UTL and LTL to determine if statistically significant deviations in concentrations exist with respect to background well data.

A stepwise list of the one-sided tolerance interval statistical procedures applied to the data is provided in Appendix D under Statistical Analysis Process. The statistical analysis was conducted separately for each parameter in each well. The MWs included in the statistical analyses are listed in Table 6.

Table 6. Monitoring Wells Included in Statistical Analysis[a]

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

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

2.1 STATISTICAL ANALYSIS OF GROUNDWATER DATA

Parameters requiring statistical analysis are summarized in Appendix D for each hydrological unit. A stepwise list for determining exceedances of statistically derived historical background concentrations is provided in Appendix D under Statistical Analysis Process. A comparison of the current quarter's results to the statistically derived historical background was conducted for parameters that do not have MCLs and also for those parameters whose concentrations exceed MCLs. Appendix G summarizes the occurrences (by well and by quarter) of exceedances of historical UTLs and MCL exceedances. The constituents that had exceedances of the statistically derived historical background UTL underwent additional statistical evaluation. The current quarter concentrations were compared to the current background UTL developed using the most recent eight quarters of data from wells identified as background in order to determine if the current downgradient well concentrations are consistent with current background values. Table 3 summarizes the constituents present in downgradient wells with historical UTL exceedances that are above the current UTL. Those constituents that have exceeded both the historical and current background UTLs in downgradient wells were further evaluated for increasing trends and are listed in Table 4.

2.1.1 Upper Continental Recharge System

In this quarter, 27 parameters, including those with MCLs, required statistical analysis in the UCRS. During the first quarter, oxidation-reduction potential displayed concentrations that exceeded the respective historical UTL and are listed in Table 2.

2.1.2 Upper Regional Gravel Aquifer

In this quarter, 28 parameters, including those with MCLs, required statistical analysis in the URGA. During the first quarter, calcium, conductivity, dissolved solids, magnesium, oxidation-reduction potential, sodium, sulfate, and technetium-99 displayed concentrations that exceeded their respective historical UTLs and are listed in Table 2. Calcium, conductivity, dissolved solids, magnesium, sodium, sulfate, and technetium-99 exceeded the current background UTL in downgradient wells and are included in Table 3.

2.1.3 Lower Regional Gravel Aquifer

In this quarter, 29 parameters, including those with MCLs, required statistical analysis in the LRGA. During the first quarter, calcium, conductivity, dissolved solids, magnesium, oxidation-reduction potential, and sulfate displayed concentrations that exceeded their respective historical UTL and are listed in Table 2. Calcium, conductivity, dissolved solids, magnesium, and sulfate exceeded the current background UTL in downgradient wells and are included in Table 3.

2.2 DATA VERIFICATION AND VALIDATION

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

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

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

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

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3. PROFESSIONAL GEOLOGIST AUTHORIZATION

DOCUMENT IDENTIFICATION: *C-746-S&T Landfills First Quarter Calendar Year 2024 (January–March) Compliance Monitoring Report, Paducah Gaseous Diffusion Plant, Paducah, Kentucky* (FRNP-RPT-0351/V1)

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

Evan Clark

PG265379

5/20/2024
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 1st Qtr. CY 2024

Please check the following as applicable:

_____ Characterization X Quarterly _____ Semiannual _____ Annual _____ Assessment

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

_____ Leachate X Methane Monitoring

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

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

_____ _____
Myrna E. Redfield, Program Manager 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: January 2024
Methane: February 2024
Surface Water: January 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:** 1st Quarter 2024

AKGWA Well Tag #: 8000-5201 **SAMPLE ID:** MW220SG2-24 Sample Type: REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide		0.213	mg/L	0.2	1/29/2024			SW846-9056A	=
Chloride	J	16.8	mg/L	250	1/29/2024			SW846-9056A	=
Fluoride	J	0.214	mg/L	4	1/29/2024			SW846-9056A	=
Nitrate as Nitrogen	J	0.828	mg/L	10	1/29/2024			SW846-9056A	=
Sulfate		14.7	mg/L	0.4	1/29/2024			SW846-9056A	=
Barometric Pressure Reading		30.27	Inches/Hg		1/29/2024				X
Conductivity		331	µmhos/cm		1/29/2024				X
Depth to Water		60.12	ft		1/29/2024				X
Dissolved Oxygen		5.72	mg/L		1/29/2024				X
Eh (approx)		463	mV		1/29/2024				X
pH		6.12	Std Unit		1/29/2024				X
Temperature		58.2	deg F		1/29/2024				X
Turbidity		1.8	NTU		1/29/2024				X
Aluminum	J	0.0386	mg/L	0.05	1/29/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	1/29/2024			SW846-6020B	=
Arsenic	J	0.00213	mg/L	0.005	1/29/2024			SW846-6020B	=
Barium		0.199	mg/L	0.004	1/29/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	1/29/2024			SW846-6020B	=
Boron	J	0.0076	mg/L	0.015	1/29/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	1/29/2024			SW846-6020B	=
Calcium		20.2	mg/L	0.2	1/29/2024			SW846-6020B	=
Chromium	J	0.00435	mg/L	0.01	1/29/2024			SW846-6020B	=
Cobalt	U	0.001	mg/L	0.001	1/29/2024			SW846-6020B	=
Copper		0.00296	mg/L	0.002	1/29/2024			SW846-6020B	J
Iron		0.118	mg/L	0.1	1/29/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	1/29/2024			SW846-6020B	=
Magnesium	B	8.23	mg/L	0.03	1/29/2024			SW846-6020B	=
Manganese	J	0.00217	mg/L	0.005	1/29/2024			SW846-6020B	J
Molybdenum	J	0.000746	mg/L	0.001	1/29/2024			SW846-6020B	=
Nickel		0.00597	mg/L	0.002	1/29/2024			SW846-6020B	J
Potassium		1.22	mg/L	0.3	1/29/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	1/29/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	1/29/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	1/29/2024			SW846-6020B	=
Sodium		35.8	mg/L	0.25	1/29/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	1/29/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	1/29/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	1/29/2024			SW846-6020B	=
Vanadium	U	0.02	mg/L	0.02	1/29/2024			SW846-6020B	=
Zinc	J	0.00415	mg/L	0.02	1/29/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	1/29/2024			SW846-7470A	=
Barium, Dissolved		0.203	mg/L	0.004	1/29/2024			SW846-6020B	J
Chromium, Dissolved	J	0.00356	mg/L	0.01	1/29/2024			SW846-6020B	J
Uranium, Dissolved	U	0.0002	mg/L	0.0002	1/29/2024			SW846-6020B	UJ
Radium-226	U	0.175	pCi/L	1.77	1/29/2024	0.885	0.886	AN-1418	=

Strontium-90	U	-5.66	pCi/L	7.35	1/29/2024	2.58	2.58	EPA-905.0-M	UJ
Tritium	U	70.8	pCi/L	248	1/29/2024	138	138	EPA-906.0-M	=
Technetium-99	U	20	pCi/L	21.2	1/29/2024	12.9	13.1	HASL 300, Tc-02-RC M	=
Thorium-230	U	1.4	pCi/L	1.88	1/29/2024	1.41	1.43	HASL 300, Th-01-RC M	=
Alpha activity	U	3.6	pCi/L	7.78	1/29/2024	4.62	4.66	SW846-9310	=
Beta activity		18.2	pCi/L	8.72	1/29/2024	6.86	7.51	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.019	ug/L	0.019	1/29/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	1/29/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	1/29/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	1/29/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	1/29/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	1/29/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	1/29/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	1/29/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	1/29/2024			SW846-8260D	=
Acrylonitrile	U	5	ug/L	5	1/29/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	1/29/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	1/29/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Ethylbenzene	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	1/29/2024			SW846-8260D	=
Methylene chloride	U	5	ug/L	5	1/29/2024			SW846-8260D	=
Styrene	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Toluene	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Total Xylene	U	3	ug/L	3	1/29/2024			SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	1/29/2024			SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	1/29/2024			SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	1/29/2024			SW846-8260D	=
Trichloroethene	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Trichlorofluoromethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=

Vinyl acetate	U	5	ug/L	5	1/29/2024	SW846-8260D	=
Vinyl chloride	U	1	ug/L	1	1/29/2024	SW846-8260D	=
Dissolved Solids		190	mg/L	10	1/29/2024	EPA-160.1	=
Iodide	U	0.5	mg/L	0.5	1/29/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	U	20	mg/L	20	1/29/2024	EPA-410.4	=
Cyanide	U	0.2	mg/L	0.2	1/29/2024	SW846-9012B	=
Total Organic Halides (TOX)	J	5.64	ug/L	10	1/29/2024	SW846-9020B	=
Total Organic Carbon (TOC)	J	0.649	mg/L	2	1/29/2024	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:** 1st Quarter 2024

AKGWA Well Tag #: 8000-5202 **SAMPLE ID:** MW221SG2-24 Sample Type: REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide		0.423	mg/L	0.2	1/29/2024			SW846-9056A	=
Chloride	J	31.8	mg/L	250	1/29/2024			SW846-9056A	=
Fluoride	J	0.237	mg/L	4	1/29/2024			SW846-9056A	=
Nitrate as Nitrogen	J	0.836	mg/L	10	1/29/2024			SW846-9056A	=
Sulfate		14	mg/L	0.4	1/29/2024			SW846-9056A	=
Barometric Pressure Reading		30.3	Inches/Hg		1/29/2024				X
Conductivity		398	µmhos/cm		1/29/2024				X
Depth to Water		69.74	ft		1/29/2024				X
Dissolved Oxygen		5.99	mg/L		1/29/2024				X
Eh (approx)		477	mV		1/29/2024				X
pH		6.15	Std Unit		1/29/2024				X
Temperature		54.9	deg F		1/29/2024				X
Turbidity		1.84	NTU		1/29/2024				X
Aluminum	U	0.05	mg/L	0.05	1/29/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	1/29/2024			SW846-6020B	=
Arsenic	J	0.00221	mg/L	0.005	1/29/2024			SW846-6020B	=
Barium		0.212	mg/L	0.004	1/29/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	1/29/2024			SW846-6020B	=
Boron		0.0167	mg/L	0.015	1/29/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	1/29/2024			SW846-6020B	=
Calcium		20.4	mg/L	0.2	1/29/2024			SW846-6020B	=
Chromium	U	0.01	mg/L	0.01	1/29/2024			SW846-6020B	=
Cobalt	U	0.001	mg/L	0.001	1/29/2024			SW846-6020B	=
Copper		0.0027	mg/L	0.002	1/29/2024			SW846-6020B	J
Iron	U	0.1	mg/L	0.1	1/29/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	1/29/2024			SW846-6020B	=
Magnesium	B	8.9	mg/L	0.03	1/29/2024			SW846-6020B	=
Manganese	U	0.005	mg/L	0.005	1/29/2024			SW846-6020B	=
Molybdenum		0.00243	mg/L	0.001	1/29/2024			SW846-6020B	=
Nickel		0.00694	mg/L	0.002	1/29/2024			SW846-6020B	J
Potassium		2.8	mg/L	0.3	1/29/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	1/29/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	1/29/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	1/29/2024			SW846-6020B	=
Sodium		45.3	mg/L	0.25	1/29/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	1/29/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	1/29/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	1/29/2024			SW846-6020B	=
Vanadium	J	0.00387	mg/L	0.02	1/29/2024			SW846-6020B	=
Zinc	J	0.00376	mg/L	0.02	1/29/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	1/29/2024			SW846-7470A	=
Barium, Dissolved		0.206	mg/L	0.004	1/29/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	1/29/2024			SW846-6020B	UJ
Uranium, Dissolved	U	0.0002	mg/L	0.0002	1/29/2024			SW846-6020B	UJ
Radium-226	U	0.739	pCi/L	0.886	1/29/2024	0.748	0.75	AN-1418	=

Strontium-90	U	0.819	pCi/L	4.92	1/29/2024	2.63	2.63	EPA-905.0-M	=
Tritium	U	63.3	pCi/L	250	1/29/2024	137	138	EPA-906.0-M	=
Technetium-99	U	5.7	pCi/L	19.9	1/29/2024	11.7	11.7	HASL 300, Tc-02-RC M	=
Thorium-230	U	0.44	pCi/L	2.55	1/29/2024	1.36	1.36	HASL 300, Th-01-RC M	=
Alpha activity	U	4.07	pCi/L	8.31	1/29/2024	5.06	5.1	SW846-9310	=
Beta activity	U	4.34	pCi/L	7.32	1/29/2024	4.49	4.55	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.0187	ug/L	0.0187	1/29/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	1/29/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	1/29/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	1/29/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	1/29/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	1/29/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	1/29/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	1/29/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	1/29/2024			SW846-8260D	=
Acrylonitrile	U	5	ug/L	5	1/29/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	1/29/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	1/29/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Ethylbenzene	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	1/29/2024			SW846-8260D	=
Methylene chloride	U	5	ug/L	5	1/29/2024			SW846-8260D	=
Styrene	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Toluene	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Total Xylene	U	3	ug/L	3	1/29/2024			SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	1/29/2024			SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	1/29/2024			SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	1/29/2024			SW846-8260D	=
Trichloroethene	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Trichlorofluoromethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=

Vinyl acetate	U	5	ug/L	5	1/29/2024	SW846-8260D	=
Vinyl chloride	U	1	ug/L	1	1/29/2024	SW846-8260D	=
Dissolved Solids		218	mg/L	10	1/29/2024	EPA-160.1	=
Iodide	U	0.5	mg/L	0.5	1/29/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	U	20	mg/L	20	1/29/2024	EPA-410.4	=
Cyanide	U	0.2	mg/L	0.2	1/29/2024	SW846-9012B	=
Total Organic Halides (TOX)		24.4	ug/L	10	1/29/2024	SW846-9020B	=
Total Organic Carbon (TOC)	J	0.735	mg/L	2	1/29/2024	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:** 1st Quarter 2024

AKGWA Well Tag #: 8000-5242 **SAMPLE ID:** MW222SG2-24 Sample Type: REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide		0.367	mg/L	0.2	1/29/2024			SW846-9056A	=
Chloride	J	25.5	mg/L	250	1/29/2024			SW846-9056A	=
Fluoride	J	0.288	mg/L	4	1/29/2024			SW846-9056A	=
Nitrate as Nitrogen	J	1.22	mg/L	10	1/29/2024			SW846-9056A	=
Sulfate		9.85	mg/L	0.4	1/29/2024			SW846-9056A	=
Barometric Pressure Reading		30.31	Inches/Hg		1/29/2024				X
Conductivity		324	µmhos/cm		1/29/2024				X
Depth to Water		73.62	ft		1/29/2024				X
Dissolved Oxygen		5.4	mg/L		1/29/2024				X
Eh (approx)		457	mV		1/29/2024				X
pH		6.25	Std Unit		1/29/2024				X
Temperature		57.5	deg F		1/29/2024				X
Turbidity		9.2	NTU		1/29/2024				X
Aluminum		0.288	mg/L	0.05	1/29/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	1/29/2024			SW846-6020B	=
Arsenic	J	0.00298	mg/L	0.005	1/29/2024			SW846-6020B	=
Barium		0.229	mg/L	0.004	1/29/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	1/29/2024			SW846-6020B	=
Boron	J	0.00734	mg/L	0.015	1/29/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	1/29/2024			SW846-6020B	=
Calcium		13.6	mg/L	0.2	1/29/2024			SW846-6020B	=
Chromium	J	0.00491	mg/L	0.01	1/29/2024			SW846-6020B	=
Cobalt		0.00205	mg/L	0.001	1/29/2024			SW846-6020B	J
Copper		0.00258	mg/L	0.002	1/29/2024			SW846-6020B	J
Iron		0.51	mg/L	0.1	1/29/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	1/29/2024			SW846-6020B	=
Magnesium	B	6.1	mg/L	0.03	1/29/2024			SW846-6020B	=
Manganese		0.0114	mg/L	0.005	1/29/2024			SW846-6020B	J
Molybdenum		0.00152	mg/L	0.001	1/29/2024			SW846-6020B	=
Nickel		0.0166	mg/L	0.002	1/29/2024			SW846-6020B	=
Potassium		0.459	mg/L	0.3	1/29/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	1/29/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	1/29/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	1/29/2024			SW846-6020B	=
Sodium		39.5	mg/L	0.25	1/29/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	1/29/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	1/29/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	1/29/2024			SW846-6020B	=
Vanadium	J	0.00752	mg/L	0.02	1/29/2024			SW846-6020B	=
Zinc	J	0.00389	mg/L	0.02	1/29/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	1/29/2024			SW846-7470A	=
Barium, Dissolved		0.225	mg/L	0.004	1/29/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	1/29/2024			SW846-6020B	UJ
Uranium, Dissolved	U	0.0002	mg/L	0.0002	1/29/2024			SW846-6020B	UJ
Radium-226	U	0.366	pCi/L	0.634	1/29/2024	0.434	0.435	AN-1418	=

Strontium-90	U	1.49	pCi/L	5.43	1/29/2024	3.01	3.02	EPA-905.0-M	=
Tritium	U	-51.6	pCi/L	246	1/29/2024	110	110	EPA-906.0-M	=
Technetium-99	U	-1.72	pCi/L	21	1/29/2024	12.1	12.1	HASL 300, Tc-02-RC M	=
Thorium-230	U	0.648	pCi/L	1.82	1/29/2024	1.11	1.12	HASL 300, Th-01-RC M	=
Alpha activity	U	2.21	pCi/L	8.71	1/29/2024	4.78	4.8	SW846-9310	=
Beta activity	U	3.95	pCi/L	12.7	1/29/2024	7.36	7.39	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.0191	ug/L	0.0191	1/29/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	1/29/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	1/29/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	1/29/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	1/29/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	1/29/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	1/29/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	1/29/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	1/29/2024			SW846-8260D	=
Acrylonitrile	U	5	ug/L	5	1/29/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	1/29/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	1/29/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Ethylbenzene	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	1/29/2024			SW846-8260D	=
Methylene chloride	U	5	ug/L	5	1/29/2024			SW846-8260D	=
Styrene	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Toluene	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Total Xylene	U	3	ug/L	3	1/29/2024			SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	1/29/2024			SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	1/29/2024			SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	1/29/2024			SW846-8260D	=
Trichloroethene	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Trichlorofluoromethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=

Vinyl acetate	U	5	ug/L	5	1/29/2024	SW846-8260D	=
Vinyl chloride	U	1	ug/L	1	1/29/2024	SW846-8260D	=
Dissolved Solids		195	mg/L	10	1/29/2024	EPA-160.1	=
Iodide	U	0.5	mg/L	0.5	1/29/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	U	20	mg/L	20	1/29/2024	EPA-410.4	=
Cyanide	U	0.2	mg/L	0.2	1/29/2024	SW846-9012B	=
Total Organic Halides (TOX)	U	10	ug/L	10	1/29/2024	SW846-9020B	=
Total Organic Carbon (TOC)	J	0.363	mg/L	2	1/29/2024	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:** 1st Quarter 2024

AKGWA Well Tag #: 8000-5243 **SAMPLE ID:** MW223SG2-24 Sample Type: REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide		0.382	mg/L	0.2	1/29/2024			SW846-9056A	=
Chloride	J	28.6	mg/L	250	1/29/2024			SW846-9056A	=
Fluoride	J	0.294	mg/L	4	1/29/2024			SW846-9056A	=
Nitrate as Nitrogen	J	0.917	mg/L	10	1/29/2024			SW846-9056A	=
Sulfate		11.8	mg/L	0.4	1/29/2024			SW846-9056A	=
Barometric Pressure Reading		30.31	Inches/Hg		1/29/2024				X
Conductivity		385	µmhos/cm		1/29/2024				X
Depth to Water		72.85	ft		1/29/2024				X
Dissolved Oxygen		3.93	mg/L		1/29/2024				X
Eh (approx)		466	mV		1/29/2024				X
pH		6.21	Std Unit		1/29/2024				X
Temperature		58.2	deg F		1/29/2024				X
Turbidity		1.83	NTU		1/29/2024				X
Aluminum	U	0.05	mg/L	0.05	1/29/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	1/29/2024			SW846-6020B	=
Arsenic	J	0.0031	mg/L	0.005	1/29/2024			SW846-6020B	=
Barium		0.257	mg/L	0.004	1/29/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	1/29/2024			SW846-6020B	=
Boron	J	0.00571	mg/L	0.015	1/29/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	1/29/2024			SW846-6020B	=
Calcium		20.8	mg/L	0.2	1/29/2024			SW846-6020B	=
Chromium		0.0131	mg/L	0.01	1/29/2024			SW846-6020B	=
Cobalt	J	0.000549	mg/L	0.001	1/29/2024			SW846-6020B	J
Copper		0.00293	mg/L	0.002	1/29/2024			SW846-6020B	J
Iron	J	0.0481	mg/L	0.1	1/29/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	1/29/2024			SW846-6020B	=
Magnesium	B	8.31	mg/L	0.03	1/29/2024			SW846-6020B	=
Manganese		0.00706	mg/L	0.005	1/29/2024			SW846-6020B	J
Molybdenum		0.00529	mg/L	0.001	1/29/2024			SW846-6020B	=
Nickel		0.128	mg/L	0.002	1/29/2024			SW846-6020B	=
Potassium		4.37	mg/L	0.3	1/29/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	1/29/2024			SW846-6020B	=
Selenium	J	0.00157	mg/L	0.005	1/29/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	1/29/2024			SW846-6020B	=
Sodium		44.4	mg/L	0.25	1/29/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	1/29/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	1/29/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	1/29/2024			SW846-6020B	=
Vanadium	J	0.00718	mg/L	0.02	1/29/2024			SW846-6020B	=
Zinc	J	0.00518	mg/L	0.02	1/29/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	1/29/2024			SW846-7470A	=
Barium, Dissolved		0.251	mg/L	0.004	1/29/2024			SW846-6020B	J
Chromium, Dissolved		0.0105	mg/L	0.01	1/29/2024			SW846-6020B	J
Uranium, Dissolved	U	0.0002	mg/L	0.0002	1/29/2024			SW846-6020B	UJ
Radium-226	U	0.174	pCi/L	0.927	1/29/2024	0.518	0.518	AN-1418	=

Strontium-90	U	5.02	pCi/L	5.2	1/29/2024	3.41	3.5	EPA-905.0-M	=
Tritium	U	43.9	pCi/L	248	1/29/2024	132	133	EPA-906.0-M	=
Technetium-99	U	2.99	pCi/L	20.3	1/29/2024	11.9	11.9	HASL 300, Tc-02-RC M	=
Thorium-230	U	0.192	pCi/L	1.6	1/29/2024	0.818	0.821	HASL 300, Th-01-RC M	=
Alpha activity	U	5.22	pCi/L	7.59	1/29/2024	5.12	5.19	SW846-9310	=
Beta activity	U	4.91	pCi/L	8.9	1/29/2024	5.41	5.48	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.0188	ug/L	0.0188	1/29/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	1/29/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	1/29/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	1/29/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	1/29/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	1/29/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	1/29/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	1/29/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	1/29/2024			SW846-8260D	=
Acrylonitrile	U	5	ug/L	5	1/29/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	1/29/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	1/29/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Ethylbenzene	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	1/29/2024			SW846-8260D	=
Methylene chloride	U	5	ug/L	5	1/29/2024			SW846-8260D	=
Styrene	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Toluene	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Total Xylene	U	3	ug/L	3	1/29/2024			SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	1/29/2024			SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	1/29/2024			SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	1/29/2024			SW846-8260D	=
Trichloroethene	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Trichlorofluoromethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=

Vinyl acetate	U	5	ug/L	5	1/29/2024	SW846-8260D	=
Vinyl chloride	U	1	ug/L	1	1/29/2024	SW846-8260D	=
Dissolved Solids		209	mg/L	10	1/29/2024	EPA-160.1	=
Iodide	U	0.5	mg/L	0.5	1/29/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	U	20	mg/L	20	1/29/2024	EPA-410.4	=
Cyanide	U	0.2	mg/L	0.2	1/29/2024	SW846-9012B	=
Total Organic Halides (TOX)		10.7	ug/L	10	1/29/2024	SW846-9020B	=
Total Organic Carbon (TOC)	J	0.599	mg/L	2	1/29/2024	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:** 1st Quarter 2024

AKGWA Well Tag #: 8000-5244 **SAMPLE ID:** MW224SG2-24 Sample Type: REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide		0.222	mg/L	0.2	1/29/2024			SW846-9056A	=
Chloride	J	12.3	mg/L	250	1/29/2024			SW846-9056A	=
Fluoride	J	0.329	mg/L	4	1/29/2024			SW846-9056A	=
Nitrate as Nitrogen	J	1.25	mg/L	10	1/29/2024			SW846-9056A	=
Sulfate		9.04	mg/L	0.4	1/29/2024			SW846-9056A	=
Barometric Pressure Reading		30.29	Inches/Hg		1/29/2024				X
Conductivity		357	µmhos/cm		1/29/2024				X
Depth to Water		73.96	ft		1/29/2024				X
Dissolved Oxygen		2.84	mg/L		1/29/2024				X
Eh (approx)		490	mV		1/29/2024				X
pH		6.18	Std Unit		1/29/2024				X
Temperature		57.4	deg F		1/29/2024				X
Turbidity		2.77	NTU		1/29/2024				X
Aluminum	U	0.05	mg/L	0.05	1/29/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	1/29/2024			SW846-6020B	=
Arsenic	J	0.00312	mg/L	0.005	1/29/2024			SW846-6020B	=
Barium		0.194	mg/L	0.004	1/29/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	1/29/2024			SW846-6020B	=
Boron	J	0.00932	mg/L	0.015	1/29/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	1/29/2024			SW846-6020B	=
Calcium		18.1	mg/L	0.2	1/29/2024			SW846-6020B	=
Chromium	J	0.00505	mg/L	0.01	1/29/2024			SW846-6020B	=
Cobalt	U	0.001	mg/L	0.001	1/29/2024			SW846-6020B	=
Copper		0.00249	mg/L	0.002	1/29/2024			SW846-6020B	J
Iron	J	0.0743	mg/L	0.1	1/29/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	1/29/2024			SW846-6020B	=
Magnesium	B	7.81	mg/L	0.03	1/29/2024			SW846-6020B	=
Manganese	J	0.00198	mg/L	0.005	1/29/2024			SW846-6020B	J
Molybdenum	J	0.000969	mg/L	0.001	1/29/2024			SW846-6020B	=
Nickel		0.00777	mg/L	0.002	1/29/2024			SW846-6020B	J
Potassium		0.749	mg/L	0.3	1/29/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	1/29/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	1/29/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	1/29/2024			SW846-6020B	=
Sodium		54.1	mg/L	2.5	1/29/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	1/29/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	1/29/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	1/29/2024			SW846-6020B	=
Vanadium	J	0.00695	mg/L	0.02	1/29/2024			SW846-6020B	=
Zinc	J	0.00337	mg/L	0.02	1/29/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	1/29/2024			SW846-7470A	=
Barium, Dissolved		0.193	mg/L	0.004	1/29/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	1/29/2024			SW846-6020B	UJ
Uranium, Dissolved	U	0.0002	mg/L	0.0002	1/29/2024			SW846-6020B	UJ
Radium-226	U	0.198	pCi/L	0.436	1/29/2024	0.315	0.315	AN-1418	=

Strontium-90	U	6.14	pCi/L	7.63	1/29/2024	4.7	4.8	EPA-905.0-M	=
Tritium	U	-43.9	pCi/L	244	1/29/2024	111	111	EPA-906.0-M	=
Technetium-99	U	9.19	pCi/L	20.8	1/29/2024	12.4	12.4	HASL 300, Tc-02-RC M	=
Thorium-230	U	0.941	pCi/L	1.22	1/29/2024	0.895	0.907	HASL 300, Th-01-RC M	=
Alpha activity	U	2.66	pCi/L	9.4	1/29/2024	5.06	5.08	SW846-9310	=
Beta activity	U	3.81	pCi/L	8.74	1/29/2024	5.2	5.26	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.0191	ug/L	0.0191	1/29/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	1/29/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	1/29/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	1/29/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	1/29/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	1/29/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	1/29/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	1/29/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	1/29/2024			SW846-8260D	=
Acrylonitrile	U	5	ug/L	5	1/29/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	1/29/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	1/29/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Ethylbenzene	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	1/29/2024			SW846-8260D	=
Methylene chloride	U	5	ug/L	5	1/29/2024			SW846-8260D	=
Styrene	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Toluene	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Total Xylene	U	3	ug/L	3	1/29/2024			SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	1/29/2024			SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	1/29/2024			SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	1/29/2024			SW846-8260D	=
Trichloroethene	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Trichlorofluoromethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=

Vinyl acetate	U	5	ug/L	5	1/29/2024	SW846-8260D	=
Vinyl chloride	U	1	ug/L	1	1/29/2024	SW846-8260D	=
Dissolved Solids		227	mg/L	10	1/29/2024	EPA-160.1	=
Iodide	U	0.5	mg/L	0.5	1/29/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	U	20	mg/L	20	1/29/2024	EPA-410.4	=
Cyanide	U	0.2	mg/L	0.2	1/29/2024	SW846-9012B	=
Total Organic Halides (TOX)	J	3.92	ug/L	10	1/29/2024	SW846-9020B	=
Total Organic Carbon (TOC)	J	0.734	mg/L	2	1/29/2024	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:** 1st Quarter 2024

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

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

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

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

Paducah OREIS
GROUNDWATER MONITORING REPORT

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

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

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

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

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

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

Paducah OREIS
GROUNDWATER MONITORING REPORT

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

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

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

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

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

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

Paducah OREIS
GROUNDWATER MONITORING REPORT

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

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

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

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

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

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

Paducah OREIS
GROUNDWATER MONITORING REPORT

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

Sampling Point: MW384 SIDE **RGA Type:** URGA **Period:** 1st Quarter 2024

AKGWA Well Tag #: 8004-4809 **SAMPLE ID:** MW384DSG2-24 Sample Type: FR

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide		0.239	mg/L	0.2	1/30/2024			SW846-9056A	=
Chloride	J	20.5	mg/L	250	1/30/2024			SW846-9056A	=
Fluoride	J	0.202	mg/L	4	1/30/2024			SW846-9056A	=
Nitrate as Nitrogen	J	0.852	mg/L	10	1/30/2024			SW846-9056A	=
Sulfate		17.6	mg/L	0.4	1/30/2024			SW846-9056A	=
Aluminum	U	0.05	mg/L	0.05	1/30/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	1/30/2024			SW846-6020B	=
Arsenic	U	0.005	mg/L	0.005	1/30/2024			SW846-6020B	=
Barium		0.193	mg/L	0.004	1/30/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	1/30/2024			SW846-6020B	=
Boron		0.0589	mg/L	0.015	1/30/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	1/30/2024			SW846-6020B	=
Calcium		23.2	mg/L	0.2	1/30/2024			SW846-6020B	=
Chromium	U	0.01	mg/L	0.01	1/30/2024			SW846-6020B	=
Cobalt	U	0.001	mg/L	0.001	1/30/2024			SW846-6020B	=
Copper		0.00258	mg/L	0.002	1/30/2024			SW846-6020B	J
Iron	J	0.0695	mg/L	0.1	1/30/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	1/30/2024			SW846-6020B	=
Magnesium		9.38	mg/L	0.03	1/30/2024			SW846-6020B	=
Manganese	J	0.00172	mg/L	0.005	1/30/2024			SW846-6020B	J
Molybdenum	U	0.001	mg/L	0.001	1/30/2024			SW846-6020B	=
Nickel	U	0.002	mg/L	0.002	1/30/2024			SW846-6020B	=
Potassium		1.36	mg/L	0.3	1/30/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	1/30/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	1/30/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	1/30/2024			SW846-6020B	=
Sodium		42	mg/L	0.25	1/30/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	1/30/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	1/30/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	1/30/2024			SW846-6020B	=
Vanadium	BJ	0.00486	mg/L	0.02	1/30/2024			SW846-6020B	U
Zinc	U	0.02	mg/L	0.02	1/30/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	1/30/2024			SW846-7470A	=
Barium, Dissolved		0.187	mg/L	0.004	1/30/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	1/30/2024			SW846-6020B	UJ
Uranium, Dissolved	U	0.0002	mg/L	0.0002	1/30/2024			SW846-6020B	UJ
Radium-226	U	0.179	pCi/L	0.587	1/30/2024	0.34	0.34	AN-1418	=
Strontium-90	U	-0.605	pCi/L	3.4	1/30/2024	1.56	1.56	EPA-905.0-M	=
Tritium	U	-43.9	pCi/L	281	1/30/2024	134	134	EPA-906.0-M	=
Technetium-99		30	pCi/L	21	1/30/2024	13	13.5	HASL 300, Tc-02-RC M	J
Thorium-230	U	-0.355	pCi/L	1.9	1/30/2024	0.714	0.715	HASL 300, Th-01-RC M	=
Alpha activity	U	0.491	pCi/L	9.34	1/30/2024	4.39	4.39	SW846-9310	=
Beta activity		29.5	pCi/L	9.69	1/30/2024	8.12	9.45	SW846-9310	J

1,2-Dibromo-3-chloropropane	U	0.019	ug/L	0.019	1/30/2024	SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	1/30/2024	SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	1/30/2024	SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	1/30/2024	SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	1/30/2024	SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	1/30/2024	SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	1/30/2024	SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	1/30/2024	SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	1/30/2024	SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	1/30/2024	SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	1/30/2024	SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	1/30/2024	SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	1/30/2024	SW846-8260D	=
2-Butanone	U	5	ug/L	5	1/30/2024	SW846-8260D	=
2-Hexanone	U	5	ug/L	5	1/30/2024	SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	1/30/2024	SW846-8260D	=
Acetone	U	5	ug/L	5	1/30/2024	SW846-8260D	=
Acrolein	U	5	ug/L	5	1/30/2024	SW846-8260D	UJ
Acrylonitrile	U	5	ug/L	5	1/30/2024	SW846-8260D	=
Benzene	U	1	ug/L	1	1/30/2024	SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	1/30/2024	SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	1/30/2024	SW846-8260D	=
Bromoform	U	1	ug/L	1	1/30/2024	SW846-8260D	=
Bromomethane	U	1	ug/L	1	1/30/2024	SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	1/30/2024	SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	1/30/2024	SW846-8260D	UJ
Chlorobenzene	U	1	ug/L	1	1/30/2024	SW846-8260D	=
Chloroethane	U	1	ug/L	1	1/30/2024	SW846-8260D	=
Chloroform	U	1	ug/L	1	1/30/2024	SW846-8260D	=
Chloromethane	U	1	ug/L	1	1/30/2024	SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	1/30/2024	SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	1/30/2024	SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	1/30/2024	SW846-8260D	=
Dibromomethane	U	1	ug/L	1	1/30/2024	SW846-8260D	=
Ethylbenzene	U	1	ug/L	1	1/30/2024	SW846-8260D	=
Iodomethane	U	5	ug/L	5	1/30/2024	SW846-8260D	=
Methylene chloride	J	2.14	ug/L	5	1/30/2024	SW846-8260D	=
Styrene	U	1	ug/L	1	1/30/2024	SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	1/30/2024	SW846-8260D	UJ
Toluene	U	1	ug/L	1	1/30/2024	SW846-8260D	=
Total Xylene	U	3	ug/L	3	1/30/2024	SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	1/30/2024	SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	1/30/2024	SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	1/30/2024	SW846-8260D	=
Trichloroethene	J	0.45	ug/L	1	1/30/2024	SW846-8260D	=
Trichlorofluoromethane	U	1	ug/L	1	1/30/2024	SW846-8260D	=
Vinyl acetate	U	5	ug/L	5	1/30/2024	SW846-8260D	=
Vinyl chloride	U	1	ug/L	1	1/30/2024	SW846-8260D	=
Dissolved Solids		189	mg/L	10	1/30/2024	EPA-160.1	=
Iodide	U	0.5	mg/L	0.5	1/30/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	U	20	mg/L	20	1/30/2024	EPA-410.4	=
Cyanide	U	0.2	mg/L	0.2	1/30/2024	SW846-9012B	=
Total Organic Halides (TOX)	J	9.66	ug/L	10	1/30/2024	SW846-9020B	=

Total Organic Carbon (TOC)	J	1.02	mg/L	2	1/30/2024		SW846-9060A	=

Paducah OREIS
GROUNDWATER MONITORING REPORT

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

Sampling Point: MW384 SIDE **RGA Type:** URGA **Period:** 1st Quarter 2024

AKGWA Well Tag #: 8004-4809 **SAMPLE ID:** MW384SG2-24 Sample Type: REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide	U	0.2	mg/L	0.2	1/30/2024			SW846-9056A	=
Chloride	J	20.6	mg/L	250	1/30/2024			SW846-9056A	=
Fluoride	J	0.198	mg/L	4	1/30/2024			SW846-9056A	=
Nitrate as Nitrogen	J	0.849	mg/L	10	1/30/2024			SW846-9056A	=
Sulfate		17.6	mg/L	0.4	1/30/2024			SW846-9056A	=
Barometric Pressure Reading		29.98	Inches/Hg		1/30/2024				X
Conductivity		476	µmhos/cm		1/30/2024				X
Depth to Water		43.22	ft		1/30/2024				X
Dissolved Oxygen		4.4	mg/L		1/30/2024				X
Eh (approx)		536	mV		1/30/2024				X
pH		6.26	Std Unit		1/30/2024				X
Temperature		56.2	deg F		1/30/2024				X
Turbidity		4.55	NTU		1/30/2024				X
Aluminum	U	0.05	mg/L	0.05	1/30/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	1/30/2024			SW846-6020B	=
Arsenic	U	0.005	mg/L	0.005	1/30/2024			SW846-6020B	=
Barium		0.185	mg/L	0.004	1/30/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	1/30/2024			SW846-6020B	=
Boron		0.0546	mg/L	0.015	1/30/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	1/30/2024			SW846-6020B	=
Calcium		21.9	mg/L	0.2	1/30/2024			SW846-6020B	=
Chromium	U	0.01	mg/L	0.01	1/30/2024			SW846-6020B	=
Cobalt	U	0.001	mg/L	0.001	1/30/2024			SW846-6020B	=
Copper		0.00208	mg/L	0.002	1/30/2024			SW846-6020B	J
Iron	J	0.063	mg/L	0.1	1/30/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	1/30/2024			SW846-6020B	=
Magnesium		8.93	mg/L	0.03	1/30/2024			SW846-6020B	=
Manganese	J	0.0015	mg/L	0.005	1/30/2024			SW846-6020B	J
Molybdenum	U	0.001	mg/L	0.001	1/30/2024			SW846-6020B	=
Nickel	U	0.002	mg/L	0.002	1/30/2024			SW846-6020B	=
Potassium		1.28	mg/L	0.3	1/30/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	1/30/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	1/30/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	1/30/2024			SW846-6020B	=
Sodium		39.8	mg/L	0.25	1/30/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	1/30/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	1/30/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	1/30/2024			SW846-6020B	=
Vanadium	BJ	0.00505	mg/L	0.02	1/30/2024			SW846-6020B	U
Zinc	U	0.02	mg/L	0.02	1/30/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	1/30/2024			SW846-7470A	=
Barium, Dissolved		0.178	mg/L	0.004	1/30/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	1/30/2024			SW846-6020B	UJ
Uranium, Dissolved	U	0.0002	mg/L	0.0002	1/30/2024			SW846-6020B	UJ
Radium-226	U	0.492	pCi/L	0.684	1/30/2024	0.556	0.557	AN-1418	=

Strontium-90	U	1.76	pCi/L	5.11	1/30/2024	2.92	2.94	EPA-905.0-M	=
Tritium	U	-25.1	pCi/L	281	1/30/2024	138	138	EPA-906.0-M	=
Technetium-99		24.3	pCi/L	20.5	1/30/2024	12.6	12.9	HASL 300, Tc-02-RC M	J
Thorium-230	U	0.981	pCi/L	2.85	1/30/2024	1.76	1.78	HASL 300, Th-01-RC M	=
Alpha activity	U	4.04	pCi/L	7.6	1/30/2024	4.71	4.76	SW846-9310	=
Beta activity		20	pCi/L	10.3	1/30/2024	7.74	8.4	SW846-9310	J
1,2-Dibromo-3-chloropropane	U	0.0191	ug/L	0.0191	1/30/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	1/30/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	1/30/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	1/30/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	1/30/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	1/30/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	1/30/2024			SW846-8260D	=
Acetone	J	1.83	ug/L	5	1/30/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	1/30/2024			SW846-8260D	UJ
Acrylonitrile	U	5	ug/L	5	1/30/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	1/30/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	1/30/2024			SW846-8260D	UJ
Chlorobenzene	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	1/30/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Ethylbenzene	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	1/30/2024			SW846-8260D	=
Methylene chloride	J	2.37	ug/L	5	1/30/2024			SW846-8260D	=
Styrene	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	1/30/2024			SW846-8260D	UJ
Toluene	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Total Xylene	U	3	ug/L	3	1/30/2024			SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	1/30/2024			SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	1/30/2024			SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	1/30/2024			SW846-8260D	=
Trichloroethene	J	0.43	ug/L	1	1/30/2024			SW846-8260D	=
Trichlorofluoromethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=

Vinyl acetate	U	5	ug/L	5	1/30/2024	SW846-8260D	=
Vinyl chloride	U	1	ug/L	1	1/30/2024	SW846-8260D	=
Dissolved Solids		196	mg/L	10	1/30/2024	EPA-160.1	=
Iodide	U	0.5	mg/L	0.5	1/30/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	U	20	mg/L	20	1/30/2024	EPA-410.4	=
Cyanide	U	0.2	mg/L	0.2	1/30/2024	SW846-9012B	=
Total Organic Halides (TOX)		10.9	ug/L	10	1/30/2024	SW846-9020B	=
Total Organic Carbon (TOC)	J	0.961	mg/L	2	1/30/2024	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:** 1st Quarter 2024

AKGWA Well Tag #: 8004-4810 **SAMPLE ID:** MW385SG2-24 Sample Type: REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide	W	0.24	mg/L	0.2	1/26/2024			SW846-9056A	J
Chloride	JW	23.2	mg/L	250	1/26/2024			SW846-9056A	J
Fluoride	J	0.209	mg/L	4	1/26/2024			SW846-9056A	=
Nitrate as Nitrogen	J	0.567	mg/L	10	1/26/2024			SW846-9056A	=
Sulfate		19.7	mg/L	1.6	1/26/2024			SW846-9056A	=
Barometric Pressure Reading		30.09	Inches/Hg		1/26/2024				X
Conductivity		423	µmhos/cm		1/26/2024				X
Depth to Water		43.87	ft		1/26/2024				X
Dissolved Oxygen		1.22	mg/L		1/26/2024				X
Eh (approx)		487.6	mV		1/26/2024				X
pH		6.4	Std Unit		1/26/2024				X
Temperature		60.1	deg F		1/26/2024				X
Turbidity		0.72	NTU		1/26/2024				X
Aluminum	J	0.0221	mg/L	0.05	1/26/2024			SW846-6020B	U
Antimony	U	0.003	mg/L	0.003	1/26/2024			SW846-6020B	=
Arsenic	U	0.005	mg/L	0.005	1/26/2024			SW846-6020B	=
Barium		0.226	mg/L	0.004	1/26/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	1/26/2024			SW846-6020B	=
Boron		0.0751	mg/L	0.015	1/26/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	1/26/2024			SW846-6020B	=
Calcium		28.9	mg/L	0.2	1/26/2024			SW846-6020B	=
Chromium	U	0.01	mg/L	0.01	1/26/2024			SW846-6020B	=
Cobalt	J	0.000891	mg/L	0.001	1/26/2024			SW846-6020B	U
Copper	J	0.00153	mg/L	0.002	1/26/2024			SW846-6020B	U
Iron	J	0.0451	mg/L	0.1	1/26/2024			SW846-6020B	U
Lead	U	0.002	mg/L	0.002	1/26/2024			SW846-6020B	=
Magnesium		11.1	mg/L	0.03	1/26/2024			SW846-6020B	=
Manganese	J	0.00411	mg/L	0.005	1/26/2024			SW846-6020B	J
Molybdenum	J	0.000304	mg/L	0.001	1/26/2024			SW846-6020B	=
Nickel	J	0.000641	mg/L	0.002	1/26/2024			SW846-6020B	U
Potassium		1.68	mg/L	0.3	1/26/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	1/26/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	1/26/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	1/26/2024			SW846-6020B	=
Sodium		39.7	mg/L	0.25	1/26/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	1/26/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	1/26/2024			SW846-6020B	=
Uranium	J	0.000108	mg/L	0.0002	1/26/2024			SW846-6020B	U
Vanadium	U	0.02	mg/L	0.02	1/26/2024			SW846-6020B	=
Zinc	U	0.02	mg/L	0.02	1/26/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	1/26/2024			SW846-7470A	=
Barium, Dissolved		0.217	mg/L	0.004	1/26/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	1/26/2024			SW846-6020B	UJ
Uranium, Dissolved	J	0.000096	mg/L	0.0002	1/26/2024			SW846-6020B	J
Radium-226	U	0.751	pCi/L	1.76	1/26/2024	1.23	1.23	AN-1418	=

Strontium-90	U	2.06	pCi/L	4.93	1/26/2024	2.87	2.89	EPA-905.0-M	=
Tritium	U	-32.1	pCi/L	243	1/26/2024	114	114	EPA-906.0-M	=
Technetium-99		22.9	pCi/L	18	1/26/2024	11.4	11.7	HASL 300, Tc-02-RC M	=
Thorium-230	U	0.542	pCi/L	2.18	1/26/2024	1.22	1.22	HASL 300, Th-01-RC M	=
Alpha activity	U	3.43	pCi/L	6.25	1/26/2024	3.92	3.97	SW846-9310	=
Beta activity		34.8	pCi/L	8.7	1/26/2024	8.25	10.1	SW846-9310	=
1,2-Dibromo-3-chloropropane	UL	0.0214	ug/L	0.0214	1/26/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	1/26/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	1/26/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	1/26/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	1/26/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	1/26/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	1/26/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	1/26/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	1/26/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	1/26/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	1/26/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	1/26/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	1/26/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	1/26/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	1/26/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	1/26/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	1/26/2024			SW846-8260D	UJ
Acrolein	U	5	ug/L	5	1/26/2024			SW846-8260D	UJ
Acrylonitrile	U	5	ug/L	5	1/26/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	1/26/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	1/26/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	1/26/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	1/26/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	1/26/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	1/26/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	1/26/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	1/26/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	1/26/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	1/26/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	1/26/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	1/26/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	1/26/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	1/26/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	1/26/2024			SW846-8260D	=
Ethylbenzene	U	1	ug/L	1	1/26/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	1/26/2024			SW846-8260D	=
Methylene chloride	BJ	0.77	ug/L	5	1/26/2024			SW846-8260D	U
Styrene	U	1	ug/L	1	1/26/2024			SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	1/26/2024			SW846-8260D	=
Toluene	U	1	ug/L	1	1/26/2024			SW846-8260D	=
Total Xylene	U	3	ug/L	3	1/26/2024			SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	1/26/2024			SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	1/26/2024			SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	1/26/2024			SW846-8260D	=
Trichloroethene	U	1	ug/L	1	1/26/2024			SW846-8260D	=
Trichlorofluoromethane	U	1	ug/L	1	1/26/2024			SW846-8260D	=

Vinyl acetate	U	5	ug/L	5	1/26/2024	SW846-8260D	=
Vinyl chloride	U	1	ug/L	1	1/26/2024	SW846-8260D	=
Dissolved Solids		214	mg/L	10	1/26/2024	EPA-160.1	=
Iodide	U	0.5	mg/L	0.5	1/26/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	U	20	mg/L	20	1/26/2024	EPA-410.4	=
Cyanide	U	0.2	mg/L	0.2	1/26/2024	SW846-9012B	=
Total Organic Halides (TOX)	J	5.44	ug/L	10	1/26/2024	SW846-9020B	=
Total Organic Carbon (TOC)	J	0.77	mg/L	2	1/26/2024	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:** 1st Quarter 2024

AKGWA Well Tag #: 8004-4804 **SAMPLE ID:** MW386SG2-24 Sample Type: REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide	JW	0.131	mg/L	0.2	1/26/2024			SW846-9056A	=
Chloride	JW	12.3	mg/L	250	1/26/2024			SW846-9056A	=
Fluoride	J	0.763	mg/L	4	1/26/2024			SW846-9056A	=
Nitrate as Nitrogen	U	10	mg/L	10	1/26/2024			SW846-9056A	=
Sulfate		41.7	mg/L	1.6	1/26/2024			SW846-9056A	=
Barometric Pressure Reading		30.11	Inches/Hg		1/26/2024				X
Conductivity		546	µmhos/cm		1/26/2024				X
Depth to Water		19.4	ft		1/26/2024				X
Dissolved Oxygen		1.38	mg/L		1/26/2024				X
Eh (approx)		241.9	mV		1/26/2024				X
pH		6.68	Std Unit		1/26/2024				X
Temperature		61.7	deg F		1/26/2024				X
Turbidity		0.39	NTU		1/26/2024				X
Aluminum	U	0.05	mg/L	0.05	1/26/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	1/26/2024			SW846-6020B	=
Arsenic	J	0.0037	mg/L	0.005	1/26/2024			SW846-6020B	=
Barium		0.189	mg/L	0.004	1/26/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	1/26/2024			SW846-6020B	=
Boron	J	0.0121	mg/L	0.015	1/26/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	1/26/2024			SW846-6020B	=
Calcium		20.4	mg/L	0.2	1/26/2024			SW846-6020B	=
Chromium	U	0.01	mg/L	0.01	1/26/2024			SW846-6020B	=
Cobalt		0.0108	mg/L	0.001	1/26/2024			SW846-6020B	=
Copper	J	0.0012	mg/L	0.002	1/26/2024			SW846-6020B	J
Iron		0.964	mg/L	0.1	1/26/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	1/26/2024			SW846-6020B	=
Magnesium		8.49	mg/L	0.03	1/26/2024			SW846-6020B	=
Manganese		0.939	mg/L	0.005	1/26/2024			SW846-6020B	=
Molybdenum	J	0.000696	mg/L	0.001	1/26/2024			SW846-6020B	=
Nickel		0.00329	mg/L	0.002	1/26/2024			SW846-6020B	J
Potassium	J	0.296	mg/L	0.3	1/26/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	1/26/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	1/26/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	1/26/2024			SW846-6020B	=
Sodium		106	mg/L	2.5	1/26/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	1/26/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	1/26/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	1/26/2024			SW846-6020B	=
Vanadium	J	0.00521	mg/L	0.02	1/26/2024			SW846-6020B	=
Zinc	J	0.00342	mg/L	0.02	1/26/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	1/26/2024			SW846-7470A	=
Barium, Dissolved		0.161	mg/L	0.004	1/26/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	1/26/2024			SW846-6020B	UJ
Uranium, Dissolved	U	0.0002	mg/L	0.0002	1/26/2024			SW846-6020B	UJ
Radium-226	U	0.348	pCi/L	0.77	1/26/2024	0.467	0.468	AN-1418	=

Strontium-90	U	3.98	pCi/L	4.88	1/26/2024	3.1	3.17	EPA-905.0-M	=
Tritium	U	-35	pCi/L	248	1/26/2024	115	115	EPA-906.0-M	=
Technetium-99	U	-2.68	pCi/L	17.8	1/26/2024	9.94	9.94	HASL 300, Tc-02-RC M	=
Thorium-230	U	0.225	pCi/L	1.69	1/26/2024	0.87	0.873	HASL 300, Th-01-RC M	=
Alpha activity	U	5.1	pCi/L	11.4	1/26/2024	6.69	6.75	SW846-9310	=
Beta activity	U	1.67	pCi/L	11.4	1/26/2024	6.36	6.37	SW846-9310	=
1,2-Dibromo-3-chloropropane	UL	0.0216	ug/L	0.0216	1/26/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	1/26/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	1/26/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	1/26/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	1/26/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	1/26/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	1/26/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	1/26/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	1/26/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	1/26/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	1/26/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	1/26/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	1/26/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	1/26/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	1/26/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	1/26/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	1/26/2024			SW846-8260D	UJ
Acrolein	U	5	ug/L	5	1/26/2024			SW846-8260D	UJ
Acrylonitrile	U	5	ug/L	5	1/26/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	1/26/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	1/26/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	1/26/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	1/26/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	1/26/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	1/26/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	1/26/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	1/26/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	1/26/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	1/26/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	1/26/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	1/26/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	1/26/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	1/26/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	1/26/2024			SW846-8260D	=
Ethylbenzene	U	1	ug/L	1	1/26/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	1/26/2024			SW846-8260D	=
Methylene chloride	BJ	0.6	ug/L	5	1/26/2024			SW846-8260D	U
Styrene	U	1	ug/L	1	1/26/2024			SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	1/26/2024			SW846-8260D	=
Toluene	U	1	ug/L	1	1/26/2024			SW846-8260D	=
Total Xylene	U	3	ug/L	3	1/26/2024			SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	1/26/2024			SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	1/26/2024			SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	1/26/2024			SW846-8260D	=
Trichloroethene	U	1	ug/L	1	1/26/2024			SW846-8260D	=
Trichlorofluoromethane	U	1	ug/L	1	1/26/2024			SW846-8260D	=

Vinyl acetate	U	5	ug/L	5	1/26/2024	SW846-8260D	=
Vinyl chloride	U	1	ug/L	1	1/26/2024	SW846-8260D	=
Dissolved Solids		342	mg/L	10	1/26/2024	EPA-160.1	=
Iodide	U	0.5	mg/L	0.5	1/26/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	J	18	mg/L	20	1/26/2024	EPA-410.4	=
Cyanide	U	0.2	mg/L	0.2	1/26/2024	SW846-9012B	=
Total Organic Halides (TOX)		145	ug/L	10	1/26/2024	SW846-9020B	=
Total Organic Carbon (TOC)		5.7	mg/L	2	1/26/2024	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:** 1st Quarter 2024

AKGWA Well Tag #: 8004-4815 **SAMPLE ID:** MW387SG2-24 Sample Type: REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide	W	0.496	mg/L	0.2	1/26/2024			SW846-9056A	=
Chloride	JW	37.6	mg/L	250	1/26/2024			SW846-9056A	=
Fluoride	J	0.996	mg/L	4	1/26/2024			SW846-9056A	=
Nitrate as Nitrogen	J	0.888	mg/L	10	1/26/2024			SW846-9056A	=
Sulfate		28.7	mg/L	4	1/26/2024			SW846-9056A	=
Barometric Pressure Reading		30.09	Inches/Hg		1/26/2024				X
Conductivity		538	µmhos/cm		1/26/2024				X
Depth to Water		41.67	ft		1/26/2024				X
Dissolved Oxygen		4.47	mg/L		1/26/2024				X
Eh (approx)		450.3	mV		1/26/2024				X
pH		6.25	Std Unit		1/26/2024				X
Temperature		59.3	deg F		1/26/2024				X
Turbidity		1.26	NTU		1/26/2024				X
Aluminum	J	0.0297	mg/L	0.05	1/26/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	1/26/2024			SW846-6020B	=
Arsenic	J	0.00253	mg/L	0.005	1/26/2024			SW846-6020B	=
Barium		0.103	mg/L	0.004	1/26/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	1/26/2024			SW846-6020B	=
Boron		0.0372	mg/L	0.015	1/26/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	1/26/2024			SW846-6020B	=
Calcium		38.2	mg/L	0.2	1/26/2024			SW846-6020B	=
Chromium	J	0.00493	mg/L	0.01	1/26/2024			SW846-6020B	=
Cobalt	U	0.001	mg/L	0.001	1/26/2024			SW846-6020B	=
Copper		0.00227	mg/L	0.002	1/26/2024			SW846-6020B	J
Iron		0.112	mg/L	0.1	1/26/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	1/26/2024			SW846-6020B	=
Magnesium		15.8	mg/L	0.03	1/26/2024			SW846-6020B	=
Manganese		0.0114	mg/L	0.005	1/26/2024			SW846-6020B	J
Molybdenum	U	0.001	mg/L	0.001	1/26/2024			SW846-6020B	=
Nickel	U	0.002	mg/L	0.002	1/26/2024			SW846-6020B	=
Potassium		1.73	mg/L	0.3	1/26/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	1/26/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	1/26/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	1/26/2024			SW846-6020B	=
Sodium		49.3	mg/L	0.25	1/26/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	1/26/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	1/26/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	1/26/2024			SW846-6020B	=
Vanadium	U	0.02	mg/L	0.02	1/26/2024			SW846-6020B	=
Zinc	U	0.02	mg/L	0.02	1/26/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	1/26/2024			SW846-7470A	=
Barium, Dissolved		0.104	mg/L	0.004	1/26/2024			SW846-6020B	J
Chromium, Dissolved	J	0.00484	mg/L	0.01	1/26/2024			SW846-6020B	J
Uranium, Dissolved	U	0.0002	mg/L	0.0002	1/26/2024			SW846-6020B	UJ
Radium-226	U	0.359	pCi/L	0.716	1/26/2024	0.449	0.45	AN-1418	=

Strontium-90	U	0.35	pCi/L	4.27	1/26/2024	2.21	2.21	EPA-905.0-M	=
Tritium	U	50.4	pCi/L	249	1/26/2024	134	134	EPA-906.0-M	=
Technetium-99		35.4	pCi/L	18.4	1/26/2024	12.2	12.8	HASL 300, Tc-02-RC M	=
Thorium-230	U	0.428	pCi/L	1.37	1/26/2024	0.81	0.815	HASL 300, Th-01-RC M	=
Alpha activity	U	1.69	pCi/L	9.64	1/26/2024	5.11	5.13	SW846-9310	=
Beta activity		31.8	pCi/L	10.3	1/26/2024	8.83	10.2	SW846-9310	=
1,2-Dibromo-3-chloropropane	UL	0.0222	ug/L	0.0222	1/26/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	1/26/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	1/26/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	1/26/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	1/26/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	1/26/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	1/26/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	1/26/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	1/26/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	1/26/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	1/26/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	1/26/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	1/26/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	1/26/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	1/26/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	1/26/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	1/26/2024			SW846-8260D	UJ
Acrolein	U	5	ug/L	5	1/26/2024			SW846-8260D	UJ
Acrylonitrile	U	5	ug/L	5	1/26/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	1/26/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	1/26/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	1/26/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	1/26/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	1/26/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	1/26/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	1/26/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	1/26/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	1/26/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	1/26/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	1/26/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	1/26/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	1/26/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	1/26/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	1/26/2024			SW846-8260D	=
Ethylbenzene	U	1	ug/L	1	1/26/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	1/26/2024			SW846-8260D	=
Methylene chloride	BJ	0.76	ug/L	5	1/26/2024			SW846-8260D	U
Styrene	U	1	ug/L	1	1/26/2024			SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	1/26/2024			SW846-8260D	=
Toluene	U	1	ug/L	1	1/26/2024			SW846-8260D	=
Total Xylene	U	3	ug/L	3	1/26/2024			SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	1/26/2024			SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	1/26/2024			SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	1/26/2024			SW846-8260D	=
Trichloroethene	J	0.43	ug/L	1	1/26/2024			SW846-8260D	=
Trichlorofluoromethane	U	1	ug/L	1	1/26/2024			SW846-8260D	=

Vinyl acetate	U	5	ug/L	5	1/26/2024	SW846-8260D	=
Vinyl chloride	U	1	ug/L	1	1/26/2024	SW846-8260D	=
Dissolved Solids		284	mg/L	10	1/26/2024	EPA-160.1	=
Iodide	U	0.5	mg/L	0.5	1/26/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	U	20	mg/L	20	1/26/2024	EPA-410.4	=
Cyanide	U	0.2	mg/L	0.2	1/26/2024	SW846-9012B	=
Total Organic Halides (TOX)	J	9.6	ug/L	10	1/26/2024	SW846-9020B	=
Total Organic Carbon (TOC)	J	0.938	mg/L	2	1/26/2024	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:** 1st Quarter 2024

AKGWA Well Tag #: 8004-4816 **SAMPLE ID:** MW388SG2-24 Sample Type: REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide	W	0.445	mg/L	0.2	1/26/2024			SW846-9056A	=
Chloride	JW	35.4	mg/L	250	1/26/2024			SW846-9056A	=
Fluoride	J	0.233	mg/L	4	1/26/2024			SW846-9056A	=
Nitrate as Nitrogen	J	0.927	mg/L	10	1/26/2024			SW846-9056A	=
Sulfate		18.7	mg/L	0.4	1/26/2024			SW846-9056A	=
Barometric Pressure Reading		30.09	Inches/Hg		1/26/2024				X
Conductivity		413	µmhos/cm		1/26/2024				X
Depth to Water		41.64	ft		1/26/2024				X
Dissolved Oxygen		5.26	mg/L		1/26/2024				X
Eh (approx)		486	mV		1/26/2024				X
pH		6.11	Std Unit		1/26/2024				X
Temperature		60.1	deg F		1/26/2024				X
Turbidity		0.1	NTU		1/26/2024				X
Aluminum	J	0.0203	mg/L	0.05	1/26/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	1/26/2024			SW846-6020B	=
Arsenic	J	0.00223	mg/L	0.005	1/26/2024			SW846-6020B	=
Barium		0.211	mg/L	0.004	1/26/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	1/26/2024			SW846-6020B	=
Boron		0.0289	mg/L	0.015	1/26/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	1/26/2024			SW846-6020B	=
Calcium		24.4	mg/L	0.2	1/26/2024			SW846-6020B	=
Chromium	U	0.01	mg/L	0.01	1/26/2024			SW846-6020B	=
Cobalt	U	0.001	mg/L	0.001	1/26/2024			SW846-6020B	=
Copper		0.00209	mg/L	0.002	1/26/2024			SW846-6020B	J
Iron	J	0.0958	mg/L	0.1	1/26/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	1/26/2024			SW846-6020B	=
Magnesium		10.6	mg/L	0.03	1/26/2024			SW846-6020B	=
Manganese	U	0.005	mg/L	0.005	1/26/2024			SW846-6020B	=
Molybdenum	U	0.001	mg/L	0.001	1/26/2024			SW846-6020B	=
Nickel	U	0.002	mg/L	0.002	1/26/2024			SW846-6020B	=
Potassium		1.77	mg/L	0.3	1/26/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	1/26/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	1/26/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	1/26/2024			SW846-6020B	=
Sodium		45.2	mg/L	0.25	1/26/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	1/26/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	1/26/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	1/26/2024			SW846-6020B	=
Vanadium	J	0.00414	mg/L	0.02	1/26/2024			SW846-6020B	=
Zinc	U	0.02	mg/L	0.02	1/26/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	1/26/2024			SW846-7470A	=
Barium, Dissolved		0.197	mg/L	0.004	1/26/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	1/26/2024			SW846-6020B	UJ
Uranium, Dissolved	U	0.0002	mg/L	0.0002	1/26/2024			SW846-6020B	UJ
Radium-226	U	0.426	pCi/L	1.71	1/26/2024	1.04	1.04	AN-1418	=

Strontium-90	U	2.35	pCi/L	8.25	1/26/2024	4.74	4.76	EPA-905.0-M	=
Tritium	U	52.5	pCi/L	245	1/26/2024	132	133	EPA-906.0-M	=
Technetium-99	U	1.63	pCi/L	18.7	1/26/2024	10.7	10.7	HASL 300, Tc-02-RC M	=
Thorium-230	U	1	pCi/L	1.36	1/26/2024	0.997	1.01	HASL 300, Th-01-RC M	=
Alpha activity	U	3.66	pCi/L	12	1/26/2024	6.63	6.66	SW846-9310	=
Beta activity		10.9	pCi/L	10.3	1/26/2024	6.82	7.07	SW846-9310	=
1,2-Dibromo-3-chloropropane	UL	0.0214	ug/L	0.0214	1/26/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	1/26/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	1/26/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	1/26/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	1/26/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	1/26/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	1/26/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	1/26/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	1/26/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	1/26/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	1/26/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	1/26/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	1/26/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	1/26/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	1/26/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	1/26/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	1/26/2024			SW846-8260D	UJ
Acrolein	U	5	ug/L	5	1/26/2024			SW846-8260D	UJ
Acrylonitrile	U	5	ug/L	5	1/26/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	1/26/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	1/26/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	1/26/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	1/26/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	1/26/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	1/26/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	1/26/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	1/26/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	1/26/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	1/26/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	1/26/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	1/26/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	1/26/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	1/26/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	1/26/2024			SW846-8260D	=
Ethylbenzene	U	1	ug/L	1	1/26/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	1/26/2024			SW846-8260D	=
Methylene chloride	BJ	0.66	ug/L	5	1/26/2024			SW846-8260D	U
Styrene	U	1	ug/L	1	1/26/2024			SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	1/26/2024			SW846-8260D	=
Toluene	U	1	ug/L	1	1/26/2024			SW846-8260D	=
Total Xylene	U	3	ug/L	3	1/26/2024			SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	1/26/2024			SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	1/26/2024			SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	1/26/2024			SW846-8260D	=
Trichloroethene	U	1	ug/L	1	1/26/2024			SW846-8260D	=
Trichlorofluoromethane	U	1	ug/L	1	1/26/2024			SW846-8260D	=

Vinyl acetate	U	5	ug/L	5	1/26/2024	SW846-8260D	=
Vinyl chloride	U	1	ug/L	1	1/26/2024	SW846-8260D	=
Dissolved Solids		220	mg/L	10	1/26/2024	EPA-160.1	=
Iodide	U	0.5	mg/L	0.5	1/26/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	U	20	mg/L	20	1/26/2024	EPA-410.4	=
Cyanide	U	0.2	mg/L	0.2	1/26/2024	SW846-9012B	=
Total Organic Halides (TOX)		36	ug/L	10	1/26/2024	SW846-9020B	=
Total Organic Carbon (TOC)	J	0.655	mg/L	2	1/26/2024	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:** 1st Quarter 2024

AKGWA Well Tag #: 8004-4805 **SAMPLE ID:** MW391SG2-24 Sample Type: REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide		0.538	mg/L	0.2	1/25/2024			SW846-9056A	=
Chloride	BJ	41.4	mg/L	250	1/25/2024			SW846-9056A	U
Fluoride	J	0.193	mg/L	4	1/25/2024			SW846-9056A	=
Nitrate as Nitrogen	J	1.13	mg/L	10	1/25/2024			SW846-9056A	=
Sulfate		11.9	mg/L	0.4	1/25/2024			SW846-9056A	=
Barometric Pressure Reading		30.05	Inches/Hg		1/25/2024				X
Conductivity		384	µmhos/cm		1/25/2024				X
Depth to Water		44.82	ft		1/25/2024				X
Dissolved Oxygen		5.5	mg/L		1/25/2024				X
Eh (approx)		428	mV		1/25/2024				X
pH		6	Std Unit		1/25/2024				X
Temperature		58	deg F		1/25/2024				X
Turbidity		0	NTU		1/25/2024				X
Aluminum	J	0.0251	mg/L	0.05	1/25/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	1/25/2024			SW846-6020B	=
Arsenic	J	0.00328	mg/L	0.005	1/25/2024			SW846-6020B	=
Barium		0.243	mg/L	0.004	1/25/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	1/25/2024			SW846-6020B	=
Boron	B	0.0325	mg/L	0.015	1/25/2024			SW846-6020B	J
Cadmium	U	0.001	mg/L	0.001	1/25/2024			SW846-6020B	=
Calcium		27.2	mg/L	0.2	1/25/2024			SW846-6020B	=
Chromium	U	0.01	mg/L	0.01	1/25/2024			SW846-6020B	=
Cobalt	U	0.001	mg/L	0.001	1/25/2024			SW846-6020B	=
Copper		0.00202	mg/L	0.002	1/25/2024			SW846-6020B	J
Iron		0.169	mg/L	0.1	1/25/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	1/25/2024			SW846-6020B	=
Magnesium		11.9	mg/L	0.03	1/25/2024			SW846-6020B	=
Manganese	J	0.00288	mg/L	0.005	1/25/2024			SW846-6020B	J
Molybdenum	U	0.001	mg/L	0.001	1/25/2024			SW846-6020B	=
Nickel	U	0.002	mg/L	0.002	1/25/2024			SW846-6020B	=
Potassium		1.47	mg/L	0.3	1/25/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	1/25/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	1/25/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	1/25/2024			SW846-6020B	=
Sodium		34	mg/L	0.25	1/25/2024			SW846-6020B	=
Tantalum	UN	0.005	mg/L	0.005	1/25/2024			SW846-6020B	UJ
Thallium	U	0.002	mg/L	0.002	1/25/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	1/25/2024			SW846-6020B	=
Vanadium	J	0.00377	mg/L	0.02	1/25/2024			SW846-6020B	=
Zinc	J	0.00665	mg/L	0.02	1/25/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	1/25/2024			SW846-7470A	=
Barium, Dissolved		0.224	mg/L	0.004	1/25/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	1/25/2024			SW846-6020B	UJ
Uranium, Dissolved	U	0.0002	mg/L	0.0002	1/25/2024			SW846-6020B	UJ
Radium-226	U	0.593	pCi/L	1.46	1/25/2024	0.999	0.999	AN-1418	=

Strontium-90	U	-0.098	pCi/L	3.27	1/25/2024	1.66	1.66	EPA-905.0-M	=
Tritium	U	89	pCi/L	238	1/25/2024	139	140	EPA-906.0-M	=
Technetium-99	U	2.48	pCi/L	16.4	1/25/2024	9.41	9.41	HASL 300, Tc-02-RC M	=
Thorium-230	U	-0.0334	pCi/L	1.81	1/25/2024	0.796	0.797	HASL 300, Th-01-RC M	=
Alpha activity	U	-0.988	pCi/L	9.22	1/25/2024	3.82	3.82	SW846-9310	=
Beta activity	U	1.07	pCi/L	9.81	1/25/2024	5.38	5.38	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.019	ug/L	0.019	1/25/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
1,1,1-Trichloroethane	UY2	1	ug/L	1	1/25/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
1,1-Dichloroethene	UY2	1	ug/L	1	1/25/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	1/25/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	1/25/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	1/25/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	1/25/2024			SW846-8260D	=
4-Methyl-2-pentanone	UL	5	ug/L	5	1/25/2024			SW846-8260D	=
Acetone	UY2	5	ug/L	5	1/25/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	1/25/2024			SW846-8260D	UJ
Acrylonitrile	U	5	ug/L	5	1/25/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Bromomethane	UY2	1	ug/L	1	1/25/2024			SW846-8260D	=
Carbon disulfide	UY2	5	ug/L	5	1/25/2024			SW846-8260D	=
Carbon tetrachloride	UY2	1	ug/L	1	1/25/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Chloromethane	UY1	1	ug/L	1	1/25/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	1/25/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Ethylbenzene	UY2	1	ug/L	1	1/25/2024			SW846-8260D	=
Iodomethane	UY2	5	ug/L	5	1/25/2024			SW846-8260D	=
Methylene chloride	BJY2	1.53	ug/L	5	1/25/2024			SW846-8260D	U
Styrene	UY2	1	ug/L	1	1/25/2024			SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Toluene	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Total Xylene	UY2	3	ug/L	3	1/25/2024			SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	1/25/2024			SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	1/25/2024			SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	1/25/2024			SW846-8260D	UJ
Trichloroethene	J	0.58	ug/L	1	1/25/2024			SW846-8260D	=
Trichlorofluoromethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=

