Department of Energy

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

May 30, 2023

Mr. Todd Hendricks   PPPO-02-10024457-23B
Division of Waste Management
Kentucky Department for Environmental Protection
300 Sower Boulevard, 2nd Floor
Frankfort, Kentucky 40601

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

Dear Mr. Hendricks and Ms. Nielsen:

C-746-U CONTAINED LANDFILL FIRST QUARTER CALENDAR YEAR 2023 (JANUARY–MARCH) COMPLIANCE MONITORING REPORT, PADUCAH GASEOUS DIFFUSION PLANT, PADUCAH, KENTUCKY, FRNP-RPT-0295/V1, PERMIT NUMBER SW07300014, SW07300015, SW07300045, AGENCY INTEREST ID NO. 3059

The subject report for the first quarter calendar year (CY) 2023 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 e-mail distribution (see distribution list). This report is required in accordance with Permit Condition ACTV0006, Special Condition Number 3, of Solid Waste Landfill Permit Number SW07300014, SW07300015, SW07300045 (Permit). This report includes groundwater analytical data, a validation summary, groundwater flow rate and direction determination, figures depicting well locations, and methane monitoring results.

The statistical analyses on the first quarter CY 2023 monitoring well data collected from the C-746-U Landfill were performed in accordance with Monitoring Condition GSTR0001, Standard Requirement 3, using the U.S. Environmental Protection Agency guidance document, *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Final Guidance* (1989).

A statistically significant exceedance was indicated for nickel in MW358. This statistical exceedance is a Type 2 Exceedance—Source Unknown. Continued evaluation of nickel levels through future quarterly monitoring events is recommended. This report also serves as the statistical exceedance notification for the first quarter CY 2023, in accordance with Monitoring Condition GSTR0001, Standard Requirement 5, of the Permit.

If you have any questions or require additional information, please contact Ryan Callihan at (740) 970-0255.

Sincerely,

APRIL LADD
Digitally signed by APRIL LADD
Date: 2023.05.30 12:40:17 -05'00'

April Ladd
Paducah Site Lead
Portsmouth/Paducah Project Office

Enclosure:

C-746-U Contained Landfill First Quarter Calendar Year 2023 (January–March) Compliance Monitoring Report, Paducah Gaseous Diffusion Plant, Paducah, Kentucky, FRNP-RPT-0295/V1

cc w/enclosure:
abigail.parish@pppo.gov, PPPO
april.ladd@pppo.gov, PPPO
april.webb@ky.gov, KDEP
brian.begley@ky.gov, KDEP
bruce.ford@pad.pppo.gov, FRNP
bryan.smith@pad.pppo.gov, FRNP
christopher.travis@ky.gov, KDEP
dennis.greene@pad.pppo.gov, FRNP
frnpcorrespondence@pad.pppo.gov
jaime.morrow@pad.pppo.gov, FRNP
ken.davis@pad.pppo.gov, FRNP
leo.williamson@ky.gov, KDEP
myrna.redfield@pad.pppo.gov, FRNP
pad.rmc@pad.pppo.gov
ryan.callihan@pppo.gov, PPPO
stephaniec.brock@ky.gov, KYRHB

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

C-746-U Contained Landfill
First Quarter Calendar Year 2023
(January–March)
Compliance Monitoring Report,
Paducah Gaseous Diffusion Plant,
Paducah, Kentucky

FOUR RIVERS NUCLEAR PARTNERSHIP, LLC

C-746-U Contained Landfill
First Quarter Calendar Year 2023
(January–March)
Compliance Monitoring Report,
Paducah Gaseous Diffusion Plant,
Paducah, Kentucky

Date Issued—May 2023

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

THIS PAGE INTENTIONALLY LEFT BLANK

CONTENTS

FIGURES

TABLES

THIS PAGE INTENTIONALLY LEFT BLANK

ACRONYMS

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

THIS PAGE INTENTIONALLY LEFT BLANK

1. INTRODUCTION

This report, *C-746-U Contained Landfill First Quarter Calendar Year 2023 (January–March) Compliance Monitoring Report, Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, is being submitted in accordance with Solid Waste Permit No. SW07300014, SW07300015, SW07300045.

The Groundwater, Surface Water, Leachate, and Methane Monitoring Sample Data Reporting Form is provided in Appendix A. The facility information sheet is provided in Appendix B. Groundwater analytical results are recorded on the Kentucky Division of Waste Management (KDWM) Groundwater Sample Analyses forms, which are presented in Appendix C. The statistical analyses and qualification statement are provided in Appendix D. The groundwater flow rate and direction determinations are provided in Appendix E. Appendix F contains the notifications for all permit required parameters whose concentrations exceed the maximum contaminant level (MCL) for Kentucky solid waste facilities provided in 401 *KAR* 47:030 § 6 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 MCL and historical background UTL exceedances that have occurred, beginning in the third quarter, calendar year (CY) 2002. Methane monitoring results are documented on the approved C-746-U Landfill Methane Monitoring Report form provided in Appendix H. The form includes pertinent remarks/observations as required by 401 *KAR* 48:090 § 5. Surface water analyses and written comments are provided in Appendix I. Analytical laboratory certification is provided in Appendix J. Laboratory analytical methods used to analyze the included data set are provided in Appendix K. Micro-purging stability parameter results are provided in Appendix L.

1.1 BACKGROUND

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

1.2 MONITORING PERIOD ACTIVITIES

1.2.1 Groundwater Monitoring

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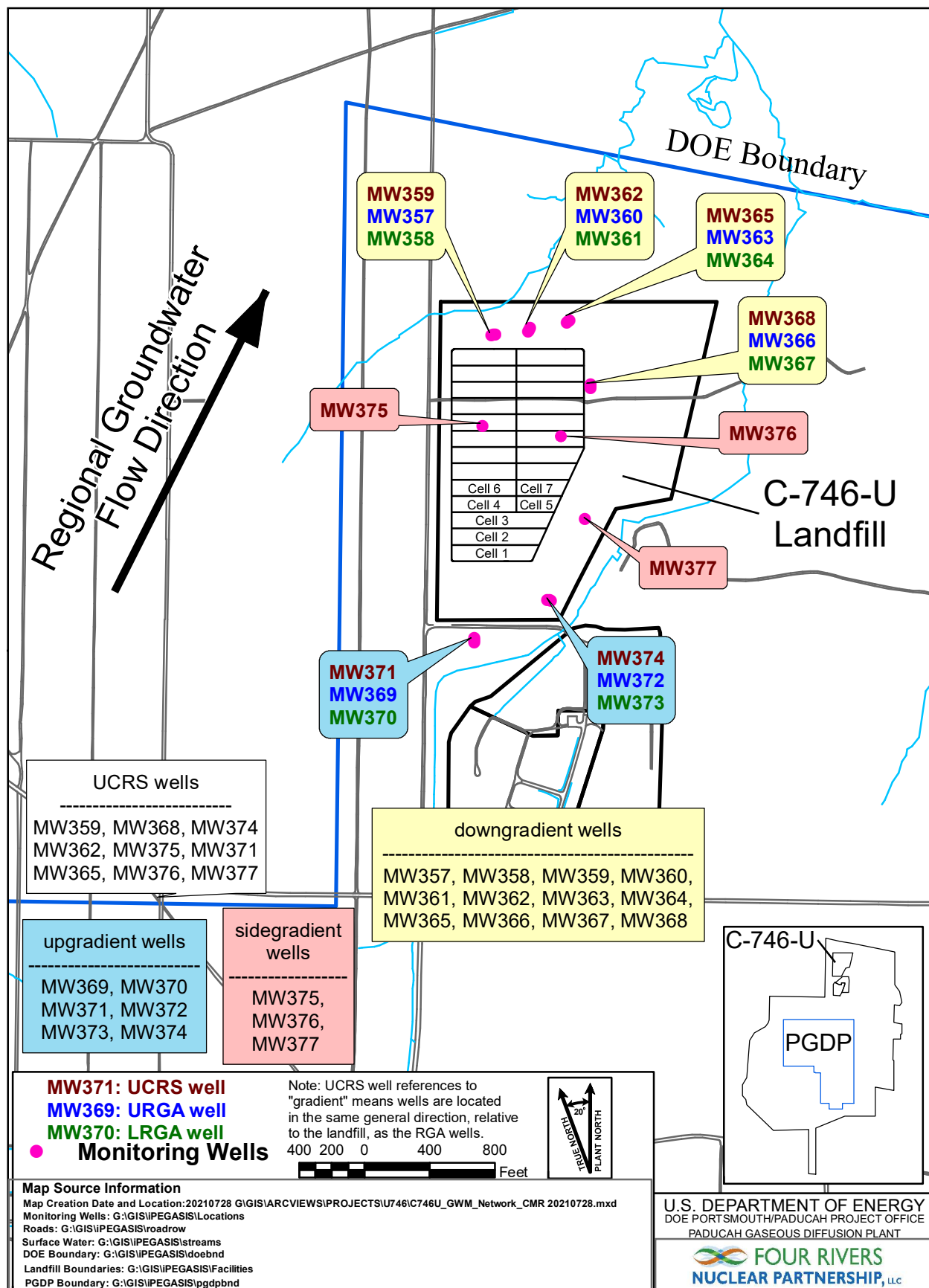
Figure 1. C-746-U Landfill Groundwater Monitoring Well Network

2

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

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

Groundwater sampling was conducted within the first quarter 2023 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 2023 was conducted on January 17–19, 2023. The analytical laboratory used U.S. Environmental Protection Agency-approved methods, as applicable. Appropriate sample containers and preservatives were used. The parameters specified in Permit Condition GSTR0001, Special Condition 1, were analyzed for all locations sampled.

The groundwater flow rate and direction determination are provided in Appendix E. Depth-to-water was measured on January 26, 2023, in MWs of the C-746-U Landfill (see Appendix E, Table E.1), in MWs of the C-746-S&T Landfills, and in MWs of the surrounding region (shown on Appendix E, Figure E.4). Water level measurements in 39 vicinity wells define the potentiometric surface for the RGA. Typical regional flow in the RGA is northeastward, toward the Ohio River. During January, RGA groundwater flow in the area of the landfill was oriented northeast. The hydraulic gradient for the RGA in the vicinity of the C-746-U Landfill in January was 4.17×10^{-4} ft/ft (see Appendix E, Table E.2). The hydraulic gradients for the URGA and LRGA at the C-746-U Landfill were 6.50×10^{-4} ft/ft and 6.38×10^{-4} ft/ft, respectively (see Appendix E, Table E.2). Calculated groundwater flow rates (average linear velocity) at the C-746-U Landfill range from 1.11 to 1.89 ft/day for the URGA and 1.08 to 1.85 ft/day for the LRGA (see Appendix E, Table E.3).

1.2.2 Methane Monitoring

Methane monitoring was conducted in accordance with 401 *KAR* 48:090 § 5 and the approved Explosive Gas Monitoring Program (KEEC 2011), which is Technical Application Attachment 12, of the Solid Waste Permit. Industrial Hygiene staff monitored for the occurrence of methane in four on-site building locations and four locations along the landfill boundary on March 6, 2023. Appendix H provides a map of the monitoring locations (Appendix H, Figure H.1). Monitoring results identified that all locations were compliant with the regulatory requirement of < 100% lower explosive limit (LEL) at boundary locations and < 25% LEL at all other locations. The results are documented on the C-746-U Landfill Methane Monitoring Report provided in Appendix H.

1.2.3 Surface Water Monitoring

Surface water was monitored, as specified in 401 *KAR* 48:300 § 2, and the approved *Surface Water Monitoring Plan for C-746-U and C-746-S&T Landfills Permit Number SW07300014, SW07300015, SW07300045, Paducah Gaseous Diffusion Plant, Paducah, Kentucky, Agency Interest Number 3059* (FRNP 2021), which is Technical Application Attachment 24 of the Solid Waste Permit. Surface water sampling was performed on January 3, 2023, at three locations monitored for the C-746-U Landfill: (1) instream location L154, (2) downstream location L351, and (3) instream location L150 (Figure 2). Surface water results are provided in Appendix I.

1.3 KEY RESULTS

Groundwater data were evaluated in accordance with the approved Groundwater Monitoring Plan (LATA Kentucky 2014), which is Technical Application Attachment 25, of the Solid Waste Permit. Parameters that had concentrations that exceeded their respective MCL are listed in Table 1. Those constituents that exceeded their respective MCL were evaluated further against their historical background UTL. Table 2 identifies parameters (that do not have MCLs) with concentrations that exceeded the statistically derived historical background UTL[1] during the first quarter 2023, as well as parameters that exceeded their MCL and also exceeded their historical background UTL. Those constituents (present in downgradient wells) that exceed their historical background UTL were evaluated against their current UTL-derived background using the most recent eight quarters of data from wells considered to be background. Constituents in downgradient wells that exceeded current background UTL are shown on Table 3.

Table 1. Summary of MCL Exceedances

UCRS	URGA	LRGA
None	MW357: Trichloroethene	MW361: Trichloroethene
	MW369: Trichloroethene	MW373: Trichloroethene
	MW372: Trichloroethene	

.

---

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

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

C-746-U

L351
Downstream Location

L150
Instream Location

L154
Instream Location

LEGEND

- Surface Water Locations
- Streams
- Roads
- C-746-S&T and U Landfill Boundaries

200 100 0 200 400 600 800 Feet

TRUE NORTH PLANT NORTH 20°

Map Source Information
Map Creation Date and Location: G:\GIS\ARCVIEWS\PROJECTS\C746U\C746U_SWM 20210823.mxd 8/23/2021
Surface Water Locations: G:\GIS\iPEGASIS\locations
Roads: G:\GIS\iPEGASIS\roadrow
Surface Water: G:\GIS\iPEGASIS\streams
DOE Boundary: G:\GIS\iPEGASIS\doebnd
Landfill Boundaries: G:\GIS\iPEGASIS\Facilities
PGDP Boundary: G:\GIS\iPEGASIS\pgdpbnd

U.S. DEPARTMENT OF ENERGY
DOE PORTSMOUTH/PADUCAH PROJECT OFFICE
PADUCAH GASEOUS DIFFUSION PLANT

FOUR RIVERS
NUCLEAR PARTNERSHIP, LLC

Table 2. Exceedances of Statistically Derived Historical Background Concentrations

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

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

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

URGA	LRGA
MW366: Technetium-99	MW358: Nickel

The notification of the parameter that exceeded its MCL was submitted electronically to the KDWM, in accordance with 401 *KAR* 48:300 § 7, prior to the submittal of this report.

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

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

The constituents that had exceedances of the statistically derived historical background UTL underwent additional statistical evaluation. The current quarter concentrations were compared to the current background UTLs that were developed using the most recent eight quarters of data from wells identified as background in order to determine if the current downgradient (compliance) well concentrations are consistent with current background values. Table 3 summarizes the evaluation against current background UTL for those constituents present in downgradient RGA wells with historical UTL exceedances. In accordance with the approved Groundwater Monitoring Plan, constituents in downgradient wells that exceed the historical UTL, but do not exceed the current UTL, are considered not to have a C-746-U Landfill source; therefore, they are Type 1 exceedances—not attributable to the C-746-U Landfill. Except for nickel in MW358 and technetium-99 in MW366, all UTL exceedances reported for this quarter were evaluated and considered to be Type 1 exceedances—not attributable to the C-746-U Landfill.

Nickel in downgradient LRGA well MW358 and technetium-99 in MW366, exceeded both the historical background UTL and the current background UTL; therefore, these results are preliminarily considered to be Type 2 exceedances. To evaluate the preliminary Type 2 exceedances further, the parameters were

subjected to the Mann-Kendall statistical test for trends using the most recent eight quarters of data. The results are summarized in Table 4. Technetium-99 in MW366 showed no trend and is considered to be a Type 1 exceedance—not attributable to the C-746-U Landfill; however, nickel concentrations in LRGA well MW358 showed an increasing trend.

This statistically significant exceedance of landfill background concentrations is a Type 2 exceedance (source undetermined), best evaluated by continuing trend assessment based on future analyses. Additionally, the January nickel concentration of 0.103 mg/L is less than the groundwater background value (0.530 mg/L) used in risk assessment at the Paducah Gaseous Diffusion Plant.

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

Location	Well ID	Parameter	Sample Size	Alpha[1]	p-Value[2]	S[3]	Decision[4]
C-746-U Landfill	MW358	Nickel	8	0.05	0.031	16	Increasing
	MW366	Technetium-99	8	0.05	0.452	2	No Trend

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

All UTL exceedances—with the exception of nickel in MW358, which is a Type 2 exceedance—reported for this quarter were evaluated and considered to be Type 1 exceedances—not attributable to the C-746-U Landfill.

THIS PAGE INTENTIONALLY LEFT BLANK

2. DATA EVALUATION/STATISTICAL SYNOPSIS

The statistical analyses conducted on the first quarter 2023 groundwater data collected from the C-746-U Landfill MWs were performed in accordance with the Groundwater Monitoring Plan (LATA Kentucky 2014). The statistical analyses for this report use data from the first eight quarters that were sampled for each parameter, beginning with the baseline sampling events in 2002, when available. The sampling dates associated with background data are listed next to the result in the statistical analysis sheets in Appendix D (Attachments D1 and D2).

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

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

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

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

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

Table 5. Monitoring Wells Included in Statistical Analysis[a]

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

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

2.1 STATISTICAL ANALYSIS OF GROUNDWATER DATA

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

2.1.1 Upper Continental Recharge System

In this quarter, 25 parameters, including those with MCLs, required statistical analysis in the UCRS. During the first quarter, magnesium, oxidation-reduction potential, and sulfate displayed concentrations that exceeded their respective historical UTL and are listed in Table 2.

2.1.2 Upper Regional Gravel Aquifer

In this quarter, 30 parameters, including those with MCLs, required statistical analysis in the URGA. During the first quarter, calcium, conductivity, dissolved solids, magnesium, oxidation-reduction potential, sulfate, and technetium-99 displayed concentrations that exceeded their respective historical UTL and are listed in Table 2. Technetium-99 exceeded the current background UTL in downgradient URGA well MW366.

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, nickel, oxidation-reduction potential, and technetium-99 displayed concentrations that exceeded their respective historical UTL and are listed in Table 2. Nickel exceeded the current background UTL in downgradient LRGA well MW358.

2.2 DATA VERIFICATION AND VALIDATION

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

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

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

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

THIS PAGE INTENTIONALLY LEFT BLANK

3. PROFESSIONAL GEOLOGIST AUTHORIZATION

DOCUMENT IDENTIFICATION: *C-746-U Contained Landfill First Quarter Calendar Year 2023 (January–March) Compliance Monitoring Report, Paducah Gaseous Diffusion Plant, Paducah, Kentucky (FRNP-RPT-0295/V1)*

Stamped and signed pursuant to my authority as a duly registered geologist under the provisions of *KRS* Chapter 322A.
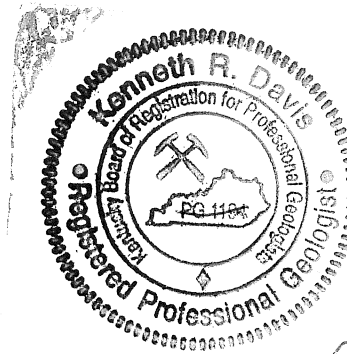
PG 113927
K. Davis 05-23-2023

_____   _____   May 23, 2023
Kenneth R. Davis   PG113927   Date

THIS PAGE INTENTIONALLY LEFT BLANK

4. REFERENCES

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

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

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

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX A

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

THIS PAGE INTENTIONALLY LEFT BLANK

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

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

Facility Name: ___U.S. DOE–Paducah Gaseous Diffusion Plant___   Activity: ___C-746-U Contained Landfill___
(As officially shown on DWM Permit Face)

Permit No: SW07300014, SW07300015, SW07300045   Finds/Unit No: _____   Quarter & Year   1st Qtr. CY 2023

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 <u>NOT</u> 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

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX B

FACILITY INFORMATION SHEET

FACILITY INFORMATION SHEET

	Groundwater: January 2023				SW07300014,
	Surface water: January 2023			Permit	SW07300015,
Sampling Date:	Methane: March 2023	County:	McCracken	Nos.	SW07300045

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

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

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

OWNER INFORMATION

	U.S. DOE, Joel Bradburne, Manager		
Facility Owner:	Portsmouth/Paducah Project Office	Phone No:	(859) 219-4000
Contact Person:	Bruce Ford	Phone No:	(270) 441-5357
	Director, Environmental Services		
Contact Person Title:	Four Rivers Nuclear Partnership, LLC		
Mailing Address:	5511 Hobbs Road Kevil, Kentucky 42053		
	Street City/State Zip		

SAMPLING PERSONNEL
(IF OTHER THAN LANDFILL OR LABORATORY)

Company:	GEO Consultants Corporation		
Contact Person:	Jason Boulton	Phone No:	(270) 816-3415
Mailing Address:	199 Kentucky Avenue Kevil, Kentucky 42053		
	Street City/State Zip		

LABORATORY RECORD #1

Laboratory	GEL Laboratories, LLC	Lab ID No:	KY90129
Contact Person:	Valerie Davis	Phone No:	(843) 769-7391
Mailing Address:	2040 Savage Road Charleston, South Carolina 29407		
	Street City/State Zip		

LABORATORY RECORD #2

Laboratory:	N/A	Lab ID No:	N/A
Contact Person:	N/A	Phone No:	N/A
Mailing Address:	N/A		
	Street City/State Zip		

LABORATORY RECORD #3

Laboratory:	N/A	Lab ID No:	N/A
Contact Person:	N/A	Phone No:	N/A
Mailing Address:	N/A		
	Street City/State Zip		

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX C

**GROUNDWATER SAMPLE ANALYSES
AND WRITTEN COMMENTS**

THIS PAGE INTENTIONALLY LEFT BLANK

Division of Waste Management
Solid Waste Branch
14 Reilly Road
Frankfort, KY 40601 (502)564-6716

RESIDENTIAL/CONTAINED-QUARTERLY
Facility: US DOE - Paducah Gaseous Diffusion Plant
Permit Number: SW07300014,SW07300015,SW07300045

FINDS/UNIT: KY8-890-008-982 / 1
LAB ID: None

GROUNDWATER SAMPLE ANALYSIS(S)

AKGWA NUMBER[1], Facility Well/Spring Number					8004-4798		8004-4799		8004-0981		8004-4800	
Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.)					357		358		359		360	
Sample Sequence #					1		1		NA		1	
If sample is a Blank, specify Type: (F)ield, (T)rip, (M)ethod, or (E)quipment					NA		NA		NA		NA	
Sample Date and Time (Month/Day/Year hour:minutes)					1/17/2023 09:51		1/17/2023 10:34		NA		1/17/2023 07:23	
Duplicate ("Y" or "N")[2]					N		N		N		N	
Split ("Y" or "N")[3]					N		N		N		N	
Facility Sample ID Number (if applicable)					MW357UG2-23		MW358UG2-23		NA		MW360UG2-23	
Laboratory Sample ID Number (if applicable)					607483001		607483003		NA		607483007	
Date of Analysis (Month/Day/Year) For Volatile Organics Analysis					1/19/2023		1/19/2023		NA		1/19/2023	
Gradient with respect to Monitored Unit (UP, DOWN, SIDE, UNKNOWN)					DOWN		DOWN		DOWN		DOWN	

CAS RN[4]	CONSTITUENT	T D [5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	F L A G S[7]	DETECTED VALUE OR PQL[6]	F L A G S	DETECTED VALUE OR PQL[6]	F L A G S	DETECTED VALUE OR PQL[6]	F L A G S
24959-67-9	Bromide	T	mg/L	9056	0.388		0.201	J		*	0.179	J
16887-00-6	Chloride(s)	T	mg/L	9056	34.7	*J	15.4	*J		*	9.15	*J
16984-48-8	Fluoride	T	mg/L	9056	0.177	J	0.258	J		*	0.231	J
S0595--	Nitrate & Nitrite	T	mg/L	9056	1.19	J	0.0738	J		*	0.719	J
14808-79-8	Sulfate	T	mg/L	9056	40.3		25.9			*	13.8	
NS1894	Barometric Pressure Reading	T	Inches/Hg	Field	29.78		29.8			*	29.73	
S0145--	Specific Conductance	T	μMHO/cm	Field	435		540			*	394	

[1]AKGWA # is 0000-0000 for any type of blank.
[2]Respond "Y" if the sample was a duplicate of another sample in this report.
[3]Respond "Y" if the sample was split and analyzed by separate laboratories.
[4]Chemical Abstracts Service Registry Number or unique identifier number assigned by agency.
[5]"T" = Total; "D" = Dissolved
[6]"<" indicates a non-detect; do not use "ND" or "BDL". Value shown is Practical Quantification Limit.
[7]Flags are as designated, do not use any other type. Use "*," then describe on "Written Comments Page."

STANDARD FLAGS:
* = See Comments
J = Estimated Value
B = Analyte found in blank
A = Average value
N = Presumptive ID
D = Concentration from analysis of a secondary dilution

C-3

Facility: US DOE – Paducah Gaseous Diffusion Plant   FINDS/UNIT: KY8-890-008-982 / 1

Permit Number: SW07300014, SW07300015, SW07300045   LAB ID: None

GROUNDWATER SAMPLE ANALYSIS – (Cont.)

AKGWA NUMBER[1], Facility Well/Spring Number					8004-4798		8004-4799		8004-0981		8004-4800	
Facility's Local Well or Spring Number (e.g., MW-1, MW-2, BLANK-F, etc.)					357		358		359		360	
CAS RN[4]		CONSTITUENT	T D [5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	F L A G S	DETECTED VALUE OR PQL[6]	F L A G S	DETECTED VALUE OR PQL[6]	F L A G S	DETECTED VALUE OR PQL[6]	F L A G S
S0906 – –		Static Water Level Elevation	T	Ft. MSL	Field	321.67		321.27			*	321.33	
N238		Dissolved Oxygen	T	mg/L	Field	4.3		0.77			*	1.64	
S0266– –		Total Dissolved Solids	T	mg/L	160.1	218		231			*	215	
S0296– –		pH	T	Units	Field	6.07		6.35			*	6.13	
NS215		Eh	T	mV	Field	380		134			*	430	
S0907 – –		Temperature	T	°C	Field	15.83		15.61			*	14.44	
7429-90-5		Aluminum	T	mg/L	6020	<0.05		0.047	J		*	0.0603	
7440-36-0		Antimony	T	mg/L	6020	<0.003		<0.003			*	<0.003	
7440-38-2		Arsenic	T	mg/L	6020	<0.005		0.0064			*	<0.005	
7440-39-3		Barium	T	mg/L	6020	0.0687		0.0915			*	0.185	
7440-41-7		Beryllium	T	mg/L	6020	<0.0005		<0.0005			*	<0.0005	
7440-42-8		Boron	T	mg/L	6020	0.381	B	0.115	B		*	0.0498	B
7440-43-9		Cadmium	T	mg/L	6020	<0.001		<0.001			*	<0.001	
7440-70-2		Calcium	T	mg/L	6020	25.5		34.2			*	18.7	
7440-47-3		Chromium	T	mg/L	6020	<0.01		0.0031	J		*	<0.01	
7440-48-4		Cobalt	T	mg/L	6020	<0.001		0.0365			*	0.00242	
7440-50-8		Copper	T	mg/L	6020	0.000432	J	0.000611	J		*	0.00159	J
7439-89-6		Iron	T	mg/L	6020	<0.1		18.4			*	0.295	
7439-92-1		Lead	T	mg/L	6020	<0.002		<0.002			*	<0.002	
7439-95-4		Magnesium	T	mg/L	6020	11		19.6			*	8.03	
7439-96-5		Manganese	T	mg/L	6020	0.00206	J	2.44	*		*	0.0266	*
7439-97-6		Mercury	T	mg/L	7470	<0.0002		<0.0002			*	<0.0002	

Facility: US DOE – Paducah Gaseous Diffusion Plant   FINDS/UNIT: KY8-890-008-982 / 1

Permit Number: SW07300014, SW07300015, SW07300045   LAB ID: None

GROUNDWATER SAMPLE ANALYSIS - (Cont.)

C-5

AKGWA NUMBER[1], Facility Well/Spring Number					8004-4798		8004-4799		8004-0981		8004-4800	
Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.)					357		358		359		360	
CAS RN[4]	CONSTITUENT	T D[5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS
7439-98-7	Molybdenum	T	mg/L	6020	<0.001		0.000495	J		*	<0.001	
7440-02-0	Nickel	T	mg/L	6020	0.000683	J	0.103			*	0.00148	J
7440-09-7	Potassium	T	mg/L	6020	1.68		3.37			*	0.781	
7440-16-6	Rhodium	T	mg/L	6020	<0.005		<0.005			*	<0.005	
7782-49-2	Selenium	T	mg/L	6020	<0.005		<0.005			*	0.00164	J
7440-22-4	Silver	T	mg/L	6020	<0.001		<0.001			*	<0.001	
7440-23-5	Sodium	T	mg/L	6020	40.2		31.6			*	55.4	
7440-25-7	Tantalum	T	mg/L	6020	<0.005	*	<0.005	*		*	<0.005	*
7440-28-0	Thallium	T	mg/L	6020	<0.002		<0.002			*	<0.002	
7440-61-1	Uranium	T	mg/L	6020	<0.0002		<0.0002			*	<0.0002	
7440-62-2	Vanadium	T	mg/L	6020	<0.02		0.00349	J		*	<0.02	
7440-66-6	Zinc	T	mg/L	6020	<0.02		0.0122	J		*	<0.02	
108-05-4	Vinyl acetate	T	mg/L	8260	<0.005		<0.005			*	<0.005	
67-64-1	Acetone	T	mg/L	8260	0.00216	J	0.00276	J		*	0.00264	J
107-02-8	Acrolein	T	mg/L	8260	<0.005		<0.005			*	<0.005	
107-13-1	Acrylonitrile	T	mg/L	8260	<0.005		<0.005			*	<0.005	
71-43-2	Benzene	T	mg/L	8260	<0.001	*	<0.001	*		*	<0.001	*
108-90-7	Chlorobenzene	T	mg/L	8260	<0.001		<0.001			*	<0.001	
1330-20-7	Xylenes	T	mg/L	8260	<0.003		<0.003			*	<0.003	
100-42-5	Styrene	T	mg/L	8260	<0.001		<0.001			*	<0.001	
108-88-3	Toluene	T	mg/L	8260	<0.001		<0.001			*	<0.001	
74-97-5	Chlorobromomethane	T	mg/L	8260	<0.001		<0.001			*	<0.001	

Facility: US DOE - Paducah Gaseous Diffusion Plant   FINDS/UNIT: <u>KY8-890-008-982</u> / <u>1</u>

Permit Number: SW07300014, SW07300015, SW07300045   LAB ID: <u>None</u>

GROUNDWATER SAMPLE ANALYSIS - (Cont.)

C-6

AKGWA NUMBER[1], Facility Well/Spring Number					8004-4798		8004-4799		8004-0981		8004-4800	
Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.)					357		358		359		360	
CAS RN[4]	CONSTITUENT	T D [5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	F L A G S	DETECTED VALUE OR PQL[6]	F L A G S	DETECTED VALUE OR PQL[6]	F L A G S	DETECTED VALUE OR PQL[6]	F L A G S
75-27-4	Bromodichloromethane	T	mg/L	8260	<0.001		<0.001			*	<0.001	
75-25-2	Tribromomethane	T	mg/L	8260	<0.001		<0.001			*	<0.001	
74-83-9	Methyl bromide	T	mg/L	8260	<0.001		<0.001			*	<0.001	
78-93-3	Methyl ethyl ketone	T	mg/L	8260	<0.005		<0.005			*	<0.005	
110-57-6	trans-1,4-Dichloro-2-butene	T	mg/L	8260	<0.005		<0.005			*	<0.005	
75-15-0	Carbon disulfide	T	mg/L	8260	<0.005		<0.005			*	<0.005	
75-00-3	Chloroethane	T	mg/L	8260	<0.001		<0.001			*	<0.001	
67-66-3	Chloroform	T	mg/L	8260	<0.001		<0.001			*	<0.001	
74-87-3	Methyl chloride	T	mg/L	8260	<0.001		<0.001			*	<0.001	
156-59-2	cis-1,2-Dichloroethene	T	mg/L	8260	<0.001		<0.001			*	<0.001	
74-95-3	Methylene bromide	T	mg/L	8260	<0.001		<0.001			*	<0.001	
75-34-3	1,1-Dichloroethane	T	mg/L	8260	<0.001		<0.001			*	<0.001	
107-06-2	1,2-Dichloroethane	T	mg/L	8260	<0.001		<0.001			*	<0.001	
75-35-4	1,1-Dichloroethylene	T	mg/L	8260	<0.001		<0.001			*	<0.001	
106-93-4	Ethane, 1,2-dibromo	T	mg/L	8260	<0.001		<0.001			*	<0.001	
79-34-5	Ethane, 1,1,2,2-Tetrachloro	T	mg/L	8260	<0.001		<0.001			*	<0.001	
71-55-6	Ethane, 1,1,1-Trichloro-	T	mg/L	8260	<0.001		<0.001			*	<0.001	
79-00-5	Ethane, 1,1,2-Trichloro	T	mg/L	8260	<0.001		<0.001			*	<0.001	
630-20-6	Ethane, 1,1,1,2-Tetrachloro	T	mg/L	8260	<0.001		<0.001			*	<0.001	
75-01-4	Vinyl chloride	T	mg/L	8260	<0.001		<0.001			*	<0.001	
127-18-4	Ethene, Tetrachloro-	T	mg/L	8260	<0.001		<0.001			*	<0.001	
79-01-6	Ethene, Trichloro-	T	mg/L	8260	0.00613		0.00244			*	0.00079	J

RESIDENTIAL/CONTAINED-QUARTERLY

Facility: US DOE - Paducah Gaseous Diffusion Plant   FINDS/UNIT: KY8-890-008-982 / 1

Permit Number: SW07300014, SW07300015, SW07300045   LAB ID: None

GROUNDWATER SAMPLE ANALYSIS - (Cont.)

AKGWA NUMBER[1], Facility Well/Spring Number					8004-4798		8004-4799		8004-0981		8004-4800	
Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.)					357		358		359		360	
CAS RN[4]	CONSTITUENT	T D[5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS
100-41-4	Ethylbenzene	T	mg/L	8260	<0.001		<0.001			*	<0.001	
591-78-6	2-Hexanone	T	mg/L	8260	<0.005		<0.005			*	<0.005	
74-88-4	Iodomethane	T	mg/L	8260	<0.005		<0.005			*	<0.005	
124-48-1	Methane, Dibromochloro-	T	mg/L	8260	<0.001		<0.001			*	<0.001	
56-23-5	Carbon Tetrachloride	T	mg/L	8260	<0.001		<0.001			*	<0.001	
75-09-2	Dichloromethane	T	mg/L	8260	0.00074	BJ	0.00076	BJ		*	0.00075	BJ
108-10-1	Methyl isobutyl ketone	T	mg/L	8260	<0.005		<0.005			*	<0.005	
96-12-8	Propane, 1,2-Dibromo-3-chloro	T	mg/L	8011	<0.0000189		<0.0000188			*	<0.0000185	
78-87-5	Propane, 1,2-Dichloro-	T	mg/L	8260	<0.001		<0.001			*	<0.001	
10061-02-6	trans-1,3-Dichloro-1-propene	T	mg/L	8260	<0.001		<0.001			*	<0.001	
10061-01-5	cis-1,3-Dichloro-1-propene	T	mg/L	8260	<0.001		<0.001			*	<0.001	
156-60-5	trans-1,2-Dichloroethene	T	mg/L	8260	<0.001		<0.001			*	<0.001	
75-69-4	Trichlorofluoromethane	T	mg/L	8260	<0.001		<0.001			*	<0.001	
96-18-4	1,2,3-Trichloropropane	T	mg/L	8260	<0.001		<0.001			*	<0.001	
95-50-1	Benzene, 1,2-Dichloro-	T	mg/L	8260	<0.001		<0.001			*	<0.001	
106-46-7	Benzene, 1,4-Dichloro-	T	mg/L	8260	<0.001		<0.001			*	<0.001	
1336-36-3	PCB,Total	T	ug/L	8082	<0.1		<0.1			*	<0.0984	
12674-11-2	PCB-1016	T	ug/L	8082	<0.1		<0.1			*	<0.0984	
11104-28-2	PCB-1221	T	ug/L	8082	<0.1		<0.1			*	<0.0984	
11141-16-5	PCB-1232	T	ug/L	8082	<0.1		<0.1			*	<0.0984	
53469-21-9	PCB-1242	T	ug/L	8082	<0.1		<0.1			*	<0.0984	
12672-29-6	PCB-1248	T	ug/L	8082	<0.1		<0.1			*	<0.0984	

C-7

Facility: US DOE - Paducah Gaseous Diffusion Plant   FINDS/UNIT: KY8-890-008-982 / 1
Permit Number: SW07300014, SW07300015, SW07300045   LAB ID: None

GROUNDWATER SAMPLE ANALYSIS - (Cont.)

AKGWA NUMBER[1], Facility Well/Spring Number					8004-4798		8004-4799		8004-0981		8004-4800	
Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.)					357		358		359		360	
CAS RN[4]		CONSTITUENT	T D[5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS
11097-69-1		PCB-1254	T	ug/L	8082	<0.1		<0.1			*	<0.0984	
11096-82-5		PCB-1260	T	ug/L	8082	<0.1		<0.1			*	<0.0984	
11100-14-4		PCB-1268	T	ug/L	8082	<0.1		<0.1			*	<0.0984	
12587-46-1		Gross Alpha	T	pCi/L	9310	3.95	*	-3.39	*		*	-0.691	*
12587-47-2		Gross Beta	T	pCi/L	9310	13	*	17.4	*		*	3.8	*
10043-66-0		Iodine-131	T	pCi/L			*		*		*		*
13982-63-3		Radium-226	T	pCi/L	AN-1418	0.0806	*	0.775	*		*	-0.0636	*
10098-97-2		Strontium-90	T	pCi/L	905.0	2.15	*	3.09	*		*	-0.122	*
14133-76-7		Technetium-99	T	pCi/L	Tc-02-RC	27.5	*	38	*		*	5.57	*
14269-63-7		Thorium-230	T	pCi/L	Th-01-RC	0.155	*	0.882	*		*	0.582	*
10028-17-8		Tritium	T	pCi/L	906.0	20.2	*	-30.5	*		*	37	*
S0130- -		Chemical Oxygen Demand	T	mg/L	410.4	<20		<20			*	<20	
57-12-5		Cyanide	T	mg/L	9012	<0.2		<0.2			*	<0.2	
20461-54-5		Iodide	T	mg/L	300.0	<0.5		0.245	J		*	<0.5	
S0268- -		Total Organic Carbon	T	mg/L	9060	0.354	J	4.65			*	0.624	J
S0586- -		Total Organic Halides	T	mg/L	9020	0.0186		0.00456	J		*	0.00606	J

Division of Waste Management **RESIDENTIAL/CONTAINED-QUARTERLY**
Solid Waste Branch **Facility: US DOE - Paducah Gaseous Diffusion Plant**
14 Reilly Road **Permit Number: SW07300014,SW07300015,SW07300045**
Frankfort, KY 40601 (502)564-6716

FINDS/UNIT: KY8-890-008-982 / 1
LAB ID: None
For Official Use Only

GROUNDWATER SAMPLE ANALYSIS(S)

AKGWA NUMBER[1], Facility Well/Spring Number				8004-4795		8004-0986		8004-4796		8004-4797	
Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.)				361		362		363		364	
Sample Sequence #				1		1		1		1	
If sample is a Blank, specify Type: (F)ield, (T)rip, (M)ethod, or (E)quipment				NA		NA		NA		NA	
Sample Date and Time (Month/Day/Year hour:minutes)				1/17/2023 08:27		1/17/2023 09:08		1/18/2023 07:24		1/18/2023 08:06	
Duplicate ("Y" or "N")[2]				N		N		N		N	
Split ("Y" or "N")[3]				N		N		N		N	
Facility Sample ID Number (if applicable)				MW361UG2-23		MW362UG2-23		MW363UG2-23		MW364UG2-23	
Laboratory Sample ID Number (if applicable)				607483009		607483011		607635001		607635003	
Date of Analysis (Month/Day/Year) For Volatile Organics Analysis				1/19/2023		1/19/2023		1/23/2023		1/23/2023	
Gradient with respect to Monitored Unit (UP, DOWN, SIDE, UNKNOWN)				DOWN		DOWN		DOWN		DOWN	
CAS RN[4]	CONSTITUENT	T D [5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	FLAGS[7]	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS
24959-67-9	Bromide	T	mg/L	9056	0.482		<0.2		<0.2		0.469	
16887-00-6	Chloride(s)	T	mg/L	9056	36.7	*J	4.17	*J	27.3	J	38.3	J
16984-48-8	Fluoride	T	mg/L	9056	0.176	J	0.325	J	0.235	J	0.172	J
S0595- -	Nitrate & Nitrite	T	mg/L	9056	1.32	J	0.721	J	7.06	J	1.19	J
14808-79-8	Sulfate	T	mg/L	9056	81.7		15.4		27.5		72.2	
NS1894	Barometric Pressure Reading	T	Inches/Hg	Field	29.76		29.78		29.93		29.91	
S0145- -	Specific Conductance	T	μMHO/cm	Field	518		635		423		490	

C-9

[1]AKGWA # is 0000-0000 for any type of blank.
[2]Respond "Y" if the sample was a duplicate of another sample in this report.
[3]Respond "Y" if the sample was split and analyzed by separate laboratories.
[4]Chemical Abstracts Service Registry Number or unique identifier number assigned by agency.
[5]"T" = Total; "D" = Dissolved
[6]"<" indicates a non-detect; do not use "ND" or "BDL". Value shown is Practical Quantification Limit.
[7]Flags are as designated, do not use any other type. Use "*," then describe on "Written Comments Page."

STANDARD FLAGS:
* = See Comments
J = Estimated Value
B = Analyte found in blank
A = Average value
N = Presumptive ID
D = Concentration from analysis
    of a secondary dilution

Facility: US DOE – Paducah Gaseous Diffusion Plant   FINDS/UNIT: KY8-890-008-982 / 1
Permit Number: SW07300014, SW07300015, SW07300045   LAB ID: None

GROUNDWATER SAMPLE ANALYSIS - (Cont.)

AKGWA NUMBER[1], Facility Well/Spring Number						8004-4795		8004-0986		8004-4796		8004-4797	
Facility's Local Well or Spring Number (e.g., MW-1, MW-2, BLANK-F, etc.)						361		362		363		364	
CAS RN[4]		CONSTITUENT	TD[5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS
S0906 - -		Static Water Level Elevation	T	Ft. MSL	Field	321.36		333.3		321.09		320.31	
N238		Dissolved Oxygen	T	mg/L	Field	3.74		1.37		1.44		3.67	
S0266- -		Total Dissolved Solids	T	mg/L	160.1	280		331		215		252	
S0296- -		pH	T	Units	Field	6		6.83		6.09		5.98	
NS215		Eh	T	mV	Field	405		374		365		365	
S0907 - -		Temperature	T	°C	Field	15.17		15.44		13.89		15.28	
7429-90-5		Aluminum	T	mg/L	6020	<0.05		0.173		<0.05		<0.05	
7440-36-0		Antimony	T	mg/L	6020	<0.003		<0.003		<0.003		<0.003	
7440-38-2		Arsenic	T	mg/L	6020	<0.005		<0.005		<0.005		<0.005	
7440-39-3		Barium	T	mg/L	6020	0.049		0.0947		0.0576		0.056	
7440-41-7		Beryllium	T	mg/L	6020	<0.0005		<0.0005		<0.0005		<0.0005	
7440-42-8		Boron	T	mg/L	6020	0.156	B	0.0158	B	0.148	*	0.146	*
7440-43-9		Cadmium	T	mg/L	6020	<0.001		<0.001		<0.001		<0.001	
7440-70-2		Calcium	T	mg/L	6020	33.3		17.4		32.5	*	32.1	*
7440-47-3		Chromium	T	mg/L	6020	<0.01		<0.01		<0.01		<0.01	
7440-48-4		Cobalt	T	mg/L	6020	<0.001		0.000333	J	<0.001		<0.001	
7440-50-8		Copper	T	mg/L	6020	0.000733	J	0.00093	J	0.000403	J	0.000419	J
7439-89-6		Iron	T	mg/L	6020	<0.1		0.176		<0.1		<0.1	
7439-92-1		Lead	T	mg/L	6020	<0.002		<0.002		<0.002		<0.002	
7439-95-4		Magnesium	T	mg/L	6020	15.4		7.69		13.7		13.5	
7439-96-5		Manganese	T	mg/L	6020	0.0105	*	0.00949	*	0.00227	J	0.00218	J
7439-97-6		Mercury	T	mg/L	7470	<0.0002		<0.0002		<0.0002		<0.0002	

C-10

Facility: US DOE – Paducah Gaseous Diffusion Plant   FINDS/UNIT: _KY8-890-008-982_ / _1_
Permit Number: SW07300014, SW07300015, SW07300045   LAB ID: _None_

GROUNDWATER SAMPLE ANALYSIS - (Cont.)

C-11

AKGWA NUMBER[1], Facility Well/Spring Number					8004-4795		8004-0986		8004-4796		8004-4797	
Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.)					361		362		363		364	
CAS RN[4]	CONSTITUENT	T D [5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	F L A G S	DETECTED VALUE OR PQL[6]	F L A G S	DETECTED VALUE OR PQL[6]	F L A G S	DETECTED VALUE OR PQL[6]	F L A G S
7439-98-7	Molybdenum	T	mg/L	6020	<0.001		0.000402	J	<0.001		<0.001	
7440-02-0	Nickel	T	mg/L	6020	0.000819	J	0.00125	J	<0.002		0.000651	J
7440-09-7	Potassium	T	mg/L	6020	2.49		0.354		2.07		2.05	
7440-16-6	Rhodium	T	mg/L	6020	<0.005		<0.005		<0.005		<0.005	
7782-49-2	Selenium	T	mg/L	6020	<0.005		<0.005		<0.005		<0.005	
7440-22-4	Silver	T	mg/L	6020	<0.001		<0.001		<0.001		<0.001	
7440-23-5	Sodium	T	mg/L	6020	45.1		111		42.6	*	42.6	*
7440-25-7	Tantalum	T	mg/L	6020	<0.005	*	<0.005	*	<0.005		<0.005	
7440-28-0	Thallium	T	mg/L	6020	<0.002		<0.002		<0.002		<0.002	
7440-61-1	Uranium	T	mg/L	6020	<0.0002		0.00133		<0.0002		<0.0002	
7440-62-2	Vanadium	T	mg/L	6020	<0.02		<0.02		<0.02		<0.02	
7440-66-6	Zinc	T	mg/L	6020	<0.02		<0.02		0.0128	J	0.0125	J
108-05-4	Vinyl acetate	T	mg/L	8260	<0.005		<0.005		<0.005		<0.005	
67-64-1	Acetone	T	mg/L	8260	<0.005		<0.005		<0.005		<0.005	
107-02-8	Acrolein	T	mg/L	8260	<0.005		<0.005		<0.005		<0.005	
107-13-1	Acrylonitrile	T	mg/L	8260	<0.005		<0.005		<0.005		<0.005	
71-43-2	Benzene	T	mg/L	8260	<0.001	*	<0.001	*	<0.001		<0.001	
108-90-7	Chlorobenzene	T	mg/L	8260	<0.001		<0.001		<0.001		<0.001	
1330-20-7	Xylenes	T	mg/L	8260	<0.003		<0.003		<0.003		<0.003	
100-42-5	Styrene	T	mg/L	8260	<0.001		<0.001		<0.001		<0.001	
108-88-3	Toluene	T	mg/L	8260	<0.001		<0.001		<0.001		<0.001	
74-97-5	Chlorobromomethane	T	mg/L	8260	<0.001		<0.001		<0.001		<0.001	

RESIDENTIAL/CONTAINED-QUARTERLY
Facility: US DOE - Paducah Gaseous Diffusion Plant   FINDS/UNIT: KY8-890-008-982 / 1
Permit Number: SW07300014, SW07300015, SW07300045   LAB ID: None

GROUNDWATER SAMPLE ANALYSIS - (Cont.)

AKGWA NUMBER[1], Facility Well/Spring Number					8004-4795		8004-0986		8004-4796		8004-4797	
Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.)					361		362		363		364	
CAS RN[4]	CONSTITUENT	T D [5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	F L A G S	DETECTED VALUE OR PQL[6]	F L A G S	DETECTED VALUE OR PQL[6]	F L A G S	DETECTED VALUE OR PQL[6]	F L A G S
75-27-4	Bromodichloromethane	T	mg/L	8260	<0.001		<0.001		<0.001		<0.001	
75-25-2	Tribromomethane	T	mg/L	8260	<0.001		<0.001		<0.001		<0.001	
74-83-9	Methyl bromide	T	mg/L	8260	<0.001		<0.001		<0.001		<0.001	
78-93-3	Methyl ethyl ketone	T	mg/L	8260	<0.005		<0.005		<0.005		<0.005	
110-57-6	trans-1,4-Dichloro-2-butene	T	mg/L	8260	<0.005		<0.005		<0.005		<0.005	
75-15-0	Carbon disulfide	T	mg/L	8260	<0.005		<0.005		<0.005		<0.005	
75-00-3	Chloroethane	T	mg/L	8260	<0.001		<0.001		<0.001	*	<0.001	*
67-66-3	Chloroform	T	mg/L	8260	<0.001		<0.001		<0.001		<0.001	
74-87-3	Methyl chloride	T	mg/L	8260	<0.001		<0.001		<0.001		<0.001	
156-59-2	cis-1,2-Dichloroethene	T	mg/L	8260	<0.001		<0.001		<0.001		<0.001	
74-95-3	Methylene bromide	T	mg/L	8260	<0.001		<0.001		<0.001		<0.001	
75-34-3	1,1-Dichloroethane	T	mg/L	8260	<0.001		<0.001		<0.001		<0.001	
107-06-2	1,2-Dichloroethane	T	mg/L	8260	<0.001		<0.001		<0.001		<0.001	
75-35-4	1,1-Dichloroethylene	T	mg/L	8260	<0.001		<0.001		<0.001		<0.001	
106-93-4	Ethane, 1,2-dibromo	T	mg/L	8260	<0.001		<0.001		<0.001		<0.001	
79-34-5	Ethane, 1,1,2,2-Tetrachloro	T	mg/L	8260	<0.001		<0.001		<0.001		<0.001	
71-55-6	Ethane, 1,1,1-Trichloro-	T	mg/L	8260	<0.001		<0.001		<0.001		<0.001	
79-00-5	Ethane, 1,1,2-Trichloro	T	mg/L	8260	<0.001		<0.001		<0.001		<0.001	
630-20-6	Ethane, 1,1,1,2-Tetrachloro	T	mg/L	8260	<0.001		<0.001		<0.001		<0.001	
75-01-4	Vinyl chloride	T	mg/L	8260	<0.001		<0.001		<0.001		<0.001	
127-18-4	Ethene, Tetrachloro-	T	mg/L	8260	<0.001		<0.001		<0.001		<0.001	
79-01-6	Ethene, Trichloro-	T	mg/L	8260	0.00518		0.00209		0.00396		0.00336	

Facility: US DOE – Paducah Gaseous Diffusion Plant   FINDS/UNIT: _KY8-890-008-982_ /_1_

Permit Number: SW07300014, SW07300015, SW07300045   LAB ID: _None_

GROUNDWATER SAMPLE ANALYSIS - (Cont.)

AKGWA NUMBER[1], Facility Well/Spring Number						8004-4795		8004-0986		8004-4796		8004-4797	
Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.)						361		362		363		364	
CAS RN[4]		CONSTITUENT	T D [5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	F L A G S	DETECTED VALUE OR PQL[6]	F L A G S	DETECTED VALUE OR PQL[6]	F L A G S	DETECTED VALUE OR PQL[6]	F L A G S
100-41-4		Ethylbenzene	T	mg/L	8260	<0.001		<0.001		<0.001		<0.001	
591-78-6		2-Hexanone	T	mg/L	8260	<0.005		<0.005		<0.005		<0.005	
74-88-4		Iodomethane	T	mg/L	8260	<0.005		<0.005		<0.005		<0.005	
124-48-1		Methane, Dibromochloro-	T	mg/L	8260	<0.001		<0.001		<0.001		<0.001	
56-23-5		Carbon Tetrachloride	T	mg/L	8260	<0.001		<0.001		<0.001		<0.001	
75-09-2		Dichloromethane	T	mg/L	8260	0.00077	BJ	0.00072	BJ	0.00059	J	0.00051	J
108-10-1		Methyl isobutyl ketone	T	mg/L	8260	<0.005		<0.005		<0.005		<0.005	
96-12-8		Propane, 1,2-Dibromo-3-chloro	T	mg/L	8011	<0.0000187		<0.0000187		<0.0000187		<0.0000189	
78-87-5		Propane, 1,2-Dichloro-	T	mg/L	8260	<0.001		<0.001		<0.001		<0.001	
10061-02-6		trans-1,3-Dichloro-1-propene	T	mg/L	8260	<0.001		<0.001		<0.001		<0.001	
10061-01-5		cis-1,3-Dichloro-1-propene	T	mg/L	8260	<0.001		<0.001		<0.001		<0.001	
156-60-5		trans-1,2-Dichloroethene	T	mg/L	8260	<0.001		<0.001		<0.001		<0.001	
75-69-4		Trichlorofluoromethane	T	mg/L	8260	<0.001		<0.001		<0.001		<0.001	
96-18-4		1,2,3-Trichloropropane	T	mg/L	8260	<0.001		<0.001		<0.001		<0.001	
95-50-1		Benzene, 1,2-Dichloro-	T	mg/L	8260	<0.001		<0.001		<0.001		<0.001	
106-46-7		Benzene, 1,4-Dichloro-	T	mg/L	8260	<0.001		<0.001		<0.001		<0.001	
1336-36-3		PCB,Total	T	ug/L	8082	<0.1		<0.0995		<0.0967		<0.103	
12674-11-2		PCB-1016	T	ug/L	8082	<0.1		<0.0995		<0.0967		<0.103	
11104-28-2		PCB-1221	T	ug/L	8082	<0.1		<0.0995		<0.0967		<0.103	
11141-16-5		PCB-1232	T	ug/L	8082	<0.1		<0.0995		<0.0967		<0.103	
53469-21-9		PCB-1242	T	ug/L	8082	<0.1		<0.0995		<0.0967		<0.103	
12672-29-6		PCB-1248	T	ug/L	8082	<0.1		<0.0995		<0.0967		<0.103	

Facility: US DOE - Paducah Gaseous Diffusion Plant   FINDS/UNIT: KY8-890-008-982 / 1
Permit Number: SW07300014, SW07300015, SW07300045   LAB ID: None

GROUNDWATER SAMPLE ANALYSIS - (Cont.)