Vinyl acetate	U	5	ug/L	5	1/25/2024	SW846-8260D	=
Vinyl chloride	UY1	1	ug/L	1	1/25/2024	SW846-8260D	UJ
Dissolved Solids		189	mg/L	10	1/25/2024	EPA-160.1	=
Iodide	U	0.5	mg/L	0.5	1/25/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	U	20	mg/L	20	1/25/2024	EPA-410.4	=
Cyanide	U	0.2	mg/L	0.2	1/25/2024	SW846-9012B	=
Total Organic Halides (TOX)		13.7	ug/L	10	1/25/2024	SW846-9020B	=
Total Organic Carbon (TOC)	J	0.556	mg/L	2	1/25/2024	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:** 1st Quarter 2024

AKGWA Well Tag #: 8004-4806 **SAMPLE ID:** MW392SG2-24 Sample Type: REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide		0.532	mg/L	0.2	1/25/2024			SW846-9056A	=
Chloride	BJ	42.1	mg/L	250	1/25/2024			SW846-9056A	U
Fluoride	J	0.26	mg/L	4	1/25/2024			SW846-9056A	=
Nitrate as Nitrogen	J	0.533	mg/L	10	1/25/2024			SW846-9056A	=
Sulfate		7.94	mg/L	0.4	1/25/2024			SW846-9056A	=
Barometric Pressure Reading		30.05	Inches/Hg		1/25/2024				X
Conductivity		331	µmhos/cm		1/25/2024				X
Depth to Water		44.02	ft		1/25/2024				X
Dissolved Oxygen		2.02	mg/L		1/25/2024				X
Eh (approx)		467	mV		1/25/2024				X
pH		6	Std Unit		1/25/2024				X
Temperature		59.4	deg F		1/25/2024				X
Turbidity		1.2	NTU		1/25/2024				X
Aluminum	J	0.0417	mg/L	0.05	1/25/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	1/25/2024			SW846-6020B	=
Arsenic	J	0.00284	mg/L	0.005	1/25/2024			SW846-6020B	=
Barium		0.353	mg/L	0.004	1/25/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	1/25/2024			SW846-6020B	=
Boron	B	0.0262	mg/L	0.015	1/25/2024			SW846-6020B	J
Cadmium	U	0.001	mg/L	0.001	1/25/2024			SW846-6020B	=
Calcium		25	mg/L	0.2	1/25/2024			SW846-6020B	=
Chromium	U	0.01	mg/L	0.01	1/25/2024			SW846-6020B	=
Cobalt	J	0.000771	mg/L	0.001	1/25/2024			SW846-6020B	J
Copper	J	0.00193	mg/L	0.002	1/25/2024			SW846-6020B	J
Iron		0.261	mg/L	0.1	1/25/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	1/25/2024			SW846-6020B	=
Magnesium		10.8	mg/L	0.03	1/25/2024			SW846-6020B	=
Manganese		0.472	mg/L	0.005	1/25/2024			SW846-6020B	=
Molybdenum	J	0.00025	mg/L	0.001	1/25/2024			SW846-6020B	=
Nickel		0.00331	mg/L	0.002	1/25/2024			SW846-6020B	J
Potassium		2.24	mg/L	0.3	1/25/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	1/25/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	1/25/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	1/25/2024			SW846-6020B	=
Sodium		26	mg/L	0.25	1/25/2024			SW846-6020B	=
Tantalum	UN	0.005	mg/L	0.005	1/25/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	1/25/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	1/25/2024			SW846-6020B	=
Vanadium	U	0.02	mg/L	0.02	1/25/2024			SW846-6020B	=
Zinc	J	0.00497	mg/L	0.02	1/25/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	1/25/2024			SW846-7470A	=
Barium, Dissolved		0.338	mg/L	0.004	1/25/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	1/25/2024			SW846-6020B	UJ
Uranium, Dissolved	U	0.0002	mg/L	0.0002	1/25/2024			SW846-6020B	UJ
Radium-226	U	0.292	pCi/L	1.83	1/25/2024	0.967	0.967	AN-1418	=

Strontium-90	U	1.15	pCi/L	5.54	1/25/2024	3.09	3.1	EPA-905.0-M	=
Tritium	U	35.8	pCi/L	238	1/25/2024	135	135	EPA-906.0-M	=
Technetium-99	U	6.69	pCi/L	16.4	1/25/2024	9.64	9.67	HASL 300, Tc-02-RC M	=
Thorium-230	U	0.33	pCi/L	1.72	1/25/2024	0.941	0.946	HASL 300, Th-01-RC M	=
Alpha activity	U	3.88	pCi/L	7.29	1/25/2024	4.52	4.56	SW846-9310	=
Beta activity	U	8.11	pCi/L	10.4	1/25/2024	6.54	6.68	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.0187	ug/L	0.0187	1/25/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
1,1,1-Trichloroethane	UY2	1	ug/L	1	1/25/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
1,1-Dichloroethene	UY2	1	ug/L	1	1/25/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	1/25/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	1/25/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	1/25/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	1/25/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	1/25/2024			SW846-8260D	=
Acetone	UY2	5	ug/L	5	1/25/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	1/25/2024			SW846-8260D	UJ
Acrylonitrile	U	5	ug/L	5	1/25/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Bromomethane	UY2	1	ug/L	1	1/25/2024			SW846-8260D	=
Carbon disulfide	UY2	5	ug/L	5	1/25/2024			SW846-8260D	=
Carbon tetrachloride	UY2	1	ug/L	1	1/25/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Chloromethane	UY1	1	ug/L	1	1/25/2024			SW846-8260D	=
cis-1,2-Dichloroethene	J	0.55	ug/L	1	1/25/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Ethylbenzene	UY2	1	ug/L	1	1/25/2024			SW846-8260D	=
Iodomethane	UY2	5	ug/L	5	1/25/2024			SW846-8260D	=
Methylene chloride	JY2	1.54	ug/L	5	1/25/2024			SW846-8260D	=
Styrene	UY2	1	ug/L	1	1/25/2024			SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Toluene	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Total Xylene	UY2	3	ug/L	3	1/25/2024			SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	1/25/2024			SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	1/25/2024			SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	1/25/2024			SW846-8260D	=
Trichloroethene		6.71	ug/L	1	1/25/2024			SW846-8260D	=
Trichlorofluoromethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=

Vinyl acetate	U	5	ug/L	5	1/25/2024	SW846-8260D	=
Vinyl chloride	UY1	1	ug/L	1	1/25/2024	SW846-8260D	UJ
Dissolved Solids		169	mg/L	10	1/25/2024	EPA-160.1	=
Iodide	U	0.5	mg/L	0.5	1/25/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	U	20	mg/L	20	1/25/2024	EPA-410.4	=
Cyanide	U	0.2	mg/L	0.2	1/25/2024	SW846-9012B	=
Total Organic Halides (TOX)	J	9.36	ug/L	10	1/25/2024	SW846-9020B	=
Total Organic Carbon (TOC)	J	0.565	mg/L	2	1/25/2024	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:** 1st Quarter 2024

AKGWA Well Tag #: 8004-4807 **SAMPLE ID:** MW393SG2-24 Sample Type: REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide	J	0.139	mg/L	0.2	1/25/2024			SW846-9056A	=
Chloride	BJ	9.94	mg/L	250	1/25/2024			SW846-9056A	U
Fluoride	J	0.292	mg/L	4	1/25/2024			SW846-9056A	=
Nitrate as Nitrogen	J	0.115	mg/L	10	1/25/2024			SW846-9056A	=
Sulfate		19.4	mg/L	0.4	1/25/2024			SW846-9056A	=
Barometric Pressure Reading		30.06	Inches/Hg		1/25/2024				X
Conductivity		407	µmhos/cm		1/25/2024				X
Depth to Water		29.77	ft		1/25/2024				X
Dissolved Oxygen		2.02	mg/L		1/25/2024				X
Eh (approx)		444	mV		1/25/2024				X
pH		6.2	Std Unit		1/25/2024				X
Temperature		60.8	deg F		1/25/2024				X
Turbidity		9.47	NTU		1/25/2024				X
Aluminum	J	0.0325	mg/L	0.05	1/25/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	1/25/2024			SW846-6020B	=
Arsenic		0.0055	mg/L	0.005	1/25/2024			SW846-6020B	=
Barium		0.107	mg/L	0.004	1/25/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	1/25/2024			SW846-6020B	=
Boron	B	0.023	mg/L	0.015	1/25/2024			SW846-6020B	J
Cadmium	U	0.001	mg/L	0.001	1/25/2024			SW846-6020B	=
Calcium		14.9	mg/L	0.2	1/25/2024			SW846-6020B	=
Chromium	U	0.01	mg/L	0.01	1/25/2024			SW846-6020B	=
Cobalt	U	0.001	mg/L	0.001	1/25/2024			SW846-6020B	=
Copper	J	0.00119	mg/L	0.002	1/25/2024			SW846-6020B	J
Iron		1	mg/L	0.1	1/25/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	1/25/2024			SW846-6020B	=
Magnesium		3.75	mg/L	0.03	1/25/2024			SW846-6020B	=
Manganese		0.0412	mg/L	0.005	1/25/2024			SW846-6020B	J
Molybdenum	J	0.00039	mg/L	0.001	1/25/2024			SW846-6020B	=
Nickel	U	0.002	mg/L	0.002	1/25/2024			SW846-6020B	=
Potassium		0.438	mg/L	0.3	1/25/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	1/25/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	1/25/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	1/25/2024			SW846-6020B	=
Sodium		83.9	mg/L	5	1/25/2024			SW846-6020B	=
Tantalum	UN	0.005	mg/L	0.005	1/25/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	1/25/2024			SW846-6020B	=
Uranium	J	0.000069	mg/L	0.0002	1/25/2024			SW846-6020B	=
Vanadium	U	0.02	mg/L	0.02	1/25/2024			SW846-6020B	=
Zinc	U	0.02	mg/L	0.02	1/25/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	1/25/2024			SW846-7470A	=
Barium, Dissolved		0.072	mg/L	0.004	1/25/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	1/25/2024			SW846-6020B	UJ
Uranium, Dissolved	U	0.0002	mg/L	0.0002	1/25/2024			SW846-6020B	UJ
Radium-226	U	0.325	pCi/L	0.504	1/25/2024	0.353	0.354	AN-1418	=

Strontium-90	U	-2.29	pCi/L	5.48	1/25/2024	2.55	2.55	EPA-905.0-M	=
Tritium	U	152	pCi/L	238	1/25/2024	144	147	EPA-906.0-M	=
Technetium-99	U	11	pCi/L	16.2	1/25/2024	9.77	9.85	HASL 300, Tc-02-RC M	=
Thorium-230	U	0.73	pCi/L	1.64	1/25/2024	1.05	1.06	HASL 300, Th-01-RC M	=
Alpha activity	U	1.98	pCi/L	8.03	1/25/2024	4.18	4.19	SW846-9310	=
Beta activity	U	-0.536	pCi/L	8.71	1/25/2024	4.5	4.5	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.019	ug/L	0.019	1/25/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
1,1,1-Trichloroethane	UY2	1	ug/L	1	1/25/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
1,1-Dichloroethene	UY2	1	ug/L	1	1/25/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	1/25/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	1/25/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	1/25/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	1/25/2024			SW846-8260D	=
4-Methyl-2-pentanone	UL	5	ug/L	5	1/25/2024			SW846-8260D	=
Acetone	UY2	5	ug/L	5	1/25/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	1/25/2024			SW846-8260D	UJ
Acrylonitrile	U	5	ug/L	5	1/25/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Bromomethane	UY2	1	ug/L	1	1/25/2024			SW846-8260D	=
Carbon disulfide	UY2	5	ug/L	5	1/25/2024			SW846-8260D	=
Carbon tetrachloride	UY2	1	ug/L	1	1/25/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Chloromethane	UY1	1	ug/L	1	1/25/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	1/25/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Ethylbenzene	UY2	1	ug/L	1	1/25/2024			SW846-8260D	=
Iodomethane	UY2	5	ug/L	5	1/25/2024			SW846-8260D	=
Methylene chloride	BJY2	1.43	ug/L	5	1/25/2024			SW846-8260D	U
Styrene	UY2	1	ug/L	1	1/25/2024			SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Toluene	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Total Xylene	UY2	3	ug/L	3	1/25/2024			SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	1/25/2024			SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	1/25/2024			SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	1/25/2024			SW846-8260D	UJ
Trichloroethene	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Trichlorofluoromethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=

Vinyl acetate	U	5	ug/L	5	1/25/2024	SW846-8260D	=
Vinyl chloride	UY1	1	ug/L	1	1/25/2024	SW846-8260D	UJ
Dissolved Solids		261	mg/L	10	1/25/2024	EPA-160.1	=
Iodide	U	0.5	mg/L	0.5	1/25/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	U	20	mg/L	20	1/25/2024	EPA-410.4	=
Cyanide	U	0.2	mg/L	0.2	1/25/2024	SW846-9012B	=
Total Organic Halides (TOX)		16.2	ug/L	10	1/25/2024	SW846-9020B	=
Total Organic Carbon (TOC)		2.39	mg/L	2	1/25/2024	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:** 1st Quarter 2024

AKGWA Well Tag #: 8004-4802 **SAMPLE ID:** MW394SG2-24 Sample Type: REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide		0.538	mg/L	0.2	1/30/2024			SW846-9056A	=
Chloride	J	47.2	mg/L	250	1/30/2024			SW846-9056A	=
Fluoride	J	0.165	mg/L	4	1/30/2024			SW846-9056A	=
Nitrate as Nitrogen	J	1.53	mg/L	10	1/30/2024			SW846-9056A	=
Sulfate		11.6	mg/L	0.4	1/30/2024			SW846-9056A	=
Barometric Pressure Reading		29.96	Inches/Hg		1/30/2024				X
Conductivity		407	µmhos/cm		1/30/2024				X
Depth to Water		56.34	ft		1/30/2024				X
Dissolved Oxygen		6.03	mg/L		1/30/2024				X
Eh (approx)		518	mV		1/30/2024				X
pH		6.08	Std Unit		1/30/2024				X
Temperature		58.6	deg F		1/30/2024				X
Turbidity		3.06	NTU		1/30/2024				X
Aluminum	U	0.05	mg/L	0.05	1/30/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	1/30/2024			SW846-6020B	=
Arsenic	U	0.005	mg/L	0.005	1/30/2024			SW846-6020B	=
Barium		0.269	mg/L	0.004	1/30/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	1/30/2024			SW846-6020B	=
Boron		0.021	mg/L	0.015	1/30/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	1/30/2024			SW846-6020B	=
Calcium		26.8	mg/L	0.2	1/30/2024			SW846-6020B	=
Chromium	U	0.01	mg/L	0.01	1/30/2024			SW846-6020B	=
Cobalt	U	0.001	mg/L	0.001	1/30/2024			SW846-6020B	=
Copper		0.00203	mg/L	0.002	1/30/2024			SW846-6020B	J
Iron	J	0.0395	mg/L	0.1	1/30/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	1/30/2024			SW846-6020B	=
Magnesium		11	mg/L	0.03	1/30/2024			SW846-6020B	=
Manganese	J	0.00102	mg/L	0.005	1/30/2024			SW846-6020B	J
Molybdenum	U	0.001	mg/L	0.001	1/30/2024			SW846-6020B	=
Nickel		0.00449	mg/L	0.002	1/30/2024			SW846-6020B	J
Potassium		1.35	mg/L	0.3	1/30/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	1/30/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	1/30/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	1/30/2024			SW846-6020B	=
Sodium		31.6	mg/L	0.25	1/30/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	1/30/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	1/30/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	1/30/2024			SW846-6020B	=
Vanadium	BJ	0.00497	mg/L	0.02	1/30/2024			SW846-6020B	U
Zinc	U	0.02	mg/L	0.02	1/30/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	1/30/2024			SW846-7470A	=
Barium, Dissolved		0.265	mg/L	0.004	1/30/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	1/30/2024			SW846-6020B	UJ
Uranium, Dissolved	U	0.0002	mg/L	0.0002	1/30/2024			SW846-6020B	UJ
Radium-226	U	0.324	pCi/L	0.597	1/30/2024	0.389	0.389	AN-1418	=

Strontium-90	U	-1.05	pCi/L	5.44	1/30/2024	2.66	2.66	EPA-905.0-M	=
Tritium	U	-66.9	pCi/L	281	1/30/2024	129	129	EPA-906.0-M	=
Technetium-99	U	2.34	pCi/L	20.9	1/30/2024	12.2	12.2	HASL 300, Tc-02-RC M	=
Thorium-230	U	0.0604	pCi/L	1.4	1/30/2024	0.662	0.663	HASL 300, Th-01-RC M	=
Alpha activity	U	1.9	pCi/L	7.69	1/30/2024	4	4.01	SW846-9310	=
Beta activity	U	3.38	pCi/L	8.55	1/30/2024	4.99	5.02	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.0185	ug/L	0.0185	1/30/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	1/30/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	1/30/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	1/30/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	1/30/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	1/30/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	1/30/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	1/30/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	1/30/2024			SW846-8260D	UJ
Acrylonitrile	U	5	ug/L	5	1/30/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	1/30/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	1/30/2024			SW846-8260D	UJ
Chlorobenzene	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	1/30/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Ethylbenzene	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	1/30/2024			SW846-8260D	=
Methylene chloride	J	2.26	ug/L	5	1/30/2024			SW846-8260D	=
Styrene	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	1/30/2024			SW846-8260D	UJ
Toluene	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Total Xylene	U	3	ug/L	3	1/30/2024			SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	1/30/2024			SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	1/30/2024			SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	1/30/2024			SW846-8260D	=
Trichloroethene		5.43	ug/L	1	1/30/2024			SW846-8260D	=
Trichlorofluoromethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=

Vinyl acetate	U	5	ug/L	5	1/30/2024	SW846-8260D	=
Vinyl chloride	U	1	ug/L	1	1/30/2024	SW846-8260D	=
Dissolved Solids		200	mg/L	10	1/30/2024	EPA-160.1	=
Iodide	U	0.5	mg/L	0.5	1/30/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	U	20	mg/L	20	1/30/2024	EPA-410.4	=
Cyanide	U	0.2	mg/L	0.2	1/30/2024	SW846-9012B	=
Total Organic Halides (TOX)	J	8.6	ug/L	10	1/30/2024	SW846-9020B	=
Total Organic Carbon (TOC)	J	0.789	mg/L	2	1/30/2024	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:** 1st Quarter 2024

AKGWA Well Tag #: 8004-4801 **SAMPLE ID:** MW395SG2-24 Sample Type: REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide		0.634	mg/L	0.2	1/30/2024			SW846-9056A	=
Chloride	J	44.7	mg/L	250	1/30/2024			SW846-9056A	=
Fluoride	J	0.161	mg/L	4	1/30/2024			SW846-9056A	=
Nitrate as Nitrogen	J	1.52	mg/L	10	1/30/2024			SW846-9056A	=
Sulfate		11.2	mg/L	0.4	1/30/2024			SW846-9056A	=
Barometric Pressure Reading		29.96	Inches/Hg		1/30/2024				X
Conductivity		388	µmhos/cm		1/30/2024				X
Depth to Water		56.8	ft		1/30/2024				X
Dissolved Oxygen		5.1	mg/L		1/30/2024				X
Eh (approx)		509	mV		1/30/2024				X
pH		6.14	Std Unit		1/30/2024				X
Temperature		58.4	deg F		1/30/2024				X
Turbidity		3.19	NTU		1/30/2024				X
Aluminum	U	0.05	mg/L	0.05	1/30/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	1/30/2024			SW846-6020B	=
Arsenic	U	0.005	mg/L	0.005	1/30/2024			SW846-6020B	=
Barium		0.271	mg/L	0.004	1/30/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	1/30/2024			SW846-6020B	=
Boron		0.0193	mg/L	0.015	1/30/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	1/30/2024			SW846-6020B	=
Calcium		26.6	mg/L	0.2	1/30/2024			SW846-6020B	=
Chromium	U	0.01	mg/L	0.01	1/30/2024			SW846-6020B	=
Cobalt	U	0.001	mg/L	0.001	1/30/2024			SW846-6020B	=
Copper		0.00241	mg/L	0.002	1/30/2024			SW846-6020B	J
Iron	U	0.1	mg/L	0.1	1/30/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	1/30/2024			SW846-6020B	=
Magnesium		10.8	mg/L	0.03	1/30/2024			SW846-6020B	=
Manganese	J	0.00145	mg/L	0.005	1/30/2024			SW846-6020B	J
Molybdenum	U	0.001	mg/L	0.001	1/30/2024			SW846-6020B	=
Nickel	J	0.000812	mg/L	0.002	1/30/2024			SW846-6020B	J
Potassium		1.59	mg/L	0.3	1/30/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	1/30/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	1/30/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	1/30/2024			SW846-6020B	=
Sodium		29.2	mg/L	0.25	1/30/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	1/30/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	1/30/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	1/30/2024			SW846-6020B	=
Vanadium	BJ	0.00442	mg/L	0.02	1/30/2024			SW846-6020B	U
Zinc	U	0.02	mg/L	0.02	1/30/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	1/30/2024			SW846-7470A	=
Barium, Dissolved		0.262	mg/L	0.004	1/30/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	1/30/2024			SW846-6020B	UJ
Uranium, Dissolved	U	0.0002	mg/L	0.0002	1/30/2024			SW846-6020B	UJ
Radium-226	U	0.326	pCi/L	0.691	1/30/2024	0.427	0.428	AN-1418	=

Strontium-90	U	0.215	pCi/L	4.92	1/30/2024	2.6	2.6	EPA-905.0-M	=
Tritium	U	-39.8	pCi/L	283	1/30/2024	136	136	EPA-906.0-M	=
Technetium-99	U	5.75	pCi/L	21.1	1/30/2024	12.4	12.4	HASL 300, Tc-02-RC M	=
Thorium-230	U	0.0235	pCi/L	1.43	1/30/2024	0.669	0.67	HASL 300, Th-01-RC M	=
Alpha activity	U	-4.25	pCi/L	10.7	1/30/2024	4.17	4.17	SW846-9310	UJ
Beta activity	U	3.19	pCi/L	8.49	1/30/2024	4.94	4.97	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.0187	ug/L	0.0187	1/30/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	1/30/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	1/30/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	1/30/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	1/30/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	1/30/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	1/30/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	1/30/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	1/30/2024			SW846-8260D	UJ
Acrylonitrile	U	5	ug/L	5	1/30/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	1/30/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	1/30/2024			SW846-8260D	UJ
Chlorobenzene	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	1/30/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Ethylbenzene	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	1/30/2024			SW846-8260D	=
Methylene chloride	J	2.3	ug/L	5	1/30/2024			SW846-8260D	=
Styrene	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	1/30/2024			SW846-8260D	UJ
Toluene	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Total Xylene	U	3	ug/L	3	1/30/2024			SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	1/30/2024			SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	1/30/2024			SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	1/30/2024			SW846-8260D	=
Trichloroethene		5.8	ug/L	1	1/30/2024			SW846-8260D	=
Trichlorofluoromethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=

Vinyl acetate	U	5	ug/L	5	1/30/2024	SW846-8260D	=
Vinyl chloride	U	1	ug/L	1	1/30/2024	SW846-8260D	=
Dissolved Solids		207	mg/L	10	1/30/2024	EPA-160.1	=
Iodide	U	0.5	mg/L	0.5	1/30/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	U	20	mg/L	20	1/30/2024	EPA-410.4	=
Cyanide	U	0.2	mg/L	0.2	1/30/2024	SW846-9012B	=
Total Organic Halides (TOX)		12.9	ug/L	10	1/30/2024	SW846-9020B	=
Total Organic Carbon (TOC)	J	0.736	mg/L	2	1/30/2024	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:** 1st Quarter 2024

AKGWA Well Tag #: 8004-4803 **SAMPLE ID:** MW396SG2-24 Sample Type: REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide		0.965	mg/L	0.2	1/30/2024			SW846-9056A	=
Chloride	J	55	mg/L	250	1/30/2024			SW846-9056A	=
Fluoride	J	0.604	mg/L	4	1/30/2024			SW846-9056A	=
Nitrate as Nitrogen	U	10	mg/L	10	1/30/2024			SW846-9056A	=
Sulfate		27.5	mg/L	4	1/30/2024			SW846-9056A	=
Barometric Pressure Reading		29.96	Inches/Hg		1/30/2024				X
Conductivity		683	µmhos/cm		1/30/2024				X
Depth to Water		11.6	ft		1/30/2024				X
Dissolved Oxygen		2.84	mg/L		1/30/2024				X
Eh (approx)		308	mV		1/30/2024				X
pH		6.52	Std Unit		1/30/2024				X
Temperature		58.8	deg F		1/30/2024				X
Turbidity		4.09	NTU		1/30/2024				X
Aluminum	U	0.05	mg/L	0.05	1/30/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	1/30/2024			SW846-6020B	=
Arsenic	U	0.005	mg/L	0.005	1/30/2024			SW846-6020B	=
Barium		0.355	mg/L	0.004	1/30/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	1/30/2024			SW846-6020B	=
Boron	J	0.0072	mg/L	0.015	1/30/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	1/30/2024			SW846-6020B	=
Calcium		29.7	mg/L	0.2	1/30/2024			SW846-6020B	=
Chromium	U	0.01	mg/L	0.01	1/30/2024			SW846-6020B	=
Cobalt		0.00193	mg/L	0.001	1/30/2024			SW846-6020B	J
Copper	J	0.00107	mg/L	0.002	1/30/2024			SW846-6020B	J
Iron		0.342	mg/L	0.1	1/30/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	1/30/2024			SW846-6020B	=
Magnesium		12.9	mg/L	0.03	1/30/2024			SW846-6020B	=
Manganese		0.316	mg/L	0.005	1/30/2024			SW846-6020B	=
Molybdenum	J	0.000352	mg/L	0.001	1/30/2024			SW846-6020B	=
Nickel	J	0.00114	mg/L	0.002	1/30/2024			SW846-6020B	J
Potassium		0.725	mg/L	0.3	1/30/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	1/30/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	1/30/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	1/30/2024			SW846-6020B	=
Sodium		86.9	mg/L	2.5	1/30/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	1/30/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	1/30/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	1/30/2024			SW846-6020B	=
Vanadium	BJ	0.00339	mg/L	0.02	1/30/2024			SW846-6020B	U
Zinc	U	0.02	mg/L	0.02	1/30/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	1/30/2024			SW846-7470A	=
Barium, Dissolved		0.363	mg/L	0.004	1/30/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	1/30/2024			SW846-6020B	UJ
Uranium, Dissolved	U	0.0002	mg/L	0.0002	1/30/2024			SW846-6020B	UJ
Radium-226	U	0.673	pCi/L	0.714	1/30/2024	0.623	0.624	AN-1418	=

Strontium-90	U	-2.13	pCi/L	4.91	1/30/2024	2.31	2.31	EPA-905.0-M	=
Tritium	U	30.6	pCi/L	279	1/30/2024	147	147	EPA-906.0-M	=
Technetium-99	U	-5.21	pCi/L	21.5	1/30/2024	11.9	11.9	HASL 300, Tc-02-RC M	=
Thorium-230	U	-0.635	pCi/L	2.21	1/30/2024	0.707	0.708	HASL 300, Th-01-RC M	=
Alpha activity	U	-2.38	pCi/L	10	1/30/2024	3.03	3.03	SW846-9310	=
Beta activity	U	-3.18	pCi/L	11.7	1/30/2024	5.95	5.95	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.0189	ug/L	0.0189	1/30/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	1/30/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	1/30/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	1/30/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	1/30/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	1/30/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	1/30/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	1/30/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	1/30/2024			SW846-8260D	UJ
Acrylonitrile	U	5	ug/L	5	1/30/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	1/30/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	1/30/2024			SW846-8260D	UJ
Chlorobenzene	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	1/30/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Ethylbenzene	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	1/30/2024			SW846-8260D	=
Methylene chloride	J	2.33	ug/L	5	1/30/2024			SW846-8260D	=
Styrene	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	1/30/2024			SW846-8260D	UJ
Toluene	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Total Xylene	U	3	ug/L	3	1/30/2024			SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	1/30/2024			SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	1/30/2024			SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	1/30/2024			SW846-8260D	=
Trichloroethene	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Trichlorofluoromethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=

Vinyl acetate	U	5	ug/L	5	1/30/2024	SW846-8260D	=
Vinyl chloride	U	1	ug/L	1	1/30/2024	SW846-8260D	=
Dissolved Solids		392	mg/L	10	1/30/2024	EPA-160.1	=
Iodide		0.544	mg/L	0.5	1/30/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	U	20	mg/L	20	1/30/2024	EPA-410.4	=
Cyanide	U	0.2	mg/L	0.2	1/30/2024	SW846-9012B	=
Total Organic Halides (TOX)		44.2	ug/L	10	1/30/2024	SW846-9020B	=
Total Organic Carbon (TOC)		4.09	mg/L	2	1/30/2024	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:** 1st Quarter 2024

AKGWA Well Tag #: 8004-4817 **SAMPLE ID:** MW397SG2-24 Sample Type: REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Bromide		0.477	mg/L	0.2	1/30/2024			SW846-9056A	=
Chloride	J	32.7	mg/L	250	1/30/2024			SW846-9056A	=
Fluoride	J	0.169	mg/L	4	1/30/2024			SW846-9056A	=
Nitrate as Nitrogen	J	0.968	mg/L	10	1/30/2024			SW846-9056A	=
Sulfate		11.6	mg/L	0.4	1/30/2024			SW846-9056A	=
Barometric Pressure Reading		29.98	Inches/Hg		1/30/2024				X
Conductivity		317	µmhos/cm		1/30/2024				X
Depth to Water		64.77	ft		1/30/2024				X
Dissolved Oxygen		7.84	mg/L		1/30/2024				X
Eh (approx)		540	mV		1/30/2024				X
pH		6.1	Std Unit		1/30/2024				X
Temperature		58.3	deg F		1/30/2024				X
Turbidity		4.38	NTU		1/30/2024				X
Aluminum	J	0.0299	mg/L	0.05	1/30/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	1/30/2024			SW846-6020B	=
Arsenic	U	0.005	mg/L	0.005	1/30/2024			SW846-6020B	=
Barium		0.133	mg/L	0.004	1/30/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	1/30/2024			SW846-6020B	=
Boron	J	0.00713	mg/L	0.015	1/30/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	1/30/2024			SW846-6020B	=
Calcium		17.3	mg/L	0.2	1/30/2024			SW846-6020B	=
Chromium	U	0.01	mg/L	0.01	1/30/2024			SW846-6020B	=
Cobalt	U	0.001	mg/L	0.001	1/30/2024			SW846-6020B	=
Copper		0.00213	mg/L	0.002	1/30/2024			SW846-6020B	J
Iron	J	0.0601	mg/L	0.1	1/30/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	1/30/2024			SW846-6020B	=
Magnesium		7.49	mg/L	0.03	1/30/2024			SW846-6020B	=
Manganese	J	0.00244	mg/L	0.005	1/30/2024			SW846-6020B	J
Molybdenum	U	0.001	mg/L	0.001	1/30/2024			SW846-6020B	=
Nickel	U	0.002	mg/L	0.002	1/30/2024			SW846-6020B	=
Potassium		1.72	mg/L	0.3	1/30/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	1/30/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	1/30/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	1/30/2024			SW846-6020B	=
Sodium		30	mg/L	0.25	1/30/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	1/30/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	1/30/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	1/30/2024			SW846-6020B	=
Vanadium	BJ	0.00397	mg/L	0.02	1/30/2024			SW846-6020B	U
Zinc	U	0.02	mg/L	0.02	1/30/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	1/30/2024			SW846-7470A	=
Barium, Dissolved		0.136	mg/L	0.004	1/30/2024			SW846-6020B	J
Chromium, Dissolved	U	0.01	mg/L	0.01	1/30/2024			SW846-6020B	UJ
Uranium, Dissolved	U	0.0002	mg/L	0.0002	1/30/2024			SW846-6020B	UJ
Radium-226	U	0.468	pCi/L	0.501	1/30/2024	0.398	0.4	AN-1418	=

Strontium-90	U	-1.89	pCi/L	5.38	1/30/2024	2.6	2.6	EPA-905.0-M	=
Tritium	U	-62.6	pCi/L	280	1/30/2024	130	130	EPA-906.0-M	=
Technetium-99	U	10.8	pCi/L	21.3	1/30/2024	12.7	12.7	HASL 300, Tc-02-RC M	=
Thorium-230	U	1.12	pCi/L	1.34	1/30/2024	1.02	1.03	HASL 300, Th-01-RC M	=
Alpha activity	U	-1.98	pCi/L	7.81	1/30/2024	1.93	1.94	SW846-9310	UJ
Beta activity	U	10.2	pCi/L	11.5	1/30/2024	7.32	7.5	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.0187	ug/L	0.0187	1/30/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	1/30/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	1/30/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	1/30/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	1/30/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	1/30/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	1/30/2024			SW846-8260D	=
Acetone	J	2.09	ug/L	5	1/30/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	1/30/2024			SW846-8260D	UJ
Acrylonitrile	U	5	ug/L	5	1/30/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	1/30/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	1/30/2024			SW846-8260D	UJ
Chlorobenzene	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	1/30/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Ethylbenzene	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	1/30/2024			SW846-8260D	=
Methylene chloride	J	2.37	ug/L	5	1/30/2024			SW846-8260D	=
Styrene	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	1/30/2024			SW846-8260D	UJ
Toluene	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Total Xylene	U	3	ug/L	3	1/30/2024			SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	1/30/2024			SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	1/30/2024			SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	1/30/2024			SW846-8260D	=
Trichloroethene	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Trichlorofluoromethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=

Vinyl acetate	U	5	ug/L	5	1/30/2024	SW846-8260D	=
Vinyl chloride	U	1	ug/L	1	1/30/2024	SW846-8260D	=
Dissolved Solids		161	mg/L	10	1/30/2024	EPA-160.1	=
Iodide	U	0.5	mg/L	0.5	1/30/2024	EPA-300.0	=
Chemical Oxygen Demand (COD)	U	20	mg/L	20	1/30/2024	EPA-410.4	=
Cyanide	U	0.2	mg/L	0.2	1/30/2024	SW846-9012B	=
Total Organic Halides (TOX)	J	6.74	ug/L	10	1/30/2024	SW846-9020B	=
Total Organic Carbon (TOC)	J	0.638	mg/L	2	1/30/2024	SW846-9060A	=

Paducah OREIS
GROUNDWATER MONITORING REPORT

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

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

AKGWA Well Tag #: N/A **SAMPLE ID:** FB1SG2-24 **Sample Typ** FB

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Aluminum	U	0.05	mg/L	0.05	1/30/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	1/30/2024			SW846-6020B	=
Arsenic	U	0.005	mg/L	0.005	1/30/2024			SW846-6020B	=
Barium	U	0.004	mg/L	0.004	1/30/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	1/30/2024			SW846-6020B	=
Boron	U	0.015	mg/L	0.015	1/30/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	1/30/2024			SW846-6020B	=
Calcium	U	0.2	mg/L	0.2	1/30/2024			SW846-6020B	=
Chromium	U	0.01	mg/L	0.01	1/30/2024			SW846-6020B	=
Cobalt	U	0.001	mg/L	0.001	1/30/2024			SW846-6020B	=
Copper	U	0.002	mg/L	0.002	1/30/2024			SW846-6020B	=
Iron	U	0.1	mg/L	0.1	1/30/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	1/30/2024			SW846-6020B	=
Magnesium	U	0.03	mg/L	0.03	1/30/2024			SW846-6020B	=
Manganese	U	0.005	mg/L	0.005	1/30/2024			SW846-6020B	=
Molybdenum	U	0.001	mg/L	0.001	1/30/2024			SW846-6020B	=
Nickel	U	0.002	mg/L	0.002	1/30/2024			SW846-6020B	=
Potassium	U	0.3	mg/L	0.3	1/30/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	1/30/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	1/30/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	1/30/2024			SW846-6020B	=
Sodium	U	0.25	mg/L	0.25	1/30/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	1/30/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	1/30/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	1/30/2024			SW846-6020B	=
Vanadium	BJ	0.00391	mg/L	0.02	1/30/2024			SW846-6020B	U
Zinc	U	0.02	mg/L	0.02	1/30/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	1/30/2024			SW846-7470A	=
Radium-226	U	-0.00858	pCi/L	0.71	1/30/2024	0.308	0.308	AN-1418	=
Strontium-90	U	1.75	pCi/L	5.29	1/30/2024	3.02	3.04	EPA-905.0-M	=
Tritium	U	-10.6	pCi/L	280	1/30/2024	140	140	EPA-906.0-M	=
Technetium-99	U	-16.8	pCi/L	20.9	1/30/2024	11.6	11.6	HASL 300, Tc-02-RC M	UJ
Thorium-230	U	1.06	pCi/L	1.17	1/30/2024	0.928	0.942	HASL 300, Th-01-RC M	=
Alpha activity	U	-0.488	pCi/L	7.5	1/30/2024	2.98	2.98	SW846-9310	=
Beta activity	U	-2.76	pCi/L	8.71	1/30/2024	4.04	4.05	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.0192	ug/L	0.0192	1/30/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	1/30/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	1/30/2024			SW846-8260D	=

1,2-Dichloroethane	U	1	ug/L	1	1/30/2024	SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	1/30/2024	SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	1/30/2024	SW846-8260D	=
2-Butanone	U	5	ug/L	5	1/30/2024	SW846-8260D	=
2-Hexanone	U	5	ug/L	5	1/30/2024	SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	1/30/2024	SW846-8260D	=
Acetone		5.92	ug/L	5	1/30/2024	SW846-8260D	=
Acrolein	U	5	ug/L	5	1/30/2024	SW846-8260D	UJ
Acrylonitrile	U	5	ug/L	5	1/30/2024	SW846-8260D	=
Benzene	U	1	ug/L	1	1/30/2024	SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	1/30/2024	SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	1/30/2024	SW846-8260D	=
Bromoform	U	1	ug/L	1	1/30/2024	SW846-8260D	=
Bromomethane	U	1	ug/L	1	1/30/2024	SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	1/30/2024	SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	1/30/2024	SW846-8260D	UJ
Chlorobenzene	U	1	ug/L	1	1/30/2024	SW846-8260D	=
Chloroethane	U	1	ug/L	1	1/30/2024	SW846-8260D	=
Chloroform	U	1	ug/L	1	1/30/2024	SW846-8260D	=
Chloromethane	U	1	ug/L	1	1/30/2024	SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	1/30/2024	SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	1/30/2024	SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	1/30/2024	SW846-8260D	=
Dibromomethane	U	1	ug/L	1	1/30/2024	SW846-8260D	=
Ethylbenzene	U	1	ug/L	1	1/30/2024	SW846-8260D	=
Iodomethane	U	5	ug/L	5	1/30/2024	SW846-8260D	=
Methylene chloride	J	2.04	ug/L	5	1/30/2024	SW846-8260D	=
Styrene	U	1	ug/L	1	1/30/2024	SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	1/30/2024	SW846-8260D	UJ
Toluene	U	1	ug/L	1	1/30/2024	SW846-8260D	=
Total Xylene	U	3	ug/L	3	1/30/2024	SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	1/30/2024	SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	1/30/2024	SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	1/30/2024	SW846-8260D	=
Trichloroethene	U	1	ug/L	1	1/30/2024	SW846-8260D	=
Trichlorofluoromethane	U	1	ug/L	1	1/30/2024	SW846-8260D	=
Vinyl acetate	U	5	ug/L	5	1/30/2024	SW846-8260D	=
Vinyl chloride	U	1	ug/L	1	1/30/2024	SW846-8260D	=
Iodide	U	0.5	mg/L	0.5	1/30/2024	EPA-300.0	=

Paducah OREIS
GROUNDWATER MONITORING REPORT

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

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

AKGWA Well Tag #: N/A **SAMPLE ID:** RI1SG2-24 **Sample Typ** RI

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Aluminum	U	0.05	mg/L	0.05	1/30/2024			SW846-6020B	=
Antimony	U	0.003	mg/L	0.003	1/30/2024			SW846-6020B	=
Arsenic	U	0.005	mg/L	0.005	1/30/2024			SW846-6020B	=
Barium	U	0.004	mg/L	0.004	1/30/2024			SW846-6020B	=
Beryllium	U	0.0005	mg/L	0.0005	1/30/2024			SW846-6020B	=
Boron	U	0.015	mg/L	0.015	1/30/2024			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	1/30/2024			SW846-6020B	=
Calcium	U	0.2	mg/L	0.2	1/30/2024			SW846-6020B	=
Chromium	U	0.01	mg/L	0.01	1/30/2024			SW846-6020B	=
Cobalt	U	0.001	mg/L	0.001	1/30/2024			SW846-6020B	=
Copper	U	0.002	mg/L	0.002	1/30/2024			SW846-6020B	=
Iron	U	0.1	mg/L	0.1	1/30/2024			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	1/30/2024			SW846-6020B	=
Magnesium	U	0.03	mg/L	0.03	1/30/2024			SW846-6020B	=
Manganese	U	0.005	mg/L	0.005	1/30/2024			SW846-6020B	=
Molybdenum	U	0.001	mg/L	0.001	1/30/2024			SW846-6020B	=
Nickel	U	0.002	mg/L	0.002	1/30/2024			SW846-6020B	=
Potassium	U	0.3	mg/L	0.3	1/30/2024			SW846-6020B	=
Rhodium	U	0.005	mg/L	0.005	1/30/2024			SW846-6020B	=
Selenium	U	0.005	mg/L	0.005	1/30/2024			SW846-6020B	=
Silver	U	0.001	mg/L	0.001	1/30/2024			SW846-6020B	=
Sodium	U	0.25	mg/L	0.25	1/30/2024			SW846-6020B	=
Tantalum	U	0.005	mg/L	0.005	1/30/2024			SW846-6020B	=
Thallium	U	0.002	mg/L	0.002	1/30/2024			SW846-6020B	=
Uranium	U	0.0002	mg/L	0.0002	1/30/2024			SW846-6020B	=
Vanadium	BJ	0.00379	mg/L	0.02	1/30/2024			SW846-6020B	U
Zinc	U	0.02	mg/L	0.02	1/30/2024			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	1/30/2024			SW846-7470A	=
Radium-226	U	0.309	pCi/L	0.411	1/30/2024	0.316	0.316	AN-1418	=
Strontium-90	U	-0.925	pCi/L	4.9	1/30/2024	2.32	2.32	EPA-905.0-M	=
Tritium	U	122	pCi/L	269	1/30/2024	158	159	EPA-906.0-M	=
Technetium-99	U	-11.9	pCi/L	20.2	1/30/2024	10.8	10.8	HASL 300, Tc-02-RC M	UJ
Thorium-230	U	1.63	pCi/L	3.04	1/30/2024	2.08	2.11	HASL 300, Th-01-RC M	=
Alpha activity	U	0.791	pCi/L	6.79	1/30/2024	3.16	3.17	SW846-9310	=
Beta activity	U	0.188	pCi/L	10.1	1/30/2024	5.4	5.4	SW846-9310	=
1,2-Dibromo-3-chloropropane	U	0.0192	ug/L	0.0192	1/30/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	1/30/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	1/30/2024			SW846-8260D	=

1,2-Dichloroethane	U	1	ug/L	1	1/30/2024	SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	1/30/2024	SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	1/30/2024	SW846-8260D	=
2-Butanone	U	5	ug/L	5	1/30/2024	SW846-8260D	=
2-Hexanone	U	5	ug/L	5	1/30/2024	SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	1/30/2024	SW846-8260D	=
Acetone	J	2.17	ug/L	5	1/30/2024	SW846-8260D	=
Acrolein	U	5	ug/L	5	1/30/2024	SW846-8260D	UJ
Acrylonitrile	U	5	ug/L	5	1/30/2024	SW846-8260D	=
Benzene	U	1	ug/L	1	1/30/2024	SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	1/30/2024	SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	1/30/2024	SW846-8260D	=
Bromoform	U	1	ug/L	1	1/30/2024	SW846-8260D	=
Bromomethane	U	1	ug/L	1	1/30/2024	SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	1/30/2024	SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	1/30/2024	SW846-8260D	UJ
Chlorobenzene	U	1	ug/L	1	1/30/2024	SW846-8260D	=
Chloroethane	U	1	ug/L	1	1/30/2024	SW846-8260D	=
Chloroform	U	1	ug/L	1	1/30/2024	SW846-8260D	=
Chloromethane	U	1	ug/L	1	1/30/2024	SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	1/30/2024	SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	1/30/2024	SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	1/30/2024	SW846-8260D	=
Dibromomethane	U	1	ug/L	1	1/30/2024	SW846-8260D	=
Ethylbenzene	U	1	ug/L	1	1/30/2024	SW846-8260D	=
Iodomethane	U	5	ug/L	5	1/30/2024	SW846-8260D	=
Methylene chloride	J	2.5	ug/L	5	1/30/2024	SW846-8260D	=
Styrene	U	1	ug/L	1	1/30/2024	SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	1/30/2024	SW846-8260D	UJ
Toluene	U	1	ug/L	1	1/30/2024	SW846-8260D	=
Total Xylene	U	3	ug/L	3	1/30/2024	SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	1/30/2024	SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	1/30/2024	SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	1/30/2024	SW846-8260D	=
Trichloroethene	U	1	ug/L	1	1/30/2024	SW846-8260D	=
Trichlorofluoromethane	U	1	ug/L	1	1/30/2024	SW846-8260D	=
Vinyl acetate	U	5	ug/L	5	1/30/2024	SW846-8260D	=
Vinyl chloride	U	1	ug/L	1	1/30/2024	SW846-8260D	=
Iodide	U	0.5	mg/L	0.5	1/30/2024	EPA-300.0	=

Paducah OREIS
GROUNDWATER MONITORING REPORT

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

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

AKGWA Well Tag #: N/A **SAMPLE ID:** TB1SG2-24 **Sample Typ** 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	1/25/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
1,1,1-Trichloroethane	UY2	1	ug/L	1	1/25/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
1,1-Dichloroethene	UY2	1	ug/L	1	1/25/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	1/25/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	1/25/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	1/25/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	1/25/2024			SW846-8260D	=
4-Methyl-2-pentanone	UL	5	ug/L	5	1/25/2024			SW846-8260D	=
Acetone	UY2	5	ug/L	5	1/25/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	1/25/2024			SW846-8260D	UJ
Acrylonitrile	U	5	ug/L	5	1/25/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Bromomethane	UY2	1	ug/L	1	1/25/2024			SW846-8260D	=
Carbon disulfide	UY2	5	ug/L	5	1/25/2024			SW846-8260D	=
Carbon tetrachloride	UY2	1	ug/L	1	1/25/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Chloromethane	UY1	1	ug/L	1	1/25/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	1/25/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Ethylbenzene	UY2	1	ug/L	1	1/25/2024			SW846-8260D	=
Iodomethane	UY2	5	ug/L	5	1/25/2024			SW846-8260D	=
Methylene chloride	BJY2	1.61	ug/L	5	1/25/2024			SW846-8260D	U
Styrene	UY2	1	ug/L	1	1/25/2024			SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Toluene	U	1	ug/L	1	1/25/2024			SW846-8260D	=
Total Xylene	UY2	3	ug/L	3	1/25/2024			SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	1/25/2024			SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	1/25/2024			SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	1/25/2024			SW846-8260D	UJ
Trichloroethene	U	1	ug/L	1	1/25/2024			SW846-8260D	=

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

Paducah OREIS
GROUNDWATER MONITORING REPORT

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

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

AKGWA Well Tag #: N/A **SAMPLE ID:** TB2SG2-24 **Sample Typ** TB

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
1,2-Dibromo-3-chloropropane	UL	0.0214	ug/L	0.0214	1/26/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	1/26/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	1/26/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	1/26/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	1/26/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	1/26/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	1/26/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	1/26/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	1/26/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	1/26/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	1/26/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	1/26/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	1/26/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	1/26/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	1/26/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	1/26/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	1/26/2024			SW846-8260D	UJ
Acrolein	U	5	ug/L	5	1/26/2024			SW846-8260D	UJ
Acrylonitrile	U	5	ug/L	5	1/26/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	1/26/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	1/26/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	1/26/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	1/26/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	1/26/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	1/26/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	1/26/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	1/26/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	1/26/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	1/26/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	1/26/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	1/26/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	1/26/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	1/26/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	1/26/2024			SW846-8260D	=
Ethylbenzene	U	1	ug/L	1	1/26/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	1/26/2024			SW846-8260D	=
Methylene chloride	BJ	0.72	ug/L	5	1/26/2024			SW846-8260D	U
Styrene	U	1	ug/L	1	1/26/2024			SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	1/26/2024			SW846-8260D	=
Toluene	U	1	ug/L	1	1/26/2024			SW846-8260D	=
Total Xylene	U	3	ug/L	3	1/26/2024			SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	1/26/2024			SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	1/26/2024			SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	1/26/2024			SW846-8260D	=
Trichloroethene	U	1	ug/L	1	1/26/2024			SW846-8260D	=

Trichlorofluoromethane	U	1	ug/L	1	1/26/2024	SW846-8260D	=
Vinyl acetate	U	5	ug/L	5	1/26/2024	SW846-8260D	=
Vinyl chloride	U	1	ug/L	1	1/26/2024	SW846-8260D	=

Paducah OREIS
GROUNDWATER MONITORING REPORT

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

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

AKGWA Well Tag #: N/A **SAMPLE ID:** TB3SG2-24 **Sample Typ** 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	1/29/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	1/29/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	1/29/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	1/29/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	1/29/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	1/29/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	1/29/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	1/29/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	1/29/2024			SW846-8260D	=
Acrylonitrile	U	5	ug/L	5	1/29/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	1/29/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Chlorobenzene	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	1/29/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Ethylbenzene	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	1/29/2024			SW846-8260D	=
Methylene chloride	U	5	ug/L	5	1/29/2024			SW846-8260D	=
Styrene	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Toluene	U	1	ug/L	1	1/29/2024			SW846-8260D	=
Total Xylene	U	3	ug/L	3	1/29/2024			SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	1/29/2024			SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	1/29/2024			SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	1/29/2024			SW846-8260D	=
Trichloroethene	U	1	ug/L	1	1/29/2024			SW846-8260D	=

Trichlorofluoromethane	U	1	ug/L	1	1/29/2024	SW846-8260D	=
Vinyl acetate	U	5	ug/L	5	1/29/2024	SW846-8260D	=
Vinyl chloride	U	1	ug/L	1	1/29/2024	SW846-8260D	=

Paducah OREIS
GROUNDWATER MONITORING REPORT

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

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

AKGWA Well Tag #: N/A **SAMPLE ID:** TB4SG2-24 **Sample Typ** TB

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
1,2-Dibromo-3-chloropropane	U	0.0188	ug/L	0.0188	1/30/2024			SW846-8011	=
1,1,1,2-Tetrachloroethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
1,1,1-Trichloroethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
1,1,2,2-Tetrachloroethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
1,1,2-Trichloroethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
1,1-Dichloroethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
1,1-Dichloroethene	U	1	ug/L	1	1/30/2024			SW846-8260D	=
1,2,3-Trichloropropane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
1,2-Dibromoethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
1,2-Dichlorobenzene	U	1	ug/L	1	1/30/2024			SW846-8260D	=
1,2-Dichloroethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
1,2-Dichloropropane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
1,4-Dichlorobenzene	U	1	ug/L	1	1/30/2024			SW846-8260D	=
2-Butanone	U	5	ug/L	5	1/30/2024			SW846-8260D	=
2-Hexanone	U	5	ug/L	5	1/30/2024			SW846-8260D	=
4-Methyl-2-pentanone	U	5	ug/L	5	1/30/2024			SW846-8260D	=
Acetone	U	5	ug/L	5	1/30/2024			SW846-8260D	=
Acrolein	U	5	ug/L	5	1/30/2024			SW846-8260D	UJ
Acrylonitrile	U	5	ug/L	5	1/30/2024			SW846-8260D	=
Benzene	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Bromochloromethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Bromodichloromethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Bromoform	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Bromomethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Carbon disulfide	U	5	ug/L	5	1/30/2024			SW846-8260D	=
Carbon tetrachloride	U	1	ug/L	1	1/30/2024			SW846-8260D	UJ
Chlorobenzene	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Chloroethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Chloroform	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Chloromethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
cis-1,2-Dichloroethene	U	1	ug/L	1	1/30/2024			SW846-8260D	=
cis-1,3-Dichloropropene	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Dibromochloromethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Dibromomethane	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Ethylbenzene	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Iodomethane	U	5	ug/L	5	1/30/2024			SW846-8260D	=
Methylene chloride	J	2.46	ug/L	5	1/30/2024			SW846-8260D	=
Styrene	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Tetrachloroethene	U	1	ug/L	1	1/30/2024			SW846-8260D	UJ
Toluene	U	1	ug/L	1	1/30/2024			SW846-8260D	=
Total Xylene	U	3	ug/L	3	1/30/2024			SW846-8260D	=
trans-1,2-Dichloroethene	U	1	ug/L	1	1/30/2024			SW846-8260D	=
trans-1,3-Dichloropropene	U	1	ug/L	1	1/30/2024			SW846-8260D	=
trans-1,4-Dichloro-2-butene	U	5	ug/L	5	1/30/2024			SW846-8260D	=
Trichloroethene	U	1	ug/L	1	1/30/2024			SW846-8260D	=

Trichlorofluoromethane	U	1	ug/L	1	1/30/2024	SW846-8260D	=
Vinyl acetate	U	5	ug/L	5	1/30/2024	SW846-8260D	=
Vinyl chloride	U	1	ug/L	1	1/30/2024	SW846-8260D	=

Qualifier Code Definitions	
B	Analyte found in the associated blank
H	Analysis performed outside holding time requirement
J	Estimated value
L	LCS 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 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	Analyte analyzed for but not detected at or below the lowest concentration reported.
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	

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

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

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ATTACHMENT C1

GEL LABORATORIES CERTIFICATE OF ANALYSIS

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GEL LABORATORIES LLC

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

Certificate of Analysis

Report Date: April 25, 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(SG24-02)

Client Sample ID:	MW391SG2-24	Project:	FRNP00511
Sample ID:	652920001	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	25-JAN-24 07:22		
Receive Date:	26-JAN-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	0.00857	0.0190	ug/L	0.952	1	LL2	02/01/24	1612	2559322	1
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	0.556	0.330	2.00	mg/L		1	RM3	01/31/24	1823	2561367	2
Flow Injection Analysis												
9012B, Total Cyanide "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	01/31/24	0633	2559564	3
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens		13.7	3.33	10.0	ug/L		1	RM3	01/30/24	1232	2560465	4
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	02/06/24	2018	2564209	5
SW846 9056A Anions (5) "As Received"												
Chloride	BJ	41.4	0.670	250	mg/L		10	CH6	01/26/24	2354	2559331	6
Bromide		0.538	0.0670	0.200	mg/L		1	CH6	01/26/24	1814	2559331	7
Fluoride	J	0.193	0.0330	4.00	mg/L		1					
Nitrate-N	J	1.13	0.0330	10.0	mg/L		1					
Sulfate		11.9	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	01/31/24	1135	2560151	8
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Aluminum	J	0.0251	0.0193	0.0500	mg/L	1.00	1	RM4	02/20/24	1744	2559335	9
Arsenic	J	0.00328	0.00200	0.00500	mg/L	1.00	1					
Barium		0.243	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Calcium		27.2	0.0800	0.200	mg/L	1.00	1					
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					
Cobalt	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Copper		0.00202	0.000300	0.00200	mg/L	1.00	1					

GEL LABORATORIES LLC

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

Certificate of Analysis

Report Date: April 25, 2024

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

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID: MW391SG2-24 Project: FRNP00511
Sample ID: 652920001 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"												
Iron		0.169	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Magnesium		11.9	0.0100	0.0300	mg/L	1.00	1					
Manganese	J	0.00288	0.00100	0.00500	mg/L	1.00	1					
Molybdenum	U	0.00100	0.000200	0.00100	mg/L	1.00	1					
Potassium		1.47	0.0800	0.300	mg/L	1.00	1					
Selenium	U	0.00500	0.00150	0.00500	mg/L	1.00	1					
Silver	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Sodium		34.0	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	J	0.00377	0.00330	0.0200	mg/L	1.00	1					
Zinc	J	0.00665	0.00330	0.0200	mg/L	1.00	1					
Antimony	U	0.00300	0.00100	0.00300	mg/L	1.00	1	RM4	02/21/24	1657	2559335	10
Boron	B	0.0325	0.00520	0.0150	mg/L	1.00	1	RM4	02/21/24	1311	2559335	11
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	02/21/24	1456	2559335	12
Tantalum	UN	0.00500	0.00100	0.00500	mg/L	1.00	1					
Nickel	U	0.00200	0.000600	0.00200	mg/L	1.00	1	RM4	02/21/24	0031	2559335	13
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		189	2.38	10.0	mg/L			KLP1	02/01/24	1158	2561837	14
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD	U	20.0	8.95	20.0	mg/L		1	HH2	01/29/24	1244	2559247	15
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	JM6	02/01/24	1358	2559983	16
1,1,1-Trichloroethane	UY2	1.00	0.333	1.00	ug/L		1					
1,1,2,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethylene	UY2	1.00	0.333	1.00	ug/L		1					
1,2,3-Trichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dibromoethane	U	1.00	0.333	1.00	ug/L		1					

GEL LABORATORIES LLC

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

Certificate of Analysis

Report Date: April 25, 2024

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

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID: MW391SG2-24 Project: FRNP00511
Sample ID: 652920001 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	UL	5.00	1.67	5.00	ug/L		1					
Acetone	UY2	5.00	1.74	5.00	ug/L		1					
Acrolein	U	5.00	1.67	5.00	ug/L		1					
Acrylonitrile	U	5.00	1.67	5.00	ug/L		1					
Benzene	U	1.00	0.333	1.00	ug/L		1					
Bromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromodichloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromoform	U	1.00	0.333	1.00	ug/L		1					
Bromomethane	UY2	1.00	0.337	1.00	ug/L		1					
Carbon disulfide	UY2	5.00	1.67	5.00	ug/L		1					
Carbon tetrachloride	UY2	1.00	0.333	1.00	ug/L		1					
Chlorobenzene	U	1.00	0.333	1.00	ug/L		1					
Chloroethane	U	1.00	0.333	1.00	ug/L		1					
Chloroform	U	1.00	0.333	1.00	ug/L		1					
Chloromethane	UY1	1.00	0.333	1.00	ug/L		1					
Dibromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromomethane	U	1.00	0.333	1.00	ug/L		1					
Ethylbenzene	UY2	1.00	0.333	1.00	ug/L		1					
Iodomethane	UY2	5.00	1.67	5.00	ug/L		1					
Methylene chloride	BJY2	1.53	0.500	5.00	ug/L		1					
Styrene	UY2	1.00	0.333	1.00	ug/L		1					
Tetrachloroethylene	U	1.00	0.333	1.00	ug/L		1					
Toluene	U	1.00	0.333	1.00	ug/L		1					
Trichloroethylene	J	0.580	0.333	1.00	ug/L		1					
Trichlorofluoromethane	U	1.00	0.333	1.00	ug/L		1					
Vinyl acetate	U	5.00	1.67	5.00	ug/L		1					
Vinyl chloride	UY1	1.00	0.333	1.00	ug/L		1					
Xylenes (total)	UY2	3.00	1.00	3.00	ug/L		1					
cis-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
cis-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					

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Certificate of Analysis

Report Date: April 25, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID:	MW391SG2-24	Project:	FRNP00511
Sample ID:	652920001	Client ID:	FRNP005

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

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-MS 3005A PREP	SD	01/29/24	1520	2559334
SW846 9010C Distillation	SW846 9010C Prep	ES2	01/30/24	1104	2559563
SW846 8011 PREP	8011 Prep	LL2	02/01/24	1147	2559321
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	01/30/24	1205	2560147

The following Analytical Methods were performed:

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

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011, VOA Compounds Liquid "As Received"	6.18 ug/L	6.80	91	(56%-149%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	47.5 ug/L	50.0	95	(74%-123%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	44.6 ug/L	50.0	89	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	44.8 ug/L	50.0	90	(77%-121%)

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Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID:	MW391SG2-24	Project:	FRNP00511
Sample ID:	652920001	Client ID:	FRNP005

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

Notes:

Column headers are defined as follows:

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

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Certificate of Analysis

Report Date: April 25, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID:	MW391SG2-24	Project:	FRNP00511
Sample ID:	652920002	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	25-JAN-24 07:22		
Receive Date:	26-JAN-24		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Dissolved Metals (3 Elements) "As Received"												
Barium		0.224	0.000670	0.00400	mg/L	1.00	1	RM4	02/20/24	1811	2559335	1
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 160	Laboratory Filtration	RXB5	01/26/24	1247	2559164
SW846 3005A	ICP-MS 3005A PREP	SD	01/29/24	1520	2559334

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3005A/6020B	

Notes:

Column headers are defined as follows:

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

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Report Date: April 25, 2024

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

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID:	MW392SG2-24	Project:	FRNP00511
Sample ID:	652920003	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	25-JAN-24 08:34		
Receive Date:	26-JAN-24		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
504.1/8011 Analysis of EDB/DBCP												
8011, VOA Compounds Liquid "As Received"												
1,2-Dibromo-3-chloropropane	U	0.0187	0.00843	0.0187	ug/L	0.937	1	LL2	02/01/24	1725	2559322	1
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	0.565	0.330	2.00	mg/L		1	RM3	01/31/24	2001	2561367	2
Flow Injection Analysis												
9012B, Total Cyanide "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	01/31/24	0636	2559564	3
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens	J	9.36	3.33	10.0	ug/L		1	RM3	01/31/24	1520	2561263	4
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	02/13/24	1154	2567417	5
SW846 9056A Anions (5) "As Received"												
Chloride	BJ	42.1	0.670	250	mg/L		10	CH6	01/27/24	0228	2559331	6
Bromide		0.532	0.0670	0.200	mg/L		1	CH6	01/26/24	2049	2559331	7
Fluoride	J	0.260	0.0330	4.00	mg/L		1					
Nitrate-N	J	0.533	0.0330	10.0	mg/L		1					
Sulfate		7.94	0.133	0.400	mg/L		1					
Mercury Analysis-CVAA												
7470, Mercury Liquid "As Received"												
Mercury	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	JP2	01/31/24	1143	2560151	8
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Antimony	U	0.00300	0.00100	0.00300	mg/L	1.00	1	RM4	02/21/24	1722	2559335	9
Aluminum	J	0.0417	0.0193	0.0500	mg/L	1.00	1	RM4	02/20/24	1837	2559335	10
Arsenic	J	0.00284	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					
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Calcium		25.0	0.0800	0.200	mg/L	1.00	1					
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					
Cobalt	J	0.000771	0.000300	0.00100	mg/L	1.00	1					

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Report Date: April 25, 2024

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

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID: MW392SG2-24 Project: FRNP00511
Sample ID: 652920003 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"												
Copper	J	0.00193	0.000300	0.00200	mg/L	1.00	1					
Iron		0.261	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Magnesium		10.8	0.0100	0.0300	mg/L	1.00	1					
Manganese		0.472	0.00100	0.00500	mg/L	1.00	1					
Molybdenum	J	0.000250	0.000200	0.00100	mg/L	1.00	1					
Potassium		2.24	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		26.0	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	0.00497	0.00330	0.0200	mg/L	1.00	1					
Boron	B	0.0262	0.00520	0.0150	mg/L	1.00	1	RM4	02/21/24	1348	2559335	11
Nickel		0.00331	0.000600	0.00200	mg/L	1.00	1	RM4	02/21/24	0124	2559335	12
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	02/21/24	1507	2559335	13
Tantalum	UN	0.00500	0.00100	0.00500	mg/L	1.00	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		169	2.38	10.0	mg/L			KLP1	02/01/24	1158	2561837	14
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD	U	20.0	8.95	20.0	mg/L		1	HH2	01/29/24	1244	2559247	15
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	JM6	01/29/24	1421	2559983	16
1,1,1-Trichloroethane	UY2	1.00	0.333	1.00	ug/L		1					
1,1,2,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethylene	UY2	1.00	0.333	1.00	ug/L		1					
1,2,3-Trichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dibromoethane	U	1.00	0.333	1.00	ug/L		1					

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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(SG24-02)

Client Sample ID: MW392SG2-24 Project: FRNP00511
Sample ID: 652920003 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	UY2	5.00	1.74	5.00	ug/L		1					
Acrolein	U	5.00	1.67	5.00	ug/L		1					
Acrylonitrile	U	5.00	1.67	5.00	ug/L		1					
Benzene	U	1.00	0.333	1.00	ug/L		1					
Bromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromodichloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromoform	U	1.00	0.333	1.00	ug/L		1					
Bromomethane	UY2	1.00	0.337	1.00	ug/L		1					
Carbon disulfide	UY2	5.00	1.67	5.00	ug/L		1					
Carbon tetrachloride	UY2	1.00	0.333	1.00	ug/L		1					
Chlorobenzene	U	1.00	0.333	1.00	ug/L		1					
Chloroethane	U	1.00	0.333	1.00	ug/L		1					
Chloroform	U	1.00	0.333	1.00	ug/L		1					
Chloromethane	UY1	1.00	0.333	1.00	ug/L		1					
Dibromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromomethane	U	1.00	0.333	1.00	ug/L		1					
Ethylbenzene	UY2	1.00	0.333	1.00	ug/L		1					
Iodomethane	UY2	5.00	1.67	5.00	ug/L		1					
Methylene chloride	JY2	1.54	0.500	5.00	ug/L		1					
Styrene	UY2	1.00	0.333	1.00	ug/L		1					
Tetrachloroethylene	U	1.00	0.333	1.00	ug/L		1					
Toluene	U	1.00	0.333	1.00	ug/L		1					
Trichloroethylene		6.71	0.333	1.00	ug/L		1					
Trichlorofluoromethane	U	1.00	0.333	1.00	ug/L		1					
Vinyl acetate	U	5.00	1.67	5.00	ug/L		1					
Vinyl chloride	UY1	1.00	0.333	1.00	ug/L		1					
Xylenes (total)	UY2	3.00	1.00	3.00	ug/L		1					
cis-1,2-Dichloroethylene	J	0.550	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: April 25, 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(SG24-02)

Client Sample ID:	MW392SG2-24	Project:	FRNP00511
Sample ID:	652920003	Client ID:	FRNP005

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

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-MS 3005A PREP	SD	01/29/24	1520	2559334
SW846 9010C Distillation	SW846 9010C Prep	ES2	01/30/24	1104	2559563
SW846 8011 PREP	8011 Prep	LL2	02/01/24	1147	2559321
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	01/30/24	1205	2560147

The following Analytical Methods were performed:

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

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011, VOA Compounds Liquid "As Received"	7.28 ug/L	6.69	109	(56%-149%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	48.0 ug/L	50.0	96	(74%-123%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	44.7 ug/L	50.0	89	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	42.9 ug/L	50.0	86	(77%-121%)

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Certificate of Analysis

Report Date: April 25, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID:	MW392SG2-24	Project:	FRNP00511
Sample ID:	652920003	Client ID:	FRNP005

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

Notes:

Column headers are defined as follows:

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

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Certificate of Analysis

Report Date: April 25, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID:	MW392SG2-24	Project:	FRNP00511
Sample ID:	652920004	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	25-JAN-24 08:34		
Receive Date:	26-JAN-24		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Dissolved Metals (3 Elements) "As Received"												
Barium		0.338	0.000670	0.00400	mg/L	1.00	1	RM4	02/20/24	1841	2559335	1
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 160	Laboratory Filtration	RXB5	01/26/24	1247	2559164
SW846 3005A	ICP-MS 3005A PREP	SD	01/29/24	1520	2559334

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3005A/6020B	

Notes:

Column headers are defined as follows:

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

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Report Date: April 25, 2024

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

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID: MW393SG2-24 | Project: FRNP00511
Sample ID: 652920005 | Client ID: FRNP005
Matrix: WG
Collect Date: 25-JAN-24 09:17
Receive Date: 26-JAN-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	LL2	02/01/24	1749	2559322	1
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average		2.39	0.330	2.00	mg/L		1	RM3	01/31/24	2033	2561367	2
Flow Injection Analysis												
9012B, Total Cyanide "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	01/31/24	0637	2559564	3
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens		16.2	3.33	10.0	ug/L		1	RM3	01/30/24	1919	2560465	4
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	02/13/24	1207	2567417	5
SW846 9056A Anions (5) "As Received"												
Bromide	J	0.139	0.0670	0.200	mg/L		1	CH6	01/26/24	2119	2559331	6
Fluoride	J	0.292	0.0330	4.00	mg/L		1					
Nitrate-N	J	0.115	0.0330	10.0	mg/L		1					
Sulfate		19.4	0.133	0.400	mg/L		1					
Chloride	BJ	9.94	0.134	250	mg/L		2	CH6	01/27/24	0259	2559331	7
Mercury Analysis-CVAA												
7470, Mercury Liquid "As Received"												
Mercury	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	JP2	01/31/24	1144	2560151	8
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	02/21/24	1509	2559335	9
Tantalum	UN	0.00500	0.00100	0.00500	mg/L	1.00	1					
Sodium		83.9	1.60	5.00	mg/L	1.00	20	RM4	02/21/24	1402	2559335	10
Boron	B	0.0230	0.00520	0.0150	mg/L	1.00	1	RM4	02/21/24	1351	2559335	11
Aluminum	J	0.0325	0.0193	0.0500	mg/L	1.00	1	RM4	02/20/24	1845	2559335	12
Arsenic		0.00550	0.00200	0.00500	mg/L	1.00	1					
Barium		0.107	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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Report Date: April 25, 2024

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

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID: MW393SG2-24 Project: FRNP00511
Sample ID: 652920005 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		14.9	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	0.00119	0.000300	0.00200	mg/L	1.00	1					
Iron		1.00	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Magnesium		3.75	0.0100	0.0300	mg/L	1.00	1					
Manganese		0.0412	0.00100	0.00500	mg/L	1.00	1					
Molybdenum	J	0.000390	0.000200	0.00100	mg/L	1.00	1					
Potassium		0.438	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	0.0000690	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					
Nickel	U	0.00200	0.000600	0.00200	mg/L	1.00	1	RM4	02/21/24	0132	2559335	13
Antimony	U	0.00300	0.00100	0.00300	mg/L	1.00	1	RM4	02/21/24	1726	2559335	14
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		261	2.38	10.0	mg/L			KLP1	02/01/24	1158	2561837	15
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD	U	20.0	8.95	20.0	mg/L		1	HH2	01/29/24	1244	2559247	16
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	JM6	02/01/24	1426	2559983	17
1,1,1-Trichloroethane	UY2	1.00	0.333	1.00	ug/L		1					
1,1,2,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethylene	UY2	1.00	0.333	1.00	ug/L		1					
1,2,3-Trichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dibromoethane	U	1.00	0.333	1.00	ug/L		1					

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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(SG24-02)

Client Sample ID: MW393SG2-24 Project: FRNP00511
Sample ID: 652920005 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	UL	5.00	1.67	5.00	ug/L		1					
Acetone	UY2	5.00	1.74	5.00	ug/L		1					
Acrolein	U	5.00	1.67	5.00	ug/L		1					
Acrylonitrile	U	5.00	1.67	5.00	ug/L		1					
Benzene	U	1.00	0.333	1.00	ug/L		1					
Bromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromodichloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromoform	U	1.00	0.333	1.00	ug/L		1					
Bromomethane	UY2	1.00	0.337	1.00	ug/L		1					
Carbon disulfide	UY2	5.00	1.67	5.00	ug/L		1					
Carbon tetrachloride	UY2	1.00	0.333	1.00	ug/L		1					
Chlorobenzene	U	1.00	0.333	1.00	ug/L		1					
Chloroethane	U	1.00	0.333	1.00	ug/L		1					
Chloroform	U	1.00	0.333	1.00	ug/L		1					
Chloromethane	UY1	1.00	0.333	1.00	ug/L		1					
Dibromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromomethane	U	1.00	0.333	1.00	ug/L		1					
Ethylbenzene	UY2	1.00	0.333	1.00	ug/L		1					
Iodomethane	UY2	5.00	1.67	5.00	ug/L		1					
Methylene chloride	BJY2	1.43	0.500	5.00	ug/L		1					
Styrene	UY2	1.00	0.333	1.00	ug/L		1					
Tetrachloroethylene	U	1.00	0.333	1.00	ug/L		1					
Toluene	U	1.00	0.333	1.00	ug/L		1					
Trichloroethylene	U	1.00	0.333	1.00	ug/L		1					
Trichlorofluoromethane	U	1.00	0.333	1.00	ug/L		1					
Vinyl acetate	U	5.00	1.67	5.00	ug/L		1					
Vinyl chloride	UY1	1.00	0.333	1.00	ug/L		1					
Xylenes (total)	UY2	3.00	1.00	3.00	ug/L		1					
cis-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
cis-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					

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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(SG24-02)

Client Sample ID:	MW393SG2-24	Project:	FRNP00511
Sample ID:	652920005	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	01/30/24	1205	2560147
SW846 8011 PREP	8011 Prep	LL2	02/01/24	1147	2559321
SW846 3005A	ICP-MS 3005A PREP	SD	01/29/24	1520	2559334
SW846 9010C Distillation	SW846 9010C Prep	ES2	01/30/24	1104	2559563

The following Analytical Methods were performed:

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

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011, VOA Compounds Liquid "As Received"	5.39 ug/L	6.78	79	(56%-149%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	48.6 ug/L	50.0	97	(74%-123%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	44.2 ug/L	50.0	88	(76%-127%)

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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(SG24-02)

Client Sample ID:	MW393SG2-24	Project:	FRNP00511
Sample ID:	652920005	Client ID:	FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Toluene-d8		8260D, Volatiles- full suite "As Received"		44.5	ug/L	50.0		89		(77%-121%)		

Notes:

Column headers are defined as follows:

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

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Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID:	MW393SG2-24	Project:	FRNP00511
Sample ID:	652920006	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	25-JAN-24 09:17		
Receive Date:	26-JAN-24		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Dissolved Metals (3 Elements) "As Received"												
Barium		0.0720	0.000670	0.00400	mg/L	1.00	1	RM4	02/20/24	1849	2559335	1
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-MS 3005A PREP	SD	01/29/24	1520	2559334
EPA 160	Laboratory Filtration	RXB5	01/26/24	1247	2559164

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3005A/6020B	

Notes:

Column headers are defined as follows:

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

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

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID:	TB1SG2-24	Project:	FRNP00511
Sample ID:	652920007	Client ID:	FRNP005
Matrix:	WATER		
Collect Date:	25-JAN-24 06:40		
Receive Date:	26-JAN-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	0.945	1	LL2	02/01/24	1814	2559322	1
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	JM6	02/01/24	1454	2559983	2
1,1,1-Trichloroethane	UY2	1.00	0.333	1.00	ug/L		1					
1,1,2,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethylene	UY2	1.00	0.333	1.00	ug/L		1					
1,2,3-Trichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dibromoethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,4-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
2-Butanone	U	5.00	1.67	5.00	ug/L		1					
2-Hexanone	U	5.00	1.67	5.00	ug/L		1					
4-Methyl-2-pentanone	UL	5.00	1.67	5.00	ug/L		1					
Acetone	UY2	5.00	1.74	5.00	ug/L		1					
Acrolein	U	5.00	1.67	5.00	ug/L		1					
Acrylonitrile	U	5.00	1.67	5.00	ug/L		1					
Benzene	U	1.00	0.333	1.00	ug/L		1					
Bromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromodichloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromoform	U	1.00	0.333	1.00	ug/L		1					
Bromomethane	UY2	1.00	0.337	1.00	ug/L		1					
Carbon disulfide	UY2	5.00	1.67	5.00	ug/L		1					
Carbon tetrachloride	UY2	1.00	0.333	1.00	ug/L		1					
Chlorobenzene	U	1.00	0.333	1.00	ug/L		1					
Chloroethane	U	1.00	0.333	1.00	ug/L		1					
Chloroform	U	1.00	0.333	1.00	ug/L		1					
Chloromethane	UY1	1.00	0.333	1.00	ug/L		1					
Dibromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromomethane	U	1.00	0.333	1.00	ug/L		1					
Ethylbenzene	UY2	1.00	0.333	1.00	ug/L		1					
Iodomethane	UY2	5.00	1.67	5.00	ug/L		1					

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Certificate of Analysis

Report Date: April 25, 2024

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

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID: TB1SG2-24 Project: FRNP00511
Sample ID: 652920007 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
Methylene chloride	BJY2	1.61	0.500	5.00	ug/L		1					
Styrene	UY2	1.00	0.333	1.00	ug/L		1					
Tetrachloroethylene	U	1.00	0.333	1.00	ug/L		1					
Toluene	U	1.00	0.333	1.00	ug/L		1					
Trichloroethylene	U	1.00	0.333	1.00	ug/L		1					
Trichlorofluoromethane	U	1.00	0.333	1.00	ug/L		1					
Vinyl acetate	U	5.00	1.67	5.00	ug/L		1					
Vinyl chloride	UY1	1.00	0.333	1.00	ug/L		1					
Xylenes (total)	UY2	3.00	1.00	3.00	ug/L		1					
cis-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
cis-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,4-Dichloro-2-butene	U	5.00	1.67	5.00	ug/L		1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 8011 PREP	8011 Prep	LL2	02/01/24	1147	2559321

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 8011	
2	SW846 8260D	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011, VOA Compounds Liquid "As Received"	7.80 ug/L	6.75	116	(56%-149%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	47.7 ug/L	50.0	95	(74%-123%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	45.0 ug/L	50.0	90	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	43.2 ug/L	50.0	86	(77%-121%)

Notes:

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Certificate of Analysis

Report Date: April 25, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID:	TB1SG2-24	Project:	FRNP00511
Sample ID:	652920007	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

Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID: MW391SG2-24
Sample ID: 652920001
Matrix: WG
Collect Date: 25-JAN-24
Receive Date: 26-JAN-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	0.593	+/-0.999	1.46	+/-0.999	5.00	pCi/L			EJ1	02/13/24	1423	2558724	1
Th-01-RC M, Th Isotopes, Liquid "As Received"														
Thorium-230	U	-0.0334	+/-0.796	1.81	+/-0.797	50.0	pCi/L			EJ1	02/08/24	0858	2558725	2
Rad Gas Flow Proportional Counting														
905.0 Mod, Sr90, liquid "As Received"														
Strontium-90	U	-0.0980	+/-1.66	3.27	+/-1.66	8.00	pCi/L			JE1	02/02/24	1129	2560658	3
9310,Alpha/Beta Activity, liquid "As Received"														
Alpha	U	-0.988	+/-3.82	9.22	+/-3.82	15.0	pCi/L			AW5	02/08/24	1626	2563684	4
Beta	U	1.07	+/-5.38	9.81	+/-5.38	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
906.0 Mod, Tritium Dist, Liquid "As Received"														
Tritium	U	89.0	+/-139	238	+/-140	300	pCi/L			HB2	02/20/24	1019	2563918	5
Tc-02-RC-MOD, Tc99, Liquid "As Received"														
Technetium-99	U	2.48	+/-9.41	16.4	+/-9.41	25.0	pCi/L			GS3	02/20/24	1113	2564441	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"	2558724	91.2	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2558725	80.5	(30%-110%)
Strontium Carrier	905.0 Mod, Sr90, liquid "As Received"	2560658	101	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2564441	99.2	(30%-110%)

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Kevil, Kentucky 42053

Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID: MW391SG2-24
Sample ID: 652920001

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, LLC
Address : 5600 Hobbs Road

Kevil, Kentucky 42053

Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID: MW392SG2-24
Sample ID: 652920003
Matrix: WG
Collect Date: 25-JAN-24
Receive Date: 26-JAN-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	0.292	+/-0.967	1.83	+/-0.967	5.00	pCi/L			EJ1	02/13/24	1423	2558724	1
Th-01-RC M, Th Isotopes, Liquid "As Received"														
Thorium-230	U	0.330	+/-0.941	1.72	+/-0.946	50.0	pCi/L			EJ1	02/08/24	0858	2558725	2
Rad Gas Flow Proportional Counting														
905.0 Mod, Sr90, liquid "As Received"														
Strontium-90	U	1.15	+/-3.09	5.54	+/-3.10	8.00	pCi/L			JE1	02/01/24	1401	2560658	3
9310,Alpha/Beta Activity, liquid "As Received"														
Alpha	U	3.88	+/-4.52	7.29	+/-4.56	15.0	pCi/L			AW5	02/08/24	1626	2563684	4
Beta	U	8.11	+/-6.54	10.4	+/-6.68	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
906.0 Mod, Tritium Dist, Liquid "As Received"														
Tritium	U	35.8	+/-135	238	+/-135	300	pCi/L			HB2	02/20/24	1051	2563918	5
Tc-02-RC-MOD, Tc99, Liquid "As Received"														
Technetium-99	U	6.69	+/-9.64	16.4	+/-9.67	25.0	pCi/L			GS3	02/20/24	1130	2564441	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"	2558724	93.9	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2558725	77.4	(30%-110%)
Strontium Carrier	905.0 Mod, Sr90, liquid "As Received"	2560658	96.1	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2564441	99	(30%-110%)

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

Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID: MW392SG2-24
Sample ID: 652920003

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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Address : 5600 Hobbs Road

Kevil, Kentucky 42053

Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID: MW393SG2-24
Sample ID: 652920005
Matrix: WG
Collect Date: 25-JAN-24
Receive Date: 26-JAN-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	0.325	+/-0.353	0.504	+/-0.354	5.00	pCi/L			EJ1	02/10/24	0856	2558724	1
Th-01-RC M, Th Isotopes, Liquid "As Received"														
Thorium-230	U	0.730	+/-1.05	1.64	+/-1.06	50.0	pCi/L			EJ1	02/08/24	0858	2558725	2
Rad Gas Flow Proportional Counting														
905.0 Mod, Sr90, liquid "As Received"														
Strontium-90	U	-2.29	+/-2.55	5.48	+/-2.55	8.00	pCi/L			JE1	02/01/24	1401	2560658	3
9310,Alpha/Beta Activity, liquid "As Received"														
Alpha	U	1.98	+/-4.18	8.03	+/-4.19	15.0	pCi/L			AW5	02/08/24	1626	2563684	4
Beta	U	-0.536	+/-4.50	8.71	+/-4.50	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
906.0 Mod, Tritium Dist, Liquid "As Received"														
Tritium	U	152	+/-144	238	+/-147	300	pCi/L			HB2	02/20/24	1123	2563918	5
Tc-02-RC-MOD, Tc99, Liquid "As Received"														
Technetium-99	U	11.0	+/-9.77	16.2	+/-9.85	25.0	pCi/L			GS3	02/20/24	1147	2564441	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"	2558724	91.6	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2558725	93.3	(30%-110%)
Strontium Carrier	905.0 Mod, Sr90, liquid "As Received"	2560658	89.1	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2564441	99.2	(30%-110%)

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Certificate of Analysis

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Address : 5600 Hobbs Road

Kevil, Kentucky 42053

Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID: MW393SG2-24
Sample ID: 652920005

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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ATTACHMENT C2

GEL LABORATORIES CERTIFICATE OF ANALYSIS

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Certificate of Analysis

Report Date: April 25, 2024

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

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID:	MW385SG2-24	Project:	FRNP00511
Sample ID:	652976001	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	26-JAN-24 06:46		
Receive Date:	27-JAN-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	UL	0.0214	0.00963	0.0214	ug/L	1.07	1	LL2	02/01/24	2015	2561009	1
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	0.770	0.330	2.00	mg/L		1	RM3	01/31/24	2126	2561367	2
Flow Injection Analysis												
9012B, Total Cyanide "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	01/31/24	0614	2559564	3
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens	J	5.44	3.33	10.0	ug/L		1	RM3	01/31/24	1236	2561263	4
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	02/13/24	1220	2567417	5
SW846 9056A Anions (5) "As Received"												
Bromide	W	0.240	0.0670	0.200	mg/L		1	CWW	01/27/24	1524	2559519	6
Fluoride	J	0.209	0.0330	4.00	mg/L		1					
Nitrate-N	J	0.567	0.0330	10.0	mg/L		1					
Chloride	JW	23.2	0.268	250	mg/L		4	CWW	01/27/24	1833	2559519	7
Sulfate		19.7	0.532	1.60	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	01/31/24	1146	2560151	8
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1	PRB	02/17/24	0218	2560478	9
Molybdenum	J	0.000304	0.000200	0.00100	mg/L	1.00	1					
Uranium	J	0.000108	0.0000670	0.000200	mg/L	1.00	1					
Aluminum	J	0.0221	0.0193	0.0500	mg/L	1.00	1	PRB	02/16/24	1809	2560478	10
Antimony	U	0.00300	0.00100	0.00300	mg/L	1.00	1					
Arsenic	U	0.00500	0.00200	0.00500	mg/L	1.00	1					
Barium		0.226	0.000670	0.00400	mg/L	1.00	1					
Boron		0.0751	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(SG24-02)

Client Sample ID: MW385SG2-24 Project: FRNP00511
Sample ID: 652976001 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		28.9	0.0800	0.200	mg/L	1.00	1					
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					
Cobalt	J	0.000891	0.000300	0.00100	mg/L	1.00	1					
Copper	J	0.00153	0.000300	0.00200	mg/L	1.00	1					
Iron	J	0.0451	0.0330	0.100	mg/L	1.00	1					
Magnesium		11.1	0.0100	0.0300	mg/L	1.00	1					
Manganese	J	0.00411	0.00100	0.00500	mg/L	1.00	1					
Nickel	J	0.000641	0.000600	0.00200	mg/L	1.00	1					
Potassium		1.68	0.0800	0.300	mg/L	1.00	1					
Selenium	U	0.00500	0.00150	0.00500	mg/L	1.00	1					
Silver	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Sodium		39.7	0.0800	0.250	mg/L	1.00	1					
Thallium	U	0.00200	0.000600	0.00200	mg/L	1.00	1					
Vanadium	U	0.0200	0.00330	0.0200	mg/L	1.00	1					
Zinc	U	0.0200	0.00330	0.0200	mg/L	1.00	1					
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	02/19/24	1205	2560478	11
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1	PRB	02/19/24	0953	2560478	12
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		214	2.38	10.0	mg/L			KLP1	02/01/24	1158	2561837	13
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD	U	20.0	8.95	20.0	mg/L		1	HH2	01/29/24	1244	2559247	14
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	KP2	01/29/24	1755	2560098	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(SG24-02)

Client Sample ID: MW385SG2-24 Project: FRNP00511
Sample ID: 652976001 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,2-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,4-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
2-Butanone	U	5.00	1.67	5.00	ug/L		1					
2-Hexanone	U	5.00	1.67	5.00	ug/L		1					
4-Methyl-2-pentanone	U	5.00	1.67	5.00	ug/L		1					
Acetone	U	5.00	1.74	5.00	ug/L		1					
Acrolein	U	5.00	1.67	5.00	ug/L		1					
Acrylonitrile	U	5.00	1.67	5.00	ug/L		1					
Benzene	U	1.00	0.333	1.00	ug/L		1					
Bromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromodichloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromoform	U	1.00	0.333	1.00	ug/L		1					
Bromomethane	U	1.00	0.337	1.00	ug/L		1					
Carbon disulfide	U	5.00	1.67	5.00	ug/L		1					
Carbon tetrachloride	U	1.00	0.333	1.00	ug/L		1					
Chlorobenzene	U	1.00	0.333	1.00	ug/L		1					
Chloroethane	U	1.00	0.333	1.00	ug/L		1					
Chloroform	U	1.00	0.333	1.00	ug/L		1					
Chloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromomethane	U	1.00	0.333	1.00	ug/L		1					
Ethylbenzene	U	1.00	0.333	1.00	ug/L		1					
Iodomethane	U	5.00	1.67	5.00	ug/L		1					
Methylene chloride	BJ	0.770	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: April 25, 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(SG24-02)

Client Sample ID:	MW385SG2-24	Project:	FRNP00511
Sample ID:	652976001	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	BM1	02/01/24	1052	2561008
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	01/30/24	1205	2560147
SW846 9010C Distillation	SW846 9010C Prep	ES2	01/30/24	1104	2559563
SW846 3005A	ICP-MS 3005A PREP	SD	01/31/24	1510	2560477

The following Analytical Methods were performed:

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

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011, VOA Compounds Liquid "As Received"	7.42 ug/L	6.69	111	(56%-149%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	44.8 ug/L	50.0	90	(74%-123%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	41.9 ug/L	50.0	84	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	41.5 ug/L	50.0	83	(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(SG24-02)

Client Sample ID:	MW385SG2-24	Project:	FRNP00511
Sample ID:	652976001	Client ID:	FRNP005

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

Column headers are defined as follows:

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

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Report Date: April 25, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID:	MW385SG2-24	Project:	FRNP00511
Sample ID:	652976002	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	26-JAN-24 06:46		
Receive Date:	27-JAN-24		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Dissolved Metals (3 Elements) "As Received"												
Barium		0.217	0.000670	0.00400	mg/L	1.00	1	PRB	02/16/24	1834	2560478	1
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					
Uranium	J	0.0000960	0.0000670	0.000200	mg/L	1.00	1	PRB	02/17/24	0243	2560478	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 160	Laboratory Filtration	RXB5	01/30/24	1020	2560289
SW846 3005A	ICP-MS 3005A PREP	SD	01/31/24	1510	2560477

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: April 25, 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(SG24-02)

Client Sample ID: MW386SG2-24
Sample ID: 652976003
Matrix: WG
Collect Date: 26-JAN-24 07:23
Receive Date: 27-JAN-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	UL	0.0216	0.00971	0.0216	ug/L	1.08	1	LL2	02/01/24	2128	2561009	1
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average		5.70	0.330	2.00	mg/L		1	RM3	01/31/24	2304	2561367	2
Flow Injection Analysis												
9012B, Total Cyanide "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	01/31/24	0617	2559564	3
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens		145	3.33	10.0	ug/L		1	RM3	01/31/24	1602	2561263	4
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	02/13/24	1258	2567417	5
SW846 9056A Anions (5) "As Received"												
Bromide	JW	0.131	0.0670	0.200	mg/L		1	CWW	01/27/24	1658	2559519	6
Fluoride	J	0.763	0.0330	4.00	mg/L		1					
Nitrate-N	U	10.0	0.0330	10.0	mg/L		1					
Chloride	JW	12.3	0.268	250	mg/L		4	CWW	01/27/24	2109	2559519	7
Sulfate		41.7	0.532	1.60	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	01/31/24	1158	2560151	8
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	02/19/24	1219	2560478	9
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1	PRB	02/19/24	1006	2560478	10
Sodium		106	0.800	2.50	mg/L	1.00	10	PRB	02/19/24	1008	2560478	11
Aluminum	U	0.0500	0.0193	0.0500	mg/L	1.00	1	PRB	02/16/24	1838	2560478	12
Antimony	U	0.00300	0.00100	0.00300	mg/L	1.00	1					
Arsenic	J	0.00370	0.00200	0.00500	mg/L	1.00	1					
Barium		0.189	0.000670	0.00400	mg/L	1.00	1					
Boron	J	0.0121	0.00520	0.0150	mg/L	1.00	1					

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Report Date: April 25, 2024

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

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID: MW386SG2-24 Project: FRNP00511
Sample ID: 652976003 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		20.4	0.0800	0.200	mg/L	1.00	1					
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					
Cobalt		0.0108	0.000300	0.00100	mg/L	1.00	1					
Copper	J	0.00120	0.000300	0.00200	mg/L	1.00	1					
Iron		0.964	0.0330	0.100	mg/L	1.00	1					
Magnesium		8.49	0.0100	0.0300	mg/L	1.00	1					
Manganese		0.939	0.00100	0.00500	mg/L	1.00	1					
Nickel		0.00329	0.000600	0.00200	mg/L	1.00	1					
Potassium	J	0.296	0.0800	0.300	mg/L	1.00	1					
Selenium	U	0.00500	0.00150	0.00500	mg/L	1.00	1					
Silver	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Thallium	U	0.00200	0.000600	0.00200	mg/L	1.00	1					
Vanadium	J	0.00521	0.00330	0.0200	mg/L	1.00	1					
Zinc	J	0.00342	0.00330	0.0200	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1	PRB	02/17/24	0247	2560478	13
Molybdenum	J	0.000696	0.000200	0.00100	mg/L	1.00	1					
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		342	2.38	10.0	mg/L			KLP1	02/01/24	1158	2561837	14
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD	J	18.0	8.95	20.0	mg/L		1	HH2	01/29/24	1244	2559247	15
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	KP2	01/29/24	1821	2560098	16
1,1,1-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
1,2,3-Trichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dibromoethane	U	1.00	0.333	1.00	ug/L		1					

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Report Date: April 25, 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(SG24-02)

Client Sample ID: MW386SG2-24 Project: FRNP00511
Sample ID: 652976003 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,2-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,4-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
2-Butanone	U	5.00	1.67	5.00	ug/L		1					
2-Hexanone	U	5.00	1.67	5.00	ug/L		1					
4-Methyl-2-pentanone	U	5.00	1.67	5.00	ug/L		1					
Acetone	U	5.00	1.74	5.00	ug/L		1					
Acrolein	U	5.00	1.67	5.00	ug/L		1					
Acrylonitrile	U	5.00	1.67	5.00	ug/L		1					
Benzene	U	1.00	0.333	1.00	ug/L		1					
Bromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromodichloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromoform	U	1.00	0.333	1.00	ug/L		1					
Bromomethane	U	1.00	0.337	1.00	ug/L		1					
Carbon disulfide	U	5.00	1.67	5.00	ug/L		1					
Carbon tetrachloride	U	1.00	0.333	1.00	ug/L		1					
Chlorobenzene	U	1.00	0.333	1.00	ug/L		1					
Chloroethane	U	1.00	0.333	1.00	ug/L		1					
Chloroform	U	1.00	0.333	1.00	ug/L		1					
Chloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromomethane	U	1.00	0.333	1.00	ug/L		1					
Ethylbenzene	U	1.00	0.333	1.00	ug/L		1					
Iodomethane	U	5.00	1.67	5.00	ug/L		1					
Methylene chloride	BJ	0.600	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(SG24-02)

Client Sample ID: MW386SG2-24 Project: FRNP00511
Sample ID: 652976003 Client ID: FRNP005

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

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-MS 3005A PREP	SD	01/31/24	1510	2560477
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	01/30/24	1205	2560147
SW846 9010C Distillation	SW846 9010C Prep	ES2	01/30/24	1104	2559563
SW846 8011 PREP	8011 Prep	BM1	02/01/24	1052	2561008

The following Analytical Methods were performed:

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

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011, VOA Compounds Liquid "As Received"	7.48 ug/L	6.75	111	(56%-149%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	44.1 ug/L	50.0	88	(74%-123%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	41.9 ug/L	50.0	84	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	39.6 ug/L	50.0	79	(77%-121%)

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Report Date: April 25, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID:	MW386SG2-24	Project:	FRNP00511
Sample ID:	652976003	Client ID:	FRNP005

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

Notes:

Column headers are defined as follows:

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

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Certificate of Analysis

Report Date: April 25, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID:	MW386SG2-24	Project:	FRNP00511
Sample ID:	652976004	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	26-JAN-24 07:23		
Receive Date:	27-JAN-24		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Dissolved Metals (3 Elements) "As Received"												
Barium		0.161	0.000670	0.00400	mg/L	1.00	1	PRB	02/16/24	1842	2560478	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	02/17/24	0250	2560478	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 160	Laboratory Filtration	RXB5	01/30/24	1020	2560289
SW846 3005A	ICP-MS 3005A PREP	SD	01/31/24	1510	2560477

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: April 25, 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(SG24-02)

Client Sample ID: MW387SG2-24
Sample ID: 652976005
Matrix: WG
Collect Date: 26-JAN-24 06:33
Receive Date: 27-JAN-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	UL	0.0222	0.0100	0.0222	ug/L	1.11	1	LL2	02/01/24	2152	2561009	1
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	0.938	0.330	2.00	mg/L		1	RM3	01/31/24	2337	2561367	2
Flow Injection Analysis												
9012B, Total Cyanide "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	01/31/24	0618	2559564	3
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens	J	9.60	3.33	10.0	ug/L		1	RM3	01/31/24	1703	2561263	4
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	02/13/24	1311	2567417	5
SW846 9056A Anions (5) "As Received"												
Bromide	W	0.496	0.0670	0.200	mg/L		1	CWW	01/27/24	1730	2559519	6
Fluoride	J	0.996	0.0330	4.00	mg/L		1					
Nitrate-N	J	0.888	0.0330	10.0	mg/L		1					
Chloride	JW	37.6	0.670	250	mg/L		10	CWW	01/27/24	2140	2559519	7
Sulfate		28.7	1.33	4.00	mg/L		10					
Mercury Analysis-CVAA												
7470, Mercury Liquid "As Received"												
Mercury	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	JP2	01/31/24	1159	2560151	8
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Aluminum	J	0.0297	0.0193	0.0500	mg/L	1.00	1	PRB	02/16/24	1845	2560478	9
Antimony	U	0.00300	0.00100	0.00300	mg/L	1.00	1					
Arsenic	J	0.00253	0.00200	0.00500	mg/L	1.00	1					
Barium		0.103	0.000670	0.00400	mg/L	1.00	1					
Boron		0.0372	0.00520	0.0150	mg/L	1.00	1					
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Calcium		38.2	0.0800	0.200	mg/L	1.00	1					
Chromium	J	0.00493	0.00300	0.0100	mg/L	1.00	1					
Cobalt	U	0.00100	0.000300	0.00100	mg/L	1.00	1					

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Certificate of Analysis

Report Date: April 25, 2024

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

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID: MW387SG2-24 Project: FRNP00511
Sample ID: 652976005 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"												
Copper		0.00227	0.000300	0.00200	mg/L	1.00	1					
Iron		0.112	0.0330	0.100	mg/L	1.00	1					
Magnesium		15.8	0.0100	0.0300	mg/L	1.00	1					
Manganese		0.0114	0.00100	0.00500	mg/L	1.00	1					
Nickel	U	0.00200	0.000600	0.00200	mg/L	1.00	1					
Potassium		1.73	0.0800	0.300	mg/L	1.00	1					
Selenium	U	0.00500	0.00150	0.00500	mg/L	1.00	1					
Silver	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Sodium		49.3	0.0800	0.250	mg/L	1.00	1					
Thallium	U	0.00200	0.000600	0.00200	mg/L	1.00	1					
Vanadium	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					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1	PRB	02/17/24	0254	2560478	10
Molybdenum	U	0.00100	0.000200	0.00100	mg/L	1.00	1					
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1	PRB	02/19/24	1010	2560478	11
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	02/19/24	1220	2560478	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		284	2.38	10.0	mg/L			KLP1	02/01/24	1158	2561837	13
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD	U	20.0	8.95	20.0	mg/L		1	HH2	01/29/24	1244	2559247	14
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	KP2	01/29/24	1848	2560098	15
1,1,1-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
1,2,3-Trichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dibromoethane	U	1.00	0.333	1.00	ug/L		1					

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Address : 5600 Hobbs Road

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID: MW387SG2-24 Project: FRNP00511
Sample ID: 652976005 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,2-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,4-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
2-Butanone	U	5.00	1.67	5.00	ug/L		1					
2-Hexanone	U	5.00	1.67	5.00	ug/L		1					
4-Methyl-2-pentanone	U	5.00	1.67	5.00	ug/L		1					
Acetone	U	5.00	1.74	5.00	ug/L		1					
Acrolein	U	5.00	1.67	5.00	ug/L		1					
Acrylonitrile	U	5.00	1.67	5.00	ug/L		1					
Benzene	U	1.00	0.333	1.00	ug/L		1					
Bromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromodichloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromoform	U	1.00	0.333	1.00	ug/L		1					
Bromomethane	U	1.00	0.337	1.00	ug/L		1					
Carbon disulfide	U	5.00	1.67	5.00	ug/L		1					
Carbon tetrachloride	U	1.00	0.333	1.00	ug/L		1					
Chlorobenzene	U	1.00	0.333	1.00	ug/L		1					
Chloroethane	U	1.00	0.333	1.00	ug/L		1					
Chloroform	U	1.00	0.333	1.00	ug/L		1					
Chloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromomethane	U	1.00	0.333	1.00	ug/L		1					
Ethylbenzene	U	1.00	0.333	1.00	ug/L		1					
Iodomethane	U	5.00	1.67	5.00	ug/L		1					
Methylene chloride	BJ	0.760	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	0.430	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(SG24-02)

Client Sample ID:	MW387SG2-24	Project:	FRNP00511
Sample ID:	652976005	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	01/30/24	1205	2560147
SW846 3005A	ICP-MS 3005A PREP	SD	01/31/24	1510	2560477
SW846 8011 PREP	8011 Prep	BM1	02/01/24	1052	2561008
SW846 9010C Distillation	SW846 9010C Prep	ES2	01/30/24	1104	2559563

The following Analytical Methods were performed:

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

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011, VOA Compounds Liquid "As Received"	7.96 ug/L	6.94	115	(56%-149%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	45.5 ug/L	50.0	91	(74%-123%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	42.7 ug/L	50.0	85	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	41.9 ug/L	50.0	84	(77%-121%)

Notes:

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Company :	Four Rivers Nuclear Partnership, LLC
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Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID:	MW387SG2-24	Project:	FRNP00511
Sample ID:	652976005	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(SG24-02)

Client Sample ID:	MW387SG2-24	Project:	FRNP00511
Sample ID:	652976006	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	26-JAN-24 06:33		
Receive Date:	27-JAN-24		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Dissolved Metals (3 Elements) "As Received"												
Barium		0.104	0.000670	0.00400	mg/L	1.00	1	PRB	02/16/24	1849	2560478	1
Chromium	J	0.00484	0.00300	0.0100	mg/L	1.00	1					
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	PRB	02/17/24	0258	2560478	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 160	Laboratory Filtration	RXB5	01/30/24	1020	2560289
SW846 3005A	ICP-MS 3005A PREP	SD	01/31/24	1510	2560477

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: April 25, 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(SG24-02)

Client Sample ID:	MW388SG2-24	Project:	FRNP00511
Sample ID:	652976007	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	26-JAN-24 05:57		
Receive Date:	27-JAN-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	UL	0.0214	0.00963	0.0214	ug/L	1.07	1	LL2	02/01/24	2216	2561009	1
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	0.655	0.330	2.00	mg/L		1	RM3	02/01/24	0010	2561367	2
Flow Injection Analysis												
9012B, Total Cyanide "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	01/31/24	0619	2559564	3
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens		36.0	3.33	10.0	ug/L		1	RM3	01/31/24	1743	2561263	4
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	02/13/24	1324	2567417	5
SW846 9056A Anions (5) "As Received"												
Chloride	JW	35.4	0.670	250	mg/L		10	CWW	01/27/24	2212	2559519	6
Bromide	W	0.445	0.0670	0.200	mg/L		1	CWW	01/27/24	1801	2559519	7
Fluoride	J	0.233	0.0330	4.00	mg/L		1					
Nitrate-N	J	0.927	0.0330	10.0	mg/L		1					
Sulfate		18.7	0.133	0.400	mg/L		1					
Mercury Analysis-CVAA												
7470, Mercury Liquid "As Received"												
Mercury	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	JP2	01/31/24	1201	2560151	8
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	02/19/24	1222	2560478	9
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1	PRB	02/17/24	0301	2560478	10
Molybdenum	U	0.00100	0.000200	0.00100	mg/L	1.00	1					
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1	PRB	02/19/24	1012	2560478	11
Aluminum	J	0.0203	0.0193	0.0500	mg/L	1.00	1	PRB	02/16/24	1852	2560478	12
Antimony	U	0.00300	0.00100	0.00300	mg/L	1.00	1					
Arsenic	J	0.00223	0.00200	0.00500	mg/L	1.00	1					

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Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID: MW388SG2-24 Project: FRNP00511
Sample ID: 652976007 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"												
Barium		0.211	0.000670	0.00400	mg/L	1.00	1					
Boron		0.0289	0.00520	0.0150	mg/L	1.00	1					
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Calcium		24.4	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		0.00209	0.000300	0.00200	mg/L	1.00	1					
Iron	J	0.0958	0.0330	0.100	mg/L	1.00	1					
Magnesium		10.6	0.0100	0.0300	mg/L	1.00	1					
Manganese	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Nickel	U	0.00200	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		45.2	0.0800	0.250	mg/L	1.00	1					
Thallium	U	0.00200	0.000600	0.00200	mg/L	1.00	1					
Vanadium	J	0.00414	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		220	2.38	10.0	mg/L			KLP1	02/01/24	1158	2561837	13
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD	U	20.0	8.95	20.0	mg/L		1	HH2	01/29/24	1244	2559247	14
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	KP2	01/29/24	1915	2560098	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(SG24-02)

Client Sample ID: MW388SG2-24 Project: FRNP00511
Sample ID: 652976007 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,2-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,4-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
2-Butanone	U	5.00	1.67	5.00	ug/L		1					
2-Hexanone	U	5.00	1.67	5.00	ug/L		1					
4-Methyl-2-pentanone	U	5.00	1.67	5.00	ug/L		1					
Acetone	U	5.00	1.74	5.00	ug/L		1					
Acrolein	U	5.00	1.67	5.00	ug/L		1					
Acrylonitrile	U	5.00	1.67	5.00	ug/L		1					
Benzene	U	1.00	0.333	1.00	ug/L		1					
Bromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromodichloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromoform	U	1.00	0.333	1.00	ug/L		1					
Bromomethane	U	1.00	0.337	1.00	ug/L		1					
Carbon disulfide	U	5.00	1.67	5.00	ug/L		1					
Carbon tetrachloride	U	1.00	0.333	1.00	ug/L		1					
Chlorobenzene	U	1.00	0.333	1.00	ug/L		1					
Chloroethane	U	1.00	0.333	1.00	ug/L		1					
Chloroform	U	1.00	0.333	1.00	ug/L		1					
Chloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromomethane	U	1.00	0.333	1.00	ug/L		1					
Ethylbenzene	U	1.00	0.333	1.00	ug/L		1					
Iodomethane	U	5.00	1.67	5.00	ug/L		1					
Methylene chloride	BJ	0.660	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: April 25, 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(SG24-02)

Client Sample ID:	MW388SG2-24	Project:	FRNP00511
Sample ID:	652976007	Client ID:	FRNP005

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

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-MS 3005A PREP	SD	01/31/24	1510	2560477
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	01/30/24	1205	2560147
SW846 8011 PREP	8011 Prep	BM1	02/01/24	1052	2561008
SW846 9010C Distillation	SW846 9010C Prep	ES2	01/30/24	1104	2559563

The following Analytical Methods were performed:

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

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011, VOA Compounds Liquid "As Received"	7.59 ug/L	6.69	113	(56%-149%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	45.4 ug/L	50.0	91	(74%-123%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	41.9 ug/L	50.0	84	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	41.3 ug/L	50.0	83	(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(SG24-02)

Client Sample ID:	MW388SG2-24	Project:	FRNP00511
Sample ID:	652976007	Client ID:	FRNP005

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

Column headers are defined as follows:

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

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Report Date: April 25, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID:	MW388SG2-24	Project:	FRNP00511
Sample ID:	652976008	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	26-JAN-24 05:57		
Receive Date:	27-JAN-24		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Dissolved Metals (3 Elements) "As Received"												
Barium		0.197	0.000670	0.00400	mg/L	1.00	1	PRB	02/16/24	1856	2560478	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	02/17/24	0305	2560478	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 160	Laboratory Filtration	RXB5	01/30/24	1020	2560289
SW846 3005A	ICP-MS 3005A PREP	SD	01/31/24	1510	2560477

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: April 25, 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(SG24-02)

Client Sample ID:	TB2SG2-24	Project:	FRNP00511
Sample ID:	652976011	Client ID:	FRNP005
Matrix:	WATER		
Collect Date:	26-JAN-24 05:30		
Receive Date:	27-JAN-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	UL	0.0214	0.00964	0.0214	ug/L	1.07	1	LL2	02/01/24	2240	2561009	1
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	KP2	01/29/24	1607	2560098	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: April 25, 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(SG24-02)

Client Sample ID: TB2SG2-24 Project: FRNP00511
Sample ID: 652976011 Client ID: FRNP005

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

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 8011 PREP	8011 Prep	BM1	02/01/24	1052	2561008

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"	7.52 ug/L	6.69	112	(56%-149%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	43.1 ug/L	50.0	86	(74%-123%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	40.7 ug/L	50.0	81	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	40.8 ug/L	50.0	82	(77%-121%)

Notes:

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Certificate of Analysis

Report Date: April 25, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID:	TB2SG2-24	Project:	FRNP00511
Sample ID:	652976011	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

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

Kevil, Kentucky 42053

Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID: MW385SG2-24
Sample ID: 652976001
Matrix: WG
Collect Date: 26-JAN-24
Receive Date: 27-JAN-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	0.751	+/-1.23	1.76	+/-1.23	5.00	pCi/L			CM4	02/13/24	1244	2559993	1
Th-01-RC M, Th Isotopes, Liquid "As Received"														
Thorium-230	U	0.542	+/-1.22	2.18	+/-1.22	50.0	pCi/L			EJ1	02/03/24	0926	2559991	2
Rad Gas Flow Proportional Counting														
905.0 Mod, Sr90, liquid "As Received"														
Strontium-90	U	2.06	+/-2.87	4.93	+/-2.89	8.00	pCi/L			JE1	02/01/24	1401	2560658	3
9310,Alpha/Beta Activity, liquid "As Received"														
Alpha	U	3.43	+/-3.92	6.25	+/-3.97	15.0	pCi/L			AW5	02/05/24	1112	2560941	4
Beta		34.8	+/-8.25	8.70	+/-10.1	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
906.0 Mod, Tritium Dist, Liquid "As Received"														
Tritium	U	-32.1	+/-114	243	+/-114	300	pCi/L			HB2	02/12/24	0553	2561340	5
Tc-02-RC-MOD, Tc99, Liquid "As Received"														
Technetium-99		22.9	+/-11.4	18.0	+/-11.7	25.0	pCi/L			GS3	02/14/24	2001	2561366	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"	2559993	90.8	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2559991	77.9	(30%-110%)
Strontium Carrier	905.0 Mod, Sr90, liquid "As Received"	2560658	96.1	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2561366	97.2	(30%-110%)

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Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID: MW385SG2-24
Sample ID: 652976001

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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Address : 5600 Hobbs Road

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Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID: MW386SG2-24
Sample ID: 652976003
Matrix: WG
Collect Date: 26-JAN-24
Receive Date: 27-JAN-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	0.348	+/-0.467	0.770	+/-0.468	5.00	pCi/L			CM4	02/10/24	0856	2559993	1
Th-01-RC M, Th Isotopes, Liquid "As Received"														
Thorium-230	U	0.225	+/-0.870	1.69	+/-0.873	50.0	pCi/L			EJ1	02/06/24	1206	2559991	2
Rad Gas Flow Proportional Counting														
905.0 Mod, Sr90, liquid "As Received"														
Strontium-90	U	3.98	+/-3.10	4.88	+/-3.17	8.00	pCi/L			JE1	02/01/24	1401	2560658	3
9310,Alpha/Beta Activity, liquid "As Received"														
Alpha	U	5.10	+/-6.69	11.4	+/-6.75	15.0	pCi/L			AW5	02/02/24	1314	2560941	4
Beta	U	1.67	+/-6.36	11.4	+/-6.37	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
906.0 Mod, Tritium Dist, Liquid "As Received"														
Tritium	U	-35.0	+/-115	248	+/-115	300	pCi/L			HB2	02/12/24	0610	2561340	5
Tc-02-RC-MOD, Tc99, Liquid "As Received"														
Technetium-99	U	-2.68	+/-9.94	17.8	+/-9.94	25.0	pCi/L			GS3	02/14/24	2017	2561366	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"	2559993	94.4	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2559991	89.2	(30%-110%)
Strontium Carrier	905.0 Mod, Sr90, liquid "As Received"	2560658	91.4	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2561366	99.2	(30%-110%)

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Kevil, Kentucky 42053

Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID: MW386SG2-24
Sample ID: 652976003

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: April 25, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID: MW387SG2-24
Sample ID: 652976005
Matrix: WG
Collect Date: 26-JAN-24
Receive Date: 27-JAN-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	0.359	+/-0.449	0.716	+/-0.450	5.00	pCi/L			CM4	02/10/24	0856	2559993	1
Th-01-RC M, Th Isotopes, Liquid "As Received"														
Thorium-230	U	0.428	+/-0.810	1.37	+/-0.815	50.0	pCi/L			EJ1	02/04/24	1300	2559991	2
Rad Gas Flow Proportional Counting														
905.0 Mod, Sr90, liquid "As Received"														
Strontium-90	U	0.350	+/-2.21	4.27	+/-2.21	8.00	pCi/L			JE1	02/01/24	1401	2560658	3
9310,Alpha/Beta Activity, liquid "As Received"														
Alpha	U	1.69	+/-5.11	9.64	+/-5.13	15.0	pCi/L			AW5	02/02/24	1314	2560941	4
Beta		31.8	+/-8.83	10.3	+/-10.2	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
906.0 Mod, Tritium Dist, Liquid "As Received"														
Tritium	U	50.4	+/-134	249	+/-134	300	pCi/L			HB2	02/12/24	0627	2561340	5
Tc-02-RC-MOD, Tc99, Liquid "As Received"														
Technetium-99		35.4	+/-12.2	18.4	+/-12.8	25.0	pCi/L			GS3	02/14/24	2034	2561366	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"	2559993	92.9	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2559991	78.9	(30%-110%)
Strontium Carrier	905.0 Mod, Sr90, liquid "As Received"	2560658	84.4	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2561366	96.2	(30%-110%)

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Certificate of Analysis

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

Kevil, Kentucky 42053

Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID: MW387SG2-24
Sample ID: 652976005

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, LLC
Address : 5600 Hobbs Road

Kevil, Kentucky 42053

Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID: MW388SG2-24
Sample ID: 652976007
Matrix: WG
Collect Date: 26-JAN-24
Receive Date: 27-JAN-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	0.426	+/-1.04	1.71	+/-1.04	5.00	pCi/L			CM4	02/13/24	1244	2559993	1
Th-01-RC M, Th Isotopes, Liquid "As Received"														
Thorium-230	U	1.00	+/-0.997	1.36	+/-1.01	50.0	pCi/L			EJ1	02/04/24	1300	2559991	2
Rad Gas Flow Proportional Counting														
905.0 Mod, Sr90, liquid "As Received"														
Strontium-90	U	2.35	+/-4.74	8.25	+/-4.76	8.00	pCi/L			JE1	02/01/24	1401	2560658	3
9310,Alpha/Beta Activity, liquid "As Received"														
Alpha	U	3.66	+/-6.63	12.0	+/-6.66	15.0	pCi/L			AW5	02/02/24	1314	2560941	4
Beta		10.9	+/-6.82	10.3	+/-7.07	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
906.0 Mod, Tritium Dist, Liquid "As Received"														
Tritium	U	52.5	+/-132	245	+/-133	300	pCi/L			HB2	02/12/24	0643	2561340	5
Tc-02-RC-MOD, Tc99, Liquid "As Received"														
Technetium-99	U	1.63	+/-10.7	18.7	+/-10.7	25.0	pCi/L			GS3	02/14/24	2050	2561366	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"	2559993	94.3	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2559991	86.6	(30%-110%)
Strontium Carrier	905.0 Mod, Sr90, liquid "As Received"	2560658	84.4	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2561366	94.8	(30%-110%)

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Kevil, Kentucky 42053

Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID: MW388SG2-24
Sample ID: 652976007

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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ATTACHMENT C3

GEL LABORATORIES CERTIFICATE OF ANALYSIS

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Certificate of Analysis

Report Date: April 25, 2024

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

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID:	MW220SG2-24	Project:	FRNP00511
Sample ID:	653287001	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	29-JAN-24 13:14		
Receive Date:	30-JAN-24		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
504.1/8011 Analysis of EDB/DBCP												
8011, VOA Compounds Liquid "As Received"												
1,2-Dibromo-3-chloropropane	U	0.0190	0.00854	0.0190	ug/L	0.949	1	BM1	01/31/24	2017	2561013	1
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	0.649	0.330	2.00	mg/L		1	RM3	02/01/24	0059	2561367	2
Flow Injection Analysis												
9012B, Total Cyanide "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	02/01/24	0614	2561020	3
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens	J	5.64	3.33	10.0	ug/L		1	RM3	01/31/24	1840	2561263	4
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	02/13/24	1403	2567417	5
SW846 9056A Anions (5) "As Received"												
Bromide		0.213	0.0670	0.200	mg/L		1	CWW	01/30/24	1703	2560573	6
Fluoride	J	0.214	0.0330	4.00	mg/L		1					
Nitrate-N	J	0.828	0.0330	10.0	mg/L		1					
Sulfate		14.7	0.133	0.400	mg/L		1					
Chloride	J	16.8	0.268	250	mg/L		4	CWW	01/30/24	2150	2560573	7
Mercury Analysis-CVAA												
7470, Mercury Liquid "As Received"												
Mercury	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	JP2	02/01/24	1131	2560857	8
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	02/19/24	1234	2560821	9
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1	PRB	02/19/24	1024	2560821	10
Aluminum	J	0.0386	0.0193	0.0500	mg/L	1.00	1	PRB	02/16/24	1918	2560821	11
Antimony	U	0.00300	0.00100	0.00300	mg/L	1.00	1					
Arsenic	J	0.00213	0.00200	0.00500	mg/L	1.00	1					
Barium		0.199	0.000670	0.00400	mg/L	1.00	1					
Boron	J	0.00760	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(SG24-02)

Client Sample ID: MW220SG2-24 Project: FRNP00511
Sample ID: 653287001 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		20.2	0.0800	0.200	mg/L	1.00	1					
Chromium	J	0.00435	0.00300	0.0100	mg/L	1.00	1					
Cobalt	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Copper		0.00296	0.000300	0.00200	mg/L	1.00	1					
Iron		0.118	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Magnesium	B	8.23	0.0100	0.0300	mg/L	1.00	1					
Manganese	J	0.00217	0.00100	0.00500	mg/L	1.00	1					
Molybdenum	J	0.000746	0.000200	0.00100	mg/L	1.00	1					
Nickel		0.00597	0.000600	0.00200	mg/L	1.00	1					
Potassium		1.22	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		35.8	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	J	0.00415	0.00330	0.0200	mg/L	1.00	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		190	2.38	10.0	mg/L			KLP1	02/02/24	1432	2562719	12
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD	U	20.0	8.95	20.0	mg/L		1	JW2	01/31/24	1530	2561379	13
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	JM6	02/01/24	1658	2562117	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(SG24-02)

Client Sample ID: MW220SG2-24 Project: FRNP00511
Sample ID: 653287001 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(SG24-02)

Client Sample ID:	MW220SG2-24	Project:	FRNP00511
Sample ID:	653287001	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	BM1	01/31/24	0955	2561012
SW846 9010C Distillation	SW846 9010C Prep	ES2	01/31/24	1205	2561019
SW846 3005A	ICP-MS 3005A PREP	AB5	02/01/24	1540	2560818
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	01/31/24	1140	2560856

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"	5.34 ug/L	6.78	79	(56%-149%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	51.5 ug/L	50.0	103	(74%-123%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	47.6 ug/L	50.0	95	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	44.6 ug/L	50.0	89	(77%-121%)

Notes:

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Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID:	MW220SG2-24	Project:	FRNP00511
Sample ID:	653287001	Client ID:	FRNP005

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

Column headers are defined as follows:

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

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Report Date: April 25, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID:	MW220SG2-24	Project:	FRNP00511
Sample ID:	653287002	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	29-JAN-24 13:14		
Receive Date:	30-JAN-24		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Dissolved Metals (3 Elements) "As Received"												
Barium		0.203	0.000670	0.00400	mg/L	1.00	1	PRB	02/16/24	1921	2560821	1
Chromium	J	0.00356	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	AB5	02/01/24	1540	2560818
EPA 160	Laboratory Filtration	RXB5	01/30/24	1330	2560575

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3005A/6020B	

Notes:

Column headers are defined as follows:

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

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Report Date: April 25, 2024

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

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID:	MW221SG2-24	Project:	FRNP00511
Sample ID:	653287003	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	29-JAN-24 08:04		
Receive Date:	30-JAN-24		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
504.1/8011 Analysis of EDB/DBCP												
8011, VOA Compounds Liquid "As Received"												
1,2-Dibromo-3-chloropropane	U	0.0187	0.00843	0.0187	ug/L	0.937	1	BM1	01/31/24	2042	2561013	1
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	0.735	0.330	2.00	mg/L		1	RM3	02/01/24	0258	2561367	2
Flow Injection Analysis												
9012B, Total Cyanide "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	02/01/24	0615	2561020	3
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens		24.4	3.33	10.0	ug/L		1	RM3	02/01/24	1400	2561975	4
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	02/13/24	1416	2567417	5
SW846 9056A Anions (5) "As Received"												
Chloride	J	31.8	0.335	250	mg/L		5	CWW	01/30/24	2221	2560573	6
Bromide		0.423	0.0670	0.200	mg/L		1	CWW	01/30/24	1735	2560573	7
Fluoride	J	0.237	0.0330	4.00	mg/L		1					
Nitrate-N	J	0.836	0.0330	10.0	mg/L		1					
Sulfate		14.0	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	02/01/24	1133	2560857	8
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Aluminum	U	0.0500	0.0193	0.0500	mg/L	1.00	1	PRB	02/16/24	1925	2560821	9
Antimony	U	0.00300	0.00100	0.00300	mg/L	1.00	1					
Arsenic	J	0.00221	0.00200	0.00500	mg/L	1.00	1					
Barium		0.212	0.000670	0.00400	mg/L	1.00	1					
Boron		0.0167	0.00520	0.0150	mg/L	1.00	1					
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Calcium		20.4	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					

GEL LABORATORIES LLC

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Certificate of Analysis

Report Date: April 25, 2024

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

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID: MW221SG2-24 Project: FRNP00511
Sample ID: 653287003 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"												
Copper		0.00270	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	B	8.90	0.0100	0.0300	mg/L	1.00	1					
Manganese	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Molybdenum		0.00243	0.000200	0.00100	mg/L	1.00	1					
Nickel		0.00694	0.000600	0.00200	mg/L	1.00	1					
Potassium		2.80	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		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	J	0.00387	0.00330	0.0200	mg/L	1.00	1					
Zinc	J	0.00376	0.00330	0.0200	mg/L	1.00	1					
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	02/19/24	1236	2560821	10
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1	PRB	02/19/24	1026	2560821	11
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		218	2.38	10.0	mg/L			KLP1	02/02/24	1432	2562719	12
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD	U	20.0	8.95	20.0	mg/L		1	JW2	01/31/24	1530	2561379	13
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	JM6	02/01/24	1726	2562117	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(SG24-02)

Client Sample ID: MW221SG2-24 Project: FRNP00511
Sample ID: 653287003 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(SG24-02)

Client Sample ID:	MW221SG2-24	Project:	FRNP00511
Sample ID:	653287003	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	01/31/24	1140	2560856
SW846 8011 PREP	8011 Prep	BM1	01/31/24	0955	2561012
SW846 9010C Distillation	SW846 9010C Prep	ES2	01/31/24	1205	2561019
SW846 3005A	ICP-MS 3005A PREP	AB5	02/01/24	1540	2560818

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"	5.03 ug/L	6.69	75	(56%-149%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	50.2 ug/L	50.0	100	(74%-123%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	47.3 ug/L	50.0	95	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	44.4 ug/L	50.0	89	(77%-121%)

Notes:

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Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID:	MW221SG2-24	Project:	FRNP00511
Sample ID:	653287003	Client ID:	FRNP005

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

Column headers are defined as follows:

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

GEL LABORATORIES LLC

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Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID:	MW221SG2-24	Project:	FRNP00511
Sample ID:	653287004	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	29-JAN-24 08:04		
Receive Date:	30-JAN-24		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Dissolved Metals (3 Elements) "As Received"												
Barium		0.206	0.000670	0.00400	mg/L	1.00	1	PRB	02/16/24	1950	2560821	1
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 160	Laboratory Filtration	RXB5	01/30/24	1330	2560575
SW846 3005A	ICP-MS 3005A PREP	AB5	02/01/24	1540	2560818

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3005A/6020B	

Notes:

Column headers are defined as follows:

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

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Report Date: April 25, 2024

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

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID:	MW222SG2-24	Project:	FRNP00511
Sample ID:	653287005	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	29-JAN-24 11:38		
Receive Date:	30-JAN-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	BM1	01/31/24	2155	2561013	1
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	0.363	0.330	2.00	mg/L		1	RM3	02/01/24	0132	2561367	2
Flow Injection Analysis												
9012B, Total Cyanide "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	02/01/24	0618	2561020	3
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens	U	10.0	3.33	10.0	ug/L		1	RM3	01/31/24	1915	2561263	4
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	02/13/24	1454	2567417	5
SW846 9056A Anions (5) "As Received"												
Bromide		0.367	0.0670	0.200	mg/L		1	CWW	01/30/24	1910	2560573	6
Fluoride	J	0.288	0.0330	4.00	mg/L		1					
Nitrate-N	J	1.22	0.0330	10.0	mg/L		1					
Sulfate		9.85	0.133	0.400	mg/L		1					
Chloride	J	25.5	0.335	250	mg/L		5	CWW	01/30/24	2357	2560573	7
Mercury Analysis-CVAA												
7470, Mercury Liquid "As Received"												
Mercury	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	JP2	02/01/24	1141	2560857	8
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	02/19/24	1249	2560821	9
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1	PRB	02/19/24	1039	2560821	10
Aluminum		0.288	0.0193	0.0500	mg/L	1.00	1	PRB	02/16/24	2016	2560821	11
Antimony	U	0.00300	0.00100	0.00300	mg/L	1.00	1					
Arsenic	J	0.00298	0.00200	0.00500	mg/L	1.00	1					
Barium		0.229	0.000670	0.00400	mg/L	1.00	1					
Boron	J	0.00734	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(SG24-02)

Client Sample ID: MW222SG2-24 Project: FRNP00511
Sample ID: 653287005 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		13.6	0.0800	0.200	mg/L	1.00	1					
Chromium	J	0.00491	0.00300	0.0100	mg/L	1.00	1					
Cobalt		0.00205	0.000300	0.00100	mg/L	1.00	1					
Copper		0.00258	0.000300	0.00200	mg/L	1.00	1					
Iron		0.510	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Magnesium	B	6.10	0.0100	0.0300	mg/L	1.00	1					
Manganese		0.0114	0.00100	0.00500	mg/L	1.00	1					
Molybdenum		0.00152	0.000200	0.00100	mg/L	1.00	1					
Nickel		0.0166	0.000600	0.00200	mg/L	1.00	1					
Potassium		0.459	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		39.5	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	J	0.00752	0.00330	0.0200	mg/L	1.00	1					
Zinc	J	0.00389	0.00330	0.0200	mg/L	1.00	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		195	2.38	10.0	mg/L			KLP1	02/02/24	1432	2562719	12
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD	U	20.0	8.95	20.0	mg/L		1	JW2	01/31/24	1530	2561379	13
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	JM6	02/01/24	1754	2562117	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(SG24-02)

Client Sample ID: MW222SG2-24 Project: FRNP00511
Sample ID: 653287005 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: April 25, 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(SG24-02)

Client Sample ID:	MW222SG2-24	Project:	FRNP00511
Sample ID:	653287005	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	BM1	01/31/24	0955	2561012
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	01/31/24	1140	2560856
SW846 9010C Distillation	SW846 9010C Prep	ES2	01/31/24	1205	2561019
SW846 3005A	ICP-MS 3005A PREP	AB5	02/01/24	1540	2560818

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"	4.80 ug/L	6.81	70	(56%-149%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	53.5 ug/L	50.0	107	(74%-123%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	47.1 ug/L	50.0	94	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	44.8 ug/L	50.0	90	(77%-121%)

Notes:

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Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID:	MW222SG2-24	Project:	FRNP00511
Sample ID:	653287005	Client ID:	FRNP005

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

Column headers are defined as follows:

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

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Report Date: April 25, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID:	MW222SG2-24	Project:	FRNP00511
Sample ID:	653287006	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	29-JAN-24 11:38		
Receive Date:	30-JAN-24		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Dissolved Metals (3 Elements) "As Received"												
Barium		0.225	0.000670	0.00400	mg/L	1.00	1	PRB	02/16/24	2019	2560821	1
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 160	Laboratory Filtration	RXB5	01/30/24	1330	2560575
SW846 3005A	ICP-MS 3005A PREP	AB5	02/01/24	1540	2560818

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3005A/6020B	

Notes:

Column headers are defined as follows:

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

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Certificate of Analysis

Report Date: April 25, 2024

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

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID:	MW223SG2-24	Project:	FRNP00511
Sample ID:	653287007	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	29-JAN-24 09:09		
Receive Date:	30-JAN-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	BM1	01/31/24	2219	2561013	1
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	0.599	0.330	2.00	mg/L		1	RM3	02/01/24	0204	2561367	2
Flow Injection Analysis												
9012B, Total Cyanide "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	02/01/24	0625	2561020	3
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens		10.7	3.33	10.0	ug/L		1	RM3	02/01/24	1538	2561975	4
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	02/13/24	1507	2567417	5
SW846 9056A Anions (5) "As Received"												
Chloride	J	28.6	0.335	250	mg/L		5	CWW	01/31/24	0029	2560573	6
Bromide		0.382	0.0670	0.200	mg/L		1	CWW	01/30/24	2046	2560573	7
Fluoride	J	0.294	0.0330	4.00	mg/L		1					
Nitrate-N	J	0.917	0.0330	10.0	mg/L		1					
Sulfate		11.8	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	02/01/24	1142	2560857	8
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	02/19/24	1251	2560821	9
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1	PRB	02/19/24	1041	2560821	10
Aluminum	U	0.0500	0.0193	0.0500	mg/L	1.00	1	PRB	02/16/24	2023	2560821	11
Antimony	U	0.00300	0.00100	0.00300	mg/L	1.00	1					
Arsenic	J	0.00310	0.00200	0.00500	mg/L	1.00	1					
Barium		0.257	0.000670	0.00400	mg/L	1.00	1					
Boron	J	0.00571	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(SG24-02)

Client Sample ID: MW223SG2-24 Project: FRNP00511
Sample ID: 653287007 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		20.8	0.0800	0.200	mg/L	1.00	1					
Chromium		0.0131	0.00300	0.0100	mg/L	1.00	1					
Cobalt	J	0.000549	0.000300	0.00100	mg/L	1.00	1					
Copper		0.00293	0.000300	0.00200	mg/L	1.00	1					
Iron	J	0.0481	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Magnesium	B	8.31	0.0100	0.0300	mg/L	1.00	1					
Manganese		0.00706	0.00100	0.00500	mg/L	1.00	1					
Molybdenum		0.00529	0.000200	0.00100	mg/L	1.00	1					
Nickel		0.128	0.000600	0.00200	mg/L	1.00	1					
Potassium		4.37	0.0800	0.300	mg/L	1.00	1					
Selenium	J	0.00157	0.00150	0.00500	mg/L	1.00	1					
Silver	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Sodium		44.4	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	J	0.00718	0.00330	0.0200	mg/L	1.00	1					
Zinc	J	0.00518	0.00330	0.0200	mg/L	1.00	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		209	2.38	10.0	mg/L			KLP1	02/02/24	1432	2562719	12
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD	U	20.0	8.95	20.0	mg/L		1	JW2	01/31/24	1530	2561379	13
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	JM6	02/01/24	1821	2562117	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(SG24-02)

Client Sample ID: MW223SG2-24 Project: FRNP00511
Sample ID: 653287007 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(SG24-02)

Client Sample ID:	MW223SG2-24	Project:	FRNP00511
Sample ID:	653287007	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	BM1	01/31/24	0955	2561012
SW846 9010C Distillation	SW846 9010C Prep	ES2	01/31/24	1205	2561019
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	01/31/24	1140	2560856
SW846 3005A	ICP-MS 3005A PREP	AB5	02/01/24	1540	2560818

The following Analytical Methods were performed:

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

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011, VOA Compounds Liquid "As Received"	6.33 ug/L	6.71	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"	47.9 ug/L	50.0	96	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	44.9 ug/L	50.0	90	(77%-121%)

Notes:

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Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID:	MW223SG2-24	Project:	FRNP00511
Sample ID:	653287007	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(SG24-02)

Client Sample ID:	MW223SG2-24	Project:	FRNP00511
Sample ID:	653287008	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	29-JAN-24 09:09		
Receive Date:	30-JAN-24		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Dissolved Metals (3 Elements) "As Received"												
Barium		0.251	0.000670	0.00400	mg/L	1.00	1	PRB	02/16/24	2027	2560821	1
Chromium		0.0105	0.00300	0.0100	mg/L	1.00	1					
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 160	Laboratory Filtration	RXB5	01/30/24	1330	2560575
SW846 3005A	ICP-MS 3005A PREP	AB5	02/01/24	1540	2560818

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(SG24-02)

Client Sample ID:	MW224SG2-24	Project:	FRNP00511
Sample ID:	653287009	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	29-JAN-24 12:25		
Receive Date:	30-JAN-24		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
504.1/8011 Analysis of EDB/DBCP												
8011, VOA Compounds Liquid "As Received"												
1,2-Dibromo-3-chloropropane	U	0.0191	0.00859	0.0191	ug/L	0.955	1	BM1	01/31/24	2244	2561013	1
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	0.734	0.330	2.00	mg/L		1	RM3	02/01/24	0436	2561367	2
Flow Injection Analysis												
9012B, Total Cyanide "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	02/01/24	0626	2561020	3
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens	J	3.92	3.33	10.0	ug/L		1	RM3	02/01/24	1636	2561975	4
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	02/13/24	1520	2567417	5
SW846 9056A Anions (5) "As Received"												
Bromide		0.222	0.0670	0.200	mg/L		1	CWW	01/30/24	2118	2560573	6
Fluoride	J	0.329	0.0330	4.00	mg/L		1					
Nitrate-N	J	1.25	0.0330	10.0	mg/L		1					
Sulfate		9.04	0.133	0.400	mg/L		1					
Chloride	J	12.3	0.134	250	mg/L		2	CWW	01/31/24	0101	2560573	7
Mercury Analysis-CVAA												
7470, Mercury Liquid "As Received"												
Mercury	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	JP2	02/01/24	1147	2560857	8
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Aluminum	U	0.0500	0.0193	0.0500	mg/L	1.00	1	PRB	02/16/24	2030	2560821	9
Antimony	U	0.00300	0.00100	0.00300	mg/L	1.00	1					
Arsenic	J	0.00312	0.00200	0.00500	mg/L	1.00	1					
Barium		0.194	0.000670	0.00400	mg/L	1.00	1					
Boron	J	0.00932	0.00520	0.0150	mg/L	1.00	1					
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Calcium		18.1	0.0800	0.200	mg/L	1.00	1					
Chromium	J	0.00505	0.00300	0.0100	mg/L	1.00	1					
Cobalt	U	0.00100	0.000300	0.00100	mg/L	1.00	1					

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Certificate of Analysis

Report Date: April 25, 2024

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

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID: MW224SG2-24 Project: FRNP00511
Sample ID: 653287009 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"												
Copper		0.00249	0.000300	0.00200	mg/L	1.00	1					
Iron	J	0.0743	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Magnesium	B	7.81	0.0100	0.0300	mg/L	1.00	1					
Manganese	J	0.00198	0.00100	0.00500	mg/L	1.00	1					
Molybdenum	J	0.000969	0.000200	0.00100	mg/L	1.00	1					
Nickel		0.00777	0.000600	0.00200	mg/L	1.00	1					
Potassium		0.749	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	0.00695	0.00330	0.0200	mg/L	1.00	1					
Zinc	J	0.00337	0.00330	0.0200	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1	PRB	02/19/24	1043	2560821	10
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	02/19/24	1253	2560821	11
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Sodium		54.1	0.800	2.50	mg/L	1.00	10	PRB	02/19/24	1045	2560821	12
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		227	2.38	10.0	mg/L			KLP1	02/02/24	1432	2562719	13
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD	U	20.0	8.95	20.0	mg/L		1	JW2	01/31/24	1530	2561379	14
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	JM6	02/01/24	1849	2562117	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(SG24-02)

Client Sample ID: MW224SG2-24 Project: FRNP00511
Sample ID: 653287009 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(SG24-02)

Client Sample ID: MW224SG2-24 Project: FRNP00511
Sample ID: 653287009 Client ID: FRNP005

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

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-MS 3005A PREP	AB5	02/01/24	1540	2560818
SW846 8011 PREP	8011 Prep	BM1	01/31/24	0955	2561012
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	01/31/24	1140	2560856
SW846 9010C Distillation	SW846 9010C Prep	ES2	01/31/24	1205	2561019

The following Analytical Methods were performed:

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

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011, VOA Compounds Liquid "As Received"	6.66 ug/L	6.82	98	(56%-149%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	52.0 ug/L	50.0	104	(74%-123%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	47.6 ug/L	50.0	95	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	45.0 ug/L	50.0	90	(77%-121%)

Notes:

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Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID:	MW224SG2-24	Project:	FRNP00511
Sample ID:	653287009	Client ID:	FRNP005

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

Column headers are defined as follows:

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

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Report Date: April 25, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID:	MW224SG2-24	Project:	FRNP00511
Sample ID:	653287010	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	29-JAN-24 12:25		
Receive Date:	30-JAN-24		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Dissolved Metals (3 Elements) "As Received"												
Barium		0.193	0.000670	0.00400	mg/L	1.00	1	PRB	02/16/24	2034	2560821	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	AB5	02/01/24	1540	2560818
EPA 160	Laboratory Filtration	RXB5	01/30/24	1330	2560575

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3005A/6020B	

Notes:

Column headers are defined as follows:

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

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Report Date: April 25, 2024

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

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID:	TB3SG2-24	Project:	FRNP00511
Sample ID:	653287011	Client ID:	FRNP005
Matrix:	WATER		
Collect Date:	29-JAN-24 06:30		
Receive Date:	30-JAN-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	LL2	02/01/24	1230	2561013	1
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	JM6	02/01/24	1916	2562117	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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Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID: TB3SG2-24 Project: FRNP00511
Sample ID: 653287011 Client ID: FRNP005

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

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 8011 PREP	8011 Prep	BM1	01/31/24	0955	2561012

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 8011	
2	SW846 8260D	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011, VOA Compounds Liquid "As Received"	6.54 ug/L	6.81	96	(56%-149%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	51.8 ug/L	50.0	104	(74%-123%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	46.9 ug/L	50.0	94	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	45.3 ug/L	50.0	91	(77%-121%)

Notes:

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Report Date: April 25, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID:	TB3SG2-24	Project:	FRNP00511
Sample ID:	653287011	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

Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID: MW220SG2-24
Sample ID: 653287001
Matrix: WG
Collect Date: 29-JAN-24
Receive Date: 30-JAN-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	0.175	+/-0.885	1.77	+/-0.886	5.00	pCi/L			EJ1	02/13/24	1423	2558724	1
Th-01-RC M, Th Isotopes, Liquid "As Received"														
Thorium-230	U	1.40	+/-1.41	1.88	+/-1.43	50.0	pCi/L			EJ1	02/08/24	0859	2558725	2
Rad Gas Flow Proportional Counting														
905.0 Mod, Sr90, liquid "As Received"														
Strontium-90	U	-5.66	+/-2.58	7.35	+/-2.58	8.00	pCi/L			JE1	02/01/24	1401	2560658	3
9310,Alpha/Beta Activity, liquid "As Received"														
Alpha	U	3.60	+/-4.62	7.78	+/-4.66	15.0	pCi/L			AW5	02/02/24	1314	2560941	4
Beta		18.2	+/-6.86	8.72	+/-7.51	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
906.0 Mod, Tritium Dist, Liquid "As Received"														
Tritium	U	70.8	+/-138	248	+/-138	300	pCi/L			HB2	02/12/24	0700	2561340	5
Tc-02-RC-MOD, Tc99, Liquid "As Received"														
Technetium-99	U	20.0	+/-12.9	21.2	+/-13.1	25.0	pCi/L			GS3	02/13/24	1055	2563871	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"	2558724	92.6	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2558725	73.5	(30%-110%)
Strontium Carrier	905.0 Mod, Sr90, liquid "As Received"	2560658	56.3	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2563871	95.4	(30%-110%)

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Certificate of Analysis

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

Kevil, Kentucky 42053

Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID: MW220SG2-24
Sample ID: 653287001

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, LLC
Address : 5600 Hobbs Road

Kevil, Kentucky 42053

Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID: MW221SG2-24
Sample ID: 653287003
Matrix: WG
Collect Date: 29-JAN-24
Receive Date: 30-JAN-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	0.739	+/-0.748	0.886	+/-0.750	5.00	pCi/L			EJ1	02/12/24	1309	2558724	1
Th-01-RC M, Th Isotopes, Liquid "As Received"														
Thorium-230	U	0.440	+/-1.36	2.55	+/-1.36	50.0	pCi/L			EJ1	02/08/24	0859	2558725	2
Rad Gas Flow Proportional Counting														
905.0 Mod, Sr90, liquid "As Received"														
Strontium-90	U	0.819	+/-2.63	4.92	+/-2.63	8.00	pCi/L			JE1	02/01/24	1401	2560658	3
9310,Alpha/Beta Activity, liquid "As Received"														
Alpha	U	4.07	+/-5.06	8.31	+/-5.10	15.0	pCi/L			AW5	02/02/24	1314	2560941	4
Beta	U	4.34	+/-4.49	7.32	+/-4.55	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
906.0 Mod, Tritium Dist, Liquid "As Received"														
Tritium	U	63.3	+/-137	250	+/-138	300	pCi/L			HB2	02/12/24	0716	2561340	5
Tc-02-RC-MOD, Tc99, Liquid "As Received"														
Technetium-99	U	5.70	+/-11.7	19.9	+/-11.7	25.0	pCi/L			GS3	02/13/24	1128	2563871	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"	2558724	96.9	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2558725	60.3	(30%-110%)
Strontium Carrier	905.0 Mod, Sr90, liquid "As Received"	2560658	75	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2563871	99.7	(30%-110%)

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Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID: MW221SG2-24
Sample ID: 653287003

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: April 25, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID: MW222SG2-24
Sample ID: 653287005
Matrix: WG
Collect Date: 29-JAN-24
Receive Date: 30-JAN-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	0.366	+/-0.434	0.634	+/-0.435	5.00	pCi/L			EJ1	02/10/24	0900	2558724	1
Th-01-RC M, Th Isotopes, Liquid "As Received"														
Thorium-230	U	0.648	+/-1.11	1.82	+/-1.12	50.0	pCi/L			EJ1	02/08/24	0859	2558725	2
Rad Gas Flow Proportional Counting														
905.0 Mod, Sr90, liquid "As Received"														
Strontium-90	U	1.49	+/-3.01	5.43	+/-3.02	8.00	pCi/L			JE1	02/01/24	1401	2560658	3
9310,Alpha/Beta Activity, liquid "As Received"														
Alpha	U	2.21	+/-4.78	8.71	+/-4.80	15.0	pCi/L			AW5	02/02/24	1314	2560941	4
Beta	U	3.95	+/-7.36	12.7	+/-7.39	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
906.0 Mod, Tritium Dist, Liquid "As Received"														
Tritium	U	-51.6	+/-110	246	+/-110	300	pCi/L			HB2	02/12/24	0733	2561340	5
Tc-02-RC-MOD, Tc99, Liquid "As Received"														
Technetium-99	U	-1.72	+/-12.1	21.0	+/-12.1	25.0	pCi/L			GS3	02/13/24	1201	2563871	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"	2558724	94.2	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2558725	78.8	(30%-110%)
Strontium Carrier	905.0 Mod, Sr90, liquid "As Received"	2560658	68	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2563871	97	(30%-110%)

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Kevil, Kentucky 42053

Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID: MW222SG2-24
Sample ID: 653287005

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:

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

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Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID: MW223SG2-24
Sample ID: 653287007
Matrix: WG
Collect Date: 29-JAN-24
Receive Date: 30-JAN-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	0.174	+/-0.518	0.927	+/-0.518	5.00	pCi/L			EJ1	02/12/24	1309	2558724	1
Th-01-RC M, Th Isotopes, Liquid "As Received"														
Thorium-230	U	0.192	+/-0.818	1.60	+/-0.821	50.0	pCi/L			EJ1	02/08/24	0859	2558725	2
Rad Gas Flow Proportional Counting														
905.0 Mod, Sr90, liquid "As Received"														
Strontium-90	U	5.02	+/-3.41	5.20	+/-3.50	8.00	pCi/L			JE1	02/01/24	1402	2560658	3
9310,Alpha/Beta Activity, liquid "As Received"														
Alpha	U	5.22	+/-5.12	7.59	+/-5.19	15.0	pCi/L			AW5	02/02/24	1314	2560941	4
Beta	U	4.91	+/-5.41	8.90	+/-5.48	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
906.0 Mod, Tritium Dist, Liquid "As Received"														
Tritium	U	43.9	+/-132	248	+/-133	300	pCi/L			HB2	02/12/24	0749	2561340	5
Tc-02-RC-MOD, Tc99, Liquid "As Received"														
Technetium-99	U	2.99	+/-11.9	20.3	+/-11.9	25.0	pCi/L			GS3	02/13/24	1234	2563871	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"	2558724	92.9	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2558725	87.2	(30%-110%)
Strontium Carrier	905.0 Mod, Sr90, liquid "As Received"	2560658	82.1	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2563871	99.3	(30%-110%)

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Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID: MW223SG2-24
Sample ID: 653287007

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.