AKGWA NUMBER[1], Facility Well/Spring Number					8004-4795		8004-0986		8004-4796		8004-4797	
Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.)					361		362		363		364	
CAS RN[4]		CONSTITUENT	T D[5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS
11097-69-1		PCB-1254	T	ug/L	8082	<0.1		<0.0995		<0.0967		<0.103	
11096-82-5		PCB-1260	T	ug/L	8082	<0.1		<0.0995		<0.0967		<0.103	
11100-14-4		PCB-1268	T	ug/L	8082	<0.1		<0.0995		<0.0967		<0.103	
12587-46-1		Gross Alpha	T	pCi/L	9310	0.801	*	-2.29	*	-0.468	*	-1.18	*
12587-47-2		Gross Beta	T	pCi/L	9310	32.8	*	1.42	*	4.24	*	20.2	*
10043-66-0		Iodine-131	T	pCi/L			*		*		*		*
13982-63-3		Radium-226	T	pCi/L	AN-1418	0.121	*	0.234	*	0.00591	*	0.363	*
10098-97-2		Strontium-90	T	pCi/L	905.0	1.36	*	2.96	*	2.04	*	-2.52	*
14133-76-7		Technetium-99	T	pCi/L	Tc-02-RC	51.5	*	-7.94	*	12.1	*	61.7	*
14269-63-7		Thorium-230	T	pCi/L	Th-01-RC	0.546	*	0.638	*	0.198	*	-0.0466	*
10028-17-8		Tritium	T	pCi/L	906.0	87.4	*	124	*	32.2	*	53.9	*
S0130- -		Chemical Oxygen Demand	T	mg/L	410.4	<20		<20		<20	*	<20	*
57-12-5		Cyanide	T	mg/L	9012	<0.2		<0.2		<0.2		<0.2	
20461-54-5		Iodide	T	mg/L	300.0	<0.5		<0.5		<0.5	*	<0.5	*
S0268- -		Total Organic Carbon	T	mg/L	9060	0.408	J	1.19	J	0.662	J	0.468	J
S0586- -		Total Organic Halides	T	mg/L	9020	0.00376	J	0.0092	J	0.0133		0.00712	J

Division of Waste Management
Solid Waste Branch
14 Reilly Road
Frankfort, KY 40601 (502)564-6716

RESIDENTIAL/CONTAINED-QUARTERLY
Facility: US DOE - Paducah Gaseous Diffusion Plant
Permit Number: 073-00045

FINDS/UNIT: KY8-890-008-982 / 1
LAB ID: None

C-15

GROUNDWATER SAMPLE ANALYSIS(S)

AKGWA NUMBER[1], Facility Well/Spring Number					8004-0984		8004-0982		8004-4793		8004-0983	
Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.)					365		366		367		368	
Sample Sequence #					1		1		1		1	
If sample is a Blank, specify Type: (F)ield, (T)rip, (M)ethod, or (E)quipment					NA		NA		NA		NA	
Sample Date and Time (Month/Day/Year hour:minutes)					NA		1/18/2023 09:10		1/18/2023 09:53		NA	
Duplicate ("Y" or "N")[2]					N		N		N		N	
Split ("Y" or "N")[3]					N		N		N		N	
Facility Sample ID Number (if applicable)					NA		MW366UG2-23		MW367UG2-23		NA	
Laboratory Sample ID Number (if applicable)					NA		607635005		607635007		NA	
Date of Analysis (Month/Day/Year) For Volatile Organics Analysis					NA		1/23/2023		1/23/2023		NA	
Gradient with respect to Monitored Unit (UP, DOWN, SIDE, UNKNOWN)					DOWN		DOWN		DOWN		SIDE	

CAS RN[4]	CONSTITUENT	T D[5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	FLAGS[7]	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS
24959-67-9	Bromide	T	mg/L	9056		*	0.495		<0.2			*
16887-00-6	Chloride(s)	T	mg/L	9056		*	41.1	J	7.51	J		*
16984-48-8	Fluoride	T	mg/L	9214		*	0.196	J	0.126	J		*
S0595- -	Nitrate & Nitrite	T	mg/L	9056		*	1.01	J	<10			*
14808-79-8	Sulfate	T	mg/L	9056		*	46.8		21.4			*
NS1894	Barometric Pressure Reading	T	Inches/Hg	Field		*	29.9		29.9			*
S0145- -	Specific Conductance	T	μMHO/cm	Field		*	501		238			*

[1]AKGWA # is 0000-0000 for any type of blank.
[2]Respond "Y" if the sample was a duplicate of another sample in this report.
[3]Respond "Y" if the sample was split and analyzed by separate laboratories.
[4]Chemical Abstracts Service Registry Number or unique identifier number assigned by agency.
[5]"T" = Total; "D" = Dissolved
[6]"<" indicates a non-detect; do not use "ND" or "BDL". Value shown is Practical Quantification Limit.
[7]Flags are as designated, do not use any other type. Use "*," then describe on "Written Comments Page."

STANDARD FLAGS:
* = See Comments
J = Estimated Value
B = Analyte found in blank
A = Average value
N = Presumptive ID
D = Concentration from analysis
    of a secondary dilution

RESIDENTIAL/CONTAINED-QUARTERLY
Facility: US DOE – Paducah Gaseous Diffusion Plant   FINDS/UNIT: KY8-890-008-982 / 1
Permit Number: SW07300014, SW07300015, SW07300045   LAB ID: None

GROUNDWATER SAMPLE ANALYSIS – (Cont.)

AKGWA NUMBER[1], Facility Well/Spring Number						8004-0984		8004-0982		8004-4793		8004-0983	
Facility's Local Well or Spring Number (e.g., MW-1, MW-2, BLANK-F, etc.)						365		366		367		368	
CAS RN[4]		CONSTITUENT	T D [5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	F L A G S	DETECTED VALUE OR PQL[6]	F L A G S	DETECTED VALUE OR PQL[6]	F L A G S	DETECTED VALUE OR PQL[6]	F L A G S
S0906 – –		Static Water Level Elevation	T	Ft. MSL	Field		*	321.23		321.21			*
N238		Dissolved Oxygen	T	mg/L	Field		*	3.6		1.87			*
S0266– –		Total Dissolved Solids	T	mg/L	160.1		*	229		91			*
S0296– –		pH	T	Units	Field		*	6.13		5.92			*
NS215		Eh	T	mV	Field		*	365		235			*
S0907 – –		Temperature	T	°C	Field		*	16.39		16.78			*
7429-90-5		Aluminum	T	mg/L	6020		*	<0.05		<0.05			*
7440-36-0		Antimony	T	mg/L	6020		*	<0.003		<0.003			*
7440-38-2		Arsenic	T	mg/L	6020		*	<0.005		0.00215	J		*
7440-39-3		Barium	T	mg/L	6020		*	0.117		0.131			*
7440-41-7		Beryllium	T	mg/L	6020		*	<0.0005		<0.0005			*
7440-42-8		Boron	T	mg/L	6020		*	0.066	*	0.0204	*		*
7440-43-9		Cadmium	T	mg/L	6020		*	<0.001		<0.001			*
7440-70-2		Calcium	T	mg/L	6020		*	31.6	*	12.8	*		*
7440-47-3		Chromium	T	mg/L	6020		*	<0.01		<0.01			*
7440-48-4		Cobalt	T	mg/L	6020		*	<0.001		0.00625			*
7440-50-8		Copper	T	mg/L	6020		*	0.000457	J	0.000333	J		*
7439-89-6		Iron	T	mg/L	6020		*	<0.1		7.11			*
7439-92-1		Lead	T	mg/L	6020		*	<0.002		<0.002			*
7439-95-4		Magnesium	T	mg/L	6020		*	13		6.8			*
7439-96-5		Manganese	T	mg/L	6020		*	0.00691		1.4			*
7439-97-6		Mercury	T	mg/L	7470		*	<0.0002		<0.0002			*

Facility: US DOE – Paducah Gaseous Diffusion Plant   FINDS/UNIT: KY8-890-008-982 / 1
Permit Number: SW07300014, SW07300015, SW07300045   LAB ID: None

GROUNDWATER SAMPLE ANALYSIS – (Cont.)

AKGWA NUMBER[1], Facility Well/Spring Number					8004-0984		8004-0982		8004-4793		8004-0983	
Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.)					365		366		367		368	
CAS RN[4]	CONSTITUENT	TD[5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS
7439-98-7	Molybdenum	T	mg/L	6020		*	<0.001		<0.001			*
7440-02-0	Nickel	T	mg/L	6020		*	0.00096	J	0.00296			*
7440-09-7	Potassium	T	mg/L	6020		*	2.01		2.82			*
7440-16-6	Rhodium	T	mg/L	6020		*	<0.005		<0.005			*
7782-49-2	Selenium	T	mg/L	6020		*	0.00272	J	<0.005			*
7440-22-4	Silver	T	mg/L	6020		*	<0.001		<0.001			*
7440-23-5	Sodium	T	mg/L	6020		*	47.5	*	15.4	*		*
7440-25-7	Tantalum	T	mg/L	6020		*	<0.005		<0.005			*
7440-28-0	Thallium	T	mg/L	6020		*	<0.002		<0.002			*
7440-61-1	Uranium	T	mg/L	6020		*	<0.0002		<0.0002			*
7440-62-2	Vanadium	T	mg/L	6020		*	<0.02		<0.02			*
7440-66-6	Zinc	T	mg/L	6020		*	<0.02		0.0105	J		*
108-05-4	Vinyl acetate	T	mg/L	8260		*	<0.005		<0.005			*
67-64-1	Acetone	T	mg/L	8260		*	<0.005		<0.005			*
107-02-8	Acrolein	T	mg/L	8260		*	<0.005		<0.005			*
107-13-1	Acrylonitrile	T	mg/L	8260		*	<0.005		<0.005			*
71-43-2	Benzene	T	mg/L	8260		*	<0.001		<0.001			*
108-90-7	Chlorobenzene	T	mg/L	8260		*	<0.001		<0.001			*
1330-20-7	Xylenes	T	mg/L	8260		*	<0.003		<0.003			*
100-42-5	Styrene	T	mg/L	8260		*	<0.001		<0.001			*
108-88-3	Toluene	T	mg/L	8260		*	<0.001		<0.001			*
74-97-5	Chlorobromomethane	T	mg/L	8260		*	<0.001		<0.001			*

C-17

RESIDENTIAL/CONTAINED-QUARTERLY
Facility: US DOE - Paducah Gaseous Diffusion Plant FINDS/UNIT: KY8-890-008-982 / 1
Permit Number: SW07300014, SW07300015, SW07300045 LAB ID: None

GROUNDWATER SAMPLE ANALYSIS - (Cont.)

AKGWA NUMBER[1], Facility Well/Spring Number					8004-0984		8004-0982		8004-4793		8004-0983	
Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.)					365		366		367		368	
CAS RN[4]	CONSTITUENT	T D [5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS
75-27-4	Bromodichloromethane	T	mg/L	8260		*	<0.001		<0.001			*
75-25-2	Tribromomethane	T	mg/L	8260		*	<0.001		<0.001			*
74-83-9	Methyl bromide	T	mg/L	8260		*	<0.001		<0.001			*
78-93-3	Methyl ethyl ketone	T	mg/L	8260		*	<0.005		<0.005			*
110-57-6	trans-1,4-Dichloro-2-butene	T	mg/L	8260		*	<0.005		<0.005			*
75-15-0	Carbon disulfide	T	mg/L	8260		*	<0.005		<0.005			*
75-00-3	Chloroethane	T	mg/L	8260		*	<0.001	*	<0.001	*		*
67-66-3	Chloroform	T	mg/L	8260		*	<0.001		<0.001			*
74-87-3	Methyl chloride	T	mg/L	8260		*	<0.001		<0.001			*
156-59-2	cis-1,2-Dichloroethene	T	mg/L	8260		*	<0.001		<0.001			*
74-95-3	Methylene bromide	T	mg/L	8260		*	<0.001		<0.001			*
75-34-3	1,1-Dichloroethane	T	mg/L	8260		*	<0.001		<0.001			*
107-06-2	1,2-Dichloroethane	T	mg/L	8260		*	<0.001		<0.001			*
75-35-4	1,1-Dichloroethylene	T	mg/L	8260		*	<0.001		<0.001			*
106-93-4	Ethane, 1,2-dibromo	T	mg/L	8260		*	<0.001		<0.001			*
79-34-5	Ethane, 1,1,2,2-Tetrachloro	T	mg/L	8260		*	<0.001		<0.001			*
71-55-6	Ethane, 1,1,1-Trichloro-	T	mg/L	8260		*	<0.001		<0.001			*
79-00-5	Ethane, 1,1,2-Trichloro	T	mg/L	8260		*	<0.001		<0.001			*
630-20-6	Ethane, 1,1,1,2-Tetrachloro	T	mg/L	8260		*	<0.001		<0.001			*
75-01-4	Vinyl chloride	T	mg/L	8260		*	<0.001		<0.001			*
127-18-4	Ethene, Tetrachloro-	T	mg/L	8260		*	<0.001		<0.001			*
79-01-6	Ethene, Trichloro-	T	mg/L	8260		*	0.00387		0.00155			*

Facility: US DOE – Paducah Gaseous Diffusion Plant   FINDS/UNIT: KY8-890-008-982 / 1
Permit Number: SW07300014, SW07300015, SW07300045   LAB ID: None

GROUNDWATER SAMPLE ANALYSIS - (Cont.)

AKGWA NUMBER[1], Facility Well/Spring Number					8004-0984		8004-0982		8004-4793		8004-0983	
Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.)					365		366		367		368	
CAS RN[4]	CONSTITUENT	T D [5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	F L A G S	DETECTED VALUE OR PQL[6]	F L A G S	DETECTED VALUE OR PQL[6]	F L A G S	DETECTED VALUE OR PQL[6]	F L A G S
100-41-4	Ethylbenzene	T	mg/L	8260		*	<0.001		<0.001			*
591-78-6	2-Hexanone	T	mg/L	8260		*	<0.005		<0.005			*
74-88-4	Iodomethane	T	mg/L	8260		*	<0.005		<0.005			*
124-48-1	Methane, Dibromochloro-	T	mg/L	8260		*	<0.001		<0.001			*
56-23-5	Carbon Tetrachloride	T	mg/L	8260		*	<0.001		<0.001			*
75-09-2	Dichloromethane	T	mg/L	8260		*	<0.005		0.00054	J		*
108-10-1	Methyl isobutyl ketone	T	mg/L	8260		*	<0.005		<0.005			*
96-12-8	Propane, 1,2-Dibromo-3-chloro	T	mg/L	8011		*	<0.0000187		<0.0000187			*
78-87-5	Propane, 1,2-Dichloro-	T	mg/L	8260		*	<0.001		<0.001			*
10061-02-6	trans-1,3-Dichloro-1-propene	T	mg/L	8260		*	<0.001		<0.001			*
10061-01-5	cis-1,3-Dichloro-1-propene	T	mg/L	8260		*	<0.001		<0.001			*
156-60-5	trans-1,2-Dichloroethene	T	mg/L	8260		*	<0.001		<0.001			*
75-69-4	Trichlorofluoromethane	T	mg/L	8260		*	<0.001		<0.001			*
96-18-4	1,2,3-Trichloropropane	T	mg/L	8260		*	<0.001		<0.001			*
95-50-1	Benzene, 1,2-Dichloro-	T	mg/L	8260		*	<0.001		<0.001			*
106-46-7	Benzene, 1,4-Dichloro-	T	mg/L	8260		*	<0.001		<0.001			*
1336-36-3	PCB,Total	T	ug/L	8082		*	<0.0982		<0.104			*
12674-11-2	PCB-1016	T	ug/L	8082		*	<0.0982		<0.104			*
11104-28-2	PCB-1221	T	ug/L	8082		*	<0.0982		<0.104			*
11141-16-5	PCB-1232	T	ug/L	8082		*	<0.0982		<0.104			*
53469-21-9	PCB-1242	T	ug/L	8082		*	<0.0982		<0.104			*
12672-29-6	PCB-1248	T	ug/L	8082		*	<0.0982		<0.104			*

Facility: US DOE - Paducah Gaseous Diffusion Plant   FINDS/UNIT: KY8-890-008-982 / 1
Permit Number: SW07300014, SW07300015, SW07300045   LAB ID: None

GROUNDWATER SAMPLE ANALYSIS - (Cont.)

C-20

AKGWA NUMBER[1], Facility Well/Spring Number					8004-0984		8004-0982		8004-4793		8004-0983	
Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.)					365		366		367		368	
CAS RN[4]		CONSTITUENT	T D [5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	F L A G S	DETECTED VALUE OR PQL[6]	F L A G S	DETECTED VALUE OR PQL[6]	F L A G S	DETECTED VALUE OR PQL[6]	F L A G S
11097-69-1		PCB-1254	T	ug/L	8082		*	<0.0982		<0.104			*
11096-82-5		PCB-1260	T	ug/L	8082		*	<0.0982		<0.104			*
11100-14-4		PCB-1268	T	ug/L	8082		*	<0.0982		<0.104			*
12587-46-1		Gross Alpha	T	pCi/L	9310		*	1.13	*	5.48	*		*
12587-47-2		Gross Beta	T	pCi/L	9310		*	40.4	*	3.61	*		*
10043-66-0		Iodine-131	T	pCi/L			*		*		*		*
13982-63-3		Radium-226	T	pCi/L	AN-1418		*	0.469	*	0.407	*		*
10098-97-2		Strontium-90	T	pCi/L	905.0		*	0.772	*	1.72	*		*
14133-76-7		Technetium-99	T	pCi/L	Tc-02-RC		*	87.8	*	-0.118	*		*
14269-63-7		Thorium-230	T	pCi/L	Th-01-RC		*	0.299	*	-0.0765	*		*
10028-17-8		Tritium	T	pCi/L	906.0		*	30.2	*	19.3	*		*
S0130- -		Chemical Oxygen Demand	T	mg/L	410.4		*	14.9	*J	14.9	*J		*
57-12-5		Cyanide	T	mg/L	9012		*	<0.2		<0.2			*
20461-54-5		Iodide	T	mg/L	300.0		*	<0.5	*	<0.5	*		*
S0268- -		Total Organic Carbon	T	mg/L	9060		*	0.515	J	0.491	J		*
S0586- -		Total Organic Halides	T	mg/L	9020		*	0.01		<0.01			*

Division of Waste Management
Solid Waste Branch
14 Reilly Road
Frankfort, KY 40601   (502)564-6716

RESIDENTIAL/CONTAINED-QUARTERLY
Facility: US DOE – Paducah Gaseous Diffusion Plant
Permit Number: SW07300014,SW07300015,SW07300045

GROUNDWATER SAMPLE ANALYSIS(S)

C-21

AKGWA NUMBER[1], Facility Well/Spring Number					8004-4820		8004-4818		8004-4819		8004-4808	
Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.)					369		370		371		372	
Sample Sequence #					1		1		1		1	
If sample is a Blank, specify Type: (F)ield, (T)rip, (M)ethod, or (E)quipment					NA		NA		NA		NA	
Sample Date and Time (Month/Day/Year hour:minutes)					1/19/2023 07:39		1/19/2023 08:21		1/19/2023 09:20		1/19/2023 10:03	
Duplicate ("Y" or "N")[2]					N		N		N		N	
Split ("Y" or "N")[3]					N		N		N		N	
Facility Sample ID Number (if applicable)					MW369UG2-23		MW370UG2-23		MW371UG2-23		MW372UG2-23	
Laboratory Sample ID Number (if applicable)					607822001		607822003		607822005		607822007	
Date of Analysis (Month/Day/Year) For Volatile Organics Analysis					1/23/2023		1/23/2023		1/23/2023		1/23/2023	
Gradient with respect to Monitored Unit (UP, DOWN, SIDE, UNKNOWN)					UP		UP		UP		UP	

CAS RN[4]	CONSTITUENT	TD[5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	FLAGS[7]	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS
24959-67-9	Bromide	T	mg/L	9056	0.345		0.561		<0.2		0.525	
16887-00-6	Chloride(s)	T	mg/L	9056	28.7	J	41.6	J	4.41	J	41.1	J
16984-48-8	Fluoride	T	mg/L	9056	0.234	J	0.187	J	0.268	J	0.19	J
S0595- –	Nitrate & Nitrite	T	mg/L	9056	0.999	J	1.03	J	<10		1.2	J
14808-79-8	Sulfate	T	mg/L	9056	7.93		19.9		12		135	
NS1894	Barometric Pressure Reading	T	Inches/Hg	Field	29.66		29.66		29.66		29.67	
S0145- –	Specific Conductance	T	µMHO/cm	Field	359		466		742		754	

[1]AKGWA # is 0000-0000 for any type of blank.
[2]Respond "Y" if the sample was a duplicate of another sample in this report.
[3]Respond "Y" if the sample was split and analyzed by separate laboratories.
[4]Chemical Abstracts Service Registry Number or unique identifier number assigned by agency.
[5]"T" = Total; "D" = Dissolved
[6]"<" indicates a non-detect; do not use "ND" or "BDL". Value shown is Practical Quantification Limit.
[7]Flags are as designated, do not use any other type. Use "*," then describe on "Written Comments Page."

STANDARD FLAGS:
* = See Comments
J = Estimated Value
B = Analyte found in blank
A = Average value
N = Presumptive ID
D = Concentration from analysis
    of a secondary dilution

Facility: US DOE – Paducah Gaseous Diffusion Plant   FINDS/UNIT: KY8-890-008-982 / 1
Permit Number: SW07300014, SW07300015, SW07300045   LAB ID: None

GROUNDWATER SAMPLE ANALYSIS - (Cont.)

AKGWA NUMBER[1], Facility Well/Spring Number					8004-4820		8004-4818		8004-4819		8004-4808	
Facility's Local Well or Spring Number (e.g., MW-1, MW-2, BLANK-F, etc.)					369		370		371		372	
CAS RN[4]		CONSTITUENT	T D [5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	F L A G S	DETECTED VALUE OR PQL[6]	F L A G S	DETECTED VALUE OR PQL[6]	F L A G S	DETECTED VALUE OR PQL[6]	F L A G S
S0906 – –		Static Water Level Elevation	T	Ft. MSL	Field	322.53		322.51		340.33		322.58	
N238		Dissolved Oxygen	T	mg/L	Field	2.76		4		1.24		2.23	
S0266– –		Total Dissolved Solids	T	mg/L	160.1	186		230		411		428	
S0296– –		pH	T	Units	Field	6.09		6.05		6.49		6.15	
NS215		Eh	T	mV	Field	480		468		420		403	
S0907 – –		Temperature	T	°C	Field	15.39		16		16.28		16.22	
7429–90–5		Aluminum	T	mg/L	6020	0.112		<0.05		0.11		<0.05	
7440–36–0		Antimony	T	mg/L	6020	<0.003		<0.003		<0.003		<0.003	
7440–38–2		Arsenic	T	mg/L	6020	<0.005		<0.005		<0.005		<0.005	
7440–39–3		Barium	T	mg/L	6020	0.363		0.227		0.195		0.0481	
7440–41–7		Beryllium	T	mg/L	6020	<0.0005		<0.0005		<0.0005		<0.0005	
7440–42–8		Boron	T	mg/L	6020	0.017	*	0.243	*	0.00579	J	1.13	*
7440–43–9		Cadmium	T	mg/L	6020	<0.001		<0.001		<0.001		<0.001	
7440–70–2		Calcium	T	mg/L	6020	16	*	30.5	*	52.6	*	60.6	*
7440–47–3		Chromium	T	mg/L	6020	<0.01		<0.01		<0.01		<0.01	
7440–48–4		Cobalt	T	mg/L	6020	0.00441		<0.001		<0.001		<0.001	
7440–50–8		Copper	T	mg/L	6020	0.00136	J	0.000614	J	0.000612	J	<0.002	
7439–89–6		Iron	T	mg/L	6020	0.191		<0.1		0.101		<0.1	
7439–92–1		Lead	T	mg/L	6020	<0.002		<0.002		<0.002		<0.002	
7439–95–4		Magnesium	T	mg/L	6020	6.56		12.8		19.5		21.9	
7439–96–5		Manganese	T	mg/L	6020	0.0133		<0.005		0.00811		<0.005	
7439–97–6		Mercury	T	mg/L	7470	<0.0002		<0.0002		<0.0002		<0.0002	

Facility: US DOE - Paducah Gaseous Diffusion Plant   FINDS/UNIT: _KY8-890-008-982_ / _1_

Permit Number: SW07300014, SW07300015, SW07300045   LAB ID: _None_

GROUNDWATER SAMPLE ANALYSIS - (Cont.)

AKGWA NUMBER[1], Facility Well/Spring Number					8004-4820		8004-4818		8004-4819		8004-4808	
Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.)					369		370		371		372	
CAS RN[4]		CONSTITUENT	T D [5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	F L A G S	DETECTED VALUE OR PQL[6]	F L A G S	DETECTED VALUE OR PQL[6]	F L A G S	DETECTED VALUE OR PQL[6]	F L A G S
7439-98-7		Molybdenum	T	mg/L	6020	<0.001		<0.001		0.000415	J	<0.001	
7440-02-0		Nickel	T	mg/L	6020	0.00278		0.000791	J	0.00191	J	0.00104	J
7440-09-7		Potassium	T	mg/L	6020	0.577		2.69		0.44		2.1	
7440-16-6		Rhodium	T	mg/L	6020	<0.005		<0.005		<0.005		<0.005	
7782-49-2		Selenium	T	mg/L	6020	0.00225	J	<0.005		<0.005		0.00201	J
7440-22-4		Silver	T	mg/L	6020	<0.001		<0.001		<0.001		<0.001	
7440-23-5		Sodium	T	mg/L	6020	50.6	*	46.9	*	92.8	*	54.9	*
7440-25-7		Tantalum	T	mg/L	6020	<0.005		<0.005		<0.005		<0.005	
7440-28-0		Thallium	T	mg/L	6020	<0.002		<0.002		<0.002		<0.002	
7440-61-1		Uranium	T	mg/L	6020	<0.0002		<0.0002		0.00188		<0.0002	
7440-62-2		Vanadium	T	mg/L	6020	<0.02		<0.02		0.00467	J	<0.02	
7440-66-6		Zinc	T	mg/L	6020	0.00342	J	<0.02		0.00376	J	<0.02	
108-05-4		Vinyl acetate	T	mg/L	8260	<0.005		<0.005		<0.005		<0.005	
67-64-1		Acetone	T	mg/L	8260	<0.005		<0.005		<0.005		<0.005	
107-02-8		Acrolein	T	mg/L	8260	<0.005		<0.005		<0.005		<0.005	
107-13-1		Acrylonitrile	T	mg/L	8260	<0.005		<0.005		<0.005		<0.005	
71-43-2		Benzene	T	mg/L	8260	<0.001		<0.001		<0.001		<0.001	
108-90-7		Chlorobenzene	T	mg/L	8260	<0.001		<0.001		<0.001		<0.001	
1330-20-7		Xylenes	T	mg/L	8260	<0.003		<0.003		<0.003		<0.003	
100-42-5		Styrene	T	mg/L	8260	<0.001		<0.001		<0.001		<0.001	
108-88-3		Toluene	T	mg/L	8260	<0.001		<0.001		<0.001		<0.001	
74-97-5		Chlorobromomethane	T	mg/L	8260	<0.001		<0.001		<0.001		<0.001	

Facility: US DOE – Paducah Gaseous Diffusion Plant   FINDS/UNIT: <u>KY8-890-008-982</u> / <u>1</u>

Permit Number: SW07300014, SW07300015, SW07300045   LAB ID: <u>None</u>

GROUNDWATER SAMPLE ANALYSIS – (Cont.)

AKGWA NUMBER[1], Facility Well/Spring Number					8004-4820		8004-4818		8004-4819		8004-4808	
Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.)					369		370		371		372	
CAS RN[4]	CONSTITUENT	T D [5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	F L A G S	DETECTED VALUE OR PQL[6]	F L A G S	DETECTED VALUE OR PQL[6]	F L A G S	DETECTED VALUE OR PQL[6]	F L A G S
75-27-4	Bromodichloromethane	T	mg/L	8260	<0.001		<0.001		<0.001		<0.001	
75-25-2	Tribromomethane	T	mg/L	8260	<0.001		<0.001		<0.001		<0.001	
74-83-9	Methyl bromide	T	mg/L	8260	<0.001		<0.001		<0.001		<0.001	
78-93-3	Methyl ethyl ketone	T	mg/L	8260	<0.005		<0.005		<0.005		<0.005	
110-57-6	trans-1,4-Dichloro-2-butene	T	mg/L	8260	<0.005		<0.005		<0.005		<0.005	
75-15-0	Carbon disulfide	T	mg/L	8260	<0.005		<0.005		<0.005		<0.005	
75-00-3	Chloroethane	T	mg/L	8260	<0.001	*	<0.001	*	<0.001	*	<0.001	*
67-66-3	Chloroform	T	mg/L	8260	<0.001		<0.001		<0.001		<0.001	
74-87-3	Methyl chloride	T	mg/L	8260	<0.001		<0.001		<0.001		<0.001	
156-59-2	cis-1,2-Dichloroethene	T	mg/L	8260	<0.001		<0.001		<0.001		<0.001	
74-95-3	Methylene bromide	T	mg/L	8260	<0.001		<0.001		<0.001		<0.001	
75-34-3	1,1-Dichloroethane	T	mg/L	8260	<0.001		<0.001		<0.001		<0.001	
107-06-2	1,2-Dichloroethane	T	mg/L	8260	<0.001		<0.001		<0.001		<0.001	
75-35-4	1,1-Dichloroethylene	T	mg/L	8260	<0.001		<0.001		<0.001		<0.001	
106-93-4	Ethane, 1,2-dibromo	T	mg/L	8260	<0.001		<0.001		<0.001		<0.001	
79-34-5	Ethane, 1,1,2,2-Tetrachloro	T	mg/L	8260	<0.001		<0.001		<0.001		<0.001	
71-55-6	Ethane, 1,1,1-Trichloro-	T	mg/L	8260	<0.001		<0.001		<0.001		<0.001	
79-00-5	Ethane, 1,1,2-Trichloro	T	mg/L	8260	<0.001		<0.001		<0.001		<0.001	
630-20-6	Ethane, 1,1,1,2-Tetrachloro	T	mg/L	8260	<0.001		<0.001		<0.001		<0.001	
75-01-4	Vinyl chloride	T	mg/L	8260	<0.001		<0.001		<0.001		<0.001	
127-18-4	Ethene, Tetrachloro-	T	mg/L	8260	<0.001		<0.001		<0.001		<0.001	
79-01-6	Ethene, Trichloro-	T	mg/L	8260	0.00584		0.00422		0.00139		0.00524	

Facility: US DOE – Paducah Gaseous Diffusion Plant   FINDS/UNIT: KY8-890-008-982 / 1
Permit Number: SW07300014, SW07300015, SW07300045   LAB ID: None

GROUNDWATER SAMPLE ANALYSIS - (Cont.)

AKGWA NUMBER[1], Facility Well/Spring Number					8004-4820		8004-4818		8004-4819		8004-4808	
Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.)					369		370		371		372	
CAS RN[4]	CONSTITUENT	T D [5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS
100-41-4	Ethylbenzene	T	mg/L	8260	<0.001		<0.001		<0.001		<0.001	
591-78-6	2-Hexanone	T	mg/L	8260	<0.005		<0.005		<0.005		<0.005	
74-88-4	Iodomethane	T	mg/L	8260	<0.005		<0.005		<0.005		<0.005	
124-48-1	Methane, Dibromochloro-	T	mg/L	8260	<0.001		<0.001		<0.001		<0.001	
56-23-5	Carbon Tetrachloride	T	mg/L	8260	<0.001		<0.001		<0.001		<0.001	
75-09-2	Dichloromethane	T	mg/L	8260	0.00053	J	<0.005		0.00054	J	<0.005	
108-10-1	Methyl isobutyl ketone	T	mg/L	8260	<0.005		<0.005		<0.005		<0.005	
96-12-8	Propane, 1,2-Dibromo-3-chloro	T	mg/L	8011	<0.0000188		<0.0000187		<0.0000187		<0.0000187	
78-87-5	Propane, 1,2-Dichloro-	T	mg/L	8260	<0.001		<0.001		<0.001		<0.001	
10061-02-6	trans-1,3-Dichloro-1-propene	T	mg/L	8260	<0.001		<0.001		<0.001		<0.001	
10061-01-5	cis-1,3-Dichloro-1-propene	T	mg/L	8260	<0.001		<0.001		<0.001		<0.001	
156-60-5	trans-1,2-Dichloroethene	T	mg/L	8260	<0.001		<0.001		<0.001		<0.001	
75-69-4	Trichlorofluoromethane	T	mg/L	8260	<0.001		<0.001		<0.001		<0.001	
96-18-4	1,2,3-Trichloropropane	T	mg/L	8260	<0.001		<0.001		<0.001		<0.001	
95-50-1	Benzene, 1,2-Dichloro-	T	mg/L	8260	<0.001		<0.001		<0.001		<0.001	
106-46-7	Benzene, 1,4-Dichloro-	T	mg/L	8260	<0.001		<0.001		<0.001		<0.001	
1336-36-3	PCB,Total	T	ug/L	8082	<0.0998		<0.1		<0.0972		<0.0967	
12674-11-2	PCB-1016	T	ug/L	8082	<0.0998		<0.1		<0.0972		<0.0967	
11104-28-2	PCB-1221	T	ug/L	8082	<0.0998		<0.1		<0.0972		<0.0967	
11141-16-5	PCB-1232	T	ug/L	8082	<0.0998		<0.1		<0.0972		<0.0967	
53469-21-9	PCB-1242	T	ug/L	8082	<0.0998		<0.1		<0.0972		<0.0967	
12672-29-6	PCB-1248	T	ug/L	8082	<0.0998		<0.1		<0.0972		<0.0967	

Facility: US DOE - Paducah Gaseous Diffusion Plant   FINDS/UNIT: <u>KY8-890-008-982</u> / <u>1</u>
Permit Number: SW07300014, SW07300015, SW07300045   LAB ID: <u>None</u>

GROUNDWATER SAMPLE ANALYSIS - (Cont.)

AKGWA NUMBER[1], Facility Well/Spring Number					8004-4820		8004-4818		8004-4819		8004-4808	
Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.)					369		370		371		372	
CAS RN[4]		CONSTITUENT	T D [5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS
11097-69-1		PCB-1254	T	ug/L	8082	<0.0998		<0.1		<0.0972		<0.0967	
11096-82-5		PCB-1260	T	ug/L	8082	<0.0998		<0.1		<0.0972		<0.0967	
11100-14-4		PCB-1268	T	ug/L	8082	<0.0998		<0.1		<0.0972		<0.0967	
12587-46-1		Gross Alpha	T	pCi/L	9310	8.27	*	2.16	*	2.91	*	1.85	*
12587-47-2		Gross Beta	T	pCi/L	9310	38	*	5.42	*	5.37	*	35.2	*
10043-66-0		Iodine-131	T	pCi/L			*		*		*		*
13982-63-3		Radium-226	T	pCi/L	AN-1418	0.304	*	-0.0731	*	0.224	*	0.323	*
10098-97-2		Strontium-90	T	pCi/L	905.0	0.635	*	-0.3	*	-4.59	*	-1.45	*
14133-76-7		Technetium-99	T	pCi/L	Tc-02-RC	61.6	*	30.7	*	-1.6	*	85.4	*
14269-63-7		Thorium-230	T	pCi/L	Th-01-RC	0.584	*	0.734	*	0.381	*	0.582	*
10028-17-8		Tritium	T	pCi/L	906.0	157	*	108	*	151	*	33	*
S0130- -		Chemical Oxygen Demand	T	mg/L	410.4	<20		<20		<20		<20	
57-12-5		Cyanide	T	mg/L	9012	<0.2		<0.2		<0.2		<0.2	
20461-54-5		Iodide	T	mg/L	300.0	<0.5		<0.5		<0.5		<0.5	
S0268- -		Total Organic Carbon	T	mg/L	9060	0.792	J	0.776	J	1.77	J	0.745	J
S0586- -		Total Organic Halides	T	mg/L	9020	0.0152		0.00808	J	0.00858	J	0.0167	

Division of Waste Management
Solid Waste Branch
14 Reilly Road
Frankfort, KY 40601 (502)564-6716

RESIDENTIAL/CONTAINED-QUARTERLY
Facility: US DOE - Paducah Gaseous Diffusion Plant
Permit Number: SW07300014,SW07300015,SW07300045
FINDS/UNIT: KY8-890-008-982 / 1
LAB ID: None

GROUNDWATER SAMPLE ANALYSIS(S)

AKGWA NUMBER[1], Facility Well/Spring Number		8004-4792	8004-0990	8004-0985	8004-0988
Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.)		373	374	375	376
Sample Sequence #		1	1	1	1
If sample is a Blank, specify Type: (F)ield, (T)rip, (M)ethod, or (E)quipment		NA	NA	NA	NA
Sample Date and Time (Month/Day/Year hour:minutes)		1/19/2023 10:43	1/19/2023 11:23	1/18/2023 10:39	NA
Duplicate ("Y" or "N")[2]		N	N	N	N
Split ("Y" or "N")[3]		N	N	N	N
Facility Sample ID Number (if applicable)		MW373UG2-23	MW374UG2-23	MW375UG2-23	NA
Laboratory Sample ID Number (if applicable)		607822009	607822011	607635009	NA
Date of Analysis (Month/Day/Year) For Volatile Organics Analysis		1/23/2023	1/23/2023	1/23/2023	NA
Gradient with respect to Monitored Unit (UP, DOWN, SIDE, UNKNOWN)		UP	UP	SIDE	SIDE

CAS RN[4]	CONSTITUENT	T D[5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	FLAGS[7]	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS
24959-67-9	Bromide	T	mg/L	9056	0.521		0.525		<0.2			*
16887-00-6	Chloride(s)	T	mg/L	9056	36.5	J	46.9	J	3.4	J		*
16984-48-8	Fluoride	T	mg/L	9056	0.21	J	0.271	J	0.339	J		*
S0595- -	Nitrate & Nitrite	T	mg/L	9056	0.841	J	<10		0.95	J		*
14808-79-8	Sulfate	T	mg/L	9056	155		13.9		23			*
NS1894	Barometric Pressure Reading	T	Inches/Hg	Field	29.67		29.7		29.9			*
S0145- -	Specific Conductance	T	μMHO/cm	Field	788		715		336			*

[1]AKGWA # is 0000-0000 for any type of blank.
[2]Respond "Y" if the sample was a duplicate of another sample in this report.
[3]Respond "Y" if the sample was split and analyzed by separate laboratories.
[4]Chemical Abstracts Service Registry Number or unique identifier number assigned by agency.
[5]"T" = Total; "D" = Dissolved
[6]"<" indicates a non-detect; do not use "ND" or "BDL". Value shown is Practical Quantification Limit.
[7]Flags are as designated, do not use any other type. Use "*," then describe on "Written Comments Page."

STANDARD FLAGS:
* = See Comments
J = Estimated Value
B = Analyte found in blank
A = Average value
N = Presumptive ID
D = Concentration from analysis
    of a secondary dilution

Facility: US DOE – Paducah Gaseous Diffusion Plant   FINDS/UNIT: KY8-890-008-982 / 1
Permit Number: SW07300014, SW07300015, SW07300045   LAB ID: None

GROUNDWATER SAMPLE ANALYSIS - (Cont.)

AKGWA NUMBER[1], Facility Well/Spring Number					8004-4792		8004-0990		8004-0985		8004-0988	
Facility's Local Well or Spring Number (e.g., MW-1, MW-2, BLANK-F, etc.)					373		374		375		376	
CAS RN[4]		CONSTITUENT	T D [5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	F L A G S	DETECTED VALUE OR PQL[6]	F L A G S	DETECTED VALUE OR PQL[6]	F L A G S	DETECTED VALUE OR PQL[6]	F L A G S
S0906 – –		Static Water Level Elevation	T	Ft. MSL	Field	322.56		334.52		336.76			*
N238		Dissolved Oxygen	T	mg/L	Field	2.11		0.9		1.63			*
S0266– –		Total Dissolved Solids	T	mg/L	160.1	441		387		158			*
S0296– –		pH	T	Units	Field	6.09		6.74		6.37			*
NS215		Eh	T	mV	Field	399		172		306			*
S0907 – –		Temperature	T	°C	Field	16.06		16.61		17.22			*
7429-90-5		Aluminum	T	mg/L	6020	<0.05		0.0443	J	0.453			*
7440-36-0		Antimony	T	mg/L	6020	<0.003		<0.003		<0.003			*
7440-38-2		Arsenic	T	mg/L	6020	<0.005		0.00239	J	<0.005			*
7440-39-3		Barium	T	mg/L	6020	0.0274		0.144		0.17			*
7440-41-7		Beryllium	T	mg/L	6020	<0.0005		<0.0005		<0.0005			*
7440-42-8		Boron	T	mg/L	6020	1.71	*	0.0158	*	0.00932	J		*
7440-43-9		Cadmium	T	mg/L	6020	<0.001		<0.001		<0.001			*
7440-70-2		Calcium	T	mg/L	6020	64.6	*	25.6	*	13.2	*		*
7440-47-3		Chromium	T	mg/L	6020	<0.01		<0.01		<0.01			*
7440-48-4		Cobalt	T	mg/L	6020	0.000344	J	0.000944	J	0.00235			*
7440-50-8		Copper	T	mg/L	6020	0.000348	J	0.000333	J	0.00104	J		*
7439-89-6		Iron	T	mg/L	6020	<0.1		1.33		0.478			*
7439-92-1		Lead	T	mg/L	6020	<0.002		<0.002		<0.002			*
7439-95-4		Magnesium	T	mg/L	6020	25.3		5.88		5.28			*
7439-96-5		Manganese	T	mg/L	6020	0.0183		0.267		0.0314			*
7439-97-6		Mercury	T	mg/L	7470	<0.0002		<0.0002		<0.0002	*		*

C-28

Facility: US DOE – Paducah Gaseous Diffusion Plant   FINDS/UNIT: KY8-890-008-982 / 1
Permit Number: SW07300014, SW07300015, SW07300045   LAB ID: None

GROUNDWATER SAMPLE ANALYSIS - (Cont.)

AKGWA NUMBER[1], Facility Well/Spring Number					8004-4792		8004-0990		8004-0985		8004-0988	
Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.)					373		374		375		376	
CAS RN[4]	CONSTITUENT	T D [5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	F L A G S	DETECTED VALUE OR PQL[6]	F L A G S	DETECTED VALUE OR PQL[6]	F L A G S	DETECTED VALUE OR PQL[6]	F L A G S
7439-98-7	Molybdenum	T	mg/L	6020	<0.001		0.000408	J	<0.001			*
7440-02-0	Nickel	T	mg/L	6020	0.00145	J	0.000999	J	0.00179	J		*
7440-09-7	Potassium	T	mg/L	6020	2.61		0.563		0.334			*
7440-16-6	Rhodium	T	mg/L	6020	<0.005		<0.005		<0.005			*
7782-49-2	Selenium	T	mg/L	6020	<0.005		<0.005		0.0019	J		*
7440-22-4	Silver	T	mg/L	6020	<0.001		<0.001		0.000427	J		*
7440-23-5	Sodium	T	mg/L	6020	52	*	127	*	54.4	*		*
7440-25-7	Tantalum	T	mg/L	6020	<0.005		<0.005		<0.005			*
7440-28-0	Thallium	T	mg/L	6020	<0.002		<0.002		<0.002			*
7440-61-1	Uranium	T	mg/L	6020	<0.0002		0.000292		0.000088	J		*
7440-62-2	Vanadium	T	mg/L	6020	<0.02		<0.02		<0.02			*
7440-66-6	Zinc	T	mg/L	6020	<0.02		<0.02		<0.02			*
108-05-4	Vinyl acetate	T	mg/L	8260	<0.005		<0.005		<0.005			*
67-64-1	Acetone	T	mg/L	8260	<0.005		<0.005		<0.005			*
107-02-8	Acrolein	T	mg/L	8260	<0.005		<0.005		<0.005			*
107-13-1	Acrylonitrile	T	mg/L	8260	<0.005		<0.005		<0.005			*
71-43-2	Benzene	T	mg/L	8260	<0.001		<0.001		<0.001			*
108-90-7	Chlorobenzene	T	mg/L	8260	<0.001		<0.001		<0.001			*
1330-20-7	Xylenes	T	mg/L	8260	<0.003		<0.003		<0.003			*
100-42-5	Styrene	T	mg/L	8260	<0.001		<0.001		<0.001			*
108-88-3	Toluene	T	mg/L	8260	<0.001		<0.001		<0.001			*
74-97-5	Chlorobromomethane	T	mg/L	8260	<0.001		<0.001		<0.001			*

Facility: US DOE - Paducah Gaseous Diffusion Plant   FINDS/UNIT: KY8-890-008-982 / 1
Permit Number: SW07300014, SW07300015, SW07300045   LAB ID: None

GROUNDWATER SAMPLE ANALYSIS - (Cont.)

AKGWA NUMBER[1], Facility Well/Spring Number					8004-4792		8004-0990		8004-0985		8004-0988	
Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.)					373		374		375		376	
CAS RN[4]	CONSTITUENT	T D [5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	F L A G S	DETECTED VALUE OR PQL[6]	F L A G S	DETECTED VALUE OR PQL[6]	F L A G S	DETECTED VALUE OR PQL[6]	F L A G S
75-27-4	Bromodichloromethane	T	mg/L	8260	<0.001		<0.001		<0.001			*
75-25-2	Tribromomethane	T	mg/L	8260	<0.001		<0.001		<0.001			*
74-83-9	Methyl bromide	T	mg/L	8260	<0.001		<0.001		<0.001			*
78-93-3	Methyl ethyl ketone	T	mg/L	8260	<0.005		<0.005		<0.005			*
110-57-6	trans-1,4-Dichloro-2-butene	T	mg/L	8260	<0.005		<0.005		<0.005			*
75-15-0	Carbon disulfide	T	mg/L	8260	<0.005		<0.005		<0.005			*
75-00-3	Chloroethane	T	mg/L	8260	<0.001	*	<0.001	*	<0.001	*		*
67-66-3	Chloroform	T	mg/L	8260	<0.001		<0.001		<0.001			*
74-87-3	Methyl chloride	T	mg/L	8260	<0.001		<0.001		<0.001			*
156-59-2	cis-1,2-Dichloroethene	T	mg/L	8260	<0.001		<0.001		<0.001			*
74-95-3	Methylene bromide	T	mg/L	8260	<0.001		<0.001		<0.001			*
75-34-3	1,1-Dichloroethane	T	mg/L	8260	<0.001		<0.001		<0.001			*
107-06-2	1,2-Dichloroethane	T	mg/L	8260	<0.001		<0.001		<0.001			*
75-35-4	1,1-Dichloroethylene	T	mg/L	8260	<0.001		<0.001		<0.001			*
106-93-4	Ethane, 1,2-dibromo	T	mg/L	8260	<0.001		<0.001		<0.001			*
79-34-5	Ethane, 1,1,2,2-Tetrachloro	T	mg/L	8260	<0.001		<0.001		<0.001			*
71-55-6	Ethane, 1,1,1-Trichloro-	T	mg/L	8260	<0.001		<0.001		<0.001			*
79-00-5	Ethane, 1,1,2-Trichloro	T	mg/L	8260	<0.001		<0.001		<0.001			*
630-20-6	Ethane, 1,1,1,2-Tetrachloro	T	mg/L	8260	<0.001		<0.001		<0.001			*
75-01-4	Vinyl chloride	T	mg/L	8260	<0.001		<0.001		<0.001			*
127-18-4	Ethene, Tetrachloro-	T	mg/L	8260	<0.001		<0.001		<0.001			*
79-01-6	Ethene, Trichloro-	T	mg/L	8260	0.00576		0.00061	J	0.00102			*

Facility: US DOE – Paducah Gaseous Diffusion Plant FINDS/UNIT: KY8-890-008-982 / 1
Permit Number: SW07300014, SW07300015, SW07300045 LAB ID: None

GROUNDWATER SAMPLE ANALYSIS - (Cont.)

C-31

AKGWA NUMBER[1], Facility Well/Spring Number					8004-4792		8004-0990		8004-0985		8004-0988	
Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.)					373		374		375		376	
CAS RN[4]	CONSTITUENT	T D [5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	F L A G S	DETECTED VALUE OR PQL[6]	F L A G S	DETECTED VALUE OR PQL[6]	F L A G S	DETECTED VALUE OR PQL[6]	F L A G S
100-41-4	Ethylbenzene	T	mg/L	8260	<0.001		<0.001		<0.001			*
591-78-6	2-Hexanone	T	mg/L	8260	<0.005		<0.005		<0.005			*
74-88-4	Iodomethane	T	mg/L	8260	<0.005		<0.005		<0.005			*
124-48-1	Methane, Dibromochloro-	T	mg/L	8260	<0.001		<0.001		<0.001			*
56-23-5	Carbon Tetrachloride	T	mg/L	8260	<0.001		<0.001		<0.001			*
75-09-2	Dichloromethane	T	mg/L	8260	0.00051	J	<0.005		0.00054	J		*
108-10-1	Methyl isobutyl ketone	T	mg/L	8260	<0.005		<0.005		<0.005			*
96-12-8	Propane, 1,2-Dibromo-3-chloro	T	mg/L	8011	<0.0000186		<0.0000187		<0.0000187			*
78-87-5	Propane, 1,2-Dichloro-	T	mg/L	8260	<0.001		<0.001		<0.001			*
10061-02-6	trans-1,3-Dichloro-1-propene	T	mg/L	8260	<0.001		<0.001		<0.001			*
10061-01-5	cis-1,3-Dichloro-1-propene	T	mg/L	8260	<0.001		<0.001		<0.001			*
156-60-5	trans-1,2-Dichloroethene	T	mg/L	8260	<0.001		<0.001		<0.001			*
75-69-4	Trichlorofluoromethane	T	mg/L	8260	<0.001		<0.001		<0.001			*
96-18-4	1,2,3-Trichloropropane	T	mg/L	8260	<0.001		<0.001		<0.001			*
95-50-1	Benzene, 1,2-Dichloro-	T	mg/L	8260	<0.001		<0.001		<0.001			*
106-46-7	Benzene, 1,4-Dichloro-	T	mg/L	8260	<0.001		<0.001		<0.001			*
1336-36-3	PCB,Total	T	ug/L	8082	<0.1		<0.0954		<0.0994			*
12674-11-2	PCB-1016	T	ug/L	8082	<0.1		<0.0954		<0.0994			*
11104-28-2	PCB-1221	T	ug/L	8082	<0.1		<0.0954		<0.0994			*
11141-16-5	PCB-1232	T	ug/L	8082	<0.1		<0.0954		<0.0994			*
53469-21-9	PCB-1242	T	ug/L	8082	<0.1		<0.0954		<0.0994			*
12672-29-6	PCB-1248	T	ug/L	8082	<0.1		<0.0954		<0.0994			*

RESIDENTIAL/CONTAINED-QUARTERLY
Facility: US DOE – Paducah Gaseous Diffusion Plant   FINDS/UNIT: KY8-890-008-982 / 1
Permit Number: SW07300014, SW07300015, SW07300045   LAB ID: None

GROUNDWATER SAMPLE ANALYSIS – (Cont.)

AKGWA NUMBER[1], Facility Well/Spring Number					8004-4792		8004-0990		8004-0985		8004-0988	
Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.)					373		374		375		376	
CAS RN[4]		CONSTITUENT	T D [5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS
11097-69-1		PCB-1254	T	ug/L	8082	<0.1		<0.0954		<0.0994			*
11096-82-5		PCB-1260	T	ug/L	8082	<0.1		<0.0954		<0.0994			*
11100-14-4		PCB-1268	T	ug/L	8082	<0.1		<0.0954		<0.0994			*
12587-46-1		Gross Alpha	T	pCi/L	9310	1.2	*	4.38	*	6.97	*		*
12587-47-2		Gross Beta	T	pCi/L	9310	3.4	*	13.9	*	-4.12	*		*
10043-66-0		Iodine-131	T	pCi/L			*		*		*		*
13982-63-3		Radium-226	T	pCi/L	AN-1418	0.328	*	0.123	*	0.102	*		*
10098-97-2		Strontium-90	T	pCi/L	905.0	1.44	*	0.972	*	0.49	*		*
14133-76-7		Technetium-99	T	pCi/L	Tc-02-RC	12.5	*	0.428	*	-0.137	*		*
14269-63-7		Thorium-230	T	pCi/L	Th-01-RC	0.36	*	0.303	*	0.0587	*		*
10028-17-8		Tritium	T	pCi/L	906.0	167	*	104	*	160	*		*
S0130- -		Chemical Oxygen Demand	T	mg/L	410.4	<20		28.4		12.2	*J		*
57-12-5		Cyanide	T	mg/L	9012	<0.2		<0.2		<0.2			*
20461-54-5		Iodide	T	mg/L	300.0	<0.5		<0.5		<0.5	*		*
S0268- -		Total Organic Carbon	T	mg/L	9060	0.894	J	2.17		0.67	J		*
S0586- -		Total Organic Halides	T	mg/L	9020	0.0144		0.0334		0.00618	J		*

Division of Waste Management
Solid Waste Branch
14 Reilly Road
Frankfort, KY 40601 (502)564-6716

RESIDENTIAL/CONTAINED-QUARTERLY
Facility: US DOE - Paducah Gaseous Diffusion Plant
Permit Number: SW07300014,SW07300015,SW07300045

FINDS/UNIT: KY8-890-008-982 / 1
LAB ID: None

GROUNDWATER SAMPLE ANALYSIS(S)

AKGWA NUMBER[1], Facility Well/Spring Number	8004-0989	0000-0000	0000-0000	0000-0000
Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.)	377	E. BLANK	F. BLANK	T. BLANK 1
Sample Sequence #	1	1	1	1
If sample is a Blank, specify Type: (F)ield, (T)rip, (M)ethod, or (E)quipment	NA	E	F	T
Sample Date and Time (Month/Day/Year hour: minutes)	NA	01/17/2023 06:10	01/17/2023 07:25	01/17/2023 06:05
Duplicate ("Y" or "N")[2]	N	N	N	N
Split ("Y" or "N")[3]	N	N	N	N
Facility Sample ID Number (if applicable)	NA	RI1UG2-23	FB1UG2-23	TB1UG2-23
Laboratory Sample ID Number (if applicable)	NA	607483014	607483013	607822013
Date of Analysis (Month/Day/Year) For Volatile Organics Analysis	NA	01/19/2023	01/19/2023	01/19/2023
Gradient with respect to Monitored Unit (UP, DOWN, SIDE, UNKNOWN)	SIDE	NA	NA	NA

CAS RN[4]	CONSTITUENT	T D [5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	FLAGS[7]	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS
24959-67-9	Bromide	T	mg/L	9056		*		*		*		*
16887-00-6	Chloride(s)	T	mg/L	9056		*		*		*		*
16984-48-8	Fluoride	T	mg/L	9056		*		*		*		*
S0595- -	Nitrate & Nitrite	T	mg/L	9056		*		*		*		*
14808-79-8	Sulfate	T	mg/L	9056		*		*		*		*
NS1894	Barometric Pressure Reading	T	Inches/Hg	Field		*		*		*		*
S0145- -	Specific Conductance	T	μMHO/cm	Field		*		*		*		*

[1]AKGWA # is 0000-0000 for any type of blank.
[2]Respond "Y" if the sample was a duplicate of another sample in this report.
[3]Respond "Y" if the sample was split and analyzed by separate laboratories.
[4]Chemical Abstracts Service Registry Number or unique identifier number assigned by agency.
[5]"T" = Total; "D" = Dissolved
[6]"<" indicates a non-detect; do not use "ND" or "BDL". Value shown is Practical Quantification Limit.
[7]Flags are as designated, do not use any other type. Use "*," then describe on "Written Comments Page."

STANDARD FLAGS:
* = See Comments
J = Estimated Value
B = Analyte found in blank
A = Average value
N = Presumptive ID
D = Concentration from analysis
   of a secondary dilution

C-33

Facility: US DOE – Paducah Gaseous Diffusion Plant **FINDS/UNIT:** KY8-890-008-982 / 1
Permit Number: SW07300014, SW07300015, SW07300045 **LAB ID:** None

GROUNDWATER SAMPLE ANALYSIS - (Cont.)