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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: April 25, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID: MW224SG2-24
Sample ID: 653287009
Matrix: WG
Collect Date: 29-JAN-24
Receive Date: 30-JAN-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	0.198	+/-0.315	0.436	+/-0.315	5.00	pCi/L			EJ1	02/10/24	0900	2558724	1
Th-01-RC M, Th Isotopes, Liquid "As Received"														
Thorium-230	U	0.941	+/-0.895	1.22	+/-0.907	50.0	pCi/L			EJ1	02/09/24	0830	2558725	2
Rad Gas Flow Proportional Counting														
905.0 Mod, Sr90, liquid "As Received"														
Strontium-90	U	6.14	+/-4.70	7.63	+/-4.80	8.00	pCi/L			JE1	02/01/24	1402	2560658	3
9310,Alpha/Beta Activity, liquid "As Received"														
Alpha	U	2.66	+/-5.06	9.40	+/-5.08	15.0	pCi/L			AW5	02/06/24	1548	2563637	4
Beta	U	3.81	+/-5.20	8.74	+/-5.26	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
906.0 Mod, Tritium Dist, Liquid "As Received"														
Tritium	U	-43.9	+/-111	244	+/-111	300	pCi/L			HB2	02/12/24	0806	2561340	5
Tc-02-RC-MOD, Tc99, Liquid "As Received"														
Technetium-99	U	9.19	+/-12.4	20.8	+/-12.4	25.0	pCi/L			GS3	02/13/24	1306	2563871	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"	2558724	90.8	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2558725	100	(30%-110%)
Strontium Carrier	905.0 Mod, Sr90, liquid "As Received"	2560658	65.7	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2563871	97.2	(30%-110%)

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Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID: MW224SG2-24
Sample ID: 653287009

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

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

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ATTACHMENT C4

GEL LABORATORIES CERTIFICATE OF ANALYSIS

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Certificate of Analysis

Report Date: April 25, 2024

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

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID:	MW384DSG2-24	Project:	FRNP00511
Sample ID:	653458001	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	30-JAN-24 08:52		
Receive Date:	31-JAN-24		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
504.1/8011 Analysis of EDB/DBCP												
8011, VOA Compounds Liquid "As Received"												
1,2-Dibromo-3-chloropropane	U	0.0190	0.00853	0.0190	ug/L	0.948	1	LOF	02/04/24	1917	2561549	2
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	1.02	0.330	2.00	mg/L		1	RM3	02/02/24	1749	2562883	3
Flow Injection Analysis												
9012B, Total Cyanide "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	02/02/24	0552	2561735	4
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens	J	9.66	3.33	10.0	ug/L		1	RM3	02/01/24	1714	2561975	5
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	02/13/24	1533	2567417	6
SW846 9056A Anions (5) "As Received"												
Chloride	J	20.5	0.335	250	mg/L		5	CH6	02/01/24	0039	2561257	7
Nitrate-N	J	0.852	0.165	10.0	mg/L		5					
Bromide		0.239	0.0670	0.200	mg/L		1	CH6	01/31/24	1319	2561257	8
Fluoride	J	0.202	0.0330	4.00	mg/L		1					
Sulfate		17.6	0.133	0.400	mg/L		1					
Mercury Analysis-CVAA												
7470, Mercury Liquid "As Received"												
Mercury	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	JP2	02/02/24	1211	2561612	9
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Aluminum	U	0.0500	0.0193	0.0500	mg/L	1.00	1	PRB	02/19/24	2147	2561522	10
Antimony	U	0.00300	0.00100	0.00300	mg/L	1.00	1					
Barium		0.193	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					
Boron		0.0589	0.00520	0.0150	mg/L	1.00	1					
Calcium		23.2	0.0800	0.200	mg/L	1.00	1					
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					
Cobalt	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Copper		0.00258	0.000300	0.00200	mg/L	1.00	1					

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Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID: MW384DSG2-24 Project: FRNP00511
Sample ID: 653458001 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"												
Iron	J	0.0695	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Magnesium		9.38	0.0100	0.0300	mg/L	1.00	1					
Manganese	J	0.00172	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		1.36	0.0800	0.300	mg/L	1.00	1					
Silver	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Sodium		42.0	0.0800	0.250	mg/L	1.00	1					
Thallium	U	0.00200	0.000600	0.00200	mg/L	1.00	1					
Vanadium	BJ	0.00486	0.00330	0.0200	mg/L	1.00	1					
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1	PRB	02/20/24	2320	2561522	11
Selenium	U	0.00500	0.00150	0.00500	mg/L	1.00	1					
Zinc	U	0.0200	0.00330	0.0200	mg/L	1.00	1					
Arsenic	U	0.00500	0.00200	0.00500	mg/L	1.00	1	BAJ	02/21/24	1150	2561522	12
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1					
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	02/21/24	1356	2561522	13
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		189	2.38	10.0	mg/L			ES2	02/06/24	0721	2563909	14
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD	U	20.0	8.95	20.0	mg/L		1	JW2	01/31/24	1530	2561379	15
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	AXH5	02/05/24	1217	2563549	16
1,1,1-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
1,2,3-Trichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dibromoethane	U	1.00	0.333	1.00	ug/L		1					

GEL LABORATORIES LLC

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Certificate of Analysis

Report Date: April 25, 2024

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

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID: MW384DSG2-24 Project: FRNP00511
Sample ID: 653458001 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	2.14	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	0.450	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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Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID:	MW384DSG2-24	Project:	FRNP00511
Sample ID:	653458001	Client ID:	FRNP005

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

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-MS 3005A PREP	AB5	02/05/24	1530	2561521
SW846 9010C Distillation	SW846 9010C Prep	ES2	02/01/24	1125	2561734
SW846 8011 PREP	8011 Prep	LOF	02/04/24	1319	2561548
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	02/01/24	1135	2561610

The following Analytical Methods were performed:

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

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011, VOA Compounds Liquid "As Received"	6.55 ug/L	6.77	97	(56%-149%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	45.8 ug/L	50.0	92	(74%-123%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	47.9 ug/L	50.0	96	(77%-121%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	47.1 ug/L	50.0	94	(76%-127%)

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Company :	Four Rivers Nuclear Partnership, LLC
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Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID:	MW384DSG2-24	Project:	FRNP00511
Sample ID:	653458001	Client ID:	FRNP005

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

Notes:

Column headers are defined as follows:

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

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Report Date: April 25, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID:	MW384DSG2-24	Project:	FRNP00511
Sample ID:	653458002	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	30-JAN-24 08:52		
Receive Date:	31-JAN-24		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Dissolved Metals (3 Elements) "As Received"												
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	BAJ	02/21/24	1152	2561522	1
Barium		0.187	0.000670	0.00400	mg/L	1.00	1	PRB	02/19/24	2150	2561522	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	AB5	02/05/24	1530	2561521
EPA 160	Laboratory Filtration	RXB5	01/31/24	1331	2561332

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: April 25, 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(SG24-02)

Client Sample ID:	MW384SG2-24	Project:	FRNP00511
Sample ID:	653458003	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	30-JAN-24 08:52		
Receive Date:	31-JAN-24		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
504.1/8011 Analysis of EDB/DBCP												
8011, VOA Compounds Liquid "As Received"												
1,2-Dibromo-3-chloropropane	U	0.0191	0.00859	0.0191	ug/L	0.955	1	LOF	02/04/24	1942	2561549	2
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	0.961	0.330	2.00	mg/L		1	RM3	02/02/24	1828	2562883	3
Flow Injection Analysis												
9012B, Total Cyanide "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	02/02/24	0553	2561735	4
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens		10.9	3.33	10.0	ug/L		1	RM3	02/01/24	1813	2561975	5
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	02/13/24	1546	2567417	6
SW846 9056A Anions (5) "As Received"												
Bromide	U	0.200	0.0670	0.200	mg/L		1	CH6	01/31/24	1350	2561257	7
Fluoride	J	0.198	0.0330	4.00	mg/L		1					
Sulfate		17.6	0.133	0.400	mg/L		1					
Chloride	J	20.6	0.335	250	mg/L		5	CH6	02/01/24	0109	2561257	8
Nitrate-N	J	0.849	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	02/02/24	1212	2561612	9
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Arsenic	U	0.00500	0.00200	0.00500	mg/L	1.00	1	BAJ	02/21/24	1154	2561522	10
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1					
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1	PRB	02/20/24	2328	2561522	11
Selenium	U	0.00500	0.00150	0.00500	mg/L	1.00	1					
Zinc	U	0.0200	0.00330	0.0200	mg/L	1.00	1					
Aluminum	U	0.0500	0.0193	0.0500	mg/L	1.00	1	PRB	02/19/24	2154	2561522	12
Antimony	U	0.00300	0.00100	0.00300	mg/L	1.00	1					
Barium		0.185	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					

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Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID: MW384SG2-24 Project: FRNP00511
Sample ID: 653458003 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		0.0546	0.00520	0.0150	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		0.00208	0.000300	0.00200	mg/L	1.00	1					
Iron	J	0.0630	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Magnesium		8.93	0.0100	0.0300	mg/L	1.00	1					
Manganese	J	0.00150	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		1.28	0.0800	0.300	mg/L	1.00	1					
Silver	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Sodium		39.8	0.0800	0.250	mg/L	1.00	1					
Thallium	U	0.00200	0.000600	0.00200	mg/L	1.00	1					
Vanadium	BJ	0.00505	0.00330	0.0200	mg/L	1.00	1					
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	02/21/24	1358	2561522	13
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		196	2.38	10.0	mg/L			ES2	02/06/24	0721	2563909	14
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD	U	20.0	8.95	20.0	mg/L		1	JW2	01/31/24	1530	2561379	15
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	AXH5	02/05/24	1243	2563549	16
1,1,1-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
1,2,3-Trichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dibromoethane	U	1.00	0.333	1.00	ug/L		1					

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Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID: MW384SG2-24 Project: FRNP00511
Sample ID: 653458003 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,2-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,4-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
2-Butanone	U	5.00	1.67	5.00	ug/L		1					
2-Hexanone	U	5.00	1.67	5.00	ug/L		1					
4-Methyl-2-pentanone	U	5.00	1.67	5.00	ug/L		1					
Acetone	J	1.83	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	2.37	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	0.430	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(SG24-02)

Client Sample ID: MW384SG2-24 Project: FRNP00511
Sample ID: 653458003 Client ID: FRNP005

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

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-MS 3005A PREP	AB5	02/05/24	1530	2561521
SW846 9010C Distillation	SW846 9010C Prep	ES2	02/01/24	1125	2561734
SW846 8011 PREP	8011 Prep	LOF	02/04/24	1319	2561548
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	02/01/24	1135	2561610

The following Analytical Methods were performed:

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

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011, VOA Compounds Liquid "As Received"	6.32 ug/L	6.82	93	(56%-149%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	47.2 ug/L	50.0	94	(74%-123%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	48.7 ug/L	50.0	97	(77%-121%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	47.2 ug/L	50.0	94	(76%-127%)

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Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
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Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID:	MW384SG2-24	Project:	FRNP00511
Sample ID:	653458003	Client ID:	FRNP005

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

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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Address :	5600 Hobbs Road
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Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID:	MW384SG2-24	Project:	FRNP00511
Sample ID:	653458004	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	30-JAN-24 08:52		
Receive Date:	31-JAN-24		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Dissolved Metals (3 Elements) "As Received"												
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	BAJ	02/21/24	1155	2561522	1
Barium		0.178	0.000670	0.00400	mg/L	1.00	1	PRB	02/19/24	2157	2561522	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	AB5	02/05/24	1530	2561521
EPA 160	Laboratory Filtration	RXB5	01/31/24	1331	2561332

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: April 25, 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(SG24-02)

Client Sample ID:	MW394SG2-24	Project:	FRNP00511
Sample ID:	653458005	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	30-JAN-24 12:29		
Receive Date:	31-JAN-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	0.0185	0.00834	0.0185	ug/L	0.927	1	LOF	02/04/24	2007	2561549	1
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	0.789	0.330	2.00	mg/L		1	RM3	02/02/24	1906	2562883	3
Flow Injection Analysis												
9012B, Total Cyanide "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	02/02/24	0554	2561735	4
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens	J	8.60	3.33	10.0	ug/L		1	RM3	02/01/24	1850	2561975	5
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	02/13/24	1558	2567417	6
SW846 9056A Anions (5) "As Received"												
Chloride	J	47.2	0.670	250	mg/L		10	CH6	02/01/24	0140	2561257	7
Nitrate-N	J	1.53	0.330	10.0	mg/L		10					
Bromide		0.538	0.0670	0.200	mg/L		1	CH6	01/31/24	1421	2561257	8
Fluoride	J	0.165	0.0330	4.00	mg/L		1					
Sulfate		11.6	0.133	0.400	mg/L		1					
Mercury Analysis-CVAA												
7470, Mercury Liquid "As Received"												
Mercury	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	JP2	02/02/24	1214	2561612	9
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Arsenic	U	0.00500	0.00200	0.00500	mg/L	1.00	1	BAJ	02/21/24	1157	2561522	10
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1					
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	02/21/24	1400	2561522	11
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1	PRB	02/20/24	2335	2561522	12
Selenium	U	0.00500	0.00150	0.00500	mg/L	1.00	1					
Zinc	U	0.0200	0.00330	0.0200	mg/L	1.00	1					
Aluminum	U	0.0500	0.0193	0.0500	mg/L	1.00	1	PRB	02/19/24	2201	2561522	13
Antimony	U	0.00300	0.00100	0.00300	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(SG24-02)

Client Sample ID: MW394SG2-24 Project: FRNP00511
Sample ID: 653458005 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"												
Barium		0.269	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					
Boron		0.0210	0.00520	0.0150	mg/L	1.00	1					
Calcium		26.8	0.0800	0.200	mg/L	1.00	1					
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					
Cobalt	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Copper		0.00203	0.000300	0.00200	mg/L	1.00	1					
Iron	J	0.0395	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Magnesium		11.0	0.0100	0.0300	mg/L	1.00	1					
Manganese	J	0.00102	0.00100	0.00500	mg/L	1.00	1					
Molybdenum	U	0.00100	0.000200	0.00100	mg/L	1.00	1					
Nickel		0.00449	0.000600	0.00200	mg/L	1.00	1					
Potassium		1.35	0.0800	0.300	mg/L	1.00	1					
Silver	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Sodium		31.6	0.0800	0.250	mg/L	1.00	1					
Thallium	U	0.00200	0.000600	0.00200	mg/L	1.00	1					
Vanadium	BJ	0.00497	0.00330	0.0200	mg/L	1.00	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		200	2.38	10.0	mg/L			ES2	02/06/24	0721	2563909	14
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD	U	20.0	8.95	20.0	mg/L		1	JW2	01/31/24	1530	2561379	15
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	AXH5	02/05/24	1309	2563549	16
1,1,1-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
1,2,3-Trichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dibromoethane	U	1.00	0.333	1.00	ug/L		1					

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

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID: MW394SG2-24 Project: FRNP00511
Sample ID: 653458005 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	2.26	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		5.43	0.333	1.00	ug/L		1					
Trichlorofluoromethane	U	1.00	0.333	1.00	ug/L		1					
Vinyl acetate	U	5.00	1.67	5.00	ug/L		1					
Vinyl chloride	U	1.00	0.333	1.00	ug/L		1					
Xylenes (total)	U	3.00	1.00	3.00	ug/L		1					
cis-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
cis-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					

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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(SG24-02)

Client Sample ID: MW394SG2-24 Project: FRNP00511
Sample ID: 653458005 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	02/04/24	1319	2561548
SW846 3005A	ICP-MS 3005A PREP	AB5	02/05/24	1530	2561521
SW846 9010C Distillation	SW846 9010C Prep	ES2	02/01/24	1125	2561734
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	02/01/24	1135	2561610

The following Analytical Methods were performed:

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

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011, VOA Compounds Liquid "As Received"	5.80 ug/L	6.62	88	(56%-149%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	47.9 ug/L	50.0	96	(74%-123%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	49.3 ug/L	50.0	99	(77%-121%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	46.4 ug/L	50.0	93	(76%-127%)

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Report Date: April 25, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID:	MW394SG2-24	Project:	FRNP00511
Sample ID:	653458005	Client ID:	FRNP005

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

Notes:

Column headers are defined as follows:

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

GEL LABORATORIES LLC

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Certificate of Analysis

Report Date: April 25, 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(SG24-02)

Client Sample ID:	MW394SG2-24	Project:	FRNP00511
Sample ID:	653458006	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	30-JAN-24 12:29		
Receive Date:	31-JAN-24		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Dissolved Metals (3 Elements) "As Received"												
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	BAJ	02/21/24	1158	2561522	1
Barium		0.265	0.000670	0.00400	mg/L	1.00	1	PRB	02/19/24	2205	2561522	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	RXB5	01/31/24	1331	2561332
SW846 3005A	ICP-MS 3005A PREP	AB5	02/05/24	1530	2561521

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: April 25, 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(SG24-02)

Client Sample ID:	MW395SG2-24	Project:	FRNP00511
Sample ID:	653458007	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	30-JAN-24 13:14		
Receive Date:	31-JAN-24		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
504.1/8011 Analysis of EDB/DBCP												
8011, VOA Compounds Liquid "As Received"												
1,2-Dibromo-3-chloropropane	U	0.0187	0.00840	0.0187	ug/L	0.934	1	LOF	02/04/24	2032	2561549	2
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	0.736	0.330	2.00	mg/L		1	RM3	02/02/24	1945	2562883	3
Flow Injection Analysis												
9012B, Total Cyanide "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	02/02/24	0555	2561735	4
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens		12.9	3.33	10.0	ug/L		1	RM3	02/08/24	1317	2565470	5
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	02/13/24	1637	2567417	6
SW846 9056A Anions (5) "As Received"												
Chloride	J	44.7	0.670	250	mg/L		10	CH6	02/01/24	0211	2561257	7
Nitrate-N	J	1.52	0.330	10.0	mg/L		10					
Bromide		0.634	0.0670	0.200	mg/L		1	CH6	01/31/24	1452	2561257	8
Fluoride	J	0.161	0.0330	4.00	mg/L		1					
Sulfate		11.2	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	02/02/24	1219	2561612	9
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Arsenic	U	0.00500	0.00200	0.00500	mg/L	1.00	1	BAJ	02/21/24	1203	2561522	10
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1					
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1	PRB	02/20/24	2349	2561522	11
Selenium	U	0.00500	0.00150	0.00500	mg/L	1.00	1					
Zinc	U	0.0200	0.00330	0.0200	mg/L	1.00	1					
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	02/21/24	1405	2561522	12
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Aluminum	U	0.0500	0.0193	0.0500	mg/L	1.00	1	PRB	02/19/24	2215	2561522	13
Antimony	U	0.00300	0.00100	0.00300	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(SG24-02)

Client Sample ID: MW395SG2-24 Project: FRNP00511
Sample ID: 653458007 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"												
Barium		0.271	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					
Boron		0.0193	0.00520	0.0150	mg/L	1.00	1					
Calcium		26.6	0.0800	0.200	mg/L	1.00	1					
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					
Cobalt	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Copper		0.00241	0.000300	0.00200	mg/L	1.00	1					
Iron	U	0.100	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Magnesium		10.8	0.0100	0.0300	mg/L	1.00	1					
Manganese	J	0.00145	0.00100	0.00500	mg/L	1.00	1					
Molybdenum	U	0.00100	0.000200	0.00100	mg/L	1.00	1					
Nickel	J	0.000812	0.000600	0.00200	mg/L	1.00	1					
Potassium		1.59	0.0800	0.300	mg/L	1.00	1					
Silver	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Sodium		29.2	0.0800	0.250	mg/L	1.00	1					
Thallium	U	0.00200	0.000600	0.00200	mg/L	1.00	1					
Vanadium	JB	0.00442	0.00330	0.0200	mg/L	1.00	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		207	2.38	10.0	mg/L			ES2	02/06/24	0721	2563909	14
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD	U	20.0	8.95	20.0	mg/L		1	JW2	01/31/24	1530	2561379	15
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	AXH5	02/05/24	1334	2563549	16
1,1,1-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
1,2,3-Trichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dibromoethane	U	1.00	0.333	1.00	ug/L		1					

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Certificate of Analysis

Report Date: April 25, 2024

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

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID: MW395SG2-24 Project: FRNP00511
Sample ID: 653458007 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	2.30	0.500	5.00	ug/L		1					
Styrene	U	1.00	0.333	1.00	ug/L		1					
Tetrachloroethylene	U	1.00	0.333	1.00	ug/L		1					
Toluene	U	1.00	0.333	1.00	ug/L		1					
Trichloroethylene		5.80	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: April 25, 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(SG24-02)

Client Sample ID:	MW395SG2-24	Project:	FRNP00511
Sample ID:	653458007	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	02/01/24	1135	2561610
SW846 9010C Distillation	SW846 9010C Prep	ES2	02/01/24	1125	2561734
SW846 8011 PREP	8011 Prep	LOF	02/04/24	1319	2561548
SW846 3005A	ICP-MS 3005A PREP	AB5	02/05/24	1530	2561521

The following Analytical Methods were performed:

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

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011, VOA Compounds Liquid "As Received"	6.23 ug/L	6.67	93	(56%-149%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	47.0 ug/L	50.0	94	(74%-123%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	48.8 ug/L	50.0	98	(77%-121%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	46.7 ug/L	50.0	93	(76%-127%)

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Report Date: April 25, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID:	MW395SG2-24	Project:	FRNP00511
Sample ID:	653458007	Client ID:	FRNP005

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

Notes:

Column headers are defined as follows:

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

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Report Date: April 25, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID:	MW395SG2-24	Project:	FRNP00511
Sample ID:	653458008	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	30-JAN-24 13:14		
Receive Date:	31-JAN-24		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Dissolved Metals (3 Elements) "As Received"												
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	BAJ	02/21/24	1214	2561522	1
Barium		0.262	0.000670	0.00400	mg/L	1.00	1	PRB	02/19/24	2234	2561522	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	AB5	02/05/24	1530	2561521
EPA 160	Laboratory Filtration	RXB5	01/31/24	1331	2561332

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: April 25, 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(SG24-02)

Client Sample ID:	MW396SG2-24	Project:	FRNP00511
Sample ID:	653458009	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	30-JAN-24 14:09		
Receive Date:	31-JAN-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	02/04/24	2147	2561549	2
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average		4.09	0.330	2.00	mg/L		1	RM3	02/02/24	2141	2562883	3
Flow Injection Analysis												
9012B, Total Cyanide "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	02/02/24	0558	2561735	4
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens		44.2	3.33	10.0	ug/L		1	RM3	02/01/24	1952	2561975	5
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide		0.544	0.167	0.500	mg/L		1	TXT1	02/13/24	1716	2567417	6
SW846 9056A Anions (5) "As Received"												
Bromide		0.965	0.0670	0.200	mg/L		1	CH6	01/31/24	1726	2561257	7
Fluoride	J	0.604	0.0330	4.00	mg/L		1					
Nitrate-N	U	10.0	0.0330	10.0	mg/L		1					
Chloride	J	55.0	0.670	250	mg/L		10	CH6	02/01/24	0344	2561257	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	02/02/24	1227	2561612	9
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	02/21/24	1415	2561522	10
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Arsenic	U	0.00500	0.00200	0.00500	mg/L	1.00	1	BAJ	02/21/24	1222	2561522	11
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1					
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1	PRB	02/21/24	0033	2561522	12
Selenium	U	0.00500	0.00150	0.00500	mg/L	1.00	1					
Zinc	U	0.0200	0.00330	0.0200	mg/L	1.00	1					
Aluminum	U	0.0500	0.0193	0.0500	mg/L	1.00	1	PRB	02/19/24	2259	2561522	13
Antimony	U	0.00300	0.00100	0.00300	mg/L	1.00	1					

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Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID: MW396SG2-24 Project: FRNP00511
Sample ID: 653458009 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"												
Barium		0.355	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					
Boron	J	0.00720	0.00520	0.0150	mg/L	1.00	1					
Calcium		29.7	0.0800	0.200	mg/L	1.00	1					
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					
Cobalt		0.00193	0.000300	0.00100	mg/L	1.00	1					
Copper	J	0.00107	0.000300	0.00200	mg/L	1.00	1					
Iron		0.342	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Magnesium		12.9	0.0100	0.0300	mg/L	1.00	1					
Manganese		0.316	0.00100	0.00500	mg/L	1.00	1					
Molybdenum	J	0.000352	0.000200	0.00100	mg/L	1.00	1					
Nickel	J	0.00114	0.000600	0.00200	mg/L	1.00	1					
Potassium		0.725	0.0800	0.300	mg/L	1.00	1					
Silver	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Thallium	U	0.00200	0.000600	0.00200	mg/L	1.00	1					
Vanadium	BJ	0.00339	0.00330	0.0200	mg/L	1.00	1					
Sodium		86.9	0.800	2.50	mg/L	1.00	10	PRB	02/21/24	0036	2561522	14
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		392	2.38	10.0	mg/L			ES2	02/06/24	0721	2563909	15
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD	U	20.0	8.95	20.0	mg/L		1	JW2	01/31/24	1530	2561379	16
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	AXH5	02/05/24	1400	2563549	17
1,1,1-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
1,2,3-Trichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dibromoethane	U	1.00	0.333	1.00	ug/L		1					

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Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID: MW396SG2-24 Project: FRNP00511
Sample ID: 653458009 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	2.33	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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Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID:	MW396SG2-24	Project:	FRNP00511
Sample ID:	653458009	Client ID:	FRNP005

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

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-MS 3005A PREP	AB5	02/05/24	1530	2561521
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	02/01/24	1135	2561610
SW846 9010C Distillation	SW846 9010C Prep	ES2	02/01/24	1125	2561734
SW846 8011 PREP	8011 Prep	LOF	02/04/24	1319	2561548

The following Analytical Methods were performed:

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

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011, VOA Compounds Liquid "As Received"	4.76 ug/L	6.75	71	(56%-149%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	47.8 ug/L	50.0	96	(74%-123%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	48.5 ug/L	50.0	97	(77%-121%)

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Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID:	MW396SG2-24	Project:	FRNP00511
Sample ID:	653458009	Client ID:	FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
1,2-Dichloroethane-d4		8260D, Volatiles- full suite "As Received"			48.2	ug/L		50.0		96		(76%-127%)

Notes:

Column headers are defined as follows:

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

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Company :	Four Rivers Nuclear Partnership, LLC
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	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID:	MW396SG2-24	Project:	FRNP00511
Sample ID:	653458010	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	30-JAN-24 14:09		
Receive Date:	31-JAN-24		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Dissolved Metals (3 Elements) "As Received"												
Barium		0.363	0.000670	0.00400	mg/L	1.00	1	PRB	02/19/24	2302	2561522	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	BAJ	02/21/24	1226	2561522	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-MS 3005A PREP	AB5	02/05/24	1530	2561521
EPA 160	Laboratory Filtration	RXB5	01/31/24	1331	2561332

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: April 25, 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(SG24-02)

Client Sample ID:	MW397SG2-24	Project:	FRNP00511
Sample ID:	653458011	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	30-JAN-24 10:03		
Receive Date:	31-JAN-24		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
504.1/8011 Analysis of EDB/DBCP												
8011, VOA Compounds Liquid "As Received"												
1,2-Dibromo-3-chloropropane	U	0.0187	0.00843	0.0187	ug/L	0.937	1	LOF	02/04/24	2212	2561549	1
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	0.638	0.330	2.00	mg/L		1	RM3	02/02/24	2220	2562883	3
Flow Injection Analysis												
9012B, Total Cyanide "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	02/02/24	0559	2561735	4
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens	J	6.74	3.33	10.0	ug/L		1	RM3	02/01/24	2028	2561975	5
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	02/13/24	1728	2567417	6
SW846 9056A Anions (5) "As Received"												
Chloride	J	32.7	0.335	250	mg/L		5	CH6	02/01/24	0516	2561257	7
Bromide		0.477	0.0670	0.200	mg/L		1	CH6	01/31/24	1757	2561257	8
Fluoride	J	0.169	0.0330	4.00	mg/L		1					
Nitrate-N	J	0.968	0.0330	10.0	mg/L		1					
Sulfate		11.6	0.133	0.400	mg/L		1					
Mercury Analysis-CVAA												
7470, Mercury Liquid "As Received"												
Mercury	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	JP2	02/02/24	1229	2561612	9
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	02/21/24	1417	2561522	10
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1	PRB	02/21/24	0044	2561522	11
Selenium	U	0.00500	0.00150	0.00500	mg/L	1.00	1					
Zinc	U	0.0200	0.00330	0.0200	mg/L	1.00	1					
Aluminum	J	0.0299	0.0193	0.0500	mg/L	1.00	1	PRB	02/19/24	2306	2561522	12
Antimony	U	0.00300	0.00100	0.00300	mg/L	1.00	1					
Barium		0.133	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					

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Company : Four Rivers Nuclear Partnership, LLC
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Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID: MW397SG2-24 Project: FRNP00511
Sample ID: 653458011 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	J	0.00713	0.00520	0.0150	mg/L	1.00	1					
Calcium		17.3	0.0800	0.200	mg/L	1.00	1					
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					
Cobalt	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Copper		0.00213	0.000300	0.00200	mg/L	1.00	1					
Iron	J	0.0601	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Magnesium		7.49	0.0100	0.0300	mg/L	1.00	1					
Manganese	J	0.00244	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		1.72	0.0800	0.300	mg/L	1.00	1					
Silver	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Sodium		30.0	0.0800	0.250	mg/L	1.00	1					
Thallium	U	0.00200	0.000600	0.00200	mg/L	1.00	1					
Vanadium	BJ	0.00397	0.00330	0.0200	mg/L	1.00	1					
Arsenic	U	0.00500	0.00200	0.00500	mg/L	1.00	1	BAJ	02/21/24	1228	2561522	13
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		161	2.38	10.0	mg/L			ES2	02/06/24	0721	2563909	14
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD	U	20.0	8.95	20.0	mg/L		1	JW2	01/31/24	1530	2561379	15
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	AXH5	02/05/24	1425	2563549	16
1,1,1-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
1,2,3-Trichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dibromoethane	U	1.00	0.333	1.00	ug/L		1					

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Company : Four Rivers Nuclear Partnership, LLC
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Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID: MW397SG2-24 Project: FRNP00511
Sample ID: 653458011 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,2-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,4-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
2-Butanone	U	5.00	1.67	5.00	ug/L		1					
2-Hexanone	U	5.00	1.67	5.00	ug/L		1					
4-Methyl-2-pentanone	U	5.00	1.67	5.00	ug/L		1					
Acetone	J	2.09	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	2.37	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(SG24-02)

Client Sample ID:	MW397SG2-24	Project:	FRNP00511
Sample ID:	653458011	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	02/04/24	1319	2561548
SW846 9010C Distillation	SW846 9010C Prep	ES2	02/01/24	1125	2561734
SW846 3005A	ICP-MS 3005A PREP	AB5	02/05/24	1530	2561521
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	02/01/24	1135	2561610

The following Analytical Methods were performed:

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

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011, VOA Compounds Liquid "As Received"	6.27 ug/L	6.69	94	(56%-149%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	48.3 ug/L	50.0	97	(74%-123%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	48.8 ug/L	50.0	98	(77%-121%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	47.4 ug/L	50.0	95	(76%-127%)

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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(SG24-02)

Client Sample ID:	MW397SG2-24	Project:	FRNP00511
Sample ID:	653458011	Client ID:	FRNP005

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

Notes:

Column headers are defined as follows:

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

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Certificate of Analysis

Report Date: April 25, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID:	MW397SG2-24	Project:	FRNP00511
Sample ID:	653458012	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	30-JAN-24 10:03		
Receive Date:	31-JAN-24		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Dissolved Metals (3 Elements) "As Received"												
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	BAJ	02/21/24	1230	2561522	1
Barium		0.136	0.000670	0.00400	mg/L	1.00	1	PRB	02/19/24	2310	2561522	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	AB5	02/05/24	1530	2561521
EPA 160	Laboratory Filtration	RXB5	01/31/24	1331	2561332

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3005A/6020B	
2	SW846 3005A/6020B	

Notes:

Column headers are defined as follows:

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

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

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID:	FB1SG2-24	Project:	FRNP00511
Sample ID:	653458013	Client ID:	FRNP005
Matrix:	WATER		
Collect Date:	30-JAN-24 08:59		
Receive Date:	31-JAN-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	02/04/24	2327	2561549	2
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	02/13/24	1741	2567417	3
Mercury Analysis-CVAA												
7470, Mercury Liquid "As Received"												
Mercury	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	JP2	02/02/24	1230	2561612	4
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Arsenic	U	0.00500	0.00200	0.00500	mg/L	1.00	1	BAJ	02/21/24	1231	2561522	5
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1					
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	02/21/24	1419	2561522	6
Tantalum	U	0.00500	0.00100	0.00500	mg/L	1.00	1					
Aluminum	U	0.0500	0.0193	0.0500	mg/L	1.00	1	PRB	02/19/24	2313	2561522	7
Antimony	U	0.00300	0.00100	0.00300	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					
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					
Silver	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Sodium	U	0.250	0.0800	0.250	mg/L	1.00	1					
Thallium	U	0.00200	0.000600	0.00200	mg/L	1.00	1					
Vanadium	BJ	0.00391	0.00330	0.0200	mg/L	1.00	1					
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1	PRB	02/21/24	0051	2561522	8

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Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID: FB1SG2-24 Project: FRNP00511
Sample ID: 653458013 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"												
Selenium	U	0.00500	0.00150	0.00500	mg/L	1.00	1					
Zinc	U	0.0200	0.00330	0.0200	mg/L	1.00	1					
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	AXH5	02/05/24	1451	2563549	9
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		5.92	1.74	5.00	ug/L		1					
Acrolein	U	5.00	1.67	5.00	ug/L		1					
Acrylonitrile	U	5.00	1.67	5.00	ug/L		1					
Benzene	U	1.00	0.333	1.00	ug/L		1					
Bromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromodichloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromoform	U	1.00	0.333	1.00	ug/L		1					
Bromomethane	U	1.00	0.337	1.00	ug/L		1					
Carbon disulfide	U	5.00	1.67	5.00	ug/L		1					
Carbon tetrachloride	U	1.00	0.333	1.00	ug/L		1					
Chlorobenzene	U	1.00	0.333	1.00	ug/L		1					
Chloroethane	U	1.00	0.333	1.00	ug/L		1					
Chloroform	U	1.00	0.333	1.00	ug/L		1					
Chloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromomethane	U	1.00	0.333	1.00	ug/L		1					
Ethylbenzene	U	1.00	0.333	1.00	ug/L		1					

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Certificate of Analysis

Report Date: April 25, 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(SG24-02)

Client Sample ID:	FB1SG2-24	Project:	FRNP00511
Sample ID:	653458013	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	J	2.04	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	02/04/24	1319	2561548
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	02/01/24	1135	2561610
SW846 3005A	ICP-MS 3005A PREP	AB5	02/05/24	1530	2561521

The following Analytical Methods were performed:

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

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011, VOA Compounds Liquid "As Received"	6.37 ug/L	6.84	93	(56%-149%)

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Certificate of Analysis

Report Date: April 25, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID:	FB1SG2-24	Project:	FRNP00511
Sample ID:	653458013	Client ID:	FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst Date	Time	Batch	Method
Bromofluorobenzene		8260D, Volatiles- full suite "As Received"		46.6	ug/L	50.0		93	(74%-123%)		
Toluene-d8		8260D, Volatiles- full suite "As Received"		49.1	ug/L	50.0		98	(77%-121%)		
1,2-Dichloroethane-d4		8260D, Volatiles- full suite "As Received"		46.1	ug/L	50.0		92	(76%-127%)		

Notes:

Column headers are defined as follows:

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

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Certificate of Analysis

Report Date: April 25, 2024

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

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID:	RI1SG2-24	Project:	FRNP00511
Sample ID:	653458014	Client ID:	FRNP005
Matrix:	WATER		
Collect Date:	30-JAN-24 06:45		
Receive Date:	31-JAN-24		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
504.1/8011 Analysis of EDB/DBCP												
8011, VOA Compounds Liquid "As Received"												
1,2-Dibromo-3-chloropropane	U	0.0192	0.00865	0.0192	ug/L	0.961	1	LOF	02/04/24	2353	2561549	1
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	02/13/24	1754	2567417	3
Mercury Analysis-CVAA												
7470, Mercury Liquid "As Received"												
Mercury	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	JP2	02/02/24	1232	2561612	4
Metals Analysis-ICP-MS												
6020, Metals (15+) "As Received"												
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1	PRB	02/21/24	0054	2561522	5
Selenium	U	0.00500	0.00150	0.00500	mg/L	1.00	1					
Zinc	U	0.0200	0.00330	0.0200	mg/L	1.00	1					
Arsenic	U	0.00500	0.00200	0.00500	mg/L	1.00	1	BAJ	02/21/24	1233	2561522	6
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1					
Aluminum	U	0.0500	0.0193	0.0500	mg/L	1.00	1	PRB	02/19/24	2317	2561522	7
Antimony	U	0.00300	0.00100	0.00300	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					
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					
Silver	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Sodium	U	0.250	0.0800	0.250	mg/L	1.00	1					
Thallium	U	0.00200	0.000600	0.00200	mg/L	1.00	1					
Vanadium	BJ	0.00379	0.00330	0.0200	mg/L	1.00	1					

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Certificate of Analysis

Report Date: April 25, 2024

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

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID: RI1SG2-24 Project: FRNP00511
Sample ID: 653458014 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	02/21/24	1427	2561522	8
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	AXH5	02/05/24	1517	2563549	9
1,1,1-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
1,2,3-Trichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dibromoethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,4-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
2-Butanone	U	5.00	1.67	5.00	ug/L		1					
2-Hexanone	U	5.00	1.67	5.00	ug/L		1					
4-Methyl-2-pentanone	U	5.00	1.67	5.00	ug/L		1					
Acetone	J	2.17	1.74	5.00	ug/L		1					
Acrolein	U	5.00	1.67	5.00	ug/L		1					
Acrylonitrile	U	5.00	1.67	5.00	ug/L		1					
Benzene	U	1.00	0.333	1.00	ug/L		1					
Bromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromodichloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromoform	U	1.00	0.333	1.00	ug/L		1					
Bromomethane	U	1.00	0.337	1.00	ug/L		1					
Carbon disulfide	U	5.00	1.67	5.00	ug/L		1					
Carbon tetrachloride	U	1.00	0.333	1.00	ug/L		1					
Chlorobenzene	U	1.00	0.333	1.00	ug/L		1					
Chloroethane	U	1.00	0.333	1.00	ug/L		1					
Chloroform	U	1.00	0.333	1.00	ug/L		1					
Chloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromomethane	U	1.00	0.333	1.00	ug/L		1					
Ethylbenzene	U	1.00	0.333	1.00	ug/L		1					

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Certificate of Analysis

Report Date: April 25, 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(SG24-02)

Client Sample ID:	RI1SG2-24	Project:	FRNP00511
Sample ID:	653458014	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	J	2.50	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	02/04/24	1319	2561548
SW846 3005A	ICP-MS 3005A PREP	AB5	02/05/24	1530	2561521
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	02/01/24	1135	2561610

The following Analytical Methods were performed:

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

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011, VOA Compounds Liquid "As Received"	6.62 ug/L	6.86	96	(56%-149%)

GEL LABORATORIES LLC

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Certificate of Analysis

Report Date: April 25, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID:	RI1SG2-24	Project:	FRNP00511
Sample ID:	653458014	Client ID:	FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst Date	Time	Batch	Method
8260D, Volatiles- full suite "As Received"											
Bromofluorobenzene		47.7			ug/L		50.0		95		(74%-123%)
Toluene-d8		48.9			ug/L		50.0		98		(77%-121%)
1,2-Dichloroethane-d4		46.5			ug/L		50.0		93		(76%-127%)

Notes:

Column headers are defined as follows:

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

GEL LABORATORIES LLC

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Certificate of Analysis

Report Date: April 25, 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(SG24-02)

Client Sample ID:	TB4SG2-24	Project:	FRNP00511
Sample ID:	653458015	Client ID:	FRNP005
Matrix:	WATER		
Collect Date:	30-JAN-24 06:40		
Receive Date:	31-JAN-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	02/05/24	0017	2561549	1
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	AXH5	02/05/24	1542	2563549	3
1,1,1-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
1,2,3-Trichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dibromoethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,4-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
2-Butanone	U	5.00	1.67	5.00	ug/L		1					
2-Hexanone	U	5.00	1.67	5.00	ug/L		1					
4-Methyl-2-pentanone	U	5.00	1.67	5.00	ug/L		1					
Acetone	U	5.00	1.74	5.00	ug/L		1					
Acrolein	U	5.00	1.67	5.00	ug/L		1					
Acrylonitrile	U	5.00	1.67	5.00	ug/L		1					
Benzene	U	1.00	0.333	1.00	ug/L		1					
Bromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromodichloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromoform	U	1.00	0.333	1.00	ug/L		1					
Bromomethane	U	1.00	0.337	1.00	ug/L		1					
Carbon disulfide	U	5.00	1.67	5.00	ug/L		1					
Carbon tetrachloride	U	1.00	0.333	1.00	ug/L		1					
Chlorobenzene	U	1.00	0.333	1.00	ug/L		1					
Chloroethane	U	1.00	0.333	1.00	ug/L		1					
Chloroform	U	1.00	0.333	1.00	ug/L		1					
Chloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromomethane	U	1.00	0.333	1.00	ug/L		1					
Ethylbenzene	U	1.00	0.333	1.00	ug/L		1					
Iodomethane	U	5.00	1.67	5.00	ug/L		1					

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Certificate of Analysis

Report Date: April 25, 2024

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

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID: TB4SG2-24 Project: FRNP00511
Sample ID: 653458015 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	2.46	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	02/04/24	1319	2561548

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"	7.28 ug/L	6.72	108	(56%-149%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	47.4 ug/L	50.0	95	(74%-123%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	48.9 ug/L	50.0	98	(77%-121%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	46.4 ug/L	50.0	93	(76%-127%)

Notes:

GEL LABORATORIES LLC

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Certificate of Analysis

Report Date: April 25, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID:	TB4SG2-24	Project:	FRNP00511
Sample ID:	653458015	Client ID:	FRNP005

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

Column headers are defined as follows:

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

GEL LABORATORIES LLC

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Certificate of Analysis

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

Kevil, Kentucky 42053

Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID: MW384DSG2-24
Sample ID: 653458001
Matrix: WG
Collect Date: 30-JAN-24
Receive Date: 31-JAN-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	0.179	+/-0.340	0.587	+/-0.340	5.00	pCi/L			CM4	02/18/24	1825	2568311	1
Th-01-RC M, Th Isotopes, Liquid "As Received"														
Thorium-230	U	-0.355	+/-0.714	1.90	+/-0.715	50.0	pCi/L			KH1	02/07/24	0948	2561390	2
Rad Gas Flow Proportional Counting														
905.0 Mod, Sr90, liquid "As Received"														
Strontium-90	U	-0.605	+/-1.56	3.40	+/-1.56	8.00	pCi/L			ST2	02/07/24	1550	2562680	3
9310,Alpha/Beta Activity, liquid "As Received"														
Alpha	U	0.491	+/-4.39	9.34	+/-4.39	15.0	pCi/L			AW5	02/06/24	1549	2563637	4
Beta		29.5	+/-8.12	9.69	+/-9.45	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
906.0 Mod, Tritium Dist, Liquid "As Received"														
Tritium	U	-43.9	+/-134	281	+/-134	300	pCi/L			HB2	02/14/24	1150	2563304	5
Tc-02-RC-MOD, Tc99, Liquid "As Received"														
Technetium-99		30.0	+/-13.0	21.0	+/-13.5	25.0	pCi/L			GS3	02/14/24	0523	2564340	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"	2568311	95.7	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2561390	76	(30%-110%)
Strontium Carrier	905.0 Mod, Sr90, liquid "As Received"	2562680	96.4	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2564340	98.9	(30%-110%)

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Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID: MW384DSG2-24
Sample ID: 653458001

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: April 25, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID: MW384SG2-24
Sample ID: 653458003
Matrix: WG
Collect Date: 30-JAN-24
Receive Date: 31-JAN-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	0.492	+/-0.556	0.684	+/-0.557	5.00	pCi/L			CM4	02/19/24	1259	2568311	1
Th-01-RC M, Th Isotopes, Liquid "As Received"														
Thorium-230	U	0.981	+/-1.76	2.85	+/-1.78	50.0	pCi/L			KH1	02/07/24	0948	2561390	2
Rad Gas Flow Proportional Counting														
905.0 Mod, Sr90, liquid "As Received"														
Strontium-90	U	1.76	+/-2.92	5.11	+/-2.94	8.00	pCi/L			ST2	02/07/24	1549	2562680	3
9310,Alpha/Beta Activity, liquid "As Received"														
Alpha	U	4.04	+/-4.71	7.60	+/-4.76	15.0	pCi/L			AW5	02/06/24	1549	2563637	4
Beta		20.0	+/-7.74	10.3	+/-8.40	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
906.0 Mod, Tritium Dist, Liquid "As Received"														
Tritium	U	-25.1	+/-138	281	+/-138	300	pCi/L			HB2	02/14/24	1213	2563304	5
Tc-02-RC-MOD, Tc99, Liquid "As Received"														
Technetium-99		24.3	+/-12.6	20.5	+/-12.9	25.0	pCi/L			GS3	02/14/24	0556	2564340	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"	2568311	96.5	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2561390	37.5	(30%-110%)
Strontium Carrier	905.0 Mod, Sr90, liquid "As Received"	2562680	85.9	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2564340	99.4	(30%-110%)

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Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID: MW384SG2-24
Sample ID: 653458003

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: April 25, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID: MW394SG2-24
Sample ID: 653458005
Matrix: WG
Collect Date: 30-JAN-24
Receive Date: 31-JAN-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	0.324	+/-0.389	0.597	+/-0.389	5.00	pCi/L			CM4	02/18/24	1825	2568311	1
Th-01-RC M, Th Isotopes, Liquid "As Received"														
Thorium-230	U	0.0604	+/-0.662	1.40	+/-0.663	50.0	pCi/L			KH1	02/07/24	0948	2561390	2
Rad Gas Flow Proportional Counting														
905.0 Mod, Sr90, liquid "As Received"														
Strontium-90	U	-1.05	+/-2.66	5.44	+/-2.66	8.00	pCi/L			ST2	02/07/24	1550	2562680	3
9310,Alpha/Beta Activity, liquid "As Received"														
Alpha	U	1.90	+/-4.00	7.69	+/-4.01	15.0	pCi/L			AW5	02/06/24	1549	2563637	4
Beta	U	3.38	+/-4.99	8.55	+/-5.02	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
906.0 Mod, Tritium Dist, Liquid "As Received"														
Tritium	U	-66.9	+/-129	281	+/-129	300	pCi/L			HB2	02/14/24	1236	2563304	5
Tc-02-RC-MOD, Tc99, Liquid "As Received"														
Technetium-99	U	2.34	+/-12.2	20.9	+/-12.2	25.0	pCi/L			GS3	02/14/24	0629	2564340	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"	2568311	95.7	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2561390	88.1	(30%-110%)
Strontium Carrier	905.0 Mod, Sr90, liquid "As Received"	2562680	75.5	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2564340	98.4	(30%-110%)

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Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID: MW394SG2-24
Sample ID: 653458005

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: April 25, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID: MW395SG2-24
Sample ID: 653458007
Matrix: WG
Collect Date: 30-JAN-24
Receive Date: 31-JAN-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	0.326	+/-0.427	0.691	+/-0.428	5.00	pCi/L			CM4	02/18/24	1825	2568311	1
Th-01-RC M, Th Isotopes, Liquid "As Received"														
Thorium-230	U	0.0235	+/-0.669	1.43	+/-0.670	50.0	pCi/L			KH1	02/07/24	0948	2561390	2
Rad Gas Flow Proportional Counting														
905.0 Mod, Sr90, liquid "As Received"														
Strontium-90	U	0.215	+/-2.60	4.92	+/-2.60	8.00	pCi/L			ST2	02/07/24	1550	2562680	3
9310,Alpha/Beta Activity, liquid "As Received"														
Alpha	U	-4.25	+/-4.17	10.7	+/-4.17	15.0	pCi/L			AW5	02/06/24	1549	2563637	4
Beta	U	3.19	+/-4.94	8.49	+/-4.97	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
906.0 Mod, Tritium Dist, Liquid "As Received"														
Tritium	U	-39.8	+/-136	283	+/-136	300	pCi/L			HB2	02/14/24	1258	2563304	5
Tc-02-RC-MOD, Tc99, Liquid "As Received"														
Technetium-99	U	5.75	+/-12.4	21.1	+/-12.4	25.0	pCi/L			GS3	02/14/24	0702	2564340	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"	2568311	100	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2561390	89.3	(30%-110%)
Strontium Carrier	905.0 Mod, Sr90, liquid "As Received"	2562680	93.8	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2564340	97.9	(30%-110%)

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Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID: MW395SG2-24
Sample ID: 653458007

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:

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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: April 25, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID: MW396SG2-24
Sample ID: 653458009
Matrix: WG
Collect Date: 30-JAN-24
Receive Date: 31-JAN-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	0.673	+/-0.623	0.714	+/-0.624	5.00	pCi/L			CM4	02/19/24	1259	2568311	1
Th-01-RC M, Th Isotopes, Liquid "As Received"														
Thorium-230	U	-0.635	+/-0.707	2.21	+/-0.708	50.0	pCi/L			KH1	02/07/24	0948	2561390	2
Rad Gas Flow Proportional Counting														
905.0 Mod, Sr90, liquid "As Received"														
Strontium-90	U	-2.13	+/-2.31	4.91	+/-2.31	8.00	pCi/L			ST2	02/07/24	1639	2562680	3
9310,Alpha/Beta Activity, liquid "As Received"														
Alpha	U	-2.38	+/-3.03	10.0	+/-3.03	15.0	pCi/L			AW5	02/06/24	1549	2563637	4
Beta	U	-3.18	+/-5.95	11.7	+/-5.95	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
906.0 Mod, Tritium Dist, Liquid "As Received"														
Tritium	U	30.6	+/-147	279	+/-147	300	pCi/L			HB2	02/14/24	1321	2563304	5
Tc-02-RC-MOD, Tc99, Liquid "As Received"														
Technetium-99	U	-5.21	+/-11.9	21.5	+/-11.9	25.0	pCi/L			GS3	02/18/24	1205	2564337	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"	2568311	96.7	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2561390	68.6	(30%-110%)
Strontium Carrier	905.0 Mod, Sr90, liquid "As Received"	2562680	96.4	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2564337	92.2	(30%-110%)

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Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID: MW396SG2-24
Sample ID: 653458009

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).

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

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Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID: MW397SG2-24
Sample ID: 653458011
Matrix: WG
Collect Date: 30-JAN-24
Receive Date: 31-JAN-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	0.468	+/-0.398	0.501	+/-0.400	5.00	pCi/L			CM4	02/18/24	1825	2568311	1
Th-01-RC M, Th Isotopes, Liquid "As Received"														
Thorium-230	U	1.12	+/-1.02	1.34	+/-1.03	50.0	pCi/L			KH1	02/07/24	0948	2561390	2
Rad Gas Flow Proportional Counting														
905.0 Mod, Sr90, liquid "As Received"														
Strontium-90	U	-1.89	+/-2.60	5.38	+/-2.60	8.00	pCi/L			ST2	02/07/24	1639	2562680	3
9310,Alpha/Beta Activity, liquid "As Received"														
Alpha	U	-1.98	+/-1.93	7.81	+/-1.94	15.0	pCi/L			AW5	02/06/24	1549	2563637	4
Beta	U	10.2	+/-7.32	11.5	+/-7.50	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
906.0 Mod, Tritium Dist, Liquid "As Received"														
Tritium	U	-62.6	+/-130	280	+/-130	300	pCi/L			HB2	02/14/24	1343	2563304	5
Tc-02-RC-MOD, Tc99, Liquid "As Received"														
Technetium-99	U	10.8	+/-12.7	21.3	+/-12.7	25.0	pCi/L			GS3	02/14/24	0734	2564340	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"	2568311	95.2	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2561390	85.3	(30%-110%)
Strontium Carrier	905.0 Mod, Sr90, liquid "As Received"	2562680	88.5	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2564340	97.4	(30%-110%)

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Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID: MW397SG2-24
Sample ID: 653458011

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, LLC
Address : 5600 Hobbs Road

Kevil, Kentucky 42053

Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID: FB1SG2-24
Sample ID: 653458013
Matrix: WATER
Collect Date: 30-JAN-24
Receive Date: 31-JAN-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	-0.00858	+/-0.308	0.710	+/-0.308	5.00	pCi/L			CM4	02/19/24	1259	2568311	1
Th-01-RC M, Th Isotopes, Liquid "As Received"														
Thorium-230	U	1.06	+/-0.928	1.17	+/-0.942	50.0	pCi/L			KH1	02/07/24	0948	2561390	2
Rad Gas Flow Proportional Counting														
905.0 Mod, Sr90, liquid "As Received"														
Strontium-90	U	1.75	+/-3.02	5.29	+/-3.04	8.00	pCi/L			ST2	02/07/24	1639	2562680	3
9310,Alpha/Beta Activity, liquid "As Received"														
Alpha	U	-0.488	+/-2.98	7.50	+/-2.98	15.0	pCi/L			AW5	02/06/24	1549	2563637	4
Beta	U	-2.76	+/-4.04	8.71	+/-4.05	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
906.0 Mod, Tritium Dist, Liquid "As Received"														
Tritium	U	-10.6	+/-140	280	+/-140	300	pCi/L			HB2	02/14/24	1406	2563304	5
Tc-02-RC-MOD, Tc99, Liquid "As Received"														
Technetium-99	U	-16.8	+/-11.6	20.9	+/-11.6	25.0	pCi/L			GS3	02/14/24	0807	2564340	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"	2568311	101	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2561390	89	(30%-110%)
Strontium Carrier	905.0 Mod, Sr90, liquid "As Received"	2562680	83.3	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2564340	98.5	(30%-110%)

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Certificate of Analysis

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

Kevil, Kentucky 42053

Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID: FB1SG2-24
Sample ID: 653458013

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, LLC
Address : 5600 Hobbs Road

Kevil, Kentucky 42053

Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID: RI1SG2-24
Sample ID: 653458014
Matrix: WATER
Collect Date: 30-JAN-24
Receive Date: 31-JAN-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	0.309	+/-0.316	0.411	+/-0.316	5.00	pCi/L			CM4	02/18/24	1825	2568311	1
Th-01-RC M, Th Isotopes, Liquid "As Received"														
Thorium-230	U	1.63	+/-2.08	3.04	+/-2.11	50.0	pCi/L			KH1	02/08/24	0859	2561390	2
Rad Gas Flow Proportional Counting														
905.0 Mod, Sr90, liquid "As Received"														
Strontium-90	U	-0.925	+/-2.32	4.90	+/-2.32	8.00	pCi/L			ST2	02/07/24	1639	2562680	3
9310,Alpha/Beta Activity, liquid "As Received"														
Alpha	U	0.791	+/-3.16	6.79	+/-3.17	15.0	pCi/L			AW5	02/06/24	1549	2563637	4
Beta	U	0.188	+/-5.40	10.1	+/-5.40	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
906.0 Mod, Tritium Dist, Liquid "As Received"														
Tritium	U	122	+/-158	269	+/-159	300	pCi/L			HB2	02/14/24	1428	2563304	5
Tc-02-RC-MOD, Tc99, Liquid "As Received"														
Technetium-99	U	-11.9	+/-10.8	20.2	+/-10.8	25.0	pCi/L			GS3	02/18/24	1222	2564337	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"	2568311	97.3	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2561390	87	(30%-110%)
Strontium Carrier	905.0 Mod, Sr90, liquid "As Received"	2562680	78.1	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2564337	97.4	(30%-110%)

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Certificate of Analysis

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

Kevil, Kentucky 42053

Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Quarterly(SG24-02)

Client Sample ID: RI1SG2-24
Sample ID: 653458014

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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ATTACHMENT C5

GEL LABORATORIES CERTIFICATE OF ANALYSIS

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Certificate of Analysis

Report Date: April 25, 2024

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

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

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

Project: FRNP00507
Client ID: FRNP005

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

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

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

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

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

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Report Date: April 25, 2024

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

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

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

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

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Report Date: April 25, 2024

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

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

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

The following Prep Methods were performed:

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

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Report Date: April 25, 2024

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

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

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

The following Analytical Methods were performed:

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

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

Notes:

Column headers are defined as follows:

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

GEL LABORATORIES LLC

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Certificate of Analysis

Report Date: April 25, 2024

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

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

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

The following Prep Methods were performed:

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

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3005A/6020B	

Notes:

Column headers are defined as follows:

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

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Certificate of Analysis

Report Date: April 25, 2024

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

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

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

Project: FRNP00507
Client ID: FRNP005

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

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

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

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

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

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

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

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

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

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Certificate of Analysis

Report Date: April 25, 2024

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

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

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

The following Prep Methods were performed:

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

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Report Date: April 25, 2024

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

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

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

The following Analytical Methods were performed:

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

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

Notes:

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

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

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

Column headers are defined as follows:

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

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Certificate of Analysis

Report Date: April 25, 2024

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

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

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

The following Prep Methods were performed:

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

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3005A/6020B	

Notes:

Column headers are defined as follows:

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

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Report Date: April 25, 2024

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

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

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

Project: FRNP00507
Client ID: FRNP005

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

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

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

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

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

GEL LABORATORIES LLC

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Certificate of Analysis

Report Date: April 25, 2024

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

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

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

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

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Report Date: April 25, 2024

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

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

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

The following Prep Methods were performed:

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

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

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

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

The following Analytical Methods were performed:

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

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

Notes:

Column headers are defined as follows:

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

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Certificate of Analysis

Report Date: April 25, 2024

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

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

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

The following Prep Methods were performed:

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

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3005A/6020B	

Notes:

Column headers are defined as follows:

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

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Report Date: April 25, 2024

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

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

Client Sample ID:	MW360UG2-24	Project:	FRNP00507
Sample ID:	652552007	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	23-JAN-24 08:08		
Receive Date:	24-JAN-24		
Collector:	Client		

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

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

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

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

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

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

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

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

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

The following Prep Methods were performed:

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

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Certificate of Analysis

Report Date: April 25, 2024

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

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

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

The following Analytical Methods were performed:

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

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

Notes:

Column headers are defined as follows:

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

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Report Date: April 25, 2024

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

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

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

The following Prep Methods were performed:

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

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3005A/6020B	

Notes:

Column headers are defined as follows:

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

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Certificate of Analysis

Report Date: April 25, 2024

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

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

Client Sample ID:	MW361UG2-24	Project:	FRNP00507
Sample ID:	652552009	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	23-JAN-24 09:18		
Receive Date:	24-JAN-24		
Collector:	Client		

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

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Address : 5600 Hobbs Road

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

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

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

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Address : 5600 Hobbs Road

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

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

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

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

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

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

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

The following Prep Methods were performed:

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

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

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

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

The following Analytical Methods were performed:

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

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

Notes:

Column headers are defined as follows:

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

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Report Date: April 25, 2024

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

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

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

The following Prep Methods were performed:

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

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3005A/6020B	

Notes:

Column headers are defined as follows:

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

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

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

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

Project: FRNP00507
Client ID: FRNP005

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

GEL LABORATORIES LLC

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Certificate of Analysis

Report Date: April 25, 2024

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

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

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

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

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Certificate of Analysis

Report Date: April 25, 2024

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

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

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

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

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Certificate of Analysis

Report Date: April 25, 2024

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

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

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

The following Prep Methods were performed:

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

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

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

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

The following Analytical Methods were performed:

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

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

Notes:

Column headers are defined as follows:

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

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Certificate of Analysis

Report Date: April 25, 2024

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

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

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

The following Prep Methods were performed:

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

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3005A/6020B	

Notes:

Column headers are defined as follows:

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

GEL LABORATORIES LLC

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Certificate of Analysis

Report Date: April 25, 2024

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

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

Client Sample ID: MW363UG2-24 | Project: FRNP00507
Sample ID: 652552013 | Client ID: FRNP005
Matrix: WG
Collect Date: 23-JAN-24 12:40
Receive Date: 24-JAN-24
Collector: Client

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

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

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

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

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Certificate of Analysis

Report Date: April 25, 2024

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

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

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

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

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

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

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

The following Prep Methods were performed:

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

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

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

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

The following Analytical Methods were performed:

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

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

Notes:

Column headers are defined as follows:

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

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Certificate of Analysis

Report Date: April 25, 2024

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

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

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

The following Prep Methods were performed:

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

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3005A/6020B	

Notes:

Column headers are defined as follows:

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

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Certificate of Analysis

Report Date: April 25, 2024

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

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

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

Project: FRNP00507
Client ID: FRNP005

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

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

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

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

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

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

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

The following Prep Methods were performed:

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

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

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

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

The following Analytical Methods were performed:

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

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

Notes:

Column headers are defined as follows:

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

GEL LABORATORIES LLC

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Certificate of Analysis

Report Date: April 25, 2024

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

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

Client Sample ID:	RI1UG2-24	Project:	FRNP00507
Sample ID:	652552016	Client ID:	FRNP005
Matrix:	WATER		
Collect Date:	23-JAN-24 07:30		
Receive Date:	24-JAN-24		
Collector:	Client		

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

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Certificate of Analysis

Report Date: April 25, 2024

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

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

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

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

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

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

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

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

The following Prep Methods were performed:

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

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

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

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

The following Analytical Methods were performed:

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

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

Notes:

Column headers are defined as follows:

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

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Certificate of Analysis

Report Date: April 25, 2024

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

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

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

Project: FRNP00507
Client ID: FRNP005

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

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

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

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

The following Prep Methods were performed:

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

The following Analytical Methods were performed:

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

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

Notes:

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

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

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

Column headers are defined as follows:

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

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

Kevil, Kentucky 42053

Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

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

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

Project: FRNP00507
Client ID: FRNP005

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

The following Analytical Methods were performed

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

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

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Contact: Ms. Jaime Morrow

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

Client Sample ID: MW357UG2-24
Sample ID: 652552001

Project: FRNP00507
Client ID: FRNP005

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

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

The MDC is a sample specific MDC.

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

Column headers are defined as follows:

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

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Certificate of Analysis

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

Kevil, Kentucky 42053

Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

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

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

Project: FRNP00507
Client ID: FRNP005

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

The following Analytical Methods were performed

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

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

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Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

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

Client Sample ID: MW358UG2-24
Sample ID: 652552003

Project: FRNP00507
Client ID: FRNP005

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

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

The MDC is a sample specific MDC.

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

Column headers are defined as follows:

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

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Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

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

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

Project: FRNP00507
Client ID: FRNP005

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

The following Analytical Methods were performed

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

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

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Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

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

Client Sample ID: MW360DUG2-24
Sample ID: 652552005

Project: FRNP00507
Client ID: FRNP005

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

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

The MDC is a sample specific MDC.

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

Column headers are defined as follows:

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

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Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

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

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

Project: FRNP00507
Client ID: FRNP005

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

The following Analytical Methods were performed

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

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

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Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

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

Client Sample ID: MW360UG2-24
Sample ID: 652552007

Project: FRNP00507
Client ID: FRNP005

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

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

The MDC is a sample specific MDC.

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

Column headers are defined as follows:

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

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

Kevil, Kentucky 42053

Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

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

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

Project: FRNP00507
Client ID: FRNP005

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

The following Analytical Methods were performed

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

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

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Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

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

Client Sample ID: MW361UG2-24
Sample ID: 652552009

Project: FRNP00507
Client ID: FRNP005

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

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

The MDC is a sample specific MDC.

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

Column headers are defined as follows:

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

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Address : 5600 Hobbs Road

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Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

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

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

Project: FRNP00507
Client ID: FRNP005

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

The following Analytical Methods were performed

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

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

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Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

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

Client Sample ID: MW362UG2-24
Sample ID: 652552011

Project: FRNP00507
Client ID: FRNP005

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

Notes:

The MDC is a sample specific MDC.

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

Column headers are defined as follows:

DF: Dilution Factor
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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Address : 5600 Hobbs Road

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Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

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

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

Project: FRNP00507
Client ID: FRNP005

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

The following Analytical Methods were performed

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

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

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Certificate of Analysis

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

Kevil, Kentucky 42053

Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

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

Client Sample ID: MW363UG2-24
Sample ID: 652552013

Project: FRNP00507
Client ID: FRNP005

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

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

The MDC is a sample specific MDC.

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

Column headers are defined as follows:

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

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

Kevil, Kentucky 42053

Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

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

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

Project: FRNP00507
Client ID: FRNP005

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

The following Analytical Methods were performed

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

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

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Kevil, Kentucky 42053

Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

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

Client Sample ID: FB1UG2-24
Sample ID: 652552015

Project: FRNP00507
Client ID: FRNP005

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

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

The MDC is a sample specific MDC.

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

Column headers are defined as follows:

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

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

Contact: Ms. Jaime Morrow

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

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

Project: FRNP00507
Client ID: FRNP005

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

The following Analytical Methods were performed

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

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

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

Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

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

Client Sample ID: RI1UG2-24
Sample ID: 652552016

Project: FRNP00507
Client ID: FRNP005

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

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

The MDC is a sample specific MDC.

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

Column headers are defined as follows:

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

ATTACHMENT C6

GEL LABORATORIES CERTIFICATE OF ANALYSIS

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Certificate of Analysis

Report Date: April 25, 2024

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

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

Client Sample ID: MW364UG2-24 | Project: FRNP00507
Sample ID: 652726001 | Client ID: FRNP005
Matrix: WG
Collect Date: 24-JAN-24 07:54
Receive Date: 25-JAN-24
Collector: Client

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

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Report Date: April 25, 2024

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

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

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

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

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Address : 5600 Hobbs Road

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

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

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

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

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

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

The following Prep Methods were performed:

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

GEL LABORATORIES LLC

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Certificate of Analysis

Report Date: April 25, 2024

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

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

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

The following Analytical Methods were performed:

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

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

Notes:

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Report Date: April 25, 2024

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

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

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

Column headers are defined as follows:

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

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Report Date: April 25, 2024

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

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

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

The following Prep Methods were performed:

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

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3005A/6020B	

Notes:

Column headers are defined as follows:

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

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Certificate of Analysis

Report Date: April 25, 2024

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

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

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

Project: FRNP00507
Client ID: FRNP005

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

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

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

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

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

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

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

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

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

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

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

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

The following Prep Methods were performed:

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

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

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

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

The following Analytical Methods were performed:

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

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

Notes:

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

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

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

Column headers are defined as follows:

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

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

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

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

The following Prep Methods were performed:

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

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3005A/6020B	

Notes:

Column headers are defined as follows:

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

GEL LABORATORIES LLC

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Certificate of Analysis

Report Date: April 25, 2024

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

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

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

Project: FRNP00507
Client ID: FRNP005

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

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Address : 5600 Hobbs Road

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

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

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

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Address : 5600 Hobbs Road

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

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

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

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Address : 5600 Hobbs Road

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

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

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

The following Prep Methods were performed:

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

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

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

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

The following Analytical Methods were performed:

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

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

Notes:

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

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

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

Column headers are defined as follows:

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

GEL LABORATORIES LLC

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

Client Sample ID:	MW367UG2-24	Project:	FRNP00507
Sample ID:	652726006	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	24-JAN-24 09:53		
Receive Date:	25-JAN-24		
Collector:	Client		

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

The following Prep Methods were performed:

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

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3005A/6020B	

Notes:

Column headers are defined as follows:

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

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

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

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

Project: FRNP00507
Client ID: FRNP005

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

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

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

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

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Certificate of Analysis

Report Date: April 25, 2024

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

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

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

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

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Certificate of Analysis

Report Date: April 25, 2024

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

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

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

The following Prep Methods were performed:

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

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

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

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

The following Analytical Methods were performed:

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

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

Notes:

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

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

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

Column headers are defined as follows:

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

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Certificate of Analysis

Report Date: April 25, 2024

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

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

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

The following Prep Methods were performed:

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

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3005A/6020B	

Notes:

Column headers are defined as follows:

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

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Report Date: April 25, 2024

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

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

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

Project: FRNP00507
Client ID: FRNP005

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

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

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

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

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

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

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

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

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

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

The following Prep Methods were performed:

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

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Certificate of Analysis

Report Date: April 25, 2024

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

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

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

The following Analytical Methods were performed:

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

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

Notes:

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Report Date: April 25, 2024

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

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

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

Column headers are defined as follows:

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

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Report Date: April 25, 2024

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

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

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

The following Prep Methods were performed:

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

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3005A/6020B	

Notes:

Column headers are defined as follows:

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

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Certificate of Analysis

Report Date: April 25, 2024

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

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

Client Sample ID: MW371UG2-24 | Project: FRNP00507
Sample ID: 652726011 | Client ID: FRNP005
Matrix: WG
Collect Date: 24-JAN-24 13:26
Receive Date: 25-JAN-24
Collector: Client

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

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

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

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

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

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Address : 5600 Hobbs Road

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

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

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

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

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

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

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

The following Prep Methods were performed:

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

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

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

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

The following Analytical Methods were performed:

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

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

Notes:

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Report Date: April 25, 2024

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

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

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

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

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

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

The following Prep Methods were performed:

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

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3005A/6020B	

Notes:

Column headers are defined as follows:

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

GEL LABORATORIES LLC

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Certificate of Analysis

Report Date: April 25, 2024

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

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

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

Project: FRNP00507
Client ID: FRNP005

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

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

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

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

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

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Address : 5600 Hobbs Road

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

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

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

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Report Date: April 25, 2024

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

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

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

The following Prep Methods were performed:

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

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Report Date: April 25, 2024

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

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

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

The following Analytical Methods were performed:

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

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

Notes:

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

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

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

Column headers are defined as follows:

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

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

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

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

The following Prep Methods were performed:

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

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3005A/6020B	

Notes:

Column headers are defined as follows:

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

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

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

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

Project: FRNP00507
Client ID: FRNP005

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

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

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

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

The following Prep Methods were performed:

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

The following Analytical Methods were performed:

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

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

Notes:

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Certificate of Analysis

Report Date: April 25, 2024

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

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

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

Column headers are defined as follows:

DF: Dilution Factor	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

Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

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

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

Project: FRNP00507
Client ID: FRNP005

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

The following Analytical Methods were performed

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

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

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Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

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

Client Sample ID: MW364UG2-24
Sample ID: 652726001

Project: FRNP00507
Client ID: FRNP005

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

Notes:

The MDC is a sample specific MDC.

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

Column headers are defined as follows:

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

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Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

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

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

Project: FRNP00507
Client ID: FRNP005

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

The following Analytical Methods were performed

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

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

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Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

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

Client Sample ID: MW366UG2-24
Sample ID: 652726003

Project: FRNP00507
Client ID: FRNP005

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

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

The MDC is a sample specific MDC.

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

Column headers are defined as follows:

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

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Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

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

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

Project: FRNP00507
Client ID: FRNP005

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
AN-1418 AlphaSpec Ra226, Liquid "As Received"														
Radium-226	U	0.220	+/-0.746	1.19	+/-0.746	5.00	pCi/L			EJ1	02/13/24	1423	2558724	1
Th-01-RC M, Th Isotopes, Liquid "As Received"														
Thorium-230	U	0.541	+/-1.01	1.73	+/-1.02	50.0	pCi/L			EJ1	02/08/24	0826	2558725	2
Thorium-232	U	0.266	+/-0.659	1.09	+/-0.661		pCi/L							
Rad Gas Flow Proportional Counting														
904.0Mod, Ra228, Liquid "As Received"														
Radium-228	U	2.99	+/-2.34	3.68	+/-2.46	4.99	pCi/L			JE1	02/21/24	0828	2563663	3
905.0Mod, Sr90, liquid "As Received"														
Strontium-90	U	3.38	+/-2.87	4.61	+/-2.92	8.00	pCi/L			ST2	02/07/24	1521	2562680	4
9310, Alpha/Beta Activity, liquid "As Received"														
Alpha	U	-0.744	+/-2.95	7.59	+/-2.95	15.0	pCi/L			AW5	02/05/24	1517	2559932	5
Beta	U	1.36	+/-4.07	7.50	+/-4.08	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
906.0M, Tritium Dist, Liquid "As Received"														
Tritium	U	19.0	+/-130	231	+/-130	300	pCi/L			HB2	02/16/24	1747	2563308	6
Tc-02-RC-MOD, Tc99, Liquid "As Received"														
Technetium-99	U	-6.79	+/-9.80	18.0	+/-9.80	25.0	pCi/L			GS3	02/19/24	0638	2564391	7

The following Analytical Methods were performed

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

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Barium-133 Tracer	AN-1418 AlphaSpec Ra226, Liquid "As Received"	2558724	88.3	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2558725	77.4	(30%-110%)
Barium-133 Tracer	904.0Mod, Ra228, Liquid "As Received"	2563663	92.3	(30%-110%)
Strontium Carrier	905.0Mod, Sr90, liquid "As Received"	2562680	96.4	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2564391	98.2	(30%-110%)

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Kevil, Kentucky 42053

Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

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

Client Sample ID: MW367UG2-24
Sample ID: 652726005

Project: FRNP00507
Client ID: FRNP005

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

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

The MDC is a sample specific MDC.

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

Column headers are defined as follows:

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

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

Kevil, Kentucky 42053

Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

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

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

Project: FRNP00507
Client ID: FRNP005

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
AN-1418 AlphaSpec Ra226, Liquid "As Received"														
Radium-226	U	0.637	+/-0.487	0.653	+/-0.489	5.00	pCi/L			EJ1	02/10/24	0856	2558724	1
Th-01-RC M, Th Isotopes, Liquid "As Received"														
Thorium-230	U	0.462	+/-0.866	1.42	+/-0.872	50.0	pCi/L			EJ1	02/08/24	0858	2558725	2
Thorium-232	U	-0.0686	+/-0.405	0.999	+/-0.406		pCi/L							
Rad Gas Flow Proportional Counting														
904.0Mod, Ra228, Liquid "As Received"														
Radium-228	U	0.337	+/-1.67	3.17	+/-1.67	4.99	pCi/L			JE1	02/21/24	0828	2563663	3
905.0Mod, Sr90, liquid "As Received"														
Strontium-90	U	-1.67	+/-2.36	5.00	+/-2.36	8.00	pCi/L			ST2	02/07/24	1521	2562680	4
9310, Alpha/Beta Activity, liquid "As Received"														
Alpha	U	-1.14	+/-2.32	7.22	+/-2.32	15.0	pCi/L			AW5	02/05/24	1517	2559932	5
Beta		27.8	+/-7.46	7.25	+/-8.71	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
906.0M, Tritium Dist, Liquid "As Received"														
Tritium	U	-122	+/-120	232	+/-120	300	pCi/L			HB2	02/16/24	1824	2563308	6
Tc-02-RC-MOD, Tc99, Liquid "As Received"														
Technetium-99		62.7	+/-13.6	18.5	+/-15.3	25.0	pCi/L			GS3	02/19/24	0655	2564391	7

The following Analytical Methods were performed

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

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Barium-133 Tracer	AN-1418 AlphaSpec Ra226, Liquid "As Received"	2558724	93.4	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2558725	92	(30%-110%)
Barium-133 Tracer	904.0Mod, Ra228, Liquid "As Received"	2563663	93.1	(30%-110%)
Strontium Carrier	905.0Mod, Sr90, liquid "As Received"	2562680	93.8	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2564391	95.9	(30%-110%)

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Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

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

Client Sample ID: MW369UG2-24
Sample ID: 652726007

Project: FRNP00507
Client ID: FRNP005

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

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

The MDC is a sample specific MDC.

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

Column headers are defined as follows:

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

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Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

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

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

Project: FRNP00507
Client ID: FRNP005

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
AN-1418 AlphaSpec Ra226, Liquid "As Received"														
Radium-226	U	0.529	+/-0.470	0.635	+/-0.472	5.00	pCi/L			EJ1	02/10/24	0856	2558724	1
Th-01-RC M, Th Isotopes, Liquid "As Received"														
Thorium-230	U	0.814	+/-1.14	1.74	+/-1.15	50.0	pCi/L			EJ1	02/08/24	0858	2558725	2
Thorium-232	U	0.571	+/-0.854	1.09	+/-0.858		pCi/L							
Rad Gas Flow Proportional Counting														
904.0Mod, Ra228, Liquid "As Received"														
Radium-228	U	2.97	+/-2.43	3.83	+/-2.54	4.99	pCi/L			JE1	02/21/24	0828	2563663	3
905.0Mod, Sr90, liquid "As Received"														
Strontium-90	U	0.933	+/-2.77	4.96	+/-2.78	8.00	pCi/L			ST2	02/07/24	1521	2562680	4
9310, Alpha/Beta Activity, liquid "As Received"														
Alpha	U	1.34	+/-3.51	7.14	+/-3.51	15.0	pCi/L			AW5	02/05/24	1517	2559932	5
Beta	U	3.36	+/-4.98	8.60	+/-5.02	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
906.0M, Tritium Dist, Liquid "As Received"														
Tritium	U	-0.230	+/-129	231	+/-129	300	pCi/L			HB2	02/16/24	1901	2563308	6
Tc-02-RC-MOD, Tc99, Liquid "As Received"														
Technetium-99	U	10.3	+/-10.8	18.0	+/-10.8	25.0	pCi/L			GS3	02/19/24	0711	2564391	7

The following Analytical Methods were performed

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

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Barium-133 Tracer	AN-1418 AlphaSpec Ra226, Liquid "As Received"	2558724	92.7	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2558725	82.5	(30%-110%)
Barium-133 Tracer	904.0Mod, Ra228, Liquid "As Received"	2563663	93.3	(30%-110%)
Strontium Carrier	905.0Mod, Sr90, liquid "As Received"	2562680	109	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2564391	97.9	(30%-110%)

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Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

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

Client Sample ID: MW370UG2-24
Sample ID: 652726009

Project: FRNP00507
Client ID: FRNP005

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

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

The MDC is a sample specific MDC.

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

Column headers are defined as follows:

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

GEL LABORATORIES LLC

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

Certificate of Analysis

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

Kevil, Kentucky 42053

Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

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

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

Project: FRNP00507
Client ID: FRNP005

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
AN-1418 AlphaSpec Ra226, Liquid "As Received"														
Radium-226	U	0.759	+/-1.13	1.45	+/-1.13	5.00	pCi/L			CM4	02/20/24	0832	2568311	1
Th-01-RC M, Th Isotopes, Liquid "As Received"														
Thorium-230	U	-0.0148	+/-0.705	1.59	+/-0.707	50.0	pCi/L			EJ1	02/08/24	0858	2558725	2
Thorium-232	U	-0.0215	+/-0.406	0.821	+/-0.407		pCi/L							
Rad Gas Flow Proportional Counting														
904.0Mod, Ra228, Liquid "As Received"														
Radium-228	U	-1.25	+/-2.13	4.37	+/-2.13	4.99	pCi/L			JE1	02/21/24	0828	2563663	3
905.0Mod, Sr90, liquid "As Received"														
Strontium-90	TU	-0.160	+/-2.49	4.71	+/-2.49	8.00	pCi/L			ST2	02/07/24	1521	2562680	4
9310, Alpha/Beta Activity, liquid "As Received"														
Alpha	U	1.01	+/-3.74	8.15	+/-3.74	15.0	pCi/L			AW5	02/05/24	1517	2559932	5
Beta	U	7.24	+/-6.59	10.7	+/-6.71	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
906.0M, Tritium Dist, Liquid "As Received"														
Tritium	U	62.0	+/-133	231	+/-134	300	pCi/L			HB2	02/16/24	1938	2563308	6
Tc-02-RC-MOD, Tc99, Liquid "As Received"														
Technetium-99	U	-4.40	+/-10.2	18.4	+/-10.2	25.0	pCi/L			GS3	02/19/24	0728	2564391	7

The following Analytical Methods were performed

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

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Barium-133 Tracer	AN-1418 AlphaSpec Ra226, Liquid "As Received"	2568311	98.9	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2558725	87.1	(30%-110%)
Barium-133 Tracer	904.0Mod, Ra228, Liquid "As Received"	2563663	94	(30%-110%)
Strontium Carrier	905.0Mod, Sr90, liquid "As Received"	2562680	112 *	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2564391	96	(30%-110%)

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Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

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

Client Sample ID: MW371UG2-24
Sample ID: 652726011

Project: FRNP00507
Client ID: FRNP005

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

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

The MDC is a sample specific MDC.

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

Column headers are defined as follows:

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

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Certificate of Analysis

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

Kevil, Kentucky 42053

Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

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

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

Project: FRNP00507
Client ID: FRNP005

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
AN-1418 AlphaSpec Ra226, Liquid "As Received"														
Radium-226	U	0.282	+/-0.297	0.369	+/-0.297	5.00	pCi/L			EJ1	02/10/24	0856	2558724	1
Th-01-RC M, Th Isotopes, Liquid "As Received"														
Thorium-230	U	-0.197	+/-0.700	1.83	+/-0.701	50.0	pCi/L			EJ1	02/08/24	0858	2558725	2
Thorium-232	U	-0.138	+/-0.513	1.38	+/-0.514		pCi/L							
Rad Gas Flow Proportional Counting														
904.0Mod, Ra228, Liquid "As Received"														
Radium-228	U	0.890	+/-2.12	3.80	+/-2.13	4.99	pCi/L			JE1	02/21/24	0828	2563663	3
905.0Mod, Sr90, liquid "As Received"														
Strontium-90	U	1.08	+/-3.31	5.90	+/-3.32	8.00	pCi/L			ST2	02/08/24	1056	2562680	4
9310, Alpha/Beta Activity, liquid "As Received"														
Alpha	U	2.96	+/-4.90	8.79	+/-4.92	15.0	pCi/L			AW5	02/05/24	1517	2559932	5
Beta	U	5.22	+/-8.02	13.7	+/-8.07	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
906.0M, Tritium Dist, Liquid "As Received"														
Tritium	U	-41.4	+/-126	232	+/-126	300	pCi/L			HB2	02/16/24	2015	2563308	6
Tc-02-RC-MOD, Tc99, Liquid "As Received"														
Technetium-99	U	-4.12	+/-10.2	18.4	+/-10.2	25.0	pCi/L			GS3	02/19/24	0745	2564391	7

The following Analytical Methods were performed

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

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Barium-133 Tracer	AN-1418 AlphaSpec Ra226, Liquid "As Received"	2558724	93	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2558725	85.7	(30%-110%)
Barium-133 Tracer	904.0Mod, Ra228, Liquid "As Received"	2563663	94.5	(30%-110%)
Strontium Carrier	905.0Mod, Sr90, liquid "As Received"	2562680	85.9	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2564391	96.1	(30%-110%)

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

Kevil, Kentucky 42053

Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

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

Client Sample ID: MW375UG2-24
Sample ID: 652726013

Project: FRNP00507
Client ID: FRNP005

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

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

The MDC is a sample specific MDC.

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

Column headers are defined as follows:

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

ATTACHMENT C7

GEL LABORATORIES CERTIFICATE OF ANALYSIS

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Certificate of Analysis

Report Date: April 25, 2024

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

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

Client Sample ID: MW372UG2-24
Sample ID: 652906001
Matrix: WG
Collect Date: 25-JAN-24 10:05
Receive Date: 26-JAN-24
Collector: Client

Project: FRNP00507
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
504.1/8011 Analysis of EDB/DBCP												
8011 VOA- 1,2-Dibromo-3-chloropropane "As Received"												
1,2-Dibromo-3-chloropropane	US	0.0188	0.00845	0.0188	ug/L	0.939	1	LL2	02/01/24	1344	2559322	1
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	1.02	0.330	2.00	mg/L		1	RM3	01/31/24	1644	2561367	2
Flow Injection Analysis												
9012B, Cyanide, Total "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	01/31/24	0545	2559564	3
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens		10.9	3.33	10.0	ug/L		1	RM3	01/30/24	1546	2560465	4
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	02/06/24	1913	2564209	5
SW846 9056A Anions (5 elements) "As Received"												
Bromide		0.492	0.0670	0.200	mg/L		1	CH6	01/26/24	1642	2559331	6
Fluoride	J	0.222	0.0330	4.00	mg/L		1					
Nitrate-N	J	0.845	0.0330	10.0	mg/L		1					
Chloride	BJ	37.9	1.34	250	mg/L		20	CH6	01/26/24	2221	2559331	7
Sulfate		148	2.66	8.00	mg/L		20					
Mercury Analysis-CVAA												
7470, Mercury Liquid "As Received"												
Mercury	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	JP2	01/31/24	1126	2560151	8
Metals Analysis-ICP-MS												
6020, Metals (15+ elements) "As Received"												
Nickel	J	0.000627	0.000600	0.00200	mg/L	1.00	1	RM4	02/21/24	0000	2559335	9
Antimony	U	0.00300	0.00100	0.00300	mg/L	1.00	1	RM4	02/21/24	1641	2559335	10
Boron	B	1.38	0.104	0.300	mg/L	1.00	20	RM4	02/21/24	1354	2559335	11
Calcium		71.4	1.60	4.00	mg/L	1.00	20					
Sodium		60.8	1.60	5.00	mg/L	1.00	20					
Aluminum	U	0.0500	0.0193	0.0500	mg/L	1.00	1	RM4	02/20/24	1713	2559335	12
Arsenic		0.00520	0.00200	0.00500	mg/L	1.00	1					
Barium		0.0576	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					

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

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

Client Sample ID: MW372UG2-24 Project: FRNP00507
Sample ID: 652906001 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Metals (15+ elements) "As Received"												
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					
Cobalt	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Copper	J	0.00146	0.000300	0.00200	mg/L	1.00	1					
Iron	J	0.0869	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Magnesium		25.1	0.0100	0.0300	mg/L	1.00	1					
Manganese	J	0.00199	0.00100	0.00500	mg/L	1.00	1					
Molybdenum	J	0.000268	0.000200	0.00100	mg/L	1.00	1					
Potassium		2.12	0.0800	0.300	mg/L	1.00	1					
Selenium	J	0.00155	0.00150	0.00500	mg/L	1.00	1					
Silver	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Thallium	U	0.00200	0.000600	0.00200	mg/L	1.00	1					
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1					
Vanadium	J	0.00573	0.00330	0.0200	mg/L	1.00	1					
Zinc	U	0.0200	0.00330	0.0200	mg/L	1.00	1					
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	02/21/24	1446	2559335	13
Tantalum	UN	0.00500	0.00100	0.00500	mg/L	1.00	1					
Semi-Volatiles-PCB												
8082A, PCB Liquids "As Received"												
Aroclor-1016	U	0.106	0.0354	0.106	ug/L	0.00106	1	YS1	02/16/24	1348	2568588	14
Aroclor-1221	U	0.106	0.0354	0.106	ug/L	0.00106	1					
Aroclor-1232	U	0.106	0.0354	0.106	ug/L	0.00106	1					
Aroclor-1242	U	0.106	0.0354	0.106	ug/L	0.00106	1					
Aroclor-1248	U	0.106	0.0354	0.106	ug/L	0.00106	1					
Aroclor-1254	U	0.106	0.0354	0.106	ug/L	0.00106	1					
Aroclor-1260	U	0.106	0.0354	0.106	ug/L	0.00106	1					
Aroclor-1268	U	0.106	0.0354	0.106	ug/L	0.00106	1					
Aroclor-Total	U	0.106	0.0354	0.106	ug/L	0.00106	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		438	2.38	10.0	mg/L			KLP1	02/01/24	1158	2561837	15
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												

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Address : 5600 Hobbs Road

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

Client Sample ID: MW372UG2-24 Project: FRNP00507
Sample ID: 652906001 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD	U	20.0	8.95	20.0	mg/L		1	HH2	01/29/24	1244	2559247	16
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	JM6	01/29/24	1204	2559983	17
1,1,1-Trichloroethane	UY2	1.00	0.333	1.00	ug/L		1					
1,1,2,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethylene	UY2	1.00	0.333	1.00	ug/L		1					
1,2,3-Trichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dibromoethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,4-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
2-Butanone	U	5.00	1.67	5.00	ug/L		1					
2-Hexanone	U	5.00	1.67	5.00	ug/L		1					
4-Methyl-2-pentanone	U	5.00	1.67	5.00	ug/L		1					
Acetone	JY2	3.63	1.74	5.00	ug/L		1					
Acrolein	U	5.00	1.67	5.00	ug/L		1					
Acrylonitrile	U	5.00	1.67	5.00	ug/L		1					
Benzene	U	1.00	0.333	1.00	ug/L		1					
Bromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromodichloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromoform	U	1.00	0.333	1.00	ug/L		1					
Bromomethane	UY2	1.00	0.337	1.00	ug/L		1					
Carbon disulfide	UY2	5.00	1.67	5.00	ug/L		1					
Carbon tetrachloride	UY2	1.00	0.333	1.00	ug/L		1					
Chlorobenzene	U	1.00	0.333	1.00	ug/L		1					
Chloroethane	U	1.00	0.333	1.00	ug/L		1					
Chloroform	U	1.00	0.333	1.00	ug/L		1					
Chloromethane	UY1	1.00	0.333	1.00	ug/L		1					
Dibromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromomethane	U	1.00	0.333	1.00	ug/L		1					
Ethylbenzene	UY2	1.00	0.333	1.00	ug/L		1					
Iodomethane	UY2	5.00	1.67	5.00	ug/L		1					

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

Client Sample ID: MW372UG2-24 Project: FRNP00507
Sample ID: 652906001 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
Methylene chloride	JY2	1.35	0.500	5.00	ug/L		1					
Styrene	UY2	1.00	0.333	1.00	ug/L		1					
Tetrachloroethylene	U	1.00	0.333	1.00	ug/L		1					
Toluene	U	1.00	0.333	1.00	ug/L		1					
Trichloroethylene		2.50	0.333	1.00	ug/L		1					
Trichlorofluoromethane	U	1.00	0.333	1.00	ug/L		1					
Vinyl acetate	U	5.00	1.67	5.00	ug/L		1					
Vinyl chloride	UY1	1.00	0.333	1.00	ug/L		1					
Xylenes (total)	UY2	3.00	1.00	3.00	ug/L		1					
cis-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
cis-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,4-Dichloro-2-butene	U	5.00	1.67	5.00	ug/L		1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3535A	SW3535A PCB SPE Extraction	DXF4	02/16/24	0454	2568582
SW846 8011 PREP	8011 Prep	LL2	02/01/24	1147	2559321
SW846 3005A	ICP-MS 3005A PREP	SD	01/29/24	1520	2559334
SW846 9010C Distillation	SW846 9010C Prep	ES2	01/30/24	1104	2559563
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	01/30/24	1205	2560147

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Certificate of Analysis

Report Date: April 25, 2024

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

Client Sample ID:	MW372UG2-24	Project:	FRNP00507
Sample ID:	652906001	Client ID:	FRNP005

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

The following Analytical Methods were performed:

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

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011 VOA- 1,2-Dibromo-3-chloropropane "As Received"	11.3 ug/L	6.70	168*	(56%-149%)
Decachlorobiphenyl	8082A, PCB Liquids "As Received"	0.131 ug/L	0.213	62	(30%-135%)
4cmx	8082A, PCB Liquids "As Received"	0.123 ug/L	0.213	58	(26%-108%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	50.2 ug/L	50.0	100	(74%-123%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	43.8 ug/L	50.0	88	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	43.9 ug/L	50.0	88	(77%-121%)

Notes:

Column headers are defined as follows:

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

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Certificate of Analysis

Report Date: April 25, 2024

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

Client Sample ID:	MW372UG2-24	Project:	FRNP00507
Sample ID:	652906002	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	25-JAN-24 10:05		
Receive Date:	26-JAN-24		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Dissolved Metals (3 Elements) "As Received"												
Barium		0.0559	0.000670	0.00400	mg/L	1.00	1	RM4	02/20/24	1717	2559335	1
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					
Uranium	U	0.000200	0.0000670	0.000200	mg/L	1.00	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-MS 3005A PREP	SD	01/29/24	1520	2559334
EPA 160	Laboratory Filtration	RXB5	01/26/24	1247	2559164

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3005A/6020B	

Notes:

Column headers are defined as follows:

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

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Certificate of Analysis

Report Date: April 25, 2024

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

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

Client Sample ID: MW373UG2-24
Sample ID: 652906003
Matrix: WG
Collect Date: 25-JAN-24 10:47
Receive Date: 26-JAN-24
Collector: Client

Project: FRNP00507
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
504.1/8011 Analysis of EDB/DBCP												
8011 VOA- 1,2-Dibromo-3-chloropropane "As Received"												
1,2-Dibromo-3-chloropropane	SU	0.0189	0.00851	0.0189	ug/L	0.946	1	LL2	02/01/24	1458	2559322	1
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average	J	1.37	0.330	2.00	mg/L		1	RM3	01/31/24	1717	2561367	2
Flow Injection Analysis												
9012B, Cyanide, Total "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	01/31/24	0546	2559564	3
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens		14.3	3.33	10.0	ug/L		1	RM3	01/30/24	1743	2560465	4
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	02/06/24	1952	2564209	5
SW846 9056A Anions (5 elements) "As Received"												
Bromide		0.202	0.0670	0.200	mg/L		1	CH6	01/26/24	1713	2559331	6
Fluoride	J	0.214	0.0330	4.00	mg/L		1					
Nitrate-N	J	0.732	0.0330	10.0	mg/L		1					
Chloride	JB	31.3	1.34	250	mg/L		20	CWW	01/29/24	1348	2559331	7
Sulfate		194	2.66	8.00	mg/L		20					
Mercury Analysis-CVAA												
7470, Mercury Liquid "As Received"												
Mercury	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	JP2	01/31/24	1131	2560151	8
Metals Analysis-ICP-MS												
6020, Metals (15+ elements) "As Received"												
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1	RM4	02/21/24	0008	2559335	9
Molybdenum	U	0.00100	0.000200	0.00100	mg/L	1.00	1					
Nickel	J	0.00164	0.000600	0.00200	mg/L	1.00	1					
Selenium	U	0.00500	0.00150	0.00500	mg/L	1.00	1					
Uranium	J	0.0000710	0.0000670	0.000200	mg/L	1.00	1					
Antimony	U	0.00300	0.00100	0.00300	mg/L	1.00	1	RM4	02/21/24	1645	2559335	10
Boron	B	2.22	0.104	0.300	mg/L	1.00	20	RM4	02/21/24	1356	2559335	11
Calcium		84.0	1.60	4.00	mg/L	1.00	20					
Sodium		63.7	1.60	5.00	mg/L	1.00	20					

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

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

Client Sample ID: MW373UG2-24 Project: FRNP00507
Sample ID: 652906003 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Metals (15+ elements) "As Received"												
Aluminum	U	0.0500	0.0193	0.0500	mg/L	1.00	1	RM4	02/20/24	1721	2559335	12
Arsenic		0.00644	0.00200	0.00500	mg/L	1.00	1					
Barium		0.0361	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					
Cobalt	J	0.000501	0.000300	0.00100	mg/L	1.00	1					
Copper	J	0.00116	0.000300	0.00200	mg/L	1.00	1					
Iron	J	0.0872	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Magnesium		29.9	0.0100	0.0300	mg/L	1.00	1					
Manganese		0.0593	0.00100	0.00500	mg/L	1.00	1					
Potassium		2.62	0.0800	0.300	mg/L	1.00	1					
Silver	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Thallium	U	0.00200	0.000600	0.00200	mg/L	1.00	1					
Vanadium	J	0.00715	0.00330	0.0200	mg/L	1.00	1					
Zinc	U	0.0200	0.00330	0.0200	mg/L	1.00	1					
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	02/21/24	1448	2559335	13
Tantalum	UN	0.00500	0.00100	0.00500	mg/L	1.00	1					
Semi-Volatiles-PCB												
8082A, PCB Liquids "As Received"												
Aroclor-1016	U	0.104	0.0346	0.104	ug/L	0.00104	1	YS1	02/16/24	1359	2568588	14
Aroclor-1221	U	0.104	0.0346	0.104	ug/L	0.00104	1					
Aroclor-1232	U	0.104	0.0346	0.104	ug/L	0.00104	1					
Aroclor-1242	U	0.104	0.0346	0.104	ug/L	0.00104	1					
Aroclor-1248	U	0.104	0.0346	0.104	ug/L	0.00104	1					
Aroclor-1254	U	0.104	0.0346	0.104	ug/L	0.00104	1					
Aroclor-1260	U	0.104	0.0346	0.104	ug/L	0.00104	1					
Aroclor-1268	U	0.104	0.0346	0.104	ug/L	0.00104	1					
Aroclor-Total	U	0.104	0.0346	0.104	ug/L	0.00104	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		536	2.38	10.0	mg/L			KLP1	02/01/24	1158	2561837	15
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												

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Report Date: April 25, 2024

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

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

Client Sample ID: MW373UG2-24 Project: FRNP00507
Sample ID: 652906003 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD	U	20.0	8.95	20.0	mg/L		1	HH2	01/29/24	1244	2559247	16
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	JM6	02/01/24	1303	2559983	17
1,1,1-Trichloroethane	UY2	1.00	0.333	1.00	ug/L		1					
1,1,2,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethylene	UY2	1.00	0.333	1.00	ug/L		1					
1,2,3-Trichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dibromoethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,4-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
2-Butanone	U	5.00	1.67	5.00	ug/L		1					
2-Hexanone	U	5.00	1.67	5.00	ug/L		1					
4-Methyl-2-pentanone	LU	5.00	1.67	5.00	ug/L		1					
Acetone	UY2	5.00	1.74	5.00	ug/L		1					
Acrolein	U	5.00	1.67	5.00	ug/L		1					
Acrylonitrile	U	5.00	1.67	5.00	ug/L		1					
Benzene	U	1.00	0.333	1.00	ug/L		1					
Bromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromodichloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromoform	U	1.00	0.333	1.00	ug/L		1					
Bromomethane	UY2	1.00	0.337	1.00	ug/L		1					
Carbon disulfide	UY2	5.00	1.67	5.00	ug/L		1					
Carbon tetrachloride	UY2	1.00	0.333	1.00	ug/L		1					
Chlorobenzene	U	1.00	0.333	1.00	ug/L		1					
Chloroethane	U	1.00	0.333	1.00	ug/L		1					
Chloroform	U	1.00	0.333	1.00	ug/L		1					
Chloromethane	UY1	1.00	0.333	1.00	ug/L		1					
Dibromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromomethane	U	1.00	0.333	1.00	ug/L		1					
Ethylbenzene	UY2	1.00	0.333	1.00	ug/L		1					
Iodomethane	UY2	5.00	1.67	5.00	ug/L		1					

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Certificate of Analysis

Report Date: April 25, 2024

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

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

Client Sample ID: MW373UG2-24 Project: FRNP00507
Sample ID: 652906003 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
Methylene chloride	BJY2	1.60	0.500	5.00	ug/L		1					
Styrene	UY2	1.00	0.333	1.00	ug/L		1					
Tetrachloroethylene	U	1.00	0.333	1.00	ug/L		1					
Toluene	U	1.00	0.333	1.00	ug/L		1					
Trichloroethylene		2.72	0.333	1.00	ug/L		1					
Trichlorofluoromethane	U	1.00	0.333	1.00	ug/L		1					
Vinyl acetate	U	5.00	1.67	5.00	ug/L		1					
Vinyl chloride	UY1	1.00	0.333	1.00	ug/L		1					
Xylenes (total)	UY2	3.00	1.00	3.00	ug/L		1					
cis-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
cis-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,4-Dichloro-2-butene	U	5.00	1.67	5.00	ug/L		1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3535A	SW3535A PCB SPE Extraction	DXF4	02/16/24	0454	2568582
SW846 8011 PREP	8011 Prep	LL2	02/01/24	1147	2559321
SW846 3005A	ICP-MS 3005A PREP	SD	01/29/24	1520	2559334
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	01/30/24	1205	2560147
SW846 9010C Distillation	SW846 9010C Prep	ES2	01/30/24	1104	2559563

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

Client Sample ID:	MW373UG2-24	Project:	FRNP00507
Sample ID:	652906003	Client ID:	FRNP005

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

The following Analytical Methods were performed:

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

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011 VOA- 1,2-Dibromo-3-chloropropane "As Received"	10.4 ug/L	6.75	154*	(56%-149%)
Decachlorobiphenyl	8082A, PCB Liquids "As Received"	0.146 ug/L	0.208	70	(30%-135%)
4cmx	8082A, PCB Liquids "As Received"	0.127 ug/L	0.208	61	(26%-108%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	47.4 ug/L	50.0	95	(74%-123%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	44.8 ug/L	50.0	90	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	41.6 ug/L	50.0	83	(77%-121%)

Notes:

Column headers are defined as follows:

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

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

Client Sample ID:	MW373UG2-24	Project:	FRNP00507
Sample ID:	652906004	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	25-JAN-24 10:47		
Receive Date:	26-JAN-24		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Dissolved Metals (3 Elements) "As Received"												
Barium		0.0364	0.000670	0.00400	mg/L	1.00	1	RM4	02/20/24	1725	2559335	1
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					
Uranium	J	0.0000910	0.0000670	0.000200	mg/L	1.00	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 160	Laboratory Filtration	RXB5	01/26/24	1247	2559164
SW846 3005A	ICP-MS 3005A PREP	SD	01/29/24	1520	2559334

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3005A/6020B	

Notes:

Column headers are defined as follows:

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

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Report Date: April 25, 2024

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

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

Client Sample ID: MW374UG2-24
Sample ID: 652906005
Matrix: WG
Collect Date: 25-JAN-24 11:32
Receive Date: 26-JAN-24
Collector: Client

Project: FRNP00507
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
504.1/8011 Analysis of EDB/DBCP												
8011 VOA- 1,2-Dibromo-3-chloropropane "As Received"												
1,2-Dibromo-3-chloropropane	U	0.0189	0.00850	0.0189	ug/L	0.945	1	LL2	02/01/24	1522	2559322	1
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average		2.50	0.330	2.00	mg/L		1	RM3	01/31/24	1750	2561367	2
Flow Injection Analysis												
9012B, Cyanide, Total "As Received"												
Cyanide, Total	U	0.200	0.00167	0.200	mg/L	1.00	1	AXH3	01/31/24	0547	2559564	3
Halogen Analysis												
9020B, TOX (Organic Halogen) "As Received"												
Total Organic Halogens		26.7	3.33	10.0	ug/L		1	RM3	01/31/24	1413	2561263	4
Ion Chromatography												
300.0, Iodide in Liquid "As Received"												
Iodide	U	0.500	0.167	0.500	mg/L		1	TXT1	02/06/24	2005	2564209	5
SW846 9056A Anions (5 elements) "As Received"												
Bromide		0.488	0.0670	0.200	mg/L		1	CH6	01/26/24	1743	2559331	6
Fluoride	J	0.281	0.0330	4.00	mg/L		1					
Nitrate-N	J	0.329	0.0330	10.0	mg/L		1					
Sulfate		15.4	0.133	0.400	mg/L		1					
Chloride	BJ	44.8	0.670	250	mg/L		10	CH6	01/26/24	2323	2559331	7
Mercury Analysis-CVAA												
7470, Mercury Liquid "As Received"												
Mercury	U	0.000200	0.0000670	0.000200	mg/L	1.00	1	JP2	01/31/24	1133	2560151	8
Metals Analysis-ICP-MS												
6020, Metals (15+ elements) "As Received"												
Nickel	U	0.00200	0.000600	0.00200	mg/L	1.00	1	RM4	02/21/24	0016	2559335	9
Sodium		128	1.60	5.00	mg/L	1.00	20	RM4	02/21/24	1359	2559335	10
Antimony	U	0.00300	0.00100	0.00300	mg/L	1.00	1	RM4	02/21/24	1649	2559335	11
Rhodium	U	0.00500	0.00160	0.00500	mg/L	1.00	1	PRB	02/21/24	1450	2559335	12
Tantalum	UN	0.00500	0.00100	0.00500	mg/L	1.00	1					
Aluminum		0.0750	0.0193	0.0500	mg/L	1.00	1	RM4	02/20/24	1729	2559335	13
Arsenic	J	0.00429	0.00200	0.00500	mg/L	1.00	1					
Barium		0.153	0.000670	0.00400	mg/L	1.00	1					
Beryllium	U	0.000500	0.000200	0.000500	mg/L	1.00	1					

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Certificate of Analysis

Report Date: April 25, 2024

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

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

Client Sample ID: MW374UG2-24 Project: FRNP00507
Sample ID: 652906005 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Metals (15+ elements) "As Received"												
Cadmium	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Calcium		24.7	0.0800	0.200	mg/L	1.00	1					
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					
Cobalt	J	0.000662	0.000300	0.00100	mg/L	1.00	1					
Copper	J	0.000664	0.000300	0.00200	mg/L	1.00	1					
Iron		0.854	0.0330	0.100	mg/L	1.00	1					
Lead	U	0.00200	0.000500	0.00200	mg/L	1.00	1					
Magnesium		6.28	0.0100	0.0300	mg/L	1.00	1					
Manganese		0.198	0.00100	0.00500	mg/L	1.00	1					
Molybdenum	J	0.000330	0.000200	0.00100	mg/L	1.00	1					
Potassium		0.421	0.0800	0.300	mg/L	1.00	1					
Selenium		0.00576	0.00150	0.00500	mg/L	1.00	1					
Silver	U	0.00100	0.000300	0.00100	mg/L	1.00	1					
Thallium	U	0.00200	0.000600	0.00200	mg/L	1.00	1					
Uranium		0.000316	0.0000670	0.000200	mg/L	1.00	1					
Vanadium	J	0.00380	0.00330	0.0200	mg/L	1.00	1					
Zinc	U	0.0200	0.00330	0.0200	mg/L	1.00	1					
Boron	B	0.0160	0.00520	0.0150	mg/L	1.00	1	RM4	02/21/24	1309	2559335	14
Semi-Volatiles-PCB												
8082A, PCB Liquids "As Received"												
Aroclor-1016	U	0.114	0.0381	0.114	ug/L	0.00114	1	YS1	02/16/24	1410	2568588	15
Aroclor-1221	U	0.114	0.0381	0.114	ug/L	0.00114	1					
Aroclor-1232	U	0.114	0.0381	0.114	ug/L	0.00114	1					
Aroclor-1242	U	0.114	0.0381	0.114	ug/L	0.00114	1					
Aroclor-1248	U	0.114	0.0381	0.114	ug/L	0.00114	1					
Aroclor-1254	U	0.114	0.0381	0.114	ug/L	0.00114	1					
Aroclor-1260	U	0.114	0.0381	0.114	ug/L	0.00114	1					
Aroclor-1268	U	0.114	0.0381	0.114	ug/L	0.00114	1					
Aroclor-Total	U	0.114	0.0381	0.114	ug/L	0.00114	1					
Solids Analysis												
160.1, Dissolved Solids "As Received"												
Total Dissolved Solids		393	2.38	10.0	mg/L			KLP1	02/01/24	1158	2561837	16
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												

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Address : 5600 Hobbs Road

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

Client Sample ID: MW374UG2-24 Project: FRNP00507
Sample ID: 652906005 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Spectrometric Analysis												
410.4, Chem. Oxygen Demand "As Received"												
COD	U	20.0	8.95	20.0	mg/L		1	HH2	01/29/24	1244	2559247	17
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	JM6	02/01/24	1331	2559983	18
1,1,1-Trichloroethane	UY2	1.00	0.333	1.00	ug/L		1					
1,1,2,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethylene	UY2	1.00	0.333	1.00	ug/L		1					
1,2,3-Trichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dibromoethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,4-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
2-Butanone	U	5.00	1.67	5.00	ug/L		1					
2-Hexanone	U	5.00	1.67	5.00	ug/L		1					
4-Methyl-2-pentanone	LU	5.00	1.67	5.00	ug/L		1					
Acetone	UY2	5.00	1.74	5.00	ug/L		1					
Acrolein	U	5.00	1.67	5.00	ug/L		1					
Acrylonitrile	U	5.00	1.67	5.00	ug/L		1					
Benzene	U	1.00	0.333	1.00	ug/L		1					
Bromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromodichloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromoform	U	1.00	0.333	1.00	ug/L		1					
Bromomethane	UY2	1.00	0.337	1.00	ug/L		1					
Carbon disulfide	UY2	5.00	1.67	5.00	ug/L		1					
Carbon tetrachloride	UY2	1.00	0.333	1.00	ug/L		1					
Chlorobenzene	U	1.00	0.333	1.00	ug/L		1					
Chloroethane	U	1.00	0.333	1.00	ug/L		1					
Chloroform	U	1.00	0.333	1.00	ug/L		1					
Chloromethane	UY1	1.00	0.333	1.00	ug/L		1					
Dibromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromomethane	U	1.00	0.333	1.00	ug/L		1					
Ethylbenzene	UY2	1.00	0.333	1.00	ug/L		1					
Iodomethane	UY2	5.00	1.67	5.00	ug/L		1					

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Report Date: April 25, 2024

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

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

Client Sample ID: MW374UG2-24 Project: FRNP00507
Sample ID: 652906005 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
Methylene chloride	BJY2	1.58	0.500	5.00	ug/L		1					
Styrene	UY2	1.00	0.333	1.00	ug/L		1					
Tetrachloroethylene	U	1.00	0.333	1.00	ug/L		1					
Toluene	U	1.00	0.333	1.00	ug/L		1					
Trichloroethylene	U	1.00	0.333	1.00	ug/L		1					
Trichlorofluoromethane	U	1.00	0.333	1.00	ug/L		1					
Vinyl acetate	U	5.00	1.67	5.00	ug/L		1					
Vinyl chloride	UY1	1.00	0.333	1.00	ug/L		1					
Xylenes (total)	UY2	3.00	1.00	3.00	ug/L		1					
cis-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
cis-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,4-Dichloro-2-butene	U	5.00	1.67	5.00	ug/L		1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	JM13	01/30/24	1205	2560147
SW846 3005A	ICP-MS 3005A PREP	SD	01/29/24	1520	2559334
SW846 9010C Distillation	SW846 9010C Prep	ES2	01/30/24	1104	2559563
SW846 8011 PREP	8011 Prep	LL2	02/01/24	1147	2559321
SW846 3535A	SW3535A PCB SPE Extraction	DXF4	02/16/24	0454	2568582

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

Client Sample ID:	MW374UG2-24	Project:	FRNP00507
Sample ID:	652906005	Client ID:	FRNP005

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

The following Analytical Methods were performed:

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

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011 VOA- 1,2-Dibromo-3-chloropropane "As Received"	6.40 ug/L	6.75	95	(56%-149%)
Decachlorobiphenyl	8082A, PCB Liquids "As Received"	0.0876 ug/L	0.229	38	(30%-135%)
4cmx	8082A, PCB Liquids "As Received"	0.136 ug/L	0.229	59	(26%-108%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	48.1 ug/L	50.0	96	(74%-123%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	43.9 ug/L	50.0	88	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	45.0 ug/L	50.0	90	(77%-121%)

Notes:

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

Client Sample ID:	MW374UG2-24	Project:	FRNP00507
Sample ID:	652906005	Client ID:	FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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Report Date: April 25, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-U Landfill Quarterly(UG24-02)

Client Sample ID:	MW374UG2-24	Project:	FRNP00507
Sample ID:	652906006	Client ID:	FRNP005
Matrix:	WG		
Collect Date:	25-JAN-24 11:32		
Receive Date:	26-JAN-24		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020, Dissolved Metals (3 Elements) "As Received"												
Barium		0.149	0.000670	0.00400	mg/L	1.00	1	RM4	02/20/24	1732	2559335	1
Chromium	U	0.0100	0.00300	0.0100	mg/L	1.00	1					
Uranium		0.000314	0.0000670	0.000200	mg/L	1.00	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-MS 3005A PREP	SD	01/29/24	1520	2559334
EPA 160	Laboratory Filtration	RXB5	01/26/24	1247	2559164

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3005A/6020B	

Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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Report Date: April 25, 2024

Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: TB3UG2-24
Sample ID: 652906007
Matrix: WATER
Collect Date: 25-JAN-24 06:40
Receive Date: 26-JAN-24
Collector: Client

Project: FRNP00507
Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
504.1/8011 Analysis of EDB/DBCP												
8011 VOA- 1,2-Dibromo-3-chloropropane "As Received"												
1,2-Dibromo-3-chloropropane	U	0.0192	0.00865	0.0192	ug/L	0.961	1	LL2	02/01/24	1547	2559322	1
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
1,1,1,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1	JM6	01/29/24	1326	2559983	2
1,1,1-Trichloroethane	UY2	1.00	0.333	1.00	ug/L		1					
1,1,2,2-Tetrachloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1,2-Trichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,1-Dichloroethylene	UY2	1.00	0.333	1.00	ug/L		1					
1,2,3-Trichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dibromoethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloroethane	U	1.00	0.333	1.00	ug/L		1					
1,2-Dichloropropane	U	1.00	0.333	1.00	ug/L		1					
1,4-Dichlorobenzene	U	1.00	0.333	1.00	ug/L		1					
2-Butanone	U	5.00	1.67	5.00	ug/L		1					
2-Hexanone	U	5.00	1.67	5.00	ug/L		1					
4-Methyl-2-pentanone	U	5.00	1.67	5.00	ug/L		1					
Acetone	UY2	5.00	1.74	5.00	ug/L		1					
Acrolein	U	5.00	1.67	5.00	ug/L		1					
Acrylonitrile	U	5.00	1.67	5.00	ug/L		1					
Benzene	U	1.00	0.333	1.00	ug/L		1					
Bromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromodichloromethane	U	1.00	0.333	1.00	ug/L		1					
Bromoform	U	1.00	0.333	1.00	ug/L		1					
Bromomethane	UY2	1.00	0.337	1.00	ug/L		1					
Carbon disulfide	UY2	5.00	1.67	5.00	ug/L		1					
Carbon tetrachloride	UY2	1.00	0.333	1.00	ug/L		1					
Chlorobenzene	U	1.00	0.333	1.00	ug/L		1					
Chloroethane	U	1.00	0.333	1.00	ug/L		1					
Chloroform	U	1.00	0.333	1.00	ug/L		1					
Chloromethane	UY1	1.00	0.333	1.00	ug/L		1					
Dibromochloromethane	U	1.00	0.333	1.00	ug/L		1					
Dibromomethane	U	1.00	0.333	1.00	ug/L		1					
Ethylbenzene	UY2	1.00	0.333	1.00	ug/L		1					
Iodomethane	UY2	5.00	1.67	5.00	ug/L		1					

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Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: TB3UG2-24 Project: FRNP00507
Sample ID: 652906007 Client ID: FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
8260D, Volatiles- full suite "As Received"												
Methylene chloride	JY2	1.42	0.500	5.00	ug/L		1					
Styrene	UY2	1.00	0.333	1.00	ug/L		1					
Tetrachloroethylene	U	1.00	0.333	1.00	ug/L		1					
Toluene	U	1.00	0.333	1.00	ug/L		1					
Trichloroethylene	U	1.00	0.333	1.00	ug/L		1					
Trichlorofluoromethane	U	1.00	0.333	1.00	ug/L		1					
Vinyl acetate	U	5.00	1.67	5.00	ug/L		1					
Vinyl chloride	UY1	1.00	0.333	1.00	ug/L		1					
Xylenes (total)	UY2	3.00	1.00	3.00	ug/L		1					
cis-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
cis-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,2-Dichloroethylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,3-Dichloropropylene	U	1.00	0.333	1.00	ug/L		1					
trans-1,4-Dichloro-2-butene	U	5.00	1.67	5.00	ug/L		1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 8011 PREP	8011 Prep	LL2	02/01/24	1147	2559321

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 8011	
2	SW846 8260D	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chloro-2-fluorobenzene	8011 VOA- 1,2-Dibromo-3-chloropropane "As Received"	8.14 ug/L	6.87	119	(56%-149%)
Bromofluorobenzene	8260D, Volatiles- full suite "As Received"	49.3 ug/L	50.0	99	(74%-123%)
1,2-Dichloroethane-d4	8260D, Volatiles- full suite "As Received"	44.4 ug/L	50.0	89	(76%-127%)
Toluene-d8	8260D, Volatiles- full suite "As Received"	44.7 ug/L	50.0	89	(77%-121%)

Notes:

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Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-U Landfill Quarterly(UG24-02)

Client Sample ID:	TB3UG2-24	Project:	FRNP00507
Sample ID:	652906007	Client ID:	FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road

Kevil, Kentucky 42053

Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW372UG2-24
Sample ID: 652906001
Matrix: WG
Collect Date: 25-JAN-24
Receive Date: 26-JAN-24
Collector: Client

Project: FRNP00507
Client ID: FRNP005

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
AN-1418 AlphaSpec Ra226, Liquid "As Received"														
Radium-226	U	0.524	+/-0.517	0.646	+/-0.518	5.00	pCi/L			CM4	02/12/24	1142	2559993	1
Th-01-RC M, Th Isotopes, Liquid "As Received"														
Thorium-230	U	0.827	+/-1.07	1.63	+/-1.08	50.0	pCi/L			EJ1	02/03/24	0926	2559991	2
Thorium-232	U	0.221	+/-0.666	1.19	+/-0.667		pCi/L							
Rad Gas Flow Proportional Counting														
904.0Mod, Ra228, Liquid "As Received"														
Radium-228	U	0.860	+/-2.24	4.09	+/-2.26	4.99	pCi/L			JE1	02/19/24	1059	2563688	3
905.0Mod, Sr90, liquid "As Received"														
Strontium-90	U	0.804	+/-3.00	5.45	+/-3.00	8.00	pCi/L			ST2	02/07/24	1521	2562680	4
9310, Alpha/Beta Activity, liquid "As Received"														
Alpha	U	6.28	+/-7.13	11.7	+/-7.21	15.0	pCi/L			KP1	02/05/24	1803	2559936	5
Beta		26.5	+/-8.54	10.8	+/-9.61	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
906.0M, Tritium Dist, Liquid "As Received"														
Tritium	U	3.58	+/-129	230	+/-129	300	pCi/L			HB2	02/22/24	0257	2563918	6
Tc-02-RC-MOD, Tc99, Liquid "As Received"														
Technetium-99		38.9	+/-11.4	16.3	+/-12.2	25.0	pCi/L			GS3	02/20/24	1023	2564441	7

The following Analytical Methods were performed

Method	Description
1	Eichrom Industries, AN-1418
2	DOE EML HASL-300, Th-01-RC Modified
3	EPA 904.0/SW846 9320 Modified
4	EPA 905.0 Modified/DOE RP501 Rev. 1 Modified
5	EPA 900.0/SW846 9310
6	EPA 906.0 Modified
7	DOE EML HASL-300, Tc-02-RC Modified

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Barium-133 Tracer	AN-1418 AlphaSpec Ra226, Liquid "As Received"	2559993	97.2	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2559991	92.8	(30%-110%)
Barium-133 Tracer	904.0Mod, Ra228, Liquid "As Received"	2563688	84	(30%-110%)
Strontium Carrier	905.0Mod, Sr90, liquid "As Received"	2562680	99	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2564441	99.7	(30%-110%)

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Address : 5600 Hobbs Road

Kevil, Kentucky 42053

Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW372UG2-24
Sample ID: 652906001

Project: FRNP00507
Client ID: FRNP005

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

The MDC is a sample specific MDC.

TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
Lc/LC: Critical Level
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Mtd.: Method
PF: Prep Factor
RL: Reporting Limit
TPU: Total Propagated Uncertainty

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Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW373UG2-24
Sample ID: 652906003
Matrix: WG
Collect Date: 25-JAN-24
Receive Date: 26-JAN-24
Collector: Client

Project: FRNP00507
Client ID: FRNP005

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
AN-1418 AlphaSpec Ra226, Liquid "As Received"														
Radium-226	U	0.0260	+/-0.264	0.553	+/-0.264	5.00	pCi/L			CM4	02/12/24	1142	2559993	1
Th-01-RC M, Th Isotopes, Liquid "As Received"														
Thorium-230	U	1.15	+/-1.80	2.82	+/-1.81	50.0	pCi/L			EJ1	02/03/24	0926	2559991	2
Thorium-232	U	-0.284	+/-0.792	2.26	+/-0.794		pCi/L							
Rad Gas Flow Proportional Counting														
904.0Mod, Ra228, Liquid "As Received"														
Radium-228	U	2.49	+/-2.07	3.25	+/-2.17	4.99	pCi/L			JE1	02/19/24	1059	2563688	3
905.0Mod, Sr90, liquid "As Received"														
Strontium-90	U	2.98	+/-3.39	5.70	+/-3.42	8.00	pCi/L			ST2	02/07/24	1521	2562680	4
9310, Alpha/Beta Activity, liquid "As Received"														
Alpha	U	2.87	+/-4.96	9.17	+/-4.98	15.0	pCi/L			KP1	02/05/24	1803	2559936	5
Beta	U	2.38	+/-5.95	10.6	+/-5.96	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
906.0M, Tritium Dist, Liquid "As Received"														
Tritium	U	98.0	+/-140	238	+/-141	300	pCi/L			HB2	02/20/24	0916	2563918	6
Tc-02-RC-MOD, Tc99, Liquid "As Received"														
Technetium-99	U	6.70	+/-9.63	16.4	+/-9.66	25.0	pCi/L			GS3	02/20/24	1040	2564441	7

The following Analytical Methods were performed

Method	Description
1	Eichrom Industries, AN-1418
2	DOE EML HASL-300, Th-01-RC Modified
3	EPA 904.0/SW846 9320 Modified
4	EPA 905.0 Modified/DOE RP501 Rev. 1 Modified
5	EPA 900.0/SW846 9310
6	EPA 906.0 Modified
7	DOE EML HASL-300, Tc-02-RC Modified

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Barium-133 Tracer	AN-1418 AlphaSpec Ra226, Liquid "As Received"	2559993	95.2	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2559991	48.5	(30%-110%)
Barium-133 Tracer	904.0Mod, Ra228, Liquid "As Received"	2563688	90	(30%-110%)
Strontium Carrier	905.0Mod, Sr90, liquid "As Received"	2562680	96.4	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2564441	99.6	(30%-110%)

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Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW373UG2-24
Sample ID: 652906003

Project: FRNP00507
Client ID: FRNP005

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

The MDC is a sample specific MDC.

TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
Lc/LC: Critical Level
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Mtd.: Method
PF: Prep Factor
RL: Reporting Limit
TPU: Total Propagated Uncertainty

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Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW374UG2-24
Sample ID: 652906005
Matrix: WG
Collect Date: 25-JAN-24
Receive Date: 26-JAN-24
Collector: Client

Project: FRNP00507
Client ID: FRNP005

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
AN-1418 AlphaSpec Ra226, Liquid "As Received"														
Radium-226	U	0.381	+/-0.379	0.507	+/-0.380	5.00	pCi/L			CM4	02/10/24	0856	2559993	1
Th-01-RC M, Th Isotopes, Liquid "As Received"														
Thorium-230	U	0.657	+/-0.970	1.53	+/-0.978	50.0	pCi/L			EJ1	02/03/24	0926	2559991	2
Thorium-232	U	0.0744	+/-0.530	1.06	+/-0.531		pCi/L							
Rad Gas Flow Proportional Counting														
904.0Mod, Ra228, Liquid "As Received"														
Radium-228	U	1.78	+/-2.20	3.74	+/-2.25	4.99	pCi/L			JE1	02/19/24	1100	2563688	3
905.0Mod, Sr90, liquid "As Received"														
Strontium-90	U	-1.64	+/-3.00	5.94	+/-3.00	8.00	pCi/L			ST2	02/07/24	1522	2562680	4
9310, Alpha/Beta Activity, liquid "As Received"														
Alpha	U	-0.395	+/-3.68	9.11	+/-3.68	15.0	pCi/L			KP1	02/05/24	1803	2559936	5
Beta	U	-2.43	+/-4.58	9.46	+/-4.58	50.0	pCi/L							
Rad Liquid Scintillation Analysis														
906.0M, Tritium Dist, Liquid "As Received"														
Tritium	U	15.3	+/-133	239	+/-133	300	pCi/L			HB2	02/20/24	0947	2563918	6
Tc-02-RC-MOD, Tc99, Liquid "As Received"														
Technetium-99	U	3.19	+/-9.57	16.7	+/-9.58	25.0	pCi/L			GS3	02/20/24	1057	2564441	7

The following Analytical Methods were performed

Method	Description
1	Eichrom Industries, AN-1418
2	DOE EML HASL-300, Th-01-RC Modified
3	EPA 904.0/SW846 9320 Modified
4	EPA 905.0 Modified/DOE RP501 Rev. 1 Modified
5	EPA 900.0/SW846 9310
6	EPA 906.0 Modified
7	DOE EML HASL-300, Tc-02-RC Modified

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Barium-133 Tracer	AN-1418 AlphaSpec Ra226, Liquid "As Received"	2559993	96	(30%-110%)
Thorium-229 Tracer	Th-01-RC M, Th Isotopes, Liquid "As Received"	2559991	94.6	(30%-110%)
Barium-133 Tracer	904.0Mod, Ra228, Liquid "As Received"	2563688	84.8	(30%-110%)
Strontium Carrier	905.0Mod, Sr90, liquid "As Received"	2562680	88.5	(30%-110%)
Technetium-99m Tracer	Tc-02-RC-MOD, Tc99, Liquid "As Received"	2564441	98.1	(30%-110%)

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Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

Project: C-746-U Landfill Quarterly(UG24-02)

Client Sample ID: MW374UG2-24
Sample ID: 652906005

Project: FRNP00507
Client ID: FRNP005

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

The MDC is a sample specific MDC.

TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
Lc/LC: Critical Level
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Mtd.: Method
PF: Prep Factor
RL: Reporting Limit
TPU: Total Propagated Uncertainty

APPENDIX D

STATISTICAL ANALYSES AND QUALIFICATION STATEMENT

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GROUNDWATER STATISTICAL COMMENTS

Introduction

The statistical analyses conducted on the first 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 first quarter 2024 data used to conduct the statistical analyses were collected in January 2024. The statistical analyses for this report first used data from the initial eight quarters that had been sampled for each parameter to develop the historical background value, beginning with the first two baseline sampling events in 2002, when available. Then a second set of statistical analyses, using the last eight quarters, was run on analytes that had at least one compliance well that exceeded the historical background. The sampling dates associated with both the historical and the current background data are listed next to the result in the statistical analysis sheets of this appendix.

Statistical Analysis Process

Constituents of concern that have Kentucky maximum contaminant levels (MCLs) and results that do not exceed their respective MCL are not included in the statistical evaluation. Parameters that have MCLs can be found in 401 *KAR* 47:030 § 6. For parameters with no established MCL and for those parameters that exceed their MCLs, the most recent results are compared to historical background concentrations, as follows: the data are divided into censored and uncensored observations. The one-sided tolerance interval statistical test is conducted only on parameters that have at least one uncensored (detected) observation. The current result is compared to the results of the one-sided tolerance interval statistical test to determine if the current data exceed the historical background concentration calculated using the first eight quarters of data. The tolerance interval statistical analysis is conducted separately for each parameter in each well (no pooling of downgradient data).

For the statistical analysis of pH, a two-sided tolerance interval statistical test is conducted for pH. The test well results are compared to both an upper and lower tolerance limit (TL) to determine if statistically significant deviations in concentrations exist with respect to upgradient (background) well data from the first eight quarters.

Statistical analyses are performed on the first eight quarters of historical background data, not on the data for the current quarter. Once a statistical result is obtained using the background data, the result for the current quarter is compared to that value. If the value is exceeded, the well is considered to have an exceedance of the statistically derived historical background concentration.

Exhibit D.1. Station Identification for Monitoring Wells Analyzed

Station	Type	Groundwater Unit
MW220	BG	URGA
MW221	SG	URGA
MW222	SG	URGA
MW223	SG	URGA
MW224	SG	URGA
MW369	TW	URGA
MW370	TW	LRGA
MW372	TW	URGA
MW373	TW	LRGA
MW384	SG	URGA
MW385	SG	LRGA
MW386[a]	SG	UCRS
MW387	TW	URGA
MW388	TW	LRGA
MW389[a,b]	TW	UCRS
MW390[a,b]	TW	UCRS
MW391	TW	URGA
MW392	TW	LRGA
MW393[a]	TW	UCRS
MW394	BG	URGA
MW395	BG	LRGA
MW396[a]	BG	UCRS
MW397	BG	LRGA

[a] The gradients in UCRS wells are downward. The UCRS wells identified as up-, side-, or downgradient are those wells located in the same general direction as the RGA wells considered to be up-, side-, or downgradient.
[b] Well was dry this quarter and a groundwater sample could not be collected.
BG: upgradient or background wells
TW: compliance or test wells
SG: sidegradient wells

For those parameters that are determined to exceed the historical background concentration, a second one-sided tolerance interval statistical test, or a two-sided tolerance interval statistical test in the case of pH, is conducted. The second one-sided tolerance interval statistical test is conducted to determine whether the current concentration in downgradient wells exceeds the current background, as determined by a comparison against the statistically derived upper TL using the most recent eight quarters of data for the relevant background wells. The tolerance interval statistical analysis is conducted separately for each parameter in each well (no pooling of downgradient data).

For the statistical analysis of pH, a two-sided tolerance interval statistical test is conducted, if required. The test well pH results are compared to both an upper and lower TL to determine if the current pH is different from the current background level to a statistically significant level. Statistical analyses are performed on the last eight quarters of background data, not on the data for the current quarter. Once a statistical result is obtained using the background data, the result for the current quarter is compared to that value. If the value is exceeded (or is below the LTL for pH), the well has a statistically significant difference in concentration compared to the current background concentration.

A stepwise list of the one-sided tolerance interval statistical procedure applied to the data is summarized below.[1]

1. The TL is calculated for the background data (first using the first eight quarters, then using the last eight quarters).

    - For each parameter, the background data are used to establish a baseline. On this data set, the mean (X) and the standard deviation (S) are computed.

    - The data set is checked for normality using coefficient of variation (CV). If CV ≤ 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, first 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 $TL = X + (K \times S)$

lower $TL = X - (K \times S)$

Exhibit D.2. List of Parameters Tested Using the One-Sided Upper Tolerance Level Test with Historical Background

Parameters
Acetone
Aluminum
Boron
Bromide
Calcium
Chemical Oxygen Demand (COD)
Chloride
cis-1,2-Dichloroethene
Cobalt
Conductivity
Copper
Dissolved Oxygen
Dissolved Solids
Iodide
Iron
Magnesium
Manganese
Methylene Chloride
Molybdenum
Nickel
Oxidation-Reduction Potential[1]
pH[2]
Potassium
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	3	3	0	No
1,1,2,2-Tetrachloroethane	3	3	0	No
1,1,2-Trichloroethane	3	3	0	No
1,1-Dichloroethane	3	3	0	No
1,2,3-Trichloropropane	3	3	0	No
1,2-Dibromo-3-chloropropane	3	3	0	No
1,2-Dibromoethane	3	3	0	No
1,2-Dichlorobenzene	3	3	0	No
1,2-Dichloropropane	3	3	0	No
2-Butanone	3	3	0	No
2-Hexanone	3	3	0	No
4-Methyl-2-pentanone	3	3	0	No
Acetone	3	3	0	No
Acrolein	3	3	0	No
Acrylonitrile	3	3	0	No
Aluminum	**3**	**2**	**1**	**Yes**
Antimony	3	3	0	No
Beryllium	3	3	0	No
Boron	**3**	**0**	**3**	**Yes**
Bromide	**3**	**0**	**3**	**Yes**
Bromochloromethane	3	3	0	No
Bromodichloromethane	3	3	0	No
Bromoform	3	3	0	No
Bromomethane	3	3	0	No
Calcium	**3**	**0**	**3**	**Yes**
Carbon disulfide	3	3	0	No
Chemical Oxygen Demand (COD)	**3**	**2**	**1**	**Yes**
Chloride	**3**	**1**	**2**	**Yes**
Chlorobenzene	3	3	0	No
Chloroethane	3	3	0	No
Chloroform	3	3	0	No
Chloromethane	3	3	0	No
cis-1,2-Dichloroethene	3	3	0	No
cis-1,3-Dichloropropene	3	3	0	No
Cobalt	**3**	**1**	**2**	**Yes**
Conductivity	**3**	**0**	**3**	**Yes**
Copper	**3**	**0**	**3**	**Yes**
Cyanide	3	3	0	No
Dibromochloromethane	3	3	0	No
Dibromomethane	3	3	0	No
Dimethylbenzene, Total	3	3	0	No
Dissolved Oxygen	**3**	**0**	**3**	**Yes**
Dissolved Solids	**3**	**0**	**3**	**Yes**
Ethylbenzene	3	3	0	No
Iodide	**3**	**2**	**1**	**Yes**

Exhibit D.3. Summary of Censored and Uncensored Data—UCRS (Continued)

Parameters	Observations	Censored Observation	Uncensored Observation	Statistical Analysis?
Iodomethane	3	3	0	No
Iron	**3**	**0**	**3**	**Yes**
Magnesium	**3**	**0**	**3**	**Yes**
Manganese	**3**	**0**	**3**	**Yes**
Methylene chloride	**3**	**2**	**1**	**Yes**
Molybdenum	**3**	**0**	**3**	**Yes**
Nickel	**3**	**1**	**2**	**Yes**
Oxidation-Reduction Potential	**3**	**0**	**3**	**Yes**
pH	**3**	**0**	**3**	**Yes**
Potassium	**3**	**0**	**3**	**Yes**
Radium-226	3	3	0	No
Rhodium	3	3	0	No
Sodium	**3**	**0**	**3**	**Yes**
Styrene	3	3	0	No
Sulfate	**3**	**0**	**3**	**Yes**
Tantalum	3	3	0	No
Technetium-99	3	3	0	No
Tetrachloroethene	3	3	0	No
Thallium	3	3	0	No
Thorium-230	3	3	0	No
Toluene	3	3	0	No
Total Organic Carbon (TOC)	**3**	**0**	**3**	**Yes**
Total Organic Halides (TOX)	**3**	**0**	**3**	**Yes**
trans-1,2-Dichloroethene	3	3	0	No
trans-1,3-Dichloropropene	3	3	0	No
trans-1,4-Dichloro-2-Butene	3	3	0	No
Trichlorofluoromethane	3	3	0	No
Vanadium	**3**	**2**	**1**	**Yes**
Vinyl Acetate	3	3	0	No
Zinc	**3**	**2**	**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**	**9**	**2**	**Yes**
Acrolein	11	11	0	No
Acrylonitrile	11	11	0	No
Aluminum	**11**	**6**	**5**	**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	11	0	No
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**	**8**	**3**	**Yes**
Conductivity	**11**	**0**	**11**	**Yes**
Copper	**11**	**0**	**11**	**Yes**
Cyanide	11	11	0	No
Dibromochloromethane	11	11	0	No
Dibromomethane	11	11	0	No
Dimethylbenzene, Total	11	11	0	No
Dissolved Oxygen	**11**	**0**	**11**	**Yes**
Dissolved Solids	**11**	**0**	**11**	**Yes**
Ethylbenzene	11	11	0	No
Iodide	11	11	0	No

Exhibit D.4. Summary of Censored and Uncensored Data—URGA (Continued)

Parameters	Observations	Censored Observation	Uncensored Observation	Statistical Analysis?
Iodomethane	11	11	0	No
Iron	**11**	**1**	**10**	**Yes**
Magnesium	**11**	**0**	**11**	**Yes**
Manganese	**11**	**1**	**10**	**Yes**
Methylene chloride	**11**	**8**	**3**	**Yes**
Molybdenum	**11**	**5**	**6**	**Yes**
Nickel	**11**	**3**	**8**	**Yes**
Oxidation-Reduction Potential	**11**	**0**	**11**	**Yes**
pH	**11**	**0**	**11**	**Yes**
Potassium	**11**	**0**	**11**	**Yes**
Radium-226	11	11	0	No
Rhodium	11	11	0	No
Sodium	**11**	**0**	**11**	**Yes**
Styrene	11	11	0	No
Sulfate	**11**	**0**	**11**	**Yes**
Tantalum	11	11	0	No
Technetium-99	**11**	**7**	**4**	**Yes**
Tetrachloroethene	11	11	0	No
Thallium	11	11	0	No
Thorium-230	11	11	0	No
Toluene	11	11	0	No
Total Organic Carbon (TOC)	**11**	**0**	**11**	**Yes**
Total Organic Halides (TOX)	**11**	**1**	**10**	**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
Trichloroethene	**11**	**5**	**6**	**Yes**
Trichlorofluoromethane	11	11	0	No
Vanadium	**11**	**5**	**6**	**Yes**
Vinyl Acetate	11	11	0	No
Zinc	**11**	**5**	**6**	**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**	**6**	**1**	**Yes**
Acrolein	7	7	0	No
Acrylonitrile	7	7	0	No
Aluminum	**7**	**4**	**3**	**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	7	0	No
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**	**5**	**2**	**Yes**
Conductivity	**7**	**0**	**7**	**Yes**
Copper	**7**	**1**	**6**	**Yes**
Cyanide	7	7	0	No
Dibromochloromethane	7	7	0	No
Dibromomethane	7	7	0	No
Dimethylbenzene, Total	7	7	0	No
Dissolved Oxygen	**7**	**0**	**7**	**Yes**
Dissolved Solids	**7**	**0**	**7**	**Yes**
Ethylbenzene	7	7	0	No
Iodide	7	7	0	No
Iodomethane	7	7	0	No
Iron	**7**	**2**	**5**	**Yes**
Magnesium	**7**	**0**	**7**	**Yes**

Exhibit D.5. Summary of Censored and Uncensored Data—LRGA (Continued)

Parameters	Observations	Censored Observation	Uncensored Observation	Statistical Analysis?
Manganese	**7**	**1**	**6**	**Yes**
Methylene chloride	**7**	**4**	**3**	**Yes**
Molybdenum	**7**	**5**	**2**	**Yes**
Nickel	**7**	**4**	**3**	**Yes**
Oxidation-Reduction Potential	**7**	**0**	**7**	**Yes**
pH	**7**	**0**	**7**	**Yes**
Potassium	**7**	**0**	**7**	**Yes**
Radium-226	7	7	0	No
Rhodium	7	7	0	No
Sodium	**7**	**0**	**7**	**Yes**
Styrene	7	7	0	No
Sulfate	**7**	**0**	**7**	**Yes**
Tantalum	7	7	0	No
Technetium-99	**7**	**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**	**5**	**2**	**Yes**
Vinyl Acetate	7	7	0	No
Zinc	**7**	**5**	**2**	**Yes**

Bold denotes parameters with at least one uncensored observation.