AKGWA NUMBER[1], Facility Well/Spring Number					8004-0989		0000-0000		0000-0000		0000-0000	
Facility's Local Well or Spring Number (e.g., MW-1, MW-2, BLANK-F, etc.)					377		E. BLANK		F. BLANK		T. BLANK 1	
CAS RN[4]		CONSTITUENT	T D [5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS
S0906 – –		Static Water Level Elevation	T	Ft. MSL	Field		*		*		*		*
N238		Dissolved Oxygen	T	mg/L	Field		*		*		*		*
S0266– –		Total Dissolved Solids	T	mg/L	160.1		*		*		*		*
S0296– –		pH	T	Units	Field		*		*		*		*
NS215		Eh	T	mV	Field		*		*		*		*
S0907 – –		Temperature	T	°C	Field		*		*		*		*
7429-90-5		Aluminum	T	mg/L	6020		*	<0.05		<0.05			*
7440-36-0		Antimony	T	mg/L	6020		*	<0.003		<0.003			*
7440-38-2		Arsenic	T	mg/L	6020		*	<0.005		<0.005			*
7440-39-3		Barium	T	mg/L	6020		*	<0.004		<0.004			*
7440-41-7		Beryllium	T	mg/L	6020		*	<0.0005		<0.0005			*
7440-42-8		Boron	T	mg/L	6020		*	<0.015		<0.015			*
7440-43-9		Cadmium	T	mg/L	6020		*	<0.001		<0.001			*
7440-70-2		Calcium	T	mg/L	6020		*	<0.2		<0.2			*
7440-47-3		Chromium	T	mg/L	6020		*	<0.01		<0.01			*
7440-48-4		Cobalt	T	mg/L	6020		*	<0.001		<0.001			*
7440-50-8		Copper	T	mg/L	6020		*	0.000551	J	<0.002			*
7439-89-6		Iron	T	mg/L	6020		*	<0.1		<0.1			*
7439-92-1		Lead	T	mg/L	6020		*	<0.002		<0.002			*
7439-95-4		Magnesium	T	mg/L	6020		*	<0.03		<0.03			*
7439-96-5		Manganese	T	mg/L	6020		*	<0.005		<0.005			*
7439-97-6		Mercury	T	mg/L	7470		*	<0.0002		<0.0002			*

C-34

RESIDENTIAL/CONTAINED-QUARTERLY
Facility: US DOE – Paducah Gaseous Diffusion Plant   FINDS/UNIT: KY8-890-008-982 / 1
Permit Number: SW07300014, SW07300015, SW07300045   LAB ID: None

GROUNDWATER SAMPLE ANALYSIS – (Cont.)

AKGWA NUMBER[1], Facility Well/Spring Number					8004-0989		0000-0000		0000-0000		0000-0000	
Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.)					377		E. BLANK		F. BLANK		T. BLANK 1	
CAS RN[4]	CONSTITUENT	T D [5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	F L A G S	DETECTED VALUE OR PQL[6]	F L A G S	DETECTED VALUE OR PQL[6]	F L A G S	DETECTED VALUE OR PQL[6]	F L A G S
7439-98-7	Molybdenum	T	mg/L	6020		*	<0.001		<0.001			*
7440-02-0	Nickel	T	mg/L	6020		*	<0.002		<0.002			*
7440-09-7	Potassium	T	mg/L	6020		*	<0.3		<0.3			*
7440-16-6	Rhodium	T	mg/L	6020		*	<0.005		<0.005			*
7782-49-2	Selenium	T	mg/L	6020		*	<0.005		<0.005			*
7440-22-4	Silver	T	mg/L	6020		*	<0.001		<0.001			*
7440-23-5	Sodium	T	mg/L	6020		*	<0.25		<0.25			*
7440-25-7	Tantalum	T	mg/L	6020		*	<0.005	*	<0.005	*		*
7440-28-0	Thallium	T	mg/L	6020		*	<0.002		<0.002			*
7440-61-1	Uranium	T	mg/L	6020		*	<0.0002		<0.0002			*
7440-62-2	Vanadium	T	mg/L	6020		*	<0.02		<0.02			*
7440-66-6	Zinc	T	mg/L	6020		*	<0.02		<0.02			*
108-05-4	Vinyl acetate	T	mg/L	8260		*	<0.005		<0.005		<0.005	
67-64-1	Acetone	T	mg/L	8260		*	0.00375	J	0.00769		<0.005	
107-02-8	Acrolein	T	mg/L	8260		*	<0.005		<0.005		<0.005	
107-13-1	Acrylonitrile	T	mg/L	8260		*	<0.005		<0.005		<0.005	
71-43-2	Benzene	T	mg/L	8260		*	<0.001	*	<0.001	*	<0.001	*
108-90-7	Chlorobenzene	T	mg/L	8260		*	<0.001		<0.001		<0.001	
1330-20-7	Xylenes	T	mg/L	8260		*	<0.003		<0.003		<0.003	
100-42-5	Styrene	T	mg/L	8260		*	<0.001		<0.001		<0.001	
108-88-3	Toluene	T	mg/L	8260		*	<0.001		<0.001		<0.001	
74-97-5	Chlorobromomethane	T	mg/L	8260		*	<0.001		<0.001		<0.001	

Facility: US DOE - Paducah Gaseous Diffusion Plant   FINDS/UNIT: KY8-890-008-982 / 1
Permit Number: SW07300014, SW07300015, SW07300045   LAB ID: None

GROUNDWATER SAMPLE ANALYSIS - (Cont.)

C-36

AKGWA NUMBER[1], Facility Well/Spring Number					8004-0989		0000-0000		0000-0000		0000-0000	
Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.)					377		E. BLANK		F. BLANK		T. BLANK 1	
CAS RN[4]	CONSTITUENT	T D [5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS
75-27-4	Bromodichloromethane	T	mg/L	8260		*	<0.001		<0.001		<0.001	
75-25-2	Tribromomethane	T	mg/L	8260		*	<0.001		<0.001		<0.001	
74-83-9	Methyl bromide	T	mg/L	8260		*	<0.001		<0.001		<0.001	
78-93-3	Methyl ethyl ketone	T	mg/L	8260		*	<0.005		<0.005		<0.005	
110-57-6	trans-1,4-Dichloro-2-butene	T	mg/L	8260		*	<0.005		<0.005		<0.005	
75-15-0	Carbon disulfide	T	mg/L	8260		*	<0.005		<0.005		<0.005	
75-00-3	Chloroethane	T	mg/L	8260		*	<0.001		<0.001		<0.001	
67-66-3	Chloroform	T	mg/L	8260		*	<0.001		<0.001		<0.001	
74-87-3	Methyl chloride	T	mg/L	8260		*	<0.001		<0.001		<0.001	
156-59-2	cis-1,2-Dichloroethene	T	mg/L	8260		*	<0.001		<0.001		<0.001	
74-95-3	Methylene bromide	T	mg/L	8260		*	<0.001		<0.001		<0.001	
75-34-3	1,1-Dichloroethane	T	mg/L	8260		*	<0.001		<0.001		<0.001	
107-06-2	1,2-Dichloroethane	T	mg/L	8260		*	<0.001		<0.001		<0.001	
75-35-4	1,1-Dichloroethylene	T	mg/L	8260		*	<0.001		<0.001		<0.001	
106-93-4	Ethane, 1,2-dibromo	T	mg/L	8260		*	<0.001		<0.001		<0.001	
79-34-5	Ethane, 1,1,2,2-Tetrachloro	T	mg/L	8260		*	<0.001		<0.001		<0.001	
71-55-6	Ethane, 1,1,1-Trichloro-	T	mg/L	8260		*	<0.001		<0.001		<0.001	
79-00-5	Ethane, 1,1,2-Trichloro	T	mg/L	8260		*	<0.001		<0.001		<0.001	
630-20-6	Ethane, 1,1,1,2-Tetrachloro	T	mg/L	8260		*	<0.001		<0.001		<0.001	
75-01-4	Vinyl chloride	T	mg/L	8260		*	<0.001		<0.001		<0.001	
127-18-4	Ethene, Tetrachloro-	T	mg/L	8260		*	<0.001		<0.001		<0.001	
79-01-6	Ethene, Trichloro-	T	mg/L	8260		*	<0.001		<0.001		<0.001	

Facility: US DOE - Paducah Gaseous Diffusion Plant   FINDS/UNIT: _KY8-890-008-982_ / _1_
Permit Number: SW07300014, SW07300015, SW07300045   LAB ID: _None_

GROUNDWATER SAMPLE ANALYSIS - (Cont.)

AKGWA NUMBER[1], Facility Well/Spring Number					8004-0989		0000-0000		0000-0000		0000-0000	
Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.)					377		E. BLANK		F. BLANK		T. BLANK 1	
CAS RN[4]	CONSTITUENT	T D [5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS
100-41-4	Ethylbenzene	T	mg/L	8260		*	<0.001		<0.001		<0.001	
591-78-6	2-Hexanone	T	mg/L	8260		*	<0.005		<0.005		<0.005	
74-88-4	Iodomethane	T	mg/L	8260		*	<0.005		<0.005		<0.005	
124-48-1	Methane, Dibromochloro-	T	mg/L	8260		*	<0.001		<0.001		<0.001	
56-23-5	Carbon Tetrachloride	T	mg/L	8260		*	<0.001		<0.001		<0.001	
75-09-2	Dichloromethane	T	mg/L	8260		*	0.00077	BJ	0.00077	BJ	0.00071	BJ
108-10-1	Methyl isobutyl ketone	T	mg/L	8260		*	<0.005		<0.005		<0.005	
96-12-8	Propane, 1,2-Dibromo-3-chloro	T	mg/L	8011		*	<0.0000185		<0.0000191		<0.0000187	
78-87-5	Propane, 1,2-Dichloro-	T	mg/L	8260		*	<0.001		<0.001		<0.001	
10061-02-6	trans-1,3-Dichloro-1-propene	T	mg/L	8260		*	<0.001		<0.001		<0.001	
10061-01-5	cis-1,3-Dichloro-1-propene	T	mg/L	8260		*	<0.001		<0.001		<0.001	
156-60-5	trans-1,2-Dichloroethene	T	mg/L	8260		*	<0.001		<0.001		<0.001	
75-69-4	Trichlorofluoromethane	T	mg/L	8260		*	<0.001		<0.001		<0.001	
96-18-4	1,2,3-Trichloropropane	T	mg/L	8260		*	<0.001		<0.001		<0.001	
95-50-1	Benzene, 1,2-Dichloro-	T	mg/L	8260		*	<0.001		<0.001		<0.001	
106-46-7	Benzene, 1,4-Dichloro-	T	mg/L	8260		*	<0.001		<0.001		<0.001	
1336-36-3	PCB,Total	T	ug/L	8082		*	<0.1		<0.104			*
12674-11-2	PCB-1016	T	ug/L	8082		*	<0.1		<0.104			*
11104-28-2	PCB-1221	T	ug/L	8082		*	<0.1		<0.104			*
11141-16-5	PCB-1232	T	ug/L	8082		*	<0.1		<0.104			*
53469-21-9	PCB-1242	T	ug/L	8082		*	<0.1		<0.104			*
12672-29-6	PCB-1248	T	ug/L	8082		*	<0.1		<0.104			*

Facility: US DOE - Paducah Gaseous Diffusion Plant   FINDS/UNIT: KY8-890-008-982 / 1
Permit Number: SW07300014, SW07300015, SW07300045   LAB ID: None

GROUNDWATER SAMPLE ANALYSIS - (Cont.)

AKGWA NUMBER[1], Facility Well/Spring Number					8004-0989		0000-0000		0000-0000		0000-0000	
Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.)					377		E. BLANK		F. BLANK		T. BLANK 1	
CAS RN[4]		CONSTITUENT	T D [5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	F L A G S	DETECTED VALUE OR PQL[6]	F L A G S	DETECTED VALUE OR PQL[6]	F L A G S	DETECTED VALUE OR PQL[6]	F L A G S
11097-69-1		PCB-1254	T	ug/L	8082		*	<0.1		<0.104			*
11096-82-5		PCB-1260	T	ug/L	8082		*	<0.1		<0.104			*
11100-14-4		PCB-1268	T	ug/L	8082		*	<0.1		<0.104			*
12587-46-1		Gross Alpha	T	pCi/L	9310		*	-1.6	*	-1.59	*		*
12587-47-2		Gross Beta	T	pCi/L	9310		*	-0.156	*	8.85	*		*
10043-66-0		Iodine-131	T	pCi/L			*		*		*		*
13982-63-3		Radium-226	T	pCi/L	AN-1418		*	0.275	*	0.627	*		*
10098-97-2		Strontium-90	T	pCi/L	905.0		*	0.293	*	-0.677	*		*
14133-76-7		Technetium-99	T	pCi/L	Tc-02-RC		*	-11	*	-1.21	*		*
14269-63-7		Thorium-230	T	pCi/L	Th-01-RC		*	0.965	*	0.68	*		*
10028-17-8		Tritium	T	pCi/L	906.0		*	125	*	119	*		*
S0130- -		Chemical Oxygen Demand	T	mg/L	410.4		*		*		*		*
57-12-5		Cyanide	T	mg/L	9012		*		*		*		*
20461-54-5		Iodide	T	mg/L	300.0		*	<0.5		<0.5			*
S0268- -		Total Organic Carbon	T	mg/L	9060		*		*		*		*
S0586- -		Total Organic Halides	T	mg/L	9020		*		*		*		*

C-38

Division of Waste Management
Solid Waste Branch
14 Reilly Road
Frankfort, KY 40601   (502)564-6716

RESIDENTIAL/CONTAINED-QUARTERLY
Facility: US DOE - Paducah Gaseous Diffusion Plant
Permit Number: SW07300014,SW07300015,SW07300045
FINDS/UNIT: KY8-890-008-982 / 1
LAB ID: None

C-39

GROUNDWATER SAMPLE ANALYSIS(S)

AKGWA NUMBER[1], Facility Well/Spring Number				0000-0000		0000-0000		8004-4800			
Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.)				T. BLANK 2		T. BLANK 3		360			
Sample Sequence #				1		1		2			
If sample is a Blank, specify Type: (F)ield, (T)rip, (M)ethod, or (E)quipment				T		T		NA			
Sample Date and Time (Month/Day/Year hour: minutes)				1/18/2023 06:15		1/19/2023 06:20		1/17/2023 07:23			
Duplicate ("Y" or "N")[2]				N		N		Y			
Split ("Y" or "N")[3]				N		N		N			
Facility Sample ID Number (if applicable)				TB2UG2-23		TB3UG2-23		MW360DUG2-23			
Laboratory Sample ID Number (if applicable)				607635011		607822013		607483005			
Date of Analysis (Month/Day/Year) For Volatile Organics Analysis				1/23/2023		1/23/2023		1/19/2023			
Gradient with respect to Monitored Unit (UP, DOWN, SIDE, UNKNOWN)				NA		NA		DOWN			
CAS RN[4]	CONSTITUENT	T D [5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	F L A G S[7]	DETECTED VALUE OR PQL[6]	F L A G S	DETECTED VALUE OR PQL[6]	F L A G S	DETECTED VALUE OR PQL[6]	F L A G S
24959-67-9	Bromide	T	mg/L	9056		*		*	0.187	J		
16887-00-6	Chloride(s)	T	mg/L	9056		*		*	10.2	*J		
16984-48-8	Fluoride	T	mg/L	9056		*		*	0.237	J		
S0595- -	Nitrate & Nitrite	T	mg/L	9056		*		*	0.769	J		
14808-79-8	Sulfate	T	mg/L	9056		*		*	16.2			
NS1894	Barometric Pressure Reading	T	Inches/Hg	Field		*		*		*		
S0145- -	Specific Conductance	T	μMHO/cm	Field		*		*		*		

[1]AKGWA # is 0000-0000 for any type of blank.
[2]Respond "Y" if the sample was a duplicate of another sample in this report.
[3]Respond "Y" if the sample was split and analyzed by separate laboratories.
[4]Chemical Abstracts Service Registry Number or unique identifier number assigned by agency.
[5]"T" = Total; "D" = Dissolved
[6]"<" indicates a non-detect; do not use "ND" or "BDL". Value shown is Practical Quantification Limit.
[7]Flags are as designated, do not use any other type. Use "*," then describe on "Written Comments Page."

STANDARD FLAGS:
* = See Comments
J = Estimated Value
B = Analyte found in blank
A = Average value
N = Presumptive ID
D = Concentration from analysis
    of a secondary dilution

Facility: US DOE – Paducah Gaseous Diffusion Plant   FINDS/UNIT: KY8-890-008-982 / 1
Permit Number: SW07300014, SW07300015, SW07300045   LAB ID: None

GROUNDWATER SAMPLE ANALYSIS - (Cont.)

AKGWA NUMBER[1], Facility Well/Spring Number					0000-0000		0000-0000		8004-4800			
Facility's Local Well or Spring Number (e.g., MW-1, MW-2, BLANK-F, etc.)					T. BLANK 2		T. BLANK 3		360			
CAS RN[4]	CONSTITUENT	TD[5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS
S0906 – –	Static Water Level Elevation	T	Ft. MSL	Field		*		*		*		
N238	Dissolved Oxygen	T	mg/L	Field		*		*		*		
S0266– –	Total Dissolved Solids	T	mg/L	160.1		*		*	210			
S0296– –	pH	T	Units	Field		*		*		*		
NS215	Eh	T	mV	Field		*		*		*		
S0907 – –	Temperature	T	°C	Field		*		*		*		
7429-90-5	Aluminum	T	mg/L	6020		*		*	0.0471	J		
7440-36-0	Antimony	T	mg/L	6020		*		*	<0.003			
7440-38-2	Arsenic	T	mg/L	6020		*		*	<0.005			
7440-39-3	Barium	T	mg/L	6020		*		*	0.187			
7440-41-7	Beryllium	T	mg/L	6020		*		*	<0.0005			
7440-42-8	Boron	T	mg/L	6020		*		*	0.057	B		
7440-43-9	Cadmium	T	mg/L	6020		*		*	<0.001			
7440-70-2	Calcium	T	mg/L	6020		*		*	19.1			
7440-47-3	Chromium	T	mg/L	6020		*		*	<0.01			
7440-48-4	Cobalt	T	mg/L	6020		*		*	0.00206			
7440-50-8	Copper	T	mg/L	6020		*		*	0.00122	J		
7439-89-6	Iron	T	mg/L	6020		*		*	0.231			
7439-92-1	Lead	T	mg/L	6020		*		*	<0.002			
7439-95-4	Magnesium	T	mg/L	6020		*		*	8.29			
7439-96-5	Manganese	T	mg/L	6020		*		*	0.0226	*		
7439-97-6	Mercury	T	mg/L	7470		*		*	<0.0002			

Facility: US DOE - Paducah Gaseous Diffusion Plant   FINDS/UNIT: KY8-890-008-982 / 1
Permit Number: SW07300014, SW07300015, SW07300045   LAB ID: None

GROUNDWATER SAMPLE ANALYSIS - (Cont.)

C-41

AKGWA NUMBER[1], Facility Well/Spring Number					0000-0000		0000-0000		8004-4800			
Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.)					T. BLANK 2		T. BLANK 3		360			
CAS RN[4]	CONSTITUENT	T D [5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	F L A G S	DETECTED VALUE OR PQL[6]	F L A G S	DETECTED VALUE OR PQL[6]	F L A G S	DETECTED VALUE OR PQL[6]	F L A G S
7439-98-7	Molybdenum	T	mg/L	6020		*		*	<0.001			
7440-02-0	Nickel	T	mg/L	6020		*		*	0.00126	J		
7440-09-7	Potassium	T	mg/L	6020		*		*	0.8			
7440-16-6	Rhodium	T	mg/L	6020		*		*	<0.005			
7782-49-2	Selenium	T	mg/L	6020		*		*	0.00167	J		
7440-22-4	Silver	T	mg/L	6020		*		*	<0.001			
7440-23-5	Sodium	T	mg/L	6020		*		*	55.1			
7440-25-7	Tantalum	T	mg/L	6020		*		*	<0.005	*		
7440-28-0	Thallium	T	mg/L	6020		*		*	<0.002			
7440-61-1	Uranium	T	mg/L	6020		*		*	<0.0002			
7440-62-2	Vanadium	T	mg/L	6020		*		*	<0.02			
7440-66-6	Zinc	T	mg/L	6020		*		*	<0.02			
108-05-4	Vinyl acetate	T	mg/L	8260	<0.005		<0.005		<0.005			
67-64-1	Acetone	T	mg/L	8260	<0.005		<0.005		0.00327	J		
107-02-8	Acrolein	T	mg/L	8260	<0.005		<0.005		<0.005			
107-13-1	Acrylonitrile	T	mg/L	8260	<0.005		<0.005		<0.005			
71-43-2	Benzene	T	mg/L	8260	<0.001		<0.001		<0.001	*		
108-90-7	Chlorobenzene	T	mg/L	8260	<0.001		<0.001		<0.001			
1330-20-7	Xylenes	T	mg/L	8260	<0.003		<0.003		<0.003			
100-42-5	Styrene	T	mg/L	8260	<0.001		<0.001		<0.001			
108-88-3	Toluene	T	mg/L	8260	<0.001		<0.001		<0.001			
74-97-5	Chlorobromomethane	T	mg/L	8260	<0.001		<0.001		<0.001			

Facility: US DOE - Paducah Gaseous Diffusion Plant   FINDS/UNIT: KY8-890-008-982 / 1
Permit Number: SW07300014, SW07300015, SW07300045   LAB ID: None

GROUNDWATER SAMPLE ANALYSIS - (Cont.)

AKGWA NUMBER[1], Facility Well/Spring Number					0000-0000		0000-0000		8004-4800			
Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.)					T. BLANK 2		T. BLANK 3		360			
CAS RN[4]	CONSTITUENT	TD[5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS
75-27-4	Bromodichloromethane	T	mg/L	8260	<0.001		<0.001		<0.001			
75-25-2	Tribromomethane	T	mg/L	8260	<0.001		<0.001		<0.001			
74-83-9	Methyl bromide	T	mg/L	8260	<0.001		<0.001		<0.001			
78-93-3	Methyl ethyl ketone	T	mg/L	8260	<0.005		<0.005		<0.005			
110-57-6	trans-1,4-Dichloro-2-butene	T	mg/L	8260	<0.005		<0.005		<0.005			
75-15-0	Carbon disulfide	T	mg/L	8260	<0.005		<0.005		<0.005			
75-00-3	Chloroethane	T	mg/L	8260	<0.001	*	<0.001	*	<0.001			
67-66-3	Chloroform	T	mg/L	8260	<0.001		<0.001		<0.001			
74-87-3	Methyl chloride	T	mg/L	8260	<0.001		<0.001		<0.001			
156-59-2	cis-1,2-Dichloroethene	T	mg/L	8260	<0.001		<0.001		<0.001			
74-95-3	Methylene bromide	T	mg/L	8260	<0.001		<0.001		<0.001			
75-34-3	1,1-Dichloroethane	T	mg/L	8260	<0.001		<0.001		<0.001			
107-06-2	1,2-Dichloroethane	T	mg/L	8260	<0.001		<0.001		<0.001			
75-35-4	1,1-Dichloroethylene	T	mg/L	8260	<0.001		<0.001		<0.001			
106-93-4	Ethane, 1,2-dibromo	T	mg/L	8260	<0.001		<0.001		<0.001			
79-34-5	Ethane, 1,1,2,2-Tetrachloro	T	mg/L	8260	<0.001		<0.001		<0.001			
71-55-6	Ethane, 1,1,1-Trichloro-	T	mg/L	8260	<0.001		<0.001		<0.001			
79-00-5	Ethane, 1,1,2-Trichloro	T	mg/L	8260	<0.001		<0.001		<0.001			
630-20-6	Ethane, 1,1,1,2-Tetrachloro	T	mg/L	8260	<0.001		<0.001		<0.001			
75-01-4	Vinyl chloride	T	mg/L	8260	<0.001		<0.001		<0.001			
127-18-4	Ethene, Tetrachloro-	T	mg/L	8260	<0.001		<0.001		<0.001			
79-01-6	Ethene, Trichloro-	T	mg/L	8260	<0.001		<0.001		0.005			

C-42

Facility: US DOE – Paducah Gaseous Diffusion Plant   FINDS/UNIT: KY8-890-008-982 / 1
Permit Number: SW07300014, SW07300015, SW07300045   LAB ID: None

GROUNDWATER SAMPLE ANALYSIS - (Cont.)

AKGWA NUMBER[1], Facility Well/Spring Number					0000-0000		0000-0000		8004-4800			
Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.)					T. BLANK 2		T. BLANK 3		360			
CAS RN[4]	CONSTITUENT	T D [5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	F L A G S	DETECTED VALUE OR PQL[6]	F L A G S	DETECTED VALUE OR PQL[6]	F L A G S	DETECTED VALUE OR PQL[6]	F L A G S
100-41-4	Ethylbenzene	T	mg/L	8260	<0.001		<0.001		<0.001			
591-78-6	2-Hexanone	T	mg/L	8260	<0.005		<0.005		<0.005			
74-88-4	Iodomethane	T	mg/L	8260	<0.005		<0.005		<0.005			
124-48-1	Methane, Dibromochloro-	T	mg/L	8260	<0.001		<0.001		<0.001			
56-23-5	Carbon Tetrachloride	T	mg/L	8260	<0.001		<0.001		<0.001			
75-09-2	Dichloromethane	T	mg/L	8260	<0.005		0.0005	J	0.00074	BJ		
108-10-1	Methyl isobutyl ketone	T	mg/L	8260	<0.005		<0.005		<0.005			
96-12-8	Propane, 1,2-Dibromo-3-chloro	T	mg/L	8011	<0.0000189		<0.0000186		<0.0000186			
78-87-5	Propane, 1,2-Dichloro-	T	mg/L	8260	<0.001		<0.001		<0.001			
10061-02-6	trans-1,3-Dichloro-1-propene	T	mg/L	8260	<0.001		<0.001		<0.001			
10061-01-5	cis-1,3-Dichloro-1-propene	T	mg/L	8260	<0.001		<0.001		<0.001			
156-60-5	trans-1,2-Dichloroethene	T	mg/L	8260	<0.001		<0.001		<0.001			
75-69-4	Trichlorofluoromethane	T	mg/L	8260	<0.001		<0.001		<0.001			
96-18-4	1,2,3-Trichloropropane	T	mg/L	8260	<0.001		<0.001		<0.001			
95-50-1	Benzene, 1,2-Dichloro-	T	mg/L	8260	<0.001		<0.001		<0.001			
106-46-7	Benzene, 1,4-Dichloro-	T	mg/L	8260	<0.001		<0.001		<0.001			
1336-36-3	PCB,Total	T	ug/L	8082		*		*	0.105			
12674-11-2	PCB-1016	T	ug/L	8082		*		*	<0.0979			
11104-28-2	PCB-1221	T	ug/L	8082		*		*	<0.0979			
11141-16-5	PCB-1232	T	ug/L	8082		*		*	<0.0979			
53469-21-9	PCB-1242	T	ug/L	8082		*		*	<0.0979			
12672-29-6	PCB-1248	T	ug/L	8082		*		*	<0.0979			

Facility: US DOE – Paducah Gaseous Diffusion Plant   FINDS/UNIT: KY8-890-008-982 / 1
Permit Number: SW07300014, SW07300015, SW07300045   LAB ID: None

GROUNDWATER SAMPLE ANALYSIS – (Cont.)

AKGWA NUMBER[1], Facility Well/Spring Number					0000-0000		0000-0000		8004-4800			
Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.)					T. BLANK 2		T. BLANK 3		360			
CAS RN[4]		CONSTITUENT	T D [5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	F L A G S	DETECTED VALUE OR PQL[6]	F L A G S	DETECTED VALUE OR PQL[6]	F L A G S	DETECTED VALUE OR PQL[6]	F L A G S
11097-69-1		PCB-1254	T	ug/L	8082		*		*	0.0614	J		
11096-82-5		PCB-1260	T	ug/L	8082		*		*	0.0439	J		
11100-14-4		PCB-1268	T	ug/L	8082		*		*	<0.0979			
12587-46-1		Gross Alpha	T	pCi/L	9310		*		*	-0.286	*		
12587-47-2		Gross Beta	T	pCi/L	9310		*		*	2.22	*		
10043-66-0		Iodine-131	T	pCi/L			*		*		*		
13982-63-3		Radium-226	T	pCi/L	AN-1418		*		*	0.388	*		
10098-97-2		Strontium-90	T	pCi/L	905.0		*		*	0.16	*		
14133-76-7		Technetium-99	T	pCi/L	Tc-02-RC		*		*	7.47	*		
14269-63-7		Thorium-230	T	pCi/L	Th-01-RC		*		*	-0.0785	*		
10028-17-8		Tritium	T	pCi/L	906.0		*		*	26.3	*		
S0130- -		Chemical Oxygen Demand	T	mg/L	410.4		*		*	<20			
57-12-5		Cyanide	T	mg/L	9012		*		*	<0.2			
20461-54-5		Iodide	T	mg/L	300.0		*		*	<0.5			
S0268- -		Total Organic Carbon	T	mg/L	9060		*		*	0.644	J		
S0586- -		Total Organic Halides	T	mg/L	9020		*		*	0.0107			

C-44

GROUNDWATER
WRITTEN COMMENTS

Monitoring Point	Facility Sample ID	Constituent	Flag	Description
8004-4798 MW357	MW357UG2-23	Chloride	W	Post-digestion spike recovery out of control limits.
		Eh		Analysis of constituent not required and not performed.
		Tantalum	N	Sample spike (MS/MSD) recovery not within control limits
		Benzene	Y1	MS/MSD recovery outside acceptance criteria.
		Gross alpha	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 5.66. Rad error is 5.61.
		Gross beta		TPU is 6.18. Rad error is 5.81.
		Iodine-131		Analysis of constituent not required and not performed.
		Radium-226	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 0.506. Rad error is 0.506.
		Strontium-90	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 3.09. Rad error is 3.07.
		Technetium-99		TPU is 13.6. Rad error is 13.3.
		Thorium-230	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 1.32. Rad error is 1.32.
		Tritium	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 135. Rad error is 135.
8004-4799 MW358	MW358UG2-23	Chloride	W	Post-digestion spike recovery out of control limits.
		Eh		Analysis of constituent not required and not performed.
		Manganese	W	Post-digestion spike recovery out of control limits.
		Tantalum	N	Sample spike (MS/MSD) recovery not within control limits
		Benzene	Y1	MS/MSD recovery outside acceptance criteria.
		Gross alpha	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 4.33. Rad error is 4.33.
		Gross beta		TPU is 7.37. Rad error is 6.8.
		Iodine-131		Analysis of constituent not required and not performed.
		Radium-226	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 0.806. Rad error is 0.805.
		Strontium-90	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 4.36. Rad error is 4.33.
		Technetium-99		TPU is 14.4. Rad error is 13.8.
		Thorium-230	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 2.42. Rad error is 2.4.
		Tritium	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 131. Rad error is 131.

GROUNDWATER
WRITTEN COMMENTS

Monitoring Point	Facility Sample ID	Constituent	Flag	Description
8004-0981	MW359	Bromide		During sampling, the well went dry; therefore, no sample was collected.
		Chloride		During sampling, the well went dry; therefore, no sample was collected.
		Fluoride		During sampling, the well went dry; therefore, no sample was collected.
		Nitrate & Nitrite		During sampling, the well went dry; therefore, no sample was collected.
		Sulfate		During sampling, the well went dry; therefore, no sample was collected.
		Barometric Pressure Reading		During sampling, the well went dry; therefore, no sample was collected.
		Specific Conductance		During sampling, the well went dry; therefore, no sample was collected.
		Static Water Level Elevation		During sampling, the well went dry; therefore, no sample was collected.
		Dissolved Oxygen		During sampling, the well went dry; therefore, no sample was collected.
		Total Dissolved Solids		During sampling, the well went dry; therefore, no sample was collected.
		pH		During sampling, the well went dry; therefore, no sample was collected.
		Eh		During sampling, the well went dry; therefore, no sample was collected.
		Temperature		During sampling, the well went dry; therefore, no sample was collected.
		Aluminum		During sampling, the well went dry; therefore, no sample was collected.
		Antimony		During sampling, the well went dry; therefore, no sample was collected.
		Arsenic		During sampling, the well went dry; therefore, no sample was collected.
		Barium		During sampling, the well went dry; therefore, no sample was collected.
		Beryllium		During sampling, the well went dry; therefore, no sample was collected.
		Boron		During sampling, the well went dry; therefore, no sample was collected.
		Cadmium		During sampling, the well went dry; therefore, no sample was collected.
		Calcium		During sampling, the well went dry; therefore, no sample was collected.
		Chromium		During sampling, the well went dry; therefore, no sample was collected.
		Cobalt		During sampling, the well went dry; therefore, no sample was collected.
		Copper		During sampling, the well went dry; therefore, no sample was collected.
		Iron		During sampling, the well went dry; therefore, no sample was collected.
		Lead		During sampling, the well went dry; therefore, no sample was collected.
		Magnesium		During sampling, the well went dry; therefore, no sample was collected.
		Manganese		During sampling, the well went dry; therefore, no sample was collected.
		Mercury		During sampling, the well went dry; therefore, no sample was collected.

RESIDENTIAL/CONTAINED – QUARTERLY
Facility: US DOE - Paducah Gaseous Diffusion Plant
Permit Number: SW07300014, SW07300015, SW07300045

Finds/Unit: <u>KY8-890-008-982 / 1</u>
LAB ID:<u>None</u>

GROUNDWATER
WRITTEN COMMENTS

Monitoring Point	Facility Sample ID	Constituent	Flag	Description
8004-0981	MW359	Molybdenum		During sampling, the well went dry; therefore, no sample was collected.
		Nickel		During sampling, the well went dry; therefore, no sample was collected.
		Potassium		During sampling, the well went dry; therefore, no sample was collected.
		Rhodium		During sampling, the well went dry; therefore, no sample was collected.
		Selenium		During sampling, the well went dry; therefore, no sample was collected.
		Silver		During sampling, the well went dry; therefore, no sample was collected.
		Sodium		During sampling, the well went dry; therefore, no sample was collected.
		Tantalum		During sampling, the well went dry; therefore, no sample was collected.
		Thallium		During sampling, the well went dry; therefore, no sample was collected.
		Uranium		During sampling, the well went dry; therefore, no sample was collected.
		Vanadium		During sampling, the well went dry; therefore, no sample was collected.
		Zinc		During sampling, the well went dry; therefore, no sample was collected.
		Vinyl acetate		During sampling, the well went dry; therefore, no sample was collected.
		Acetone		During sampling, the well went dry; therefore, no sample was collected.
		Acrolein		During sampling, the well went dry; therefore, no sample was collected.
		Acrylonitrile		During sampling, the well went dry; therefore, no sample was collected.
		Benzene		During sampling, the well went dry; therefore, no sample was collected.
		Chlorobenzene		During sampling, the well went dry; therefore, no sample was collected.
		Xylenes		During sampling, the well went dry; therefore, no sample was collected.
		Styrene		During sampling, the well went dry; therefore, no sample was collected.
		Toluene		During sampling, the well went dry; therefore, no sample was collected.
		Chlorobromomethane		During sampling, the well went dry; therefore, no sample was collected.
		Bromodichloromethane		During sampling, the well went dry; therefore, no sample was collected.
		Tribromomethane		During sampling, the well went dry; therefore, no sample was collected.
		Methyl bromide		During sampling, the well went dry; therefore, no sample was collected.
		Methyl Ethyl Ketone		During sampling, the well went dry; therefore, no sample was collected.
		trans-1,4-Dichloro-2-butene		During sampling, the well went dry; therefore, no sample was collected.
		Carbon disulfide		During sampling, the well went dry; therefore, no sample was collected.
		Chloroethane		During sampling, the well went dry; therefore, no sample was collected.

GROUNDWATER
WRITTEN COMMENTS

Monitoring Point	Facility Sample ID	Constituent	Flag	Description
8004-0981 MW359		Chloroform		During sampling, the well went dry; therefore, no sample was collected.
		Methyl chloride		During sampling, the well went dry; therefore, no sample was collected.
		cis-1,2-Dichloroethene		During sampling, the well went dry; therefore, no sample was collected.
		Methylene bromide		During sampling, the well went dry; therefore, no sample was collected.
		1,1-Dichloroethane		During sampling, the well went dry; therefore, no sample was collected.
		1,2-Dichloroethane		During sampling, the well went dry; therefore, no sample was collected.
		1,1-Dichloroethylene		During sampling, the well went dry; therefore, no sample was collected.
		1,2-Dibromoethane		During sampling, the well went dry; therefore, no sample was collected.
		1,1,2,2-Tetrachloroethane		During sampling, the well went dry; therefore, no sample was collected.
		1,1,1-Trichloroethane		During sampling, the well went dry; therefore, no sample was collected.
		1,1,2-Trichloroethane		During sampling, the well went dry; therefore, no sample was collected.
		1,1,1,2-Tetrachloroethane		During sampling, the well went dry; therefore, no sample was collected.
		Vinyl chloride		During sampling, the well went dry; therefore, no sample was collected.
		Tetrachloroethene		During sampling, the well went dry; therefore, no sample was collected.
		Trichloroethene		During sampling, the well went dry; therefore, no sample was collected.
		Ethylbenzene		During sampling, the well went dry; therefore, no sample was collected.
		2-Hexanone		During sampling, the well went dry; therefore, no sample was collected.
		Iodomethane		During sampling, the well went dry; therefore, no sample was collected.
		Dibromochloromethane		During sampling, the well went dry; therefore, no sample was collected.
		Carbon tetrachloride		During sampling, the well went dry; therefore, no sample was collected.
		Dichloromethane		During sampling, the well went dry; therefore, no sample was collected.
		Methyl Isobutyl Ketone		During sampling, the well went dry; therefore, no sample was collected.
		1,2-Dibromo-3-chloropropane		During sampling, the well went dry; therefore, no sample was collected.
		1,2-Dichloropropane		During sampling, the well went dry; therefore, no sample was collected.
		trans-1,3-Dichloropropene		During sampling, the well went dry; therefore, no sample was collected.
		cis-1,3-Dichloropropene		During sampling, the well went dry; therefore, no sample was collected.
		trans-1,2-Dichloroethene		During sampling, the well went dry; therefore, no sample was collected.
		Trichlorofluoromethane		During sampling, the well went dry; therefore, no sample was collected.
		1,2,3-Trichloropropane		During sampling, the well went dry; therefore, no sample was collected.

RESIDENTIAL/CONTAINED – QUARTERLY   Finds/Unit: <u>KY8-890-008-982 / 1</u>
Facility: US DOE - Paducah Gaseous Diffusion Plant   LAB ID:<u>None</u>
Permit Number: SW07300014, SW07300015, SW07300045

GROUNDWATER
WRITTEN COMMENTS

Monitoring Point	Facility Sample ID	Constituent	Flag	Description
8004-0981	MW359	1,2-Dichlorobenzene		During sampling, the well went dry; therefore, no sample was collected.
		1,4-Dichlorobenzene		During sampling, the well went dry; therefore, no sample was collected.
		PCB, Total		During sampling, the well went dry; therefore, no sample was collected.
		PCB-1016		During sampling, the well went dry; therefore, no sample was collected.
		PCB-1221		During sampling, the well went dry; therefore, no sample was collected.
		PCB-1232		During sampling, the well went dry; therefore, no sample was collected.
		PCB-1242		During sampling, the well went dry; therefore, no sample was collected.
		PCB-1248		During sampling, the well went dry; therefore, no sample was collected.
		PCB-1254		During sampling, the well went dry; therefore, no sample was collected.
		PCB-1260		During sampling, the well went dry; therefore, no sample was collected.
		PCB-1268		During sampling, the well went dry; therefore, no sample was collected.
		Gross alpha		During sampling, the well went dry; therefore, no sample was collected.
		Gross beta		During sampling, the well went dry; therefore, no sample was collected.
		Iodine-131		During sampling, the well went dry; therefore, no sample was collected.
		Radium-226		During sampling, the well went dry; therefore, no sample was collected.
		Strontium-90		During sampling, the well went dry; therefore, no sample was collected.
		Technetium-99		During sampling, the well went dry; therefore, no sample was collected.
		Thorium-230		During sampling, the well went dry; therefore, no sample was collected.
		Tritium		During sampling, the well went dry; therefore, no sample was collected.
		Chemical Oxygen Demand		During sampling, the well went dry; therefore, no sample was collected.
		Cyanide		During sampling, the well went dry; therefore, no sample was collected.
		Iodide		During sampling, the well went dry; therefore, no sample was collected.
		Total Organic Carbon		During sampling, the well went dry; therefore, no sample was collected.
		Total Organic Halides		During sampling, the well went dry; therefore, no sample was collected.

GROUNDWATER
WRITTEN COMMENTS

Monitoring Point	Facility Sample ID	Constituent	Flag	Description
8004-4800 MW360	MW360UG2-23	Chloride	W	Post-digestion spike recovery out of control limits.
		Eh		Analysis of constituent not required and not performed.
		Manganese	W	Post-digestion spike recovery out of control limits.
		Tantalum	N	Sample spike (MS/MSD) recovery not within control limits
		Benzene	Y1	MS/MSD recovery outside acceptance criteria.
		Gross alpha	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 3.61. Rad error is 3.61.
		Gross beta	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 5.19. Rad error is 5.15.
		Iodine-131		Analysis of constituent not required and not performed.
		Radium-226	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 0.419. Rad error is 0.419.
		Strontium-90	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 3.64. Rad error is 3.64.
		Technetium-99	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 11.8. Rad error is 11.8.
		Thorium-230	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 1.04. Rad error is 1.04.
		Tritium	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 138. Rad error is 138.
8004-4795 MW361	MW361UG2-23	Chloride	W	Post-digestion spike recovery out of control limits.
		Eh		Analysis of constituent not required and not performed.
		Manganese	W	Post-digestion spike recovery out of control limits.
		Tantalum	N	Sample spike (MS/MSD) recovery not within control limits
		Benzene	Y1	MS/MSD recovery outside acceptance criteria.
		Gross alpha	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 4. Rad error is 4.
		Gross beta		TPU is 12.2. Rad error is 10.9.
		Iodine-131		Analysis of constituent not required and not performed.
		Radium-226	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 0.318. Rad error is 0.318.
		Strontium-90	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 2.96. Rad error is 2.95.
		Technetium-99		TPU is 15.2. Rad error is 14.1.
		Thorium-230	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 1.3. Rad error is 1.29.
		Tritium	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 146. Rad error is 145.

RESIDENTIAL/CONTAINED – QUARTERLY
Facility: US DOE - Paducah Gaseous Diffusion Plant
Permit Number: SW07300014, SW07300015, SW07300045

Finds/Unit: <u>KY8-890-008-982 / 1</u>
LAB ID:<u>None</u>

GROUNDWATER
WRITTEN COMMENTS

Monitoring Point	Facility Sample ID	Constituent	Flag	Description
8004-0986 MW362	MW362UG2-23	Chloride	W	Post-digestion spike recovery out of control limits.
		Eh		Analysis of constituent not required and not performed.
		Manganese	W	Post-digestion spike recovery out of control limits.
		Tantalum	N	Sample spike (MS/MSD) recovery not within control limits
		Benzene	Y1	MS/MSD recovery outside acceptance criteria.
		Gross alpha	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 5.27. Rad error is 5.27.
		Gross beta	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 5.18. Rad error is 5.17.
		Iodine-131		Analysis of constituent not required and not performed.
		Radium-226	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 0.348. Rad error is 0.348.
		Strontium-90	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 4.09. Rad error is 4.06.
		Technetium-99	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 12.3. Rad error is 12.3.
		Thorium-230	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 1.05. Rad error is 1.04.
		Tritium	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 151. Rad error is 149.
8004-4796 MW363	MW363UG2-23	Eh		Analysis of constituent not required and not performed.
		Boron	W	Post-digestion spike recovery out of control limits.
		Calcium	W	Post-digestion spike recovery out of control limits.
		Sodium	W	Post-digestion spike recovery out of control limits.
		Chloroethane	Y1	MS/MSD recovery outside acceptance criteria.
		Gross alpha	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 5.06. Rad error is 5.06.
		Gross beta	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 7.87. Rad error is 7.84.
		Iodine-131		Analysis of constituent not required and not performed.
		Radium-226	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 0.423. Rad error is 0.423.
		Strontium-90	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 4.24. Rad error is 4.23.
		Technetium-99	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 11.3. Rad error is 11.3.
		Thorium-230	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 1.04. Rad error is 1.04.
		Tritium	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 114. Rad error is 113.
		Chemical Oxygen Demand	N	Sample spike (MS/MSD) recovery not within control limits.
		Iodide	W	Post-digestion spike recovery out of control limits.

GROUNDWATER
WRITTEN COMMENTS

Monitoring Point	Facility Sample ID	Constituent	Flag	Description
8004-4797 MW364	MW364UG2-23	Eh		Analysis of constituent not required and not performed.
		Boron	W	Post-digestion spike recovery out of control limits.
		Calcium	W	Post-digestion spike recovery out of control limits.
		Sodium	W	Post-digestion spike recovery out of control limits.
		Chloroethane	Y1	MS/MSD recovery outside acceptance criteria.
		Gross alpha	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 3.12. Rad error is 3.12.
		Gross beta		TPU is 8.44. Rad error is 7.77.
		Iodine-131		Analysis of constituent not required and not performed.
		Radium-226	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 0.425. Rad error is 0.425.
		Strontium-90	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 2.21. Rad error is 2.21.
		Technetium-99		TPU is 15.2. Rad error is 13.5.
		Thorium-230	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 0.767. Rad error is 0.766.
		Tritium	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 124. Rad error is 124.
		Chemical Oxygen Demand	N	Sample spike (MS/MSD) recovery not within control limits.
		Iodide	W	Post-digestion spike recovery out of control limits.

GROUNDWATER
WRITTEN COMMENTS

Monitoring Point	Facility Sample ID	Constituent	Flag	Description
8004-0984 MW365		Bromide		Analysis of constituent not required and not performed.
		Chloride		Analysis of constituent not required and not performed.
		Fluoride		Analysis of constituent not required and not performed.
		Nitrate & Nitrite		Analysis of constituent not required and not performed.
		Sulfate		Analysis of constituent not required and not performed.
		Barometric Pressure Reading		Analysis of constituent not required and not performed.
		Specific Conductance		Analysis of constituent not required and not performed.
		Static Water Level Elevation		Analysis of constituent not required and not performed.
		Dissolved Oxygen		Analysis of constituent not required and not performed.
		Total Dissolved Solids		Analysis of constituent not required and not performed.
		pH		Analysis of constituent not required and not performed.
		Eh		Analysis of constituent not required and not performed.
		Temperature		Analysis of constituent not required and not performed.
		Aluminum		Analysis of constituent not required and not performed.
		Antimony		Analysis of constituent not required and not performed.
		Arsenic		Analysis of constituent not required and not performed.
		Barium		Analysis of constituent not required and not performed.
		Beryllium		Analysis of constituent not required and not performed.
		Boron		Analysis of constituent not required and not performed.
		Cadmium		Analysis of constituent not required and not performed.
		Calcium		Analysis of constituent not required and not performed.
		Chromium		Analysis of constituent not required and not performed.
		Cobalt		Analysis of constituent not required and not performed.
		Copper		Analysis of constituent not required and not performed.
		Iron		Analysis of constituent not required and not performed.
		Lead		Analysis of constituent not required and not performed.
		Magnesium		Analysis of constituent not required and not performed.
		Manganese		Analysis of constituent not required and not performed.
		Mercury		Analysis of constituent not required and not performed.
		Molybdenum		Analysis of constituent not required and not performed.
		Nickel		Analysis of constituent not required and not performed.
		Potassium		Analysis of constituent not required and not performed.
		Rhodium		Analysis of constituent not required and not performed.
		Selenium		Analysis of constituent not required and not performed.
		Silver		Analysis of constituent not required and not performed.
		Sodium		Analysis of constituent not required and not performed.
		Tantalum		Analysis of constituent not required and not performed.
		Thallium		Analysis of constituent not required and not performed.
		Uranium		Analysis of constituent not required and not performed.
		Vanadium		Analysis of constituent not required and not performed.

RESIDENTIAL/CONTAINED – QUARTERLY   Finds/Unit: <u>KY8-890-008-982 / 1</u>
Facility: US DOE - Paducah Gaseous Diffusion Plant   LAB ID:<u>None</u>
Permit Number: SW07300014, SW07300015, SW07300045

GROUNDWATER
WRITTEN COMMENTS

Monitoring Point	Facility Sample ID	Constituent	Flag	Description
8004-0984 MW365		Zinc		Analysis of constituent not required and not performed.
		Vinyl acetate		Analysis of constituent not required and not performed.
		Acetone		Analysis of constituent not required and not performed.
		Acrolein		Analysis of constituent not required and not performed.
		Acrylonitrile		Analysis of constituent not required and not performed.
		Benzene		Analysis of constituent not required and not performed.
		Chlorobenzene		Analysis of constituent not required and not performed.
		Xylenes		Analysis of constituent not required and not performed.
		Styrene		Analysis of constituent not required and not performed.
		Toluene		Analysis of constituent not required and not performed.
		Chlorobromomethane		Analysis of constituent not required and not performed.
		Bromodichloromethane		Analysis of constituent not required and not performed.
		Tribromomethane		Analysis of constituent not required and not performed.
		Methyl bromide		Analysis of constituent not required and not performed.
		Methyl Ethyl Ketone		Analysis of constituent not required and not performed.
		trans-1,4-Dichloro-2-butene		Analysis of constituent not required and not performed.
		Carbon disulfide		Analysis of constituent not required and not performed.
		Chloroethane		Analysis of constituent not required and not performed.
		Chloroform		Analysis of constituent not required and not performed.
		Methyl chloride		Analysis of constituent not required and not performed.
		cis-1,2-Dichloroethene		Analysis of constituent not required and not performed.
		Methylene bromide		Analysis of constituent not required and not performed.
		1,1-Dichloroethane		Analysis of constituent not required and not performed.
		1,2-Dichloroethane		Analysis of constituent not required and not performed.
		1,1-Dichloroethylene		Analysis of constituent not required and not performed.
		1,2-Dibromoethane		Analysis of constituent not required and not performed.
		1,1,2,2-Tetrachloroethane		Analysis of constituent not required and not performed.
		1,1,1-Trichloroethane		Analysis of constituent not required and not performed.
		1,1,2-Trichloroethane		Analysis of constituent not required and not performed.
		1,1,1,2-Tetrachloroethane		Analysis of constituent not required and not performed.
		Vinyl chloride		Analysis of constituent not required and not performed.
		Tetrachloroethene		Analysis of constituent not required and not performed.
		Trichloroethene		Analysis of constituent not required and not performed.
		Ethylbenzene		Analysis of constituent not required and not performed.
		2-Hexanone		Analysis of constituent not required and not performed.
		Iodomethane		Analysis of constituent not required and not performed.
		Dibromochloromethane		Analysis of constituent not required and not performed.
		Carbon tetrachloride		Analysis of constituent not required and not performed.
		Dichloromethane		Analysis of constituent not required and not performed.
		Methyl Isobutyl Ketone		Analysis of constituent not required and not performed.

RESIDENTIAL/CONTAINED – QUARTERLY
Facility: US DOE - Paducah Gaseous Diffusion Plant
Permit Number: SW07300014, SW07300015, SW07300045

Finds/Unit: <u>KY8-890-008-982 / 1</u>
LAB ID:<u>None</u>

GROUNDWATER
WRITTEN COMMENTS

Monitoring Point	Facility Sample ID	Constituent	Flag	Description
8004-0984	MW365	1,2-Dibromo-3-chloropropane		Analysis of constituent not required and not performed.
		1,2-Dichloropropane		Analysis of constituent not required and not performed.
		trans-1,3-Dichloropropene		Analysis of constituent not required and not performed.
		cis-1,3-Dichloropropene		Analysis of constituent not required and not performed.
		trans-1,2-Dichloroethene		Analysis of constituent not required and not performed.
		Trichlorofluoromethane		Analysis of constituent not required and not performed.
		1,2,3-Trichloropropane		Analysis of constituent not required and not performed.
		1,2-Dichlorobenzene		Analysis of constituent not required and not performed.
		1,4-Dichlorobenzene		Analysis of constituent not required and not performed.
		PCB, Total		Analysis of constituent not required and not performed.
		PCB-1016		Analysis of constituent not required and not performed.
		PCB-1221		Analysis of constituent not required and not performed.
		PCB-1232		Analysis of constituent not required and not performed.
		PCB-1242		Analysis of constituent not required and not performed.
		PCB-1248		Analysis of constituent not required and not performed.
		PCB-1254		Analysis of constituent not required and not performed.
		PCB-1260		Analysis of constituent not required and not performed.
		PCB-1268		Analysis of constituent not required and not performed.
		Gross alpha		Analysis of constituent not required and not performed.
		Gross beta		Analysis of constituent not required and not performed.
		Iodine-131		Analysis of constituent not required and not performed.
		Radium-226		Analysis of constituent not required and not performed.
		Strontium-90		Analysis of constituent not required and not performed.
		Technetium-99		Analysis of constituent not required and not performed.
		Thorium-230		Analysis of constituent not required and not performed.
		Tritium		Analysis of constituent not required and not performed.
		Chemical Oxygen Demand		Analysis of constituent not required and not performed.
		Cyanide		Analysis of constituent not required and not performed.
		Iodide		Analysis of constituent not required and not performed.
		Total Organic Carbon		Analysis of constituent not required and not performed.
		Total Organic Halides		Analysis of constituent not required and not performed.

RESIDENTIAL/CONTAINED – QUARTERLY
Facility: US DOE - Paducah Gaseous Diffusion Plant
Permit Number: SW07300014, SW07300015, SW07300045

Finds/Unit: <u>KY8-890-008-982 / 1</u>
LAB ID:<u>None</u>

GROUNDWATER
WRITTEN COMMENTS

Monitoring Point	Facility Sample ID	Constituent	Flag	Description
8004-0982 MW366	MW366UG2-23	Eh		Analysis of constituent not required and not performed.
		Boron	W	Post-digestion spike recovery out of control limits.
		Calcium	W	Post-digestion spike recovery out of control limits.
		Sodium	W	Post-digestion spike recovery out of control limits.
		Chloroethane	Y1	MS/MSD recovery outside acceptance criteria.
		Gross alpha	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 5.28. Rad error is 5.27.
		Gross beta		TPU is 11.4. Rad error is 9.39.
		Iodine-131		Analysis of constituent not required and not performed.
		Radium-226	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 0.439. Rad error is 0.438.
		Strontium-90	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 4.06. Rad error is 4.06.
		Technetium-99		TPU is 17.8. Rad error is 14.8.
		Thorium-230	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 0.874. Rad error is 0.871.
		Tritium	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 114. Rad error is 114.
		Chemical Oxygen Demand	N	Sample spike (MS/MSD) recovery not within control limits.
		Iodide	W	Post-digestion spike recovery out of control limits.
8004-4793 MW367	MW367UG2-23	Eh		Analysis of constituent not required and not performed.
		Boron	W	Post-digestion spike recovery out of control limits.
		Calcium	W	Post-digestion spike recovery out of control limits.
		Sodium	W	Post-digestion spike recovery out of control limits.
		Chloroethane	Y1	MS/MSD recovery outside acceptance criteria.
		Gross alpha	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 5.6. Rad error is 5.53.
		Gross beta	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 4.6. Rad error is 4.56.
		Iodine-131		Analysis of constituent not required and not performed.
		Radium-226	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 1.09. Rad error is 1.09.
		Strontium-90	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 3.14. Rad error is 3.13.
		Technetium-99	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 11.8. Rad error is 11.8.
		Thorium-230	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 0.697. Rad error is 0.696.
		Tritium	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 121. Rad error is 121.
		Chemical Oxygen Demand	N	Sample spike (MS/MSD) recovery not within control limits.
		Iodide	W	Post-digestion spike recovery out of control limits.