Discussion of Results from Historical Background Comparison

For the UCRS, URGA, and LRGA, the concentrations of this quarter were compared to the results of the one-sided tolerance interval tests that were calculated using historical background and presented in Attachment D1. For the UCRS, URGA, and LRGA, the test was applied to 27, 28, and 29 parameters, respectively, including those listed in bold print in Exhibits D.3, D.4, and D.5, which includes trichloroethene that exceeded its MCL. A summary of exceedances when compared to statistically derived historical background by well number is shown in Exhibit D.6.

UCRS

This quarter's results identified exceedances of historical background upper tolerance limit (UTL) for oxidation-reduction potential.

URGA

This quarter's results identified exceedances of historical background UTL for calcium, conductivity, dissolved solids, magnesium, oxidation-reduction potential, sodium, sulfate, and technetium-99.

LRGA

This quarter's results identified exceedances of historical background UTL for calcium, conductivity, dissolved solids, magnesium, oxidation-reduction potential, and sulfate.

Statistical Summary

Summaries of the results of the statistical tests conducted on data obtained from wells in the UCRS, the URGA, and in the LRGA are presented in Exhibit D.7, Exhibit D.8, and Exhibit D.9, respectively.

Exhibit D.6. Summary of Exceedances of Statistically Derived Historical Background Concentrations

UCRS	URGA	LRGA
MW386: Oxidation-reduction potential*	**MW220:** Oxidation-reduction potential*	**MW370:** Oxidation-reduction potential* and sulfate
MW393: Oxidation-reduction potential*	**MW221:** Oxidation-reduction potential*	**MW373:** Calcium, conductivity, dissolved solids, magnesium, oxidation-reduction potential,* and sulfate
MW396: Oxidation-reduction potential*	**MW222:** Oxidation-reduction potential*	**MW385:** Oxidation-reduction potential* and sulfate
	MW223: Oxidation-reduction potential*	**MW388:** Oxidation-reduction potential* and sulfate
	MW224: Oxidation-reduction potential*	**MW392:** Oxidation-reduction potential*
	MW369: Oxidation-reduction potential* and technetium-99	**MW395:** Oxidation-reduction potential*
	MW372: Calcium, conductivity, dissolved solids, magnesium, oxidation-reduction potential,* sodium, sulfate, and technetium-99	**MW397:** Oxidation-reduction potential*
	MW384: Oxidation-reduction potential* and sulfate	
	MW387: Magnesium, oxidation-reduction potential,* sulfate, and technetium-99	
	MW391: Oxidation-reduction potential*	
	MW394: Oxidation-reduction potential*	

*Oxidation-Reduction Potential calibrated as Eh.

Exhibit D.7. Test Summaries for Qualified Parameters for Historical Background—UCRS

Parameter	Performed Test	CV Normality Test[a]	Results of Tolerance Interval Test Conducted
Aluminum	Tolerance Interval	0.57	No exceedance of statistically derived historical background concentration.
Boron	Tolerance Interval	1.28	No exceedance of statistically derived historical background concentration.
Bromide	Tolerance Interval	0.24	No exceedance of statistically derived historical background concentration.
Calcium	Tolerance Interval	0.20	No exceedance of statistically derived historical background concentration.
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.
Iodide	Tolerance Interval	0.13	No exceedance of statistically derived historical background concentration.
Iron	Tolerance Interval	0.48	No exceedance of statistically derived historical background concentration.
Magnesium	Tolerance Interval	0.20	No exceedance of statistically derived historical background concentration.
Manganese	Tolerance Interval	0.46	No exceedance of statistically derived historical background concentration.
Methylene Chloride	Tolerance Interval	0.56	No exceedance of statistically derived historical background concentration.
Molybdenum	Tolerance Interval	1.51	No exceedance of statistically derived historical background concentration.
Nickel	Tolerance Interval	1.27	No exceedance of statistically derived historical background concentration.
Oxidation-Reduction Potential[b]	Tolerance Interval	4.77	Current results exceed statistically derived historical background concentration in MW386, MW393, and MW396.
pH	Tolerance Interval	0.05	No exceedance of statistically derived historical background concentration.
Potassium	Tolerance Interval	0.28	No exceedance of statistically derived historical background concentration.
Sodium	Tolerance Interval	0.30	No exceedance of statistically derived historical background concentration.

Exhibit D.7. Test Summaries for Qualified Parameters for Historical Background—UCRS (Continued)

Parameter	Performed Test	CV Normality Test[a]	Results of Tolerance Interval Test Conducted
Sulfate	Tolerance Interval	0.40	No exceedance of statistically derived historical background concentration.
TOC	Tolerance Interval	0.47	No exceedance of statistically derived historical background concentration.
TOX	Tolerance Interval	0.38	No exceedance of statistically derived historical background concentration.
Vanadium	Tolerance Interval	0.11	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.
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 MW220, MW221, MW222, MW223, MW224, MW369, MW372, MW384, MW387, MW391, and MW394.
pH	Tolerance Interval	0.05	No exceedance of statistically derived historical background concentration.
Potassium	Tolerance Interval	1.40	No exceedance of statistically derived historical background concentration.
Sodium	Tolerance Interval	0.24	Current results exceed statistically derived historical background concentration in MW372.

Exhibit D.8. Test Summaries for Qualified Parameters for Historical Background—URGA (Continued)

Parameter	Performed Test	CV Normality Test[a]	Results of Tolerance Interval Test Conducted
Sulfate	Tolerance Interval	0.25	Current results exceed statistically derived historical background concentration in MW372, MW384, and MW387.
Technetium-99	Tolerance Interval	0.99	Current results exceed statistically derived historical background concentration in MW369, MW372, 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.
Trichloroethene[c]	Tolerance Interval	0.95	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
Acetone	Tolerance Interval	0.02	No exceedance of statistically derived historical background concentration.
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.
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.

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	No exceedance of statistically derived historical background concentration.
Sulfate	Tolerance Interval	0.20	Current results exceed statistically derived historical background concentration in MW370, MW373, MW385, and MW388.
Technetium-99	Tolerance Interval	0.80	No exceedance of statistically derived historical background concentration.
TOC	Tolerance Interval	0.55	No exceedance of statistically derived historical background concentration.
TOX	Tolerance Interval	0.59	No exceedance of statistically derived historical background concentration.
Trichloroethene[c]	Tolerance Interval	0.78	No exceedance of statistically derived historical background concentration.
Vanadium	Tolerance Interval	0.11	No exceedance of statistically derived historical background concentration.
Zinc	Tolerance Interval	0.76	No exceedance of statistically derived historical background concentration.

CV: coefficient of variation
[a] If CV > 1.0, used log-transformed data.
[b] Oxidation-Reduction Potential calibrated as Eh.
[c] Tolerance interval was calculated based on an MCL exceedance.

Discussion of Results from Current Background Comparison

For concentrations in wells in the UCRS, URGA, and LRGA that exceeded the TL test using historical background, the concentrations were compared to the one-sided TL calculated using the most recent eight quarters of data and are presented in Attachment D2. For the UCRS, URGA, and LRGA, the test was applied to 1, 8, and 6 parameters, respectively, because these parameter concentrations exceeded the historical background TL.

For downgradient wells only, a summary of instances where concentrations exceeded the TL calculated using current background data is shown in Exhibit D.10.

UCRS

Because gradients in the UCRS are downward (vertical), there are no hydrogeologically downgradient UCRS wells. It should be noted, however, that no exceedances of current background were identified in UCRS wells this quarter.

URGA

This quarter's results identified current background exceedances in downgradient wells for calcium, conductivity, dissolved solids, magnesium, sodium, sulfate, and technetium-99.

LRGA

This quarter's results identified current background exceedances in downgradient wells for calcium, conductivity, dissolved solids, magnesium, and sulfate.

Statistical Summary

Summaries of the statistical tests conducted on data obtained from wells in the UCRS, the URGA, and the LRGA are presented in Exhibit D.11, Exhibit D.12, and Exhibit D.13, respectively.

Exhibit D.10. Summary of Exceedances (Downgradient Wells) of the TL Calculated Using Current Background Concentrations

URGA	LRGA
MW369: Technetium-99	**MW370:** Sulfate
MW372: Calcium, conductivity, dissolved solids, magnesium, sodium, sulfate, and technetium-99	**MW373:** Calcium, conductivity, dissolved solids, magnesium, and sulfate
MW387: Magnesium, sulfate, and technetium-99	**MW388:** 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	0.24	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.
Conductivity	Tolerance Interval	0.09	MW372 exceeded the upper TL, which is evidence of elevated concentration with respect to current background data.
Dissolved Solids	Tolerance Interval	0.13	MW372 exceeded the upper TL, which is evidence of elevated concentration with respect to current background data.
Magnesium	Tolerance Interval	0.14	MW372 and MW387 exceeded the upper TL, which is evidence of elevated concentration with respect to current background data.
Oxidation-Reduction Potential[b]	Tolerance Interval	0.11	None of the test wells exceeded the upper TL, which is evidence that concentrations in these wells are not different from current background concentrations to a statistically significant level.
Sodium	Tolerance Interval	0.15	MW372 exceeded the upper TL, which is evidence of elevated concentration with respect to current background data.
Sulfate	Tolerance Interval	0.26	MW372 and MW387 exceeded the upper TL, which is evidence of elevated concentration with respect to current background data.
Technetium-99	Tolerance Interval	0.57	MW369, MW372, and MW387 exceeded the upper TL, which is evidence of elevated concentration with respect to current background data.

CV: coefficient of variation
[a] If CV > 1.0, used log-transformed data.
[b] Oxidation-Reduction Potential calibrated as Eh.

Exhibit D.13. Test Summaries for Qualified Parameters for Current Background—LRGA

Parameter	Performed Test	CV Normality Test[a]	Results of Tolerance Interval Test Conducted
Calcium	Tolerance Interval	0.19	MW373 exceeded the upper TL, which is evidence of elevated concentration with respect to current background data.
Conductivity	Tolerance Interval	0.10	MW373 exceeded the upper TL, which is evidence of elevated concentration with respect to current background data.
Dissolved Solids	Tolerance Interval	0.14	MW373 exceeded the upper TL, which is evidence of elevated concentration with respect to current background data.
Magnesium	Tolerance Interval	0.19	MW373 exceeded the upper TL, which is evidence of elevated concentration with respect to current background data.
Oxidation-Reduction Potential[b]	Tolerance Interval	0.18	None of the test wells exceeded the upper TL, which is evidence that concentrations in these wells are not different from current background concentrations to a statistically significant level.
Sulfate	Tolerance Interval	0.03	MW370, MW373, MW385, and MW388 exceeded the upper TL, which is evidence of elevated concentration with respect to current background data.

[a] If CV > 1.0, used log-transformed data.
[b] Oxidation-Reduction Potential calibrated as Eh.

ATTACHMENT D1

COMPARISON OF CURRENT DATA TO ONE-SIDED UPPER TOLERANCE INTERVAL TEST CALCULATED USING HISTORICAL BACKGROUND DATA

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C-746-S/T First Quarter 2024 Statistical Analysis — Historical Background Comparison

Aluminum — UNITS: mg/L — UCRS

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 0.320	**S=** 0.182	**CV(1)=** 0.567	**K factor**=** 3.188	**TL(1)=** 9.00E-01	**LL(1)=**N/A
Statistics-Transformed Background Data	**X=** -1.259	**S=** 0.503	**CV(2)=** -0.400	**K factor**=** 3.188	**TL(2)=** 3.45E-01	**LL(2)=**N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW396	
Date Collected	Result	LN(Result)
8/13/2002	3.93E-01	-9.34E-01
9/16/2002	2.00E-01	-1.61E+00
10/16/2002	2.00E-01	-1.61E+00
1/13/2003	5.01E-01	-6.91E-01
4/8/2003	2.00E-01	-1.61E+00
7/16/2003	2.00E-01	-1.61E+00
10/14/2003	2.00E-01	-1.61E+00
1/14/2004	6.68E-01	-4.03E-01

Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient
MW390	Downgradient

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW386	Sidegradient	No	5.00E-02	N/A	-3.00E+00	N/A
MW393	Downgradient	Yes	3.25E-02	NO	-3.43E+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 First Quarter 2024 Statistical Analysis — Historical Background Comparison

Boron — **UNITS: mg/L** — **UCRS**

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 0.650	**S=** 0.833	**CV(1)=** 1.282	**K factor**=** 3.188	**TL(1)=** 3.31E+00	**LL(1)=**N/A
Statistics-Transformed Background Data	**X=** -1.034	**S=** 1.066	**CV(2)=** -1.031	**K factor**=** 3.188	**TL(2)=** 2.36E+00	**LL(2)=**N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW396	
Date Collected	Result	LN(Result)
8/13/2002	2.00E+00	6.93E-01
9/16/2002	2.00E+00	6.93E-01
10/16/2002	2.00E-01	-1.61E+00
1/13/2003	2.00E-01	-1.61E+00
4/8/2003	2.00E-01	-1.61E+00
7/16/2003	2.00E-01	-1.61E+00
10/14/2003	2.00E-01	-1.61E+00
1/14/2004	2.00E-01	-1.61E+00

Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient
MW390	Downgradient

Because CV(1) is greater than 1, the natural logarithm of background and test well results were calculated utilizing TL(2) for comparison.

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW386	Sidegradient	Yes	1.21E-02	N/A	-4.41E+00	NO
MW393	Downgradient	Yes	2.30E-02	N/A	-3.77E+00	NO
MW396	Upgradient	Yes	7.20E-03	N/A	-4.93E+00	NO

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-S/T First Quarter 2024 Statistical Analysis — Historical Background Comparison

Bromide — **UNITS: mg/L** — **UCRS**

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 1.388	**S=** 0.327	**CV(1)=** 0.236	**K factor**=** 3.188	**TL(1)=** 2.43E+00	**LL(1)=**N/A
Statistics-Transformed Background Data	**X=** 0.301	**S=** 0.252	**CV(2)=** 0.838	**K factor**=** 3.188	**TL(2)=** 1.10E+00	**LL(2)=**N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number: MW396

Date Collected	Result	LN(Result)
8/13/2002	1.50E+00	4.05E-01
9/16/2002	1.60E+00	4.70E-01
10/16/2002	1.60E+00	4.70E-01
1/13/2003	1.00E+00	0.00E+00
4/8/2003	1.00E+00	0.00E+00
7/16/2003	1.00E+00	0.00E+00
10/14/2003	1.70E+00	5.31E-01
1/14/2004	1.70E+00	5.31E-01

Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient
MW390	Downgradient

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW386	Sidegradient	Yes	1.31E-01	NO	-2.03E+00	N/A
MW393	Downgradient	Yes	1.39E-01	NO	-1.97E+00	N/A
MW396	Upgradient	Yes	9.65E-01	NO	-3.56E-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 First Quarter 2024 Statistical Analysis — Historical Background Comparison

Calcium — UNITS: mg/L — UCRS

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 41.825	**S=** 8.445	**CV(1)=** 0.202	**K factor**=** 3.188	**TL(1)=** 6.87E+01	**LL(1)=**N/A
Statistics-Transformed Background Data	**X=** 3.711	**S=** 0.241	**CV(2)=** 0.065	**K factor**=** 3.188	**TL(2)=** 4.48E+00	**LL(2)=**N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW396	
Date Collected	Result	LN(Result)
8/13/2002	3.84E+01	3.65E+00
9/16/2002	4.29E+01	3.76E+00
10/16/2002	4.02E+01	3.69E+00
1/13/2003	4.67E+01	3.84E+00
4/8/2003	4.98E+01	3.91E+00
7/16/2003	4.33E+01	3.77E+00
10/14/2003	4.97E+01	3.91E+00
1/14/2004	2.36E+01	3.16E+00

Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient
MW390	Downgradient

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW386	Sidegradient	Yes	2.04E+01	NO	3.02E+00	N/A
MW393	Downgradient	Yes	1.49E+01	NO	2.70E+00	N/A
MW396	Upgradient	Yes	2.97E+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 First Quarter 2024 Statistical Analysis Historical Background Comparison

Chemical Oxygen Demand (COD) UNITS: mg/L UCRS

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 35.375	**S=** 0.744	**CV(1)=** 0.021	**K factor**=** 3.188	**TL(1)=** 3.77E+01	**LL(1)=**N/A
Statistics-Transformed Background Data	**X=** 3.566	**S=** 0.021	**CV(2)=** 0.006	**K factor**=** 3.188	**TL(2)=** 3.63E+00	**LL(2)=**N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW396	
Date Collected	Result	LN(Result)
8/13/2002	3.60E+01	3.58E+00
9/16/2002	3.50E+01	3.56E+00
10/16/2002	3.70E+01	3.61E+00
1/13/2003	3.50E+01	3.56E+00
4/8/2003	3.50E+01	3.56E+00
7/16/2003	3.50E+01	3.56E+00
10/14/2003	3.50E+01	3.56E+00
1/14/2004	3.50E+01	3.56E+00

Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient
MW390	Downgradient

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW386	Sidegradient	Yes	1.80E+01	NO	2.89E+00	N/A
MW393	Downgradient	No	2.00E+01	N/A	3.00E+00	N/A
MW396	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 First Quarter 2024 Statistical Analysis — Historical Background Comparison

Chloride — UNITS: mg/L — UCRS

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 101.725	**S=** 5.245	**CV(1)=** 0.052	**K factor**=** 3.188	**TL(1)=** 1.18E+02	**LL(1)=**N/A
Statistics-Transformed Background Data	**X=** 4.621	**S=** 0.053	**CV(2)=** 0.011	**K factor**=** 3.188	**TL(2)=** 4.79E+00	**LL(2)=**N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW396	
Date Collected	Result	LN(Result)
8/13/2002	9.16E+01	4.52E+00
9/16/2002	9.83E+01	4.59E+00
10/16/2002	1.01E+02	4.62E+00
1/13/2003	1.08E+02	4.68E+00
4/8/2003	1.01E+02	4.61E+00
7/16/2003	1.03E+02	4.63E+00
10/14/2003	1.07E+02	4.67E+00
1/14/2004	1.04E+02	4.65E+00

Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient
MW390	Downgradient

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW386	Sidegradient	Yes	1.23E+01	NO	2.51E+00	N/A
MW393	Downgradient	No	9.94E+00	N/A	2.30E+00	N/A
MW396	Upgradient	Yes	5.50E+01	NO	4.01E+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 First Quarter 2024 Statistical Analysis — Historical Background Comparison

Cobalt — UNITS: mg/L — UCRS

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 0.008	**S=** 0.011	**CV(1)=** 1.340	**K factor**=** 3.188	**TL(1)=** 4.18E-02	**LL(1)=**N/A
Statistics-Transformed Background Data	**X=** -5.645	**S=** 1.339	**CV(2)=** -0.237	**K factor**=** 3.188	**TL(2)=** -1.38E+00	**LL(2)=**N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW396	
Date Collected	Result	LN(Result)
8/13/2002	2.50E-02	-3.69E+00
9/16/2002	2.50E-02	-3.69E+00
10/16/2002	1.00E-03	-6.91E+00
1/13/2003	3.24E-03	-5.73E+00
4/8/2003	4.36E-03	-5.44E+00
7/16/2003	2.76E-03	-5.89E+00
10/14/2003	1.00E-03	-6.91E+00
1/14/2004	1.00E-03	-6.91E+00

Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient
MW390	Downgradient

Because CV(1) is greater than 1, the natural logarithm of background and test well results were calculated utilizing TL(2) for comparison.

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW386	Sidegradient	Yes	1.08E-02	N/A	-4.53E+00	NO
MW393	Downgradient	No	1.00E-03	N/A	-6.91E+00	N/A
MW396	Upgradient	Yes	1.93E-03	N/A	-6.25E+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 First Quarter 2024 Statistical Analysis Historical Background Comparison

Conductivity UNITS: umho/cm UCRS

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 922.500	**S=** 107.616	**CV(1)=** 0.117	**K factor**=** 3.188	**TL(1)=** 1.27E+03	**LL(1)=** N/A
Statistics-Transformed Background Data	**X=** 6.822	**S=** 0.111	**CV(2)=** 0.016	**K factor**=** 3.188	**TL(2)=** 7.17E+00	**LL(2)=** N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW396	
Date Collected	Result	LN(Result)
8/13/2002	7.84E+02	6.66E+00
9/30/2002	8.71E+02	6.77E+00
10/16/2002	8.68E+02	6.77E+00
1/13/2003	9.12E+02	6.82E+00
4/8/2003	9.42E+02	6.85E+00
7/16/2003	9.10E+02	6.81E+00
10/14/2003	9.35E+02	6.84E+00
1/14/2004	1.16E+03	7.05E+00

Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient
MW390	Downgradient

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW386	Sidegradient	Yes	5.46E+02	NO	6.30E+00	N/A
MW393	Downgradient	Yes	4.07E+02	NO	6.01E+00	N/A
MW396	Upgradient	Yes	6.83E+02	NO	6.53E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-S/T First Quarter 2024 Statistical Analysis Historical Background Comparison

Copper UNITS: mg/L UCRS

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 0.028	**S=** 0.014	**CV(1)=** 0.481	**K factor**=** 3.188	**TL(1)=** 7.16E-02	**LL(1)=**N/A
Statistics-Transformed Background Data	**X=** -3.650	**S=** 0.414	**CV(2)=** -0.113	**K factor**=** 3.188	**TL(2)=** -2.33E+00	**LL(2)=**N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW396	
Date Collected	Result	LN(Result)
8/13/2002	5.00E-02	-3.00E+00
9/16/2002	5.00E-02	-3.00E+00
10/16/2002	2.60E-02	-3.65E+00
1/13/2003	2.00E-02	-3.91E+00
4/8/2003	2.00E-02	-3.91E+00
7/16/2003	2.00E-02	-3.91E+00
10/14/2003	2.00E-02	-3.91E+00
1/14/2004	2.00E-02	-3.91E+00

Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient
MW390	Downgradient

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW386	Sidegradient	Yes	1.20E-03	NO	-6.73E+00	N/A
MW393	Downgradient	Yes	1.19E-03	NO	-6.73E+00	N/A
MW396	Upgradient	Yes	1.07E-03	NO	-6.84E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-S/T First Quarter 2024 Statistical Analysis — Historical Background Comparison

Dissolved Oxygen — UNITS: mg/L — UCRS

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 1.395	**S=** 1.677	**CV(1)=** 1.202	**K factor**=** 3.188	**TL(1)=** 6.74E+00	**LL(1)=**N/A
Statistics-Transformed Background Data	**X=** -0.043	**S=** 0.814	**CV(2)=** -18.867	**K factor**=** 3.188	**TL(2)=** 2.55E+00	**LL(2)=**N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW396	
Date Collected	Result	LN(Result)
8/13/2002	5.45E+00	1.70E+00
9/16/2002	4.00E-01	-9.16E-01
10/16/2002	5.40E-01	-6.16E-01
1/13/2003	7.20E-01	-3.29E-01
4/8/2003	6.90E-01	-3.71E-01
7/16/2003	1.10E+00	9.53E-02
10/14/2003	7.10E-01	-3.42E-01
1/14/2004	1.55E+00	4.38E-01

Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient
MW390	Downgradient

Because CV(1) is greater than 1, the natural logarithm of background and test well results were calculated utilizing TL(2) for comparison.

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW386	Sidegradient	Yes	1.38E+00	N/A	3.22E-01	NO
MW393	Downgradient	Yes	2.02E+00	N/A	7.03E-01	NO
MW396	Upgradient	Yes	2.84E+00	N/A	1.04E+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 First Quarter 2024 Statistical Analysis — Historical Background Comparison

Dissolved Solids — UNITS: mg/L — UCRS

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 550.375	**S=** 104.330	**CV(1)=** 0.190	**K factor**=** 3.188	**TL(1)=** 8.83E+02	**LL(1)=**N/A
Statistics-Transformed Background Data	**X=** 6.298	**S=** 0.162	**CV(2)=** 0.026	**K factor**=** 3.188	**TL(2)=** 6.82E+00	**LL(2)=**N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW396	
Date Collected	Result	LN(Result)
8/13/2002	5.02E+02	6.22E+00
9/16/2002	5.06E+02	6.23E+00
10/16/2002	5.43E+02	6.30E+00
1/13/2003	5.21E+02	6.26E+00
4/8/2003	5.04E+02	6.22E+00
7/16/2003	5.32E+02	6.28E+00
10/14/2003	4.90E+02	6.19E+00
1/14/2004	8.05E+02	6.69E+00

Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient
MW390	Downgradient

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW386	Sidegradient	Yes	3.42E+02	NO	5.83E+00	N/A
MW393	Downgradient	Yes	2.61E+02	NO	5.56E+00	N/A
MW396	Upgradient	Yes	3.92E+02	NO	5.97E+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 First Quarter 2024 Statistical Analysis — Historical Background Comparison

Iodide — **UNITS: mg/L** — **UCRS**

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 2.150	**S=** 0.283	**CV(1)=** 0.132	**K factor**=** 3.188	**TL(1)=** 3.05E+00	**LL(1)=**N/A
Statistics-Transformed Background Data	**X=** 0.759	**S=** 0.123	**CV(2)=** 0.162	**K factor**=** 3.188	**TL(2)=** 1.15E+00	**LL(2)=**N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW396	
Date Collected	Result	LN(Result)
8/13/2002	2.00E+00	6.93E-01
9/16/2002	2.00E+00	6.93E-01
10/16/2002	2.00E+00	6.93E-01
1/13/2003	2.00E+00	6.93E-01
4/8/2003	2.00E+00	6.93E-01
7/16/2003	2.70E+00	9.93E-01
10/14/2003	2.50E+00	9.16E-01
1/14/2004	2.00E+00	6.93E-01

Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient
MW390	Downgradient

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW386	Sidegradient	No	5.00E-01	N/A	-6.93E-01	N/A
MW393	Downgradient	No	5.00E-01	N/A	-6.93E-01	N/A
MW396	Upgradient	Yes	5.44E-01	NO	-6.09E-01	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-S/T First Quarter 2024 Statistical Analysis — Historical Background Comparison

Iron — **UNITS: mg/L** — **UCRS**

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 7.796	**S=** 3.723	**CV(1)=** 0.478	**K factor**=** 3.188	**TL(1)=** 1.97E+01	**LL(1)=**N/A
Statistics-Transformed Background Data	**X=** 1.880	**S=** 0.723	**CV(2)=** 0.384	**K factor**=** 3.188	**TL(2)=** 4.18E+00	**LL(2)=**N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW396	
Date Collected	Result	LN(Result)
8/13/2002	1.80E+00	5.88E-01
9/16/2002	9.53E+00	2.25E+00
10/16/2002	7.43E+00	2.01E+00
1/13/2003	9.93E+00	2.30E+00
4/8/2003	1.02E+01	2.32E+00
7/16/2003	9.16E+00	2.21E+00
10/14/2003	1.19E+01	2.48E+00
1/14/2004	2.42E+00	8.84E-01

Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient
MW390	Downgradient

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW386	Sidegradient	Yes	9.64E-01	NO	-3.67E-02	N/A
MW393	Downgradient	Yes	1.00E+00	NO	0.00E+00	N/A
MW396	Upgradient	Yes	3.42E-01	NO	-1.07E+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 First Quarter 2024 Statistical Analysis — Historical Background Comparison

Magnesium — UNITS: mg/L — UCRS

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 16.876	**S=** 3.313	**CV(1)=** 0.196	**K factor**=** 3.188	**TL(1)=** 2.74E+01	**LL(1)=**N/A
Statistics-Transformed Background Data	**X=** 2.804	**S=** 0.240	**CV(2)=** 0.086	**K factor**=** 3.188	**TL(2)=** 3.57E+00	**LL(2)=**N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW396	
Date Collected	Result	LN(Result)
8/13/2002	1.55E+01	2.74E+00
9/16/2002	1.73E+01	2.85E+00
10/16/2002	1.78E+01	2.88E+00
1/13/2003	1.92E+01	2.95E+00
4/8/2003	1.78E+01	2.88E+00
7/16/2003	1.78E+01	2.88E+00
10/14/2003	2.02E+01	3.01E+00
1/14/2004	9.41E+00	2.24E+00

Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient
MW390	Downgradient

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW386	Sidegradient	Yes	8.49E+00	NO	2.14E+00	N/A
MW393	Downgradient	Yes	3.75E+00	NO	1.32E+00	N/A
MW396	Upgradient	Yes	1.29E+01	NO	2.56E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-S/T First Quarter 2024 Statistical Analysis — Historical Background Comparison

Manganese — UNITS: mg/L — UCRS

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 0.774	**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
MW390	Downgradient

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW386	Sidegradient	Yes	9.39E-01	NO	-6.29E-02	N/A
MW393	Downgradient	Yes	4.12E-02	NO	-3.19E+00	N/A
MW396	Upgradient	Yes	3.16E-01	NO	-1.15E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-S/T First Quarter 2024 Statistical Analysis — Historical Background Comparison

Methylene chloride — **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=** 5.625	**S=** 3.159	**CV(1)=** 0.562	**K factor**=** 3.188	**TL(1)=** 1.57E+01	**LL(1)=**N/A
Statistics-Transformed Background Data	**X=** 1.614	**S=** 0.500	**CV(2)=** 0.310	**K factor**=** 3.188	**TL(2)=** 3.21E+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	1.30E+01	2.56E+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
4/8/2003	5.00E+00	1.61E+00
7/16/2003	5.00E+00	1.61E+00
10/14/2003	5.00E+00	1.61E+00
1/14/2004	5.00E+00	1.61E+00

Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient
MW390	Downgradient

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW386	Sidegradient	No	6.00E-01	N/A	-5.11E-01	N/A
MW393	Downgradient	No	1.43E+00	N/A	3.58E-01	N/A
MW396	Upgradient	Yes	2.33E+00	NO	8.46E-01	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-S/T First Quarter 2024 Statistical Analysis — Historical Background Comparison

Molybdenum — UNITS: mg/L — UCRS

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 0.007	**S=** 0.011	**CV(1)=** 1.507	**K factor**=** 3.188	**TL(1)=** 4.22E-02	**LL(1)=**N/A
Statistics-Transformed Background Data	**X=** -5.928	**S=** 1.420	**CV(2)=** -0.240	**K factor**=** 3.188	**TL(2)=** -1.40E+00	**LL(2)=**N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW396	
Date Collected	Result	LN(Result)
8/13/2002	2.50E-02	-3.69E+00
9/16/2002	2.50E-02	-3.69E+00
10/16/2002	1.00E-03	-6.91E+00
1/13/2003	1.28E-03	-6.66E+00
4/8/2003	2.71E-03	-5.91E+00
7/16/2003	1.17E-03	-6.75E+00
10/14/2003	1.00E-03	-6.91E+00
1/14/2004	1.00E-03	-6.91E+00

Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient
MW390	Downgradient

Because CV(1) is greater than 1, the natural logarithm of background and test well results were calculated utilizing TL(2) for comparison.

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW386	Sidegradient	Yes	6.96E-04	N/A	-7.27E+00	NO
MW393	Downgradient	Yes	3.90E-04	N/A	-7.85E+00	NO
MW396	Upgradient	Yes	3.52E-04	N/A	-7.95E+00	NO

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-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 First Quarter 2024 Statistical Analysis — Historical Background Comparison

Nickel — **UNITS: mg/L** — **UCRS**

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 0.016	**S=** 0.021	**CV(1)=** 1.272	**K factor**=** 3.188	**TL(1)=** 8.26E-02	**LL(1)=**N/A
Statistics-Transformed Background Data	**X=** -4.706	**S=** 1.057	**CV(2)=** -0.225	**K factor**=** 3.188	**TL(2)=** -1.34E+00	**LL(2)=**N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW396	
Date Collected	Result	LN(Result)
8/13/2002	5.00E-02	-3.00E+00
9/16/2002	5.00E-02	-3.00E+00
10/16/2002	5.00E-03	-5.30E+00
1/13/2003	5.00E-03	-5.30E+00
4/8/2003	5.71E-03	-5.17E+00
7/16/2003	5.00E-03	-5.30E+00
10/14/2003	5.00E-03	-5.30E+00
1/14/2004	5.00E-03	-5.30E+00

Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient
MW390	Downgradient

Because CV(1) is greater than 1, the natural logarithm of background and test well results were calculated utilizing TL(2) for comparison.

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW386	Sidegradient	Yes	3.29E-03	N/A	-5.72E+00	NO
MW393	Downgradient	No	2.00E-03	N/A	-6.21E+00	N/A
MW396	Upgradient	Yes	1.14E-03	N/A	-6.78E+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 First Quarter 2024 Statistical Analysis — Historical Background Comparison

Oxidation-Reduction Potential — UNITS: mV — UCRS

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 13.000	**S=** 61.952	**CV(1)=** 4.766	**K factor**=** 3.188	**TL(1)=** 2.11E+02	**LL(1)=** N/A
Statistics-Transformed Background Data	**X=** 4.364	**S=** 0.333	**CV(2)=** 0.076	**K factor**=** 3.188	**TL(2)=** 4.74E+00	**LL(2)=** N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW396	
Date Collected	Result	LN(Result)
8/13/2002	6.00E+01	4.09E+00
4/8/2003	7.10E+01	4.26E+00
7/16/2003	-5.60E+01	#Func!
10/14/2003	-5.40E+01	#Func!
1/14/2004	-2.20E+01	#Func!
4/12/2004	-6.00E+00	#Func!
7/20/2004	-3.00E+00	#Func!
10/12/2004	1.14E+02	4.74E+00

Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient
MW390	Downgradient

Because CV(1) is greater than 1, the natural logarithm of background and test well results were calculated utilizing TL(2) for comparison.

#Because the natural log was not possible for all background values, the TL was considered equal to the maximum background value.

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW386	Sidegradient	Yes	2.42E+02	N/A	5.49E+00	YES
MW393	Downgradient	Yes	4.44E+02	N/A	6.10E+00	YES
MW396	Upgradient	Yes	3.08E+02	N/A	5.73E+00	YES

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

The test well(s) listed exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to historical background data.

Wells with Exceedances

MW386
MW393
MW396

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-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 First Quarter 2024 Statistical Analysis Historical Background Comparison

pH UNITS: Std Unit UCRS

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 6.460	**S=** 0.350	**CV(1)=** 0.054	**K factor**=** 3.736	**TL(1)=** 7.77E+00	**LL(1)=**5.15E+00
Statistics-Transformed Background Data	**X=** 1.864	**S=** 0.054	**CV(2)=** 0.029	**K factor**=** 3.736	**TL(2)=** 2.07E+00	**LL(2)=**1.66E+00

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW396	
Date Collected	Result	LN(Result)
8/13/2002	6.17E+00	1.82E+00
9/16/2002	6.40E+00	1.86E+00
10/16/2002	5.90E+00	1.77E+00
1/13/2003	6.40E+00	1.86E+00
4/8/2003	6.65E+00	1.89E+00
7/16/2003	6.40E+00	1.86E+00
10/14/2003	6.71E+00	1.90E+00
1/14/2004	7.05E+00	1.95E+00

Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient
MW390	Downgradient

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)? Result <LL(1)?	LN(Result)	LN(Result) >TL(2)? LN(Result) <LL(2)?
MW386	Sidegradient	Yes	6.68E+00	NO	1.90E+00	N/A
MW393	Downgradient	Yes	6.20E+00	NO	1.82E+00	N/A
MW396	Upgradient	Yes	6.52E+00	NO	1.87E+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 First Quarter 2024 Statistical Analysis — Historical Background Comparison

Potassium — **UNITS: mg/L** — **UCRS**

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 1.411	**S=** 0.399	**CV(1)=** 0.282	**K factor**=** 3.188	**TL(1)=** 2.68E+00	**LL(1)=**N/A
Statistics-Transformed Background Data	**X=** 0.311	**S=** 0.271	**CV(2)=** 0.870	**K factor**=** 3.188	**TL(2)=** 1.18E+00	**LL(2)=**N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number: MW396

Date Collected	Result	LN(Result)
8/13/2002	2.00E+00	6.93E-01
9/16/2002	2.00E+00	6.93E-01
10/16/2002	9.78E-01	-2.22E-02
1/13/2003	1.08E+00	7.70E-02
4/8/2003	1.12E+00	1.13E-01
7/16/2003	1.38E+00	3.22E-01
10/14/2003	1.24E+00	2.15E-01
1/14/2004	1.49E+00	3.99E-01

Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient
MW390	Downgradient

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW386	Sidegradient	Yes	2.96E-01	NO	-1.22E+00	N/A
MW393	Downgradient	Yes	4.38E-01	NO	-8.26E-01	N/A
MW396	Upgradient	Yes	7.25E-01	NO	-3.22E-01	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-S/T First Quarter 2024 Statistical Analysis Historical Background Comparison

Sodium UNITS: mg/L UCRS

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 106.825	**S=** 32.041	**CV(1)=** 0.300	**K factor**=** 3.188	**TL(1)=** 2.09E+02	**LL(1)=**N/A
Statistics-Transformed Background Data	**X=** 4.595	**S=** 0.492	**CV(2)=** 0.107	**K factor**=** 3.188	**TL(2)=** 6.16E+00	**LL(2)=**N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW396	
Date Collected	Result	LN(Result)
8/13/2002	1.15E+02	4.74E+00
9/16/2002	1.16E+02	4.75E+00
10/16/2002	1.17E+02	4.76E+00
1/13/2003	1.22E+02	4.80E+00
4/8/2003	1.06E+02	4.66E+00
7/16/2003	1.17E+02	4.76E+00
10/14/2003	1.32E+02	4.88E+00
1/14/2004	2.96E+01	3.39E+00

Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient
MW390	Downgradient

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW386	Sidegradient	Yes	1.06E+02	NO	4.66E+00	N/A
MW393	Downgradient	Yes	8.39E+01	NO	4.43E+00	N/A
MW396	Upgradient	Yes	8.69E+01	NO	4.46E+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

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 First Quarter 2024 Statistical Analysis — Historical Background Comparison

Sulfate — **UNITS: mg/L** — **UCRS**

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 22.463	**S=** 8.876	**CV(1)=** 0.395	**K factor**=** 3.188	**TL(1)=** 5.08E+01	**LL(1)=**N/A
Statistics-Transformed Background Data	**X=** 3.054	**S=** 0.351	**CV(2)=** 0.115	**K factor**=** 3.188	**TL(2)=** 4.17E+00	**LL(2)=**N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW396	
Date Collected	Result	LN(Result)
8/13/2002	4.19E+01	3.74E+00
9/16/2002	2.63E+01	3.27E+00
10/16/2002	2.06E+01	3.03E+00
1/13/2003	1.66E+01	2.81E+00
4/8/2003	2.39E+01	3.17E+00
7/16/2003	1.88E+01	2.93E+00
10/14/2003	1.29E+01	2.56E+00
1/14/2004	1.87E+01	2.93E+00

Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient
MW390	Downgradient

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW386	Sidegradient	Yes	4.17E+01	NO	3.73E+00	N/A
MW393	Downgradient	Yes	1.94E+01	NO	2.97E+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 First 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
MW390	Downgradient

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW386	Sidegradient	Yes	5.70E+00	NO	1.74E+00	N/A
MW393	Downgradient	Yes	2.39E+00	NO	8.71E-01	N/A
MW396	Upgradient	Yes	4.09E+00	NO	1.41E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

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 First Quarter 2024 Statistical Analysis — Historical Background Comparison

Total Organic Halides (TOX) — UNITS: ug/L — UCRS

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 142.650	**S=** 53.533	**CV(1)=** 0.375	**K factor**=** 3.188	**TL(1)=** 3.13E+02	**LL(1)=**N/A
Statistics-Transformed Background Data	**X=** 4.896	**S=** 0.390	**CV(2)=** 0.080	**K factor**=** 3.188	**TL(2)=** 6.14E+00	**LL(2)=**N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW396	
Date Collected	Result	LN(Result)
8/13/2002	1.93E+02	5.26E+00
9/16/2002	1.90E+02	5.25E+00
10/16/2002	2.21E+02	5.40E+00
1/13/2003	1.06E+02	4.66E+00
4/8/2003	7.78E+01	4.35E+00
7/16/2003	1.22E+02	4.80E+00
10/14/2003	8.64E+01	4.46E+00
1/14/2004	1.45E+02	4.98E+00

Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient
MW390	Downgradient

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW386	Sidegradient	Yes	1.45E+02	NO	4.98E+00	N/A
MW393	Downgradient	Yes	1.62E+01	NO	2.79E+00	N/A
MW396	Upgradient	Yes	4.42E+01	NO	3.79E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

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 First Quarter 2024 Statistical Analysis — Historical Background Comparison

Vanadium — UNITS: mg/L — UCRS

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 0.021	**S=** 0.002	**CV(1)=** 0.109	**K factor**=** 3.188	**TL(1)=** 2.86E-02	**LL(1)=**N/A
Statistics-Transformed Background Data	**X=** -3.856	**S=** 0.103	**CV(2)=** -0.027	**K factor**=** 3.188	**TL(2)=** -3.53E+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	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
1/14/2004	2.00E-02	-3.91E+00

Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient
MW390	Downgradient

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW386	Sidegradient	Yes	5.21E-03	NO	-5.26E+00	N/A
MW393	Downgradient	No	2.00E-02	N/A	-3.91E+00	N/A
MW396	Upgradient	No	3.39E-03	N/A	-5.69E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-S/T First Quarter 2024 Statistical Analysis — Historical Background Comparison

Zinc — **UNITS: mg/L** — **UCRS**

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 0.044	**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
MW390	Downgradient

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW386	Sidegradient	Yes	3.42E-03	NO	-5.68E+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 First Quarter 2024 Statistical Analysis — Historical Background Comparison

Acetone — **UNITS: ug/L** — **URGA**

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 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

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+01	2.30E+00
1/15/2003	1.00E+01	2.30E+00
4/10/2003	1.00E+01	2.30E+00
7/14/2003	1.00E+01	2.30E+00
10/13/2003	1.00E+01	2.30E+00
4/13/2004	1.00E+01	2.30E+00
7/21/2004	1.00E+01	2.30E+00
10/11/2004	1.00E+01	2.30E+00

Well Number: MW394

Date Collected	Result	LN(Result)
8/13/2002	1.00E+01	2.30E+00
9/30/2002	1.00E+01	2.30E+00
10/16/2002	1.00E+01	2.30E+00
1/13/2003	1.00E+01	2.30E+00
4/10/2003	1.00E+01	2.30E+00
7/16/2003	1.00E+01	2.30E+00
10/14/2003	1.40E+01	2.64E+00
4/12/2004	1.00E+01	2.30E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW220	Upgradient	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	Yes	3.63E+00	NO	1.29E+00	N/A
MW384	Sidegradient	Yes	1.83E+00	NO	6.04E-01	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.*

C-746-S/T First Quarter 2024 Statistical Analysis Historical Background Comparison

Aluminum UNITS: mg/L URGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 0.221	**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

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	2.00E-01	-1.61E+00
1/15/2003	2.00E-01	-1.61E+00
4/10/2003	2.00E-01	-1.61E+00
7/14/2003	2.00E-01	-1.61E+00
10/13/2003	4.27E-01	-8.51E-01
1/13/2004	3.09E-01	-1.17E+00
4/13/2004	2.00E-01	-1.61E+00
7/21/2004	2.02E-01	-1.60E+00

Well Number:	MW394	
Date Collected	Result	LN(Result)
8/13/2002	2.00E-01	-1.61E+00
9/16/2002	2.00E-01	-1.61E+00
10/16/2002	2.00E-01	-1.61E+00
1/13/2003	2.00E-01	-1.61E+00
4/10/2003	2.00E-01	-1.61E+00
7/16/2003	2.00E-01	-1.61E+00
10/14/2003	2.00E-01	-1.61E+00
1/13/2004	2.00E-01	-1.61E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW220	Upgradient	Yes	3.86E-02	NO	-3.25E+00	N/A
MW221	Sidegradient	No	5.00E-02	N/A	-3.00E+00	N/A
MW222	Sidegradient	Yes	2.88E-01	NO	-1.24E+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	5.73E-02	NO	-2.86E+00	N/A
MW372	Downgradient	No	5.00E-02	N/A	-3.00E+00	N/A
MW384	Sidegradient	No	5.00E-02	N/A	-3.00E+00	N/A
MW387	Downgradient	Yes	2.97E-02	NO	-3.52E+00	N/A
MW391	Downgradient	Yes	2.51E-02	NO	-3.68E+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 First Quarter 2024 Statistical Analysis Historical Background Comparison

Boron UNITS: mg/L URGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 0.425	**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

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:	MW220	
Date Collected	Result	LN(Result)
10/14/2002	2.00E-01	-1.61E+00
1/15/2003	2.00E-01	-1.61E+00
4/10/2003	2.00E-01	-1.61E+00
7/14/2003	2.00E-01	-1.61E+00
10/13/2003	2.00E-01	-1.61E+00
1/13/2004	2.00E-01	-1.61E+00
4/13/2004	2.00E-01	-1.61E+00
7/21/2004	2.00E-01	-1.61E+00

Well Number:	MW394	
Date Collected	Result	LN(Result)
8/13/2002	2.00E+00	6.93E-01
9/16/2002	2.00E+00	6.93E-01
10/16/2002	2.00E-01	-1.61E+00
1/13/2003	2.00E-01	-1.61E+00
4/10/2003	2.00E-01	-1.61E+00
7/16/2003	2.00E-01	-1.61E+00
10/14/2003	2.00E-01	-1.61E+00
1/13/2004	2.00E-01	-1.61E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW220	Upgradient	Yes	7.60E-03	N/A	-4.88E+00	NO
MW221	Sidegradient	Yes	1.67E-02	N/A	-4.09E+00	NO
MW222	Sidegradient	Yes	7.34E-03	N/A	-4.91E+00	NO
MW223	Sidegradient	Yes	5.71E-03	N/A	-5.17E+00	NO
MW224	Sidegradient	Yes	9.32E-03	N/A	-4.68E+00	NO
MW369	Downgradient	Yes	2.39E-02	N/A	-3.73E+00	NO
MW372	Downgradient	Yes	1.38E+00	N/A	3.22E-01	NO
MW384	Sidegradient	Yes	5.89E-02	N/A	-2.83E+00	NO
MW387	Downgradient	Yes	3.72E-02	N/A	-3.29E+00	NO
MW391	Downgradient	Yes	3.25E-02	N/A	-3.43E+00	NO
MW394	Upgradient	Yes	2.10E-02	N/A	-3.86E+00	NO

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-S/T First Quarter 2024 Statistical Analysis Historical Background Comparison

Bromide UNITS: mg/L URGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 1.000	**S=** 0.000	**CV(1)=** 0.000	**K factor**=** 2.523	**TL(1)=** 1.00E+00	**LL(1)=**N/A
Statistics-Transformed Background Data	**X=** 0.000	**S=** 0.000	**CV(2)=** #Num!	**K factor**=** 2.523	**TL(2)=** 0.00E+00	**LL(2)=**N/A

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	1.00E+00	0.00E+00
4/10/2003	1.00E+00	0.00E+00
7/14/2003	1.00E+00	0.00E+00
10/13/2003	1.00E+00	0.00E+00
1/13/2004	1.00E+00	0.00E+00
4/13/2004	1.00E+00	0.00E+00
7/21/2004	1.00E+00	0.00E+00

Well Number: MW394

Date Collected	Result	LN(Result)
8/13/2002	1.00E+00	0.00E+00
9/16/2002	1.00E+00	0.00E+00
10/16/2002	1.00E+00	0.00E+00
1/13/2003	1.00E+00	0.00E+00
4/10/2003	1.00E+00	0.00E+00
7/16/2003	1.00E+00	0.00E+00
10/14/2003	1.00E+00	0.00E+00
1/13/2004	1.00E+00	0.00E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW220	Upgradient	Yes	2.13E-01	NO	-1.55E+00	N/A
MW221	Sidegradient	Yes	4.23E-01	NO	-8.60E-01	N/A
MW222	Sidegradient	Yes	3.67E-01	NO	-1.00E+00	N/A
MW223	Sidegradient	Yes	3.82E-01	NO	-9.62E-01	N/A
MW224	Sidegradient	Yes	2.22E-01	NO	-1.51E+00	N/A
MW369	Downgradient	Yes	3.62E-01	NO	-1.02E+00	N/A
MW372	Downgradient	Yes	4.92E-01	NO	-7.09E-01	N/A
MW384	Sidegradient	Yes	2.39E-01	NO	-1.43E+00	N/A
MW387	Downgradient	Yes	4.96E-01	NO	-7.01E-01	N/A
MW391	Downgradient	Yes	5.38E-01	NO	-6.20E-01	N/A
MW394	Upgradient	Yes	5.38E-01	NO	-6.20E-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 First Quarter 2024 Statistical Analysis Historical Background Comparison

Calcium UNITS: mg/L URGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 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

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	2.36E+01	3.16E+00
1/15/2003	2.59E+01	3.25E+00
4/10/2003	3.04E+01	3.41E+00
7/14/2003	3.39E+01	3.52E+00
10/13/2003	2.13E+01	3.06E+00
1/13/2004	2.03E+01	3.01E+00
4/13/2004	2.38E+01	3.17E+00
7/21/2004	1.90E+01	2.94E+00

Well Number:	MW394	
Date Collected	Result	LN(Result)
8/13/2002	2.95E+01	3.38E+00
9/16/2002	2.99E+01	3.40E+00
10/16/2002	3.12E+01	3.44E+00
1/13/2003	3.07E+01	3.42E+00
4/10/2003	3.44E+01	3.54E+00
7/16/2003	2.96E+01	3.39E+00
10/14/2003	3.03E+01	3.41E+00
1/13/2004	2.84E+01	3.35E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW220	Upgradient	Yes	2.02E+01	NO	3.01E+00	N/A
MW221	Sidegradient	Yes	2.04E+01	NO	3.02E+00	N/A
MW222	Sidegradient	Yes	1.36E+01	NO	2.61E+00	N/A
MW223	Sidegradient	Yes	2.08E+01	NO	3.03E+00	N/A
MW224	Sidegradient	Yes	1.81E+01	NO	2.90E+00	N/A
MW369	Downgradient	Yes	1.64E+01	NO	2.80E+00	N/A
MW372	Downgradient	Yes	7.14E+01	YES	4.27E+00	N/A
MW384	Sidegradient	Yes	2.32E+01	NO	3.14E+00	N/A
MW387	Downgradient	Yes	3.82E+01	NO	3.64E+00	N/A
MW391	Downgradient	Yes	2.72E+01	NO	3.30E+00	N/A
MW394	Upgradient	Yes	2.68E+01	NO	3.29E+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 First Quarter 2024 Statistical Analysis Historical Background Comparison

Chloride UNITS: mg/L URGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 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

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	4.46E+01	3.80E+00
1/15/2003	4.32E+01	3.77E+00
4/10/2003	3.15E+01	3.45E+00
7/14/2003	3.08E+01	3.43E+00
10/13/2003	4.09E+01	3.71E+00
1/13/2004	4.08E+01	3.71E+00
4/13/2004	3.75E+01	3.62E+00
7/21/2004	4.08E+01	3.71E+00

Well Number:	MW394	
Date Collected	Result	LN(Result)
8/13/2002	6.04E+01	4.10E+00
9/16/2002	6.03E+01	4.10E+00
10/16/2002	5.80E+01	4.06E+00
1/13/2003	6.07E+01	4.11E+00
4/10/2003	6.29E+01	4.14E+00
7/16/2003	5.81E+01	4.06E+00
10/14/2003	5.82E+01	4.06E+00
1/13/2004	5.60E+01	4.03E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW220	Upgradient	Yes	1.68E+01	NO	2.82E+00	N/A
MW221	Sidegradient	Yes	3.18E+01	NO	3.46E+00	N/A
MW222	Sidegradient	Yes	2.55E+01	NO	3.24E+00	N/A
MW223	Sidegradient	Yes	2.86E+01	NO	3.35E+00	N/A
MW224	Sidegradient	Yes	1.23E+01	NO	2.51E+00	N/A
MW369	Downgradient	Yes	2.77E+01	NO	3.32E+00	N/A
MW372	Downgradient	No	3.79E+01	N/A	3.63E+00	N/A
MW384	Sidegradient	Yes	2.06E+01	NO	3.03E+00	N/A
MW387	Downgradient	Yes	3.76E+01	NO	3.63E+00	N/A
MW391	Downgradient	No	4.14E+01	N/A	3.72E+00	N/A
MW394	Upgradient	Yes	4.72E+01	NO	3.85E+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 First Quarter 2024 Statistical Analysis Historical Background Comparison

Cobalt UNITS: mg/L URGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 0.016	**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

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: MW220

Date Collected	Result	LN(Result)
10/14/2002	4.10E-03	-5.50E+00
1/15/2003	4.96E-03	-5.31E+00
4/10/2003	2.89E-03	-5.85E+00
7/14/2003	1.61E-01	-1.83E+00
10/13/2003	2.26E-02	-3.79E+00
1/13/2004	4.64E-03	-5.37E+00
4/13/2004	1.00E-03	-6.91E+00
7/21/2004	2.64E-03	-5.94E+00

Well Number: MW394

Date Collected	Result	LN(Result)
8/13/2002	2.50E-02	-3.69E+00
9/16/2002	2.50E-02	-3.69E+00
10/16/2002	1.00E-03	-6.91E+00
1/13/2003	1.00E-03	-6.91E+00
4/10/2003	1.00E-03	-6.91E+00
7/16/2003	1.00E-03	-6.91E+00
10/14/2003	1.00E-03	-6.91E+00
1/13/2004	1.00E-03	-6.91E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW220	Upgradient	No	1.00E-03	N/A	-6.91E+00	N/A
MW221	Sidegradient	No	1.00E-03	N/A	-6.91E+00	N/A
MW222	Sidegradient	Yes	2.05E-03	N/A	-6.19E+00	NO
MW223	Sidegradient	Yes	5.49E-04	N/A	-7.51E+00	NO
MW224	Sidegradient	No	1.00E-03	N/A	-6.91E+00	N/A
MW369	Downgradient	Yes	4.83E-03	N/A	-5.33E+00	NO
MW372	Downgradient	No	1.00E-03	N/A	-6.91E+00	N/A
MW384	Sidegradient	No	1.00E-03	N/A	-6.91E+00	N/A
MW387	Downgradient	No	1.00E-03	N/A	-6.91E+00	N/A
MW391	Downgradient	No	1.00E-03	N/A	-6.91E+00	N/A
MW394	Upgradient	No	1.00E-03	N/A	-6.91E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-S/T First Quarter 2024 Statistical Analysis Historical Background Comparison

Conductivity UNITS: umho/cm URGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 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

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	3.68E+02	5.91E+00
1/15/2003	4.33E+02	6.07E+00
4/10/2003	4.89E+02	6.19E+00
7/14/2003	4.30E+02	6.06E+00
10/13/2003	3.46E+02	5.85E+00
1/13/2004	3.65E+02	5.90E+00
4/13/2004	4.16E+02	6.03E+00
7/21/2004	3.53E+02	5.87E+00

Well Number:	MW394	
Date Collected	Result	LN(Result)
8/13/2002	4.06E+02	6.01E+00
9/16/2002	4.18E+02	6.04E+00
10/16/2002	4.11E+02	6.02E+00
1/13/2003	4.22E+02	6.05E+00
4/10/2003	4.20E+02	6.04E+00
7/16/2003	4.38E+02	6.08E+00
10/14/2003	3.91E+00	1.36E+00
1/13/2004	3.95E+02	5.98E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW220	Upgradient	Yes	3.31E+02	NO	5.80E+00	N/A
MW221	Sidegradient	Yes	3.98E+02	NO	5.99E+00	N/A
MW222	Sidegradient	Yes	3.24E+02	NO	5.78E+00	N/A
MW223	Sidegradient	Yes	3.85E+02	NO	5.95E+00	N/A
MW224	Sidegradient	Yes	3.57E+02	NO	5.88E+00	N/A
MW369	Downgradient	Yes	3.41E+02	NO	5.83E+00	N/A
MW372	Downgradient	Yes	7.27E+02	YES	6.59E+00	N/A
MW384	Sidegradient	Yes	4.76E+02	NO	6.17E+00	N/A
MW387	Downgradient	Yes	5.38E+02	NO	6.29E+00	N/A
MW391	Downgradient	Yes	3.84E+02	NO	5.95E+00	N/A
MW394	Upgradient	Yes	4.07E+02	NO	6.01E+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 First Quarter 2024 Statistical Analysis Historical Background Comparison

Copper UNITS: mg/L URGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 0.024	**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

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	2.11E-02	-3.86E+00
1/15/2003	2.00E-02	-3.91E+00
4/10/2003	2.00E-02	-3.91E+00
7/14/2003	2.00E-02	-3.91E+00
10/13/2003	2.00E-02	-3.91E+00
1/13/2004	2.00E-02	-3.91E+00
4/13/2004	2.00E-02	-3.91E+00
7/21/2004	2.00E-02	-3.91E+00

Well Number:	MW394	
Date Collected	Result	LN(Result)
8/13/2002	5.00E-02	-3.00E+00
9/16/2002	5.00E-02	-3.00E+00
10/16/2002	2.00E-02	-3.91E+00
1/13/2003	2.00E-02	-3.91E+00
4/10/2003	2.00E-02	-3.91E+00
7/16/2003	2.00E-02	-3.91E+00
10/14/2003	2.00E-02	-3.91E+00
1/13/2004	2.00E-02	-3.91E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW220	Upgradient	Yes	2.96E-03	NO	-5.82E+00	N/A
MW221	Sidegradient	Yes	2.70E-03	NO	-5.91E+00	N/A
MW222	Sidegradient	Yes	2.58E-03	NO	-5.96E+00	N/A
MW223	Sidegradient	Yes	2.93E-03	NO	-5.83E+00	N/A
MW224	Sidegradient	Yes	2.49E-03	NO	-6.00E+00	N/A
MW369	Downgradient	Yes	1.70E-03	NO	-6.38E+00	N/A
MW372	Downgradient	Yes	1.46E-03	NO	-6.53E+00	N/A
MW384	Sidegradient	Yes	2.58E-03	NO	-5.96E+00	N/A
MW387	Downgradient	Yes	2.27E-03	NO	-6.09E+00	N/A
MW391	Downgradient	Yes	2.02E-03	NO	-6.20E+00	N/A
MW394	Upgradient	Yes	2.03E-03	NO	-6.20E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-S/T First Quarter 2024 Statistical Analysis Historical Background Comparison

Dissolved Oxygen UNITS: mg/L URGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 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

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	6.79E+00	1.92E+00
1/15/2003	7.25E+00	1.98E+00
4/10/2003	3.60E+00	1.28E+00
7/14/2003	9.40E-01	-6.19E-02
10/13/2003	1.65E+00	5.01E-01
1/13/2004	3.48E+00	1.25E+00
4/13/2004	1.05E+00	4.88E-02
7/21/2004	4.46E+00	1.50E+00

Well Number:	MW394	
Date Collected	Result	LN(Result)
8/13/2002	6.09E+00	1.81E+00
9/16/2002	3.85E+00	1.35E+00
10/16/2002	5.11E+00	1.63E+00
1/13/2003	3.83E+00	1.34E+00
4/10/2003	4.15E+00	1.42E+00
7/16/2003	1.83E+00	6.04E-01
10/14/2003	3.33E+00	1.20E+00
1/13/2004	3.14E+00	1.14E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW220	Upgradient	Yes	5.72E+00	NO	1.74E+00	N/A
MW221	Sidegradient	Yes	5.99E+00	NO	1.79E+00	N/A
MW222	Sidegradient	Yes	5.40E+00	NO	1.69E+00	N/A
MW223	Sidegradient	Yes	3.93E+00	NO	1.37E+00	N/A
MW224	Sidegradient	Yes	2.84E+00	NO	1.04E+00	N/A
MW369	Downgradient	Yes	2.42E+00	NO	8.84E-01	N/A
MW372	Downgradient	Yes	1.70E+00	NO	5.31E-01	N/A
MW384	Sidegradient	Yes	4.40E+00	NO	1.48E+00	N/A
MW387	Downgradient	Yes	4.47E+00	NO	1.50E+00	N/A
MW391	Downgradient	Yes	5.50E+00	NO	1.70E+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 First Quarter 2024 Statistical Analysis Historical Background Comparison

Dissolved Solids UNITS: mg/L URGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 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

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	2.08E+02	5.34E+00
1/15/2003	2.57E+02	5.55E+00
4/10/2003	2.88E+02	5.66E+00
7/14/2003	2.62E+02	5.57E+00
10/13/2003	1.97E+02	5.28E+00
1/13/2004	1.98E+02	5.29E+00
4/13/2004	2.45E+02	5.50E+00
7/21/2004	2.04E+02	5.32E+00

Well Number:	MW394	
Date Collected	Result	LN(Result)
8/13/2002	2.47E+02	5.51E+00
9/16/2002	2.59E+02	5.56E+00
10/16/2002	2.01E+02	5.30E+00
1/13/2003	2.28E+02	5.43E+00
4/10/2003	2.49E+02	5.52E+00
7/16/2003	2.40E+02	5.48E+00
10/14/2003	2.30E+02	5.44E+00
1/13/2004	2.10E+02	5.35E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW220	Upgradient	Yes	1.90E+02	NO	5.25E+00	N/A
MW221	Sidegradient	Yes	2.18E+02	NO	5.38E+00	N/A
MW222	Sidegradient	Yes	1.95E+02	NO	5.27E+00	N/A
MW223	Sidegradient	Yes	2.09E+02	NO	5.34E+00	N/A
MW224	Sidegradient	Yes	2.27E+02	NO	5.42E+00	N/A
MW369	Downgradient	Yes	1.89E+02	NO	5.24E+00	N/A
MW372	Downgradient	Yes	4.38E+02	YES	6.08E+00	N/A
MW384	Sidegradient	Yes	1.96E+02	NO	5.28E+00	N/A
MW387	Downgradient	Yes	2.84E+02	NO	5.65E+00	N/A
MW391	Downgradient	Yes	1.89E+02	NO	5.24E+00	N/A
MW394	Upgradient	Yes	2.00E+02	NO	5.30E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

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 First Quarter 2024 Statistical Analysis Historical Background Comparison

Iron UNITS: mg/L URGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 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

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:	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	1.18E-01	N/A	-2.14E+00	NO
MW221	Sidegradient	No	1.00E-01	N/A	-2.30E+00	N/A
MW222	Sidegradient	Yes	5.10E-01	N/A	-6.73E-01	NO
MW223	Sidegradient	Yes	4.81E-02	N/A	-3.03E+00	NO
MW224	Sidegradient	Yes	7.43E-02	N/A	-2.60E+00	NO
MW369	Downgradient	Yes	1.07E-01	N/A	-2.23E+00	NO
MW372	Downgradient	Yes	8.69E-02	N/A	-2.44E+00	NO
MW384	Sidegradient	Yes	6.95E-02	N/A	-2.67E+00	NO
MW387	Downgradient	Yes	1.12E-01	N/A	-2.19E+00	NO
MW391	Downgradient	Yes	1.69E-01	N/A	-1.78E+00	NO
MW394	Upgradient	Yes	3.95E-02	N/A	-3.23E+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 First Quarter 2024 Statistical Analysis Historical Background Comparison

Magnesium UNITS: mg/L URGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 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

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	9.16E+00	2.21E+00
1/15/2003	1.00E+01	2.30E+00
4/10/2003	1.08E+01	2.38E+00
7/14/2003	1.47E+01	2.69E+00
10/13/2003	9.03E+00	2.20E+00
1/13/2004	8.49E+00	2.14E+00
4/13/2004	9.70E+00	2.27E+00
7/21/2004	8.06E+00	2.09E+00

Well Number:	MW394	
Date Collected	Result	LN(Result)
8/13/2002	1.18E+01	2.47E+00
9/16/2002	1.21E+01	2.49E+00
10/16/2002	1.13E+01	2.42E+00
1/13/2003	1.03E+01	2.33E+00
4/10/2003	1.17E+01	2.46E+00
7/16/2003	1.20E+01	2.48E+00
10/14/2003	1.22E+01	2.50E+00
1/13/2004	1.14E+01	2.43E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW220	Upgradient	Yes	8.23E+00	NO	2.11E+00	N/A
MW221	Sidegradient	Yes	8.90E+00	NO	2.19E+00	N/A
MW222	Sidegradient	Yes	6.10E+00	NO	1.81E+00	N/A
MW223	Sidegradient	Yes	8.31E+00	NO	2.12E+00	N/A
MW224	Sidegradient	Yes	7.81E+00	NO	2.06E+00	N/A
MW369	Downgradient	Yes	7.13E+00	NO	1.96E+00	N/A
MW372	Downgradient	Yes	2.51E+01	YES	3.22E+00	N/A
MW384	Sidegradient	Yes	9.38E+00	NO	2.24E+00	N/A
MW387	Downgradient	Yes	1.58E+01	YES	2.76E+00	N/A
MW391	Downgradient	Yes	1.19E+01	NO	2.48E+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

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 First Quarter 2024 Statistical Analysis Historical Background Comparison

Manganese UNITS: mg/L URGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 0.287	**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

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: 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	2.17E-03	N/A	-6.13E+00	NO
MW221	Sidegradient	No	5.00E-03	N/A	-5.30E+00	N/A
MW222	Sidegradient	Yes	1.14E-02	N/A	-4.47E+00	NO
MW223	Sidegradient	Yes	7.06E-03	N/A	-4.95E+00	NO
MW224	Sidegradient	Yes	1.98E-03	N/A	-6.22E+00	NO
MW369	Downgradient	Yes	5.80E-03	N/A	-5.15E+00	NO
MW372	Downgradient	Yes	1.99E-03	N/A	-6.22E+00	NO
MW384	Sidegradient	Yes	1.72E-03	N/A	-6.37E+00	NO
MW387	Downgradient	Yes	1.14E-02	N/A	-4.47E+00	NO
MW391	Downgradient	Yes	2.88E-03	N/A	-5.85E+00	NO
MW394	Upgradient	Yes	1.02E-03	N/A	-6.89E+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 First Quarter 2024 Statistical Analysis — Historical Background Comparison

Methylene chloride — UNITS: ug/L — URGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 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

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	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

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	Yes	1.35E+00	NO	3.00E-01	N/A
MW384	Sidegradient	Yes	2.37E+00	NO	8.63E-01	N/A
MW387	Downgradient	No	7.60E-01	N/A	-2.74E-01	N/A
MW391	Downgradient	No	1.53E+00	N/A	4.25E-01	N/A
MW394	Upgradient	Yes	2.26E+00	NO	8.15E-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 First Quarter 2024 Statistical Analysis Historical Background Comparison

Molybdenum UNITS: mg/L URGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 0.006	**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

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: MW220

Date Collected	Result	LN(Result)
10/14/2002	5.58E-03	-5.19E+00
1/15/2003	9.83E-03	-4.62E+00
4/10/2003	1.09E-02	-4.52E+00
7/14/2003	2.45E-03	-6.01E+00
10/13/2003	5.66E-03	-5.17E+00
1/13/2004	5.72E-03	-5.16E+00
4/13/2004	1.00E-03	-6.91E+00
7/21/2004	3.92E-03	-5.54E+00

Well Number: MW394

Date Collected	Result	LN(Result)
8/13/2002	2.50E-02	-3.69E+00
9/16/2002	2.50E-02	-3.69E+00
10/16/2002	1.00E-03	-6.91E+00
1/13/2003	1.00E-03	-6.91E+00
4/10/2003	1.00E-03	-6.91E+00
7/16/2003	1.00E-03	-6.91E+00
10/14/2003	1.00E-03	-6.91E+00
1/13/2004	1.00E-03	-6.91E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW220	Upgradient	Yes	7.46E-04	N/A	-7.20E+00	NO
MW221	Sidegradient	Yes	2.43E-03	N/A	-6.02E+00	NO
MW222	Sidegradient	Yes	1.52E-03	N/A	-6.49E+00	NO
MW223	Sidegradient	Yes	5.29E-03	N/A	-5.24E+00	NO
MW224	Sidegradient	Yes	9.69E-04	N/A	-6.94E+00	NO
MW369	Downgradient	No	1.00E-03	N/A	-6.91E+00	N/A
MW372	Downgradient	Yes	2.68E-04	N/A	-8.22E+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 First Quarter 2024 Statistical Analysis — Historical Background Comparison

Nickel — **UNITS: mg/L** — **URGA**

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 0.127	**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

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: MW220

Date Collected	Result	LN(Result)
10/14/2002	4.18E-01	-8.72E-01
1/15/2003	7.38E-01	-3.04E-01
4/10/2003	5.44E-01	-6.09E-01
7/14/2003	1.06E-01	-2.24E+00
10/13/2003	5.29E-02	-2.94E+00
1/13/2004	2.09E-02	-3.87E+00
4/13/2004	5.00E-03	-5.30E+00
7/21/2004	1.92E-02	-3.95E+00

Well Number: MW394

Date Collected	Result	LN(Result)
8/13/2002	5.00E-02	-3.00E+00
9/16/2002	5.00E-02	-3.00E+00
10/16/2002	5.00E-03	-5.30E+00
1/13/2003	5.00E-03	-5.30E+00
4/10/2003	5.00E-03	-5.30E+00
7/16/2003	5.00E-03	-5.30E+00
10/14/2003	5.00E-03	-5.30E+00
1/13/2004	5.00E-03	-5.30E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW220	Upgradient	Yes	5.97E-03	N/A	-5.12E+00	NO
MW221	Sidegradient	Yes	6.94E-03	N/A	-4.97E+00	NO
MW222	Sidegradient	Yes	1.66E-02	N/A	-4.10E+00	NO
MW223	Sidegradient	Yes	1.28E-01	N/A	-2.06E+00	NO
MW224	Sidegradient	Yes	7.77E-03	N/A	-4.86E+00	NO
MW369	Downgradient	Yes	2.94E-03	N/A	-5.83E+00	NO
MW372	Downgradient	Yes	6.27E-04	N/A	-7.37E+00	NO
MW384	Sidegradient	No	2.00E-03	N/A	-6.21E+00	N/A
MW387	Downgradient	No	2.00E-03	N/A	-6.21E+00	N/A
MW391	Downgradient	No	2.00E-03	N/A	-6.21E+00	N/A
MW394	Upgradient	Yes	4.49E-03	N/A	-5.41E+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 First Quarter 2024 Statistical Analysis — Historical Background Comparison

Oxidation-Reduction Potential — UNITS: mV — URGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 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

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	2.05E+02	5.32E+00
1/15/2003	1.95E+00	6.68E-01
4/10/2003	2.03E+02	5.31E+00
7/14/2003	3.00E+01	3.40E+00
10/13/2003	1.07E+02	4.67E+00
1/13/2004	2.95E+02	5.69E+00
4/13/2004	1.90E+02	5.25E+00
7/21/2004	3.19E+02	5.77E+00

Well Number:	MW394	
Date Collected	Result	LN(Result)
8/13/2002	9.00E+01	4.50E+00
9/16/2002	2.40E+02	5.48E+00
10/16/2002	1.85E+02	5.22E+00
1/13/2003	2.20E+02	5.39E+00
4/10/2003	1.96E+02	5.28E+00
7/16/2003	1.72E+02	5.15E+00
10/14/2003	1.75E+02	5.16E+00
1/13/2004	2.49E+02	5.52E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW220	Upgradient	Yes	4.63E+02	YES	6.14E+00	N/A
MW221	Sidegradient	Yes	4.77E+02	YES	6.17E+00	N/A
MW222	Sidegradient	Yes	4.57E+02	YES	6.12E+00	N/A
MW223	Sidegradient	Yes	4.66E+02	YES	6.14E+00	N/A
MW224	Sidegradient	Yes	4.90E+02	YES	6.19E+00	N/A
MW369	Downgradient	Yes	4.23E+02	YES	6.05E+00	N/A
MW372	Downgradient	Yes	4.83E+02	YES	6.18E+00	N/A
MW384	Sidegradient	Yes	5.36E+02	YES	6.28E+00	N/A
MW387	Downgradient	Yes	4.50E+02	YES	6.11E+00	N/A
MW391	Downgradient	Yes	4.28E+02	YES	6.06E+00	N/A
MW394	Upgradient	Yes	5.18E+02	YES	6.25E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

Conclusion of Statistical Analysis on Historical Data

The test well(s) listed exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to historical background data.

Wells with Exceedances
MW220
MW221
MW222
MW223
MW224
MW369
MW372
MW384
MW387
MW391
MW394

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-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 First 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

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	6.04E+00	1.80E+00
1/15/2003	6.31E+00	1.84E+00
4/10/2003	6.50E+00	1.87E+00
7/14/2003	6.30E+00	1.84E+00
10/13/2003	6.34E+00	1.85E+00
1/13/2004	6.33E+00	1.85E+00
4/13/2004	6.30E+00	1.84E+00
7/21/2004	5.90E+00	1.77E+00

Well Number:	MW394	
Date Collected	Result	LN(Result)
8/13/2002	5.80E+00	1.76E+00
9/30/2002	5.93E+00	1.78E+00
10/16/2002	5.42E+00	1.69E+00
1/13/2003	6.00E+00	1.79E+00
4/10/2003	6.04E+00	1.80E+00
7/16/2003	6.20E+00	1.82E+00
10/14/2003	6.40E+00	1.86E+00
1/13/2004	6.39E+00	1.85E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)? Result <LL(1)?	LN(Result)	LN(Result) >TL(2)? LN(Result) <LL(2)?
MW220	Upgradient	Yes	6.12E+00	NO	1.81E+00	N/A
MW221	Sidegradient	Yes	6.15E+00	NO	1.82E+00	N/A
MW222	Sidegradient	Yes	6.25E+00	NO	1.83E+00	N/A
MW223	Sidegradient	Yes	6.21E+00	NO	1.83E+00	N/A
MW224	Sidegradient	Yes	6.18E+00	NO	1.82E+00	N/A
MW369	Downgradient	Yes	6.13E+00	NO	1.81E+00	N/A
MW372	Downgradient	Yes	6.07E+00	NO	1.80E+00	N/A
MW384	Sidegradient	Yes	6.26E+00	NO	1.83E+00	N/A
MW387	Downgradient	Yes	6.25E+00	NO	1.83E+00	N/A
MW391	Downgradient	Yes	6.00E+00	NO	1.79E+00	N/A
MW394	Upgradient	Yes	6.08E+00	NO	1.81E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-S/T First 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

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: 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	1.22E+00	N/A	1.99E-01	NO
MW221	Sidegradient	Yes	2.80E+00	N/A	1.03E+00	NO
MW222	Sidegradient	Yes	4.59E-01	N/A	-7.79E-01	NO
MW223	Sidegradient	Yes	4.37E+00	N/A	1.47E+00	NO
MW224	Sidegradient	Yes	7.49E-01	N/A	-2.89E-01	NO
MW369	Downgradient	Yes	5.64E-01	N/A	-5.73E-01	NO
MW372	Downgradient	Yes	2.12E+00	N/A	7.51E-01	NO
MW384	Sidegradient	Yes	1.36E+00	N/A	3.07E-01	NO
MW387	Downgradient	Yes	1.73E+00	N/A	5.48E-01	NO
MW391	Downgradient	Yes	1.47E+00	N/A	3.85E-01	NO
MW394	Upgradient	Yes	1.35E+00	N/A	3.00E-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 First 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

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	3.54E+01	3.57E+00
1/15/2003	4.06E+01	3.70E+00
4/10/2003	5.10E+01	3.93E+00
7/14/2003	5.82E+01	4.06E+00
10/13/2003	3.81E+01	3.64E+00
1/13/2004	3.70E+01	3.61E+00
4/13/2004	4.32E+01	3.77E+00
7/21/2004	3.38E+01	3.52E+00

Well Number: MW394

Date Collected	Result	LN(Result)
8/13/2002	3.29E+01	3.49E+00
9/16/2002	2.99E+01	3.40E+00
10/16/2002	2.90E+01	3.37E+00
1/13/2003	2.71E+01	3.30E+00
4/10/2003	2.48E+01	3.21E+00
7/16/2003	3.56E+01	3.57E+00
10/14/2003	3.39E+01	3.52E+00
1/13/2004	3.13E+01	3.44E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW220	Upgradient	Yes	3.58E+01	NO	3.58E+00	N/A
MW221	Sidegradient	Yes	4.53E+01	NO	3.81E+00	N/A
MW222	Sidegradient	Yes	3.95E+01	NO	3.68E+00	N/A
MW223	Sidegradient	Yes	4.44E+01	NO	3.79E+00	N/A
MW224	Sidegradient	Yes	5.41E+01	NO	3.99E+00	N/A
MW369	Downgradient	Yes	5.12E+01	NO	3.94E+00	N/A
MW372	Downgradient	Yes	6.08E+01	YES	4.11E+00	N/A
MW384	Sidegradient	Yes	4.20E+01	NO	3.74E+00	N/A
MW387	Downgradient	Yes	4.93E+01	NO	3.90E+00	N/A
MW391	Downgradient	Yes	3.40E+01	NO	3.53E+00	N/A
MW394	Upgradient	Yes	3.16E+01	NO	3.45E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

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 First 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

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	1.04E+01	2.34E+00
1/15/2003	9.80E+00	2.28E+00
4/10/2003	1.54E+01	2.73E+00
7/14/2003	1.49E+01	2.70E+00
10/13/2003	1.35E+01	2.60E+00
1/13/2004	1.03E+01	2.33E+00
4/13/2004	1.43E+01	2.66E+00
7/21/2004	1.05E+01	2.35E+00

Well Number: MW394

Date Collected	Result	LN(Result)
8/13/2002	1.12E+01	2.42E+00
9/16/2002	8.30E+00	2.12E+00
10/16/2002	8.00E+00	2.08E+00
1/13/2003	8.50E+00	2.14E+00
4/10/2003	7.90E+00	2.07E+00
7/16/2003	8.40E+00	2.13E+00
10/14/2003	8.20E+00	2.10E+00
1/13/2004	8.10E+00	2.09E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW220	Upgradient	Yes	1.47E+01	NO	2.69E+00	N/A
MW221	Sidegradient	Yes	1.40E+01	NO	2.64E+00	N/A
MW222	Sidegradient	Yes	9.85E+00	NO	2.29E+00	N/A
MW223	Sidegradient	Yes	1.18E+01	NO	2.47E+00	N/A
MW224	Sidegradient	Yes	9.04E+00	NO	2.20E+00	N/A
MW369	Downgradient	Yes	8.49E+00	NO	2.14E+00	N/A
MW372	Downgradient	Yes	1.48E+02	YES	5.00E+00	N/A
MW384	Sidegradient	Yes	1.76E+01	YES	2.87E+00	N/A
MW387	Downgradient	Yes	2.87E+01	YES	3.36E+00	N/A
MW391	Downgradient	Yes	1.19E+01	NO	2.48E+00	N/A
MW394	Upgradient	Yes	1.16E+01	NO	2.45E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

The test well(s) listed exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to historical background data.

Wells with Exceedances

MW372
MW384
MW387

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-S/T First 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

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.

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!

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW220	Upgradient	No	2.00E+01	N/A	3.00E+00	N/A
MW221	Sidegradient	No	5.70E+00	N/A	1.74E+00	N/A
MW222	Sidegradient	No	-1.72E+00	N/A	#Error	N/A
MW223	Sidegradient	No	2.99E+00	N/A	1.10E+00	N/A
MW224	Sidegradient	No	9.19E+00	N/A	2.22E+00	N/A
MW369	Downgradient	Yes	6.27E+01	YES	4.14E+00	N/A
MW372	Downgradient	Yes	3.89E+01	YES	3.66E+00	N/A
MW384	Sidegradient	Yes	3.00E+01	NO	3.40E+00	N/A
MW387	Downgradient	Yes	3.54E+01	YES	3.57E+00	N/A
MW391	Downgradient	No	2.48E+00	N/A	9.08E-01	N/A
MW394	Upgradient	No	2.34E+00	N/A	8.50E-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

MW369
MW372
MW387

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-S/T First 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	6.49E-01	NO	-4.32E-01	N/A
MW221	Sidegradient	Yes	7.35E-01	NO	-3.08E-01	N/A
MW222	Sidegradient	Yes	3.63E-01	NO	-1.01E+00	N/A
MW223	Sidegradient	Yes	5.99E-01	NO	-5.12E-01	N/A
MW224	Sidegradient	Yes	7.34E-01	NO	-3.09E-01	N/A
MW369	Downgradient	Yes	7.69E-01	NO	-2.63E-01	N/A
MW372	Downgradient	Yes	1.02E+00	NO	1.98E-02	N/A
MW384	Sidegradient	Yes	1.02E+00	NO	1.98E-02	N/A
MW387	Downgradient	Yes	9.38E-01	NO	-6.40E-02	N/A
MW391	Downgradient	Yes	5.56E-01	NO	-5.87E-01	N/A
MW394	Upgradient	Yes	7.89E-01	NO	-2.37E-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 First 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

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: 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	5.64E+00	N/A	1.73E+00	NO
MW221	Sidegradient	Yes	2.44E+01	N/A	3.19E+00	NO
MW222	Sidegradient	No	1.00E+01	N/A	2.30E+00	N/A
MW223	Sidegradient	Yes	1.07E+01	N/A	2.37E+00	NO
MW224	Sidegradient	Yes	3.92E+00	N/A	1.37E+00	NO
MW369	Downgradient	Yes	2.10E+01	N/A	3.04E+00	NO
MW372	Downgradient	Yes	1.09E+01	N/A	2.39E+00	NO
MW384	Sidegradient	Yes	1.09E+01	N/A	2.39E+00	NO
MW387	Downgradient	Yes	9.60E+00	N/A	2.26E+00	NO
MW391	Downgradient	Yes	1.37E+01	N/A	2.62E+00	NO
MW394	Upgradient	Yes	8.60E+00	N/A	2.15E+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 First Quarter 2024 Statistical Analysis — Historical Background Comparison

Trichloroethene — 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=** 8.813	**S=** 8.376	**CV(1)=** 0.951	**K factor**=** 2.523	**TL(1)=** 2.99E+01	**LL(1)=**N/A
Statistics-Transformed Background Data	**X=** 1.395	**S=** 1.449	**CV(2)=** 1.039	**K factor**=** 2.523	**TL(2)=** 5.05E+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	1.00E+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	1.60E+01	2.77E+00
9/30/2002	2.00E+01	3.00E+00
10/16/2002	1.70E+01	2.83E+00
1/13/2003	1.50E+01	2.71E+00
4/10/2003	1.00E+01	2.30E+00
7/16/2003	1.90E+01	2.94E+00
10/14/2003	2.00E+01	3.00E+00
1/13/2004	1.60E+01	2.77E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW220	Upgradient	No	1.00E+00	N/A	0.00E+00	N/A
MW221	Sidegradient	No	1.00E+00	N/A	0.00E+00	N/A
MW222	Sidegradient	No	1.00E+00	N/A	0.00E+00	N/A
MW223	Sidegradient	No	1.00E+00	N/A	0.00E+00	N/A
MW224	Sidegradient	No	1.00E+00	N/A	0.00E+00	N/A
MW369	Downgradient	Yes	9.00E-01	N/A	-1.05E-01	N/A
MW372	Downgradient	Yes	2.50E+00	N/A	9.16E-01	N/A
MW384	Sidegradient	Yes	4.50E-01	N/A	-7.99E-01	N/A
MW387	Downgradient	Yes	4.30E-01	N/A	-8.44E-01	N/A
MW391	Downgradient	Yes	5.80E-01	N/A	-5.45E-01	N/A
MW394	Upgradient	Yes	5.43E+00	NO	1.69E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-S/T First Quarter 2024 Statistical Analysis Historical Background Comparison

Vanadium UNITS: mg/L URGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 0.021	**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

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	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

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	Yes	3.87E-03	NO	-5.55E+00	N/A
MW222	Sidegradient	Yes	7.52E-03	NO	-4.89E+00	N/A
MW223	Sidegradient	Yes	7.18E-03	NO	-4.94E+00	N/A
MW224	Sidegradient	Yes	6.95E-03	NO	-4.97E+00	N/A
MW369	Downgradient	No	2.00E-02	N/A	-3.91E+00	N/A
MW372	Downgradient	Yes	5.73E-03	NO	-5.16E+00	N/A
MW384	Sidegradient	No	5.05E-03	N/A	-5.29E+00	N/A
MW387	Downgradient	No	2.00E-02	N/A	-3.91E+00	N/A
MW391	Downgradient	Yes	3.77E-03	NO	-5.58E+00	N/A
MW394	Upgradient	No	4.97E-03	N/A	-5.30E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-S/T First Quarter 2024 Statistical Analysis — Historical Background Comparison

Zinc — **UNITS: mg/L** — **URGA**

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 0.036	**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

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	2.50E-02	-3.69E+00
1/15/2003	3.50E-02	-3.35E+00
4/10/2003	3.50E-02	-3.35E+00
7/14/2003	3.89E-02	-3.25E+00
10/13/2003	2.60E-02	-3.65E+00
1/13/2004	2.00E-02	-3.91E+00
4/13/2004	2.00E-02	-3.91E+00
7/21/2004	2.00E-02	-3.91E+00

Well Number: MW394

Date Collected	Result	LN(Result)
8/13/2002	1.00E-01	-2.30E+00
9/16/2002	1.00E-01	-2.30E+00
10/16/2002	2.50E-02	-3.69E+00
1/13/2003	3.50E-02	-3.35E+00
4/10/2003	3.50E-02	-3.35E+00
7/16/2003	2.00E-02	-3.91E+00
10/14/2003	2.00E-02	-3.91E+00
1/13/2004	2.00E-02	-3.91E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW220	Upgradient	Yes	4.15E-03	NO	-5.48E+00	N/A
MW221	Sidegradient	Yes	3.76E-03	NO	-5.58E+00	N/A
MW222	Sidegradient	Yes	3.89E-03	NO	-5.55E+00	N/A
MW223	Sidegradient	Yes	5.18E-03	NO	-5.26E+00	N/A
MW224	Sidegradient	Yes	3.37E-03	NO	-5.69E+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	Yes	6.65E-03	NO	-5.01E+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 First Quarter 2024 Statistical Analysis — Historical Background Comparison

Acetone — **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=** 10.063	**S=** 0.250	**CV(1)=** 0.025	**K factor**=** 2.523	**TL(1)=** 1.07E+01	**LL(1)=**N/A
Statistics-Transformed Background Data	**X=** 2.309	**S=** 0.024	**CV(2)=** 0.010	**K factor**=** 2.523	**TL(2)=** 2.37E+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).

Historical Background Data from Upgradient Wells with Transformed Result

Well Number: MW395

Date Collected	Result	LN(Result)
8/13/2002	1.10E+01	2.40E+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	1.00E+01	2.30E+00
4/12/2004	1.00E+01	2.30E+00

Well Number: MW397

Date Collected	Result	LN(Result)
8/13/2002	1.00E+01	2.30E+00
9/30/2002	1.00E+01	2.30E+00
10/17/2002	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	1.00E+01	2.30E+00
4/12/2004	1.00E+01	2.30E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
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	2.09E+00	NO	7.37E-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 First Quarter 2024 Statistical Analysis Historical Background Comparison

Aluminum UNITS: mg/L LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 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

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:	MW395	
Date Collected	Result	LN(Result)
8/13/2002	2.00E-01	-1.61E+00
9/16/2002	2.00E-01	-1.61E+00
10/16/2002	2.00E-04	-8.52E+00
1/13/2003	7.37E-01	-3.05E-01
4/10/2003	2.00E-01	-1.61E+00
7/16/2003	2.00E-01	-1.61E+00
10/14/2003	2.00E-01	-1.61E+00
1/13/2004	2.00E-01	-1.61E+00

Well Number:	MW397	
Date Collected	Result	LN(Result)
8/13/2002	8.24E-01	-1.94E-01
9/16/2002	2.00E-01	-1.61E+00
10/17/2002	2.00E-04	-8.52E+00
1/13/2003	3.63E-01	-1.01E+00
4/8/2003	2.00E-01	-1.61E+00
7/16/2003	2.00E-01	-1.61E+00
10/14/2003	2.00E-01	-1.61E+00
1/13/2004	2.00E-01	-1.61E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW370	Downgradient	No	5.00E-02	N/A	-3.00E+00	N/A
MW373	Downgradient	No	5.00E-02	N/A	-3.00E+00	N/A
MW385	Sidegradient	No	2.21E-02	N/A	-3.81E+00	N/A
MW388	Downgradient	Yes	2.03E-02	NO	-3.90E+00	N/A
MW392	Downgradient	Yes	4.17E-02	NO	-3.18E+00	N/A
MW395	Upgradient	No	5.00E-02	N/A	-3.00E+00	N/A
MW397	Upgradient	Yes	2.99E-02	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 First Quarter 2024 Statistical Analysis Historical Background Comparison

Boron UNITS: mg/L LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 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

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	2.00E+00	6.93E-01
9/16/2002	2.00E+00	6.93E-01
10/16/2002	2.00E-01	-1.61E+00
1/13/2003	2.00E-01	-1.61E+00
4/10/2003	2.00E-01	-1.61E+00
7/16/2003	2.00E-01	-1.61E+00
10/14/2003	2.00E-01	-1.61E+00
1/13/2004	2.00E-01	-1.61E+00

Well Number:	MW397	
Date Collected	Result	LN(Result)
8/13/2002	2.00E+00	6.93E-01
9/16/2002	2.00E+00	6.93E-01
10/17/2002	2.00E-01	-1.61E+00
1/13/2003	2.00E-01	-1.61E+00
4/8/2003	2.00E-01	-1.61E+00
7/16/2003	2.00E-01	-1.61E+00
10/14/2003	2.00E-01	-1.61E+00
1/13/2004	2.00E-01	-1.61E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW370	Downgradient	Yes	1.27E-01	N/A	-2.06E+00	NO
MW373	Downgradient	Yes	2.22E+00	N/A	7.98E-01	NO
MW385	Sidegradient	Yes	7.51E-02	N/A	-2.59E+00	NO
MW388	Downgradient	Yes	2.89E-02	N/A	-3.54E+00	NO
MW392	Downgradient	Yes	2.62E-02	N/A	-3.64E+00	NO
MW395	Upgradient	Yes	1.93E-02	N/A	-3.95E+00	NO
MW397	Upgradient	Yes	7.13E-03	N/A	-4.94E+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 First Quarter 2024 Statistical Analysis Historical Background Comparison

Bromide UNITS: mg/L LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 1.000	**S=** 0.000	**CV(1)=** 0.000	**K factor**=** 2.523	**TL(1)=** 1.00E+00	**LL(1)=**N/A
Statistics-Transformed Background Data	**X=** 0.000	**S=** 0.000	**CV(2)=** #Num!	**K factor**=** 2.523	**TL(2)=** 0.00E+00	**LL(2)=**N/A

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: MW395

Date Collected	Result	LN(Result)
8/13/2002	1.00E+00	0.00E+00
9/16/2002	1.00E+00	0.00E+00
10/16/2002	1.00E+00	0.00E+00
1/13/2003	1.00E+00	0.00E+00
4/10/2003	1.00E+00	0.00E+00
7/16/2003	1.00E+00	0.00E+00
10/14/2003	1.00E+00	0.00E+00
1/13/2004	1.00E+00	0.00E+00

Well Number: MW397

Date Collected	Result	LN(Result)
8/13/2002	1.00E+00	0.00E+00
9/16/2002	1.00E+00	0.00E+00
10/17/2002	1.00E+00	0.00E+00
1/13/2003	1.00E+00	0.00E+00
4/8/2003	1.00E+00	0.00E+00
7/16/2003	1.00E+00	0.00E+00
10/14/2003	1.00E+00	0.00E+00
1/13/2004	1.00E+00	0.00E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW370	Downgradient	Yes	5.98E-01	NO	-5.14E-01	N/A
MW373	Downgradient	Yes	2.02E-01	NO	-1.60E+00	N/A
MW385	Sidegradient	Yes	2.40E-01	NO	-1.43E+00	N/A
MW388	Downgradient	Yes	4.45E-01	NO	-8.10E-01	N/A
MW392	Downgradient	Yes	5.32E-01	NO	-6.31E-01	N/A
MW395	Upgradient	Yes	6.34E-01	NO	-4.56E-01	N/A
MW397	Upgradient	Yes	4.77E-01	NO	-7.40E-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 First Quarter 2024 Statistical Analysis — Historical Background Comparison

Calcium — UNITS: mg/L — LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 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

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: MW395

Date Collected	Result	LN(Result)
8/13/2002	3.22E+01	3.47E+00
9/16/2002	3.30E+01	3.50E+00
10/16/2002	2.95E-02	-3.52E+00
1/13/2003	3.21E+01	3.47E+00
4/10/2003	4.02E+01	3.69E+00
7/16/2003	3.24E+01	3.48E+00
10/14/2003	3.39E+01	3.52E+00
1/13/2004	3.12E+01	3.44E+00

Well Number: MW397

Date Collected	Result	LN(Result)
8/13/2002	1.94E+01	2.97E+00
9/16/2002	1.90E+01	2.94E+00
10/17/2002	1.79E-02	-4.02E+00
1/13/2003	1.78E+01	2.88E+00
4/8/2003	2.03E+01	3.01E+00
7/16/2003	1.94E+01	2.97E+00
10/14/2003	1.99E+01	2.99E+00
1/13/2004	1.88E+01	2.93E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW370	Downgradient	Yes	3.00E+01	NO	3.40E+00	N/A
MW373	Downgradient	Yes	8.40E+01	YES	4.43E+00	N/A
MW385	Sidegradient	Yes	2.89E+01	NO	3.36E+00	N/A
MW388	Downgradient	Yes	2.44E+01	NO	3.19E+00	N/A
MW392	Downgradient	Yes	2.50E+01	NO	3.22E+00	N/A
MW395	Upgradient	Yes	2.66E+01	NO	3.28E+00	N/A
MW397	Upgradient	Yes	1.73E+01	NO	2.85E+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 First Quarter 2024 Statistical Analysis Historical Background Comparison

Chloride UNITS: mg/L LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 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

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:	MW395	
Date Collected	Result	LN(Result)
8/13/2002	6.22E+01	4.13E+00
9/16/2002	6.47E+01	4.17E+00
10/16/2002	6.22E+01	4.13E+00
1/13/2003	6.35E+01	4.15E+00
4/10/2003	6.41E+01	4.16E+00
7/16/2003	6.40E+01	4.16E+00
10/14/2003	6.32E+01	4.15E+00
1/13/2004	6.06E+01	4.10E+00

Well Number:	MW397	
Date Collected	Result	LN(Result)
8/13/2002	3.89E+01	3.66E+00
9/16/2002	3.98E+01	3.68E+00
10/17/2002	3.93E+01	3.67E+00
1/13/2003	4.05E+01	3.70E+00
4/8/2003	4.21E+01	3.74E+00
7/16/2003	4.20E+01	3.74E+00
10/14/2003	4.08E+01	3.71E+00
1/13/2004	4.16E+01	3.73E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW370	Downgradient	Yes	4.01E+01	NO	3.69E+00	N/A
MW373	Downgradient	No	3.13E+01	N/A	3.44E+00	N/A
MW385	Sidegradient	Yes	2.32E+01	NO	3.14E+00	N/A
MW388	Downgradient	Yes	3.54E+01	NO	3.57E+00	N/A
MW392	Downgradient	No	4.21E+01	N/A	3.74E+00	N/A
MW395	Upgradient	Yes	4.47E+01	NO	3.80E+00	N/A
MW397	Upgradient	Yes	3.27E+01	NO	3.49E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

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 First 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

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: 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

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	5.50E-01	NO	-5.98E-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 First Quarter 2024 Statistical Analysis Historical Background Comparison

Cobalt UNITS: mg/L LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 0.007	**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	No	1.00E-03	N/A	-6.91E+00	N/A
MW373	Downgradient	Yes	5.01E-04	N/A	-7.60E+00	NO
MW385	Sidegradient	No	8.91E-04	N/A	-7.02E+00	N/A
MW388	Downgradient	No	1.00E-03	N/A	-6.91E+00	N/A
MW392	Downgradient	Yes	7.71E-04	N/A	-7.17E+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 First Quarter 2024 Statistical Analysis Historical Background Comparison

Conductivity UNITS: umho/cm LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 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

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: MW395

Date Collected	Result	LN(Result)
8/13/2002	4.05E+02	6.00E+00
9/16/2002	4.01E+02	5.99E+00
10/16/2002	3.92E+02	5.97E+00
1/13/2003	4.04E+02	6.00E+00
4/10/2003	4.88E+02	6.19E+00
7/16/2003	4.50E+02	6.11E+00
10/14/2003	4.10E+02	6.02E+00
1/13/2004	4.13E+02	6.02E+00

Well Number: MW397

Date Collected	Result	LN(Result)
8/13/2002	3.22E+02	5.77E+00
9/16/2002	3.15E+02	5.75E+00
10/17/2002	3.17E+02	5.76E+00
1/13/2003	3.20E+02	5.77E+00
4/8/2003	3.90E+02	5.97E+00
7/16/2003	3.54E+02	5.87E+00
10/14/2003	3.31E+02	5.80E+00
1/13/2004	3.34E+02	5.81E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW370	Downgradient	Yes	4.37E+02	NO	6.08E+00	N/A
MW373	Downgradient	Yes	9.09E+02	YES	6.81E+00	N/A
MW385	Sidegradient	Yes	4.23E+02	NO	6.05E+00	N/A
MW388	Downgradient	Yes	4.13E+02	NO	6.02E+00	N/A
MW392	Downgradient	Yes	3.31E+02	NO	5.80E+00	N/A
MW395	Upgradient	Yes	3.88E+02	NO	5.96E+00	N/A
MW397	Upgradient	Yes	3.17E+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 First Quarter 2024 Statistical Analysis Historical Background Comparison

Copper UNITS: mg/L LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 0.028	**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

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:	MW395	
Date Collected	Result	LN(Result)
8/13/2002	5.00E-02	-3.00E+00
9/16/2002	5.00E-02	-3.00E+00
10/16/2002	2.81E-02	-3.57E+00
1/13/2003	2.00E-02	-3.91E+00
4/10/2003	2.00E-02	-3.91E+00
7/16/2003	2.00E-02	-3.91E+00
10/14/2003	2.00E-02	-3.91E+00
1/13/2004	2.00E-02	-3.91E+00

Well Number:	MW397	
Date Collected	Result	LN(Result)
8/13/2002	5.00E-02	-3.00E+00
9/16/2002	5.00E-02	-3.00E+00
10/17/2002	2.00E-02	-3.91E+00
1/13/2003	2.00E-02	-3.91E+00
4/8/2003	2.00E-02	-3.91E+00
7/16/2003	2.00E-02	-3.91E+00
10/14/2003	2.00E-02	-3.91E+00
1/13/2004	2.00E-02	-3.91E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW370	Downgradient	Yes	1.81E-03	NO	-6.31E+00	N/A
MW373	Downgradient	Yes	1.16E-03	NO	-6.76E+00	N/A
MW385	Sidegradient	No	1.53E-03	N/A	-6.48E+00	N/A
MW388	Downgradient	Yes	2.09E-03	NO	-6.17E+00	N/A
MW392	Downgradient	Yes	1.93E-03	NO	-6.25E+00	N/A
MW395	Upgradient	Yes	2.41E-03	NO	-6.03E+00	N/A
MW397	Upgradient	Yes	2.13E-03	NO	-6.15E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-S/T First Quarter 2024 Statistical Analysis — Historical Background Comparison

Dissolved Oxygen — UNITS: mg/L — LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 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

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: MW395

Date Collected	Result	LN(Result)
8/13/2002	7.29E+00	1.99E+00
9/30/2002	4.03E+00	1.39E+00
10/16/2002	3.85E+00	1.35E+00
1/13/2003	2.36E+00	8.59E-01
4/10/2003	1.14E+00	1.31E-01
7/16/2003	1.76E+00	5.65E-01
10/14/2003	4.05E+00	1.40E+00
1/13/2004	4.26E+00	1.45E+00

Well Number: MW397

Date Collected	Result	LN(Result)
8/13/2002	1.16E+01	2.45E+00
9/16/2002	5.86E+00	1.77E+00
10/17/2002	5.94E+00	1.78E+00
1/13/2003	4.66E+00	1.54E+00
4/8/2003	3.77E+00	1.33E+00
7/16/2003	3.47E+00	1.24E+00
10/14/2003	5.34E+00	1.68E+00
1/13/2004	5.51E+00	1.71E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW370	Downgradient	Yes	4.65E+00	NO	1.54E+00	N/A
MW373	Downgradient	Yes	1.30E+00	NO	2.62E-01	N/A
MW385	Sidegradient	Yes	1.22E+00	NO	1.99E-01	N/A
MW388	Downgradient	Yes	5.26E+00	NO	1.66E+00	N/A
MW392	Downgradient	Yes	2.02E+00	NO	7.03E-01	N/A
MW395	Upgradient	Yes	5.10E+00	NO	1.63E+00	N/A
MW397	Upgradient	Yes	7.84E+00	NO	2.06E+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 First Quarter 2024 Statistical Analysis — Historical Background Comparison

Dissolved Solids — UNITS: mg/L — LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 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

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: MW395

Date Collected	Result	LN(Result)
8/13/2002	2.49E+02	5.52E+00
9/16/2002	2.72E+02	5.61E+00
10/16/2002	2.55E+02	5.54E+00
1/13/2003	2.11E+02	5.35E+00
4/10/2003	2.89E+02	5.67E+00
7/16/2003	2.36E+02	5.46E+00
10/14/2003	2.24E+02	5.41E+00
1/13/2004	2.35E+02	5.46E+00

Well Number: MW397

Date Collected	Result	LN(Result)
8/13/2002	1.87E+02	5.23E+00
9/16/2002	1.97E+02	5.28E+00
10/17/2002	1.83E+02	5.21E+00
1/13/2003	1.82E+02	5.20E+00
4/8/2003	2.17E+02	5.38E+00
7/16/2003	1.96E+02	5.28E+00
10/14/2003	1.98E+02	5.29E+00
1/13/2004	1.77E+02	5.18E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW370	Downgradient	Yes	2.35E+02	NO	5.46E+00	N/A
MW373	Downgradient	Yes	5.36E+02	YES	6.28E+00	N/A
MW385	Sidegradient	Yes	2.14E+02	NO	5.37E+00	N/A
MW388	Downgradient	Yes	2.20E+02	NO	5.39E+00	N/A
MW392	Downgradient	Yes	1.69E+02	NO	5.13E+00	N/A
MW395	Upgradient	Yes	2.07E+02	NO	5.33E+00	N/A
MW397	Upgradient	Yes	1.61E+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 First Quarter 2024 Statistical Analysis Historical Background Comparison

Iron UNITS: mg/L LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 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

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	2.94E-01	-1.22E+00
9/16/2002	2.00E-01	-1.61E+00
10/16/2002	2.00E-04	-8.52E+00
1/13/2003	1.33E+00	2.85E-01
4/10/2003	1.31E+00	2.70E-01
7/16/2003	2.00E-01	-1.61E+00
10/14/2003	1.00E-01	-2.30E+00
1/13/2004	1.00E-01	-2.30E+00

Well Number:	MW397	
Date Collected	Result	LN(Result)
8/13/2002	1.58E+00	4.57E-01
9/16/2002	2.32E-01	-1.46E+00
10/17/2002	2.00E-04	-8.52E+00
1/13/2003	4.53E-01	-7.92E-01
4/8/2003	2.00E-01	-1.61E+00
7/16/2003	2.00E-01	-1.61E+00
10/14/2003	1.00E-01	-2.30E+00
1/13/2004	1.00E-01	-2.30E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW370	Downgradient	Yes	3.76E-02	N/A	-3.28E+00	NO
MW373	Downgradient	Yes	8.72E-02	N/A	-2.44E+00	NO
MW385	Sidegradient	No	4.51E-02	N/A	-3.10E+00	N/A
MW388	Downgradient	Yes	9.58E-02	N/A	-2.35E+00	NO
MW392	Downgradient	Yes	2.61E-01	N/A	-1.34E+00	NO
MW395	Upgradient	No	1.00E-01	N/A	-2.30E+00	N/A
MW397	Upgradient	Yes	6.01E-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 First Quarter 2024 Statistical Analysis — Historical Background Comparison

Magnesium — UNITS: mg/L — LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 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

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: MW395

Date Collected	Result	LN(Result)
8/13/2002	1.25E+01	2.53E+00
9/16/2002	1.30E+01	2.56E+00
10/16/2002	1.27E-02	-4.37E+00
1/13/2003	1.12E+01	2.42E+00
4/10/2003	1.75E+01	2.86E+00
7/16/2003	1.29E+01	2.56E+00
10/14/2003	1.34E+01	2.60E+00
1/13/2004	1.24E+01	2.52E+00

Well Number: MW397

Date Collected	Result	LN(Result)
8/13/2002	7.83E+00	2.06E+00
9/16/2002	7.64E+00	2.03E+00
10/17/2002	6.58E-03	-5.02E+00
1/13/2003	6.69E+00	1.90E+00
4/8/2003	7.28E+00	1.99E+00
7/16/2003	7.82E+00	2.06E+00
10/14/2003	7.94E+00	2.07E+00
1/13/2004	7.51E+00	2.02E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW370	Downgradient	Yes	1.35E+01	NO	2.60E+00	N/A
MW373	Downgradient	Yes	2.99E+01	YES	3.40E+00	N/A
MW385	Sidegradient	Yes	1.11E+01	NO	2.41E+00	N/A
MW388	Downgradient	Yes	1.06E+01	NO	2.36E+00	N/A
MW392	Downgradient	Yes	1.08E+01	NO	2.38E+00	N/A
MW395	Upgradient	Yes	1.08E+01	NO	2.38E+00	N/A
MW397	Upgradient	Yes	7.49E+00	NO	2.01E+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 First Quarter 2024 Statistical Analysis Historical Background Comparison

Manganese UNITS: mg/L LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 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

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	3.61E-01	-1.02E+00
9/16/2002	2.80E-02	-3.58E+00
10/16/2002	2.60E-02	-3.65E+00
1/13/2003	7.13E-02	-2.64E+00
4/10/2003	6.29E-01	-4.64E-01
7/16/2003	2.97E-01	-1.21E+00
10/14/2003	1.98E-02	-3.92E+00
1/13/2004	1.26E-02	-4.37E+00

Well Number:	MW397	
Date Collected	Result	LN(Result)
8/13/2002	4.66E-01	-7.64E-01
9/16/2002	7.70E-02	-2.56E+00
10/17/2002	2.80E-02	-3.58E+00
1/13/2003	1.64E-02	-4.11E+00
4/8/2003	4.07E-02	-3.20E+00
7/16/2003	1.67E-02	-4.09E+00
10/14/2003	5.55E-03	-5.19E+00
1/13/2004	5.00E-03	-5.30E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW370	Downgradient	Yes	1.68E-03	N/A	-6.39E+00	NO
MW373	Downgradient	Yes	5.93E-02	N/A	-2.83E+00	NO
MW385	Sidegradient	Yes	4.11E-03	N/A	-5.49E+00	NO
MW388	Downgradient	No	5.00E-03	N/A	-5.30E+00	N/A
MW392	Downgradient	Yes	4.72E-01	N/A	-7.51E-01	NO
MW395	Upgradient	Yes	1.45E-03	N/A	-6.54E+00	NO
MW397	Upgradient	Yes	2.44E-03	N/A	-6.02E+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 First 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

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:	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

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	1.60E+00	N/A	4.70E-01	N/A
MW385	Sidegradient	No	7.70E-01	N/A	-2.61E-01	N/A
MW388	Downgradient	No	6.60E-01	N/A	-4.16E-01	N/A
MW392	Downgradient	Yes	1.54E+00	NO	4.32E-01	N/A
MW395	Upgradient	Yes	2.30E+00	NO	8.33E-01	N/A
MW397	Upgradient	Yes	2.37E+00	NO	8.63E-01	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-S/T First Quarter 2024 Statistical Analysis Historical Background Comparison

Molybdenum UNITS: mg/L LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 0.007	**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	1.00E-03	N/A	-6.91E+00	N/A
MW373	Downgradient	No	1.00E-03	N/A	-6.91E+00	N/A
MW385	Sidegradient	Yes	3.04E-04	N/A	-8.10E+00	NO
MW388	Downgradient	No	1.00E-03	N/A	-6.91E+00	N/A
MW392	Downgradient	Yes	2.50E-04	N/A	-8.29E+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 First Quarter 2024 Statistical Analysis — Historical Background Comparison

Nickel — **UNITS: mg/L** — **LRGA**

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 0.018	**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	No	2.00E-03	N/A	-6.21E+00	N/A
MW373	Downgradient	Yes	1.64E-03	N/A	-6.41E+00	NO
MW385	Sidegradient	No	6.41E-04	N/A	-7.35E+00	N/A
MW388	Downgradient	No	2.00E-03	N/A	-6.21E+00	N/A
MW392	Downgradient	Yes	3.31E-03	N/A	-5.71E+00	NO
MW395	Upgradient	Yes	8.12E-04	N/A	-7.12E+00	NO
MW397	Upgradient	No	2.00E-03	N/A	-6.21E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-S/T First Quarter 2024 Statistical Analysis — Historical Background Comparison

Oxidation-Reduction Potential — UNITS: mV — LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 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

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: MW395

Date Collected	Result	LN(Result)
8/13/2002	8.00E+01	4.38E+00
9/16/2002	1.45E+02	4.98E+00
10/16/2002	1.25E+02	4.83E+00
1/13/2003	8.50E+01	4.44E+00
4/10/2003	1.59E+02	5.07E+00
7/16/2003	9.80E+01	4.58E+00
10/14/2003	1.38E+02	4.93E+00
1/13/2004	2.33E+02	5.45E+00

Well Number: MW397

Date Collected	Result	LN(Result)
8/13/2002	1.15E+02	4.74E+00
9/30/2002	1.40E+02	4.94E+00
10/17/2002	1.85E+02	5.22E+00
1/13/2003	2.30E+02	5.44E+00
4/8/2003	1.55E+02	5.04E+00
7/16/2003	1.88E+02	5.24E+00
10/14/2003	1.87E+02	5.23E+00
1/13/2004	2.53E+02	5.53E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW370	Downgradient	Yes	5.30E+02	YES	6.27E+00	N/A
MW373	Downgradient	Yes	4.93E+02	YES	6.20E+00	N/A
MW385	Sidegradient	Yes	4.88E+02	YES	6.19E+00	N/A
MW388	Downgradient	Yes	4.86E+02	YES	6.19E+00	N/A
MW392	Downgradient	Yes	4.67E+02	YES	6.15E+00	N/A
MW395	Upgradient	Yes	5.09E+02	YES	6.23E+00	N/A
MW397	Upgradient	Yes	5.40E+02	YES	6.29E+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 First Quarter 2024 Statistical Analysis Historical Background Comparison

pH UNITS: Std Unit LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 6.048	**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

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: MW395

Date Collected	Result	LN(Result)
8/13/2002	5.80E+00	1.76E+00
9/16/2002	6.00E+00	1.79E+00
10/16/2002	5.47E+00	1.70E+00
1/13/2003	6.00E+00	1.79E+00
4/10/2003	6.18E+00	1.82E+00
7/16/2003	6.00E+00	1.79E+00
10/14/2003	6.31E+00	1.84E+00
1/13/2004	6.24E+00	1.83E+00

Well Number: MW397

Date Collected	Result	LN(Result)
8/13/2002	5.84E+00	1.76E+00
9/30/2002	6.00E+00	1.79E+00
10/17/2002	5.75E+00	1.75E+00
1/13/2003	6.00E+00	1.79E+00
4/8/2003	6.30E+00	1.84E+00
7/16/2003	6.20E+00	1.82E+00
10/14/2003	6.36E+00	1.85E+00
1/13/2004	6.32E+00	1.84E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)? Result <LL(1)?	LN(Result)	LN(Result) >TL(2)? LN(Result) <LL(2)?
MW370	Downgradient	Yes	6.20E+00	NO	1.82E+00	N/A
MW373	Downgradient	Yes	6.03E+00	NO	1.80E+00	N/A
MW385	Sidegradient	Yes	6.40E+00	NO	1.86E+00	N/A
MW388	Downgradient	Yes	6.11E+00	NO	1.81E+00	N/A
MW392	Downgradient	Yes	6.00E+00	NO	1.79E+00	N/A
MW395	Upgradient	Yes	6.14E+00	NO	1.81E+00	N/A
MW397	Upgradient	Yes	6.10E+00	NO	1.81E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-S/T First Quarter 2024 Statistical Analysis Historical Background Comparison

Potassium UNITS: mg/L LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 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

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:	MW395	
Date Collected	Result	LN(Result)
8/13/2002	2.00E+00	6.93E-01
9/16/2002	2.00E+00	6.93E-01
10/16/2002	1.29E-03	-6.65E+00
1/13/2003	1.51E+00	4.12E-01
4/10/2003	1.67E+00	5.13E-01
7/16/2003	1.73E+00	5.48E-01
10/14/2003	1.70E+00	5.31E-01
1/13/2004	1.58E+00	4.57E-01

Well Number:	MW397	
Date Collected	Result	LN(Result)
8/13/2002	2.03E+00	7.08E-01
9/16/2002	2.00E+00	6.93E-01
10/17/2002	1.45E-03	-6.54E+00
1/13/2003	1.69E+00	5.25E-01
4/8/2003	1.73E+00	5.48E-01
7/16/2003	2.00E+00	6.93E-01
10/14/2003	1.92E+00	6.52E-01
1/13/2004	1.87E+00	6.26E-01

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW370	Downgradient	Yes	2.55E+00	NO	9.36E-01	N/A
MW373	Downgradient	Yes	2.62E+00	NO	9.63E-01	N/A
MW385	Sidegradient	Yes	1.68E+00	NO	5.19E-01	N/A
MW388	Downgradient	Yes	1.77E+00	NO	5.71E-01	N/A
MW392	Downgradient	Yes	2.24E+00	NO	8.06E-01	N/A
MW395	Upgradient	Yes	1.59E+00	NO	4.64E-01	N/A
MW397	Upgradient	Yes	1.72E+00	NO	5.42E-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 First Quarter 2024 Statistical Analysis Historical Background Comparison

Sodium UNITS: mg/L LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 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

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:	MW395	
Date Collected	Result	LN(Result)
8/13/2002	2.70E+01	3.30E+00
9/16/2002	2.72E+01	3.30E+00
10/16/2002	2.53E-02	-3.68E+00
1/13/2003	2.26E+01	3.12E+00
4/10/2003	5.39E+01	3.99E+00
7/16/2003	3.00E+01	3.40E+00
10/14/2003	2.91E+01	3.37E+00
1/13/2004	2.64E+01	3.27E+00

Well Number:	MW397	
Date Collected	Result	LN(Result)
8/13/2002	3.52E+01	3.56E+00
9/16/2002	3.43E+01	3.54E+00
10/17/2002	3.36E-02	-3.39E+00
1/13/2003	3.13E+01	3.44E+00
4/8/2003	4.61E+01	3.83E+00
7/16/2003	3.84E+01	3.65E+00
10/14/2003	3.71E+01	3.61E+00
1/13/2004	3.43E+01	3.54E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW370	Downgradient	Yes	4.72E+01	NO	3.85E+00	N/A
MW373	Downgradient	Yes	6.37E+01	NO	4.15E+00	N/A
MW385	Sidegradient	Yes	3.97E+01	NO	3.68E+00	N/A
MW388	Downgradient	Yes	4.52E+01	NO	3.81E+00	N/A
MW392	Downgradient	Yes	2.60E+01	NO	3.26E+00	N/A
MW395	Upgradient	Yes	2.92E+01	NO	3.37E+00	N/A
MW397	Upgradient	Yes	3.00E+01	NO	3.40E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-S/T First Quarter 2024 Statistical Analysis — Historical Background Comparison

Sulfate — **UNITS: mg/L** — **LRGA**

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 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

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: MW395

Date Collected	Result	LN(Result)
8/13/2002	1.03E+01	2.33E+00
9/16/2002	9.10E+00	2.21E+00
10/16/2002	8.80E+00	2.17E+00
1/13/2003	9.00E+00	2.20E+00
4/10/2003	8.30E+00	2.12E+00
7/16/2003	8.20E+00	2.10E+00
10/14/2003	8.30E+00	2.12E+00
1/13/2004	8.20E+00	2.10E+00

Well Number: MW397

Date Collected	Result	LN(Result)
8/13/2002	1.40E+01	2.64E+00
9/16/2002	1.28E+01	2.55E+00
10/17/2002	1.23E+01	2.51E+00
1/13/2003	1.27E+01	2.54E+00
4/8/2003	1.28E+01	2.55E+00
7/16/2003	1.31E+01	2.57E+00
10/14/2003	1.21E+01	2.49E+00
1/13/2004	1.21E+01	2.49E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW370	Downgradient	Yes	1.93E+01	YES	2.96E+00	N/A
MW373	Downgradient	Yes	1.94E+02	YES	5.27E+00	N/A
MW385	Sidegradient	Yes	1.97E+01	YES	2.98E+00	N/A
MW388	Downgradient	Yes	1.87E+01	YES	2.93E+00	N/A
MW392	Downgradient	Yes	7.94E+00	NO	2.07E+00	N/A
MW395	Upgradient	Yes	1.12E+01	NO	2.42E+00	N/A
MW397	Upgradient	Yes	1.16E+01	NO	2.45E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

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.*

C-746-S/T First Quarter 2024 Statistical Analysis Historical Background Comparison

Technetium-99 UNITS: pCi/L LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 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

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.

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

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW370	Downgradient	No	1.03E+01	N/A	2.33E+00	N/A
MW373	Downgradient	No	6.70E+00	N/A	1.90E+00	N/A
MW385	Sidegradient	Yes	2.29E+01	NO	3.13E+00	N/A
MW388	Downgradient	No	1.63E+00	N/A	4.89E-01	N/A
MW392	Downgradient	No	6.69E+00	N/A	1.90E+00	N/A
MW395	Upgradient	No	5.75E+00	N/A	1.75E+00	N/A
MW397	Upgradient	No	1.08E+01	N/A	2.38E+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

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 First Quarter 2024 Statistical Analysis — Historical Background Comparison

Total Organic Carbon (TOC) — UNITS: mg/L — LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 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

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: MW395

Date Collected	Result	LN(Result)
8/13/2002	1.60E+00	4.70E-01
9/16/2002	1.10E+00	9.53E-02
10/16/2002	1.00E+00	0.00E+00
1/13/2003	2.00E+00	6.93E-01
4/10/2003	3.40E+00	1.22E+00
7/16/2003	2.00E+00	6.93E-01
10/14/2003	1.00E+00	0.00E+00
1/13/2004	1.00E+00	0.00E+00

Well Number: MW397

Date Collected	Result	LN(Result)
8/13/2002	1.00E+00	0.00E+00
9/16/2002	1.00E+00	0.00E+00
10/17/2002	1.00E+00	0.00E+00
1/13/2003	3.60E+00	1.28E+00
4/8/2003	1.90E+00	6.42E-01
7/16/2003	1.10E+00	9.53E-02
10/14/2003	1.00E+00	0.00E+00
1/13/2004	1.00E+00	0.00E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW370	Downgradient	Yes	8.05E-01	NO	-2.17E-01	N/A
MW373	Downgradient	Yes	1.37E+00	NO	3.15E-01	N/A
MW385	Sidegradient	Yes	7.70E-01	NO	-2.61E-01	N/A
MW388	Downgradient	Yes	6.55E-01	NO	-4.23E-01	N/A
MW392	Downgradient	Yes	5.65E-01	NO	-5.71E-01	N/A
MW395	Upgradient	Yes	7.36E-01	NO	-3.07E-01	N/A
MW397	Upgradient	Yes	6.38E-01	NO	-4.49E-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 First Quarter 2024 Statistical Analysis — Historical Background Comparison

Total Organic Halides (TOX) — UNITS: ug/L — LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 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

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: MW395

Date Collected	Result	LN(Result)
8/13/2002	5.00E+01	3.91E+00
9/16/2002	5.00E+01	3.91E+00
10/16/2002	5.00E+01	3.91E+00
1/13/2003	1.83E+01	2.91E+00
4/10/2003	5.12E+01	3.94E+00
7/16/2003	4.26E+01	3.75E+00
10/14/2003	1.23E+01	2.51E+00
1/13/2004	1.00E+01	2.30E+00

Well Number: MW397

Date Collected	Result	LN(Result)
8/13/2002	5.00E+01	3.91E+00
9/16/2002	5.00E+01	3.91E+00
10/17/2002	5.00E+01	3.91E+00
1/13/2003	1.20E+01	2.48E+00
4/8/2003	1.99E+01	2.99E+00
7/16/2003	1.79E+01	2.88E+00
10/14/2003	1.00E+01	2.30E+00
1/13/2004	1.00E+01	2.30E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW370	Downgradient	Yes	1.44E+01	NO	2.67E+00	N/A
MW373	Downgradient	Yes	1.43E+01	NO	2.66E+00	N/A
MW385	Sidegradient	Yes	5.44E+00	NO	1.69E+00	N/A
MW388	Downgradient	Yes	3.60E+01	NO	3.58E+00	N/A
MW392	Downgradient	Yes	9.36E+00	NO	2.24E+00	N/A
MW395	Upgradient	Yes	1.29E+01	NO	2.56E+00	N/A
MW397	Upgradient	Yes	6.74E+00	NO	1.91E+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 First 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

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: 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	2.12E+00	N/A	7.51E-01	N/A
MW373	Downgradient	Yes	2.72E+00	N/A	1.00E+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	6.71E+00	NO	1.90E+00	N/A
MW395	Upgradient	Yes	5.80E+00	NO	1.76E+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 First Quarter 2024 Statistical Analysis Historical Background Comparison

Vanadium UNITS: mg/L LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 0.021	**S=** 0.002	**CV(1)=** 0.105	**K factor**=** 2.523	**TL(1)=** 2.69E-02	**LL(1)=**N/A
Statistics-Transformed Background Data	**X=** -3.856	**S=** 0.100	**CV(2)=** -0.026	**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).

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	2.00E-02	-3.91E+00
1/13/2003	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
4/12/2004	2.00E-02	-3.91E+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	2.00E-02	-3.91E+00
1/13/2003	2.00E-02	-3.91E+00
4/8/2003	2.00E-02	-3.91E+00
7/16/2003	2.00E-02	-3.91E+00
10/14/2003	2.00E-02	-3.91E+00
1/13/2004	2.00E-02	-3.91E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW370	Downgradient	No	2.00E-02	N/A	-3.91E+00	N/A
MW373	Downgradient	Yes	7.15E-03	NO	-4.94E+00	N/A
MW385	Sidegradient	No	2.00E-02	N/A	-3.91E+00	N/A
MW388	Downgradient	Yes	4.14E-03	NO	-5.49E+00	N/A
MW392	Downgradient	No	2.00E-02	N/A	-3.91E+00	N/A
MW395	Upgradient	No	4.42E-03	N/A	-5.42E+00	N/A
MW397	Upgradient	No	3.97E-03	N/A	-5.53E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-S/T First Quarter 2024 Statistical Analysis Historical Background Comparison

Zinc UNITS: mg/L LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 0.044	**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

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: MW395

Date Collected	Result	LN(Result)
8/13/2002	1.00E-01	-2.30E+00
9/16/2002	1.00E-01	-2.30E+00
10/16/2002	2.50E-02	-3.69E+00
1/13/2003	3.50E-02	-3.35E+00
4/10/2003	3.50E-02	-3.35E+00
7/16/2003	2.00E-02	-3.91E+00
10/14/2003	2.00E-02	-3.91E+00
1/13/2004	2.00E-02	-3.91E+00

Well Number: MW397

Date Collected	Result	LN(Result)
8/13/2002	1.00E-01	-2.30E+00
9/16/2002	1.00E-01	-2.30E+00
10/17/2002	2.50E-02	-3.69E+00
1/13/2003	3.50E-02	-3.35E+00
4/8/2003	3.50E-02	-3.35E+00
7/16/2003	2.00E-02	-3.91E+00
10/14/2003	2.00E-02	-3.91E+00
1/13/2004	2.00E-02	-3.91E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW370	Downgradient	Yes	3.33E-03	NO	-5.70E+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	No	2.00E-02	N/A	-3.91E+00	N/A
MW392	Downgradient	Yes	4.97E-03	NO	-5.30E+00	N/A
MW395	Upgradient	No	2.00E-02	N/A	-3.91E+00	N/A
MW397	Upgradient	No	2.00E-02	N/A	-3.91E+00	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

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 First Quarter 2024 Statistical Analysis — Current Background Comparison

Oxidation-Reduction Potential — UNITS: mV — UCRS

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is statistically significant evidence of elevated concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 274.250	**S=** 64.829	**CV(1)=** 0.236	**K factor**=** 3.188	**TL(1)=** 4.81E+02	**LL(1)=** N/A
Statistics-Transformed Background Data	**X=** 5.590	**S=** 0.233	**CV(2)=** 0.042	**K factor**=** 3.188	**TL(2)=** 6.33E+00	**LL(2)=** N/A

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Background Data from Upgradient Wells with Transformed Result

Well Number: MW396

Date Collected	Result	LN(Result)
1/13/2022	1.91E+02	5.25E+00
4/19/2022	3.36E+02	5.82E+00
7/20/2022	3.83E+02	5.95E+00
10/17/2022	2.17E+02	5.38E+00
1/25/2023	2.40E+02	5.48E+00
4/27/2023	2.50E+02	5.52E+00
7/27/2023	3.15E+02	5.75E+00
10/18/2023	2.62E+02	5.57E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW386	Sidegradient	Yes	2.42E+02	NO	5.49E+00	N/A
MW393	Downgradient	Yes	4.44E+02	NO	6.10E+00	N/A
MW396	Upgradient	Yes	3.08E+02	NO	5.73E+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 First Quarter 2024 Statistical Analysis — Current Background Comparison

Calcium — UNITS: mg/L — URGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is statistically significant evidence of elevated concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 24.906	**S=** 3.197	**CV(1)=** 0.128	**K factor**=** 2.523	**TL(1)=** 3.30E+01	**LL(1)=**N/A
Statistics-Transformed Background Data	**X=** 3.207	**S=** 0.132	**CV(2)=** 0.041	**K factor**=** 2.523	**TL(2)=** 3.54E+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)
1/19/2022	2.20E+01	3.09E+00
4/13/2022	2.91E+01	3.37E+00
7/18/2022	2.04E+01	3.02E+00
10/18/2022	2.05E+01	3.02E+00
1/23/2023	2.01E+01	3.00E+00
5/1/2023	2.82E+01	3.34E+00
7/28/2023	2.21E+01	3.10E+00
10/16/2023	2.16E+01	3.07E+00

Well Number: MW394

Date Collected	Result	LN(Result)
1/13/2022	2.54E+01	3.23E+00
4/19/2022	2.82E+01	3.34E+00
7/20/2022	2.61E+01	3.26E+00
10/17/2022	2.66E+01	3.28E+00
1/25/2023	2.69E+01	3.29E+00
4/27/2023	2.69E+01	3.29E+00
7/27/2023	2.65E+01	3.28E+00
10/17/2023	2.79E+01	3.33E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW372	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

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 First Quarter 2024 Statistical Analysis Current Background Comparison

Conductivity UNITS: umho/cm URGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is statistically significant evidence of elevated concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 385.875	**S=** 36.114	**CV(1)=** 0.094	**K factor**=** 2.523	**TL(1)=** 4.77E+02	**LL(1)=**N/A
Statistics-Transformed Background Data	**X=** 5.951	**S=** 0.096	**CV(2)=** 0.016	**K factor**=** 2.523	**TL(2)=** 6.19E+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)
1/19/2022	3.76E+02	5.93E+00
4/13/2022	4.36E+02	6.08E+00
7/18/2022	3.50E+02	5.86E+00
10/18/2022	3.32E+02	5.81E+00
1/23/2023	3.34E+02	5.81E+00
5/1/2023	4.20E+02	6.04E+00
7/31/2023	3.54E+02	5.87E+00
10/16/2023	3.23E+02	5.78E+00

Well Number: MW394

Date Collected	Result	LN(Result)
1/13/2022	4.01E+02	5.99E+00
4/19/2022	4.13E+02	6.02E+00
7/20/2022	3.87E+02	5.96E+00
10/17/2022	4.17E+02	6.03E+00
1/25/2023	4.04E+02	6.00E+00
4/27/2023	4.09E+02	6.01E+00
7/27/2023	4.15E+02	6.03E+00
10/17/2023	4.03E+02	6.00E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW372	Downgradient	Yes	7.27E+02	YES	6.59E+00	N/A

Conclusion of Statistical Analysis on Current Data

The test well(s) listed exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to current background data.

Wells with Exceedances

MW372

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-S/T First Quarter 2024 Statistical Analysis — Current Background Comparison

Dissolved Solids — **UNITS: mg/L** — **URGA**

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is statistically significant evidence of elevated concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 192.563	**S=** 25.419	**CV(1)=** 0.132	**K factor**=** 2.523	**TL(1)=** 2.57E+02	**LL(1)=**N/A
Statistics-Transformed Background Data	**X=** 5.253	**S=** 0.128	**CV(2)=** 0.024	**K factor**=** 2.523	**TL(2)=** 5.58E+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)
1/19/2022	1.79E+02	5.19E+00
4/13/2022	2.36E+02	5.46E+00
7/18/2022	1.64E+02	5.10E+00
10/18/2022	1.79E+02	5.19E+00
1/23/2023	1.72E+02	5.15E+00
5/1/2023	2.02E+02	5.31E+00
7/31/2023	1.76E+02	5.17E+00
10/16/2023	1.58E+02	5.06E+00

Well Number: MW394

Date Collected	Result	LN(Result)
1/13/2022	2.30E+02	5.44E+00
4/19/2022	2.43E+02	5.49E+00
7/20/2022	1.93E+02	5.26E+00
10/17/2022	1.98E+02	5.29E+00
1/25/2023	1.84E+02	5.21E+00
4/27/2023	1.96E+02	5.28E+00
7/27/2023	2.01E+02	5.30E+00
10/17/2023	1.70E+02	5.14E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW372	Downgradient	Yes	4.38E+02	YES	6.08E+00	N/A

Conclusion of Statistical Analysis on Current Data

The test well(s) listed exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to current background data.

Wells with Exceedances

MW372

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-S/T First Quarter 2024 Statistical Analysis — Current Background Comparison

Magnesium — **UNITS: mg/L** — **URGA**

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is statistically significant evidence of elevated concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 10.408	**S=** 1.422	**CV(1)=** 0.137	**K factor**=** 2.523	**TL(1)=** 1.40E+01	**LL(1)=**N/A
Statistics-Transformed Background Data	**X=** 2.333	**S=** 0.141	**CV(2)=** 0.061	**K factor**=** 2.523	**TL(2)=** 2.69E+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)
1/19/2022	9.20E+00	2.22E+00
4/13/2022	1.21E+01	2.49E+00
7/18/2022	8.67E+00	2.16E+00
10/18/2022	8.36E+00	2.12E+00
1/23/2023	8.28E+00	2.11E+00
5/1/2023	1.19E+01	2.48E+00
7/28/2023	8.97E+00	2.19E+00
10/16/2023	8.85E+00	2.18E+00

Well Number: MW394

Date Collected	Result	LN(Result)
1/13/2022	1.05E+01	2.35E+00
4/19/2022	1.18E+01	2.47E+00
7/20/2022	1.17E+01	2.46E+00
10/17/2022	1.12E+01	2.42E+00
1/25/2023	1.14E+01	2.43E+00
4/27/2023	1.13E+01	2.42E+00
7/27/2023	1.07E+01	2.37E+00
10/17/2023	1.16E+01	2.45E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW372	Downgradient	Yes	2.51E+01	YES	3.22E+00	N/A
MW387	Downgradient	Yes	1.58E+01	YES	2.76E+00	N/A

Conclusion of Statistical Analysis on Current Data

The test well(s) listed exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to current background data.

Wells with Exceedances

MW372
MW387

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-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 First Quarter 2024 Statistical Analysis — Current Background Comparison

Oxidation-Reduction Potential — UNITS: mV — URGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is statistically significant evidence of elevated concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 424.125	**S=** 44.811	**CV(1)=** 0.106	**K factor**=** 2.523	**TL(1)=** 5.37E+02	**LL(1)=** N/A
Statistics-Transformed Background Data	**X=** 6.045	**S=** 0.106	**CV(2)=** 0.018	**K factor**=** 2.523	**TL(2)=** 6.31E+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)
1/19/2022	4.06E+02	6.01E+00
4/13/2022	4.12E+02	6.02E+00
7/18/2022	4.11E+02	6.02E+00
10/18/2022	3.98E+02	5.99E+00
1/23/2023	3.66E+02	5.90E+00
5/1/2023	4.77E+02	6.17E+00
7/31/2023	3.77E+02	5.93E+00
10/16/2023	4.06E+02	6.01E+00

Well Number: MW394

Date Collected	Result	LN(Result)
1/13/2022	3.93E+02	5.97E+00
4/19/2022	4.32E+02	6.07E+00
7/20/2022	4.87E+02	6.19E+00
10/17/2022	3.46E+02	5.85E+00
1/25/2023	4.69E+02	6.15E+00
4/27/2023	4.51E+02	6.11E+00
7/27/2023	4.94E+02	6.20E+00
10/17/2023	4.61E+02	6.13E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW220	Upgradient	Yes	4.63E+02	NO	6.14E+00	N/A
MW221	Sidegradient	Yes	4.77E+02	NO	6.17E+00	N/A
MW222	Sidegradient	Yes	4.57E+02	NO	6.12E+00	N/A
MW223	Sidegradient	Yes	4.66E+02	NO	6.14E+00	N/A
MW224	Sidegradient	Yes	4.90E+02	NO	6.19E+00	N/A
MW369	Downgradient	Yes	4.23E+02	NO	6.05E+00	N/A
MW372	Downgradient	Yes	4.83E+02	NO	6.18E+00	N/A
MW384	Sidegradient	Yes	5.36E+02	NO	6.28E+00	N/A
MW387	Downgradient	Yes	4.50E+02	NO	6.11E+00	N/A
MW391	Downgradient	Yes	4.28E+02	NO	6.06E+00	N/A
MW394	Upgradient	Yes	5.18E+02	NO	6.25E+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 First Quarter 2024 Statistical Analysis — Current Background Comparison

Sodium — **UNITS: mg/L** — **URGA**

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is statistically significant evidence of elevated concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 37.356	**S=** 5.609	**CV(1)=** 0.150	**K factor**=** 2.523	**TL(1)=** 5.15E+01	**LL(1)=** N/A
Statistics-Transformed Background Data	**X=** 3.611	**S=** 0.138	**CV(2)=** 0.038	**K factor**=** 2.523	**TL(2)=** 3.96E+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)
1/19/2022	4.16E+01	3.73E+00
4/13/2022	4.62E+01	3.83E+00
7/18/2022	3.81E+01	3.64E+00
10/18/2022	3.72E+01	3.62E+00
1/23/2023	3.77E+01	3.63E+00
5/1/2023	5.30E+01	3.97E+00
7/28/2023	3.85E+01	3.65E+00
10/16/2023	3.72E+01	3.62E+00

Well Number: MW394

Date Collected	Result	LN(Result)
1/13/2022	3.16E+01	3.45E+00
4/19/2022	3.53E+01	3.56E+00
7/20/2022	3.41E+01	3.53E+00
10/17/2022	3.37E+01	3.52E+00
1/25/2023	3.40E+01	3.53E+00
4/27/2023	3.32E+01	3.50E+00
7/27/2023	3.18E+01	3.46E+00
10/17/2023	3.45E+01	3.54E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW372	Downgradient	Yes	6.08E+01	YES	4.11E+00	N/A

Conclusion of Statistical Analysis on Current Data

The test well(s) listed exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to current background data.

Wells with Exceedances

MW372

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-S/T First Quarter 2024 Statistical Analysis — Current Background Comparison

Sulfate — **UNITS: mg/L** — **URGA**

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is statistically significant evidence of elevated concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 15.213	**S=** 3.990	**CV(1)=** 0.262	**K factor**=** 2.523	**TL(1)=** 2.53E+01	**LL(1)=**N/A
Statistics-Transformed Background Data	**X=** 2.693	**S=** 0.246	**CV(2)=** 0.091	**K factor**=** 2.523	**TL(2)=** 3.31E+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)
1/19/2022	1.92E+01	2.95E+00
4/13/2022	2.49E+01	3.21E+00
7/18/2022	1.85E+01	2.92E+00
10/18/2022	1.57E+01	2.75E+00
1/23/2023	1.64E+01	2.80E+00
5/1/2023	2.00E+01	3.00E+00
7/31/2023	1.78E+01	2.88E+00
10/16/2023	1.55E+01	2.74E+00

Well Number: MW394

Date Collected	Result	LN(Result)
1/13/2022	1.17E+01	2.46E+00
4/19/2022	1.17E+01	2.46E+00
7/20/2022	1.22E+01	2.50E+00
10/17/2022	1.21E+01	2.49E+00
1/25/2023	1.21E+01	2.49E+00
4/27/2023	1.17E+01	2.46E+00
7/27/2023	1.22E+01	2.50E+00
10/17/2023	1.17E+01	2.46E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW372	Downgradient	Yes	1.48E+02	YES	5.00E+00	N/A
MW384	Sidegradient	Yes	1.76E+01	NO	2.87E+00	N/A
MW387	Downgradient	Yes	2.87E+01	YES	3.36E+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 First 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=** 11.692	**S=** 6.679	**CV(1)=** 0.571	**K factor**=** 2.523	**TL(1)=** 2.85E+01	**LL(1)=**N/A
Statistics-Transformed Background Data	**X=** 2.143	**S=** 1.051	**CV(2)=** 0.490	**K factor**=** 2.523	**TL(2)=** 4.79E+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)
1/19/2022	1.74E+01	2.86E+00
4/13/2022	1.60E+01	2.77E+00
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

Well Number: MW394

Date Collected	Result	LN(Result)
1/13/2022	5.46E+00	1.70E+00
4/19/2022	4.38E-01	-8.26E-01
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

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW369	Downgradient	Yes	6.27E+01	YES	4.14E+00	N/A
MW372	Downgradient	Yes	3.89E+01	YES	3.66E+00	N/A
MW387	Downgradient	Yes	3.54E+01	YES	3.57E+00	N/A

Conclusion of Statistical Analysis on Current Data

The test well(s) listed exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to current background data.