GROUNDWATER
WRITTEN COMMENTS

Monitoring Point	Facility Sample ID	Constituent	Flag	Description
8004-0983 MW368		Bromide		During sampling, the well went dry; therefore, no sample was collected.
		Chloride		During sampling, the well went dry; therefore, no sample was collected.
		Fluoride		During sampling, the well went dry; therefore, no sample was collected.
		Nitrate & Nitrite		During sampling, the well went dry; therefore, no sample was collected.
		Sulfate		During sampling, the well went dry; therefore, no sample was collected.
		Barometric Pressure Reading		During sampling, the well went dry; therefore, no sample was collected.
		Specific Conductance		During sampling, the well went dry; therefore, no sample was collected.
		Static Water Level Elevation		During sampling, the well went dry; therefore, no sample was collected.
		Dissolved Oxygen		During sampling, the well went dry; therefore, no sample was collected.
		Total Dissolved Solids		During sampling, the well went dry; therefore, no sample was collected.
		pH		During sampling, the well went dry; therefore, no sample was collected.
		Eh		During sampling, the well went dry; therefore, no sample was collected.
		Temperature		During sampling, the well went dry; therefore, no sample was collected.
		Aluminum		During sampling, the well went dry; therefore, no sample was collected.
		Antimony		During sampling, the well went dry; therefore, no sample was collected.
		Arsenic		During sampling, the well went dry; therefore, no sample was collected.
		Barium		During sampling, the well went dry; therefore, no sample was collected.
		Beryllium		During sampling, the well went dry; therefore, no sample was collected.
		Boron		During sampling, the well went dry; therefore, no sample was collected.
		Cadmium		During sampling, the well went dry; therefore, no sample was collected.
		Calcium		During sampling, the well went dry; therefore, no sample was collected.
		Chromium		During sampling, the well went dry; therefore, no sample was collected.
		Cobalt		During sampling, the well went dry; therefore, no sample was collected.
		Copper		During sampling, the well went dry; therefore, no sample was collected.
		Iron		During sampling, the well went dry; therefore, no sample was collected.
		Lead		During sampling, the well went dry; therefore, no sample was collected.
		Magnesium		During sampling, the well went dry; therefore, no sample was collected.
		Manganese		During sampling, the well went dry; therefore, no sample was collected.
		Mercury		During sampling, the well went dry; therefore, no sample was collected.

GROUNDWATER
WRITTEN COMMENTS

Monitoring Point	Facility Sample ID	Constituent	Flag	Description
8004-0983 MW368		Molybdenum		During sampling, the well went dry; therefore, no sample was collected.
		Nickel		During sampling, the well went dry; therefore, no sample was collected.
		Potassium		During sampling, the well went dry; therefore, no sample was collected.
		Rhodium		During sampling, the well went dry; therefore, no sample was collected.
		Selenium		During sampling, the well went dry; therefore, no sample was collected.
		Silver		During sampling, the well went dry; therefore, no sample was collected.
		Sodium		During sampling, the well went dry; therefore, no sample was collected.
		Tantalum		During sampling, the well went dry; therefore, no sample was collected.
		Thallium		During sampling, the well went dry; therefore, no sample was collected.
		Uranium		During sampling, the well went dry; therefore, no sample was collected.
		Vanadium		During sampling, the well went dry; therefore, no sample was collected.
		Zinc		During sampling, the well went dry; therefore, no sample was collected.
		Vinyl acetate		During sampling, the well went dry; therefore, no sample was collected.
		Acetone		During sampling, the well went dry; therefore, no sample was collected.
		Acrolein		During sampling, the well went dry; therefore, no sample was collected.
		Acrylonitrile		During sampling, the well went dry; therefore, no sample was collected.
		Benzene		During sampling, the well went dry; therefore, no sample was collected.
		Chlorobenzene		During sampling, the well went dry; therefore, no sample was collected.
		Xylenes		During sampling, the well went dry; therefore, no sample was collected.
		Styrene		During sampling, the well went dry; therefore, no sample was collected.
		Toluene		During sampling, the well went dry; therefore, no sample was collected.
		Chlorobromomethane		During sampling, the well went dry; therefore, no sample was collected.
		Bromodichloromethane		During sampling, the well went dry; therefore, no sample was collected.
		Tribromomethane		During sampling, the well went dry; therefore, no sample was collected.
		Methyl bromide		During sampling, the well went dry; therefore, no sample was collected.
		Methyl Ethyl Ketone		During sampling, the well went dry; therefore, no sample was collected.
		trans-1,4-Dichloro-2-butene		During sampling, the well went dry; therefore, no sample was collected.
		Carbon disulfide		During sampling, the well went dry; therefore, no sample was collected.
		Chloroethane		During sampling, the well went dry; therefore, no sample was collected.

GROUNDWATER
WRITTEN COMMENTS

Monitoring Point	Facility Sample ID	Constituent	Flag	Description
8004-0983 MW368		Chloroform		During sampling, the well went dry; therefore, no sample was collected.
		Methyl chloride		During sampling, the well went dry; therefore, no sample was collected.
		cis-1,2-Dichloroethene		During sampling, the well went dry; therefore, no sample was collected.
		Methylene bromide		During sampling, the well went dry; therefore, no sample was collected.
		1,1-Dichloroethane		During sampling, the well went dry; therefore, no sample was collected.
		1,2-Dichloroethane		During sampling, the well went dry; therefore, no sample was collected.
		1,1-Dichloroethylene		During sampling, the well went dry; therefore, no sample was collected.
		1,2-Dibromoethane		During sampling, the well went dry; therefore, no sample was collected.
		1,1,2,2-Tetrachloroethane		During sampling, the well went dry; therefore, no sample was collected.
		1,1,1-Trichloroethane		During sampling, the well went dry; therefore, no sample was collected.
		1,1,2-Trichloroethane		During sampling, the well went dry; therefore, no sample was collected.
		1,1,1,2-Tetrachloroethane		During sampling, the well went dry; therefore, no sample was collected.
		Vinyl chloride		During sampling, the well went dry; therefore, no sample was collected.
		Tetrachloroethene		During sampling, the well went dry; therefore, no sample was collected.
		Trichloroethene		During sampling, the well went dry; therefore, no sample was collected.
		Ethylbenzene		During sampling, the well went dry; therefore, no sample was collected.
		2-Hexanone		During sampling, the well went dry; therefore, no sample was collected.
		Iodomethane		During sampling, the well went dry; therefore, no sample was collected.
		Dibromochloromethane		During sampling, the well went dry; therefore, no sample was collected.
		Carbon tetrachloride		During sampling, the well went dry; therefore, no sample was collected.
		Dichloromethane		During sampling, the well went dry; therefore, no sample was collected.
		Methyl Isobutyl Ketone		During sampling, the well went dry; therefore, no sample was collected.
		1,2-Dibromo-3-chloropropane		During sampling, the well went dry; therefore, no sample was collected.
		1,2-Dichloropropane		During sampling, the well went dry; therefore, no sample was collected.
		trans-1,3-Dichloropropene		During sampling, the well went dry; therefore, no sample was collected.
		cis-1,3-Dichloropropene		During sampling, the well went dry; therefore, no sample was collected.
		trans-1,2-Dichloroethene		During sampling, the well went dry; therefore, no sample was collected.
		Trichlorofluoromethane		During sampling, the well went dry; therefore, no sample was collected.
		1,2,3-Trichloropropane		During sampling, the well went dry; therefore, no sample was collected.

GROUNDWATER
WRITTEN COMMENTS

Monitoring Point	Facility Sample ID	Constituent	Flag	Description
8004-0983 MW368		1,2-Dichlorobenzene		During sampling, the well went dry; therefore, no sample was collected.
		1,4-Dichlorobenzene		During sampling, the well went dry; therefore, no sample was collected.
		PCB, Total		During sampling, the well went dry; therefore, no sample was collected.
		PCB-1016		During sampling, the well went dry; therefore, no sample was collected.
		PCB-1221		During sampling, the well went dry; therefore, no sample was collected.
		PCB-1232		During sampling, the well went dry; therefore, no sample was collected.
		PCB-1242		During sampling, the well went dry; therefore, no sample was collected.
		PCB-1248		During sampling, the well went dry; therefore, no sample was collected.
		PCB-1254		During sampling, the well went dry; therefore, no sample was collected.
		PCB-1260		During sampling, the well went dry; therefore, no sample was collected.
		PCB-1268		During sampling, the well went dry; therefore, no sample was collected.
		Gross alpha		During sampling, the well went dry; therefore, no sample was collected.
		Gross beta		During sampling, the well went dry; therefore, no sample was collected.
		Iodine-131		During sampling, the well went dry; therefore, no sample was collected.
		Radium-226		During sampling, the well went dry; therefore, no sample was collected.
		Strontium-90		During sampling, the well went dry; therefore, no sample was collected.
		Technetium-99		During sampling, the well went dry; therefore, no sample was collected.
		Thorium-230		During sampling, the well went dry; therefore, no sample was collected.
		Tritium		During sampling, the well went dry; therefore, no sample was collected.
		Chemical Oxygen Demand		During sampling, the well went dry; therefore, no sample was collected.
		Cyanide		During sampling, the well went dry; therefore, no sample was collected.
		Iodide		During sampling, the well went dry; therefore, no sample was collected.
		Total Organic Carbon		During sampling, the well went dry; therefore, no sample was collected.
		Total Organic Halides		During sampling, the well went dry; therefore, no sample was collected.

GROUNDWATER
WRITTEN COMMENTS

Monitoring Point	Facility Sample ID	Constituent	Flag	Description
8004-4820 MW369	MW369UG2-23	Eh		Analysis of constituent not required and not performed.
		Boron	W	Post-digestion spike recovery out of control limits.
		Calcium	W	Post-digestion spike recovery out of control limits.
		Sodium	W	Post-digestion spike recovery out of control limits.
		Chloroethane	Y1	MS/MSD recovery outside acceptance criteria.
		Gross alpha	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 7.75. Rad error is 7.63.
		Gross beta		TPU is 11.1. Rad error is 9.12.
		Iodine-131		Analysis of constituent not required and not performed.
		Radium-226	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 0.284. Rad error is 0.284.
		Strontium-90	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 2.98. Rad error is 2.98.
		Technetium-99		TPU is 15.5. Rad error is 13.9.
		Thorium-230	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 1.2. Rad error is 1.2.
		Tritium	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 128. Rad error is 124.
8004-4818 MW370	MW370UG2-23	Eh		Analysis of constituent not required and not performed.
		Boron	W	Post-digestion spike recovery out of control limits.
		Calcium	W	Post-digestion spike recovery out of control limits.
		Sodium	W	Post-digestion spike recovery out of control limits.
		Chloroethane	Y1	MS/MSD recovery outside acceptance criteria.
		Gross alpha	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 5.52. Rad error is 5.5.
		Gross beta	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 6.8. Rad error is 6.73.
		Iodine-131		Analysis of constituent not required and not performed.
		Radium-226	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 0.492. Rad error is 0.492.
		Strontium-90	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 2.35. Rad error is 2.35.
		Technetium-99		TPU is 12.6. Rad error is 12.1.
		Thorium-230	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 0.919. Rad error is 0.909.
		Tritium	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 122. Rad error is 120.

GROUNDWATER
WRITTEN COMMENTS

Monitoring Point	Facility Sample ID	Constituent	Flag	Description
8004-4819 MW371	MW371UG2-23	Eh		Analysis of constituent not required and not performed.
		Calcium	W	Post-digestion spike recovery out of control limits.
		Sodium	W	Post-digestion spike recovery out of control limits.
		Chloroethane	Y1	MS/MSD recovery outside acceptance criteria.
		Gross alpha	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 5.61. Rad error is 5.59.
		Gross beta	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 5.63. Rad error is 5.55.
		Iodine-131		Analysis of constituent not required and not performed.
		Radium-226	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 0.551. Rad error is 0.551.
		Strontium-90	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 3.52. Rad error is 3.52.
		Technetium-99	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 11.2. Rad error is 11.2.
		Thorium-230	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 0.97. Rad error is 0.965.
		Tritium	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 127. Rad error is 123.
8004-4808 MW372	MW372UG2-23	Eh		Analysis of constituent not required and not performed.
		Boron	W	Post-digestion spike recovery out of control limits.
		Calcium	W	Post-digestion spike recovery out of control limits.
		Sodium	W	Post-digestion spike recovery out of control limits.
		Chloroethane	Y1	MS/MSD recovery outside acceptance criteria.
		Gross alpha	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 4.81. Rad error is 4.8.
		Gross beta		TPU is 12.6. Rad error is 11.2.
		Iodine-131		Analysis of constituent not required and not performed.
		Radium-226	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 0.454. Rad error is 0.454.
		Strontium-90	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 2.62. Rad error is 2.62.
		Technetium-99		TPU is 16.8. Rad error is 13.7.
		Thorium-230	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 1.35. Rad error is 1.35.
		Tritium	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 114. Rad error is 114.

GROUNDWATER
WRITTEN COMMENTS

Monitoring Point	Facility Sample ID	Constituent	Flag	Description
8004-4792 MW373	MW373UG2-23	Eh		Analysis of constituent not required and not performed.
		Boron	W	Post-digestion spike recovery out of control limits.
		Calcium	W	Post-digestion spike recovery out of control limits.
		Sodium	W	Post-digestion spike recovery out of control limits.
		Chloroethane	Y1	MS/MSD recovery outside acceptance criteria.
		Gross alpha	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 6.59. Rad error is 6.58.
		Gross beta	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 5.64. Rad error is 5.61.
		Iodine-131		Analysis of constituent not required and not performed.
		Radium-226	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 0.375. Rad error is 0.375.
		Strontium-90	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 4.31. Rad error is 4.3.
		Technetium-99	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 12.2. Rad error is 12.1.
		Thorium-230	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 0.941. Rad error is 0.937.
		Tritium	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 129. Rad error is 125.
8004-0990 MW374	MW374UG2-23	Eh		Analysis of constituent not required and not performed.
		Boron	W	Post-digestion spike recovery out of control limits.
		Calcium	W	Post-digestion spike recovery out of control limits.
		Sodium	W	Post-digestion spike recovery out of control limits.
		Chloroethane	Y1	MS/MSD recovery outside acceptance criteria.
		Gross alpha	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 5.99. Rad error is 5.92.
		Gross beta		TPU is 8.17. Rad error is 7.85.
		Iodine-131		Analysis of constituent not required and not performed.
		Radium-226	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 0.324. Rad error is 0.324.
		Strontium-90	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 2.63. Rad error is 2.62.
		Technetium-99	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 11.9. Rad error is 11.9.
		Thorium-230	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 1.11. Rad error is 1.11.
		Tritium	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 129. Rad error is 127.

RESIDENTIAL/CONTAINED – QUARTERLY
Facility: US DOE - Paducah Gaseous Diffusion Plant
Permit Number: SW07300014, SW07300015, SW07300045

Finds/Unit: <u>KY8-890-008-982 / 1</u>
LAB ID:<u>None</u>

GROUNDWATER
WRITTEN COMMENTS

Monitoring Point	Facility Sample ID	Constituent	Flag	Description
8004-0985 MW375	MW375UG2-23	Eh		Analysis of constituent not required and not performed.
		Calcium	W	Post-digestion spike recovery out of control limits.
		Mercury	XH	
		Sodium	W	Post-digestion spike recovery out of control limits.
		Chloroethane	Y1	MS/MSD recovery outside acceptance criteria.
		Gross alpha	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 5.48. Rad error is 5.36.
		Gross beta	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 4.75. Rad error is 4.75.
		Iodine-131		Analysis of constituent not required and not performed.
		Radium-226	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 0.321. Rad error is 0.321.
		Strontium-90	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 2.94. Rad error is 2.94.
		Technetium-99	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 11.9. Rad error is 11.9.
		Thorium-230	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 0.883. Rad error is 0.881.
		Tritium	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 128. Rad error is 124.
		Chemical Oxygen Demand	N	Sample spike (MS/MSD) recovery not within control limits.
		Iodide	W	Post-digestion spike recovery out of control limits.

RESIDENTIAL/CONTAINED – QUARTERLY
Facility: US DOE - Paducah Gaseous Diffusion Plant
Permit Number: SW07300014, SW07300015, SW07300045

Finds/Unit: <u>KY8-890-008-982 / 1</u>
LAB ID:<u>None   </u>

GROUNDWATER
WRITTEN COMMENTS

Monitoring Point	Facility Sample ID	Constituent	Flag	Description
8004-0988 MW376		Bromide		During sampling, the well went dry; therefore, no sample was collected.
		Chloride		During sampling, the well went dry; therefore, no sample was collected.
		Fluoride		During sampling, the well went dry; therefore, no sample was collected.
		Nitrate & Nitrite		During sampling, the well went dry; therefore, no sample was collected.
		Sulfate		During sampling, the well went dry; therefore, no sample was collected.
		Barometric Pressure Reading		During sampling, the well went dry; therefore, no sample was collected.
		Specific Conductance		During sampling, the well went dry; therefore, no sample was collected.
		Static Water Level Elevation		During sampling, the well went dry; therefore, no sample was collected.
		Dissolved Oxygen		During sampling, the well went dry; therefore, no sample was collected.
		Total Dissolved Solids		During sampling, the well went dry; therefore, no sample was collected.
		pH		During sampling, the well went dry; therefore, no sample was collected.
		Eh		During sampling, the well went dry; therefore, no sample was collected.
		Temperature		During sampling, the well went dry; therefore, no sample was collected.
		Aluminum		During sampling, the well went dry; therefore, no sample was collected.
		Antimony		During sampling, the well went dry; therefore, no sample was collected.
		Arsenic		During sampling, the well went dry; therefore, no sample was collected.
		Barium		During sampling, the well went dry; therefore, no sample was collected.
		Beryllium		During sampling, the well went dry; therefore, no sample was collected.
		Boron		During sampling, the well went dry; therefore, no sample was collected.
		Cadmium		During sampling, the well went dry; therefore, no sample was collected.
		Calcium		During sampling, the well went dry; therefore, no sample was collected.
		Chromium		During sampling, the well went dry; therefore, no sample was collected.
		Cobalt		During sampling, the well went dry; therefore, no sample was collected.
		Copper		During sampling, the well went dry; therefore, no sample was collected.
		Iron		During sampling, the well went dry; therefore, no sample was collected.
		Lead		During sampling, the well went dry; therefore, no sample was collected.
		Magnesium		During sampling, the well went dry; therefore, no sample was collected.
		Manganese		During sampling, the well went dry; therefore, no sample was collected.
		Mercury		During sampling, the well went dry; therefore, no sample was collected.

GROUNDWATER
WRITTEN COMMENTS

Monitoring Point	Facility Sample ID	Constituent	Flag	Description
8004-0988 MW376		Molybdenum		During sampling, the well went dry; therefore, no sample was collected.
		Nickel		During sampling, the well went dry; therefore, no sample was collected.
		Potassium		During sampling, the well went dry; therefore, no sample was collected.
		Rhodium		During sampling, the well went dry; therefore, no sample was collected.
		Selenium		During sampling, the well went dry; therefore, no sample was collected.
		Silver		During sampling, the well went dry; therefore, no sample was collected.
		Sodium		During sampling, the well went dry; therefore, no sample was collected.
		Tantalum		During sampling, the well went dry; therefore, no sample was collected.
		Thallium		During sampling, the well went dry; therefore, no sample was collected.
		Uranium		During sampling, the well went dry; therefore, no sample was collected.
		Vanadium		During sampling, the well went dry; therefore, no sample was collected.
		Zinc		During sampling, the well went dry; therefore, no sample was collected.
		Vinyl acetate		During sampling, the well went dry; therefore, no sample was collected.
		Acetone		During sampling, the well went dry; therefore, no sample was collected.
		Acrolein		During sampling, the well went dry; therefore, no sample was collected.
		Acrylonitrile		During sampling, the well went dry; therefore, no sample was collected.
		Benzene		During sampling, the well went dry; therefore, no sample was collected.
		Chlorobenzene		During sampling, the well went dry; therefore, no sample was collected.
		Xylenes		During sampling, the well went dry; therefore, no sample was collected.
		Styrene		During sampling, the well went dry; therefore, no sample was collected.
		Toluene		During sampling, the well went dry; therefore, no sample was collected.
		Chlorobromomethane		During sampling, the well went dry; therefore, no sample was collected.
		Bromodichloromethane		During sampling, the well went dry; therefore, no sample was collected.
		Tribromomethane		During sampling, the well went dry; therefore, no sample was collected.
		Methyl bromide		During sampling, the well went dry; therefore, no sample was collected.
		Methyl Ethyl Ketone		During sampling, the well went dry; therefore, no sample was collected.
		trans-1,4-Dichloro-2-butene		During sampling, the well went dry; therefore, no sample was collected.
		Carbon disulfide		During sampling, the well went dry; therefore, no sample was collected.
		Chloroethane		During sampling, the well went dry; therefore, no sample was collected.

RESIDENTIAL/CONTAINED – QUARTERLY   Finds/Unit: <u>KY8-890-008-982 / 1</u>
Facility: US DOE - Paducah Gaseous Diffusion Plant   LAB ID:<u>None</u>
Permit Number: SW07300014, SW07300015, SW07300045

GROUNDWATER
WRITTEN COMMENTS

Monitoring Point	Facility Sample ID	Constituent	Flag	Description
8004-0988 MW376		Chloroform		During sampling, the well went dry; therefore, no sample was collected.
		Methyl chloride		During sampling, the well went dry; therefore, no sample was collected.
		cis-1,2-Dichloroethene		During sampling, the well went dry; therefore, no sample was collected.
		Methylene bromide		During sampling, the well went dry; therefore, no sample was collected.
		1,1-Dichloroethane		During sampling, the well went dry; therefore, no sample was collected.
		1,2-Dichloroethane		During sampling, the well went dry; therefore, no sample was collected.
		1,1-Dichloroethylene		During sampling, the well went dry; therefore, no sample was collected.
		1,2-Dibromoethane		During sampling, the well went dry; therefore, no sample was collected.
		1,1,2,2-Tetrachloroethane		During sampling, the well went dry; therefore, no sample was collected.
		1,1,1-Trichloroethane		During sampling, the well went dry; therefore, no sample was collected.
		1,1,2-Trichloroethane		During sampling, the well went dry; therefore, no sample was collected.
		1,1,1,2-Tetrachloroethane		During sampling, the well went dry; therefore, no sample was collected.
		Vinyl chloride		During sampling, the well went dry; therefore, no sample was collected.
		Tetrachloroethene		During sampling, the well went dry; therefore, no sample was collected.
		Trichloroethene		During sampling, the well went dry; therefore, no sample was collected.
		Ethylbenzene		During sampling, the well went dry; therefore, no sample was collected.
		2-Hexanone		During sampling, the well went dry; therefore, no sample was collected.
		Iodomethane		During sampling, the well went dry; therefore, no sample was collected.
		Dibromochloromethane		During sampling, the well went dry; therefore, no sample was collected.
		Carbon tetrachloride		During sampling, the well went dry; therefore, no sample was collected.
		Dichloromethane		During sampling, the well went dry; therefore, no sample was collected.
		Methyl Isobutyl Ketone		During sampling, the well went dry; therefore, no sample was collected.
		1,2-Dibromo-3-chloropropane		During sampling, the well went dry; therefore, no sample was collected.
		1,2-Dichloropropane		During sampling, the well went dry; therefore, no sample was collected.
		trans-1,3-Dichloropropene		During sampling, the well went dry; therefore, no sample was collected.
		cis-1,3-Dichloropropene		During sampling, the well went dry; therefore, no sample was collected.
		trans-1,2-Dichloroethene		During sampling, the well went dry; therefore, no sample was collected.
		Trichlorofluoromethane		During sampling, the well went dry; therefore, no sample was collected.
		1,2,3-Trichloropropane		During sampling, the well went dry; therefore, no sample was collected.

GROUNDWATER
WRITTEN COMMENTS

Monitoring Point	Facility Sample ID	Constituent	Flag	Description
8004-0988 MW376		1,2-Dichlorobenzene		During sampling, the well went dry; therefore, no sample was collected.
		1,4-Dichlorobenzene		During sampling, the well went dry; therefore, no sample was collected.
		PCB, Total		During sampling, the well went dry; therefore, no sample was collected.
		PCB-1016		During sampling, the well went dry; therefore, no sample was collected.
		PCB-1221		During sampling, the well went dry; therefore, no sample was collected.
		PCB-1232		During sampling, the well went dry; therefore, no sample was collected.
		PCB-1242		During sampling, the well went dry; therefore, no sample was collected.
		PCB-1248		During sampling, the well went dry; therefore, no sample was collected.
		PCB-1254		During sampling, the well went dry; therefore, no sample was collected.
		PCB-1260		During sampling, the well went dry; therefore, no sample was collected.
		PCB-1268		During sampling, the well went dry; therefore, no sample was collected.
		Gross alpha		During sampling, the well went dry; therefore, no sample was collected.
		Gross beta		During sampling, the well went dry; therefore, no sample was collected.
		Iodine-131		During sampling, the well went dry; therefore, no sample was collected.
		Radium-226		During sampling, the well went dry; therefore, no sample was collected.
		Strontium-90		During sampling, the well went dry; therefore, no sample was collected.
		Technetium-99		During sampling, the well went dry; therefore, no sample was collected.
		Thorium-230		During sampling, the well went dry; therefore, no sample was collected.
		Tritium		During sampling, the well went dry; therefore, no sample was collected.
		Chemical Oxygen Demand		During sampling, the well went dry; therefore, no sample was collected.
		Cyanide		During sampling, the well went dry; therefore, no sample was collected.
		Iodide		During sampling, the well went dry; therefore, no sample was collected.
		Total Organic Carbon		During sampling, the well went dry; therefore, no sample was collected.
		Total Organic Halides		During sampling, the well went dry; therefore, no sample was collected.

RESIDENTIAL/CONTAINED – QUARTERLY
Facility: US DOE - Paducah Gaseous Diffusion Plant
Permit Number: SW07300014, SW07300015, SW07300045

Finds/Unit: <u>KY8-890-008-982 / 1</u>
LAB ID:<u>None   </u>

GROUNDWATER
WRITTEN COMMENTS

Monitoring Point	Facility Sample ID	Constituent	Flag	Description
8004-0989	MW377	Bromide		During sampling, the well went dry; therefore, no sample was collected.
		Chloride		During sampling, the well went dry; therefore, no sample was collected.
		Fluoride		During sampling, the well went dry; therefore, no sample was collected.
		Nitrate & Nitrite		During sampling, the well went dry; therefore, no sample was collected.
		Sulfate		During sampling, the well went dry; therefore, no sample was collected.
		Barometric Pressure Reading		During sampling, the well went dry; therefore, no sample was collected.
		Specific Conductance		During sampling, the well went dry; therefore, no sample was collected.
		Static Water Level Elevation		During sampling, the well went dry; therefore, no sample was collected.
		Dissolved Oxygen		During sampling, the well went dry; therefore, no sample was collected.
		Total Dissolved Solids		During sampling, the well went dry; therefore, no sample was collected.
		pH		During sampling, the well went dry; therefore, no sample was collected.
		Eh		During sampling, the well went dry; therefore, no sample was collected.
		Temperature		During sampling, the well went dry; therefore, no sample was collected.
		Aluminum		During sampling, the well went dry; therefore, no sample was collected.
		Antimony		During sampling, the well went dry; therefore, no sample was collected.
		Arsenic		During sampling, the well went dry; therefore, no sample was collected.
		Barium		During sampling, the well went dry; therefore, no sample was collected.
		Beryllium		During sampling, the well went dry; therefore, no sample was collected.
		Boron		During sampling, the well went dry; therefore, no sample was collected.
		Cadmium		During sampling, the well went dry; therefore, no sample was collected.
		Calcium		During sampling, the well went dry; therefore, no sample was collected.
		Chromium		During sampling, the well went dry; therefore, no sample was collected.
		Cobalt		During sampling, the well went dry; therefore, no sample was collected.
		Copper		During sampling, the well went dry; therefore, no sample was collected.
		Iron		During sampling, the well went dry; therefore, no sample was collected.
		Lead		During sampling, the well went dry; therefore, no sample was collected.
		Magnesium		During sampling, the well went dry; therefore, no sample was collected.
		Manganese		During sampling, the well went dry; therefore, no sample was collected.
		Mercury		During sampling, the well went dry; therefore, no sample was collected.

GROUNDWATER
WRITTEN COMMENTS

Monitoring Point	Facility Sample ID	Constituent	Flag	Description
8004-0989 MW377		Molybdenum		During sampling, the well went dry; therefore, no sample was collected.
		Nickel		During sampling, the well went dry; therefore, no sample was collected.
		Potassium		During sampling, the well went dry; therefore, no sample was collected.
		Rhodium		During sampling, the well went dry; therefore, no sample was collected.
		Selenium		During sampling, the well went dry; therefore, no sample was collected.
		Silver		During sampling, the well went dry; therefore, no sample was collected.
		Sodium		During sampling, the well went dry; therefore, no sample was collected.
		Tantalum		During sampling, the well went dry; therefore, no sample was collected.
		Thallium		During sampling, the well went dry; therefore, no sample was collected.
		Uranium		During sampling, the well went dry; therefore, no sample was collected.
		Vanadium		During sampling, the well went dry; therefore, no sample was collected.
		Zinc		During sampling, the well went dry; therefore, no sample was collected.
		Vinyl acetate		During sampling, the well went dry; therefore, no sample was collected.
		Acetone		During sampling, the well went dry; therefore, no sample was collected.
		Acrolein		During sampling, the well went dry; therefore, no sample was collected.
		Acrylonitrile		During sampling, the well went dry; therefore, no sample was collected.
		Benzene		During sampling, the well went dry; therefore, no sample was collected.
		Chlorobenzene		During sampling, the well went dry; therefore, no sample was collected.
		Xylenes		During sampling, the well went dry; therefore, no sample was collected.
		Styrene		During sampling, the well went dry; therefore, no sample was collected.
		Toluene		During sampling, the well went dry; therefore, no sample was collected.
		Chlorobromomethane		During sampling, the well went dry; therefore, no sample was collected.
		Bromodichloromethane		During sampling, the well went dry; therefore, no sample was collected.
		Tribromomethane		During sampling, the well went dry; therefore, no sample was collected.
		Methyl bromide		During sampling, the well went dry; therefore, no sample was collected.
		Methyl Ethyl Ketone		During sampling, the well went dry; therefore, no sample was collected.
		trans-1,4-Dichloro-2-butene		During sampling, the well went dry; therefore, no sample was collected.
		Carbon disulfide		During sampling, the well went dry; therefore, no sample was collected.
		Chloroethane		During sampling, the well went dry; therefore, no sample was collected.

GROUNDWATER
WRITTEN COMMENTS

Monitoring Point	Facility Sample ID	Constituent	Flag	Description
8004-0989 MW377		Chloroform		During sampling, the well went dry; therefore, no sample was collected.
		Methyl chloride		During sampling, the well went dry; therefore, no sample was collected.
		cis-1,2-Dichloroethene		During sampling, the well went dry; therefore, no sample was collected.
		Methylene bromide		During sampling, the well went dry; therefore, no sample was collected.
		1,1-Dichloroethane		During sampling, the well went dry; therefore, no sample was collected.
		1,2-Dichloroethane		During sampling, the well went dry; therefore, no sample was collected.
		1,1-Dichloroethylene		During sampling, the well went dry; therefore, no sample was collected.
		1,2-Dibromoethane		During sampling, the well went dry; therefore, no sample was collected.
		1,1,2,2-Tetrachloroethane		During sampling, the well went dry; therefore, no sample was collected.
		1,1,1-Trichloroethane		During sampling, the well went dry; therefore, no sample was collected.
		1,1,2-Trichloroethane		During sampling, the well went dry; therefore, no sample was collected.
		1,1,1,2-Tetrachloroethane		During sampling, the well went dry; therefore, no sample was collected.
		Vinyl chloride		During sampling, the well went dry; therefore, no sample was collected.
		Tetrachloroethene		During sampling, the well went dry; therefore, no sample was collected.
		Trichloroethene		During sampling, the well went dry; therefore, no sample was collected.
		Ethylbenzene		During sampling, the well went dry; therefore, no sample was collected.
		2-Hexanone		During sampling, the well went dry; therefore, no sample was collected.
		Iodomethane		During sampling, the well went dry; therefore, no sample was collected.
		Dibromochloromethane		During sampling, the well went dry; therefore, no sample was collected.
		Carbon tetrachloride		During sampling, the well went dry; therefore, no sample was collected.
		Dichloromethane		During sampling, the well went dry; therefore, no sample was collected.
		Methyl Isobutyl Ketone		During sampling, the well went dry; therefore, no sample was collected.
		1,2-Dibromo-3-chloropropane		During sampling, the well went dry; therefore, no sample was collected.
		1,2-Dichloropropane		During sampling, the well went dry; therefore, no sample was collected.
		trans-1,3-Dichloropropene		During sampling, the well went dry; therefore, no sample was collected.
		cis-1,3-Dichloropropene		During sampling, the well went dry; therefore, no sample was collected.
		trans-1,2-Dichloroethene		During sampling, the well went dry; therefore, no sample was collected.
		Trichlorofluoromethane		During sampling, the well went dry; therefore, no sample was collected.
		1,2,3-Trichloropropane		During sampling, the well went dry; therefore, no sample was collected.

GROUNDWATER
WRITTEN COMMENTS

Monitoring Point	Facility Sample ID	Constituent	Flag	Description
8004-0989 MW377		1,2-Dichlorobenzene		During sampling, the well went dry; therefore, no sample was collected.
		1,4-Dichlorobenzene		During sampling, the well went dry; therefore, no sample was collected.
		PCB, Total		During sampling, the well went dry; therefore, no sample was collected.
		PCB-1016		During sampling, the well went dry; therefore, no sample was collected.
		PCB-1221		During sampling, the well went dry; therefore, no sample was collected.
		PCB-1232		During sampling, the well went dry; therefore, no sample was collected.
		PCB-1242		During sampling, the well went dry; therefore, no sample was collected.
		PCB-1248		During sampling, the well went dry; therefore, no sample was collected.
		PCB-1254		During sampling, the well went dry; therefore, no sample was collected.
		PCB-1260		During sampling, the well went dry; therefore, no sample was collected.
		PCB-1268		During sampling, the well went dry; therefore, no sample was collected.
		Gross alpha		During sampling, the well went dry; therefore, no sample was collected.
		Gross beta		During sampling, the well went dry; therefore, no sample was collected.
		Iodine-131		During sampling, the well went dry; therefore, no sample was collected.
		Radium-226		During sampling, the well went dry; therefore, no sample was collected.
		Strontium-90		During sampling, the well went dry; therefore, no sample was collected.
		Technetium-99		During sampling, the well went dry; therefore, no sample was collected.
		Thorium-230		During sampling, the well went dry; therefore, no sample was collected.
		Tritium		During sampling, the well went dry; therefore, no sample was collected.
		Chemical Oxygen Demand		During sampling, the well went dry; therefore, no sample was collected.
		Cyanide		During sampling, the well went dry; therefore, no sample was collected.
		Iodide		During sampling, the well went dry; therefore, no sample was collected.
		Total Organic Carbon		During sampling, the well went dry; therefore, no sample was collected.
		Total Organic Halides		During sampling, the well went dry; therefore, no sample was collected.

GROUNDWATER
WRITTEN COMMENTS

Monitoring Point	Facility Sample ID	Constituent	Flag	Description
0000-0000 QC	RI1UG2-23	Bromide		Analysis of constituent not required and not performed.
		Chloride		Analysis of constituent not required and not performed.
		Fluoride		Analysis of constituent not required and not performed.
		Nitrate & Nitrite		Analysis of constituent not required and not performed.
		Sulfate		Analysis of constituent not required and not performed.
		Barometric Pressure Reading		Analysis of constituent not required and not performed.
		Specific Conductance		Analysis of constituent not required and not performed.
		Static Water Level Elevation		Analysis of constituent not required and not performed.
		Dissolved Oxygen		Analysis of constituent not required and not performed.
		Total Dissolved Solids		Analysis of constituent not required and not performed.
		pH		Analysis of constituent not required and not performed.
		Eh		Analysis of constituent not required and not performed.
		Temperature		Analysis of constituent not required and not performed.
		Tantalum	N	Sample spike (MS/MSD) recovery not within control limits
		Benzene	Y1	MS/MSD recovery outside acceptance criteria.
		Gross alpha	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 4.62. Rad error is 4.62.
		Gross beta	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 4.63. Rad error is 4.63.
		Iodine-131		Analysis of constituent not required and not performed.
		Radium-226	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 0.384. Rad error is 0.384.
		Strontium-90	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 3.66. Rad error is 3.66.
		Technetium-99	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 11.8. Rad error is 11.8.
		Thorium-230	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 1.3. Rad error is 1.29.
		Tritium	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 152. Rad error is 150.
		Chemical Oxygen Demand		Analysis of constituent not required and not performed.
		Cyanide		Analysis of constituent not required and not performed.
		Total Organic Carbon		Analysis of constituent not required and not performed.
		Total Organic Halides		Analysis of constituent not required and not performed.

RESIDENTIAL/CONTAINED – QUARTERLY
Facility: US DOE - Paducah Gaseous Diffusion Plant
Permit Number: SW07300014, SW07300015, SW07300045

Finds/Unit: <u>KY8-890-008-982 / 1</u>
LAB ID:<u>None</u>

GROUNDWATER
WRITTEN COMMENTS

Monitoring Point	Facility Sample ID	Constituent	Flag	Description
0000-0000 QC	FB1UG2-23	Bromide		Analysis of constituent not required and not performed.
		Chloride		Analysis of constituent not required and not performed.
		Fluoride		Analysis of constituent not required and not performed.
		Nitrate & Nitrite		Analysis of constituent not required and not performed.
		Sulfate		Analysis of constituent not required and not performed.
		Barometric Pressure Reading		Analysis of constituent not required and not performed.
		Specific Conductance		Analysis of constituent not required and not performed.
		Static Water Level Elevation		Analysis of constituent not required and not performed.
		Dissolved Oxygen		Analysis of constituent not required and not performed.
		Total Dissolved Solids		Analysis of constituent not required and not performed.
		pH		Analysis of constituent not required and not performed.
		Eh		Analysis of constituent not required and not performed.
		Temperature		Analysis of constituent not required and not performed.
		Tantalum	N	Sample spike (MS/MSD) recovery not within control limits
		Benzene	Y1	MS/MSD recovery outside acceptance criteria.
		Gross alpha	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 2.55. Rad error is 2.54.
		Gross beta	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 7.2. Rad error is 7.06.
		Iodine-131		Analysis of constituent not required and not performed.
		Radium-226	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 0.534. Rad error is 0.534.
		Strontium-90	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 1.5. Rad error is 1.5.
		Technetium-99	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 12.6. Rad error is 12.6.
		Thorium-230	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 1.31. Rad error is 1.31.
		Tritium	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 145. Rad error is 143.
		Chemical Oxygen Demand		Analysis of constituent not required and not performed.
		Cyanide		Analysis of constituent not required and not performed.
		Total Organic Carbon		Analysis of constituent not required and not performed.
		Total Organic Halides		Analysis of constituent not required and not performed.

RESIDENTIAL/CONTAINED – QUARTERLY
Facility: US DOE - Paducah Gaseous Diffusion Plant
Permit Number: SW07300014, SW07300015, SW07300045

Finds/Unit: <u>KY8-890-008-982 / 1</u>
LAB ID:<u>None   </u>

GROUNDWATER
WRITTEN COMMENTS

Monitoring Point	Facility Sample ID	Constituent	Flag	Description
0000-0000 QC	TB1UG2-23	Bromide		Analysis of constituent not required and not performed.
		Chloride		Analysis of constituent not required and not performed.
		Fluoride		Analysis of constituent not required and not performed.
		Nitrate & Nitrite		Analysis of constituent not required and not performed.
		Sulfate		Analysis of constituent not required and not performed.
		Barometric Pressure Reading		Analysis of constituent not required and not performed.
		Specific Conductance		Analysis of constituent not required and not performed.
		Static Water Level Elevation		Analysis of constituent not required and not performed.
		Dissolved Oxygen		Analysis of constituent not required and not performed.
		Total Dissolved Solids		Analysis of constituent not required and not performed.
		pH		Analysis of constituent not required and not performed.
		Eh		Analysis of constituent not required and not performed.
		Temperature		Analysis of constituent not required and not performed.
		Aluminum		Analysis of constituent not required and not performed.
		Antimony		Analysis of constituent not required and not performed.
		Arsenic		Analysis of constituent not required and not performed.
		Barium		Analysis of constituent not required and not performed.
		Beryllium		Analysis of constituent not required and not performed.
		Boron		Analysis of constituent not required and not performed.
		Cadmium		Analysis of constituent not required and not performed.
		Calcium		Analysis of constituent not required and not performed.
		Chromium		Analysis of constituent not required and not performed.
		Cobalt		Analysis of constituent not required and not performed.
		Copper		Analysis of constituent not required and not performed.
		Iron		Analysis of constituent not required and not performed.
		Lead		Analysis of constituent not required and not performed.
		Magnesium		Analysis of constituent not required and not performed.
		Manganese		Analysis of constituent not required and not performed.
		Mercury		Analysis of constituent not required and not performed.
		Molybdenum		Analysis of constituent not required and not performed.
		Nickel		Analysis of constituent not required and not performed.
		Potassium		Analysis of constituent not required and not performed.
		Rhodium		Analysis of constituent not required and not performed.
		Selenium		Analysis of constituent not required and not performed.
		Silver		Analysis of constituent not required and not performed.
		Sodium		Analysis of constituent not required and not performed.
		Tantalum		Analysis of constituent not required and not performed.
		Thallium		Analysis of constituent not required and not performed.
		Uranium		Analysis of constituent not required and not performed.
		Vanadium		Analysis of constituent not required and not performed.

RESIDENTIAL/CONTAINED – QUARTERLY
Facility: US DOE - Paducah Gaseous Diffusion Plant
Permit Number: SW07300014, SW07300015, SW07300045

Finds/Unit: <u>KY8-890-008-982 / 1</u>
LAB ID:<u>None</u>

GROUNDWATER
WRITTEN COMMENTS

Monitoring Point	Facility Sample ID	Constituent	Flag	Description
0000-0000 QC	TB1UG2-23	Zinc		Analysis of constituent not required and not performed.
		Benzene	Y1	MS/MSD recovery outside acceptance criteria.
		PCB, Total		Analysis of constituent not required and not performed.
		PCB-1016		Analysis of constituent not required and not performed.
		PCB-1221		Analysis of constituent not required and not performed.
		PCB-1232		Analysis of constituent not required and not performed.
		PCB-1242		Analysis of constituent not required and not performed.
		PCB-1248		Analysis of constituent not required and not performed.
		PCB-1254		Analysis of constituent not required and not performed.
		PCB-1260		Analysis of constituent not required and not performed.
		PCB-1268		Analysis of constituent not required and not performed.
		Gross alpha		Analysis of constituent not required and not performed.
		Gross beta		Analysis of constituent not required and not performed.
		Iodine-131		Analysis of constituent not required and not performed.
		Radium-226		Analysis of constituent not required and not performed.
		Strontium-90		Analysis of constituent not required and not performed.
		Technetium-99		Analysis of constituent not required and not performed.
		Thorium-230		Analysis of constituent not required and not performed.
		Tritium		Analysis of constituent not required and not performed.
		Chemical Oxygen Demand		Analysis of constituent not required and not performed.
		Cyanide		Analysis of constituent not required and not performed.
		Iodide		Analysis of constituent not required and not performed.
		Total Organic Carbon		Analysis of constituent not required and not performed.
		Total Organic Halides		Analysis of constituent not required and not performed.

GROUNDWATER
WRITTEN COMMENTS

Monitoring Point	Facility Sample ID	Constituent	Flag	Description
0000-0000 QC	TB2UG2-23	Bromide		Analysis of constituent not required and not performed.
		Chloride		Analysis of constituent not required and not performed.
		Fluoride		Analysis of constituent not required and not performed.
		Nitrate & Nitrite		Analysis of constituent not required and not performed.
		Sulfate		Analysis of constituent not required and not performed.
		Barometric Pressure Reading		Analysis of constituent not required and not performed.
		Specific Conductance		Analysis of constituent not required and not performed.
		Static Water Level Elevation		Analysis of constituent not required and not performed.
		Dissolved Oxygen		Analysis of constituent not required and not performed.
		Total Dissolved Solids		Analysis of constituent not required and not performed.
		pH		Analysis of constituent not required and not performed.
		Eh		Analysis of constituent not required and not performed.
		Temperature		Analysis of constituent not required and not performed.
		Aluminum		Analysis of constituent not required and not performed.
		Antimony		Analysis of constituent not required and not performed.
		Arsenic		Analysis of constituent not required and not performed.
		Barium		Analysis of constituent not required and not performed.
		Beryllium		Analysis of constituent not required and not performed.
		Boron		Analysis of constituent not required and not performed.
		Cadmium		Analysis of constituent not required and not performed.
		Calcium		Analysis of constituent not required and not performed.
		Chromium		Analysis of constituent not required and not performed.
		Cobalt		Analysis of constituent not required and not performed.
		Copper		Analysis of constituent not required and not performed.
		Iron		Analysis of constituent not required and not performed.
		Lead		Analysis of constituent not required and not performed.
		Magnesium		Analysis of constituent not required and not performed.
		Manganese		Analysis of constituent not required and not performed.
		Mercury		Analysis of constituent not required and not performed.
		Molybdenum		Analysis of constituent not required and not performed.
		Nickel		Analysis of constituent not required and not performed.
		Potassium		Analysis of constituent not required and not performed.
		Rhodium		Analysis of constituent not required and not performed.
		Selenium		Analysis of constituent not required and not performed.
		Silver		Analysis of constituent not required and not performed.
		Sodium		Analysis of constituent not required and not performed.
		Tantalum		Analysis of constituent not required and not performed.
		Thallium		Analysis of constituent not required and not performed.
		Uranium		Analysis of constituent not required and not performed.
		Vanadium		Analysis of constituent not required and not performed.

RESIDENTIAL/CONTAINED – QUARTERLY Finds/Unit: <u>KY8-890-008-982 / 1</u>
Facility: US DOE - Paducah Gaseous Diffusion Plant LAB ID:<u>None</u>
Permit Number: SW07300014, SW07300015, SW07300045

GROUNDWATER
WRITTEN COMMENTS

Monitoring Point	Facility Sample ID	Constituent	Flag	Description
0000-0000 QC	TB2UG2-23	Zinc		Analysis of constituent not required and not performed.
		Chloroethane	Y1	MS/MSD recovery outside acceptance criteria.
		PCB, Total		Analysis of constituent not required and not performed.
		PCB-1016		Analysis of constituent not required and not performed.
		PCB-1221		Analysis of constituent not required and not performed.
		PCB-1232		Analysis of constituent not required and not performed.
		PCB-1242		Analysis of constituent not required and not performed.
		PCB-1248		Analysis of constituent not required and not performed.
		PCB-1254		Analysis of constituent not required and not performed.
		PCB-1260		Analysis of constituent not required and not performed.
		PCB-1268		Analysis of constituent not required and not performed.
		Gross alpha		Analysis of constituent not required and not performed.
		Gross beta		Analysis of constituent not required and not performed.
		Iodine-131		Analysis of constituent not required and not performed.
		Radium-226		Analysis of constituent not required and not performed.
		Strontium-90		Analysis of constituent not required and not performed.
		Technetium-99		Analysis of constituent not required and not performed.
		Thorium-230		Analysis of constituent not required and not performed.
		Tritium		Analysis of constituent not required and not performed.
		Chemical Oxygen Demand		Analysis of constituent not required and not performed.
		Cyanide		Analysis of constituent not required and not performed.
		Iodide		Analysis of constituent not required and not performed.
		Total Organic Carbon		Analysis of constituent not required and not performed.
		Total Organic Halides		Analysis of constituent not required and not performed.

RESIDENTIAL/CONTAINED – QUARTERLY
Facility: US DOE - Paducah Gaseous Diffusion Plant
Permit Number: SW07300014, SW07300015, SW07300045

Finds/Unit: <u>KY8-890-008-982 / 1</u>
LAB ID:<u>None   </u>

GROUNDWATER
WRITTEN COMMENTS

Monitoring Point	Facility Sample ID	Constituent	Flag	Description
0000-0000 QC	TB3UG2-23	Bromide		Analysis of constituent not required and not performed.
		Chloride		Analysis of constituent not required and not performed.
		Fluoride		Analysis of constituent not required and not performed.
		Nitrate & Nitrite		Analysis of constituent not required and not performed.
		Sulfate		Analysis of constituent not required and not performed.
		Barometric Pressure Reading		Analysis of constituent not required and not performed.
		Specific Conductance		Analysis of constituent not required and not performed.
		Static Water Level Elevation		Analysis of constituent not required and not performed.
		Dissolved Oxygen		Analysis of constituent not required and not performed.
		Total Dissolved Solids		Analysis of constituent not required and not performed.
		pH		Analysis of constituent not required and not performed.
		Eh		Analysis of constituent not required and not performed.
		Temperature		Analysis of constituent not required and not performed.
		Aluminum		Analysis of constituent not required and not performed.
		Antimony		Analysis of constituent not required and not performed.
		Arsenic		Analysis of constituent not required and not performed.
		Barium		Analysis of constituent not required and not performed.
		Beryllium		Analysis of constituent not required and not performed.
		Boron		Analysis of constituent not required and not performed.
		Cadmium		Analysis of constituent not required and not performed.
		Calcium		Analysis of constituent not required and not performed.
		Chromium		Analysis of constituent not required and not performed.
		Cobalt		Analysis of constituent not required and not performed.
		Copper		Analysis of constituent not required and not performed.
		Iron		Analysis of constituent not required and not performed.
		Lead		Analysis of constituent not required and not performed.
		Magnesium		Analysis of constituent not required and not performed.
		Manganese		Analysis of constituent not required and not performed.
		Mercury		Analysis of constituent not required and not performed.
		Molybdenum		Analysis of constituent not required and not performed.
		Nickel		Analysis of constituent not required and not performed.
		Potassium		Analysis of constituent not required and not performed.
		Rhodium		Analysis of constituent not required and not performed.
		Selenium		Analysis of constituent not required and not performed.
		Silver		Analysis of constituent not required and not performed.
		Sodium		Analysis of constituent not required and not performed.
		Tantalum		Analysis of constituent not required and not performed.
		Thallium		Analysis of constituent not required and not performed.
		Uranium		Analysis of constituent not required and not performed.
		Vanadium		Analysis of constituent not required and not performed.

RESIDENTIAL/CONTAINED – QUARTERLY   Finds/Unit: <u>KY8-890-008-982 / 1</u>

Facility: US DOE - Paducah Gaseous Diffusion Plant   LAB ID:<u>None   </u>

Permit Number: SW07300014, SW07300015, SW07300045

GROUNDWATER
WRITTEN COMMENTS

Monitoring Point	Facility Sample ID	Constituent	Flag	Description
0000-0000 QC	TB3UG2-23	Zinc		Analysis of constituent not required and not performed.
		Chloroethane	Y1	MS/MSD recovery outside acceptance criteria.
		PCB, Total		Analysis of constituent not required and not performed.
		PCB-1016		Analysis of constituent not required and not performed.
		PCB-1221		Analysis of constituent not required and not performed.
		PCB-1232		Analysis of constituent not required and not performed.
		PCB-1242		Analysis of constituent not required and not performed.
		PCB-1248		Analysis of constituent not required and not performed.
		PCB-1254		Analysis of constituent not required and not performed.
		PCB-1260		Analysis of constituent not required and not performed.
		PCB-1268		Analysis of constituent not required and not performed.
		Gross alpha		Analysis of constituent not required and not performed.
		Gross beta		Analysis of constituent not required and not performed.
		Iodine-131		Analysis of constituent not required and not performed.
		Radium-226		Analysis of constituent not required and not performed.
		Strontium-90		Analysis of constituent not required and not performed.
		Technetium-99		Analysis of constituent not required and not performed.
		Thorium-230		Analysis of constituent not required and not performed.
		Tritium		Analysis of constituent not required and not performed.
		Chemical Oxygen Demand		Analysis of constituent not required and not performed.
		Cyanide		Analysis of constituent not required and not performed.
		Iodide		Analysis of constituent not required and not performed.
		Total Organic Carbon		Analysis of constituent not required and not performed.
		Total Organic Halides		Analysis of constituent not required and not performed.

RESIDENTIAL/CONTAINED – QUARTERLY
Facility: US DOE - Paducah Gaseous Diffusion Plant
Permit Number: SW07300014, SW07300015, SW07300045

Finds/Unit: <u>KY8-890-008-982 / 1</u>
LAB ID:<u>None</u>

GROUNDWATER
WRITTEN COMMENTS

Monitoring Point	Facility Sample ID	Constituent	Flag	Description
8004-4800 MW360	MW360DUG2-23	Chloride	W	Post-digestion spike recovery out of control limits.
		Barometric Pressure Reading		Analysis of constituent not required and not performed.
		Specific Conductance		Analysis of constituent not required and not performed.
		Static Water Level Elevation		Analysis of constituent not required and not performed.
		Dissolved Oxygen		Analysis of constituent not required and not performed.
		pH		Analysis of constituent not required and not performed.
		Eh		Analysis of constituent not required and not performed.
		Temperature		Analysis of constituent not required and not performed.
		Manganese	W	Post-digestion spike recovery out of control limits.
		Tantalum	N	Sample spike (MS/MSD) recovery not within control limits
		Benzene	Y1	MS/MSD recovery outside acceptance criteria.
		Gross alpha	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 4.41. Rad error is 4.41.
		Gross beta	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 5.98. Rad error is 5.97.
		Iodine-131		Analysis of constituent not required and not performed.
		Radium-226	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 0.464. Rad error is 0.463.
		Strontium-90	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 4.08. Rad error is 4.08.
		Technetium-99	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 12.5. Rad error is 12.4.
		Thorium-230	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 0.679. Rad error is 0.678.
		Tritium	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 133. Rad error is 132.

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX D

**STATISTICAL ANALYSES AND
QUALIFICATION STATEMENT**

THIS PAGE INTENTIONALLY LEFT BLANK

GROUNDWATER
STATISTICAL COMMENTS

Introduction

The statistical analyses conducted on the first quarter 2023 groundwater data collected from the C-746-U Landfill monitoring wells (MWs) were performed in accordance with Permit GSTR0001, Standard Requirement 3, using the U.S. Environmental Protection Agency (EPA) guidance document, *EPA Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Interim Final Guidance* (1989). A statistician qualification statement has been provided for this analysis.

The statistical evaluation was conducted separately for the three groundwater systems: the Upper Continental Recharge System (UCRS), the Upper Regional Gravel Aquifer (URGA), and the Lower Regional Gravel Aquifer (LRGA). For each groundwater system, data from wells considered to represent background conditions were compared with test wells (downgradient or sidegradient wells) (Exhibit D.1). The first quarter 2023 data used to conduct the statistical analyses were collected in January 2023. The statistical analyses for this report first used data from the first eight quarters that had been sampled for each parameter to develop the historical background value, beginning with the first two baseline sampling events in 2002, when available. Then a second set of statistical analyses, using the last eight quarters, was run on analytes that had at least one downgradient well that had exceeded the historical background. The sampling dates associated with both the historical and the current background data are listed next to the result in the statistical analysis sheets of this appendix.

Statistical Analysis Process

Constituents of concern that have Kentucky maximum contaminant levels (MCLs) and results that do not exceed their respective MCL are not included in the statistical evaluation. Parameters that have MCLs can be found in 401 *KAR* 47:030 § 6. For parameters with no established MCL and those parameters that exceed their MCLs, the most recent results are compared to historical background concentrations, as follows: the data are divided into censored and uncensored observations. The one-sided tolerance interval statistical test is conducted only on parameters that have at least one uncensored (detected) observation. The current result is compared to the results of the one-sided tolerance interval statistical test to determine if the current data exceed the historical background concentration calculated using the first eight quarters of data.

For the statistical analysis of pH, a two-sided tolerance interval statistical test is conducted. The test well results are compared to both an upper and lower tolerance limit (TL) to determine if statistically significant deviations in concentrations exist with respect to upgradient (background) well data from the first eight quarters. The tolerance interval statistical analysis is conducted separately for each parameter in each well (no pooling of downgradient data).

Statistical analyses are performed on the first eight quarters of historical background data, not on the data for the current quarter. Once a statistical result is obtained using the background data, the result for the current quarter is compared to that value. If the value is exceeded, the well is considered to have an exceedance of the statistically derived historical background concentration.