Wells with Exceedances

MW369
MW372
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 First Quarter 2024 Statistical Analysis — Current Background Comparison

Calcium — UNITS: mg/L — LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is statistically significant evidence of elevated concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 22.413	**S=** 4.238	**CV(1)=** 0.189	**K factor**=** 2.523	**TL(1)=** 3.31E+01	**LL(1)=**N/A
Statistics-Transformed Background Data	**X=** 3.093	**S=** 0.191	**CV(2)=** 0.062	**K factor**=** 2.523	**TL(2)=** 3.57E+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)
1/13/2022	2.55E+01	3.24E+00
4/19/2022	2.64E+01	3.27E+00
7/20/2022	2.49E+01	3.21E+00
10/17/2022	2.69E+01	3.29E+00
1/25/2023	2.69E+01	3.29E+00
4/27/2023	2.71E+01	3.30E+00
7/27/2023	2.62E+01	3.27E+00
10/18/2023	2.78E+01	3.33E+00

Well Number: MW397

Date Collected	Result	LN(Result)
1/13/2022	1.82E+01	2.90E+00
4/19/2022	1.85E+01	2.92E+00
7/18/2022	1.85E+01	2.92E+00
10/18/2022	1.87E+01	2.93E+00
1/23/2023	1.81E+01	2.90E+00
5/1/2023	1.87E+01	2.93E+00
7/27/2023	1.76E+01	2.87E+00
10/16/2023	1.86E+01	2.92E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW373	Downgradient	Yes	8.40E+01	YES	4.43E+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 First 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=** 354.563	**S=** 34.197	**CV(1)=** 0.096	**K factor**=** 2.523	**TL(1)=** 4.41E+02	**LL(1)=** N/A
Statistics-Transformed Background Data	**X=** 5.867	**S=** 0.097	**CV(2)=** 0.016	**K factor**=** 2.523	**TL(2)=** 6.11E+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)
1/13/2022	3.76E+02	5.93E+00
4/19/2022	3.83E+02	5.95E+00
7/20/2022	3.80E+02	5.94E+00
10/17/2022	3.88E+02	5.96E+00
1/25/2023	3.93E+02	5.97E+00
4/27/2023	4.05E+02	6.00E+00
7/27/2023	3.85E+02	5.95E+00
10/18/2023	3.83E+02	5.95E+00

Well Number: MW397

Date Collected	Result	LN(Result)
1/13/2022	3.40E+02	5.83E+00
4/19/2022	3.26E+02	5.79E+00
7/18/2022	3.20E+02	5.77E+00
10/18/2022	3.24E+02	5.78E+00
1/23/2023	3.22E+02	5.77E+00
5/1/2023	3.20E+02	5.77E+00
7/27/2023	3.19E+02	5.77E+00
10/16/2023	3.09E+02	5.73E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW373	Downgradient	Yes	9.09E+02	YES	6.81E+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 First Quarter 2024 Statistical Analysis — Current Background Comparison

Dissolved Solids — **UNITS: mg/L** — **LRGA**

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is statistically significant evidence of elevated concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 173.188	**S=** 24.351	**CV(1)=** 0.141	**K factor**=** 2.523	**TL(1)=** 2.35E+02	**LL(1)=** N/A
Statistics-Transformed Background Data	**X=** 5.145	**S=** 0.145	**CV(2)=** 0.028	**K factor**=** 2.523	**TL(2)=** 5.51E+00	**LL(2)=** N/A

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Background Data from Upgradient Wells with Transformed Result

Well Number: MW395

Date Collected	Result	LN(Result)
1/13/2022	2.01E+02	5.30E+00
4/19/2022	2.10E+02	5.35E+00
7/20/2022	1.99E+02	5.29E+00
10/17/2022	1.96E+02	5.28E+00
1/25/2023	1.80E+02	5.19E+00
4/27/2023	1.94E+02	5.27E+00
7/27/2023	1.88E+02	5.24E+00
10/18/2023	1.76E+02	5.17E+00

Well Number: MW397

Date Collected	Result	LN(Result)
1/13/2022	1.41E+02	4.95E+00
4/19/2022	1.80E+02	5.19E+00
7/18/2022	1.46E+02	4.98E+00
10/18/2022	1.57E+02	5.06E+00
1/23/2023	1.58E+02	5.06E+00
5/1/2023	1.28E+02	4.85E+00
7/27/2023	1.52E+02	5.02E+00
10/16/2023	1.65E+02	5.11E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW373	Downgradient	Yes	5.36E+02	YES	6.28E+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 First Quarter 2024 Statistical Analysis — Current Background Comparison

Magnesium — UNITS: mg/L — LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is statistically significant evidence of elevated concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 9.393	**S=** 1.805	**CV(1)=** 0.192	**K factor**=** 2.523	**TL(1)=** 1.39E+01	**LL(1)=**N/A
Statistics-Transformed Background Data	**X=** 2.222	**S=** 0.194	**CV(2)=** 0.087	**K factor**=** 2.523	**TL(2)=** 2.71E+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)
1/13/2022	1.06E+01	2.36E+00
4/19/2022	1.10E+01	2.40E+00
7/20/2022	1.12E+01	2.42E+00
10/17/2022	1.13E+01	2.42E+00
1/25/2023	1.14E+01	2.43E+00
4/27/2023	1.14E+01	2.43E+00
7/27/2023	1.05E+01	2.35E+00
10/18/2023	1.15E+01	2.44E+00

Well Number: MW397

Date Collected	Result	LN(Result)
1/13/2022	7.53E+00	2.02E+00
4/19/2022	7.79E+00	2.05E+00
7/18/2022	7.71E+00	2.04E+00
10/18/2022	7.84E+00	2.06E+00
1/23/2023	7.66E+00	2.04E+00
5/1/2023	7.95E+00	2.07E+00
7/27/2023	7.07E+00	1.96E+00
10/16/2023	7.83E+00	2.06E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW373	Downgradient	Yes	2.99E+01	YES	3.40E+00	N/A

Conclusion of Statistical Analysis on Current Data

The test well(s) listed exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to current background data.

Wells with Exceedances

MW373

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-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 First Quarter 2024 Statistical Analysis — Current Background Comparison

Oxidation-Reduction Potential — UNITS: mV — LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is statistically significant evidence of elevated concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 387.938	**S=** 71.750	**CV(1)=** 0.185	**K factor**=** 2.523	**TL(1)=** 5.69E+02	**LL(1)=** N/A
Statistics-Transformed Background Data	**X=** 5.940	**S=** 0.223	**CV(2)=** 0.038	**K factor**=** 2.523	**TL(2)=** 6.50E+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)
1/13/2022	3.95E+02	5.98E+00
4/19/2022	4.12E+02	6.02E+00
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

Well Number: MW397

Date Collected	Result	LN(Result)
1/13/2022	3.52E+02	5.86E+00
4/19/2022	4.40E+02	6.09E+00
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

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW370	Downgradient	Yes	5.30E+02	NO	6.27E+00	N/A
MW373	Downgradient	Yes	4.93E+02	NO	6.20E+00	N/A
MW385	Sidegradient	Yes	4.88E+02	NO	6.19E+00	N/A
MW388	Downgradient	Yes	4.86E+02	NO	6.19E+00	N/A
MW392	Downgradient	Yes	4.67E+02	NO	6.15E+00	N/A
MW395	Upgradient	Yes	5.09E+02	NO	6.23E+00	N/A
MW397	Upgradient	Yes	5.40E+02	NO	6.29E+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 First 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=** 11.656	**S=** 0.331	**CV(1)=** 0.028	**K factor**=** 2.523	**TL(1)=** 1.25E+01	**LL(1)=**N/A
Statistics-Transformed Background Data	**X=** 2.455	**S=** 0.029	**CV(2)=** 0.012	**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)
1/13/2022	1.16E+01	2.45E+00
4/19/2022	1.16E+01	2.45E+00
7/20/2022	1.19E+01	2.48E+00
10/17/2022	1.17E+01	2.46E+00
1/25/2023	1.17E+01	2.46E+00
4/27/2023	1.10E+01	2.40E+00
7/27/2023	1.15E+01	2.44E+00
10/18/2023	1.10E+01	2.40E+00

Well Number: MW397

Date Collected	Result	LN(Result)
1/13/2022	1.17E+01	2.46E+00
4/19/2022	1.18E+01	2.47E+00
7/18/2022	1.19E+01	2.48E+00
10/18/2022	1.14E+01	2.43E+00
1/23/2023	1.20E+01	2.48E+00
5/1/2023	1.21E+01	2.49E+00
7/27/2023	1.21E+01	2.49E+00
10/16/2023	1.15E+01	2.44E+00

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW370	Downgradient	Yes	1.93E+01	YES	2.96E+00	N/A
MW373	Downgradient	Yes	1.94E+02	YES	5.27E+00	N/A
MW385	Sidegradient	Yes	1.97E+01	YES	2.98E+00	N/A
MW388	Downgradient	Yes	1.87E+01	YES	2.93E+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.*

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ATTACHMENT D3

STATISTICIAN QUALIFICATION STATEMENT

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FOUR RIVERS
NUCLEAR PARTNERSHIP, LLC

Four Rivers Nuclear Partnership, LLC
5511 Hobbs Road
Kevil, KY 42053
www.fourriversnuclearpartnership.com

April 29, 2024

Mr. Dennis Greene
Four Rivers Nuclear Partnership, LLC
5511 Hobbs Road
Kevil, KY 42053

Dear Mr. Greene:

As an Environmental Scientist, with a bachelor's degree in Earth Sciences/Geology, I have over 30 years of experience in reviewing and assessing laboratory analytical results associated with environmental sampling and investigation activities. For the generation of these statistical analyses, my work was reviewed by a qualified independent technical reviewer with Four Rivers Nuclear Partnership, LLC.

For this project, the statistical analyses conducted on the first quarter 2024 monitoring well data collected from the C-746-S&T and C-746-U Landfills were performed in accordance with guidance provided in the U.S. Environmental Protection Agency guidance document, *EPA Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Interim Final Guidance* (1989).

Sincerely,

Bryan Smith

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APPENDIX E

GROUNDWATER FLOW RATE AND DIRECTION

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GROUNDWATER FLOW RATE AND DIRECTION

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 first quarter 2024 and to determine the groundwater flow rate and direction.

Water levels during this reporting period were measured on January 22, 2024. As shown on Figure E.1, MW389, screened in the Upper Continental Recharge System (UCRS), is usually dry, while other UCRS wells have recordable water levels. During this reporting period, MW389 had sufficient water for a water level measurement.

The UCRS has a strong vertical hydraulic gradient; therefore, the limited number of available UCRS wells, screened over different elevations, is not sufficient for mapping the potentiometric surface. Figure E.1 shows the location of UCRS MWs. The Upper Regional Gravel Aquifer (URGA) and Lower Regional Gravel Aquifer (LRGA) data were corrected for barometric pressure, if necessary, and converted to elevations to plot the potentiometric surface of the RGA, as a whole, as shown on Table E.1. Figure E.2 is a composite or average map of the URGA and LRGA elevations where well clusters exist. The contour lines are placed based on the average water level elevations of the clusters.[1] During January, 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 2.73×10^{-4} ft/ft. Additional water level measurements in January (Figure E.3) document the vicinity groundwater hydraulic gradient for the RGA to be 3.19×10^{-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 425 to 725 ft/day (0.150 to 0.256 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 January 2024, RGA groundwater flow from the landfill area was directed to the northeast.

[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.

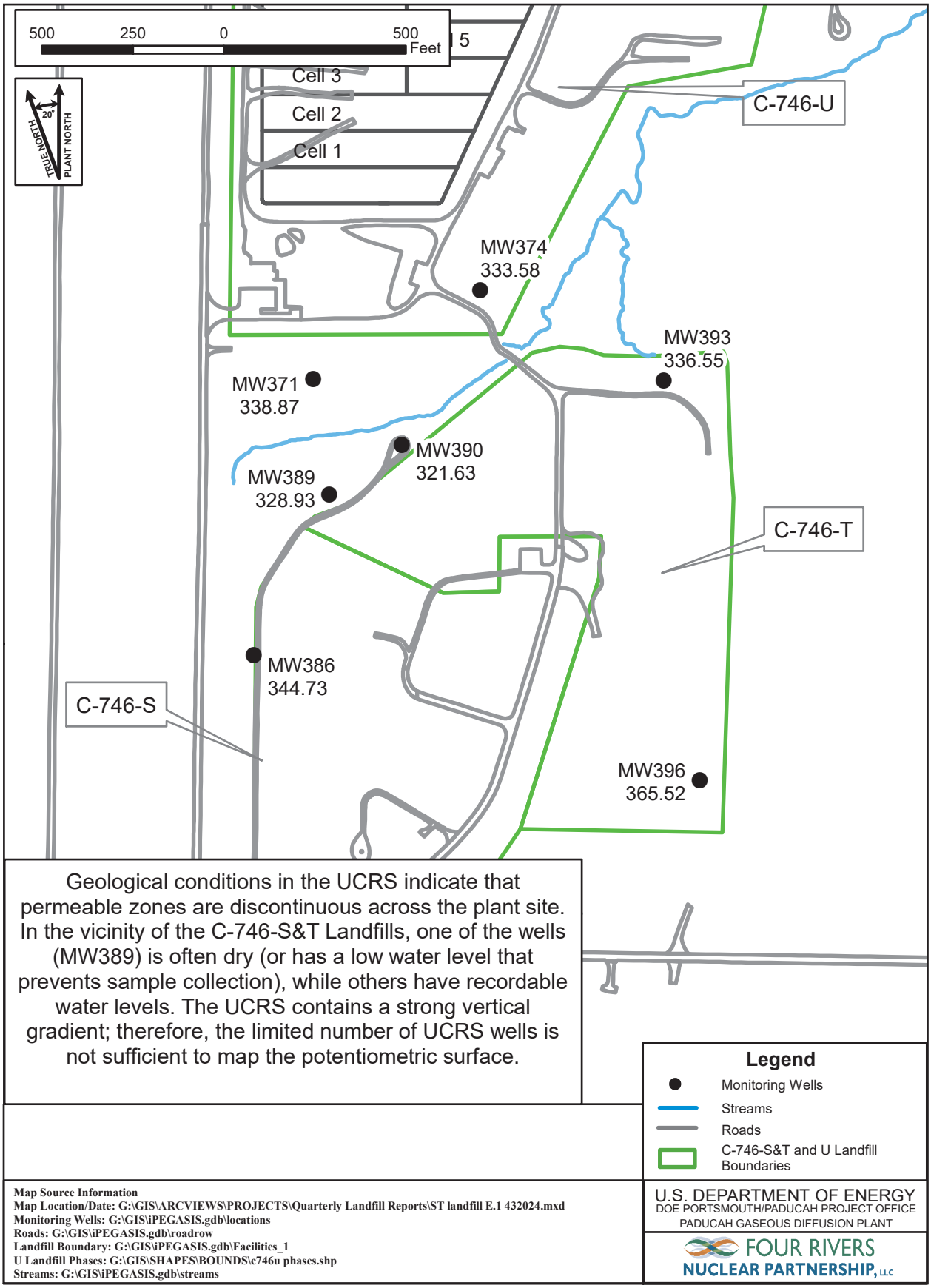

Figure E.1. Potentiometric Measurements of the Upper Continental Recharge System at the C-746-S&T Landfills, January 22, 2023

Table E.1. C-746-S&T Landfills First Quarter 2024 (January) Water Levels

C-746-S&T Landfills (January 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)
1/22/2024	13:59	MW220	URGA	382.01	30.32	0.00	60.14	321.87	60.14	321.87
1/22/2024	13:47	MW221	URGA	391.38	30.35	-0.03	69.75	321.63	69.72	321.66
1/22/2024	13:52	MW222	URGA	395.27	30.35	-0.03	73.61	321.66	73.58	321.69
1/22/2024	13:49	MW223	URGA	394.38	30.35	-0.03	72.84	321.54	72.81	321.57
1/22/2024	13:54	MW224	URGA	395.69	30.32	0.00	73.97	321.72	73.97	321.72
1/22/2024	14:01	MW225	URGA	385.73	30.32	0.00	64.01	321.72	64.01	321.72
1/22/2024	14:50	MW353	LRGA	375.05	30.32	0.00	52.85	322.20	52.85	322.20
1/22/2024	10:30	MW369	URGA	364.23	30.43	0.00	42.64	321.59	42.64	321.59
1/22/2024	10:31	MW370	LRGA	365.12	30.43	0.00	43.54	321.58	43.54	321.58
1/22/2024	10:32	MW371	UCRS	364.64	30.43	0.00	25.77	338.87	25.77	338.87
1/22/2024	10:36	MW372	URGA	359.42	30.43	0.00	37.83	321.59	37.83	321.59
1/22/2024	10:37	MW373	LRGA	359.73	30.43	0.00	38.14	321.59	38.14	321.59
1/22/2024	10:38	MW374	UCRS	359.44	30.43	0.00	25.86	333.58	25.86	333.58
1/22/2024	14:19	MW384	URGA	365.29	30.32	0.00	43.58	321.71	43.58	321.71
1/22/2024	14:20	MW385	LRGA	365.74	30.32	0.00	43.98	321.76	43.98	321.76
1/22/2024	14:21	MW386	UCRS	365.32	30.32	0.00	20.59	344.73	20.59	344.73
1/22/2024	14:15	MW387	URGA	363.48	30.32	0.00	41.81	321.67	41.81	321.67
1/22/2024	14:16	MW388	LRGA	363.45	30.32	0.00	41.80	321.65	41.80	321.65
1/22/2024	14:11	MW389	UCRS	364.11	30.32	0.00	35.18	328.93	35.18	328.93
1/22/2024	14:08	MW390	UCRS	360.39	30.32	0.00	38.76	321.63	38.76	321.63
1/22/2024	14:39	MW391	URGA	366.67	30.32	0.00	45.06	321.61	45.06	321.61
1/22/2024	14:40	MW392	LRGA	365.85	30.32	0.00	44.25	321.60	44.25	321.60
1/22/2024	14:38	MW393	UCRS	366.62	30.32	0.00	30.07	336.55	30.07	336.55
1/22/2024	14:31	MW394	URGA	378.46	30.32	0.00	56.64	321.82	56.64	321.82
1/22/2024	14:29	MW395	LRGA	379.12	30.32	0.00	57.32	321.80	57.32	321.80
1/22/2024	14:30	MW396	UCRS	378.75	30.32	0.00	13.23	365.52	13.23	365.52
1/22/2024	14:25	MW397	LRGA	387.00	30.32	0.00	65.12	321.88	65.12	321.88
1/22/2024	14:35	MW418	URGA	367.21	30.32	0.00	45.50	321.71	45.50	321.71
1/22/2024	14:36	MW419	LRGA	367.05	30.32	0.00	45.34	321.71	45.34	321.71
Reference Barometric Pressure					**30.32**					

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

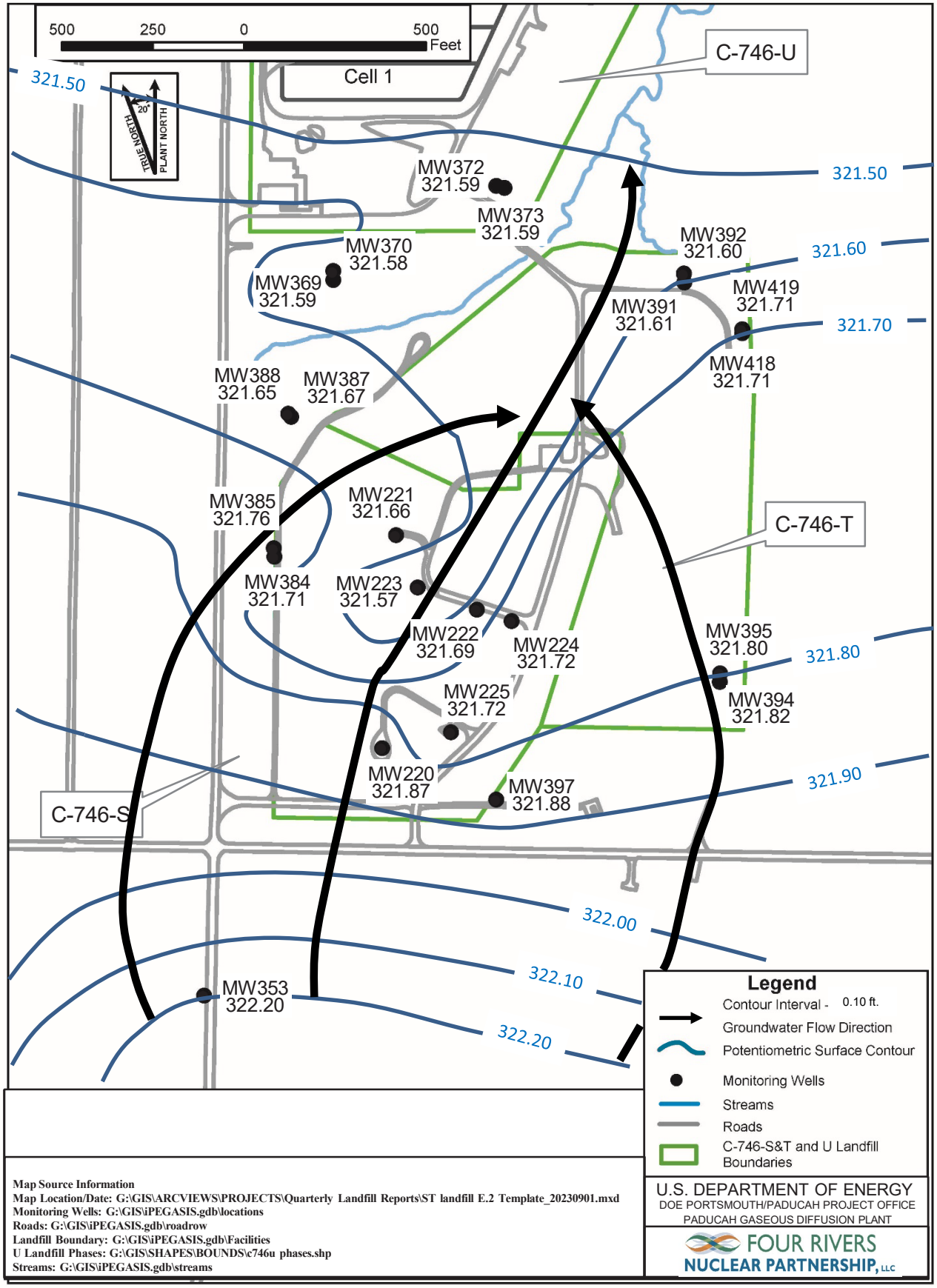

Figure E.2. Composite Potentiometric Surface of the Regional Gravel Aquifer at the C-746-S&T Landfills, January 22, 2024

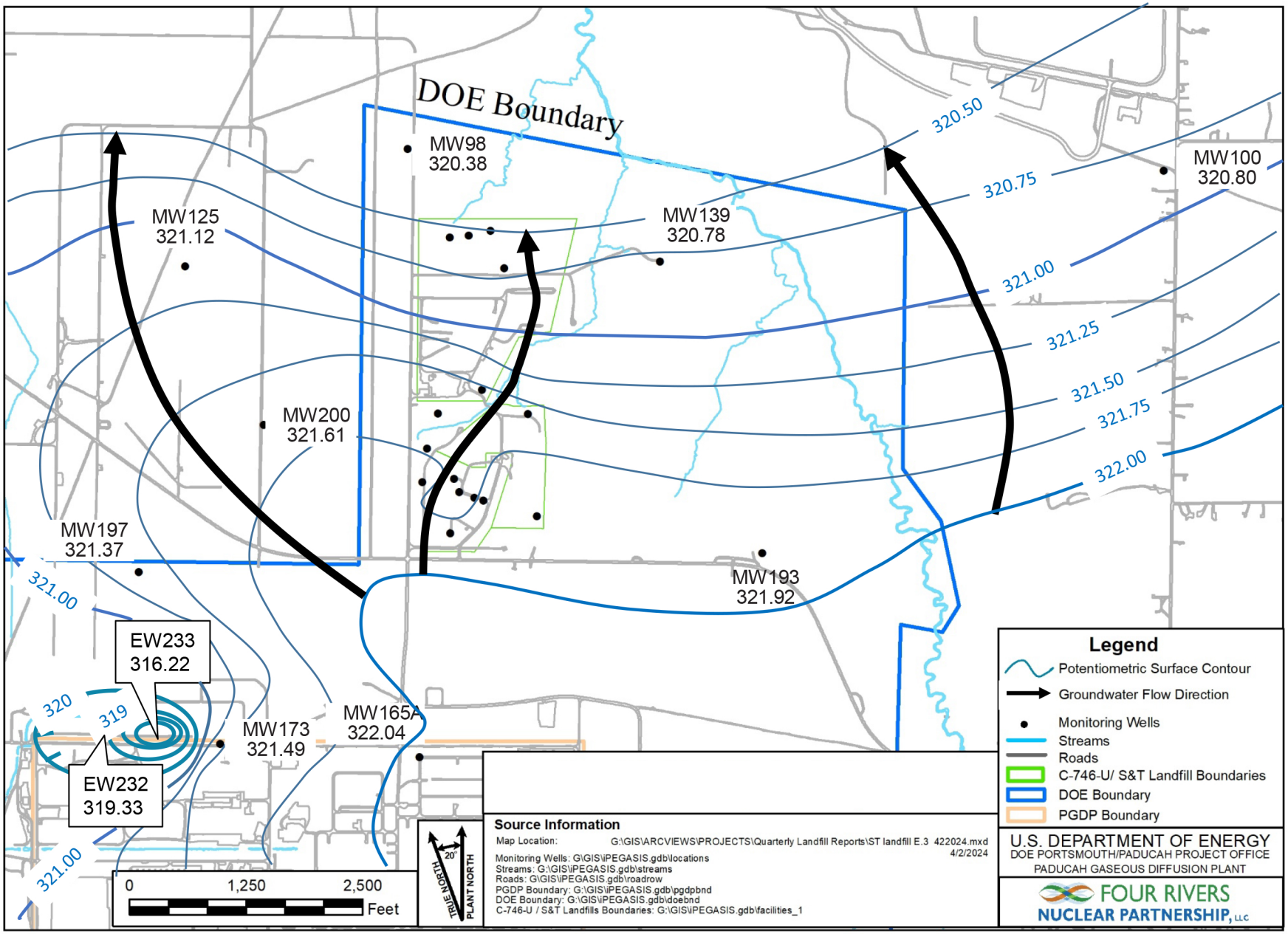

Figure E.3. Vicinity Potentiometric Surface of the Regional Gravel Aquifer, January 22, 2024

Table E.2. C-746-S&T Landfills Hydraulic Gradients

	ft/ft
Beneath Landfill Mound	2.73×10
Vicinity	3.19×10^{-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					
725	0.256	0.198	6.99×10^{-5}	0.791	2.79×10^{-4}
425	0.150	0.116	4.09×10^{-5}	0.464	1.64×10^{-4}
Vicinity					
725	0.256	0.231	8.17×10^{-5}	0.926	3.27×10^{-4}
425	0.150	0.136	4.79×10^{-5}	0.543	1.92×10^{-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 first 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	None	
Upper Regional Gravel Aquifer	Sodium	MW372
	Technetium-99	MW369, MW372, MW387
Lower Regional Gravel Aquifer	None	

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.

2/26/2024

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
8004-4806	MW392	Trichloroethene	8260D	6.71	ug/L	5
8004-4802	MW394	Trichloroethene	8260D	5.43	ug/L	5
8004-4801	MW395	Trichloroethene	8260D	5.8	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			✱				✱	✱			✱												
Quarter 2, 2004							✱							✱									
Quarter 3, 2004							✱							✱									
Quarter 4, 2004			✱																				
Quarter 1, 2005			✱																				
Quarter 2, 2005			✱				✱																
Quarter 3, 2005			✱				✱			✱											✱		
Quarter 4, 2005			✱				✱				✱												
Quarter 1, 2006							✱						✱										
Quarter 2, 2006			✱				✱																
Quarter 3, 2006							✱																
Quarter 4, 2006			✱				✱																
Quarter 1, 2007							✱										✱						
Quarter 2, 2007							✱										✱						
Quarter 3, 2007							✱																
Quarter 4, 2007							✱																
Quarter 1, 2008							✱							✱									
Quarter 2, 2008											✱												
Quarter 4, 2008							✱																
Quarter 1, 2009			✱				✱				✱												
Quarter 1, 2010			✱				✱				✱												
Quarter 2, 2010			✱								✱												
Quarter 3, 2010			✱								✱			✱			✱			✱			
Quarter 1, 2011							✱				✱												
Quarter 2, 2011			✱								✱												
Quarter 2, 2012			✱																				
Quarter 3, 2012							✱																
Quarter 1, 2013							✱				✱												
Quarter 3, 2013			✱																				
Quarter 1, 2014							✱																
Quarter 2, 2014											✱												
Quarter 4, 2014			✱																				
Quarter 1, 2016							✱																
Quarter 2, 2016														✱									
Quarter 1, 2017							✱																
Quarter 4, 2017																							✱
Quarter 1, 2018							✱																
Quarter 1, 2020													✱										
BARIUM																							
Quarter 3, 2003							■	■															
Quarter 4, 2003							■	■															
BETA ACTIVITY																							
Quarter 4, 2002													■										
Quarter 1, 2003													■				■						

Chart of MCL and Historical UTL Exceedances for the C-746-S&T Landfills (Continued)

Groundwater Flow System	UCRS					URGA											LRGA						
Gradient	S	D	D	D	U	S	S	S	S	S	D	D	D	D	U	U	S	D	D	D	D	U	U
Monitoring Well	386	389	390	393	396	221	222	223	224	384	369	372	387	391	220	394	385	370	373	388	392	395	397
BETA ACTIVITY																							
Quarter 2, 2003			■	■													■			■			
Quarter 3, 2003			■										■				■						
Quarter 4, 2003			■							■			■										
Quarter 1, 2004			■										■				■						
Quarter 2, 2004			■									■	■				■		■	■			
Quarter 3, 2004			■									■	■				■						
Quarter 4, 2004			■									■	■				■						
Quarter 1, 2005			■							■			■				■						
Quarter 2, 2005			■										■				■			■			
Quarter 3, 2005										■			■										
Quarter 4, 2005										■		■	■				■						
Quarter 1, 2006										■		■	■				■		■	■			
Quarter 2, 2006			■							■			■				■		■	■			
Quarter 3, 2006										■		■	■				■		■	■			
Quarter 4, 2006	■		■							■		■	■						■	■			
Quarter 1, 2007			■							■		■	■				■		■	■			
Quarter 2, 2007			■							■		■	■				■		■	■			
Quarter 3, 2007										■		■	■				■			■			
Quarter 4, 2007			■							■		■	■				■		■	■			
Quarter 1, 2008			■							■		■	■				■			■			
Quarter 2, 2008			■							■	■		■				■			■			
Quarter 3, 2008										■		■	■				■			■			
Quarter 4, 2008										■		■	■				■						
Quarter 1, 2009			■							■		■	■				■						
Quarter 2, 2009										■		■	■				■						
Quarter 3, 2009										■		■	■				■			■			
Quarter 4, 2009										■		■	■				■						
Quarter 1, 2010												■	■										
Quarter 2, 2010			■							■			■				■						
Quarter 3, 2010										■			■				■						
Quarter 4, 2010										■		■	■				■						
Quarter 1, 2011										■			■				■						
Quarter 2, 2011			■							■			■				■						
Quarter 3, 2011										■			■				■			■			
Quarter 4, 2011										■		■	■				■						
Quarter 1, 2012			■							■			■				■			■			
Quarter 2, 2012			■							■			■				■			■			
Quarter 3, 2012										■		■	■				■						
Quarter 4, 2012										■		■	■				■		■	■			
Quarter 1, 2013										■		■	■						■	■			
Quarter 2, 2013										■			■				■			■			
Quarter 3, 2013										■		■	■				■		■	■			
Quarter 4, 2013										■		■	■				■			■			
Quarter 1, 2014			■							■		■	■				■						
Quarter 2, 2014										■			■				■			■			
Quarter 3, 2014										■			■				■			■			
Quarter 4, 2014										■		■	■				■			■			
Quarter 1, 2015										■		■	■				■			■			
Quarter 2, 2015										■			■				■			■			
Quarter 3, 2015										■			■				■			■			
Quarter 4, 2015										■		■	■				■			■			
Quarter 1, 2016			■							■			■				■			■			
Quarter 2, 2016										■			■				■			■			
Quarter 3, 2016										■			■				■	■		■			
Quarter 4, 2016										■	■		■				■			■			
Quarter 1, 2017										■			■				■			■			
Quarter 2, 2017										■			■				■	■		■			
Quarter 3, 2017										■			■				■	■		■			
Quarter 4, 2017										■		■	■				■	■		■			
Quarter 1, 2018			■							■			■				■	■		■			
Quarter 2, 2018			■							■	■		■				■			■			
Quarter 3, 2018			■							■			■				■	■		■			

Chart of MCL and Historical UTL Exceedances for the C-746-S&T Landfills (Continued)

Groundwater Flow System	UCRS					URGA											LRGA						
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										■	■	■	■				■	■					
Quarter 4, 2019			■							■		■	■				■	■		■			
Quarter 1, 2020			■									■	■					■					
Quarter 2, 2020													■				■	■		■			
Quarter 3, 2020												■	■					■					
Quarter 4, 2020													■					■					
Quarter 1, 2021													■										
Quarter 2, 2021													■										
Quarter 3, 2021													■										
Quarter 4, 2021													■										
Quarter 1, 2022													■										
Quarter 2, 2022			■										■							■			
Quarter 3, 2022													■										
BROMIDE																							
Quarter 1, 2003			✱																				
Quarter 4, 2003			✱																				
Quarter 1, 2004			✱																				
Quarter 2, 2004			✱																				
Quarter 3, 2004			✱																				
Quarter 4, 2004			✱																				
Quarter 1, 2005			✱																				
Quarter 3, 2006			✱																				
CALCIUM																							
Quarter 1, 2003			✱																				
Quarter 2, 2003			✱									✱											
Quarter 3, 2003			✱																				
Quarter 4, 2003			✱									✱							✱				
Quarter 1, 2004			✱									✱		✱					✱				
Quarter 2, 2004			✱									✱							✱				
Quarter 3, 2004			✱									✱							✱				
Quarter 4, 2004			✱									✱							✱				
Quarter 1, 2005												✱							✱				
Quarter 2, 2005												✱							✱				
Quarter 3, 2005												✱							✱				
Quarter 4, 2005												✱							✱				
Quarter 1, 2006												✱							✱				
Quarter 2, 2006												✱							✱				
Quarter 3, 2006												✱							✱				
Quarter 4, 2006												✱							✱				
Quarter 1, 2007												✱							✱				
Quarter 2, 2007												✱							✱				
Quarter 3, 2007												✱							✱				
Quarter 4, 2007												✱							✱				
Quarter 1, 2008												✱							✱				
Quarter 2, 2008												✱							✱				
Quarter 3, 2008												✱							✱				
Quarter 4, 2008												✱							✱				
Quarter 1, 2009												✱							✱				
Quarter 2, 2009												✱							✱				
Quarter 3, 2009												✱							✱				
Quarter 4, 2009												✱							✱				
Quarter 1, 2010												✱							✱				
Quarter 2, 2010												✱							✱				
Quarter 3, 2010												✱							✱				
Quarter 4, 2010												✱							✱				
Quarter 1, 2011												✱							✱				
Quarter 2, 2011												✱	✱						✱				
Quarter 3, 2011												✱							✱				
Quarter 4, 2011												✱							✱				
Quarter 1, 2012												✱							✱				
Quarter 2, 2012												✱							✱				
Quarter 3, 2012												✱							✱				

Chart of MCL and Historical UTL Exceedances for the C-746-S&T Landfills (Continued)

Groundwater Flow System	UCRS					URGA											LRGA						
Gradient	S	D	D	D	U	S	S	S	S	S	D	D	D	D	U	U	S	D	D	D	D	U	U
Monitoring Well	386	389	390	393	396	221	222	223	224	384	369	372	387	391	220	394	385	370	373	388	392	395	397
CALCIUM																							
Quarter 4, 2012												*							*				
Quarter 1, 2013												*							*				
Quarter 2, 2013												*							*				
Quarter 3, 2013												*							*				
Quarter 4, 2013												*							*				
Quarter 1, 2014																		*	*				
Quarter 2, 2014												*							*				
Quarter 3, 2014												*						*	*				
Quarter 4, 2014												*							*				
Quarter 1, 2015												*	*						*				
Quarter 2, 2015												*							*				
Quarter 3, 2015												*							*				
Quarter 4, 2015												*							*				
Quarter 1, 2016												*							*				
Quarter 2, 2016												*		*					*				
Quarter 3, 2016												*							*				
Quarter 4, 2016												*							*				
Quarter 1, 2017												*							*				
Quarter 2, 2017												*							*				
Quarter 3, 2017												*							*				
Quarter 4, 2017												*							*				
Quarter 1, 2018												*							*				
Quarter 2, 2018												*							*				
Quarter 4, 2018												*							*				
Quarter 1, 2019												*							*				
Quarter 2, 2019												*							*				
Quarter 3, 2019												*							*				
Quarter 4, 2019												*	*						*				
Quarter 1, 2020												*	*						*				
Quarter 2, 2020												*							*				
Quarter 3, 2020												*	*						*				
Quarter 4, 2020												*	*						*				
Quarter 1, 2021												*	*						*				
Quarter 2, 2021												*							*				
Quarter 3, 2021												*	*						*				
Quarter 4, 2021												*	*						*				
Quarter 1, 2022												*	*						*				
Quarter 2, 2022												*	*						*				
Quarter 3, 2022												*	*						*				
Quarter 4, 2022												*	*						*				
Quarter 1, 2023												*	*						*				
Quarter 2, 2023												*							*				
Quarter 3, 2023												*							*				
Quarter 4, 2023												*							*				
Quarter 1, 2024												*							*				
CARBON DISULFIDE																							
Quarter 4, 2010											*												
Quarter 1, 2011												*									*		
Quarter 2, 2017												*	*						*				
CHEMICAL OXYGEN DEMAND																							
Quarter 1, 2003				*																			
Quarter 2, 2003				*																			
Quarter 3, 2003				*			*			*													
Quarter 4, 2003				*																			
Quarter 1, 2004	*			*																			
Quarter 4, 2004	*																						
Quarter 1, 2005	*																						
Quarter 2, 2005	*																						
Quarter 3, 2005	*									*		*									*		
Quarter 4, 2005	*									*													
Quarter 1, 2006	*																						
Quarter 2, 2006	*																						
Quarter 3, 2006	*																						
Quarter 4, 2006																	*						
Quarter 1, 2007	*									*													
Quarter 2, 2007	*																						
Quarter 3, 2007	*																						
Quarter 4, 2007	*																						
Quarter 1, 2008	*																						
Quarter 2, 2008	*																						

Chart of MCL and Historical UTL Exceedances for the C-746-S&T Landfills (Continued)

Groundwater Flow System	UCRS					URGA											LRGA						
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	*																						
Quarter 2, 2009	*																			*			
Quarter 3, 2009	*																						
Quarter 4, 2009	*																						
Quarter 1, 2010	*																						
Quarter 2, 2010	*																						
Quarter 3, 2010	*																						
Quarter 4, 2010	*																						
Quarter 3, 2011	*																						
Quarter 4, 2011	*																						
Quarter 1, 2012	*																						
Quarter 1, 2013	*																						
Quarter 3, 2013	*																						
Quarter 3, 2014	*								*				*					*					
Quarter 4, 2014							*																
Quarter 2, 2015																*							
Quarter 3, 2015															*								
Quarter 3, 2016			*								*												
Quarter 4, 2016																	*						
Quarter 2, 2017							*																
Quarter 3, 2017	*														*								
Quarter 4, 2017						*																	
Quarter 2, 2018														*								*	
Quarter 3, 2018												*											
Quarter 4, 2018																							*
Quarter 2, 2019					*							*		*					*				
Quarter 3, 2019												*	*						*			*	*
Quarter 4, 2019	*			*				*			*	*				*							
Quarter 1, 2020					*				*												*		
Quarter 2, 2020															*								
Quarter 4, 2020																*							
Quarter 1, 2021												*											
Quarter 2, 2021						*									*								
Quarter 4, 2021	*																						
Quarter 1, 2022						*		*	*					*	*					*	*		
Quarter 2, 2022						*								*									
Quarter 4, 2022	*																						
Quarter 1, 2023																	*						
Quarter 2, 2023					*								*										
CHLORIDE																							
Quarter 1, 2003			*																				
Quarter 4, 2003			*																				
Quarter 3, 2003			*																				
Quarter 4, 2003			*																				
Quarter 1, 2004			*																				
Quarter 2, 2004			*																				
Quarter 3, 2004			*																				
Quarter 4, 2004			*																				
Quarter 1, 2005			*																				
Quarter 2, 2005			*																				
Quarter 3, 2005			*																				
Quarter 4, 2005			*																				
Quarter 1, 2006																		*					
Quarter 2, 2006			*																				
Quarter 3, 2006			*																				
Quarter 4, 2006			*																				
Quarter 1, 2007			*																				
Quarter 2, 2007			*																				
Quarter 3, 2007			*																				
Quarter 4, 2007			*																				
Quarter 1, 2008			*																				
Quarter 2, 2008			*																				
Quarter 3, 2008			*																				
Quarter 4, 2008			*																				

Chart of MCL and Historical UTL Exceedances for the C-746-S&T Landfills (Continued)

Groundwater Flow System	UCRS					URGA											LRGA						
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												*							*				
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												*							*				
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												*	*						*				
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	*			*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
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															✱								
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												*											
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										*		*	*				*	*	*	*			
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											*	*	*										
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																■					■	■	
TURBIDITY																							
Quarter 4, 2002																					✱		
Quarter 1, 2003							✱					✱		✱									
URANIUM																							
Quarter 4, 2002																		✱	✱				
Quarter 1, 2003																			✱				
Quarter 4, 2003							✱																
Quarter 1, 2004							✱	✱	✱					✱			✱						
Quarter 4, 2004																	✱						
Quarter 4, 2006																			✱		✱		
ZINC																							
Quarter 3, 2003												✱											
Quarter 4, 2003							✱		✱			✱											
Quarter 4, 2004							✱																
Quarter 4, 2007							✱	✱	✱														

✱ Statistical test results indicate an elevated concentration (i.e., a statistically significant increase).

■ MCL Exceedance

▒ Previously reported as an MCL exceedance; however, result was equal to MCL.

UCRS = Upper Continental Recharge System

URGA = Upper Regional Gravel Aquifer

LRGA = Lower Regional Gravel Aquifer

S = Sidegradient; D = Downgradient; U = Upgradient

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APPENDIX H

METHANE MONITORING DATA

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CP3-WM-0017-F03 - C-746-S & T LANDFILL METHANE MONITORING REPORT

Date:	February 8, 2024	Time:	1300	Monitor:	Michael Hideg

Weather Conditions: Mostly Sunny, Approximately 65° F, humidity: 56%

Monitoring Equipment: Multi RAE – Serial # 7970

Monitoring Location		Reading (% LEL)
Ogden Landing Road Entrance	Checked at ground level	0
North Landfill Gate	Checked at ground level	0
West Side of Landfill: North 37° 07.652' West 88° 48.029'	Checked at ground level	0
East Side of Landfill: North 37° 07.628' West 88° 47.798'	Checked at ground level	0
Cell 1 Gas Vent (17)	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

Signature

2/20/2024

Date

CP3-WM-0017-F03 FRev. 1

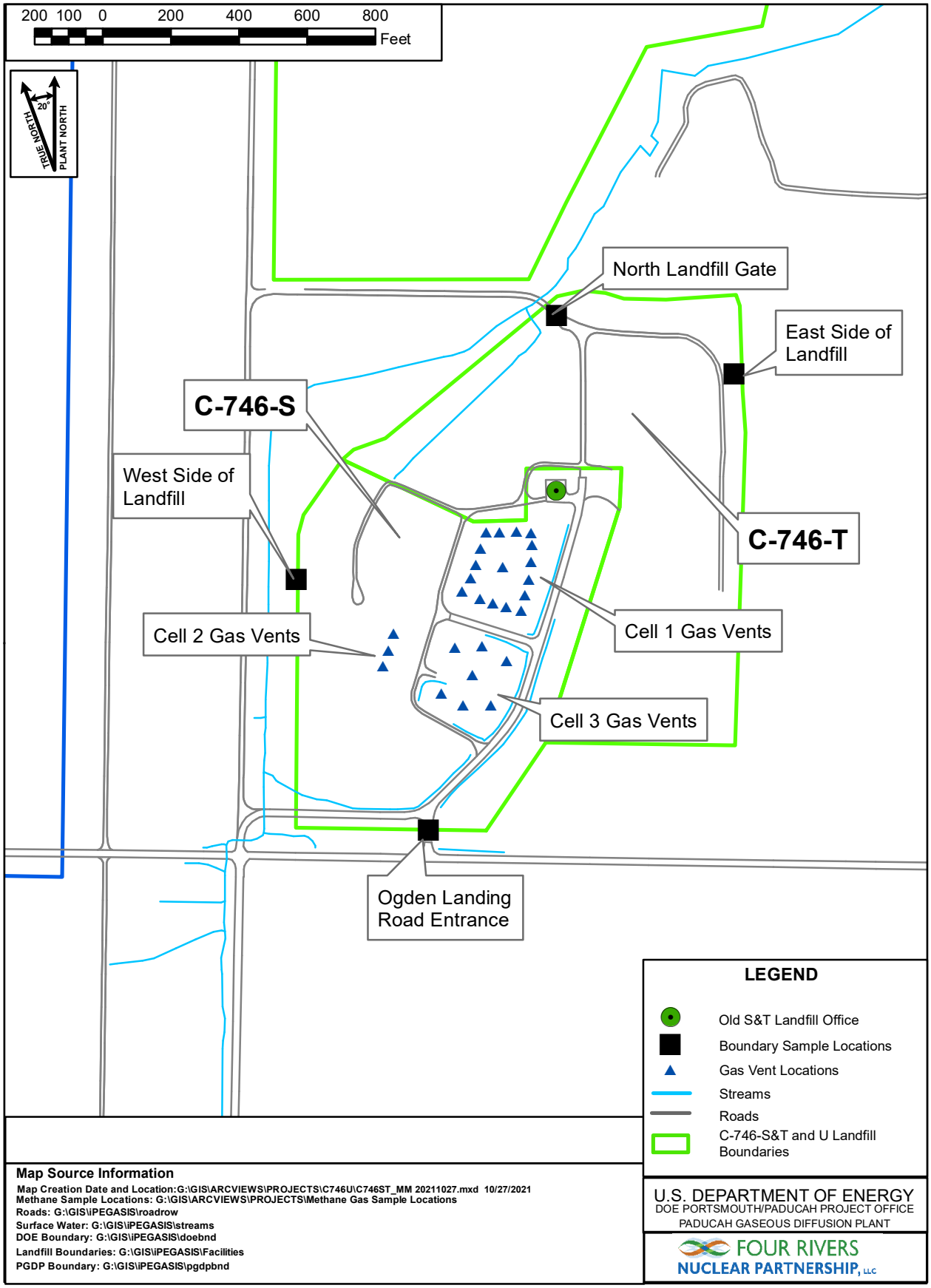

Figure H.1. C-746-S&T Landfill Methane Monitoring Locations

APPENDIX I

SURFACE WATER ANALYSES AND LABORATORY REPORTS

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Paducah OREIS
SURFACE WATER MONITORING REPORT

Facility: C-746-S&T Landfill **County:** McCracken **Permit #:** SW07300014,SW07300015,SW07300045

Sampling Point: L135 UPSTREAM **Period:** 1st Quarter 2024

SAMPLE ID: L135SS2-24 Sample Type: REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Chloride	B	1.58	mg/L	0.2	1/9/2024			EPA-300.0	X
Sulfate		3.52	mg/L	0.4	1/9/2024			EPA-300.0	X
Conductivity		93	µmhos/cm		1/9/2024				X
pH		7.08	Std Unit		1/9/2024				X
Iron		1.41	mg/L	0.1	1/9/2024			EPA-200.8	X
Sodium		2.16	mg/L	0.25	1/9/2024			EPA-200.8	X
Uranium		0.00146	mg/L	0.0002	1/9/2024			EPA-200.8	X
Alpha activity	U	3.15	pCi/L	8.8	1/9/2024	4.93	4.96	SW846-9310	X
Beta activity		23.9	pCi/L	11.3	1/9/2024	8.45	9.35	SW846-9310	X
Dissolved Solids	*	81	mg/L	10	1/9/2024			EPA-160.1	X
Suspended Solids	*	26.8	mg/L	2.5	1/9/2024			EPA-160.2	X
Chemical Oxygen Demand (COD)		34.1	mg/L	20	1/9/2024			EPA-410.4	X
Total Solids		118	mg/L	10	1/9/2024			SM-2540 B 17	X
Total Organic Carbon (TOC)		13.1	mg/L	2	1/9/2024			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:** 1st Quarter 2024

SAMPLE ID: L136SS2-24 Sample Type: REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Chloride	B	0.582	mg/L	0.2	1/9/2024			EPA-300.0	X
Sulfate		3.91	mg/L	0.4	1/9/2024			EPA-300.0	X
Conductivity		146	µmhos/cm		1/9/2024				X
pH		7.43	Std Unit		1/9/2024				X
Iron		0.491	mg/L	0.1	1/9/2024			EPA-200.8	X
Sodium		0.759	mg/L	0.25	1/9/2024			EPA-200.8	X
Uranium		0.000488	mg/L	0.0002	1/9/2024			EPA-200.8	X
Alpha activity	U	-1.25	pCi/L	10.8	1/9/2024	4.54	4.54	SW846-9310	X
Beta activity	U	-0.643	pCi/L	12.1	1/9/2024	6.48	6.48	SW846-9310	X
Dissolved Solids	*	90	mg/L	10	1/9/2024			EPA-160.1	X
Suspended Solids	*	8.1	mg/L	2.5	1/9/2024			EPA-160.2	X
Chemical Oxygen Demand (COD)		27.1	mg/L	20	1/9/2024			EPA-410.4	X
Total Solids		109	mg/L	10	1/9/2024			SM-2540 B 17	X
Total Organic Carbon (TOC)		10.5	mg/L	2	1/9/2024			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:** 1st Quarter 2024

SAMPLE ID: L154US2-24 Sample Type: REG

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Chloride	B	1.39	mg/L	0.2	1/9/2024			EPA-300.0	X
Sulfate		2.63	mg/L	0.4	1/9/2024			EPA-300.0	X
Conductivity		89	µmhos/cm		1/9/2024				X
pH		7.25	Std Unit		1/9/2024				X
Iron		1.19	mg/L	0.1	1/9/2024			EPA-200.8	X
Sodium		2	mg/L	0.25	1/9/2024			EPA-200.8	X
Uranium		0.00104	mg/L	0.0002	1/9/2024			EPA-200.8	X
Alpha activity	U	6.01	pCi/L	10.6	1/9/2024	6.51	6.6	SW846-9310	X
Beta activity		15.5	pCi/L	12.2	1/9/2024	8.18	8.59	SW846-9310	X
Dissolved Solids	*	94	mg/L	10	1/9/2024			EPA-160.1	X
Suspended Solids	*	19.6	mg/L	5	1/9/2024			EPA-160.2	X
Chemical Oxygen Demand (COD)		31.8	mg/L	20	1/9/2024			EPA-410.4	X
Total Solids		112	mg/L	10	1/9/2024			SM-2540 B 17	X
Total Organic Carbon (TOC)		11.9	mg/L	1	1/9/2024			SW846-9060A	X

Paducah OREIS
SURFACE WATER MONITORING REPORT

Facility: C-746-S&T Landfill **County:** McCracken **Permit #:** SW07300014,SW07300015,SW07300045

Sampling Point: QC **Period:** 1st Quarter 2024

SAMPLE ID: FB1SS2-24 **Sample Typ** FB

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Chloride	B	0.83	mg/L	0.2	1/9/2024			EPA-300.0	X
Sulfate	U	0.4	mg/L	0.4	1/9/2024			EPA-300.0	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

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ATTACHMENT I1

GEL LABORATORIES CERTIFICATE OF ANALYSIS

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GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: April 25, 2024

Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Surface Water Quarterly(SS24-02)

Client Sample ID:	L135SS2-24	Project:	FRNP00515
Sample ID:	651204001	Client ID:	FRNP005
Matrix:	WS		
Collect Date:	09-JAN-24 09:43		
Receive Date:	10-JAN-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		13.1	0.330	2.00	mg/L		1	RM3	01/11/24	1021	2551399	1
Ion Chromatography												
EPA 300.0 Anions (Chloride and Sulfate) "As Received"												
Chloride	B	1.58	0.0670	0.200	mg/L		1	TXT1	01/11/24	1611	2551878	2
Sulfate		3.52	0.133	0.400	mg/L		1					
Metals Analysis-ICP-MS												
200.8/200.2 MIMICP Metals- Fe Na U "As Received"												
Iron		1.41	0.0330	0.100	mg/L	1.00	1	RM4	01/19/24	1348	2555006	3
Sodium		2.16	0.0800	0.250	mg/L	1.00	1					
Uranium		0.00146	0.0000670	0.000200	mg/L	1.00	1					
Solids Analysis												
EPA 160.1 Solids, Dissolved "As Received"												
Total Dissolved Solids	*	81.0	2.38	10.0	mg/L			ES2	01/16/24	0804	2552500	4
EPA 160.2 Total Suspended Liq "As Received"												
Total Suspended Solids		26.8	0.570	2.50	mg/L			CH6	01/12/24	1605	2552882	5
SM 2540 B Solids, Total "As Received"												
Total Solids		118	6.29	10.0	mg/L			CH6	01/12/24	1509	2552885	6
Spectrometric Analysis												
EPA 410.4 Chem. Oxygen Demand "As Received"												
COD		34.1	8.95	20.0	mg/L		1	JW2	01/11/24	1611	2551983	7

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	AB5	01/18/24	1415	2555005

GEL LABORATORIES LLC

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Certificate of Analysis

Report Date: April 25, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Surface Water Quarterly(SS24-02)

Client Sample ID:	L135SS2-24	Project:	FRNP00515
Sample ID:	651204001	Client ID:	FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9060A	
2	EPA 300.0	
3	EPA 200.8	
4	EPA 160.1	
5	EPA 160.2	
6	SM 2540B	
7	EPA 410.4	

Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: April 25, 2024

Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Surface Water Quarterly(SS24-02)

Client Sample ID:	L136SS2-24	Project:	FRNP00515
Sample ID:	651204002	Client ID:	FRNP005
Matrix:	WS		
Collect Date:	09-JAN-24 09:30		
Receive Date:	10-JAN-24		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Carbon Analysis												
9060A, Total Organic Carbon "As Received"												
Total Organic Carbon Average		10.5	0.330	2.00	mg/L		1	RM3	01/11/24	1102	2551399	1
Ion Chromatography												
EPA 300.0 Anions (Chloride and Sulfate) "As Received"												
Chloride	B	0.582	0.0670	0.200	mg/L		1	TXT1	01/11/24	1643	2551878	2
Sulfate		3.91	0.133	0.400	mg/L		1					
Metals Analysis-ICP-MS												
200.8/200.2 MIMICP Metals- Fe Na U "As Received"												
Iron		0.491	0.0330	0.100	mg/L	1.00	1	RM4	01/19/24	1351	2555006	3
Sodium		0.759	0.0800	0.250	mg/L	1.00	1					
Uranium		0.000488	0.0000670	0.000200	mg/L	1.00	1					
Solids Analysis												
EPA 160.1 Solids, Dissolved "As Received"												
Total Dissolved Solids	*	90.0	2.38	10.0	mg/L			ES2	01/16/24	0804	2552500	4
EPA 160.2 Total Suspended Liq "As Received"												
Total Suspended Solids		8.10	0.570	2.50	mg/L			CH6	01/12/24	1605	2552882	5
SM 2540 B Solids, Total "As Received"												
Total Solids		109	6.29	10.0	mg/L			CH6	01/12/24	1509	2552885	6
Spectrometric Analysis												
EPA 410.4 Chem. Oxygen Demand "As Received"												
COD		27.1	8.95	20.0	mg/L		1	JW2	01/11/24	1611	2551983	7

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	AB5	01/18/24	1415	2555005

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: April 25, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Surface Water Quarterly(SS24-02)

Client Sample ID:	L136SS2-24	Project:	FRNP00515
Sample ID:	651204002	Client ID:	FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9060A	
2	EPA 300.0	
3	EPA 200.8	
4	EPA 160.1	
5	EPA 160.2	
6	SM 2540B	
7	EPA 410.4	

Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: April 25, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Surface Water Quarterly(SS24-02)

Client Sample ID:	FB1SS2-24	Project:	FRNP00515
Sample ID:	651204003	Client ID:	FRNP005
Matrix:	WATER		
Collect Date:	09-JAN-24 09:32		
Receive Date:	10-JAN-24		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
EPA 300.0 Anions (Chloride and Sulfate) "As Received"												
Chloride	B	0.830	0.0670	0.200	mg/L		1	TXT1	01/11/24	1714	2551878	1
Sulfate	U	0.400	0.133	0.400	mg/L		1					

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	

Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road

Kevil, Kentucky 42053

Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Surface Water Quarterly(SS24-02)

Client Sample ID: L135SS2-24
Sample ID: 651204001
Matrix: WS
Collect Date: 09-JAN-24
Receive Date: 10-JAN-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	3.15	+/-4.93	8.80	+/-4.96	15.0	pCi/L			KP1	01/15/24	1157	2551486	1
Beta		23.9	+/-8.45	11.3	+/-9.35	50.0	pCi/L							

The following Analytical Methods were performed

Method	Description
1	EPA 900.0/SW846 9310

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
Lc/LC: Critical Level
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Mtd.: Method
PF: Prep Factor
RL: Reporting Limit
TPU: Total Propagated Uncertainty

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road

Kevil, Kentucky 42053

Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Surface Water Quarterly(SS24-02)

Client Sample ID: L136SS2-24
Sample ID: 651204002
Matrix: WS
Collect Date: 09-JAN-24
Receive Date: 10-JAN-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	-1.25	+/-4.54	10.8	+/-4.54	15.0	pCi/L			KP1	01/15/24	1157	2551486	1
Beta	U	-0.643	+/-6.48	12.1	+/-6.48	50.0	pCi/L							

The following Analytical Methods were performed

Method	Description
1	EPA 900.0/SW846 9310

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
Lc/LC: Critical Level
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Mtd.: Method
PF: Prep Factor
RL: Reporting Limit
TPU: Total Propagated Uncertainty

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ATTACHMENT I2

GEL LABORATORIES CERTIFICATE OF ANALYSIS

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GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: April 25, 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(SS24-02)

Client Sample ID: L135SS2-24
Sample ID: 651204001
Matrix: WS
Collect Date: 09-JAN-24 09:43
Receive Date: 10-JAN-24
Collector: Client

Project: FRNP00515
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		13.1	0.330	2.00	mg/L		1	RM3	01/11/24	1021	2551399	1
Ion Chromatography												
EPA 300.0 Anions (Chloride and Sulfate) "As Received"												
Chloride	B	1.58	0.0670	0.200	mg/L		1	TXT1	01/11/24	1611	2551878	2
Sulfate		3.52	0.133	0.400	mg/L		1					
Metals Analysis-ICP-MS												
200.8/200.2 MIMICP Metals- Fe Na U "As Received"												
Iron		1.41	0.0330	0.100	mg/L	1.00	1	RM4	01/19/24	1348	2555006	3
Sodium		2.16	0.0800	0.250	mg/L	1.00	1					
Uranium		0.00146	0.0000670	0.000200	mg/L	1.00	1					
Solids Analysis												
EPA 160.1 Solids, Dissolved "As Received"												
Total Dissolved Solids	*	81.0	2.38	10.0	mg/L			ES2	01/16/24	0804	2552500	4
EPA 160.2 Total Suspended Liq "As Received"												
Total Suspended Solids		26.8	0.570	2.50	mg/L			CH6	01/12/24	1605	2552882	5
SM 2540 B Solids, Total "As Received"												
Total Solids		118	6.29	10.0	mg/L			CH6	01/12/24	1509	2552885	6
Spectrometric Analysis												
EPA 410.4 Chem. Oxygen Demand "As Received"												
COD		34.1	8.95	20.0	mg/L		1	JW2	01/11/24	1611	2551983	7

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	AB5	01/18/24	1415	2555005

GEL LABORATORIES LLC

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Certificate of Analysis

Report Date: April 25, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Surface Water Quarterly(SS24-02)

Client Sample ID:	L135SS2-24	Project:	FRNP00515
Sample ID:	651204001	Client ID:	FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9060A	
2	EPA 300.0	
3	EPA 200.8	
4	EPA 160.1	
5	EPA 160.2	
6	SM 2540B	
7	EPA 410.4	

Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: April 25, 2024

Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road

Kevil, Kentucky 42053
Contact: Ms. Jaime Morrow
Project: C-746-S&T Landfill Surface Water Quarterly(SS24-02)

Client Sample ID: L136SS2-24
Sample ID: 651204002
Matrix: WS
Collect Date: 09-JAN-24 09:30
Receive Date: 10-JAN-24
Collector: Client

Project: FRNP00515
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		10.5	0.330	2.00	mg/L		1	RM3	01/11/24	1102	2551399	1
Ion Chromatography												
EPA 300.0 Anions (Chloride and Sulfate) "As Received"												
Chloride	B	0.582	0.0670	0.200	mg/L		1	TXT1	01/11/24	1643	2551878	2
Sulfate		3.91	0.133	0.400	mg/L		1					
Metals Analysis-ICP-MS												
200.8/200.2 MIMICP Metals- Fe Na U "As Received"												
Iron		0.491	0.0330	0.100	mg/L	1.00	1	RM4	01/19/24	1351	2555006	3
Sodium		0.759	0.0800	0.250	mg/L	1.00	1					
Uranium		0.000488	0.0000670	0.000200	mg/L	1.00	1					
Solids Analysis												
EPA 160.1 Solids, Dissolved "As Received"												
Total Dissolved Solids	*	90.0	2.38	10.0	mg/L			ES2	01/16/24	0804	2552500	4
EPA 160.2 Total Suspended Liq "As Received"												
Total Suspended Solids		8.10	0.570	2.50	mg/L			CH6	01/12/24	1605	2552882	5
SM 2540 B Solids, Total "As Received"												
Total Solids		109	6.29	10.0	mg/L			CH6	01/12/24	1509	2552885	6
Spectrometric Analysis												
EPA 410.4 Chem. Oxygen Demand "As Received"												
COD		27.1	8.95	20.0	mg/L		1	JW2	01/11/24	1611	2551983	7

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	AB5	01/18/24	1415	2555005

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: April 25, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Surface Water Quarterly(SS24-02)

Client Sample ID:	L136SS2-24	Project:	FRNP00515
Sample ID:	651204002	Client ID:	FRNP005

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9060A	
2	EPA 300.0	
3	EPA 200.8	
4	EPA 160.1	
5	EPA 160.2	
6	SM 2540B	
7	EPA 410.4	

Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

GEL LABORATORIES LLC

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Certificate of Analysis

Report Date: April 25, 2024

Company :	Four Rivers Nuclear Partnership, LLC
Address :	5600 Hobbs Road
	Kevil, Kentucky 42053
Contact:	Ms. Jaime Morrow
Project:	C-746-S&T Landfill Surface Water Quarterly(SS24-02)

Client Sample ID:	FB1SS2-24	Project:	FRNP00515
Sample ID:	651204003	Client ID:	FRNP005
Matrix:	WATER		
Collect Date:	09-JAN-24 09:32		
Receive Date:	10-JAN-24		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
EPA 300.0 Anions (Chloride and Sulfate) "As Received"												
Chloride	B	0.830	0.0670	0.200	mg/L		1	TXT1	01/11/24	1714	2551878	1
Sulfate	U	0.400	0.133	0.400	mg/L		1					

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	

Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road

Kevil, Kentucky 42053

Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Surface Water Quarterly(SS24-02)

Client Sample ID: L135SS2-24
Sample ID: 651204001
Matrix: WS
Collect Date: 09-JAN-24
Receive Date: 10-JAN-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	3.15	+/-4.93	8.80	+/-4.96	15.0	pCi/L			KP1	01/15/24	1157	2551486	1
Beta		23.9	+/-8.45	11.3	+/-9.35	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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Certificate of Analysis

Company : Four Rivers Nuclear Partnership, LLC
Address : 5600 Hobbs Road

Kevil, Kentucky 42053

Report Date: April 25, 2024

Contact: Ms. Jaime Morrow

Project: C-746-S&T Landfill Surface Water Quarterly(SS24-02)

Client Sample ID: L136SS2-24
Sample ID: 651204002
Matrix: WS
Collect Date: 09-JAN-24
Receive Date: 10-JAN-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	-1.25	+/-4.54	10.8	+/-4.54	15.0	pCi/L			KP1	01/15/24	1157	2551486	1
Beta	U	-0.643	+/-6.48	12.1	+/-6.48	50.0	pCi/L							

The following Analytical Methods were performed

Method	Description
1	EPA 900.0/SW846 9310

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
Lc/LC: Critical Level
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Mtd.: Method
PF: Prep Factor
RL: Reporting Limit
TPU: Total Propagated Uncertainty

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APPENDIX J

ANALYTICAL LABORATORY CERTIFICATION

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Accredited Laboratory

A2LA has accredited

GEL LABORATORIES, LLC

Charleston, SC

for technical competence in the field of

Environmental Testing

In recognition of the successful completion of the A2LA evaluation process that includes an assessment of the laboratory's compliance with ISO/IEC 17025:2017, the 2009 and 2016 TNI Environmental Testing Laboratory Standard, the requirements of the Department of Defense Environmental Laboratory Accreditation Program (DoD ELAP), and the requirements of the Department of Energy Consolidated Audit Program (DOECAP) as detailed in Version 5.4 of the DoD/DOE Quality System Manual for Environmental Laboratories (QSM), accreditation is granted to this laboratory to perform recognized EPA methods as defined on the associated A2LA Environmental Scope of Accreditation. This accreditation demonstrates technical competence for this defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated April 2017).

Presented this 26th day of June 2023.

Mr. Trace McInturff, Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 2567.01
Valid to June 30, 2025

For the tests to which this accreditation applies, please refer to the laboratory's Environmental Scope of Accreditation.

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APPENDIX K

LABORATORY ANALYTICAL METHODS

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LABORATORY ANALYTICAL METHODS

Analytical Method	Preparation Method	Product
SM 2540B		Solids, Total
SW846 8260D		Volatile Organic Compounds (VOC) by Gas Chromatograph/Mass Spectrometer
SW846 8011	SW846 8011 PREP	Analysis of 1,2-Dibromoethane (EDB), 1,2-Dibromo-3-Chloropropane (DBCP) and 1,2,3-Trichloropropane in Water by GC/ECD Using Methods 504.1 or 8011
SW846 8082A	SW846 3535A	Analysis of Polychlorinated Biphenyls by GC/ECD by ECD
SW846 6020B	SW846 3005A	Determination of Metals by ICP-MS
SW846 7470A	SW846 7470A Prep	Mercury Analysis Using the Perkin Elmer Automated Mercury Analyzer
SW846 9060A		Carbon, Total Organic
SW846 9012B	SW846 9010C Distillation	Cyanide, Total
EPA 300.0		Ion Chromatography Iodide
SW846 9056A		Ion Chromatography
EPA 160.1		Solids, Total Dissolved
EPA 160.2		Solids, Total Suspended
EPA 200.8	EPA 200.2	Determination of Metals by ICP-MS
EPA 410.4		COD
Eichrom Industries, AN-1418		AlphaSpec Ra226, Liquid
DOE EML HASL-300, Th-01-RC Modified		Th-01-RC M, Th Isotopes, Liquid
EPA 904.0 Modified		904.0Mod, Ra228, Liquid
SW846 9310		9310, Alpha/Beta Activity, liquid
EPA 905.0 Modified		905.0Mod, Sr90, liquid
DOE EML HASL-300, Tc-02-RC Modified		Tc-02-RC-MOD, Tc99, Liquid
EPA 906.0 Modified		906.0M, Tritium Dist, Liquid
SW846 9020B		Total Organic Halogens (TOX)

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APPENDIX L

MICRO-PURGING STABILITY PARAMETERS

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:1/29/24					
1307	59.2	347	6.18	5.55	2.08
1310	58.5	339	6.12	5.70	1.87
1313	58.2	331	6.12	5.72	1.80
MW222					
Date Collected:1/29/24					
1131	57.7	326	6.30	7.17	9.00
1134	57.6	325	6.26	5.48	9.12
1137	57.5	324	6.25	5.40	9.20
MW224					
Date Collected:1/29/24					
1218	56.7	349	6.24	3.97	2.97
1221	57.0	351	6.18	2.89	2.61
1224	57.4	357	6.18	2.84	2.77
MW370					
Date Collected:1/24/24					
1235	61.3	426	6.17	5.31	0.00
1238	61.1	430	6.20	4.70	0.00
1241	61.1	437	6.20	4.65	0.00
MW373					
Date Collected:1/25/24					
1040	61.3	904	6.10	3.28	0.00
1043	60.9	907	6.06	1.36	0.00
1046	60.8	909	6.03	1.30	0.00
MW385					
Date Collected:1/26/24					
0639	60.7	423	6.50	3.72	1.13
0642	60.1	424	6.40	1.27	0.91
0645	60.1	423	6.40	1.22	0.72
MW387					
Date Collected:1/26/24					
0626	59.1	537	6.34	5.78	2.60
0629	59.1	539	6.26	4.58	2.02
0632	59.3	538	6.25	4.47	1.26
MW391					
Date Collected:1/25/24					
0715	57.9	389	6.04	6.17	1.41
0718	58.0	386	5.99	5.59	0.00
0721	58.0	384	6.00	5.50	0.00
MW393					
Date Collected:1/25/24					
0910	60.9	406	6.22	2.96	9.84
0913	60.9	408	6.20	2.11	10.04
0916	60.8	407	6.20	2.02	9.47
MW395					
Date Collected:1/30/24					
1307	58.5	388	6.09	5.83	3.17
1310	58.3	387	6.13	5.12	3.13
1313	58.4	388	6.14	5.10	3.19
MW397					
Date Collected:1/30/24					
0956	58.2	351	6.51	8.60	4.34
0959	58.4	325	6.10	7.89	4.54
1002	58.3	317	6.10	7.84	4.38

	Temperature (°F)	Conductivity (µmhos/cm)	pH (Std. Unit)	Dissolved oxygen (mg/L)	Turbidity (NTU)
MW221					
Date Collected:1/29/24					
0757	54.1	400	5.90	7.10	10.16
0800	54.6	398	6.13	6.10	2.00
0803	54.9	398	6.15	5.99	1.84
MW223					
Date Collected:1/29/24					
0902	58.0	388	6.30	5.09	1.87
0905	58.1	386	6.23	4.00	1.90
0908	58.2	385	6.21	3.93	1.83
MW369					
Date Collected:1/24/24					
1119	60.1	343	6.20	2.33	0.00
1122	59.9	342	6.14	2.40	0.00
1125	59.8	341	6.13	2.42	0.00
MW372					
Date Collected:1/25/24					
0958	61.1	729	6.17	1.89	0.00
1001	61.2	727	6.11	1.74	0.00
1004	61.3	727	6.07	1.70	0.00
MW384					
Date Collected:1/30/24					
0845	57.0	484	6.17	5.61	6.24
0848	56.7	484	6.27	4.37	5.06
0851	56.2	476	6.26	4.40	4.55
MW386					
Date Collected:1/26/24					
0716	61.7	545	6.68	2.16	0.96
0719	61.6	545	6.68	1.41	0.44
0722	61.7	546	6.68	1.38	0.39
MW388					
Date Collected:1/26/24					
0551	60.1	414	6.15	6.13	0.25
0554	60.0	413	6.11	5.35	0.17
0557	60.1	413	6.11	5.26	0.10
MW392					
Date Collected:1/25/24					
0827	59.5	330	6.04	3.80	1.28
0830	59.4	330	6.01	2.09	1.10
0833	59.4	331	6.00	2.02	1.20
MW394					
Date Collected:1/30/24					
1222	58.7	402	6.10	6.58	3.26
1225	58.5	405	6.08	6.11	3.11
1228	58.6	407	6.08	6.03	3.06
MW396					
Date Collected:1/30/24					
1402	58.6	890	6.73	4.50	3.27
1405	58.7	688	6.53	3.01	3.91
1408	58.8	683	6.52	2.84	4.09