Exhibit D.1. Station Identification for Monitoring Wells Analyzed

Station	Type	Groundwater Unit
MW357	TW	URGA
MW358	TW	LRGA
MW359[a,b]	TW	UCRS
MW360	TW	URGA
MW361	TW	LRGA
MW362[a]	TW	UCRS
MW363	TW	URGA
MW364	TW	LRGA
MW365[a,b]	TW	UCRS
MW366	TW	URGA
MW367	TW	LRGA
MW368[a,b]	TW	UCRS
MW369	BG	URGA
MW370	BG	LRGA
MW371[a]	BG	UCRS
MW372	BG	URGA
MW373	BG	LRGA
MW374[a]	BG	UCRS
MW375[a]	SG	UCRS
MW376[a,b]	SG	UCRS
MW377[a,b]	SG	UCRS

[a] The gradients in UCRS wells are downward and, hydrogeologically, UCRS wells are not considered upgradient, downgradient, or sidegradient from the C-746-U Landfill. The UCRS wells identified as upgradient, sidegradient, or downgradient are those wells located in the same general direction as the RGA wells considered to be upgradient, sidegradient, or downgradient.
[b] Well was dry this quarter, and a groundwater sample could not be collected.
BG: upgradient or background wells
TW: downgradient or test wells
SG: sidegradient wells

For those parameters that are determined to exceed the historical background concentration, a second one-sided tolerance interval statistical test, or a two-sided tolerance interval statistical test in the case of pH, is conducted. The second one-sided tolerance interval statistical test is conducted to determine whether the current concentration in downgradient wells exceeds the current background, as determined by a comparison against the statistically derived upper TL using the most recent eight quarters of data for the relevant background wells. For the statistical analysis of pH, a two-sided tolerance interval statistical test is conducted, if required. The test well pH results are compared to both an upper and lower TL to determine if the current pH is different from the current background level to a statistically significant level. The tolerance interval statistical analysis is conducted separately for each parameter in each well (no pooling of downgradient data).

Statistical analyses are performed on the last eight quarters of current background data, not on the data for the current quarter. Once a statistical result is obtained using the background data, the result for the current quarter is compared to that value. If the value is exceeded, the well has an exceedance of the statistically derived current background concentration.

A stepwise list of the one-sided tolerance interval statistical procedure applied to the data is summarized below.[1]

1. The TL is calculated for the background data (first using the first eight quarters, then using the last eight quarters, if required).

   - For each parameter, the background data are used to establish a baseline. On this data set, the mean (X) and the standard deviation (S) are computed.

   - The data set is checked for normality using coefficient of variation (CV). If CV ≤ 1.0, then the data are assumed to be normally distributed. Data sets with CV > 1.0 are assumed to be log-normally distributed; for data sets with CV > 1.0, the data are log-transformed and analyzed.

   - The factor (K) for one-sided upper TL with 95% minimum coverage is determined (Table 5, Appendix B, *EPA Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Interim Final Guidance*, 1989) based on the number of background data points.

   - The one-sided upper TL is calculated using the following equation:

   $$TL = X + (K \times S)$$

2. Each observation from downgradient wells is compared to the calculated one-sided upper TL in Step 1. If an observation value exceeds the TL, then there is statistically significant evidence that the well concentration exceeds the historical background.

Type of Data Used

Exhibit D.1 presents the upgradient or background wells (identified as "BG"), the downgradient or test wells (identified as "TW"), and the sidegradient wells (identified as "SG") for the C-746-U Contained Landfill. Exhibit D.2 presents the parameters from the available data set for which a statistical test was performed using the one-sided tolerance interval.

Exhibits D.3, D.4, and D.5 list the number of analyses (observations), nondetects (censored observations), and detects (uncensored observations), by parameter in the UCRS, the URGA, and the LRGA, respectively. Those parameters displayed with bold-face type indicate the one-sided tolerance interval statistical test was performed. The data presented in Exhibits D.3, D.4, and D.5 were collected during the current quarter, first quarter 2023. The observations are representative of the current quarter data. Background data are presented in Attachments D1 and D2. The sampling dates associated with background data are listed next to the result in Attachments D1 and D2. When field duplicate data are available, the higher of the two readings is retained for further evaluation. When a data point has been rejected following data validation or data assessment, this result is not used, and the next available data point is used for the background or current quarter data.

.

---

[1] For pH, two-sided TLs (upper and lower) were calculated with an adjusted K factor using the following equations:
   upper TL = X + (K × S)
   lower TL = X - (K × S)

Exhibit D.2. List of Parameters Tested Using the One-Sided Upper Tolerance Level Test with Historical Background

Parameters
Acetone
Aluminum
Boron
Bromide
Calcium
Chemical Oxygen Demand (COD)
Chloride
Cobalt
Conductivity
Copper
Dissolved Oxygen
Dissolved Solids
Iodide
Iron
Magnesium
Manganese
Methylene Chloride
Nickel
Oxidation-Reduction Potential[a]
PCB, Total
PCB-1254
PCB-1260
pH[b]
Potassium
Sodium
Sulfate
Technetium-99
Total Organic Carbon (TOC)
Total Organic Halides (TOX)
Trichloroethene
Vanadium
Zinc

[a] Oxidation-Reduction Potential calibrated as Eh.
[b] For pH, the test well results were compared to both an upper and lower TL to determine if the current result differs to a statistically significant degree from the historical background values.

Exhibit D.3. Summary of Censored, and Uncensored Data—UCRS

Parameters	Observations	Censored Observation	Uncensored Observation	Statistical Analysis?
1,1,1,2-Tetrachloroethane	4	4	0	No
1,1,2,2-Tetrachloroethane	4	4	0	No
1,1,2-Trichloroethane	4	4	0	No
1,1-Dichloroethane	4	4	0	No
1,2,3-Trichloropropane	4	4	0	No
1,2-Dibromo-3-chloropropane	4	4	0	No
1,2-Dibromoethane	4	4	0	No
1,2-Dichlorobenzene	4	4	0	No
1,2-Dichloropropane	4	4	0	No
2-Butanone	4	4	0	No
2-Hexanone	4	4	0	No
4-Methyl-2-pentanone	4	4	0	No
Acetone	4	4	0	No
Acrolein	4	4	0	No
Acrylonitrile	4	4	0	No
Aluminum	**4**	**0**	**4**	**Yes**
Antimony	4	4	0	No
Beryllium	4	4	0	No
Boron	**4**	**0**	**4**	**Yes**
Bromide	**4**	**3**	**1**	**Yes**
Bromochloromethane	4	4	0	No
Bromodichloromethane	4	4	0	No
Bromoform	4	4	0	No
Bromomethane	4	4	0	No
Calcium	**4**	**0**	**4**	**Yes**
Carbon disulfide	4	4	0	No
Chemical Oxygen Demand (COD)	**4**	**2**	**2**	**Yes**
Chloride	**4**	**0**	**4**	**Yes**
Chlorobenzene	4	4	0	No
Chloroethane	4	4	0	No
Chloroform	4	4	0	No
Chloromethane	4	4	0	No
cis-1,2-Dichloroethene	4	4	0	No
cis-1,3-Dichloropropene	4	4	0	No
Cobalt	**4**	**1**	**3**	**Yes**
Conductivity	**4**	**0**	**4**	**Yes**
Copper	**4**	**0**	**4**	**Yes**
Cyanide	4	4	0	No
Dibromochloromethane	4	4	0	No
Dibromomethane	4	4	0	No
Dimethylbenzene, Total	4	4	0	No
Dissolved Oxygen	**4**	**0**	**4**	**Yes**
Dissolved Solids	**4**	**0**	**4**	**Yes**
Ethylbenzene	4	4	0	No
Iodide	4	4	0	No
Iodomethane	4	4	0	No
Iron	**4**	**0**	**4**	**Yes**
Magnesium	**4**	**0**	**4**	**Yes**
Manganese	**4**	**0**	**4**	**Yes**
Methylene chloride	**4**	**2**	**2**	**Yes**
Molybdenum	4	4	0	No

Exhibit D.3. Summary of Censored, and Uncensored Data—UCRS (Continued)

Parameters	Observations	Censored Observation	Uncensored Observation	Statistical Analysis?
Nickel	**4**	**0**	**4**	**Yes**
Oxidation-Reduction Potential	**4**	**0**	**4**	**Yes**
PCB, Total	4	4	0	No
PCB-1016	4	4	0	No
PCB-1221	4	4	0	No
PCB-1232	4	4	0	No
PCB-1242	4	4	0	No
PCB-1248	4	4	0	No
PCB-1254	4	4	0	No
PCB-1260	4	4	0	No
PCB-1268	4	4	0	No
pH	**4**	**0**	**4**	**Yes**
Potassium	**4**	**0**	**4**	**Yes**
Radium-226	4	4	0	No
Rhodium	4	4	0	No
Sodium	**4**	**0**	**4**	**Yes**
Styrene	4	4	0	No
Sulfate	**4**	**0**	**4**	**Yes**
Tantalum	4	4	0	No
Technetium-99	4	4	0	No
Tetrachloroethene	4	4	0	No
Thallium	4	4	0	No
Thorium-230	4	4	0	No
Toluene	4	4	0	No
Total Organic Carbon (TOC)	**4**	**0**	**4**	**Yes**
Total Organic Halides (TOX)	**4**	**0**	**4**	**Yes**
trans-1,2-Dichloroethene	4	4	0	No
trans-1,3-Dichloropropene	4	4	0	No
trans-1,4-Dichloro-2-Butene	4	4	0	No
Trichlorofluoromethane	4	4	0	No
Vanadium	**4**	**3**	**1**	**Yes**
Vinyl Acetate	4	4	0	No
Zinc	**4**	**3**	**1**	**Yes**

Bold denotes parameters with at least one uncensored observation.

Exhibit D.4. Summary of Censored, and Uncensored Data—URGA

Parameters	Observations	Censored Observation	Uncensored Observation	Statistical Analysis?
1,1,1,2-Tetrachloroethane	6	6	0	No
1,1,2,2-Tetrachloroethane	6	6	0	No
1,1,2-Trichloroethane	6	6	0	No
1,1-Dichloroethane	6	6	0	No
1,2,3-Trichloropropane	6	6	0	No
1,2-Dibromo-3-chloropropane	6	6	0	No
1,2-Dibromoethane	6	6	0	No
1,2-Dichlorobenzene	6	6	0	No
1,2-Dichloropropane	6	6	0	No
2-Butanone	6	6	0	No
2-Hexanone	6	6	0	No
4-Methyl-2-pentanone	6	6	0	No
Acetone	**6**	**4**	**2**	**Yes**
Acrolein	6	6	0	No
Acrylonitrile	6	6	0	No
Aluminum	**6**	**4**	**2**	**Yes**
Antimony	6	6	0	No
Beryllium	6	6	0	No
Boron	**6**	**0**	**6**	**Yes**
Bromide	**6**	**1**	**5**	**Yes**
Bromochloromethane	6	6	0	No
Bromodichloromethane	6	6	0	No
Bromoform	6	6	0	No
Bromomethane	6	6	0	No
Calcium	**6**	**0**	**6**	**Yes**
Carbon disulfide	6	6	0	No
Chemical Oxygen Demand (COD)	**6**	**5**	**1**	**Yes**
Chloride	**6**	**0**	**6**	**Yes**
Chlorobenzene	6	6	0	No
Chloroethane	6	6	0	No
Chloroform	6	6	0	No
Chloromethane	6	6	0	No
cis-1,2-Dichloroethene	6	6	0	No
cis-1,3-Dichloropropene	6	6	0	No
Cobalt	**6**	**4**	**2**	**Yes**
Conductivity	**6**	**0**	**6**	**Yes**
Copper	**6**	**1**	**5**	**Yes**
Cyanide	6	6	0	No
Dibromochloromethane	6	6	0	No
Dibromomethane	6	6	0	No
Dimethylbenzene, Total	6	6	0	No
Dissolved Oxygen	**6**	**0**	**6**	**Yes**
Dissolved Solids	**6**	**0**	**6**	**Yes**
Ethylbenzene	6	6	0	No
Iodide	6	6	0	No
Iodomethane	6	6	0	No
Iron	**6**	**4**	**2**	**Yes**
Magnesium	**6**	**0**	**6**	**Yes**
Manganese	**6**	**1**	**5**	**Yes**
Methylene chloride	**6**	**4**	**2**	**Yes**
Molybdenum	6	6	0	No

Exhibit D.4. Summary of Censored, and Uncensored Data—URGA (Continued)

Parameters	Observations	Censored Observation	Uncensored Observation	Statistical Analysis?
Nickel	**6**	**1**	**5**	**Yes**
Oxidation-Reduction Potential	**6**	**0**	**6**	**Yes**
PCB, Total	**6**	**5**	**1**	**Yes**
PCB-1016	6	6	0	No
PCB-1221	6	6	0	No
PCB-1232	6	6	0	No
PCB-1242	6	6	0	No
PCB-1248	6	6	0	No
PCB-1254	**6**	**5**	**1**	**Yes**
PCB-1260	**6**	**5**	**1**	**Yes**
PCB-1268	6	6	0	No
pH	**6**	**0**	**6**	**Yes**
Potassium	**6**	**0**	**6**	**Yes**
Radium-226	6	6	0	No
Rhodium	6	6	0	No
Sodium	**6**	**0**	**6**	**Yes**
Styrene	6	6	0	No
Sulfate	**6**	**0**	**6**	**Yes**
Tantalum	6	6	0	No
Technetium-99	**6**	**2**	**4**	**Yes**
Tetrachloroethene	6	6	0	No
Thallium	6	6	0	No
Thorium-230	6	6	0	No
Toluene	6	6	0	No
Total Organic Carbon (TOC)	**6**	**0**	**6**	**Yes**
Total Organic Halides (TOX)	**6**	**0**	**6**	**Yes**
trans-1,2-Dichloroethene	6	6	0	No
trans-1,3-Dichloropropene	6	6	0	No
trans-1,4-Dichloro-2-Butene	6	6	0	No
Trichloroethene	**6**	**0**	**6**	**Yes**
Trichlorofluoromethane	6	6	0	No
Vanadium	6	6	0	No
Vinyl Acetate	6	6	0	No
Zinc	**6**	**4**	**2**	**Yes**

Bold denotes parameters with at least one uncensored observation.

Exhibit D.5. Summary of Censored, and Uncensored Data—LRGA

Parameters	Observations	Censored Observation	Uncensored Observation	Statistical Analysis?
1,1,1,2-Tetrachloroethane	6	6	0	No
1,1,2,2-Tetrachloroethane	6	6	0	No
1,1,2-Trichloroethane	6	6	0	No
1,1-Dichloroethane	6	6	0	No
1,2,3-Trichloropropane	6	6	0	No
1,2-Dibromo-3-chloropropane	6	6	0	No
1,2-Dibromoethane	6	6	0	No
1,2-Dichlorobenzene	6	6	0	No
1,2-Dichloropropane	6	6	0	No
2-Butanone	6	6	0	No
2-Hexanone	6	6	0	No
4-Methyl-2-pentanone	6	6	0	No
Acetone	**6**	**5**	**1**	**Yes**
Acrolein	6	6	0	No
Acrylonitrile	6	6	0	No
Aluminum	**6**	**5**	**1**	**Yes**
Antimony	6	6	0	No
Beryllium	6	6	0	No
Boron	**6**	**0**	**6**	**Yes**
Bromide	**6**	**1**	**5**	**Yes**
Bromochloromethane	6	6	0	No
Bromodichloromethane	6	6	0	No
Bromoform	6	6	0	No
Bromomethane	6	6	0	No
Calcium	**6**	**0**	**6**	**Yes**
Carbon disulfide	6	6	0	No
Chemical Oxygen Demand (COD)	**6**	**5**	**1**	**Yes**
Chloride	**6**	**0**	**6**	**Yes**
Chlorobenzene	6	6	0	No
Chloroethane	6	6	0	No
Chloroform	6	6	0	No
Chloromethane	6	6	0	No
cis-1,2-Dichloroethene	6	6	0	No
cis-1,3-Dichloropropene	6	6	0	No
Cobalt	**6**	**3**	**3**	**Yes**
Conductivity	**6**	**0**	**6**	**Yes**
Copper	**6**	**0**	**6**	**Yes**
Cyanide	6	6	0	No
Dibromochloromethane	6	6	0	No
Dibromomethane	6	6	0	No
Dimethylbenzene, Total	6	6	0	No
Dissolved Oxygen	**6**	**0**	**6**	**Yes**
Dissolved Solids	**6**	**0**	**6**	**Yes**
Ethylbenzene	6	6	0	No
Iodide	**6**	**5**	**1**	**Yes**
Iodomethane	6	6	0	No
Iron	**6**	**4**	**2**	**Yes**
Magnesium	**6**	**0**	**6**	**Yes**
Manganese	**6**	**1**	**5**	**Yes**
Methylene chloride	**6**	**3**	**3**	**Yes**
Molybdenum	6	6	0	No

Exhibit D.5. Summary of Censored, and Uncensored Data—LRGA (Continued)

Parameters	Observations	Censored Observation	Uncensored Observation	Statistical Analysis?
Nickel	**6**	**0**	**6**	**Yes**
Oxidation-Reduction Potential	**6**	**0**	**6**	**Yes**
PCB, Total	6	6	0	No
PCB-1016	6	6	0	No
PCB-1221	6	6	0	No
PCB-1232	6	6	0	No
PCB-1242	6	6	0	No
PCB-1248	6	6	0	No
PCB-1254	6	6	0	No
PCB-1260	6	6	0	No
PCB-1268	6	6	0	No
pH	**6**	**0**	**6**	**Yes**
Potassium	**6**	**0**	**6**	**Yes**
Radium-226	6	6	0	No
Rhodium	6	6	0	No
Sodium	**6**	**0**	**6**	**Yes**
Styrene	6	6	0	No
Sulfate	**6**	**0**	**6**	**Yes**
Tantalum	6	6	0	No
Technetium-99	**6**	**2**	**4**	**Yes**
Tetrachloroethene	6	6	0	No
Thallium	6	6	0	No
Thorium-230	6	6	0	No
Toluene	6	6	0	No
Total Organic Carbon (TOC)	**6**	**0**	**6**	**Yes**
Total Organic Halides (TOX)	**6**	**1**	**5**	**Yes**
trans-1,2-Dichloroethene	6	6	0	No
trans-1,3-Dichloropropene	6	6	0	No
trans-1,4-Dichloro-2-Butene	6	6	0	No
Trichloroethene	**6**	**0**	**6**	**Yes**
Trichlorofluoromethane	6	6	0	No
Vanadium	**6**	**5**	**1**	**Yes**
Vinyl Acetate	6	6	0	No
Zinc	**6**	**3**	**3**	**Yes**

Bold denotes parameters with at least one uncensored observation.

Discussion of Results from Historical Background Comparison

For the UCRS, URGA, and LRGA, the concentrations of this quarter were compared to the results of the one-sided tolerance interval test calculated using historical background and are presented in Attachment D1. The statistician qualification statement is presented in Attachment D3. For the UCRS, URGA, and LRGA, the test was applied to 25, 30, and 29 parameters, respectively, including those listed in bold print in Exhibits D.3, D.4, and D.5, which includes those constituents that exceeded their MCL. A summary of exceedances when compared to statistically derived historical upgradient background by well number is shown in Exhibit D.6.

UCRS

This quarter's results identified historical background exceedances for magnesium, oxidation-reduction potential, and sulfate.

URGA

This quarter's results identified historical background exceedances for calcium, conductivity, dissolved solids, magnesium, oxidation-reduction potential, sulfate, and technetium-99.

LRGA

This quarter's results identified historical background exceedances for nickel, oxidation-reduction potential, and technetium-99.

Statistical Summary

Summaries of the results of the statistical tests conducted on data obtained from wells in the UCRS, the URGA, and in the LRGA in comparison to historical data are presented in Exhibit D.7, Exhibit D.8, and Exhibit D.9, respectively.

Exhibit D.6. Summary of Exceedances of Statistically Derived Historical Background Concentrations

UCRS	URGA	LRGA
MW362: Oxidation-Reduction Potential* and Sulfate	**MW357:** Oxidation-Reduction Potential*	**MW358:** Nickel
MW371: Magnesium and Oxidation-Reduction Potential*	**MW360:** Oxidation-Reduction Potential*	**MW361:** Oxidation-Reduction Potential* and Technetium-99
MW374: Oxidation-Reduction Potential*	**MW363:** Oxidation-Reduction Potential*	**MW364:** Oxidation-Reduction Potential* and Technetium-99
MW375: Oxidation-Reduction Potential* and Sulfate	**MW366:** Oxidation-Reduction Potential,* and Technetium-99	**MW367:** Oxidation-Reduction Potential*
	MW369: Oxidation-Reduction Potential*	**MW370:** Oxidation-Reduction Potential*
	MW372: Calcium, Conductivity, Dissolved Solids, Magnesium, Oxidation-Reduction Potential,* Sulfate, and Technetium-99	**MW373:** Oxidation-Reduction Potential*

*Oxidation-Reduction Potential calibrated as Eh.

Exhibit D.7. Test Summaries for Qualified Parameters for Historical Background—UCRS

Parameter	Performed Test	CV Normality Test[a]	Results of Tolerance Interval Test Conducted
Aluminum	Tolerance Interval	2.08	No exceedance of statistically derived historical background concentration.
Boron	Tolerance Interval	1.24	No exceedance of statistically derived historical background concentration.
Bromide	Tolerance Interval	0.34	No exceedance of statistically derived historical background concentration.
Calcium	Tolerance Interval	0.40	No exceedance of statistically derived historical background concentration.
COD	Tolerance Interval	0.97	No exceedance of statistically derived historical background concentration.
Chloride	Tolerance Interval	0.95	No exceedance of statistically derived historical background concentration.
Cobalt	Tolerance Interval	1.31	No exceedance of statistically derived historical background concentration.
Conductivity	Tolerance Interval	0.45	No exceedance of statistically derived historical background concentration.
Copper	Tolerance Interval	1.27	No exceedance of statistically derived historical background concentration.
Dissolved Oxygen	Tolerance Interval	0.55	No exceedance of statistically derived historical background concentration.
Dissolved Solids	Tolerance Interval	0.42	No exceedance of statistically derived historical background concentration.
Iron	Tolerance Interval	0.98	No exceedance of statistically derived historical background concentration.
Magnesium	Tolerance Interval	0.27	Current results exceed statistically derived historical background concentration in MW371.
Manganese	Tolerance Interval	0.89	No exceedance of statistically derived historical background concentration.
Methylene Chloride	Tolerance Interval	0.29	No exceedance of statistically derived historical background concentration.
Nickel	Tolerance Interval	0.98	No exceedance of statistically derived historical background concentration.
Oxidation-Reduction Potential[b]	Tolerance Interval	3.54	Current results exceed statistically derived historical background concentration in MW362, MW371, MW374, and MW375.
pH	Tolerance Interval	0.04	No exceedance of statistically derived historical background concentration.
Potassium	Tolerance Interval	0.72	No exceedance of statistically derived historical background concentration.
Sodium	Tolerance Interval	0.40	No exceedance of statistically derived historical background concentration.
Sulfate	Tolerance Interval	0.49	Current results exceed statistically derived historical background concentration in MW362 and MW375.
TOC	Tolerance Interval	1.38	No exceedance of statistically derived historical background concentration.
TOX	Tolerance Interval	1.08	No exceedance of statistically derived historical background concentration.
Vanadium	Tolerance Interval	1.32	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
Zinc	Tolerance Interval	1.38	No exceedance of statistically derived historical background concentration.

CV: coefficient of variation
[a]If CV > 1.0, used log-transformed data.
[b]Oxidation-Reduction Potential calibrated as Eh.

Exhibit D.8. Test Summaries for Qualified Parameters for Historical Background—URGA

Parameter	Performed Test	CV Normality Test[a]	Results of Tolerance Interval Test Conducted
Acetone	Tolerance Interval	3.88	No exceedance of statistically derived historical background concentration.
Aluminum	Tolerance Interval	1.24	No exceedance of statistically derived historical background concentration.
Boron	Tolerance Interval	0.84	No exceedance of statistically derived historical background concentration.
Bromide	Tolerance Interval	0.00	No exceedance of statistically derived historical background concentration.
Calcium	Tolerance Interval	0.29	Current results exceed statistically derived historical background concentration in MW372.
COD	Tolerance Interval	0.10	No exceedance of statistically derived historical background concentration.
Chloride	Tolerance Interval	0.10	No exceedance of statistically derived historical background concentration.
Cobalt	Tolerance Interval	0.84	No exceedance of statistically derived historical background concentration.
Conductivity	Tolerance Interval	0.12	Current results exceed statistically derived historical background concentration in MW372.
Copper	Tolerance Interval	0.40	No exceedance of statistically derived historical background concentration.
Dissolved Oxygen	Tolerance Interval	0.76	No exceedance of statistically derived historical background concentration.
Dissolved Solids	Tolerance Interval	0.16	Current results exceed statistically derived historical background concentration in MW372.
Iron	Tolerance Interval	0.95	No exceedance of statistically derived historical background concentration.
Magnesium	Tolerance Interval	0.27	Current results exceed statistically derived historical background concentration in MW372.
Manganese	Tolerance Interval	0.66	No exceedance of statistically derived historical background concentration.
Methylene Chloride	Tolerance Interval	0.36	No exceedance of statistically derived historical background concentration.
Nickel	Tolerance Interval	0.91	No exceedance of statistically derived historical background concentration.
Oxidation-Reduction Potential[b]	Tolerance Interval	1.26	Current results exceed statistically derived historical background concentration in MW357, MW360, MW363, MW366, MW369, and MW372.
PCB, Total	Tolerance Interval	0.90	No exceedance of statistically derived historical background concentration.
PCB-1254	Tolerance Interval	1.41	No exceedance of statistically derived historical background concentration.

Exhibit D.8. Test Summaries for Qualified Parameters for Historical Background—URGA (Continued)

Parameter	Performed Test	CV Normality Test[a]	Results of Tolerance Interval Test Conducted
PCB-1260	Tolerance Interval	1.69	No exceedance of statistically derived historical background concentration.
pH	Tolerance Interval	0.03	No exceedance of statistically derived historical background concentration.
Potassium	Tolerance Interval	0.29	No exceedance of statistically derived historical background concentration.
Sodium	Tolerance Interval	0.26	No exceedance of statistically derived historical background concentration.
Sulfate	Tolerance Interval	0.75	Current results exceed statistically derived historical background concentration in MW372.
Technetium-99	Tolerance Interval	0.87	Current results exceed statistically derived historical background concentration in MW366 and MW372.
TOC	Tolerance Interval	1.23	No exceedance of statistically derived historical background concentration.
TOX	Tolerance Interval	0.95	No exceedance of statistically derived historical background concentration.
Trichloroethene	Tolerance Interval	0.64	No exceedance of statistically derived historical background concentration.
Zinc	Tolerance Interval	1.49	No exceedance of statistically derived historical background concentration.

CV: coefficient of variation
[a]If CV > 1.0, used log-transformed data.
[b]Oxidation-Reduction Potential calibrated as Eh.

Exhibit D.9. Test Summaries for Qualified Parameters for Historical Background—LRGA

Parameter	Performed Test	CV Normality Test[a]	Results of Tolerance Interval Test Conducted
Acetone	Tolerance Interval	2.67	No exceedance of statistically derived historical background concentration.
Aluminum	Tolerance Interval	2.78	No exceedance of statistically derived historical background concentration.
Boron	Tolerance Interval	0.68	No exceedance of statistically derived historical background concentration.
Bromide	Tolerance Interval	0.00	No exceedance of statistically derived historical background concentration.
Calcium	Tolerance Interval	0.31	No exceedance of statistically derived historical background concentration.
COD	Tolerance Interval	0.59	No exceedance of statistically derived historical background concentration.
Chloride	Tolerance Interval	0.16	No exceedance of statistically derived historical background concentration.
Cobalt	Tolerance Interval	1.16	No exceedance of statistically derived historical background concentration.
Conductivity	Tolerance Interval	0.26	No exceedance of statistically derived historical background concentration.
Copper	Tolerance Interval	0.40	No exceedance of statistically derived historical background concentration.
Dissolved Oxygen	Tolerance Interval	0.83	No exceedance of statistically derived historical background concentration.
Dissolved Solids	Tolerance Interval	0.30	No exceedance of statistically derived historical background concentration.
Iodide	Tolerance Interval	0.00	No exceedance of statistically derived historical background concentration.
Iron	Tolerance Interval	0.96	No exceedance of statistically derived historical background concentration.
Magnesium	Tolerance Interval	0.34	No exceedance of statistically derived historical background concentration.
Manganese	Tolerance Interval	0.62	No exceedance of statistically derived historical background concentration.
Methylene Chloride	Tolerance Interval	0.40	No exceedance of statistically derived historical background concentration.
Nickel	Tolerance Interval	0.90	Current results exceed statistically derived historical background concentration in MW358.
Oxidation-Reduction Potential[b]	Tolerance Interval	1.31	Current results exceed statistically derived historical background concentration in MW361, MW364, MW367, MW370, and MW373.
pH	Tolerance Interval	0.03	No exceedance of statistically derived historical background concentration.
Potassium	Tolerance Interval	0.18	No exceedance of statistically derived historical background concentration.
Sodium	Tolerance Interval	0.30	No exceedance of statistically derived historical background concentration.
Sulfate	Tolerance Interval	1.59	No exceedance of statistically derived historical background concentration.
Technetium-99	Tolerance Interval	1.73	Current results exceed statistically derived historical background concentration in MW361 and MW364.
TOC	Tolerance Interval	1.96	No exceedance of statistically derived historical background concentration.

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
TOX	Tolerance Interval	0.98	No exceedance of statistically derived historical background concentration.
Trichloroethene	Tolerance Interval	0.57	No exceedance of statistically derived historical background concentration.
Vanadium	Tolerance Interval	0.32	No exceedance of statistically derived historical background concentration.
Zinc	Tolerance Interval	0.67	No exceedance of statistically derived historical background concentration.

CV: coefficient of variation
[a]If CV > 1.0, used log-transformed data.
[b]Oxidation-Reduction Potential calibrated as Eh.

Discussion of Results from Current Background Comparison

For concentrations in wells in the UCRS, URGA, and LRGA that exceeded the TL test using historical background, the concentrations were compared to the results of the one-sided tolerance interval test compared to current background, and are presented in Attachment D2. The statistician qualification statement is presented in Attachment D3. For the UCRS, URGA, and LRGA, the test was applied to 3, 7, and 3 parameters, respectively, because these parameter concentrations exceeded the historical background TL.

<u>UCRS</u>

Because gradients in the UCRS are downward (vertical), there are no hydrogeologically downgradient UCRS wells. It should be noted that none of the UCRS wells exceeded the current TL this quarter.

<u>URGA</u>

This quarter's results showed a statistically significant exceedance of current background TL for technetium-99 in downgradient URGA well MW366.

<u>LRGA</u>

This quarter's results showed a statistically significant exceedance of current background TL for nickel in downgradient LRGA well MW358.

Statistical Summary

Summaries of the statistical tests conducted on data obtained from wells in the UCRS, the URGA, and the LRGA are presented in Exhibit D.10, Exhibit D.11, and Exhibit D.12, respectively.

Exhibit D.10. Test Summaries for Qualified Parameters for Current Background—UCRS

Parameter	Performed Test	CV Normality Test	Results of Tolerance Interval Test Conducted
Magnesium	Tolerance Interval	0.51	None of the test wells exceeded the upper TL, which is evidence that concentrations in these wells are not different from current background concentrations to a statistically significant level.
Oxidation-Reduction Potential*	Tolerance Interval	0.24	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.
Sulfate	Tolerance Interval	0.94	None of the test wells exceeded the upper TL, which is evidence that concentrations in these wells are not different from current background concentrations to a statistically significant level.

CV: coefficient of variation
*Oxidation-Reduction Potential calibrated as Eh.

Exhibit D.11. Test Summaries for Qualified Parameters for Current Background—URGA

Parameter	Performed Test	CV Normality Test	Results of Tolerance Interval Test Conducted
Calcium	Tolerance Interval	0.62	None of the test wells exceeded the upper TL, which is evidence that concentrations in these wells are not different from current background concentrations to a statistically significant level.
Conductivity	Tolerance Interval	0.37	None of the test wells exceeded the upper TL, which is evidence that concentrations in these wells are not different from current background concentrations to a statistically significant level.
Dissolved Solids	Tolerance Interval	0.41	None of the test wells exceeded the upper TL, which is evidence that concentrations in these wells are not different from current background concentrations to a statistically significant level.
Magnesium	Tolerance Interval	0.56	None of the test wells exceeded the upper TL, which is evidence that concentrations in these wells are not different from current background concentrations to a statistically significant level.
Oxidation-Reduction Potential*	Tolerance Interval	0.07	MW369 exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to current background data.
Sulfate	Tolerance Interval	0.93	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.
Technetium-99	Tolerance Interval	0.17	MW366 and MW372 exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to current background data.

CV: coefficient of variation
*Oxidation-Reduction Potential calibrated as Eh.

Exhibit D.12. Test Summaries for Qualified Parameters for Current Background—LRGA

Parameter	Performed Test	CV Normality Test	Results of Tolerance Interval Test Conducted
Nickel	Tolerance Interval	0.49	MW358 exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to current background data.
Oxidation-Reduction Potential*	Tolerance Interval	0.06	MW370 exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to current background data.
Technetium-99	Tolerance Interval	0.70	None of the test wells exceeded the upper TL, which is evidence that concentrations in these wells are not different from current background concentrations to a statistically significant level.

CV: coefficient of variation

*Oxidation-Reduction Potential calibrated as Eh.

ATTACHMENT D1

**COMPARISON OF CURRENT DATA TO
ONE-SIDED UPPER TOLERANCE INTERVAL TEST
CALCULATED USING
HISTORICAL BACKGROUND DATA**

THIS PAGE INTENTIONALLY LEFT BLANK

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data   **X=** 3.300   **S=** 6.859   **CV(1)=** 2.078   **K factor**=** 2.523   **TL(1)=** 20.604   **LL(1)=** N/A

Statistics-Transformed Background Data   **X=** -0.371   **S=** 1.678   **CV(2)=** -4.521   **K factor**=** 2.523   **TL(2)=** 3.863   **LL(2)=** N/A

Historical Background Data from Upgradient Wells with Transformed Result		

Well Number:	MW371	
Date Collected	Result	LN(Result)
3/18/2002	2.24	0.806
4/22/2002	0.2	-1.609
7/15/2002	0.2	-1.609
10/8/2002	0.2	-1.609
1/8/2003	0.2	-1.609
4/3/2003	0.2	-1.609
7/9/2003	0.2	-1.609
10/6/2003	0.2	-1.609

Well Number:	MW374	
Date Collected	Result	LN(Result)
10/8/2002	21.3	3.059
1/7/2003	20	2.996
4/2/2003	4.11	1.413
7/9/2003	1.41	0.344
10/7/2003	1.09	0.086
1/6/2004	0.854	-0.158
4/7/2004	0.2	-1.609
7/14/2004	0.2	-1.609

Dry/Partially Dry Wells	
Well No.	Gradient
MW359	Downgradient
MW365	Downgradient
MW368	Downgradient
MW376	Sidegradient
MW377	Sidegradient

Current Quarter Data						
Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW362	Downgradient	Yes	0.173	N/A	-1.754	NO
MW371	Upgradient	Yes	0.11	N/A	-2.207	NO
MW374	Upgradient	Yes	0.0443	N/A	-3.117	NO
MW375	Sidegradient	Yes	0.453	N/A	-0.792	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.

Because CV(1) is greater than 1, the natural logarithm of background and test well results were calculated utilizing TL(2) for comparison.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV   Coefficient-of-Variation, CV = S/X   If CV is less than or equal to 1 assume normal distribution.

S   Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL   Upper Tolerance Limit, TL = X + (K * S),   LL   Lower Tolerance Limit, LL = X - (K * S)

X   Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the 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)**= 2.681   **LL(1)**=N/A

Statistics-Transformed Background Data   **X**= -1.034   **S**= 1.030   **CV(2)**= -0.996   **K factor****= 2.523   **TL(2)**= 1.564   **LL(2)**=N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number:	MW371	
Date Collected	Result	LN(Result)
3/18/2002	2	0.693
4/22/2002	2	0.693
7/15/2002	2	0.693
10/8/2002	0.2	-1.609
1/8/2003	0.2	-1.609
4/3/2003	0.2	-1.609
7/9/2003	0.2	-1.609
10/6/2003	0.2	-1.609

Well Number:	MW374	
Date Collected	Result	LN(Result)
10/8/2002	2	0.693
1/7/2003	0.2	-1.609
4/2/2003	0.2	-1.609
7/9/2003	0.2	-1.609
10/7/2003	0.2	-1.609
1/6/2004	0.2	-1.609
4/7/2004	0.2	-1.609
7/14/2004	0.2	-1.609

Dry/Partially Dry Wells

Well No.	Gradient
MW359	Downgradient
MW365	Downgradient
MW368	Downgradient
MW376	Sidegradient
MW377	Sidegradient

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW362	Downgradient	Yes	0.0158	N/A	-4.148	NO
MW371	Upgradient	Yes	0.00579	N/A	-5.152	NO
MW374	Upgradient	Yes	0.0158	N/A	-4.148	NO
MW375	Sidegradient	Yes	0.00932	N/A	-4.676	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.

Because CV(1) is greater than 1, the natural logarithm of background and test well results were calculated utilizing TL(2) for comparison.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV   Coefficient-of-Variation, CV = S/X   If CV is less than or equal to 1 assume normal distribution.

S   Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL   Upper Tolerance Limit, TL = X + (K * S),   LL   Lower Tolerance Limit, LL = X - (K * S)

X   Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data   X= 1.394   S= 0.474   **CV(1)=** 0.340   **K factor**=** 2.523   **TL(1)=** 2.590   **LL(1)=** N/A

Statistics-Transformed Background Data   X= 0.279   S= 0.332   **CV(2)=** 1.190   **K factor**=** 2.523   **TL(2)=** 1.118   **LL(2)=** N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number: MW371

Date Collected	Result	LN(Result)
3/18/2002	1	0.000
4/22/2002	1	0.000
7/15/2002	1	0.000
10/8/2002	1	0.000
1/8/2003	1	0.000
4/3/2003	1	0.000
7/9/2003	1	0.000
10/6/2003	1	0.000

Well Number: MW374

Date Collected	Result	LN(Result)
10/8/2002	2.1	0.742
1/7/2003	2.1	0.742
4/2/2003	1.9	0.642
7/9/2003	1	0.000
10/7/2003	1.9	0.642
1/6/2004	1.9	0.642
4/7/2004	1.8	0.588
7/14/2004	1.6	0.470

Dry/Partially Dry Wells

Well No.	Gradient
MW359	Downgradient
MW365	Downgradient
MW368	Downgradient
MW376	Sidegradient
MW377	Sidegradient

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW362	Downgradient	No	0.2	N/A	-1.609	N/A
MW371	Upgradient	No	0.2	N/A	-1.609	N/A
MW374	Upgradient	Yes	0.525	NO	-0.644	N/A
MW375	Sidegradient	No	0.2	N/A	-1.609	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV   Coefficient-of-Variation, CV = S/X   If CV is less than or equal to 1 assume normal distribution.

S   Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL   Upper Tolerance Limit, TL = X + (K * S),   LL   Lower Tolerance Limit, LL = X - (K * S)

X   Mean, X = (sum of background results)/(count of background results)

**   *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data X= 34.100 S= 13.637   **CV(1)**=0.400   **K factor****= 2.523   **TL(1)**= 68.505   **LL(1)**=N/A

Statistics-Transformed Background Data X= 3.466 S= 0.356   **CV(2)**=0.103   **K factor****= 2.523   **TL(2)**= 4.364   **LL(2)**=N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number: MW371

Date Collected	Result	LN(Result)
3/18/2002	17.2	2.845
4/22/2002	22.4	3.109
7/15/2002	25.5	3.239
10/8/2002	26.4	3.273
1/8/2003	27.2	3.303
4/3/2003	30.3	3.411
7/9/2003	25.9	3.254
10/6/2003	27	3.296

Well Number: MW374

Date Collected	Result	LN(Result)
10/8/2002	67.3	4.209
1/7/2003	60.6	4.104
4/2/2003	47.2	3.854
7/9/2003	34.7	3.547
10/7/2003	37.1	3.614
1/6/2004	37.7	3.630
4/7/2004	32.2	3.472
7/14/2004	26.9	3.292

Dry/Partially Dry Wells

Well No.	Gradient
MW359	Downgradient
MW365	Downgradient
MW368	Downgradient
MW376	Sidegradient
MW377	Sidegradient

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW362	Downgradient	Yes	17.4	NO	2.856	N/A
MW371	Upgradient	Yes	52.6	NO	3.963	N/A
MW374	Upgradient	Yes	25.6	NO	3.243	N/A
MW375	Sidegradient	Yes	13.2	NO	2.580	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.
 CV   Coefficient-of-Variation, CV = S/X   If CV is less than or equal to 1 assume normal distribution.
  S   Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
 TL   Upper Tolerance Limit, TL = X + (K * S),   LL   Lower Tolerance Limit, LL = X - (K * S)
  X   Mean, X = (sum of background results)/(count of background results)
 ** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X**= 72.938	**S**= 70.749	**CV(1)**=0.970	**K factor****= 2.523	**TL(1)**= 251.437	**LL(1)**=N/A
Statistics-Transformed Background Data	**X**= 4.000	**S**= 0.702	**CV(2)**=0.175	**K factor****= 2.523	**TL(2)**= 5.770	**LL(2)**=N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number: MW371

Date Collected	Result	LN(Result)
3/18/2002	35	3.555
4/22/2002	35	3.555
7/15/2002	35	3.555
10/8/2002	35	3.555
1/8/2003	35	3.555
4/3/2003	35	3.555
7/9/2003	35	3.555
10/6/2003	35	3.555

Well Number: MW374

Date Collected	Result	LN(Result)
10/8/2002	260	5.561
1/7/2003	214	5.366
4/2/2003	147	4.990
7/9/2003	72	4.277
10/7/2003	56	4.025
1/6/2004	68	4.220
4/7/2004	35	3.555
7/14/2004	35	3.555

Dry/Partially Dry Wells

Well No.	Gradient
MW359	Downgradient
MW365	Downgradient
MW368	Downgradient
MW376	Sidegradient
MW377	Sidegradient

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW362	Downgradient	No	20	N/A	2.996	N/A
MW371	Upgradient	No	20	N/A	2.996	N/A
MW374	Upgradient	Yes	28.4	NO	3.346	N/A
MW375	Sidegradient	Yes	12.2	NO	2.501	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV   Coefficient-of-Variation, CV = S/X   If CV is less than or equal to 1 assume normal distribution.

S   Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL   Upper Tolerance Limit, TL = X + (K * S),   LL   Lower Tolerance Limit, LL = X - (K * S)

X   Mean, X = (sum of background results)/(count of background results)

**   *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X**= 91.300	**S**= 86.959	**CV(1)**=0.952	**K factor****= 2.523	**TL(1)**= 310.697	**LL(1)**=N/A
Statistics-Transformed Background Data	**X**= 3.620	**S**= 1.590	**CV(2)**=0.439	**K factor****= 2.523	**TL(2)**= 7.631	**LL(2)**=N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number: MW371

Date Collected	Result	LN(Result)
7/15/2002	8.3	2.116
10/8/2002	7.6	2.028
1/8/2003	7.7	2.041
4/3/2003	8.8	2.175
7/9/2003	8.1	2.092
10/6/2003	8.6	2.152
1/7/2004	7.6	2.028
4/6/2004	7.6	2.028

Well Number: MW374

Date Collected	Result	LN(Result)
10/8/2002	199.2	5.294
1/7/2003	199.7	5.297
4/2/2003	171.8	5.146
7/9/2003	178.7	5.186
10/7/2003	175.6	5.168
1/6/2004	170.4	5.138
4/7/2004	156.4	5.052
7/14/2004	144.7	4.975

Dry/Partially Dry Wells

Well No.	Gradient
MW359	Downgradient
MW365	Downgradient
MW368	Downgradient
MW376	Sidegradient
MW377	Sidegradient

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW362	Downgradient	Yes	4.17	NO	1.428	N/A
MW371	Upgradient	Yes	4.41	NO	1.484	N/A
MW374	Upgradient	Yes	46.9	NO	3.848	N/A
MW375	Sidegradient	Yes	3.4	NO	1.224	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV   Coefficient-of-Variation, CV = S/X   If CV is less than or equal to 1 assume normal distribution.

S   Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL   Upper Tolerance Limit, TL = X + (K * S),   LL   Lower Tolerance Limit, LL = X - (K * S)

X   Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	X= 0.007	S= 0.009	CV(1)= 1.314	K factor**= 2.523	TL(1)= 0.031	LL(1)=N/A
Statistics-Transformed Background Data	X= -5.843	S= 1.392	CV(2)= -0.238	K factor**= 2.523	TL(2)= -2.331	LL(2)=N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number: MW371

Date Collected	Result	LN(Result)
3/18/2002	0.025	-3.689
4/22/2002	0.025	-3.689
7/15/2002	0.025	-3.689
10/8/2002	0.001	-6.908
1/8/2003	0.001	-6.908
4/3/2003	0.001	-6.908
7/9/2003	0.001	-6.908
10/6/2003	0.001	-6.908

Well Number: MW374

Date Collected	Result	LN(Result)
10/8/2002	0.01	-4.605
1/7/2003	0.01	-4.605
4/2/2003	0.01	-4.605
7/9/2003	0.00161	-6.432
10/7/2003	0.001	-6.908
1/6/2004	0.001	-6.908
4/7/2004	0.001	-6.908
7/14/2004	0.001	-6.908

Dry/Partially Dry Wells

Well No.	Gradient
MW359	Downgradient
MW365	Downgradient
MW368	Downgradient
MW376	Sidegradient
MW377	Sidegradient

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW362	Downgradient	Yes	0.000333	N/A	-8.007	NO
MW371	Upgradient	No	0.001	N/A	-6.908	N/A
MW374	Upgradient	Yes	0.000944	N/A	-6.965	NO
MW375	Sidegradient	Yes	0.00235	N/A	-6.053	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.

Because CV(1) is greater than 1, the natural logarithm of background and test well results were calculated utilizing TL(2) for comparison.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.
CV   Coefficient-of-Variation, CV = S/X   If CV is less than or equal to 1 assume normal distribution.
S   Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL   Upper Tolerance Limit, TL = X + (K * S),   LL   Lower Tolerance Limit, LL = X - (K * S)
X   Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data   X= 918.744 **S=** 417.257 **CV(1)=**0.454   **K factor**=** 2.523   **TL(1)=** 1971.483 **LL(1)=**N/A

Statistics-Transformed Background Data   **X**= 6.705   **S=** 0.550   **CV(2)=**0.082   **K factor**=** 2.523   **TL(2)=** 8.092   **LL(2)=**N/A

Historical Background Data from Upgradient Wells with Transformed Result		

Well Number:	MW371	
Date Collected	Result	LN(Result)
3/18/2002	541	6.293
4/22/2002	643	6.466
7/15/2002	632	6.449
10/8/2002	631	6.447
1/8/2003	680	6.522
4/3/2003	749	6.619
7/9/2003	734	6.599
10/6/2003	753	6.624

Well Number:	MW374	
Date Collected	Result	LN(Result)
3/18/2002	1007	6.915
10/8/2002	1680	7.427
1/7/2003	1715.9	7.448
4/2/2003	172	5.147
7/9/2003	1231	7.116
10/7/2003	1214	7.102
1/6/2004	1172	7.066
4/7/2004	1145	7.043

Dry/Partially Dry Wells	

Well No.	Gradient
MW359	Downgradient
MW365	Downgradient
MW368	Downgradient
MW376	Sidegradient
MW377	Sidegradient

Current Quarter Data						
Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW362	Downgradient	Yes	635	NO	6.454	N/A
MW371	Upgradient	Yes	742	NO	6.609	N/A
MW374	Upgradient	Yes	715	NO	6.572	N/A
MW375	Sidegradient	Yes	336	NO	5.817	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV   Coefficient-of-Variation, CV = S/X   If CV is less than or equal to 1 assume normal distribution.

S   Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL   Upper Tolerance Limit, TL = X + (K * S),   LL   Lower Tolerance Limit, LL = X - (K * S)

X   Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X**= 0.056	**S**= 0.072	**CV(1)**=1.275	**K factor****= 2.523	**TL(1)**= 0.237	**LL(1)**=N/A
Statistics-Transformed Background Data	**X**= -3.395	**S**= 0.915	**CV(2)**=-0.270	**K factor****= 2.523	**TL(2)**= -1.086	**LL(2)**=N/A

| Historical Background Data from Upgradient Wells with Transformed Result |

Well Number: MW371

Date Collected	Result	LN(Result)
3/18/2002	0.025	-3.689
4/22/2002	0.025	-3.689
7/15/2002	0.05	-2.996
10/8/2002	0.02	-3.912
1/8/2003	0.02	-3.912
4/3/2003	0.02	-3.912
7/9/2003	0.02	-3.912
10/6/2003	0.02	-3.912

Well Number: MW374

Date Collected	Result	LN(Result)
10/8/2002	0.2	-1.609
1/7/2003	0.2	-1.609
4/2/2003	0.2	-1.609
7/9/2003	0.02	-3.912
10/7/2003	0.02	-3.912
1/6/2004	0.02	-3.912
4/7/2004	0.02	-3.912
7/14/2004	0.02	-3.912

| Dry/Partially Dry Wells |

Well No.	Gradient
MW359	Downgradient
MW365	Downgradient
MW368	Downgradient
MW376	Sidegradient
MW377	Sidegradient

| Current Quarter Data |

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW362	Downgradient	Yes	0.00093	N/A	-6.980	NO
MW371	Upgradient	Yes	0.000612	N/A	-7.399	NO
MW374	Upgradient	Yes	0.000333	N/A	-8.007	NO
MW375	Sidegradient	Yes	0.00104	N/A	-6.869	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.

Because CV(1) is greater than 1, the natural logarithm of background and test well results were calculated utilizing TL(2) for comparison.

| Conclusion of Statistical Analysis on Historical Data |

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.
CV   Coefficient-of-Variation, CV = S/X   If CV is less than or equal to 1 assume normal distribution.
 S   Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL   Upper Tolerance Limit, TL = X + (K * S),   LL   Lower Tolerance Limit, LL = X - (K * S)
 X   Mean, X = (sum of background results)/(count of background results)
** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data　　　　　**X**= 1.138　**S**= 0.621　**CV(1)**=0.546　**K factor****= 2.523　**TL(1)**= 2.704　**LL(1)**=N/A

Statistics-Transformed Background Data　**X**= -0.013　**S**= 0.577　**CV(2)**=-43.069　**K factor****= 2.523　**TL(2)**= 1.441　**LL(2)**=N/A

Historical Background Data from Upgradient Wells with Transformed Result		

Well Number:	MW371	
Date Collected	Result	LN(Result)
3/18/2002	2.26	0.815
4/22/2002	1.15	0.140
7/15/2002	0.94	-0.062
10/8/2002	0.74	-0.301
1/8/2003	2.62	0.963
4/3/2003	1.5	0.405
7/9/2003	1.66	0.507
10/6/2003	1.28	0.247

Well Number:	MW374	
Date Collected	Result	LN(Result)
3/18/2002	0.6	-0.511
10/8/2002	0.67	-0.400
1/7/2003	0.23	-1.470
4/2/2003	0.65	-0.431
7/9/2003	0.92	-0.083
10/7/2003	0.99	-0.010
1/6/2004	1.11	0.104
4/7/2004	0.88	-0.128

Dry/Partially Dry Wells	

Well No.	Gradient
MW359	Downgradient
MW365	Downgradient
MW368	Downgradient
MW376	Sidegradient
MW377	Sidegradient

Current Quarter Data						
Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW362	Downgradient	Yes	1.37	NO	0.315	N/A
MW371	Upgradient	Yes	1.24	NO	0.215	N/A
MW374	Upgradient	Yes	0.9	NO	-0.105	N/A
MW375	Sidegradient	Yes	1.63	NO	0.489	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV　Coefficient-of-Variation, CV = S/X　If CV is less than or equal to 1 assume normal distribution.

S　　Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL　Upper Tolerance Limit, TL = X + (K * S),　　　　LL　Lower Tolerance Limit, LL = X - (K * S)

X　　Mean, X = (sum of background results)/(count of background results)

**　*Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data **X**= 590.000 **S**= 248.068 **CV(1)**=0.420 **K factor****= 2.523 **TL(1)**= 1215.876 **LL(1)**=N/A

Statistics-Transformed Background Data **X**= 6.308 **S**= 0.383 **CV(2)**=0.061 **K factor****= 2.523 **TL(2)**= 7.274 **LL(2)**=N/A

Historical Background Data from Upgradient Wells with Transformed Result		

Well Number: MW371

Date Collected	Result	LN(Result)
3/18/2002	274	5.613
4/22/2002	409	6.014
7/15/2002	418	6.035
10/8/2002	424	6.050
1/8/2003	431	6.066
4/3/2003	444	6.096
7/9/2003	445	6.098
10/6/2003	438	6.082

Well Number: MW374

Date Collected	Result	LN(Result)
10/8/2002	1136	7.035
1/7/2003	1101	7.004
4/2/2003	863	6.760
7/9/2003	682	6.525
10/7/2003	589	6.378
1/6/2004	603	6.402
4/7/2004	601	6.399
7/14/2004	582	6.366

Dry/Partially Dry Wells	

Well No.	Gradient
MW359	Downgradient
MW365	Downgradient
MW368	Downgradient
MW376	Sidegradient
MW377	Sidegradient

Current Quarter Data						
Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW362	Downgradient	Yes	331	NO	5.802	N/A
MW371	Upgradient	Yes	411	NO	6.019	N/A
MW374	Upgradient	Yes	387	NO	5.958	N/A
MW375	Sidegradient	Yes	158	NO	5.063	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.
 CV   Coefficient-of-Variation, CV = S/X   If CV is less than or equal to 1 assume normal distribution.
  S   Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
 TL   Upper Tolerance Limit, TL = X + (K * S),   LL   Lower Tolerance Limit, LL = X - (K * S)
  X   Mean, X = (sum of background results)/(count of background results)
** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data   X= 6.612   S= 6.487   **CV(1)**=0.981   **K factor****= 2.523   **TL(1)**= 22.979   **LL(1)**=N/A

Statistics-Transformed Background Data   X= 1.363   S= 1.147   **CV(2)**=0.841   **K factor****= 2.523   **TL(2)**= 4.256   **LL(2)**=N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number: MW371

Date Collected	Result	LN(Result)
3/18/2002	1.31	0.270
4/22/2002	0.913	-0.091
7/15/2002	0.881	-0.127
10/8/2002	3.86	1.351
1/8/2003	1.88	0.631
4/3/2003	3.18	1.157
7/9/2003	0.484	-0.726
10/6/2003	2.72	1.001

Well Number: MW374

Date Collected	Result	LN(Result)
10/8/2002	23	3.135
1/7/2003	13.9	2.632
4/2/2003	14	2.639
7/9/2003	14.2	2.653
10/7/2003	7.92	2.069
1/6/2004	7.86	2.062
4/7/2004	4.82	1.573
7/14/2004	4.87	1.583

Dry/Partially Dry Wells

Well No.	Gradient
MW359	Downgradient
MW365	Downgradient
MW368	Downgradient
MW376	Sidegradient
MW377	Sidegradient

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW362	Downgradient	Yes	0.176	NO	-1.737	N/A
MW371	Upgradient	Yes	0.101	NO	-2.293	N/A
MW374	Upgradient	Yes	1.33	NO	0.285	N/A
MW375	Sidegradient	Yes	0.478	NO	-0.738	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV   Coefficient-of-Variation, CV = S/X   If CV is less than or equal to 1 assume normal distribution.

S   Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL   Upper Tolerance Limit, TL = X + (K * S),   LL   Lower Tolerance Limit, LL = X - (K * S)

X   Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data   **X**= 11.347 **S**= 3.019 **CV(1)**=0.266 **K factor****= 2.523 **TL(1)**= 18.963 **LL(1)**=N/A

Statistics-Transformed Background Data   **X**= 2.401 **S**= 0.237 **CV(2)**=0.099 **K factor****= 2.523 **TL(2)**= 2.999 **LL(2)**=N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number: MW371

Date Collected	Result	LN(Result)
3/18/2002	7.1	1.960
4/22/2002	9.77	2.279
7/15/2002	10.4	2.342
10/8/2002	10.2	2.322
1/8/2003	10.7	2.370
4/3/2003	11.9	2.477
7/9/2003	10.8	2.380
10/6/2003	10.9	2.389

Well Number: MW374

Date Collected	Result	LN(Result)
10/8/2002	20	2.996
1/7/2003	16.1	2.779
4/2/2003	13.1	2.573
7/9/2003	10.3	2.332
10/7/2003	11.1	2.407
1/6/2004	11	2.398
4/7/2004	9.69	2.271
7/14/2004	8.49	2.139

Dry/Partially Dry Wells

Well No.	Gradient
MW359	Downgradient
MW365	Downgradient
MW368	Downgradient
MW376	Sidegradient
MW377	Sidegradient

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW362	Downgradient	Yes	7.69	NO	2.040	N/A
MW371	Upgradient	Yes	19.5	YES	2.970	N/A
MW374	Upgradient	Yes	5.88	NO	1.772	N/A
MW375	Sidegradient	Yes	5.28	NO	1.664	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Conclusion of Statistical Analysis on Historical Data

The test well(s) listed exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to historical background data.

Wells with Exceedances
MW371

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV   Coefficient-of-Variation, CV = S/X   If CV is less than or equal to 1 assume normal distribution.

S   Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL   Upper Tolerance Limit, TL = X + (K * S),   LL   Lower Tolerance Limit, LL = X - (K * S)

X   Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 0.248	**S=** 0.222	**CV(1)=** 0.894	**K factor**=** 2.523	**TL(1)=** 0.809	**LL(1)=** N/A

Statistics-Transformed Background Data	**X=** -1.873	**S=** 1.068	**CV(2)=** -0.570	**K factor**=** 2.523	**TL(2)=** 0.821	**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: MW371

Date Collected	Result	LN(Result)
3/18/2002	0.063	-2.765
4/22/2002	0.067	-2.703
7/15/2002	0.074	-2.604
10/8/2002	0.0521	-2.955
1/8/2003	0.0385	-3.257
4/3/2003	0.0551	-2.899
7/9/2003	0.0546	-2.908
10/6/2003	0.0543	-2.913

Well Number: MW374

Date Collected	Result	LN(Result)
10/8/2002	0.596	-0.518
1/7/2003	0.565	-0.571
4/2/2003	0.675	-0.393
7/9/2003	0.397	-0.924
10/7/2003	0.312	-1.165
1/6/2004	0.299	-1.207
4/7/2004	0.329	-1.112
7/14/2004	0.342	-1.073

Dry/Partially Dry Wells

Well No.	Gradient
MW359	Downgradient
MW365	Downgradient
MW368	Downgradient
MW376	Sidegradient
MW377	Sidegradient

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW362	Downgradient	Yes	0.00949	NO	-4.658	N/A
MW371	Upgradient	Yes	0.00811	NO	-4.815	N/A
MW374	Upgradient	Yes	0.267	NO	-1.321	N/A
MW375	Sidegradient	Yes	0.0314	NO	-3.461	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV   Coefficient-of-Variation, CV = S/X   If CV is less than or equal to 1 assume normal distribution.

S   Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL   Upper Tolerance Limit, TL = X + (K * S),   LL   Lower Tolerance Limit, LL = X - (K * S)

X   Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data   **X**= 5.125   **S**= 1.500   **CV(1)**=0.293   **K factor****= 2.523   **TL(1)**= 8.910   **LL(1)**=N/A

Statistics-Transformed Background Data   **X**= 1.595   **S**= 0.296   **CV(2)**=0.186   **K factor****= 2.523   **TL(2)**= 2.343   **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: MW371

Date Collected	Result	LN(Result)
3/18/2002	2	0.693
4/22/2002	5	1.609
7/15/2002	10	2.303
10/8/2002	5	1.609
1/8/2003	5	1.609
4/3/2003	5	1.609
7/9/2003	5	1.609
10/6/2003	5	1.609

Well Number: MW374

Date Collected	Result	LN(Result)
10/8/2002	5	1.609
1/7/2003	5	1.609
4/2/2003	5	1.609
7/9/2003	5	1.609
10/7/2003	5	1.609
1/6/2004	5	1.609
4/7/2004	5	1.609
7/14/2004	5	1.609

Dry/Partially Dry Wells

Well No.	Gradient
MW359	Downgradient
MW365	Downgradient
MW368	Downgradient
MW376	Sidegradient
MW377	Sidegradient

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW362	Downgradient	No	0.72	N/A	-0.329	N/A
MW371	Upgradient	Yes	0.54	NO	-0.616	N/A
MW374	Upgradient	No	5	N/A	1.609	N/A
MW375	Sidegradient	Yes	0.54	NO	-0.616	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV   Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S   Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL   Upper Tolerance Limit, TL = X + (K * S),   LL   Lower Tolerance Limit, LL = X - (K * S)

X   Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	X= 0.023	S= 0.022	CV(1)=0.980	K factor**= 2.523	TL(1)= 0.078	LL(1)=N/A
Statistics-Transformed Background Data	X= -4.349	S= 1.109	CV(2)=-0.255	K factor**= 2.523	TL(2)= -1.552	LL(2)=N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number: MW371

Date Collected	Result	LN(Result)
3/18/2002	0.05	-2.996
4/22/2002	0.05	-2.996
7/15/2002	0.05	-2.996
10/8/2002	0.0124	-4.390
1/8/2003	0.005	-5.298
4/3/2003	0.005	-5.298
7/9/2003	0.005	-5.298
10/6/2003	0.005	-5.298

Well Number: MW374

Date Collected	Result	LN(Result)
10/8/2002	0.05	-2.996
1/7/2003	0.05	-2.996
4/2/2003	0.05	-2.996
7/9/2003	0.00794	-4.836
10/7/2003	0.005	-5.298
1/6/2004	0.005	-5.298
4/7/2004	0.005	-5.298
7/14/2004	0.005	-5.298

Dry/Partially Dry Wells

Well No.	Gradient
MW359	Downgradient
MW365	Downgradient
MW368	Downgradient
MW376	Sidegradient
MW377	Sidegradient

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW362	Downgradient	Yes	0.00125	NO	-6.685	N/A
MW371	Upgradient	Yes	0.00191	NO	-6.261	N/A
MW374	Upgradient	Yes	0.000999	NO	-6.909	N/A
MW375	Sidegradient	Yes	0.00179	NO	-6.326	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV   Coefficient-of-Variation, CV = S/X   If CV is less than or equal to 1 assume normal distribution.

S   Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL   Upper Tolerance Limit, TL = X + (K * S),   LL   Lower Tolerance Limit, LL = X - (K * S)

X   Mean, X = (sum of background results)/(count of background results)

**   *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data   X= 22.281   S= 78.889   **CV(1)**=3.541   **K factor****= 2.523   **TL(1)**= 221.319   **LL(1)**=N/A

Statistics-Transformed Background Data   X= 3.642   S= 1.729   **CV(2)**=0.475   **K factor****= 2.523   **TL(2)**= 5.106   **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.

#Because the natural log was not possbile 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: MW371

Date Collected	Result	LN(Result)
3/18/2002	75	4.317
4/22/2002	165	5.106
7/15/2002	65	4.174
4/3/2003	-19	#Func!
7/9/2003	114	4.736
10/6/2003	-22	#Func!
1/7/2004	20.5	3.020
4/6/2004	113	4.727

Well Number: MW374

Date Collected	Result	LN(Result)
3/18/2002	135	4.905
4/2/2003	-56	#Func!
7/9/2003	-68	#Func!
10/7/2003	-50	#Func!
1/6/2004	-85	#Func!
4/7/2004	6	1.792
7/14/2004	-38	#Func!
10/7/2004	1	0.000

Dry/Partially Dry Wells

Well No.	Gradient
MW359	Downgradient
MW365	Downgradient
MW368	Downgradient
MW376	Sidegradient
MW377	Sidegradient

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW362	Downgradient	Yes	374	N/A	5.924	YES
MW371	Upgradient	Yes	420	N/A	6.040	YES
MW374	Upgradient	Yes	172	N/A	5.147	YES
MW375	Sidegradient	Yes	306	N/A	5.724	YES

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

The test well(s) listed exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to historical background data.

Wells with Exceedances

MW362
MW371
MW374
MW375

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV   Coefficient-of-Variation, CV = S/X   If CV is less than or equal to 1 assume normal distribution.

S   Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL   Upper Tolerance Limit, TL = X + (K * S),   LL   Lower Tolerance Limit, LL = X - (K * S)

X   Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 6.619	**S=** 0.295	**CV(1)=** 0.045	**K factor**=** 2.904	**TL(1)=** 7.475	**LL(1)=** 5.7635
Statistics-Transformed Background Data	**X=** 1.889	**S=** 0.046	**CV(2)=** 0.024	**K factor**=** 2.904	**TL(2)=** 2.023	**LL(2)=** 1.7548

Historical Background Data from Upgradient Wells with Transformed Result

Well Number: MW371

Date Collected	Result	LN(Result)
3/18/2002	6.3	1.841
4/22/2002	6.5	1.872
7/15/2002	6.5	1.872
10/8/2002	6.6	1.887
1/8/2003	6.6	1.887
4/3/2003	6.9	1.932
7/9/2003	6.7	1.902
10/6/2003	7	1.946

Well Number: MW374

Date Collected	Result	LN(Result)
3/18/2002	5.75	1.749
10/8/2002	6.6	1.887
1/7/2003	6.82	1.920
4/2/2003	6.86	1.926
7/9/2003	6.7	1.902
10/7/2003	6.6	1.887
1/6/2004	6.9	1.932
4/7/2004	6.58	1.884

Dry/Partially Dry Wells

Well No.	Gradient
MW359	Downgradient
MW365	Downgradient
MW368	Downgradient
MW376	Sidegradient
MW377	Sidegradient

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)? Result <LL(1)?	LN(Result)	LN(Result) >TL(2)? LN(Result) <LL(2)?
MW362	Downgradient	Yes	6.83	NO	1.921	N/A
MW371	Upgradient	Yes	6.49	NO	1.870	N/A
MW374	Upgradient	Yes	6.74	NO	1.908	N/A
MW375	Sidegradient	Yes	6.37	NO	1.852	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV   Coefficient-of-Variation, CV = S/X   If CV is less than or equal to 1 assume normal distribution.

S   Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL   Upper Tolerance Limit, TL = X + (K * S),   LL   Lower Tolerance Limit, LL = X - (K * S)

X   Mean, X = (sum of background results)/(count of background results)

**   *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	X= 1.262	S= 0.907	CV(1)=0.718	K factor**= 2.523	TL(1)= 3.549	LL(1)=N/A
Statistics-Transformed Background Data	X= -0.023	S= 0.752	CV(2)=-32.218	K factor**= 2.523	TL(2)= 1.874	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: MW371

Date Collected	Result	LN(Result)
3/18/2002	2	0.693
4/22/2002	2	0.693
7/15/2002	2	0.693
10/8/2002	0.408	-0.896
1/8/2003	0.384	-0.957
4/3/2003	0.368	-1.000
7/9/2003	0.587	-0.533
10/6/2003	0.382	-0.962

Well Number: MW374

Date Collected	Result	LN(Result)
10/8/2002	3.04	1.112
1/7/2003	2.83	1.040
4/2/2003	2	0.693
7/9/2003	1.09	0.086
10/7/2003	0.802	-0.221
1/6/2004	0.897	-0.109
4/7/2004	0.689	-0.373
7/14/2004	0.716	-0.334

Dry/Partially Dry Wells

Well No.	Gradient
MW359	Downgradient
MW365	Downgradient
MW368	Downgradient
MW376	Sidegradient
MW377	Sidegradient

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW362	Downgradient	Yes	0.354	NO	-1.038	N/A
MW371	Upgradient	Yes	0.44	NO	-0.821	N/A
MW374	Upgradient	Yes	0.563	NO	-0.574	N/A
MW375	Sidegradient	Yes	0.334	NO	-1.097	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV   Coefficient-of-Variation, CV = S/X   If CV is less than or equal to 1 assume normal distribution.

S   Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL   Upper Tolerance Limit, TL = X + (K * S),   LL   Lower Tolerance Limit, LL = X - (K * S)

X   Mean, X = (sum of background results)/(count of background results)

**   *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data   **X**= 183.063 **S**= 73.222 **CV(1)**=0.400   **K factor****= 2.523   **TL(1)**= 367.800 **LL(1)**=N/A

Statistics-Transformed Background Data   **X**= 5.146   **S**= 0.356   **CV(2)**=0.069   **K factor****= 2.523   **TL(2)**= 6.044   **LL(2)**=N/A

Historical Background Data from Upgradient Wells with Transformed Result		

Well Number:	MW371	
Date Collected	Result	LN(Result)
3/18/2002	129	4.860
4/22/2002	131	4.875
7/15/2002	127	4.844
10/8/2002	123	4.812
1/8/2003	128	4.852
4/3/2003	144	4.970
7/9/2003	126	4.836
10/6/2003	120	4.787

Well Number:	MW374	
Date Collected	Result	LN(Result)
10/8/2002	336	5.817
1/7/2003	329	5.796
4/2/2003	287	5.659
7/9/2003	181	5.198
10/7/2003	182	5.204
1/6/2004	206	5.328
4/7/2004	182	5.204
7/14/2004	198	5.288

Dry/Partially Dry Wells	
Well No.	Gradient
MW359	Downgradient
MW365	Downgradient
MW368	Downgradient
MW376	Sidegradient
MW377	Sidegradient

Current Quarter Data						
Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW362	Downgradient	Yes	111	NO	4.710	N/A
MW371	Upgradient	Yes	92.8	NO	4.530	N/A
MW374	Upgradient	Yes	127	NO	4.844	N/A
MW375	Sidegradient	Yes	54.4	NO	3.996	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV   Coefficient-of-Variation, CV = S/X   If CV is less than or equal to 1 assume normal distribution.

S   Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL   Upper Tolerance Limit, TL = X + (K * S),   LL   Lower Tolerance Limit, LL = X - (K * S)

X   Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

| **Statistics-Background Data** | **X**= 6.469 | **S**= 3.153 | **CV(1)**=0.487 | **K factor****= 2.523 | **TL(1)**= 14.423 | **LL(1)**=N/A |

| **Statistics-Transformed Background Data** | **X**= 1.794 | **S**= 0.357 | **CV(2)**=0.199 | **K factor****= 2.523 | **TL(2)**= 2.694 | **LL(2)**=N/A |

Historical Background Data from Upgradient Wells with Transformed Result

Well Number: MW371

Date Collected	Result	LN(Result)
3/18/2002	16.3	2.791
4/22/2002	8.6	2.152
7/15/2002	6.7	1.902
10/8/2002	5	1.609
1/8/2003	5	1.609
4/3/2003	5	1.609
7/9/2003	5	1.609
10/6/2003	5	1.609

Well Number: MW374

Date Collected	Result	LN(Result)
10/8/2002	5	1.609
1/7/2003	5	1.609
4/2/2003	5	1.609
7/9/2003	5.6	1.723
10/7/2003	5	1.609
1/6/2004	5	1.609
4/7/2004	11.3	2.425
7/14/2004	5	1.609

Dry/Partially Dry Wells

Well No.	Gradient
MW359	Downgradient
MW365	Downgradient
MW368	Downgradient
MW376	Sidegradient
MW377	Sidegradient

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW362	Downgradient	Yes	15.4	YES	2.734	N/A
MW371	Upgradient	Yes	12	NO	2.485	N/A
MW374	Upgradient	Yes	13.9	NO	2.632	N/A
MW375	Sidegradient	Yes	23	YES	3.135	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Conclusion of Statistical Analysis on Historical Data

The test well(s) listed exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to historical background data.

Wells with Exceedances

MW362

MW375

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV   Coefficient-of-Variation, CV = S/X   If CV is less than or equal to 1 assume normal distribution.

S   Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL   Upper Tolerance Limit, TL = X + (K * S),   LL   Lower Tolerance Limit, LL = X - (K * S)

X   Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	X= 17.631	S= 24.314	CV(1)=1.379	K factor**= 2.523	TL(1)= 78.977	LL(1)=N/A
Statistics-Transformed Background Data	X= 2.318	S= 0.979	CV(2)=0.422	K factor**= 2.523	TL(2)= 4.788	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: MW371

Date Collected	Result	LN(Result)
3/18/2002	11.1	2.407
4/22/2002	7	1.946
7/15/2002	4.1	1.411
10/8/2002	6	1.792
1/8/2003	5.3	1.668
4/3/2003	5.3	1.668
7/9/2003	2.9	1.065
10/6/2003	3.2	1.163

Well Number: MW374

Date Collected	Result	LN(Result)
10/8/2002	90	4.500
1/7/2003	64	4.159
4/2/2003	25	3.219
7/9/2003	16	2.773
10/7/2003	13	2.565
1/6/2004	10	2.303
4/7/2004	7.2	1.974
7/14/2004	12	2.485

Dry/Partially Dry Wells

Well No.	Gradient
MW359	Downgradient
MW365	Downgradient
MW368	Downgradient
MW376	Sidegradient
MW377	Sidegradient

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW362	Downgradient	Yes	1.19	N/A	0.174	NO
MW371	Upgradient	Yes	1.77	N/A	0.571	NO
MW374	Upgradient	Yes	2.17	N/A	0.775	NO
MW375	Sidegradient	Yes	0.67	N/A	-0.400	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.*

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data   X= 214.094 **S=** 231.089 **CV(1)=**1.079   **K factor**=** 2.523   **TL(1)=** 797.131 **LL(1)=**N/A

Statistics-Transformed Background Data   **X=** 4.867   **S=** 1.065   **CV(2)=**0.219   **K factor**=** 2.523   **TL(2)=** 7.554   **LL(2)=**N/A

Historical Background Data from Upgradient Wells with Transformed Result		

Well Number:	MW371	
Date Collected	Result	LN(Result)
3/18/2002	50	3.912
4/22/2002	105	4.654
7/15/2002	70	4.248
10/8/2002	52	3.951
1/8/2003	20.2	3.006
4/3/2003	104	4.644
7/9/2003	34.2	3.532
10/6/2003	46.1	3.831

Well Number:	MW374	
Date Collected	Result	LN(Result)
10/8/2002	903	6.806
1/7/2003	539	6.290
4/2/2003	295	5.687
7/9/2003	272	5.606
10/7/2003	197	5.283
1/6/2004	330	5.799
4/7/2004	183	5.209
7/14/2004	225	5.416

Dry/Partially Dry Wells	
Well No.	Gradient
MW359	Downgradient
MW365	Downgradient
MW368	Downgradient
MW376	Sidegradient
MW377	Sidegradient

Current Quarter Data						
Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW362	Downgradient	Yes	9.2	N/A	2.219	NO
MW371	Upgradient	Yes	8.58	N/A	2.149	NO
MW374	Upgradient	Yes	33.4	N/A	3.509	NO
MW375	Sidegradient	Yes	6.18	N/A	1.821	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.

Because CV(1) is greater than 1, the natural logarithm of background and test well results were calculated utilizing TL(2) for comparison.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV   Coefficient-of-Variation, CV = S/X   If CV is less than or equal to 1 assume normal distribution.

S   Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL   Upper Tolerance Limit, TL = X + (K * S),   LL   Lower Tolerance Limit, LL = X - (K * S)

X   Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data   **X**= 0.055   **S**= 0.072   **CV(1)**= 1.319   **K factor****= 2.523   **TL(1)**= 0.237   **LL(1)**=N/A

Statistics-Transformed Background Data   **X**= -3.438   **S**= 0.912   **CV(2)**=-0.265   **K factor****= 2.523   **TL(2)**= -1.138   **LL(2)**=N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number: MW371

Date Collected	Result	LN(Result)
3/18/2002	0.025	-3.689
4/22/2002	0.025	-3.689
7/15/2002	0.025	-3.689
10/8/2002	0.02	-3.912
1/8/2003	0.02	-3.912
4/3/2003	0.02	-3.912
7/9/2003	0.02	-3.912
10/6/2003	0.02	-3.912

Well Number: MW374

Date Collected	Result	LN(Result)
10/8/2002	0.2	-1.609
1/7/2003	0.2	-1.609
4/2/2003	0.2	-1.609
7/9/2003	0.02	-3.912
10/7/2003	0.02	-3.912
1/6/2004	0.02	-3.912
4/7/2004	0.02	-3.912
7/14/2004	0.02	-3.912

Dry/Partially Dry Wells

Well No.	Gradient
MW359	Downgradient
MW365	Downgradient
MW368	Downgradient
MW376	Sidegradient
MW377	Sidegradient

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW362	Downgradient	No	0.02	N/A	-3.912	N/A
MW371	Upgradient	Yes	0.00467	N/A	-5.367	NO
MW374	Upgradient	No	0.02	N/A	-3.912	N/A
MW375	Sidegradient	No	0.02	N/A	-3.912	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Because CV(1) is greater than 1, the natural logarithm of background and test well results were calculated utilizing TL(2) for comparison.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV   Coefficient-of-Variation, CV = S/X   If CV is less than or equal to 1 assume normal distribution.

S   Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL   Upper Tolerance Limit, TL = X + (K * S),   LL   Lower Tolerance Limit, LL = X - (K * S)

X   Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-U First Quarter 2023 Statistical Analysis   Historical Background Comparison
Zinc   UNITS: mg/L   UCRS

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X**= 0.060	**S**= 0.083	**CV(1)**= 1.380	**K factor****= 2.523	**TL(1)**= 0.270	**LL(1)**=N/A
Statistics-Transformed Background Data	**X**= -3.259	**S**= 0.840	**CV(2)**= -0.258	**K factor****= 2.523	**TL(2)**= -1.140	**LL(2)**=N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number: MW371

Date Collected	Result	LN(Result)
3/18/2002	0.1	-2.303
4/22/2002	0.1	-2.303
7/15/2002	0.1	-2.303
10/8/2002	0.025	-3.689
1/8/2003	0.035	-3.352
4/3/2003	0.035	-3.352
7/9/2003	0.0376	-3.281
10/6/2003	0.02	-3.912

Well Number: MW374

Date Collected	Result	LN(Result)
10/8/2002	0.025	-3.689
1/7/2003	0.35	-1.050
4/2/2003	0.035	-3.352
7/9/2003	0.02	-3.912
10/7/2003	0.02	-3.912
1/6/2004	0.02	-3.912
4/7/2004	0.02	-3.912
7/14/2004	0.02	-3.912

Dry/Partially Dry Wells

Well No.	Gradient
MW359	Downgradient
MW365	Downgradient
MW368	Downgradient
MW376	Sidegradient
MW377	Sidegradient

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW362	Downgradient	No	0.02	N/A	-3.912	N/A
MW371	Upgradient	Yes	0.00376	N/A	-5.583	NO
MW374	Upgradient	No	0.02	N/A	-3.912	N/A
MW375	Sidegradient	No	0.02	N/A	-3.912	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Because CV(1) is greater than 1, the natural logarithm of background and test well results were calculated utilizing TL(2) for comparison.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.
CV   Coefficient-of-Variation, CV = S/X   If CV is less than or equal to 1 assume normal distribution.
 S   Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL   Upper Tolerance Limit, TL = X + (K * S),   LL   Lower Tolerance Limit, LL = X - (K * S)
 X   Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data   **X**= 372.563 **S**= 1447.319 **CV(1)**=3.885   **K factor****= 2.523   **TL(1)**= 4024.149 **LL(1)**=N/A

Statistics-Transformed Background Data   **X**= 2.736   **S**= 1.603   **CV(2)**=0.586   **K factor****= 2.523   **TL(2)**= 6.780   **LL(2)**=N/A

Historical Background Data from Upgradient Wells with Transformed Result

Because CV(1) is greater than 1, the natural logarithm of background and test well results were calculated utilizing TL(2) for comparison.

Well Number: MW369

Date Collected	Result	LN(Result)
3/18/2002	5	1.609
4/22/2002	10	2.303
7/15/2002	14	2.639
10/8/2002	10	2.303
1/8/2003	10	2.303
4/3/2003	10	2.303
7/8/2003	10	2.303
10/6/2003	5800	8.666

Well Number: MW372

Date Collected	Result	LN(Result)
3/19/2002	14	2.639
4/23/2002	10	2.303
7/16/2002	10	2.303
10/8/2002	10	2.303
1/7/2003	10	2.303
4/2/2003	10	2.303
7/9/2003	18	2.890
10/7/2003	10	2.303

Current Quarter Data						
Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW357	Downgradient	Yes	2.16	N/A	0.770	NO
MW360	Downgradient	Yes	3.27	N/A	1.185	NO
MW363	Downgradient	No	5	N/A	1.609	N/A
MW366	Downgradient	No	5	N/A	1.609	N/A
MW369	Upgradient	No	5	N/A	1.609	N/A
MW372	Upgradient	No	5	N/A	1.609	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV   Coefficient-of-Variation, CV = S/X   If CV is less than or equal to 1 assume normal distribution.

S   Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL   Upper Tolerance Limit, TL = X + (K * S),   LL   Lower Tolerance Limit, LL = X - (K * S)

X   Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	X= 0.625	S= 0.774	CV(1)= 1.239	K factor**= 2.523	TL(1)= 2.578	LL(1)=N/A
Statistics-Transformed Background Data	X= -0.973	S= 0.935	CV(2)= -0.961	K factor**= 2.523	TL(2)= 1.386	LL(2)=N/A

Historical Background Data from Upgradient Wells with Transformed Result

Because CV(1) is greater than 1, the natural logarithm of background and test well results were calculated utilizing TL(2) for comparison.

Well Number:　　MW369

Date Collected	Result	LN(Result)
3/18/2002	0.255	-1.366
4/22/2002	0.2	-1.609
7/15/2002	0.322	-1.133
10/8/2002	0.2	-1.609
1/8/2003	0.2	-1.609
4/3/2003	0.2	-1.609
7/8/2003	0.2	-1.609
10/6/2003	0.689	-0.373

Well Number:　　MW372

Date Collected	Result	LN(Result)
3/19/2002	2.61	0.959
4/23/2002	0.2	-1.609
7/16/2002	1.14	0.131
10/8/2002	0.862	-0.149
1/7/2003	2.32	0.842
4/2/2003	0.2	-1.609
7/9/2003	0.2	-1.609
10/7/2003	0.2	-1.609

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW357	Downgradient	No	0.05	N/A	-2.996	N/A
MW360	Downgradient	Yes	0.0603	N/A	-2.808	NO
MW363	Downgradient	No	0.05	N/A	-2.996	N/A
MW366	Downgradient	No	0.05	N/A	-2.996	N/A
MW369	Upgradient	Yes	0.112	N/A	-2.189	NO
MW372	Upgradient	No	0.05	N/A	-2.996	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV　　Coefficient-of-Variation, CV = S/X　 If CV is less than or equal to 1 assume normal distribution.

S　　　Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL　　Upper Tolerance Limit, TL = X + (K * S),　　　　LL　　Lower Tolerance Limit, LL = X - (K * S)

X　　　Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X**= 0.985	**S**= 0.825	**CV(1)**=0.838	**K factor****= 2.523	**TL(1)**= 3.067	**LL(1)**=N/A
Statistics-Transformed Background Data	**X**= -0.430	**S**= 0.990	**CV(2)**=-2.302	**K factor****= 2.523	**TL(2)**= 2.068	**LL(2)**=N/A

Historical Background Data from Upgradient Wells with Transformed Result

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Well Number: MW369

Date Collected	Result	LN(Result)
3/18/2002	2	0.693
4/22/2002	2	0.693
7/15/2002	2	0.693
10/8/2002	0.2	-1.609
1/8/2003	0.2	-1.609
4/3/2003	0.2	-1.609
7/8/2003	0.2	-1.609
10/6/2003	0.2	-1.609

Well Number: MW372

Date Collected	Result	LN(Result)
3/19/2002	2	0.693
4/23/2002	2	0.693
7/16/2002	2	0.693
10/8/2002	0.492	-0.709
1/7/2003	0.492	-0.709
4/2/2003	0.6	-0.511
7/9/2003	0.57	-0.562
10/7/2003	0.604	-0.504

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW357	Downgradient	Yes	0.381	NO	-0.965	N/A
MW360	Downgradient	Yes	0.057	NO	-2.865	N/A
MW363	Downgradient	Yes	0.148	NO	-1.911	N/A
MW366	Downgradient	Yes	0.066	NO	-2.718	N/A
MW369	Upgradient	Yes	0.017	NO	-4.075	N/A
MW372	Upgradient	Yes	1.13	NO	0.122	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV   Coefficient-of-Variation, CV = S/X   If CV is less than or equal to 1 assume normal distribution.

S   Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL   Upper Tolerance Limit, TL = X + (K * S),   LL   Lower Tolerance Limit, LL = X - (K * S)

X   Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the 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)=** 1.000	**LL(1)=** N/A
Statistics-Transformed Background Data	X= 0.000	S= 0.000	**CV(2)=** #Num!	**K factor**=** 2.523	**TL(2)=** 0.000	**LL(2)=** N/A

Historical Background Data from Upgradient Wells with Transformed Result

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Well Number: MW369

Date Collected	Result	LN(Result)
3/18/2002	1	0.000
4/22/2002	1	0.000
7/15/2002	1	0.000
10/8/2002	1	0.000
1/8/2003	1	0.000
4/3/2003	1	0.000
7/8/2003	1	0.000
10/6/2003	1	0.000

Well Number: MW372

Date Collected	Result	LN(Result)
3/19/2002	1	0.000
4/23/2002	1	0.000
7/16/2002	1	0.000
10/8/2002	1	0.000
1/7/2003	1	0.000
4/2/2003	1	0.000
7/9/2003	1	0.000
10/7/2003	1	0.000

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW357	Downgradient	Yes	0.388	NO	-0.947	N/A
MW360	Downgradient	Yes	0.187	NO	-1.677	N/A
MW363	Downgradient	No	0.2	N/A	-1.609	N/A
MW366	Downgradient	Yes	0.495	NO	-0.703	N/A
MW369	Upgradient	Yes	0.345	NO	-1.064	N/A
MW372	Upgradient	Yes	0.525	NO	-0.644	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV   Coefficient-of-Variation, CV = S/X   If CV is less than or equal to 1 assume normal distribution.

S   Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL   Upper Tolerance Limit, TL = X + (K * S),   LL   Lower Tolerance Limit, LL = X - (K * S)

X   Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	X= 32.763	S= 9.391	CV(1)=0.287	K factor**= 2.523	TL(1)= 56.456	LL(1)=N/A
Statistics-Transformed Background Data	X= 3.449	S= 0.299	CV(2)=0.087	K factor**= 2.523	TL(2)= 4.202	LL(2)=N/A

Historical Background Data from Upgradient Wells with Transformed Result

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Well Number: MW369

Date Collected	Result	LN(Result)
3/18/2002	29.5	3.384
4/22/2002	29.8	3.395
7/15/2002	25.3	3.231
10/8/2002	21.9	3.086
1/8/2003	20.9	3.040
4/3/2003	22.2	3.100
7/8/2003	22.9	3.131
10/6/2003	21.7	3.077

Well Number: MW372

Date Collected	Result	LN(Result)
3/19/2002	41.5	3.726
4/23/2002	43.6	3.775
7/16/2002	40.4	3.699
10/8/2002	38.8	3.658
1/7/2003	41.1	3.716
4/2/2003	42.9	3.759
7/9/2003	35.1	3.558
10/7/2003	46.6	3.842

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW357	Downgradient	Yes	25.5	NO	3.239	N/A
MW360	Downgradient	Yes	19.1	NO	2.950	N/A
MW363	Downgradient	Yes	32.5	NO	3.481	N/A
MW366	Downgradient	Yes	31.6	NO	3.453	N/A
MW369	Upgradient	Yes	16	NO	2.773	N/A
MW372	Upgradient	Yes	60.6	YES	4.104	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for 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.

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X**= 35.938	**S**= 3.750	**CV(1)**=0.104	**K factor****= 2.523	**TL(1)**= 45.399	**LL(1)**=N/A
Statistics-Transformed Background Data	**X**= 3.578	**S**= 0.089	**CV(2)**=0.025	**K factor****= 2.523	**TL(2)**= 3.803	**LL(2)**=N/A

Historical Background Data from Upgradient Wells with Transformed Result

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Well Number: MW369

Date Collected	Result	LN(Result)
3/18/2002	35	3.555
4/22/2002	35	3.555
7/15/2002	35	3.555
10/8/2002	50	3.912
1/8/2003	35	3.555
4/3/2003	35	3.555
7/8/2003	35	3.555
10/6/2003	35	3.555

Well Number: MW372

Date Collected	Result	LN(Result)
3/19/2002	35	3.555
4/23/2002	35	3.555
7/16/2002	35	3.555
10/8/2002	35	3.555
1/7/2003	35	3.555
4/2/2003	35	3.555
7/9/2003	35	3.555
10/7/2003	35	3.555

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW357	Downgradient	No	20	N/A	2.996	N/A
MW360	Downgradient	No	20	N/A	2.996	N/A
MW363	Downgradient	No	20	N/A	2.996	N/A
MW366	Downgradient	Yes	14.9	NO	2.701	N/A
MW369	Upgradient	No	20	N/A	2.996	N/A
MW372	Upgradient	No	20	N/A	2.996	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV   Coefficient-of-Variation, CV = S/X   If CV is less than or equal to 1 assume normal distribution.

S   Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL   Upper Tolerance Limit, TL = X + (K * S),   LL   Lower Tolerance Limit, LL = X - (K * S)

X   Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X**= 44.119	**S**= 4.554	**CV(1)**=0.103	**K factor****= 2.523	**TL(1)**= 55.607	**LL(1)**=N/A
Statistics-Transformed Background Data	**X**= 3.782	**S**= 0.099	**CV(2)**=0.026	**K factor****= 2.523	**TL(2)**= 4.033	**LL(2)**=N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number: MW369

Date Collected	Result	LN(Result)
7/15/2002	48.3	3.877
10/8/2002	47.7	3.865
1/8/2003	45.7	3.822
4/3/2003	47.4	3.859
7/8/2003	55.9	4.024
10/6/2003	47.4	3.859
1/7/2004	45.5	3.818
4/7/2004	43.4	3.770

Well Number: MW372

Date Collected	Result	LN(Result)
7/16/2002	39.8	3.684
10/8/2002	41	3.714
1/7/2003	39.4	3.674
4/2/2003	39.2	3.669
7/9/2003	39.8	3.684
10/7/2003	40	3.689
1/5/2004	43.4	3.770
4/5/2004	42	3.738

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW357	Downgradient	Yes	34.7	NO	3.547	N/A
MW360	Downgradient	Yes	10.2	NO	2.322	N/A
MW363	Downgradient	Yes	27.3	NO	3.307	N/A
MW366	Downgradient	Yes	41.1	NO	3.716	N/A
MW369	Upgradient	Yes	28.7	NO	3.357	N/A
MW372	Upgradient	Yes	41.1	NO	3.716	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV   Coefficient-of-Variation, CV = S/X   If CV is less than or equal to 1 assume normal distribution.

S   Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL   Upper Tolerance Limit, TL = X + (K * S),   LL   Lower Tolerance Limit, LL = X - (K * S)

X   Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X**= 0.025	**S**= 0.021	**CV(1)**=0.845	**K factor****= 2.523	**TL(1)**= 0.077	**LL(1)**=N/A
Statistics-Transformed Background Data	**X**= -4.090	**S**= 1.006	**CV(2)**=-0.246	**K factor****= 2.523	**TL(2)**= -1.553	**LL(2)**=N/A

Historical Background Data from Upgradient Wells with Transformed Result

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Well Number:	MW369	
Date Collected	Result	LN(Result)
3/18/2002	0.025	-3.689
4/22/2002	0.025	-3.689
7/15/2002	0.025	-3.689
10/8/2002	0.00938	-4.669
1/8/2003	0.00548	-5.207
4/3/2003	0.00587	-5.138
7/8/2003	0.0541	-2.917
10/6/2003	0.0689	-2.675

Well Number:	MW372	
Date Collected	Result	LN(Result)
3/19/2002	0.025	-3.689
4/23/2002	0.025	-3.689
7/16/2002	0.025	-3.689
10/8/2002	0.00158	-6.450
1/7/2003	0.0147	-4.220
4/2/2003	0.0116	-4.457
7/9/2003	0.0653	-2.729
10/7/2003	0.00788	-4.843

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW357	Downgradient	No	0.001	N/A	-6.908	N/A
MW360	Downgradient	Yes	0.00242	NO	-6.024	N/A
MW363	Downgradient	No	0.001	N/A	-6.908	N/A
MW366	Downgradient	No	0.001	N/A	-6.908	N/A
MW369	Upgradient	Yes	0.00441	NO	-5.424	N/A
MW372	Upgradient	No	0.001	N/A	-6.908	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV   Coefficient-of-Variation, CV = S/X   If CV is less than or equal to 1 assume normal distribution.

S   Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL   Upper Tolerance Limit, TL = X + (K * S),   LL   Lower Tolerance Limit, LL = X - (K * S)

X   Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X**= 482.856	**S**= 57.603	**CV(1)**=0.119	**K factor****= 2.523	**TL(1)**= 628.189	**LL(1)**=N/A
Statistics-Transformed Background Data	**X**= 6.173	**S**= 0.123	**CV(2)**=0.020	**K factor****= 2.523	**TL(2)**= 6.484	**LL(2)**=N/A

Historical Background Data from Upgradient Wells with Transformed Result

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Well Number: MW369

Date Collected	Result	LN(Result)
3/18/2002	388	5.961
4/22/2002	404	6.001
7/15/2002	394	5.976
10/8/2002	403	5.999
1/8/2003	520	6.254
4/3/2003	487	6.188
7/8/2003	478	6.170
10/6/2003	476	6.165

Well Number: MW372

Date Collected	Result	LN(Result)
3/19/2002	508	6.230
4/23/2002	501	6.217
7/16/2002	507	6.229
10/8/2002	495	6.205
1/7/2003	508.7	6.232
4/2/2003	515	6.244
7/9/2003	576	6.356
10/7/2003	565	6.337

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW357	Downgradient	Yes	435	NO	6.075	N/A
MW360	Downgradient	Yes	394	NO	5.976	N/A
MW363	Downgradient	Yes	423	NO	6.047	N/A
MW366	Downgradient	Yes	501	NO	6.217	N/A
MW369	Upgradient	Yes	359	NO	5.883	N/A
MW372	Upgradient	Yes	754	YES	6.625	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for 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.*

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X**= 0.025	**S**= 0.010	**CV(1)**=0.400	**K factor****= 2.523	**TL(1)**= 0.050	**LL(1)**=N/A
Statistics-Transformed Background Data	**X**= -3.742	**S**= 0.307	**CV(2)**=-0.082	**K factor****= 2.523	**TL(2)**= -2.967	**LL(2)**=N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number: MW369

Date Collected	Result	LN(Result)
3/18/2002	0.025	-3.689
4/22/2002	0.025	-3.689
7/15/2002	0.05	-2.996
10/8/2002	0.02	-3.912
1/8/2003	0.02	-3.912
4/3/2003	0.02	-3.912
7/8/2003	0.02	-3.912
10/6/2003	0.02	-3.912

Well Number: MW372

Date Collected	Result	LN(Result)
3/19/2002	0.025	-3.689
4/23/2002	0.025	-3.689
7/16/2002	0.05	-2.996
10/8/2002	0.02	-3.912
1/7/2003	0.02	-3.912
4/2/2003	0.02	-3.912
7/9/2003	0.02	-3.912
10/7/2003	0.02	-3.912

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW357	Downgradient	Yes	0.000432	NO	-7.747	N/A
MW360	Downgradient	Yes	0.00159	NO	-6.444	N/A
MW363	Downgradient	Yes	0.000403	NO	-7.817	N/A
MW366	Downgradient	Yes	0.000457	NO	-7.691	N/A
MW369	Upgradient	Yes	0.00136	NO	-6.600	N/A
MW372	Upgradient	No	0.002	N/A	-6.215	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV   Coefficient-of-Variation, CV = S/X   If CV is less than or equal to 1 assume normal distribution.

S   Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL   Upper Tolerance Limit, TL = X + (K * S),   LL   Lower Tolerance Limit, LL = X - (K * S)

X   Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	X= 1.781	S= 1.351	CV(1)=0.759	K factor**= 2.523	TL(1)= 5.190	LL(1)=N/A
Statistics-Transformed Background Data	X= 0.228	S= 1.065	CV(2)=4.665	K factor**= 2.523	TL(2)= 2.915	LL(2)=N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number: MW369

Date Collected	Result	LN(Result)
3/18/2002	5.41	1.688
4/22/2002	1.57	0.451
7/15/2002	0.8	-0.223
10/8/2002	1.09	0.086
1/8/2003	2.69	0.990
4/3/2003	2.04	0.713
7/8/2003	1.19	0.174
10/6/2003	1.78	0.577

Well Number: MW372

Date Collected	Result	LN(Result)
3/19/2002	3.89	1.358
4/23/2002	0.05	-2.996
7/16/2002	1.33	0.285
10/8/2002	2.66	0.978
1/7/2003	0.4	-0.916
4/2/2003	0.91	-0.094
7/9/2003	1.42	0.351
10/7/2003	1.26	0.231

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW357	Downgradient	Yes	4.3	NO	1.459	N/A
MW360	Downgradient	Yes	1.64	NO	0.495	N/A
MW363	Downgradient	Yes	1.44	NO	0.365	N/A
MW366	Downgradient	Yes	3.6	NO	1.281	N/A
MW369	Upgradient	Yes	2.76	NO	1.015	N/A
MW372	Upgradient	Yes	2.23	NO	0.802	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV   Coefficient-of-Variation, CV = S/X   If CV is less than or equal to 1 assume normal distribution.

S   Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL   Upper Tolerance Limit, TL = X + (K * S),   LL   Lower Tolerance Limit, LL = X - (K * S)

X   Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X**= 285.188	**S**= 44.908	**CV(1)**=0.157	**K factor****= 2.523	**TL(1)**= 398.489	**LL(1)**=N/A

Statistics-Transformed Background Data	**X**= 5.640	**S**= 0.175	**CV(2)**=0.031	**K factor****= 2.523	**TL(2)**= 6.080	**LL(2)**=N/A

Historical Background Data from Upgradient Wells with Transformed Result

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Well Number: MW369

Date Collected	Result	LN(Result)
3/18/2002	173	5.153
4/22/2002	246	5.505
7/15/2002	232	5.447
10/8/2002	275	5.617
1/8/2003	269	5.595
4/3/2003	250	5.521
7/8/2003	295	5.687
10/6/2003	276	5.620

Well Number: MW372

Date Collected	Result	LN(Result)
3/19/2002	295	5.687
4/23/2002	322	5.775
7/16/2002	329	5.796
10/8/2002	290	5.670
1/7/2003	316	5.756
4/2/2003	311	5.740
7/9/2003	347	5.849
10/7/2003	337	5.820

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW357	Downgradient	Yes	218	NO	5.384	N/A
MW360	Downgradient	Yes	215	NO	5.371	N/A
MW363	Downgradient	Yes	215	NO	5.371	N/A
MW366	Downgradient	Yes	229	NO	5.434	N/A
MW369	Upgradient	Yes	186	NO	5.226	N/A
MW372	Upgradient	Yes	428	YES	6.059	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for 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.*

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	X= 7.385	S= 6.991	CV(1)=0.947	K factor**= 2.523	TL(1)= 25.024	LL(1)=N/A
Statistics-Transformed Background Data	X= 1.358	S= 1.323	CV(2)=0.974	K factor**= 2.523	TL(2)= 4.697	LL(2)=N/A

Historical Background Data from Upgradient Wells with Transformed Result

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Well Number: MW369

Date Collected	Result	LN(Result)
3/18/2002	0.656	-0.422
4/22/2002	0.695	-0.364
7/15/2002	7.1	1.960
10/8/2002	21.5	3.068
1/8/2003	18.5	2.918
4/3/2003	14.9	2.701
7/8/2003	11.3	2.425
10/6/2003	14.9	2.701

Well Number: MW372

Date Collected	Result	LN(Result)
3/19/2002	5.95	1.783
4/23/2002	0.792	-0.233
7/16/2002	1.78	0.577
10/8/2002	0.776	-0.254
1/7/2003	3.55	1.267
4/2/2003	5.02	1.613
7/9/2003	10	2.303
10/7/2003	0.733	-0.311

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW357	Downgradient	No	0.1	N/A	-2.303	N/A
MW360	Downgradient	Yes	0.295	NO	-1.221	N/A
MW363	Downgradient	No	0.1	N/A	-2.303	N/A
MW366	Downgradient	No	0.1	N/A	-2.303	N/A
MW369	Upgradient	Yes	0.191	NO	-1.655	N/A
MW372	Upgradient	No	0.1	N/A	-2.303	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV   Coefficient-of-Variation, CV = S/X   If CV is less than or equal to 1 assume normal distribution.

S   Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL   Upper Tolerance Limit, TL = X + (K * S),   LL   Lower Tolerance Limit, LL = X - (K * S)

X   Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	X= 12.864	S= 3.505	CV(1)=0.272	K factor**= 2.523	TL(1)= 21.707	LL(1)=N/A
Statistics-Transformed Background Data	X= 2.517	S= 0.290	CV(2)=0.115	K factor**= 2.523	TL(2)= 3.248	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: MW369

Date Collected	Result	LN(Result)
3/18/2002	11.4	2.434
4/22/2002	12	2.485
7/15/2002	10	2.303
10/8/2002	8.62	2.154
1/8/2003	7.89	2.066
4/3/2003	7.97	2.076
7/8/2003	10.3	2.332
10/6/2003	9.14	2.213

Well Number: MW372

Date Collected	Result	LN(Result)
3/19/2002	15.7	2.754
4/23/2002	16.6	2.809
7/16/2002	15.4	2.734
10/8/2002	15.8	2.760
1/7/2003	15.8	2.760
4/2/2003	16.4	2.797
7/9/2003	15.2	2.721
10/7/2003	17.6	2.868

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW357	Downgradient	Yes	11	NO	2.398	N/A
MW360	Downgradient	Yes	8.29	NO	2.115	N/A
MW363	Downgradient	Yes	13.7	NO	2.617	N/A
MW366	Downgradient	Yes	13	NO	2.565	N/A
MW369	Upgradient	Yes	6.56	NO	1.881	N/A
MW372	Upgradient	Yes	21.9	YES	3.086	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for 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.*

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X**= 0.413	**S**= 0.274	**CV(1)**= 0.664	**K factor****= 2.523	**TL(1)**= 1.105	**LL(1)**=N/A
Statistics-Transformed Background Data	**X**= -1.226	**S**= 1.008	**CV(2)**= -0.822	**K factor****= 2.523	**TL(2)**= 1.317	**LL(2)**=N/A

Historical Background Data from Upgradient Wells with Transformed Result

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Well Number: MW369

Date Collected	Result	LN(Result)
3/18/2002	0.034	-3.381
4/22/2002	0.062	-2.781
7/15/2002	0.436	-0.830
10/8/2002	0.867	-0.143
1/8/2003	0.828	-0.189
4/3/2003	0.672	-0.397
7/8/2003	0.321	-1.136
10/6/2003	0.714	-0.337

Well Number: MW372

Date Collected	Result	LN(Result)
3/19/2002	0.205	-1.585
4/23/2002	0.345	-1.064
7/16/2002	0.21	-1.561
10/8/2002	0.0539	-2.921
1/7/2003	0.537	-0.622
4/2/2003	0.415	-0.879
7/9/2003	0.654	-0.425
10/7/2003	0.254	-1.370

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW357	Downgradient	Yes	0.00206	NO	-6.185	N/A
MW360	Downgradient	Yes	0.0266	NO	-3.627	N/A
MW363	Downgradient	Yes	0.00227	NO	-6.088	N/A
MW366	Downgradient	Yes	0.00691	NO	-4.975	N/A
MW369	Upgradient	Yes	0.0133	NO	-4.320	N/A
MW372	Upgradient	No	0.005	N/A	-5.298	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV   Coefficient-of-Variation, CV = S/X   If CV is less than or equal to 1 assume normal distribution.

S   Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL   Upper Tolerance Limit, TL = X + (K * S),   LL   Lower Tolerance Limit, LL = X - (K * S)

X   Mean, X = (sum of background results)/(count of background results)

**   *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X**= 5.438	**S**= 1.931	**CV(1)**=0.355	**K factor****= 2.523	**TL(1)**= 10.310	**LL(1)**=N/A
Statistics-Transformed Background Data	**X**= 1.639	**S**= 0.345	**CV(2)**=0.211	**K factor****= 2.523	**TL(2)**= 2.510	**LL(2)**=N/A

Historical Background Data from Upgradient Wells with Transformed Result

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Well Number: MW369

Date Collected	Result	LN(Result)
3/18/2002	2	0.693
4/22/2002	5	1.609
7/15/2002	10	2.303
10/8/2002	5	1.609
1/8/2003	5	1.609
4/3/2003	5	1.609
7/8/2003	5	1.609
10/6/2003	5	1.609

Well Number: MW372

Date Collected	Result	LN(Result)
3/19/2002	5	1.609
4/23/2002	5	1.609
7/16/2002	10	2.303
10/8/2002	5	1.609
1/7/2003	5	1.609
4/2/2003	5	1.609
7/9/2003	5	1.609
10/7/2003	5	1.609

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW357	Downgradient	No	0.74	N/A	-0.301	N/A
MW360	Downgradient	No	0.75	N/A	-0.288	N/A
MW363	Downgradient	Yes	0.59	NO	-0.528	N/A
MW366	Downgradient	No	5	N/A	1.609	N/A
MW369	Upgradient	Yes	0.53	NO	-0.635	N/A
MW372	Upgradient	No	5	N/A	1.609	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV   Coefficient-of-Variation, CV = S/X   If CV is less than or equal to 1 assume normal distribution.

S   Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL   Upper Tolerance Limit, TL = X + (K * S),   LL   Lower Tolerance Limit, LL = X - (K * S)

X   Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 0.024	**S=** 0.021	**CV(1)=** 0.910	**K factor**=* 2.523	**TL(1)=** 0.078	**LL(1)=** N/A
Statistics-Transformed Background Data	**X=** -4.246	**S=** 1.075	**CV(2)=** -0.253	**K factor**=* 2.523	**TL(2)=** -1.535	**LL(2)=** N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number: MW369

Date Collected	Result	LN(Result)
3/18/2002	0.05	-2.996
4/22/2002	0.05	-2.996
7/15/2002	0.05	-2.996
10/8/2002	0.005	-5.298
1/8/2003	0.005	-5.298
4/3/2003	0.005	-5.298
7/8/2003	0.013	-4.343
10/6/2003	0.0104	-4.566

Well Number: MW372

Date Collected	Result	LN(Result)
3/19/2002	0.05	-2.996
4/23/2002	0.05	-2.996
7/16/2002	0.05	-2.996
10/8/2002	0.005	-5.298
1/7/2003	0.005	-5.298
4/2/2003	0.005	-5.298
7/9/2003	0.019	-3.963
10/7/2003	0.005	-5.298

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW357	Downgradient	Yes	0.000683	NO	-7.289	N/A
MW360	Downgradient	Yes	0.00148	NO	-6.516	N/A
MW363	Downgradient	No	0.002	N/A	-6.215	N/A
MW366	Downgradient	Yes	0.00096	NO	-6.949	N/A
MW369	Upgradient	Yes	0.00278	NO	-5.885	N/A
MW372	Upgradient	Yes	0.00104	NO	-6.869	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV   Coefficient-of-Variation, CV = S/X   If CV is less than or equal to 1 assume normal distribution.

S   Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL   Upper Tolerance Limit, TL = X + (K * S),   LL   Lower Tolerance Limit, LL = X - (K * S)

X   Mean, X = (sum of background results)/(count of background results)

**   *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data   **X**= 74.563   **S**= 94.243   **CV(1)**=1.264   **K factor****= 2.523   **TL(1)**= 312.337   **LL(1)**=N/A

Statistics-Transformed Background Data   **X**= 4.554   **S**= 0.784   **CV(2)**=0.172   **K factor****= 2.523   **TL(2)**= 5.371   **LL(2)**=N/A

| Historical Background Data from Upgradient Wells with Transformed Result |

Well Number: MW369

Date Collected	Result	LN(Result)
3/18/2002	215	5.371
4/22/2002	110	4.700
7/15/2002	20	2.996
1/8/2003	-5	#Func!
4/3/2003	-18	#Func!
7/8/2003	-67	#Func!
10/6/2003	-1	#Func!
1/7/2004	55	4.007

Well Number: MW372

Date Collected	Result	LN(Result)
3/19/2002	210	5.347
4/23/2002	65	4.174
7/16/2002	215	5.371
10/8/2002	185	5.220
1/7/2003	45	3.807
4/2/2003	65	4.174
7/9/2003	-39	#Func!
10/7/2003	138	4.927

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 possbile for all background values, the TL was considered equal to the maximum background value.

Current Quarter Data						
Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW357	Downgradient	Yes	380	N/A	5.940	YES
MW360	Downgradient	Yes	430	N/A	6.064	YES
MW363	Downgradient	Yes	365	N/A	5.900	YES
MW366	Downgradient	Yes	365	N/A	5.900	YES
MW369	Upgradient	Yes	480	N/A	6.174	YES
MW372	Upgradient	Yes	403	N/A	5.999	YES

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

| Conclusion of Statistical Analysis on Historical Data |

The test well(s) listed exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to historical background data.

Wells with Exceedances
MW357
MW360
MW363
MW366
MW369
MW372

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV   Coefficient-of-Variation, CV = S/X   If CV is less than or equal to 1 assume normal distribution.

S   Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL   Upper Tolerance Limit, TL = X + (K * S),   LL   Lower Tolerance Limit, LL = X - (K * S)

X   Mean, X = (sum of background results)/(count of background results)

**   *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X**= 0.390	**S**= 0.350	**CV(1)**=0.897	**K factor****= 2.523	**TL(1)**= 1.272	**LL(1)**=N/A
Statistics-Transformed Background Data	**X**= -1.238	**S**= 0.737	**CV(2)**=-0.595	**K factor****= 2.523	**TL(2)**= 0.622	**LL(2)**=N/A

Historical Background Data from Upgradient Wells with Transformed Result

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Well Number: MW369

Date Collected	Result	LN(Result)
3/18/2002	1	0.000
4/22/2002	0.17	-1.772
7/15/2002	0.17	-1.772
7/8/2003	1.15	0.140
10/6/2003	0.605	-0.503
7/13/2004	0.42	-0.868
7/20/2005	0.28	-1.273
4/4/2006	0.23	-1.470

Well Number: MW372

Date Collected	Result	LN(Result)
3/19/2002	1	0.000
4/23/2002	0.17	-1.772
7/16/2002	0.17	-1.772
7/9/2003	0.17	-1.772
10/7/2003	0.17	-1.772
7/14/2004	0.18	-1.715
7/21/2005	0.17	-1.772
4/5/2006	0.18	-1.715

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW357	Downgradient	No	0.1	N/A	-2.303	N/A
MW360	Downgradient	Yes	0.105	NO	-2.254	N/A
MW363	Downgradient	No	0.0967	N/A	-2.336	N/A
MW366	Downgradient	No	0.0982	N/A	-2.321	N/A
MW369	Upgradient	No	0.0998	N/A	-2.305	N/A
MW372	Upgradient	No	0.0967	N/A	-2.336	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV   Coefficient-of-Variation, CV = S/X   If CV is less than or equal to 1 assume normal distribution.

S   Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL   Upper Tolerance Limit, TL = X + (K * S),   LL   Lower Tolerance Limit, LL = X - (K * S)

X   Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X**= 0.218	**S**= 0.307	**CV(1)**=1.414	**K factor****= 2.523	**TL(1)**= 0.993	**LL(1)**=N/A
Statistics-Transformed Background Data	**X**= -2.017	**S**= 0.852	**CV(2)**=-0.423	**K factor****= 2.523	**TL(2)**= 0.134	**LL(2)**=N/A

Historical Background Data from Upgradient Wells with Transformed Result

Because CV(1) is greater than 1, the natural logarithm of background and test well results were calculated utilizing TL(2) for comparison.

Well Number: MW369

Date Collected	Result	LN(Result)
3/18/2002	1	0.000
4/22/2002	0.13	-2.040
7/15/2002	0.13	-2.040
7/8/2003	0.17	-1.772
10/6/2003	0.1	-2.303
7/13/2004	0.07	-2.659
7/20/2005	0.07	-2.659
4/4/2006	0.07	-2.659

Well Number: MW372

Date Collected	Result	LN(Result)
3/19/2002	1	0.000
4/23/2002	0.13	-2.040
7/16/2002	0.13	-2.040
7/9/2003	0.17	-1.772
10/7/2003	0.1	-2.303
7/14/2004	0.07	-2.659
7/21/2005	0.07	-2.659
4/5/2006	0.07	-2.659

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW357	Downgradient	No	0.1	N/A	-2.303	N/A
MW360	Downgradient	Yes	0.0614	N/A	-2.790	NO
MW363	Downgradient	No	0.0967	N/A	-2.336	N/A
MW366	Downgradient	No	0.0982	N/A	-2.321	N/A
MW369	Upgradient	No	0.0998	N/A	-2.305	N/A
MW372	Upgradient	No	0.0967	N/A	-2.336	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV   Coefficient-of-Variation, CV = S/X   If CV is less than or equal to 1 assume normal distribution.

S   Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL   Upper Tolerance Limit, TL = X + (K * S),   LL   Lower Tolerance Limit, LL = X - (K * S)

X   Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	X= 0.188	S= 0.318	CV(1)= 1.694	K factor**= 2.523	TL(1)= 0.989	LL(1)=N/A
Statistics-Transformed Background Data	X= -2.342	S= 0.953	CV(2)= -0.407	K factor**= 2.523	TL(2)= 0.063	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: MW369

Date Collected	Result	LN(Result)
3/18/2002	1	0.000
4/22/2002	0.09	-2.408
7/15/2002	0.09	-2.408
7/8/2003	0.09	-2.408
10/6/2003	0.08	-2.526
7/13/2004	0.05	-2.996
7/20/2005	0.05	-2.996
4/4/2006	0.05	-2.996

Well Number: MW372

Date Collected	Result	LN(Result)
3/19/2002	1	0.000
4/23/2002	0.09	-2.408
7/16/2002	0.09	-2.408
7/9/2003	0.09	-2.408
10/7/2003	0.08	-2.526
7/14/2004	0.05	-2.996
7/21/2005	0.05	-2.996
4/5/2006	0.05	-2.996

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW357	Downgradient	No	0.1	N/A	-2.303	N/A
MW360	Downgradient	Yes	0.0439	N/A	-3.126	NO
MW363	Downgradient	No	0.0967	N/A	-2.336	N/A
MW366	Downgradient	No	0.0982	N/A	-2.321	N/A
MW369	Upgradient	No	0.0998	N/A	-2.305	N/A
MW372	Upgradient	No	0.0967	N/A	-2.336	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.
CV   Coefficient-of-Variation, CV = S/X   If CV is less than or equal to 1 assume normal distribution.
S   Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL   Upper Tolerance Limit, TL = X + (K * S),   LL   Lower Tolerance Limit, LL = X - (K * S)
X   Mean, X = (sum of background results)/(count of background results)
**   Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X**= 6.274	**S**= 0.194	**CV(1)**=0.031	**K factor****= 2.904	**TL(1)**= 6.837	**LL(1)**=5.7114
Statistics-Transformed Background Data	**X**= 1.836	**S**= 0.031	**CV(2)**=0.017	**K factor****= 2.904	**TL(2)**= 1.925	**LL(2)**=1.7467

Historical Background Data from Upgradient Wells with Transformed Result

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Well Number: MW369

Date Collected	Result	LN(Result)
3/18/2002	6.1	1.808
4/22/2002	6.1	1.808
7/15/2002	6.1	1.808
10/8/2002	6.5	1.872
1/8/2003	6.5	1.872
4/3/2003	6.6	1.887
7/8/2003	6.5	1.872
10/6/2003	6.5	1.872

Well Number: MW372

Date Collected	Result	LN(Result)
3/19/2002	6.1	1.808
4/23/2002	6.12	1.812
7/16/2002	6.1	1.808
10/8/2002	6.06	1.802
1/7/2003	6.26	1.834
4/2/2003	6.15	1.816
7/9/2003	6.3	1.841
10/7/2003	6.4	1.856

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)? Result <LL(1)?	LN(Result)	LN(Result) >TL(2)? LN(Result) <LL(2)?
MW357	Downgradient	Yes	6.07	NO	1.803	N/A
MW360	Downgradient	Yes	6.13	NO	1.813	N/A
MW363	Downgradient	Yes	6.09	NO	1.807	N/A
MW366	Downgradient	Yes	6.13	NO	1.813	N/A
MW369	Upgradient	Yes	6.09	NO	1.807	N/A
MW372	Upgradient	Yes	6.15	NO	1.816	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV   Coefficient-of-Variation, CV = S/X   If CV is less than or equal to 1 assume normal distribution.

S   Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL   Upper Tolerance Limit, TL = X + (K * S),   LL   Lower Tolerance Limit, LL = X - (K * S)

X   Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	X= 1.663	S= 0.488	CV(1)=0.293	K factor**= 2.523	TL(1)= 2.895	LL(1)=N/A
Statistics-Transformed Background Data	X= 0.456	S= 0.362	CV(2)=0.794	K factor**= 2.523	TL(2)= 1.368	LL(2)=N/A

Historical Background Data from Upgradient Wells with Transformed Result

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Well Number: MW369

Date Collected	Result	LN(Result)
3/18/2002	2	0.693
4/22/2002	2.21	0.793
7/15/2002	2	0.693
10/8/2002	0.966	-0.035
1/8/2003	0.727	-0.319
4/3/2003	0.8	-0.223
7/8/2003	1.62	0.482
10/6/2003	1.14	0.131

Well Number: MW372

Date Collected	Result	LN(Result)
3/19/2002	2.04	0.713
4/23/2002	2.03	0.708
7/16/2002	2	0.693
10/8/2002	1.54	0.432
1/7/2003	1.88	0.631
4/2/2003	2.09	0.737
7/9/2003	1.78	0.577
10/7/2003	1.79	0.582

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW357	Downgradient	Yes	1.68	NO	0.519	N/A
MW360	Downgradient	Yes	0.8	NO	-0.223	N/A
MW363	Downgradient	Yes	2.07	NO	0.728	N/A
MW366	Downgradient	Yes	2.01	NO	0.698	N/A
MW369	Upgradient	Yes	0.577	NO	-0.550	N/A
MW372	Upgradient	Yes	2.1	NO	0.742	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV   Coefficient-of-Variation, CV = S/X   If CV is less than or equal to 1 assume normal distribution.

S   Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL   Upper Tolerance Limit, TL = X + (K * S),   LL   Lower Tolerance Limit, LL = X - (K * S)

X   Mean, X = (sum of background results)/(count of background results)

**   *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X**= 45.100	**S**= 11.875	**CV(1)**=0.263	**K factor****= 2.523	**TL(1)**= 75.061	**LL(1)**=N/A
Statistics-Transformed Background Data	**X**= 3.780	**S**= 0.242	**CV(2)**=0.064	**K factor****= 2.523	**TL(2)**= 4.390	**LL(2)**=N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number: MW369

Date Collected	Result	LN(Result)
3/18/2002	35.7	3.575
4/22/2002	37.6	3.627
7/15/2002	42.4	3.747
10/8/2002	66.9	4.203
1/8/2003	67.9	4.218
4/3/2003	61.8	4.124
7/8/2003	45.6	3.820
10/6/2003	59.1	4.079

Well Number: MW372

Date Collected	Result	LN(Result)
3/19/2002	37.2	3.616
4/23/2002	38.6	3.653
7/16/2002	35.6	3.572
10/8/2002	37.5	3.624
1/7/2003	34.1	3.529
4/2/2003	34.4	3.538
7/9/2003	44.1	3.786
10/7/2003	43.1	3.764

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW357	Downgradient	Yes	40.2	NO	3.694	N/A
MW360	Downgradient	Yes	55.4	NO	4.015	N/A
MW363	Downgradient	Yes	42.6	NO	3.752	N/A
MW366	Downgradient	Yes	47.5	NO	3.861	N/A
MW369	Upgradient	Yes	50.6	NO	3.924	N/A
MW372	Upgradient	Yes	54.9	NO	4.006	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV   Coefficient-of-Variation, CV = S/X   If CV is less than or equal to 1 assume normal distribution.

S   Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL   Upper Tolerance Limit, TL = X + (K * S),   LL   Lower Tolerance Limit, LL = X - (K * S)

X   Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data   **X**= 45.031 **S**= 33.919 **CV(1)**=0.753   **K factor****= 2.523   **TL(1)**= 130.609 **LL(1)**=N/A

Statistics-Transformed Background Data   **X**= 3.420 **S**= 0.981 **CV(2)**=0.287   **K factor****= 2.523   **TL(2)**= 5.894   **LL(2)**=N/A

Historical Background Data from Upgradient Wells with Transformed Result

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Well Number:	MW369	
Date Collected	Result	LN(Result)
3/18/2002	15.5	2.741
4/22/2002	15.8	2.760
7/15/2002	13.8	2.625
10/8/2002	6.9	1.932
1/8/2003	10.5	2.351
4/3/2003	10.5	2.351
7/8/2003	10.9	2.389
10/6/2003	16.3	2.791

Well Number:	MW372	
Date Collected	Result	LN(Result)
3/19/2002	71.7	4.272
4/23/2002	74.7	4.313
7/16/2002	74.1	4.305
10/8/2002	70.5	4.256
1/7/2003	75.8	4.328
4/2/2003	81.8	4.404
7/9/2003	83.6	4.426
10/7/2003	88.1	4.478

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW357	Downgradient	Yes	40.3	NO	3.696	N/A
MW360	Downgradient	Yes	16.2	NO	2.785	N/A
MW363	Downgradient	Yes	27.5	NO	3.314	N/A
MW366	Downgradient	Yes	46.8	NO	3.846	N/A
MW369	Upgradient	Yes	7.93	NO	2.071	N/A
MW372	Upgradient	Yes	135	YES	4.905	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for 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.*

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X**= 20.821	**S**= 18.044	**CV(1)**=0.867	**K factor****= 2.523	**TL(1)**= 66.344	**LL(1)**=N/A

Statistics-Transformed Background Data	**X**= 2.770	**S**= 1.150	**CV(2)**=0.415	**K factor****= 2.523	**TL(2)**= 3.972	**LL(2)**=N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number: MW369

Date Collected	Result	LN(Result)
3/18/2002	41.7	3.731
4/22/2002	53.1	3.972
7/15/2002	18.1	2.896
10/8/2002	16.4	2.797
1/8/2003	3.49	1.250
4/3/2003	9.34	2.234
7/8/2003	17.5	2.862
10/6/2003	17	2.833

Well Number: MW372

Date Collected	Result	LN(Result)
3/19/2002	44.8	3.802
4/23/2002	0.802	-0.221
7/16/2002	19.8	2.986
10/8/2002	46.1	3.831
1/7/2003	-0.973	#Func!
4/2/2003	9.07	2.205
7/9/2003	0	#Func!
10/7/2003	36.9	3.608

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 possbile for all background values, the TL was considered equal to the maximum background value.

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW357	Downgradient	Yes	27.5	NO	3.314	N/A
MW360	Downgradient	No	7.47	N/A	2.011	N/A
MW363	Downgradient	No	12.1	N/A	2.493	N/A
MW366	Downgradient	Yes	87.8	YES	4.475	N/A
MW369	Upgradient	Yes	61.6	NO	4.121	N/A
MW372	Upgradient	Yes	85.4	YES	4.447	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for 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

MW366
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.*

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	X= 3.513	S= 4.307	CV(1)=1.226	K factor**= 2.523	TL(1)= 14.378	LL(1)=N/A
Statistics-Transformed Background Data	X= 0.851	S= 0.828	CV(2)=0.973	K factor**= 2.523	TL(2)= 2.940	LL(2)=N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number: MW369

Date Collected	Result	LN(Result)
3/18/2002	1.7	0.531
4/22/2002	1.6	0.470
7/15/2002	3.1	1.131
10/8/2002	17.7	2.874
1/8/2003	9	2.197
4/3/2003	4	1.386
7/8/2003	4.9	1.589
10/6/2003	2.4	0.875

Well Number: MW372

Date Collected	Result	LN(Result)
3/19/2002	1	0.000
4/23/2002	1.2	0.182
7/16/2002	1	0.000
10/8/2002	1	0.000
1/7/2003	1.6	0.470
4/2/2003	1.5	0.405
7/9/2003	3	1.099
10/7/2003	1.5	0.405

Because CV(1) is greater than 1, the natural logarithm of background and test well results were calculated utilizing TL(2) for comparison.

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW357	Downgradient	Yes	0.354	N/A	-1.038	NO
MW360	Downgradient	Yes	0.644	N/A	-0.440	NO
MW363	Downgradient	Yes	0.662	N/A	-0.412	NO
MW366	Downgradient	Yes	0.515	N/A	-0.664	NO
MW369	Upgradient	Yes	0.792	N/A	-0.233	NO
MW372	Upgradient	Yes	0.745	N/A	-0.294	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.*

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	X= 67.963	S= 64.316	**CV(1)=**0.946	**K factor**=** 2.523	**TL(1)=** 230.231	**LL(1)=**N/A
Statistics-Transformed Background Data	X= 3.772	S= 1.023	**CV(2)=**0.271	**K factor**=** 2.523	**TL(2)=** 6.353	**LL(2)=**N/A

Historical Background Data from Upgradient Wells with Transformed Result

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Well Number:	MW369	
Date Collected	Result	LN(Result)
3/18/2002	50	3.912
4/22/2002	50	3.912
7/15/2002	81	4.394
10/8/2002	202	5.308
1/8/2003	177	5.176
4/3/2003	93.1	4.534
7/8/2003	17.5	2.862
10/6/2003	37.5	3.624

Well Number:	MW372	
Date Collected	Result	LN(Result)
3/19/2002	184	5.215
4/23/2002	50	3.912
7/16/2002	50	3.912
10/8/2002	50	3.912
1/7/2003	10	2.303
4/2/2003	12.7	2.542
7/9/2003	10	2.303
10/7/2003	12.6	2.534

Current Quarter Data						
Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW357	Downgradient	Yes	18.6	NO	2.923	N/A
MW360	Downgradient	Yes	10.7	NO	2.370	N/A
MW363	Downgradient	Yes	13.3	NO	2.588	N/A
MW366	Downgradient	Yes	10	NO	2.303	N/A
MW369	Upgradient	Yes	15.2	NO	2.721	N/A
MW372	Upgradient	Yes	16.7	NO	2.815	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S   Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S),   LL Lower Tolerance Limit, LL = X - (K * S)

X   Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the 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= 3.594	CV(1)=0.639	K factor**= 2.523	TL(1)= 14.693	LL(1)=N/A
Statistics-Transformed Background Data	X= 1.571	S= 0.565	CV(2)=0.360	K factor**= 2.523	TL(2)= 2.995	LL(2)=N/A

Historical Background Data from Upgradient Wells with Transformed Result

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Well Number: MW369

Date Collected	Result	LN(Result)
3/18/2002	11	2.398
4/22/2002	16	2.773
7/15/2002	8	2.079
10/8/2002	3	1.099
1/8/2003	2	0.693
4/3/2003	3	1.099
7/8/2003	3	1.099
10/6/2003	2	0.693

Well Number: MW372

Date Collected	Result	LN(Result)
3/19/2002	5	1.609
4/23/2002	5	1.609
7/16/2002	4	1.386
10/8/2002	6	1.792
1/7/2003	5	1.609
4/2/2003	6	1.792
7/9/2003	5	1.609
10/7/2003	6	1.792

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW357	Downgradient	Yes	6.13	NO	1.813	N/A
MW360	Downgradient	Yes	5	NO	1.609	N/A
MW363	Downgradient	Yes	3.96	N/A	1.376	N/A
MW366	Downgradient	Yes	3.87	N/A	1.353	N/A
MW369	Upgradient	Yes	5.84	NO	1.765	N/A
MW372	Upgradient	Yes	5.24	NO	1.656	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV   Coefficient-of-Variation, CV = S/X   If CV is less than or equal to 1 assume normal distribution.

S   Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL   Upper Tolerance Limit, TL = X + (K * S),   LL   Lower Tolerance Limit, LL = X - (K * S)

X   Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X**= 0.116	**S**= 0.173	**CV(1)**=1.490	**K factor****= 2.523	**TL(1)**= 0.552	**LL(1)**=N/A

Statistics-Transformed Background Data	**X**= -2.729	**S**= 1.014	**CV(2)**=-0.371	**K factor****= 2.523	**TL(2)**= -0.172	**LL(2)**=N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number: MW369

Date Collected	Result	LN(Result)
3/18/2002	0.1	-2.303
4/22/2002	0.1	-2.303
7/15/2002	0.1	-2.303
10/8/2002	0.025	-3.689
1/8/2003	0.035	-3.352
4/3/2003	0.035	-3.352
7/8/2003	0.02	-3.912
10/6/2003	0.02	-3.912

Well Number: MW372

Date Collected	Result	LN(Result)
3/19/2002	0.725	-0.322
4/23/2002	0.1	-2.303
7/16/2002	0.1	-2.303
10/8/2002	0.025	-3.689
1/7/2003	0.035	-3.352
4/2/2003	0.035	-3.352
7/9/2003	0.2	-1.609
10/7/2003	0.2	-1.609

Because CV(1) is greater than 1, the natural logarithm of background and test well results were calculated utilizing TL(2) for comparison.

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW357	Downgradient	No	0.02	N/A	-3.912	N/A
MW360	Downgradient	No	0.02	N/A	-3.912	N/A
MW363	Downgradient	Yes	0.0128	N/A	-4.358	NO
MW366	Downgradient	No	0.02	N/A	-3.912	N/A
MW369	Upgradient	Yes	0.00342	N/A	-5.678	NO
MW372	Upgradient	No	0.02	N/A	-3.912	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV   Coefficient-of-Variation, CV = S/X   If CV is less than or equal to 1 assume normal distribution.

S   Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL   Upper Tolerance Limit, TL = X + (K * S),   LL   Lower Tolerance Limit, LL = X - (K * S)

X   Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	X= 51.625	S= 137.818	CV(1)=2.670	K factor**= 2.523	TL(1)= 399.340	LL(1)=N/A
Statistics-Transformed Background Data	X= 2.777	S= 1.127	CV(2)=0.406	K factor**= 2.523	TL(2)= 5.621	LL(2)=N/A

Historical Background Data from Upgradient Wells with Transformed Result

Because CV(1) is greater than 1, the natural logarithm of background and test well results were calculated utilizing TL(2) for comparison.

Well Number: MW370

Date Collected	Result	LN(Result)
3/17/2002	18	2.890
4/23/2002	110	4.700
7/15/2002	10	2.303
10/8/2002	18	2.890
1/8/2003	10	2.303
4/3/2003	10	2.303
7/9/2003	10	2.303
10/6/2003	10	2.303

Well Number: MW373

Date Collected	Result	LN(Result)
3/18/2002	9	2.197
4/23/2002	560	6.328
7/16/2002	10	2.303
10/8/2002	10	2.303
1/7/2003	10	2.303
4/2/2003	10	2.303
7/9/2003	10	2.303
10/7/2003	11	2.398

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW358	Downgradient	Yes	2.76	N/A	1.015	NO
MW361	Downgradient	No	5	N/A	1.609	N/A
MW364	Downgradient	No	5	N/A	1.609	N/A
MW367	Downgradient	No	5	N/A	1.609	N/A
MW370	Upgradient	No	5	N/A	1.609	N/A
MW373	Upgradient	No	5	N/A	1.609	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV   Coefficient-of-Variation, CV = S/X   If CV is less than or equal to 1 assume normal distribution.

S   Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL   Upper Tolerance Limit, TL = X + (K * S),   LL   Lower Tolerance Limit, LL = X - (K * S)

X   Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	X= 2.026	S= 5.626	CV(1)= 2.777	K factor**= 2.523	TL(1)= 16.219	LL(1)=N/A
Statistics-Transformed Background Data	X= -0.803	S= 1.380	CV(2)= -1.718	K factor**= 2.523	TL(2)= 2.678	LL(2)=N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number: MW370

Date Collected	Result	LN(Result)
3/17/2002	4.66	1.539
4/23/2002	0.2	-1.609
7/15/2002	0.2	-1.609
10/8/2002	0.2	-1.609
1/8/2003	0.2	-1.609
4/3/2003	0.2	-1.609
7/9/2003	0.2	-1.609
10/6/2003	0.2	-1.609

Well Number: MW373

Date Collected	Result	LN(Result)
3/18/2002	22.7	3.122
4/23/2002	1.46	0.378
7/16/2002	0.253	-1.374
10/8/2002	0.482	-0.730
1/7/2003	0.608	-0.498
4/2/2003	0.446	-0.807
7/9/2003	0.2	-1.609
10/7/2003	0.2	-1.609

Because CV(1) is greater than 1, the natural logarithm of background and test well results were calculated utilizing TL(2) for comparison.

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW358	Downgradient	Yes	0.047	N/A	-3.058	NO
MW361	Downgradient	No	0.05	N/A	-2.996	N/A
MW364	Downgradient	No	0.05	N/A	-2.996	N/A
MW367	Downgradient	No	0.05	N/A	-2.996	N/A
MW370	Upgradient	No	0.05	N/A	-2.996	N/A
MW373	Upgradient	No	0.05	N/A	-2.996	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV   Coefficient-of-Variation, CV = S/X   If CV is less than or equal to 1 assume normal distribution.

S   Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL   Upper Tolerance Limit, TL = X + (K * S),   LL   Lower Tolerance Limit, LL = X - (K * S)

X   Mean, X = (sum of background results)/(count of background results)

** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X**= 1.140	**S**= 0.780	**CV(1)**=0.684	**K factor****= 2.523	**TL(1)**= 3.108	**LL(1)**=N/A
Statistics-Transformed Background Data	**X**= -0.235	**S**= 1.006	**CV(2)**=-4.287	**K factor****= 2.523	**TL(2)**= 2.303	**LL(2)**=N/A

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Historical Background Data from Upgradient Wells with Transformed Result

Well Number: MW370

Date Collected	Result	LN(Result)
3/17/2002	2	0.693
4/23/2002	2	0.693
7/15/2002	2	0.693
10/8/2002	0.2	-1.609
1/8/2003	0.2	-1.609
4/3/2003	0.2	-1.609
7/9/2003	0.2	-1.609
10/6/2003	0.2	-1.609

Well Number: MW373

Date Collected	Result	LN(Result)
3/18/2002	2	0.693
4/23/2002	2	0.693
7/16/2002	2	0.693
10/8/2002	0.79	-0.236
1/7/2003	0.807	-0.214
4/2/2003	1.13	0.122
7/9/2003	1.28	0.247
10/7/2003	1.24	0.215

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW358	Downgradient	Yes	0.115	NO	-2.163	N/A
MW361	Downgradient	Yes	0.156	NO	-1.858	N/A
MW364	Downgradient	Yes	0.146	NO	-1.924	N/A
MW367	Downgradient	Yes	0.0204	NO	-3.892	N/A
MW370	Upgradient	Yes	0.243	NO	-1.415	N/A
MW373	Upgradient	Yes	1.71	NO	0.536	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV   Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S   Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL   Upper Tolerance Limit, TL = X + (K * S),   LL   Lower Tolerance Limit, LL = X - (K * S)

X   Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the 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)=** 1.000	**LL(1)=**N/A
Statistics-Transformed Background Data	X= 0.000	S= 0.000	**CV(2)=**#Num!	**K factor****= 2.523	**TL(2)=** 0.000	**LL(2)=**N/A

Historical Background Data from Upgradient Wells with Transformed Result

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Well Number: MW370

Date Collected	Result	LN(Result)
3/17/2002	1	0.000
4/23/2002	1	0.000
7/15/2002	1	0.000
10/8/2002	1	0.000
1/8/2003	1	0.000
4/3/2003	1	0.000
7/9/2003	1	0.000
10/6/2003	1	0.000

Well Number: MW373

Date Collected	Result	LN(Result)
3/18/2002	1	0.000
4/23/2002	1	0.000
7/16/2002	1	0.000
10/8/2002	1	0.000
1/7/2003	1	0.000
4/2/2003	1	0.000
7/9/2003	1	0.000
10/7/2003	1	0.000

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW358	Downgradient	Yes	0.201	NO	-1.604	N/A
MW361	Downgradient	Yes	0.482	NO	-0.730	N/A
MW364	Downgradient	Yes	0.469	NO	-0.757	N/A
MW367	Downgradient	No	0.2	N/A	-1.609	N/A
MW370	Upgradient	Yes	0.561	NO	-0.578	N/A
MW373	Upgradient	Yes	0.521	NO	-0.652	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV   Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S   Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL   Upper Tolerance Limit, TL = X + (K * S),   LL   Lower Tolerance Limit, LL = X - (K * S)

X   Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X**= 43.413	**S**= 13.444	**CV(1)**=0.310	**K factor****= 2.523	**TL(1)**= 77.331	**LL(1)**=N/A
Statistics-Transformed Background Data	**X**= 3.723	**S**= 0.323	**CV(2)**=0.087	**K factor****= 2.523	**TL(2)**= 4.539	**LL(2)**=N/A

Historical Background Data from Upgradient Wells with Transformed Result

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Well Number: MW370

Date Collected	Result	LN(Result)
3/17/2002	34.8	3.550
4/23/2002	43.4	3.770
7/15/2002	33.2	3.503
10/8/2002	29.2	3.374
1/8/2003	31.3	3.444
4/3/2003	32.4	3.478
7/9/2003	22.9	3.131
10/6/2003	28	3.332

Well Number: MW373

Date Collected	Result	LN(Result)
3/18/2002	61.9	4.126
4/23/2002	59.2	4.081
7/16/2002	47.6	3.863
10/8/2002	46.1	3.831
1/7/2003	49.2	3.896
4/2/2003	57.8	4.057
7/9/2003	52.7	3.965
10/7/2003	64.9	4.173

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW358	Downgradient	Yes	34.2	NO	3.532	N/A
MW361	Downgradient	Yes	33.3	NO	3.506	N/A
MW364	Downgradient	Yes	32.1	NO	3.469	N/A
MW367	Downgradient	Yes	12.8	NO	2.549	N/A
MW370	Upgradient	Yes	30.5	NO	3.418	N/A
MW373	Upgradient	Yes	64.6	NO	4.168	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV   Coefficient-of-Variation, CV = S/X   If CV is less than or equal to 1 assume normal distribution.

S   Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL   Upper Tolerance Limit, TL = X + (K * S),   LL   Lower Tolerance Limit, LL = X - (K * S)

X   Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X**= 41.938	**S**= 24.732	**CV(1)**=0.590	**K factor****= 2.523	**TL(1)**= 104.336	**LL(1)**=N/A
Statistics-Transformed Background Data	**X**= 3.658	**S**= 0.339	**CV(2)**=0.093	**K factor****= 2.523	**TL(2)**= 4.512	**LL(2)**=N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number: MW370

Date Collected	Result	LN(Result)
3/17/2002	35	3.555
4/23/2002	134	4.898
7/15/2002	35	3.555
10/8/2002	35	3.555
1/8/2003	35	3.555
4/3/2003	35	3.555
7/9/2003	35	3.555
10/6/2003	35	3.555

Well Number: MW373

Date Collected	Result	LN(Result)
3/18/2002	35	3.555
4/23/2002	47	3.850
7/16/2002	35	3.555
10/8/2002	35	3.555
1/7/2003	35	3.555
4/2/2003	35	3.555
7/9/2003	35	3.555
10/7/2003	35	3.555

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW358	Downgradient	No	20	N/A	2.996	N/A
MW361	Downgradient	No	20	N/A	2.996	N/A
MW364	Downgradient	No	20	N/A	2.996	N/A
MW367	Downgradient	Yes	14.9	NO	2.701	N/A
MW370	Upgradient	No	20	N/A	2.996	N/A
MW373	Upgradient	No	20	N/A	2.996	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV   Coefficient-of-Variation, CV = S/X   If CV is less than or equal to 1 assume normal distribution.

S   Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL   Upper Tolerance Limit, TL = X + (K * S),   LL   Lower Tolerance Limit, LL = X - (K * S)

X   Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	X= 45.919	S= 7.524	**CV(1)**=0.164	**K factor****= 2.523	**TL(1)**= 64.901	**LL(1)**=N/A
Statistics-Transformed Background Data	X= 3.814	S= 0.165	**CV(2)**=0.043	**K factor****= 2.523	**TL(2)**= 4.231	**LL(2)**=N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number: MW370

Date Collected	Result	LN(Result)
7/15/2002	55.5	4.016
10/8/2002	53.6	3.982
1/8/2003	52.9	3.968
4/3/2003	53.6	3.982
7/9/2003	51.9	3.949
10/6/2003	53	3.970
1/7/2004	53	3.970
4/7/2004	51.6	3.944

Well Number: MW373

Date Collected	Result	LN(Result)
7/16/2002	40.6	3.704
10/8/2002	38.8	3.658
1/7/2003	39	3.664
4/2/2003	38.4	3.648
7/9/2003	38.1	3.640
10/7/2003	38	3.638
1/6/2004	37.9	3.635
4/7/2004	38.8	3.658

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW358	Downgradient	Yes	15.4	NO	2.734	N/A
MW361	Downgradient	Yes	36.7	NO	3.603	N/A
MW364	Downgradient	Yes	38.3	NO	3.645	N/A
MW367	Downgradient	Yes	7.51	NO	2.016	N/A
MW370	Upgradient	Yes	41.6	NO	3.728	N/A
MW373	Upgradient	Yes	36.5	NO	3.597	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.
CV   Coefficient-of-Variation, CV = S/X   If CV is less than or equal to 1 assume normal distribution.
S   Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL   Upper Tolerance Limit, TL = X + (K * S),   LL   Lower Tolerance Limit, LL = X - (K * S)
X   Mean, X = (sum of background results)/(count of background results)
**   *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-U First Quarter 2023 Statistical Analysis Historical Background Comparison

Cobalt UNITS: mg/L LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	X= 0.027	S= 0.032	CV(1)= 1.165	K factor**= 2.523	TL(1)= 0.108	LL(1)=N/A
Statistics-Transformed Background Data	X= -4.058	S= 1.011	CV(2)= -0.249	K factor**= 2.523	TL(2)= -1.507	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: MW370

Date Collected	Result	LN(Result)
3/17/2002	0.025	-3.689
4/23/2002	0.025	-3.689
7/15/2002	0.025	-3.689
10/8/2002	0.0174	-4.051
1/8/2003	0.0105	-4.556
4/3/2003	0.00931	-4.677
7/9/2003	0.137	-1.988
10/6/2003	0.0463	-3.073

Well Number: MW373

Date Collected	Result	LN(Result)
3/18/2002	0.025	-3.689
4/23/2002	0.034	-3.381
7/16/2002	0.025	-3.689
10/8/2002	0.00411	-5.494
1/7/2003	0.00344	-5.672
4/2/2003	0.00368	-5.605
7/9/2003	0.0405	-3.206
10/7/2003	0.00843	-4.776

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW358	Downgradient	Yes	0.0365	N/A	-3.310	NO
MW361	Downgradient	No	0.001	N/A	-6.908	N/A
MW364	Downgradient	No	0.001	N/A	-6.908	N/A
MW367	Downgradient	Yes	0.00625	N/A	-5.075	NO
MW370	Upgradient	No	0.001	N/A	-6.908	N/A
MW373	Upgradient	Yes	0.000344	N/A	-7.975	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.*

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data   **X**= 608.719 **S**= 156.157 **CV(1)**=0.257   **K factor****= 2.523   **TL(1)**= 1002.702 **LL(1)**=N/A

Statistics-Transformed Background Data   **X**= 6.380   **S**= 0.260   **CV(2)**=0.041   **K factor****= 2.523   **TL(2)**= 7.036   **LL(2)**=N/A

Historical Background Data from Upgradient Wells with Transformed Result

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Well Number: MW370

Date Collected	Result	LN(Result)
3/17/2002	406	6.006
4/23/2002	543	6.297
7/15/2002	476	6.165
10/8/2002	441	6.089
1/8/2003	486	6.186
4/3/2003	466	6.144
7/9/2003	479	6.172
10/6/2003	435	6.075

Well Number: MW373

Date Collected	Result	LN(Result)
3/18/2002	661	6.494
4/23/2002	801	6.686
7/16/2002	774	6.652
10/8/2002	680	6.522
1/7/2003	686.5	6.532
4/2/2003	763	6.637
7/9/2003	828	6.719
10/7/2003	814	6.702

Current Quarter Data						
Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW358	Downgradient	Yes	540	NO	6.292	N/A
MW361	Downgradient	Yes	518	NO	6.250	N/A
MW364	Downgradient	Yes	490	NO	6.194	N/A
MW367	Downgradient	Yes	238	NO	5.472	N/A
MW370	Upgradient	Yes	466	NO	6.144	N/A
MW373	Upgradient	Yes	788	NO	6.669	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV   Coefficient-of-Variation, CV = S/X   If CV is less than or equal to 1 assume normal distribution.

S   Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL   Upper Tolerance Limit, TL = X + (K * S),   LL   Lower Tolerance Limit, LL = X - (K * S)

X   Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X**= 0.025	**S**= 0.010	**CV(1)**=0.399	**K factor****= 2.523	**TL(1)**= 0.050	**LL(1)**=N/A
Statistics-Transformed Background Data	**X**= -3.739	**S**= 0.308	**CV(2)**=-0.082	**K factor****= 2.523	**TL(2)**= -2.963	**LL(2)**=N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number: MW370

Date Collected	Result	LN(Result)
3/17/2002	0.025	-3.689
4/23/2002	0.025	-3.689
7/15/2002	0.05	-2.996
10/8/2002	0.02	-3.912
1/8/2003	0.02	-3.912
4/3/2003	0.02	-3.912
7/9/2003	0.02	-3.912
10/6/2003	0.02	-3.912

Well Number: MW373

Date Collected	Result	LN(Result)
3/18/2002	0.026	-3.650
4/23/2002	0.025	-3.689
7/16/2002	0.05	-2.996
10/8/2002	0.02	-3.912
1/7/2003	0.02	-3.912
4/2/2003	0.02	-3.912
7/9/2003	0.02	-3.912
10/7/2003	0.02	-3.912

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW358	Downgradient	Yes	0.000611	NO	-7.400	N/A
MW361	Downgradient	Yes	0.000733	NO	-7.218	N/A
MW364	Downgradient	Yes	0.000419	NO	-7.778	N/A
MW367	Downgradient	Yes	0.000333	NO	-8.007	N/A
MW370	Upgradient	Yes	0.000614	NO	-7.396	N/A
MW373	Upgradient	Yes	0.000348	NO	-7.963	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV   Coefficient-of-Variation, CV = S/X   If CV is less than or equal to 1 assume normal distribution.

S   Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL   Upper Tolerance Limit, TL = X + (K * S),   LL   Lower Tolerance Limit, LL = X - (K * S)

X   Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	X= 1.387	S= 1.153	CV(1)=0.831	K factor**= 2.523	TL(1)= 4.295	LL(1)=N/A
Statistics-Transformed Background Data	X= -0.115	S= 1.207	CV(2)=-10.514	K factor**= 2.523	TL(2)= 2.930	LL(2)=N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number: MW370

Date Collected	Result	LN(Result)
3/17/2002	4.32	1.463
4/23/2002	1.24	0.215
7/15/2002	0.75	-0.288
10/8/2002	0.94	-0.062
1/8/2003	3.08	1.125
4/3/2003	1.45	0.372
7/9/2003	1.22	0.199
10/6/2003	1.07	0.068

Well Number: MW373

Date Collected	Result	LN(Result)
3/18/2002	3.04	1.112
4/23/2002	0.03	-3.507
7/16/2002	0.23	-1.470
10/8/2002	0.86	-0.151
1/7/2003	0.21	-1.561
4/2/2003	1.19	0.174
7/9/2003	1.1	0.095
10/7/2003	1.46	0.378

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW358	Downgradient	Yes	0.77	NO	-0.261	N/A
MW361	Downgradient	Yes	3.74	NO	1.319	N/A
MW364	Downgradient	Yes	3.67	NO	1.300	N/A
MW367	Downgradient	Yes	1.87	NO	0.626	N/A
MW370	Upgradient	Yes	4	NO	1.386	N/A
MW373	Upgradient	Yes	2.11	NO	0.747	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/, 2009.

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	X= 356.188	S= 106.752	CV(1)=0.300	K factor**= 2.523	TL(1)= 625.523	LL(1)=N/A

Statistics-Transformed Background Data	X= 5.831	S= 0.311	CV(2)=0.053	K factor**= 2.523	TL(2)= 6.616	LL(2)=N/A

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Historical Background Data from Upgradient Wells with Transformed Result

Well Number: MW370

Date Collected	Result	LN(Result)
3/17/2002	236	5.464
4/23/2002	337	5.820
7/15/2002	266	5.583
10/8/2002	240	5.481
1/8/2003	282	5.642
4/3/2003	238	5.472
7/9/2003	248	5.513
10/6/2003	224	5.412

Well Number: MW373

Date Collected	Result	LN(Result)
3/18/2002	427	6.057
4/23/2002	507	6.229
7/16/2002	464	6.140
10/8/2002	408	6.011
1/7/2003	404	6.001
4/2/2003	450	6.109
7/9/2003	487	6.188
10/7/2003	481	6.176

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW358	Downgradient	Yes	231	NO	5.442	N/A
MW361	Downgradient	Yes	280	NO	5.635	N/A
MW364	Downgradient	Yes	252	NO	5.529	N/A
MW367	Downgradient	Yes	91	NO	4.511	N/A
MW370	Upgradient	Yes	230	NO	5.438	N/A
MW373	Upgradient	Yes	441	NO	6.089	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV   Coefficient-of-Variation, CV = S/X   If CV is less than or equal to 1 assume normal distribution.

S   Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL   Upper Tolerance Limit, TL = X + (K * S),   LL   Lower Tolerance Limit, LL = X - (K * S)

X   Mean, X = (sum of background results)/(count of background results)

**   *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/, 2009.*

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X**= 2.000	**S**= 0.000	**CV(1)**=0.000	**K factor****= 2.523	**TL(1)**= 2.000	**LL(1)**=N/A
Statistics-Transformed Background Data	**X**= 0.693	**S**= 0.000	**CV(2)**=0.000	**K factor****= 2.523	**TL(2)**= 0.693	**LL(2)**=N/A

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Historical Background Data from Upgradient Wells with Transformed Result

Well Number: MW370

Date Collected	Result	LN(Result)
3/17/2002	2	0.693
4/23/2002	2	0.693
7/15/2002	2	0.693
10/8/2002	2	0.693
1/8/2003	2	0.693
4/3/2003	2	0.693
7/9/2003	2	0.693
10/6/2003	2	0.693

Well Number: MW373

Date Collected	Result	LN(Result)
3/18/2002	2	0.693
4/23/2002	2	0.693
7/16/2002	2	0.693
10/8/2002	2	0.693
1/7/2003	2	0.693
4/2/2003	2	0.693
7/9/2003	2	0.693
10/7/2003	2	0.693

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW358	Downgradient	Yes	0.245	NO	-1.406	N/A
MW361	Downgradient	No	0.5	N/A	-0.693	N/A
MW364	Downgradient	No	0.5	N/A	-0.693	N/A
MW367	Downgradient	No	0.5	N/A	-0.693	N/A
MW370	Upgradient	No	0.5	N/A	-0.693	N/A
MW373	Upgradient	No	0.5	N/A	-0.693	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV   Coefficient-of-Variation, CV = S/X   If CV is less than or equal to 1 assume normal distribution.

S   Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL   Upper Tolerance Limit, TL = X + (K * S),   LL   Lower Tolerance Limit, LL = X - (K * S)

X   Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X**= 9.230	**S**= 8.841	**CV(1)**=0.958	**K factor****= 2.523	**TL(1)**= 31.535	**LL(1)**=N/A

Statistics-Transformed Background Data	**X**= 1.942	**S**= 0.713	**CV(2)**=0.367	**K factor****= 2.523	**TL(2)**= 3.740	**LL(2)**=N/A

Historical Background Data from Upgradient Wells with Transformed Result

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Well Number: MW370

Date Collected	Result	LN(Result)
3/17/2002	9.34	2.234
4/23/2002	4.33	1.466
7/15/2002	3.52	1.258
10/8/2002	7.45	2.008
1/8/2003	7.04	1.952
4/3/2003	4.64	1.535
7/9/2003	15.8	2.760
10/6/2003	6.49	1.870

Well Number: MW373

Date Collected	Result	LN(Result)
3/18/2002	37.6	3.627
4/23/2002	19	2.944
7/16/2002	10.7	2.370
10/8/2002	3.75	1.322
1/7/2003	3.87	1.353
4/2/2003	3.5	1.253
7/9/2003	7.72	2.044
10/7/2003	2.93	1.075

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW358	Downgradient	Yes	18.4	NO	2.912	N/A
MW361	Downgradient	No	0.1	N/A	-2.303	N/A
MW364	Downgradient	No	0.1	N/A	-2.303	N/A
MW367	Downgradient	Yes	7.11	NO	1.962	N/A
MW370	Upgradient	No	0.1	N/A	-2.303	N/A
MW373	Upgradient	No	0.1	N/A	-2.303	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.
CV   Coefficient-of-Variation, CV = S/X   If CV is less than or equal to 1 assume normal distribution.
 S   Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL   Upper Tolerance Limit, TL = X + (K * S),   LL   Lower Tolerance Limit, LL = X - (K * S)
 X   Mean, X = (sum of background results)/(count of background results)
** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X**= 17.544	**S**= 5.911	**CV(1)**=0.337	**K factor****= 2.523	**TL(1)**= 32.458	**LL(1)**=N/A
Statistics-Transformed Background Data	**X**= 2.810	**S**= 0.343	**CV(2)**=0.122	**K factor****= 2.523	**TL(2)**= 3.676	**LL(2)**=N/A

Historical Background Data from Upgradient Wells with Transformed Result

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Well Number: MW370

Date Collected	Result	LN(Result)
3/17/2002	12.1	2.493
4/23/2002	15.1	2.715
7/15/2002	12.4	2.518
10/8/2002	12.2	2.501
1/8/2003	11.5	2.442
4/3/2003	12.3	2.510
7/9/2003	10	2.303
10/6/2003	12.1	2.493

Well Number: MW373

Date Collected	Result	LN(Result)
3/18/2002	24.8	3.211
4/23/2002	22.7	3.122
7/16/2002	18.8	2.934
10/8/2002	21.1	3.049
1/7/2003	19.9	2.991
4/2/2003	25.5	3.239
7/9/2003	23.3	3.148
10/7/2003	26.9	3.292

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW358	Downgradient	Yes	19.6	NO	2.976	N/A
MW361	Downgradient	Yes	15.4	NO	2.734	N/A
MW364	Downgradient	Yes	13.5	NO	2.603	N/A
MW367	Downgradient	Yes	6.8	NO	1.917	N/A
MW370	Upgradient	Yes	12.8	NO	2.549	N/A
MW373	Upgradient	Yes	25.3	NO	3.231	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV   Coefficient-of-Variation, CV = S/X   If CV is less than or equal to 1 assume normal distribution.

S   Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL   Upper Tolerance Limit, TL = X + (K * S),   LL   Lower Tolerance Limit, LL = X - (K * S)

X   Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X**= 1.080	**S**= 0.674	**CV(1)**=0.624	**K factor****= 2.523	**TL(1)**= 2.780	**LL(1)**=N/A

Statistics-Transformed Background Data	**X**= -0.114	**S**= 0.658	**CV(2)**=-5.762	**K factor****= 2.523	**TL(2)**= 1.547	**LL(2)**=N/A

Historical Background Data from Upgradient Wells with Transformed Result

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Well Number: MW370

Date Collected	Result	LN(Result)
3/17/2002	0.244	-1.411
4/23/2002	1.82	0.599
7/15/2002	1.22	0.199
10/8/2002	0.988	-0.012
1/8/2003	0.729	-0.316
4/3/2003	0.637	-0.451
7/9/2003	2.51	0.920
10/6/2003	1.05	0.049

Well Number: MW373

Date Collected	Result	LN(Result)
3/18/2002	0.355	-1.036
4/23/2002	2.16	0.770
7/16/2002	1.39	0.329
10/8/2002	0.717	-0.333
1/7/2003	0.587	-0.533
4/2/2003	0.545	-0.607
7/9/2003	1.76	0.565
10/7/2003	0.57	-0.562

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW358	Downgradient	Yes	2.44	NO	0.892	N/A
MW361	Downgradient	Yes	0.0105	NO	-4.556	N/A
MW364	Downgradient	Yes	0.00218	NO	-6.128	N/A
MW367	Downgradient	Yes	1.4	NO	0.336	N/A
MW370	Upgradient	No	0.005	N/A	-5.298	N/A
MW373	Upgradient	Yes	0.0183	NO	-4.001	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV   Coefficient-of-Variation, CV = S/X   If CV is less than or equal to 1 assume normal distribution.

S   Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL   Upper Tolerance Limit, TL = X + (K * S),   LL   Lower Tolerance Limit, LL = X - (K * S)

X   Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X**= 5.375	**S**= 2.156	**CV(1)**=0.401	**K factor****= 2.523	**TL(1)**= 10.816	**LL(1)**=N/A
Statistics-Transformed Background Data	**X**= 1.603	**S**= 0.428	**CV(2)**=0.267	**K factor****= 2.523	**TL(2)**= 2.683	**LL(2)**=N/A

Historical Background Data from Upgradient Wells with Transformed Result

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Well Number:　MW370

Date Collected	Result	LN(Result)
3/17/2002	2	0.693
4/23/2002	5	1.609
7/15/2002	10	2.303
10/8/2002	5	1.609
1/8/2003	5	1.609
4/3/2003	5	1.609
7/9/2003	5	1.609
10/6/2003	5	1.609

Well Number:　MW373

Date Collected	Result	LN(Result)
3/18/2002	2	0.693
4/23/2002	7	1.946
7/16/2002	10	2.303
10/8/2002	5	1.609
1/7/2003	5	1.609
4/2/2003	5	1.609
7/9/2003	5	1.609
10/7/2003	5	1.609

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW358	Downgradient	No	0.76	N/A	-0.274	N/A
MW361	Downgradient	No	0.77	N/A	-0.261	N/A
MW364	Downgradient	Yes	0.51	NO	-0.673	N/A
MW367	Downgradient	Yes	0.54	NO	-0.616	N/A
MW370	Upgradient	No	5	N/A	1.609	N/A
MW373	Upgradient	Yes	0.51	NO	-0.673	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV　Coefficient-of-Variation, CV = S/X　If CV is less than or equal to 1 assume normal distribution.

S　　Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL　Upper Tolerance Limit, TL = X + (K * S),　　　LL　Lower Tolerance Limit, LL = X - (K * S)

X　　Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X=** 0.024	**S=** 0.022	**CV(1)=** 0.901	**K factor**=** 2.523	**TL(1)=** 0.078	**LL(1)=** N/A
Statistics-Transformed Background Data	**X=** -4.239	**S=** 1.087	**CV(2)=** -0.256	**K factor**=** 2.523	**TL(2)=** -1.497	**LL(2)=** N/A

Historical Background Data from Upgradient Wells with Transformed Result

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Well Number: MW370

Date Collected	Result	LN(Result)
3/17/2002	0.05	-2.996
4/23/2002	0.05	-2.996
7/15/2002	0.05	-2.996
10/8/2002	0.005	-5.298
1/8/2003	0.005	-5.298
4/3/2003	0.005	-5.298
7/9/2003	0.0264	-3.634
10/6/2003	0.00971	-4.635

Well Number: MW373

Date Collected	Result	LN(Result)
3/18/2002	0.05	-2.996
4/23/2002	0.05	-2.996
7/16/2002	0.05	-2.996
10/8/2002	0.005	-5.298
1/7/2003	0.005	-5.298
4/2/2003	0.005	-5.298
7/9/2003	0.0112	-4.492
10/7/2003	0.005	-5.298

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW358	Downgradient	Yes	0.103	YES	-2.273	N/A
MW361	Downgradient	Yes	0.000819	NO	-7.107	N/A
MW364	Downgradient	Yes	0.000651	NO	-7.337	N/A
MW367	Downgradient	Yes	0.00296	NO	-5.823	N/A
MW370	Upgradient	Yes	0.000791	NO	-7.142	N/A
MW373	Upgradient	Yes	0.00145	NO	-6.536	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

The test well(s) listed exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to historical background data.

Wells with Exceedances

MW358

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV   Coefficient-of-Variation, CV = S/X   If CV is less than or equal to 1 assume normal distribution.

S   Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL   Upper Tolerance Limit, TL = X + (K * S),   LL   Lower Tolerance Limit, LL = X - (K * S)

X   Mean, X = (sum of background results)/(count of background results)

**   *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	X= 46.688	S= 60.986	CV(1)= 1.306	K factor**= 2.523	TL(1)= 200.555	LL(1)=N/A
Statistics-Transformed Background Data	X= 3.829	S= 1.151	CV(2)= 0.301	K factor**= 2.523	TL(2)= 4.942	LL(2)=N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number: MW370

Date Collected	Result	LN(Result)
3/17/2002	140	4.942
4/23/2002	-15	#Func!
7/15/2002	5	1.609
4/3/2003	49	3.892
7/9/2003	-35	#Func!
10/6/2003	40	3.689
1/7/2004	101	4.615
4/7/2004	105	4.654

Well Number: MW373

Date Collected	Result	LN(Result)
3/18/2002	140	4.942
4/23/2002	-20	#Func!
10/8/2002	10	2.303
1/7/2003	10	2.303
4/2/2003	67	4.205
7/9/2003	-29	#Func!
10/7/2003	127	4.844
1/6/2004	52	3.951

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 possbile for all background values, the TL was considered equal to the maximum background value.

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW358	Downgradient	Yes	134	N/A	4.898	NO
MW361	Downgradient	Yes	405	N/A	6.004	YES
MW364	Downgradient	Yes	365	N/A	5.900	YES
MW367	Downgradient	Yes	235	N/A	5.460	YES
MW370	Upgradient	Yes	468	N/A	6.148	YES
MW373	Upgradient	Yes	399	N/A	5.989	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

MW361
MW364
MW367
MW370
MW373

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV   Coefficient-of-Variation, CV = S/X   If CV is less than or equal to 1 assume normal distribution.

S   Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL   Upper Tolerance Limit, TL = X + (K * S),   LL   Lower Tolerance Limit, LL = X - (K * S)

X   Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	X= 6.283	S= 0.159	**CV(1)**=0.025	**K factor****= 2.904	**TL(1)**= 6.745	**LL(1)**=5.8202
Statistics-Transformed Background Data	X= 1.837	S= 0.025	**CV(2)**=0.014	**K factor****= 2.904	**TL(2)**= 1.911	**LL(2)**=1.7634

Historical Background Data from Upgradient Wells with Transformed Result

Well Number: MW370

Date Collected	Result	LN(Result)
3/17/2002	6.3	1.841
4/23/2002	6.4	1.856
7/15/2002	6.3	1.841
10/8/2002	6.3	1.841
1/8/2003	6.4	1.856
4/3/2003	6.5	1.872
7/9/2003	6.3	1.841
10/6/2003	6.5	1.872

Well Number: MW373

Date Collected	Result	LN(Result)
3/18/2002	6	1.792
4/23/2002	6.3	1.841
7/16/2002	6.45	1.864
10/8/2002	6.18	1.821
1/7/2003	6.35	1.848
4/2/2003	6.14	1.815
7/9/2003	6.1	1.808
10/7/2003	6	1.792

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data						
Well No.	Gradient	Detected?	Result	Result >TL(1)? Result <LL(1)?	LN(Result)	LN(Result) >TL(2)? LN(Result) <LL(2)?
MW358	Downgradient	Yes	6.35	NO	1.848	N/A
MW361	Downgradient	Yes	6	NO	1.792	N/A
MW364	Downgradient	Yes	5.98	NO	1.788	N/A
MW367	Downgradient	Yes	5.92	NO	1.778	N/A
MW370	Upgradient	Yes	6.05	NO	1.800	N/A
MW373	Upgradient	Yes	6.09	NO	1.807	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV   Coefficient-of-Variation, CV = S/X   If CV is less than or equal to 1 assume normal distribution.

S   Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL   Upper Tolerance Limit, TL = X + (K * S),   LL   Lower Tolerance Limit, LL = X - (K * S)

X   Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X**= 2.823	**S**= 0.522	**CV(1)**=0.185	**K factor****= 2.523	**TL(1)**= 4.139	**LL(1)**=N/A
Statistics-Transformed Background Data	**X**= 1.024	**S**= 0.167	**CV(2)**=0.163	**K factor****= 2.523	**TL(2)**= 1.445	**LL(2)**=N/A

Historical Background Data from Upgradient Wells with Transformed Result

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Well Number: MW370

Date Collected	Result	LN(Result)
3/17/2002	3.22	1.169
4/23/2002	3.43	1.233
7/15/2002	2.98	1.092
10/8/2002	2.46	0.900
1/8/2003	2.41	0.880
4/3/2003	2.43	0.888
7/9/2003	2.44	0.892
10/6/2003	2.48	0.908

Well Number: MW373

Date Collected	Result	LN(Result)
3/18/2002	4.34	1.468
4/23/2002	3.04	1.112
7/16/2002	2.93	1.075
10/8/2002	2.3	0.833
1/7/2003	2.45	0.896
4/2/2003	2.7	0.993
7/9/2003	2.68	0.986
10/7/2003	2.88	1.058

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW358	Downgradient	Yes	3.37	NO	1.215	N/A
MW361	Downgradient	Yes	2.49	NO	0.912	N/A
MW364	Downgradient	Yes	2.05	NO	0.718	N/A
MW367	Downgradient	Yes	2.82	NO	1.037	N/A
MW370	Upgradient	Yes	2.69	NO	0.990	N/A
MW373	Upgradient	Yes	2.61	NO	0.959	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV   Coefficient-of-Variation, CV = S/X   If CV is less than or equal to 1 assume normal distribution.

S   Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL   Upper Tolerance Limit, TL = X + (K * S),   LL   Lower Tolerance Limit, LL = X - (K * S)

X   Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data   X= 51.544   S= 15.227   **CV(1)**=0.295   **K factor****= 2.523   **TL(1)**= 89.962   **LL(1)**=N/A

Statistics-Transformed Background Data   X= 3.906   S= 0.272   **CV(2)**=0.070   **K factor****= 2.523   **TL(2)**= 4.592   **LL(2)**=N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number: MW370

Date Collected	Result	LN(Result)
3/17/2002	31.8	3.459
4/23/2002	50	3.912
7/15/2002	44.7	3.800
10/8/2002	40	3.689
1/8/2003	44.6	3.798
4/3/2003	41.9	3.735
7/9/2003	40	3.689
10/6/2003	38.1	3.640

Well Number: MW373

Date Collected	Result	LN(Result)
3/18/2002	43.4	3.770
4/23/2002	79.8	4.380
7/16/2002	87.7	4.474
10/8/2002	61.6	4.121
1/7/2003	59.3	4.083
4/2/2003	62.1	4.129
7/9/2003	50.1	3.914
10/7/2003	49.6	3.904

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW358	Downgradient	Yes	31.6	NO	3.453	N/A
MW361	Downgradient	Yes	45.1	NO	3.809	N/A
MW364	Downgradient	Yes	42.6	NO	3.752	N/A
MW367	Downgradient	Yes	15.4	NO	2.734	N/A
MW370	Upgradient	Yes	46.9	NO	3.848	N/A
MW373	Upgradient	Yes	52	NO	3.951	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV   Coefficient-of-Variation, CV = S/X   If CV is less than or equal to 1 assume normal distribution.

S   Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL   Upper Tolerance Limit, TL = X + (K * S),   LL   Lower Tolerance Limit, LL = X - (K * S)

X   Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

| Statistics-Background Data | X= 122.381 | S= 195.095 | CV(1)= 1.594 | K factor**= 2.523 | TL(1)= 614.606 | LL(1)=N/A |

| Statistics-Transformed Background Data | X= 3.985 | S= 1.323 | CV(2)= 0.332 | K factor**= 2.523 | TL(2)= 7.322 | LL(2)=N/A |

Historical Background Data from Upgradient Wells with Transformed Result

Because CV(1) is greater than 1, the natural logarithm of background and test well results were calculated utilizing TL(2) for comparison.

Well Number: MW370

Date Collected	Result	LN(Result)
3/17/2002	17.4	2.856
4/23/2002	37.9	3.635
7/15/2002	15.7	2.754
10/8/2002	13.4	2.595
1/8/2003	14.4	2.667
4/3/2003	18.1	2.896
7/9/2003	9.6	2.262
10/6/2003	16.5	2.803

Well Number: MW373

Date Collected	Result	LN(Result)
3/18/2002	163.3	5.096
4/23/2002	809.6	6.697
7/16/2002	109.4	4.695
10/8/2002	110.6	4.706
1/7/2003	113.7	4.734
4/2/2003	133	4.890
7/9/2003	182.1	5.205
10/7/2003	193.4	5.265

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW358	Downgradient	Yes	25.9	N/A	3.254	NO
MW361	Downgradient	Yes	81.7	N/A	4.403	NO
MW364	Downgradient	Yes	72.2	N/A	4.279	NO
MW367	Downgradient	Yes	21.4	N/A	3.063	NO
MW370	Upgradient	Yes	19.9	N/A	2.991	NO
MW373	Upgradient	Yes	155	N/A	5.043	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.*

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data   **X**= 7.655   **S**= 13.274   **CV(1)**=1.734   **K factor****= 2.523   **TL(1)**= 41.146   **LL(1)**=N/A

Statistics-Transformed Background Data   **X**= 1.946   **S**= 0.939   **CV(2)**=0.483   **K factor****= 2.523   **TL(2)**= 3.833   **LL(2)**=N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number: MW370

Date Collected	Result	LN(Result)
3/17/2002	10.8	2.380
4/23/2002	8.53	2.144
7/15/2002	5.09	1.627
10/8/2002	4.78	1.564
1/8/2003	-5.12	#Func!
4/3/2003	5.11	1.631
7/9/2003	4.25	1.447
10/6/2003	6.54	1.878

Well Number: MW373

Date Collected	Result	LN(Result)
3/18/2002	16.5	2.803
4/23/2002	3.49	1.250
7/16/2002	1.42	0.351
10/8/2002	-6.06	#Func!
1/7/2003	-8.41	#Func!
4/2/2003	26.3	3.270
7/9/2003	3.06	1.118
10/7/2003	46.2	3.833

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 possbile for all background values, the TL was considered equal to the maximum background value.

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW358	Downgradient	Yes	38	N/A	3.638	NO
MW361	Downgradient	Yes	51.5	N/A	3.942	YES
MW364	Downgradient	Yes	61.7	N/A	4.122	YES
MW367	Downgradient	No	-0.118	N/A	#Error	N/A
MW370	Upgradient	Yes	30.7	N/A	3.424	NO
MW373	Upgradient	No	12.5	N/A	2.526	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

The test well(s) listed exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to historical background data.

Wells with Exceedances

MW361
MW364

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV   Coefficient-of-Variation, CV = S/X   If CV is less than or equal to 1 assume normal distribution.

S   Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL   Upper Tolerance Limit, TL = X + (K * S),   LL   Lower Tolerance Limit, LL = X - (K * S)

X   Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	X= 6.169	S= 12.072	**CV(1)**=1.957	**K factor****= 2.523	**TL(1)**= 36.626	**LL(1)**=N/A
Statistics-Transformed Background Data	X= 1.069	S= 1.014	**CV(2)**=0.948	**K factor****= 2.523	**TL(2)**= 3.626	**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: MW370

Date Collected	Result	LN(Result)
3/17/2002	1.2	0.182
4/23/2002	4.3	1.459
7/15/2002	2.6	0.956
10/8/2002	2.3	0.833
1/8/2003	3	1.099
4/3/2003	1.2	0.182
7/9/2003	2.6	0.956
10/6/2003	1.7	0.531

Well Number: MW373

Date Collected	Result	LN(Result)
3/18/2002	1.1	0.095
4/23/2002	17.5	2.862
7/16/2002	49	3.892
10/8/2002	2.9	1.065
1/7/2003	3.9	1.361
4/2/2003	2.5	0.916
7/9/2003	1.7	0.531
10/7/2003	1.2	0.182

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW358	Downgradient	Yes	4.65	N/A	1.537	NO
MW361	Downgradient	Yes	0.408	N/A	-0.896	NO
MW364	Downgradient	Yes	0.468	N/A	-0.759	NO
MW367	Downgradient	Yes	0.491	N/A	-0.711	NO
MW370	Upgradient	Yes	0.776	N/A	-0.254	NO
MW373	Upgradient	Yes	0.894	N/A	-0.112	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.*

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	X= 79.819	S= 78.470	CV(1)=0.983	K factor**= 2.523	TL(1)= 277.798	LL(1)=N/A
Statistics-Transformed Background Data	X= 3.971	S= 0.950	CV(2)=0.239	K factor**= 2.523	TL(2)= 6.368	LL(2)=N/A

Historical Background Data from Upgradient Wells with Transformed Result

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Well Number: MW370

Date Collected	Result	LN(Result)
3/17/2002	50	3.912
4/23/2002	228	5.429
7/15/2002	88	4.477
10/8/2002	58	4.060
1/8/2003	72.4	4.282
4/3/2003	26.6	3.281
7/9/2003	16.4	2.797
10/6/2003	31.1	3.437

Well Number: MW373

Date Collected	Result	LN(Result)
3/18/2002	50	3.912
4/23/2002	276	5.620
7/16/2002	177	5.176
10/8/2002	76	4.331
1/7/2003	45.9	3.826
4/2/2003	57.8	4.057
7/9/2003	10	2.303
10/7/2003	13.9	2.632

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW358	Downgradient	Yes	4.56	NO	1.517	N/A
MW361	Downgradient	Yes	3.76	NO	1.324	N/A
MW364	Downgradient	Yes	7.12	NO	1.963	N/A
MW367	Downgradient	No	10	N/A	2.303	N/A
MW370	Upgradient	Yes	8.08	NO	2.089	N/A
MW373	Upgradient	Yes	14.4	NO	2.667	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV   Coefficient-of-Variation, CV = S/X   If CV is less than or equal to 1 assume normal distribution.

S   Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL   Upper Tolerance Limit, TL = X + (K * S),   LL   Lower Tolerance Limit, LL = X - (K * S)

X   Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	X= 12.188	S= 6.950	**CV(1)**=0.570	**K factor****= 2.523	**TL(1)**= 29.721	**LL(1)**=N/A
Statistics-Transformed Background Data	X= 2.305	S= 0.687	**CV(2)**=0.298	**K factor****= 2.523	**TL(2)**= 4.039	**LL(2)**=N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number: MW370

Date Collected	Result	LN(Result)
3/17/2002	19	2.944
4/23/2002	17	2.833
7/15/2002	15	2.708
10/8/2002	18	2.890
1/8/2003	17	2.833
4/3/2003	18	2.890
7/9/2003	15	2.708
10/6/2003	16	2.773

Well Number: MW373

Date Collected	Result	LN(Result)
3/18/2002	5	1.609
4/23/2002	25	3.219
7/16/2002	3	1.099
10/8/2002	4	1.386
1/7/2003	6	1.792
4/2/2003	5	1.609
7/9/2003	6	1.792
10/7/2003	6	1.792

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW358	Downgradient	Yes	2.44	N/A	0.892	N/A
MW361	Downgradient	Yes	5.18	NO	1.645	N/A
MW364	Downgradient	Yes	3.36	N/A	1.212	N/A
MW367	Downgradient	Yes	1.55	N/A	0.438	N/A
MW370	Upgradient	Yes	4.22	N/A	1.440	N/A
MW373	Upgradient	Yes	5.76	NO	1.751	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.
CV   Coefficient-of-Variation, CV = S/X   If CV is less than or equal to 1 assume normal distribution.
 S   Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL   Upper Tolerance Limit, TL = X + (K * S),   LL   Lower Tolerance Limit, LL = X - (K * S)
 X   Mean, X = (sum of background results)/(count of background results)
**   Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X**= 0.024	**S**= 0.008	**CV(1)**=0.324	**K factor****= 2.523	**TL(1)**= 0.044	**LL(1)**=N/A
Statistics-Transformed Background Data	**X**= -3.749	**S**= 0.265	**CV(2)**=-0.071	**K factor****= 2.523	**TL(2)**= -3.080	**LL(2)**=N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number: MW370

Date Collected	Result	LN(Result)
3/17/2002	0.035	-3.352
4/23/2002	0.033	-3.411
7/15/2002	0.025	-3.689
10/8/2002	0.02	-3.912
1/8/2003	0.02	-3.912
4/3/2003	0.02	-3.912
7/9/2003	0.02	-3.912
10/6/2003	0.02	-3.912

Well Number: MW373

Date Collected	Result	LN(Result)
3/18/2002	0.048	-3.037
4/23/2002	0.025	-3.689
7/16/2002	0.025	-3.689
10/8/2002	0.02	-3.912
1/7/2003	0.02	-3.912
4/2/2003	0.02	-3.912
7/9/2003	0.02	-3.912
10/7/2003	0.02	-3.912

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW358	Downgradient	Yes	0.00349	NO	-5.658	N/A
MW361	Downgradient	No	0.02	N/A	-3.912	N/A
MW364	Downgradient	No	0.02	N/A	-3.912	N/A
MW367	Downgradient	No	0.02	N/A	-3.912	N/A
MW370	Upgradient	No	0.02	N/A	-3.912	N/A
MW373	Upgradient	No	0.02	N/A	-3.912	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV   Coefficient-of-Variation, CV = S/X   If CV is less than or equal to 1 assume normal distribution.

S   Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL   Upper Tolerance Limit, TL = X + (K * S),   LL   Lower Tolerance Limit, LL = X - (K * S)

X   Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	**X**= 0.055	**S**= 0.037	**CV(1)**=0.673	**K factor****= 2.523	**TL(1)**= 0.147	**LL(1)**=N/A
Statistics-Transformed Background Data	**X**= -3.131	**S**= 0.691	**CV(2)**=-0.221	**K factor****= 2.523	**TL(2)**= -1.388	**LL(2)**=N/A

Historical Background Data from Upgradient Wells with Transformed Result

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Well Number: MW370

Date Collected	Result	LN(Result)
3/17/2002	0.1	-2.303
4/23/2002	0.1	-2.303
7/15/2002	0.1	-2.303
10/8/2002	0.025	-3.689
1/8/2003	0.035	-3.352
4/3/2003	0.035	-3.352
7/9/2003	0.02	-3.912
10/6/2003	0.02	-3.912

Well Number: MW373

Date Collected	Result	LN(Result)
3/18/2002	0.1	-2.303
4/23/2002	0.1	-2.303
7/16/2002	0.1	-2.303
10/8/2002	0.025	-3.689
1/7/2003	0.035	-3.352
4/2/2003	0.035	-3.352
7/9/2003	0.0234	-3.755
10/7/2003	0.02	-3.912

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW358	Downgradient	Yes	0.0122	NO	-4.406	N/A
MW361	Downgradient	No	0.02	N/A	-3.912	N/A
MW364	Downgradient	Yes	0.0125	NO	-4.382	N/A
MW367	Downgradient	Yes	0.0105	NO	-4.556	N/A
MW370	Upgradient	No	0.02	N/A	-3.912	N/A
MW373	Upgradient	No	0.02	N/A	-3.912	N/A

N/A - Results identified as Non-Detects during laboratory analysis or data validation and were not included in the statistical evaluation. Additionally for parameters that have MCLs, where the result for a well did not exceed the MCL value, that well was not included in the statistical evaluation.

Conclusion of Statistical Analysis on Historical Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV   Coefficient-of-Variation, CV = S/X   If CV is less than or equal to 1 assume normal distribution.

S   Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL   Upper Tolerance Limit, TL = X + (K * S),   LL   Lower Tolerance Limit, LL = X - (K * S)

X   Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

ATTACHMENT D2

**COMPARISON OF CURRENT DATA TO
ONE-SIDED UPPER TOLERANCE INTERVAL TEST
CALCULATED USING
CURRENT BACKGROUND DATA**

THIS PAGE INTENTIONALLY LEFT BLANK

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test 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= 9.863	S= 5.015	CV(1)=0.508	K factor**= 2.523	TL(1)= 22.515	LL(1)=N/A
Statistics-Transformed Background Data	X= 2.171	S= 0.497	CV(2)=0.229	K factor**= 2.523	TL(2)= 3.424	LL(2)=N/A

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Background Data from Upgradient Wells with Transformed Result

Well Number: MW371

Date Collected	Result	LN(Result)
1/20/2021	16	2.773
4/13/2021	10.9	2.389
7/20/2021	10.4	2.342
10/12/2021	15.8	2.760
1/12/2022	17.9	2.885
4/12/2022	8.52	2.142
7/14/2022	14.5	2.674
10/11/2022	18.4	2.912

Well Number: MW374

Date Collected	Result	LN(Result)
1/20/2021	5.83	1.763
4/13/2021	4.68	1.543
7/14/2021	5.75	1.749
10/13/2021	6.15	1.816
1/13/2022	5.62	1.726
4/12/2022	5.25	1.658
7/14/2022	5.96	1.785
10/11/2022	6.14	1.815

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW371	Upgradient	Yes	19.5	NO	2.970	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.*

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test 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= 328.563	S= 79.793	**CV(1)**=0.243	**K factor****= 2.523	**TL(1)**= 529.880	**LL(1)**=N/A
Statistics-Transformed Background Data	X= 5.758	S= 0.304	**CV(2)**=0.053	**K factor****= 2.523	**TL(2)**= 6.525	**LL(2)**=N/A

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Background Data from Upgradient Wells with Transformed Result

Well Number: MW371

Date Collected	Result	LN(Result)
1/20/2021	296	5.690
4/13/2021	388	5.961
7/20/2021	401	5.994
10/12/2021	344	5.841
1/12/2022	389	5.964
4/12/2022	375	5.927
7/14/2022	378	5.935
10/11/2022	409	6.014

Well Number: MW374

Date Collected	Result	LN(Result)
1/20/2021	145	4.977
4/13/2021	361	5.889
7/14/2021	349	5.855
10/13/2021	202	5.308
1/13/2022	192	5.257
4/12/2022	353	5.866
7/14/2022	345	5.844
10/11/2022	330	5.799

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW362	Downgradient	Yes	374	NO	5.924	N/A
MW371	Upgradient	Yes	420	NO	6.040	N/A
MW374	Upgradient	Yes	172	NO	5.147	N/A
MW375	Sidegradient	Yes	306	NO	5.724	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.*

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test 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= 25.288	S= 23.812	**CV(1)**=0.942	**K factor****= 2.523	**TL(1)**= 85.365	**LL(1)**=N/A
Statistics-Transformed Background Data	X= 2.967	S= 0.667	**CV(2)**=0.225	**K factor****= 2.523	**TL(2)**= 4.650	**LL(2)**=N/A

Current Background Data from Upgradient Wells with Transformed Result

Well Number: MW371

Date Collected	Result	LN(Result)
1/20/2021	29.2	3.374
4/13/2021	90.7	4.508
7/20/2021	34.1	3.529
10/12/2021	11.9	2.477
1/12/2022	14.3	2.660
4/12/2022	75.4	4.323
7/14/2022	28.7	3.357
10/11/2022	11.8	2.468

Well Number: MW374

Date Collected	Result	LN(Result)
1/20/2021	10.7	2.370
4/13/2021	13	2.565
7/14/2021	13.4	2.595
10/13/2021	12.7	2.542
1/13/2022	12.4	2.518
4/12/2022	16.4	2.797
7/14/2022	16.7	2.815
10/11/2022	13.2	2.580

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW362	Downgradient	Yes	15.4	NO	2.734	N/A
MW375	Sidegradient	Yes	23	NO	3.135	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.* **D2-5**

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is statistically significant evidence of elevated concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data   X= 39.969   S= 24.940   **CV(1)=**0.624   **K factor****=** 2.523   **TL(1)=** 102.892   **LL(1)=**N/A

Statistics-Transformed Background Data   X= 3.462   S= 0.721   **CV(2)=**0.208   **K factor****=** 2.523   **TL(2)=** 5.282   **LL(2)=**N/A

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Background Data from Upgradient Wells with Transformed Result

Well Number: MW369

Date Collected	Result	LN(Result)
1/20/2021	15.4	2.734
4/13/2021	16.7	2.815
7/13/2021	15.3	2.728
10/12/2021	15.1	2.715
1/12/2022	16.3	2.791
4/12/2022	16.5	2.803
7/14/2022	15.7	2.754
10/11/2022	16	2.773

Well Number: MW372

Date Collected	Result	LN(Result)
1/20/2021	67.5	4.212
4/13/2021	62.3	4.132
7/14/2021	65	4.174
10/13/2021	64.8	4.171
1/13/2022	67	4.205
4/12/2022	61.1	4.113
7/14/2022	62.6	4.137
10/11/2022	62.2	4.130

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW372	Upgradient	Yes	60.6	NO	4.104	N/A

Conclusion of Statistical Analysis on Current Data

None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from current background concentrations to a statistically-significant level.

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV   Coefficient-of-Variation, CV = S/X   If CV is less than or equal to 1 assume normal distribution.

S   Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL   Upper Tolerance Limit, TL = X + (K * S),   LL   Lower Tolerance Limit, LL = X - (K * S)

X   Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

C-746-U First Quarter 2023 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= 563.250 **S=** 210.821 **CV(1)=**0.374   **K factor**=** 2.523   **TL(1)=** 1095.152 **LL(1)=**N/A

Statistics-Transformed Background Data   X= 6.267   S= 0.380   **CV(2)=**0.061   **K factor**=** 2.523   **TL(2)=** 7.225   **LL(2)=**N/A

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Background Data from Upgradient Wells with Transformed Result

Well Number: MW369

Date Collected	Result	LN(Result)
1/20/2021	373	5.922
4/13/2021	383	5.948
7/13/2021	378	5.935
10/12/2021	305	5.720
1/12/2022	359	5.883
4/12/2022	378	5.935
7/14/2022	371	5.916
10/11/2022	485	6.184

Well Number: MW372

Date Collected	Result	LN(Result)
1/20/2021	822	6.712
4/13/2021	795	6.678
7/14/2021	760	6.633
10/13/2021	484	6.182
1/13/2022	752	6.623
4/12/2022	738	6.604
7/14/2022	715	6.572
10/11/2022	914	6.818

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW372	Upgradient	Yes	754	NO	6.625	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.* **D2-7**

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test 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= 335.375 S= 138.983 CV(1)=0.414   K factor**= 2.523   TL(1)= 686.029 LL(1)=N/A

Statistics-Transformed Background Data   X= 5.727 S= 0.441 CV(2)=0.077   K factor**= 2.523   TL(2)= 6.839   LL(2)=N/A

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Background Data from Upgradient Wells with Transformed Result

Well Number: MW369

Date Collected	Result	LN(Result)
1/20/2021	191	5.252
4/13/2021	209	5.342
7/13/2021	194	5.268
10/12/2021	179	5.187
1/12/2022	200	5.298
4/12/2022	234	5.455
7/14/2022	196	5.278
10/11/2022	212	5.357

Well Number: MW372

Date Collected	Result	LN(Result)
1/20/2021	447	6.103
4/13/2021	483	6.180
7/14/2021	481	6.176
10/13/2021	461	6.133
1/13/2022	506	6.227
4/12/2022	457	6.125
7/14/2022	461	6.133
10/11/2022	455	6.120

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW372	Upgradient	Yes	428	NO	6.059	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.*

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is statistically significant evidence of elevated concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data	X= 14.863	S= 8.348	CV(1)=0.562	K factor**= 2.523	TL(1)= 35.926	LL(1)=N/A
Statistics-Transformed Background Data	X= 2.524	S= 0.628	CV(2)=0.249	K factor**= 2.523	TL(2)= 4.109	LL(2)=N/A

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Background Data from Upgradient Wells with Transformed Result

Well Number: MW369

Date Collected	Result	LN(Result)
1/20/2021	6.85	1.924
4/13/2021	6.97	1.942
7/13/2021	6.41	1.858
10/12/2021	6.77	1.913
1/12/2022	6.84	1.923
4/12/2022	6.89	1.930
7/14/2022	6.84	1.923
10/11/2022	6.84	1.923

Well Number: MW372

Date Collected	Result	LN(Result)
1/20/2021	24.1	3.182
4/13/2021	23.2	3.144
7/14/2021	24.1	3.182
10/13/2021	22.8	3.127
1/13/2022	22.8	3.127
4/12/2022	22	3.091
7/14/2022	22.7	3.122
10/11/2022	21.7	3.077

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW372	Upgradient	Yes	21.9	NO	3.086	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.*

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test 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= 389.125   **S=** 28.178   **CV(1)=**0.072   **K factor**=** 2.523   **TL(1)=** 460.217   **LL(1)=**N/A

Statistics-Transformed Background Data   X= 5.961   **S=** 0.073   **CV(2)=**0.012   **K factor**=** 2.523   **TL(2)=** 6.145   **LL(2)=**N/A

Current Background Data from Upgradient Wells with Transformed Result

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Well Number: MW369

Date Collected	Result	LN(Result)
1/20/2021	350	5.858
4/13/2021	444	6.096
7/13/2021	352	5.864
10/12/2021	343	5.838
1/12/2022	392	5.971
4/12/2022	382	5.945
7/14/2022	420	6.040
10/11/2022	406	6.006

Well Number: MW372

Date Collected	Result	LN(Result)
1/20/2021	362	5.892
4/13/2021	411	6.019
7/14/2021	378	5.935
10/13/2021	390	5.966
1/13/2022	376	5.930
4/12/2022	402	5.996
7/14/2022	402	5.996
10/11/2022	416	6.031

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW357	Downgradient	Yes	380	NO	5.940	N/A
MW360	Downgradient	Yes	430	NO	6.064	N/A
MW363	Downgradient	Yes	365	NO	5.900	N/A
MW366	Downgradient	Yes	365	NO	5.900	N/A
MW369	Upgradient	Yes	480	YES	6.174	N/A
MW372	Upgradient	Yes	403	NO	5.999	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

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV   Coefficient-of-Variation, CV = S/X   If CV is less than or equal to 1 assume normal distribution.

S   Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL   Upper Tolerance Limit, TL = X + (K * S),   LL   Lower Tolerance Limit, LL = X - (K * S)

X   Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test 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=** 77.243	**S=** 71.742	**CV(1)=**0.929	**K factor**=** 2.523	**TL(1)=** 258.247	**LL(1)=**N/A
Statistics-Transformed Background Data	**X=** 3.528	**S=** 1.509	**CV(2)=**0.428	**K factor**=** 2.523	**TL(2)=** 7.335	**LL(2)=**N/A

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Background Data from Upgradient Wells with Transformed Result

Well Number:　MW369

Date Collected	Result	LN(Result)
1/20/2021	5.86	1.768
4/13/2021	7.59	2.027
7/13/2021	8.66	2.159
10/12/2021	8.82	2.177
1/12/2022	7.8	2.054
4/12/2022	8.93	2.189
7/14/2022	8.16	2.099
10/11/2022	8.07	2.088

Well Number:　MW372

Date Collected	Result	LN(Result)
1/20/2021	156	5.050
4/13/2021	157	5.056
7/14/2021	147	4.990
10/13/2021	147	4.990
1/13/2022	145	4.977
4/12/2022	144	4.970
7/14/2022	145	4.977
10/11/2022	131	4.875

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW372	Upgradient	Yes	135	NO	4.905	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.*

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test 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**= 58.806	**S**= 10.261	**CV(1)**=0.174	**K factor****= 2.523	**TL(1)**= 84.695	**LL(1)**=N/A
Statistics-Transformed Background Data	**X**= 4.060	**S**= 0.172	**CV(2)**=0.042	**K factor****= 2.523	**TL(2)**= 4.494	**LL(2)**=N/A

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Background Data from Upgradient Wells with Transformed Result

Well Number: MW369

Date Collected	Result	LN(Result)
1/20/2021	47.7	3.865
4/13/2021	60.3	4.099
7/13/2021	67.7	4.215
10/12/2021	59.8	4.091
1/12/2022	52.8	3.967
4/12/2022	57.2	4.047
7/14/2022	50.8	3.928
10/11/2022	56.4	4.032

Well Number: MW372

Date Collected	Result	LN(Result)
1/20/2021	43.5	3.773
4/13/2021	51.3	3.938
7/14/2021	66.6	4.199
10/13/2021	55.9	4.024
1/13/2022	47.6	3.863
4/12/2022	79.4	4.374
7/14/2022	74.2	4.307
10/11/2022	69.7	4.244

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW366	Downgradient	Yes	87.8	YES	4.475	N/A
MW372	Upgradient	Yes	85.4	YES	4.447	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

MW366
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.*

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is statistically significant evidence of elevated concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data X= 0.002 S= 0.001 **CV(1)**=0.488 **K factor****= 2.523 **TL(1)**= 0.003 **LL(1)**=N/A

Statistics-Transformed Background Data X= -6.587 S= 0.493 **CV(2)**=-0.075 **K factor****= 2.523 **TL(2)**= -5.343 **LL(2)**=N/A

Current Background Data from Upgradient Wells with Transformed Result

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Well Number: MW370

Date Collected	Result	LN(Result)
1/20/2021	0.00254	-5.976
4/13/2021	0.00128	-6.661
7/13/2021	0.000726	-7.228
10/12/2021	0.002	-6.215
1/12/2022	0.000792	-7.141
4/12/2022	0.000834	-7.089
7/14/2022	0.000909	-7.003
10/11/2022	0.001	-6.908

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW358	Downgradient	Yes	0.103	YES	-2.273	N/A

Well Number: MW373

Date Collected	Result	LN(Result)
1/20/2021	0.0027	-5.915
4/13/2021	0.00131	-6.638
7/14/2021	0.00153	-6.482
10/13/2021	0.000959	-6.950
1/13/2022	0.00248	-5.999
4/12/2022	0.000796	-7.136
7/14/2022	0.00266	-5.929
10/11/2022	0.00218	-6.128

Conclusion of Statistical Analysis on Current Data

The test well(s) listed exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to current background data.

Wells with Exceedances
MW358

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.
CV   Coefficient-of-Variation, CV = S/X   If CV is less than or equal to 1 assume normal distribution.
 S   Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL   Upper Tolerance Limit, TL = X + (K * S),   LL   Lower Tolerance Limit, LL = X - (K * S)
X   Mean, X = (sum of background results)/(count of background results)
** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test 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= 392.250   S= 21.974   **CV(1)=**0.056   **K factor**=** 2.523   **TL(1)=** 447.691   **LL(1)=**N/A

Statistics-Transformed Background Data   X= 5.970   S= 0.056   **CV(2)=**0.009   **K factor**=** 2.523   **TL(2)=** 6.111   **LL(2)=**N/A

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Current Background Data from Upgradient Wells with Transformed Result

Well Number: MW370

Date Collected	Result	LN(Result)
1/20/2021	395	5.979
4/13/2021	435	6.075
7/13/2021	364	5.897
10/12/2021	359	5.883
1/12/2022	402	5.996
4/12/2022	390	5.966
7/14/2022	415	6.028
10/11/2022	427	6.057

Well Number: MW373

Date Collected	Result	LN(Result)
1/20/2021	372	5.919
4/13/2021	407	6.009
7/14/2021	380	5.940
10/13/2021	372	5.919
1/13/2022	376	5.930
4/12/2022	399	5.989
7/14/2022	382	5.945
10/11/2022	401	5.994

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW361	Downgradient	Yes	405	NO	6.004	N/A
MW364	Downgradient	Yes	365	NO	5.900	N/A
MW367	Downgradient	Yes	235	NO	5.460	N/A
MW370	Upgradient	Yes	468	YES	6.148	N/A
MW373	Upgradient	Yes	399	NO	5.989	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

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV   Coefficient-of-Variation, CV = S/X   If CV is less than or equal to 1 assume normal distribution.

S   Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5

TL   Upper Tolerance Limit, TL = X + (K * S),   LL   Lower Tolerance Limit, LL = X - (K * S)

X   Mean, X = (sum of background results)/(count of background results)

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, http://www.itl.nist.gov/div898/handbook/,2009.*

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test 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= 22.351	S= 15.748	CV(1)=0.705	K factor**= 2.523	TL(1)= 62.082	LL(1)=N/A
Statistics-Transformed Background Data	X= 3.004	S= 0.608	CV(2)=0.202	K factor**= 2.523	TL(2)= 4.074	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 possbile for all background values, the TL was considered equal to the maximum background value.

Current Background Data from Upgradient Wells with Transformed Result

Well Number: MW370

Date Collected	Result	LN(Result)
1/20/2021	58.8	4.074
4/13/2021	44.2	3.789
7/13/2021	37.9	3.635
10/12/2021	39.2	3.669
1/12/2022	25.6	3.243
4/12/2022	23.4	3.153
7/14/2022	24	3.178
10/11/2022	20.9	3.040

Well Number: MW373

Date Collected	Result	LN(Result)
1/20/2021	9.89	2.292
4/13/2021	17.5	2.862
7/14/2021	14.2	2.653
10/13/2021	8.12	2.094
1/13/2022	11.2	2.416
4/12/2022	14.8	2.695
7/14/2022	9.69	2.271
10/11/2022	-1.78	#Func!

Current Quarter Data

Well No.	Gradient	Detected?	Result	Result >TL(1)?	LN(Result)	LN(Result) >TL(2)
MW361	Downgradient	Yes	51.5	NO	3.942	N/A
MW364	Downgradient	Yes	61.7	NO	4.122	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.

THIS PAGE INTENTIONALLY LEFT BLANK

ATTACHMENT D3

STATISTICIAN QUALIFICATION STATEMENT

THIS PAGE INTENTIONALLY LEFT BLANK

FOUR RIVERS NUCLEAR PARTNERSHIP, LLC

April 24, 2023
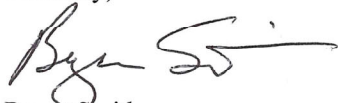
Mr. Dennis Greene
Four Rivers Nuclear Partnership, LLC
5511 Hobbs Road
Kevil, KY 42053

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 2023 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

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX E

GROUNDWATER FLOW RATE AND DIRECTION

THIS PAGE INTENTIONALLY LEFT BLANK

GROUNDWATER
FLOW RATE AND DIRECTION

Determination of groundwater flow rate and direction of flow in the uppermost aquifer whenever the monitoring wells (MWs) are sampled is a requirement of 401 *KAR* 48.300, Section 11. The uppermost aquifer below the C-746-U Landfill is the Regional Gravel Aquifer (RGA). Water level measurements currently are recorded in several wells at the landfill on a quarterly basis. These measurements were used to plot the potentiometric surface of the RGA for the first quarter 2023 and determine groundwater flow rate and direction.

Water levels during this reporting period were measured on January 26, 2023. As shown on Figure E.1, all Upper Continental Recharge System (UCRS) wells had sufficient water to permit water level measurement and sampling for laboratory analysis during this reporting period.

The UCRS has a strong vertical hydraulic gradient; therefore, the available UCRS wells screened over different elevations are not sufficient for mapping the potentiometric surface. As shown in Table E.1, the RGA data were converted to elevations to plot the potentiometric surfaces within the Upper Regional Gravel Aquifer (URGA) and Lower Regional Gravel Aquifer (LRGA). (At the request of the Commonwealth of Kentucky, the RGA is differentiated into two zones, the URGA and LRGA.) Based on the potentiometric maps (Figures E.2 and E.3), the hydraulic gradients for the URGA and LRGA at the C-746-U Landfill, as measured along the defined groundwater flow directions, were 6.50×10^{-4} ft/ft and 6.38×10^{-4} ft/ft, respectively. 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), along with the C-746-S&T Landfill wells, were used to contour the general RGA potentiometric surface (Figure E.4). The hydraulic gradient for the RGA, as a whole, in the vicinity of the C-746-U Landfill was 4.17×10^{-4} ft/ft. The hydraulic gradients are shown in Table E.2.

The average linear groundwater flow velocity (v) is determined by multiplying the hydraulic gradient (i) by the hydraulic conductivity (K) [resulting in the specific discharge (q)] and dividing by the effective porosity (n_e). The RGA hydraulic conductivity values used are reported in the Administrative Application for the New Solid Waste Landfill Permit No. SW07300045NWC1 and range from 425 to 725 ft/day (0.150 to 0.256 cm/s). RGA (both URGA and LRGA) effective porosity is assumed to be 25%. Flow velocities were calculated for the URGA and LRGA using the low and high values for hydraulic conductivity, as shown in the Table E.3.

Groundwater flow beneath the C-746-U Landfill typically trends northeastward toward the Ohio River. As demonstrated on the potentiometric maps for January 2023, the groundwater flow direction in the immediate area of the landfill was to the northeast.
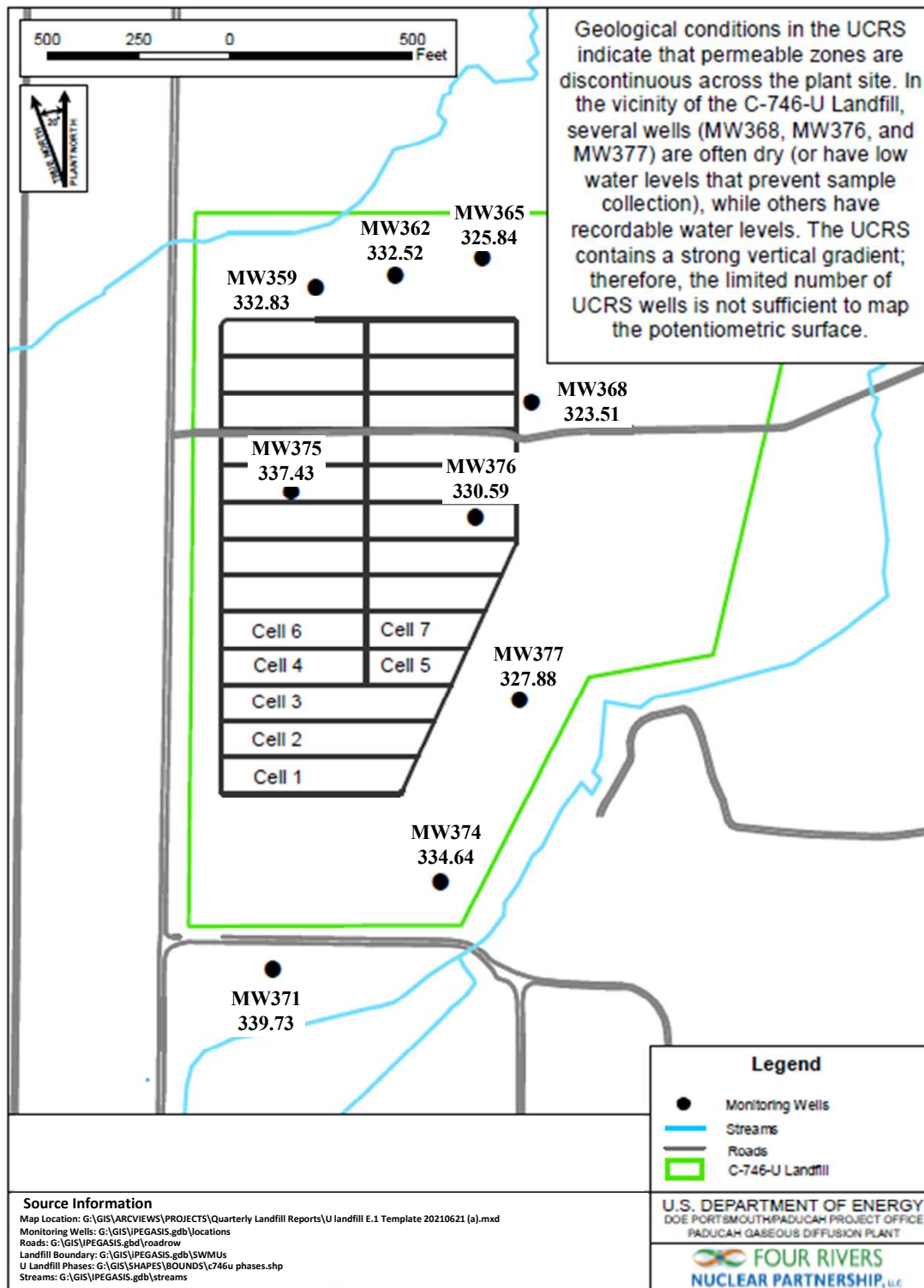
**Figure E.1. Potentiometric Measurements of the Upper Continental Recharge System
at the C-746-U Landfill
January 26, 2023**

Table E.1. C-746-U Landfill First Quarter 2023 (January) Water Levels

							Raw Data		*Corrected Data	
Date	Time	Well	Aquifer	Datum Elev (ft amsl)	BP (in Hg)	Delta BP (ft H20)	DTW (ft)	Elev (ft amsl)	DTW (ft)	Elev (ft amsl)
1/26/2023	9:58	MW357	URGA	368.77	30.16	0.00	47.89	320.88	47.89	320.88
1/26/2023	10:00	MW358	LRGA	368.92	30.16	0.00	48.04	320.88	48.04	320.88
1/26/2023	9:59	MW359	UCRS	368.91	30.16	0.00	36.08	332.83	36.08	332.83
1/26/2023	9:55	MW360	URGA	362.07	30.16	0.00	41.18	320.89	41.18	320.89
1/26/2023	9:57	MW361	LRGA	361.32	30.16	0.00	40.43	320.89	40.43	320.89
1/26/2023	9:56	MW362	UCRS	361.85	30.16	0.00	29.33	332.52	29.33	332.52
1/26/2023	10:08	MW363	URGA	368.56	30.16	0.00	47.72	320.84	47.72	320.84
1/26/2023	10:10	MW364	LRGA	368.17	30.16	0.00	47.44	320.73	47.44	320.73
1/26/2023	10:09	MW365	UCRS	368.14	30.16	0.00	42.30	325.84	42.30	325.84
1/26/2023	10:13	MW366	URGA	368.95	30.16	0.00	47.97	320.98	47.97	320.98
1/26/2023	10:11	MW367	LRGA	369.37	30.16	0.00	48.37	321.00	48.37	321.00
1/26/2023	10:12	MW368	UCRS	368.98	30.16	0.00	45.47	323.51	45.47	323.51
1/26/2023	10:26	MW369	URGA	364.23	30.16	0.00	42.23	322.00	42.23	322.00
1/26/2023	10:27	MW370	LRGA	365.12	30.16	0.00	43.11	322.01	43.11	322.01
1/26/2023	10:28	MW371	UCRS	364.64	30.16	0.00	24.91	339.73	24.91	339.73
1/26/2023	10:24	MW372	URGA	359.42	30.16	0.00	37.40	322.02	37.40	322.02
1/26/2023	10:22	MW373	LRGA	359.73	30.16	0.00	37.69	322.04	37.69	322.04
1/26/2023	10:23	MW374	UCRS	359.44	30.16	0.00	24.80	334.64	24.80	334.64
1/26/2023	10:17	MW375	UCRS	370.36	30.16	0.00	32.93	337.43	32.93	337.43
1/26/2023	10:18	MW376	UCRS	370.39	30.16	0.00	39.80	330.59	39.80	330.59
1/26/2023	10:20	MW377	UCRS	365.74	30.16	0.00	37.86	327.88	37.86	327.88
Reference Barometric Pressure					30.16					

Elev = elevation
amsl = above mean sea level
BP = barometric pressure
DTW = depth to water in feet below datum
URGA = Upper Regional Gravel Aquifer
LRGA = Lower Regional Gravel Aquifer
UCRS = Upper Continental Recharge System
*Assumes a barometric efficiency of 1.0
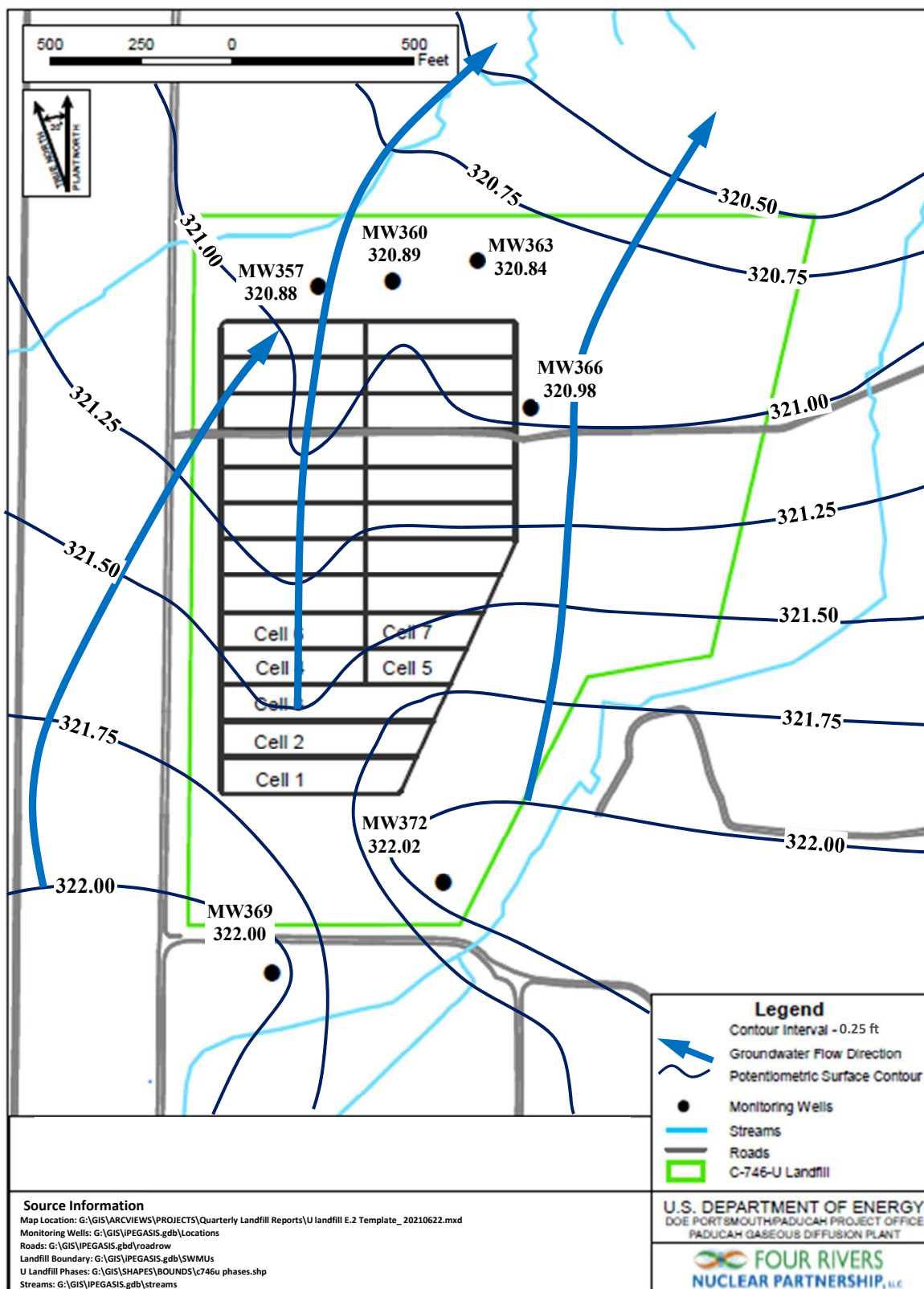
Figure E.2. Potentiometric Surface of the Upper Regional Gravel Aquifer at the C-746-U Landfill, January 26, 2023
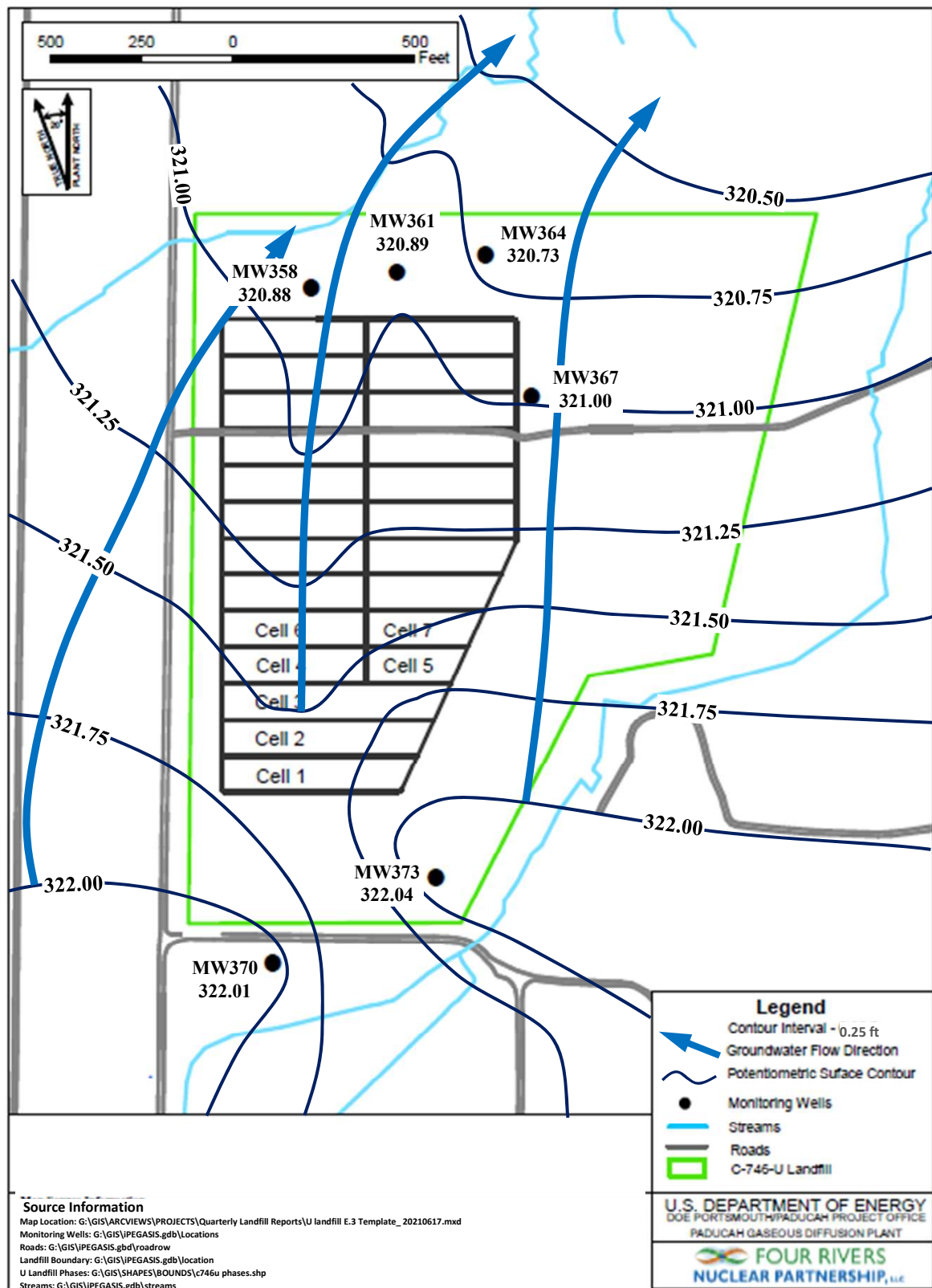
Figure E.3. Potentiometric Surface of the Lower Regional Gravel Aquifer at the C-746-U Landfill, January 26, 2021
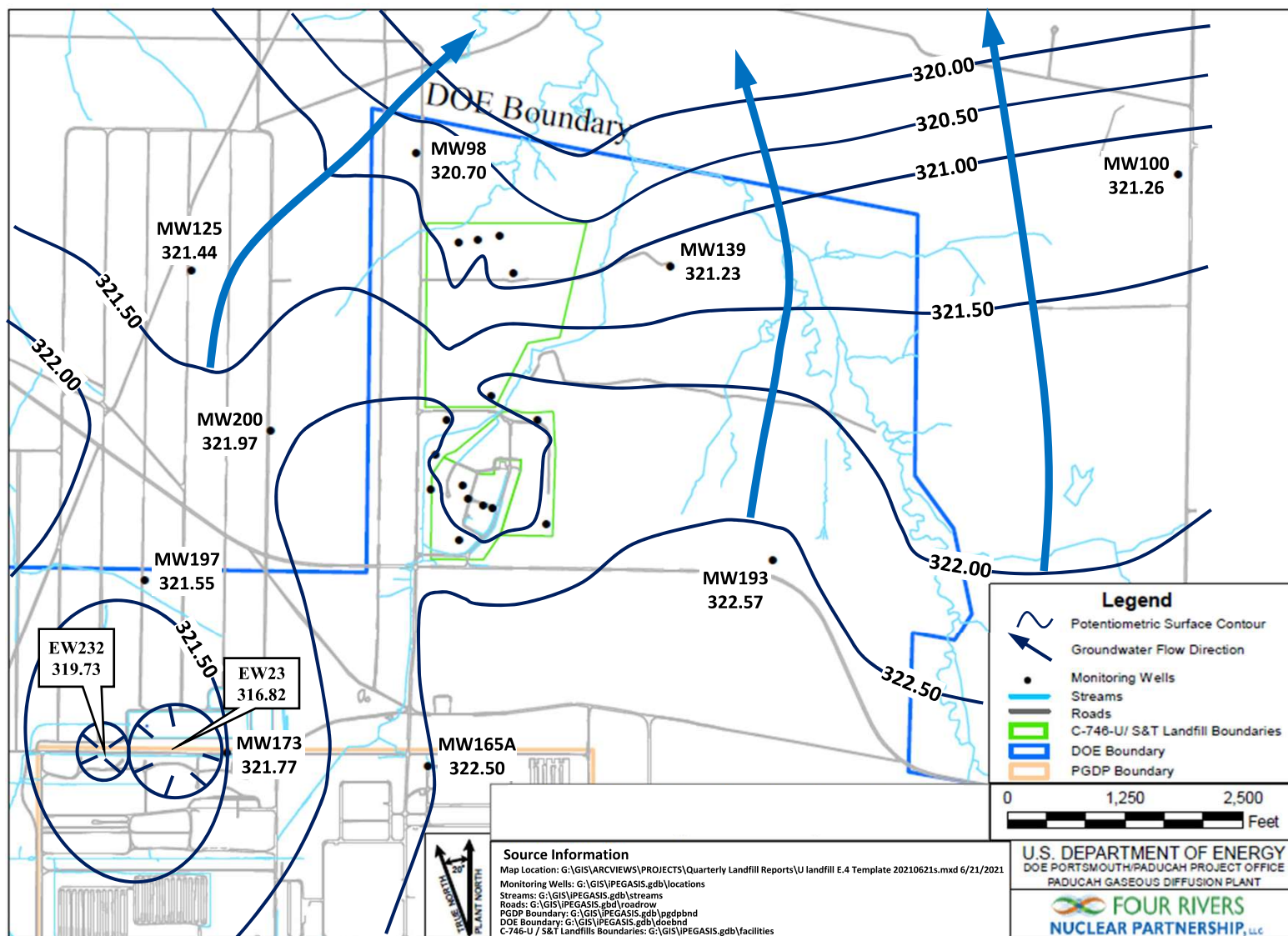
Figure E.4. Vicinity Potentiometric Surface of the Regional Gravel Aquifer, January 26, 2023

Table E.2. C-746-U Landfill Hydraulic Gradients

	ft/ft
Beneath Landfill—Upper RGA	6.50×10^{-4}
Beneath Landfill—Lower RGA	6.38×10^{-4}
Vicinity	4.17×10^{-4}

Table E.3. C-746-U Landfill Groundwater Flow Rate

Hydraulic Conductivity (K)		Specific Discharge (q)		Average Linear Velocity (v)	
ft/day	cm/s	ft/day	cm/s	ft/day	cm/s
Upper RGA					
725	0.256	0.471	1.66×10^{-4}	1.89	6.66×10^{-4}
425	0.150	0.276	9.75×10^{-5}	1.11	3.90×10^{-4}
Lower RGA					
725	0.256	0.462	1.63×10^{-4}	1.85	6.53×10^{-4}
425	0.150	0.271	9.56×10^{-5}	1.08	3.83×10^{-4}

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX F

NOTIFICATIONS

THIS PAGE INTENTIONALLY LEFT BLANK

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 submitted are listed on page F-4. The notification for parameters that do not have MCLs, but had statistically significant increased concentrations relative to historical background concentrations, is provided below.

Statistical Analysis of Parameters Notification

The statistical analyses conducted on the first quarter 2023 groundwater data collected from the C-746-U Landfill monitoring wells were performed in accordance with *Groundwater Monitoring Plan for the Solid Waste Permitted Landfills (C-746-S Residential Landfill, C-746-T Inert Landfill, and C-746-U Contained Landfill) at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky* (LATA Kentucky 2014).

The following are the permit required parameters in 40 *CFR* § 302.4, Appendix A, which had statistically significant, increased concentrations relative to historical background concentrations.

	Parameter	**Monitoring Well**
Upper Continental Recharge System	None	
Upper Regional Gravel Aquifer	Technetium-99	MW366, MW372
Lower Regional Gravel Aquifer	Nickel	MW358
	Technetium-99	MW361, MW364

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.

Four Rivers Nuclear Partnership, LLC
PROJECT ENVIRONMENTAL MEASUREMENTS SYSTEM
C-746-U LANDFILL
SOLID WASTE PERMIT NUMBER SW07300014, SW07300015, SW07300045
MAXIMUM CONTAMINANT LEVEL (MCL) EXCEEDANCE REPORT
Quarterly Groundwater Sampling

AKGWA	Station	Analysis	Method	Results	Units	MCL
8004-4798	MW357	Trichloroethene	8260D	6.13	ug/L	5
8004-4795	MW361	Trichloroethene	8260D	5.18	ug/L	5
8004-4820	MW369	Trichloroethene	8260D	5.84	ug/L	5
8004-4808	MW372	Trichloroethene	8260D	5.24	ug/L	5
8004-4792	MW373	Trichloroethene	8260D	5.76	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

THIS PAGE INTENTIONALLY LEFT BLANK

Chart of MCL and Historical UTL Exceedances
for the C-746-U Contained Landfill

Groundwater Flow System	UCRS									URGA						LRGA					
Gradient	D	S	S	S	D	D	D	U	U	D	D	D	D	U	U	D	D	D	D	U	U
Monitoring Well	368	375	376	377	359	362	365	371	374	366	360	363	357	369	372	367	361	364	358	370	373
ACETONE																					
Quarter 3, 2002										✱	✱	✱									
Quarter 4, 2002										✱	✱	✱									
Quarter 1, 2003											✱	✱									
Quarter 2, 2003											✱	✱									
Quarter 3, 2003	✱						✱			✱	✱	✱			✱			✱			
Quarter 4, 2003					✱	✱					✱			✱							
Quarter 3, 2004						✱										✱					
Quarter 3, 2005						✱															
Quarter 4, 2005						✱															
ALPHA ACTIVITY																					
Quarter 1, 2004																					■
Quarter 2, 2004						■															
Quarter 3, 2009						■															
ALUMINUM																					
Quarter 3, 2003												✱									
BETA ACTIVITY																					
Quarter 1, 2004															■						
Quarter 2, 2004															■						■
Quarter 3, 2004															■						
Quarter 4, 2004															■						
Quarter 4, 2005															■						
Quarter 1, 2006															■						■
Quarter 2, 2006																					■
Quarter 3, 2006															■						■
Quarter 4, 2006															■						■
Quarter 1, 2007										■					■						■
Quarter 2, 2007															■						■
Quarter 3, 2007										■					■						
Quarter 4, 2007										■					■						■
Quarter 1, 2008										■					■						
Quarter 2, 2008														■		■					
Quarter 3, 2008										■					■					■	
Quarter 4, 2008										■					■					■	
Quarter 1, 2009										■					■						
Quarter 2, 2009															■	■	■				
Quarter 3, 2009										■					■						
Quarter 4, 2009										■					■						
Quarter 1, 2010															■						
Quarter 2, 2010										■						■					
Quarter 3, 2010										■											
Quarter 4, 2010															■						
Quarter 2, 2011										■						■					
Quarter 4, 2011															■						
Quarter 1, 2012										■											
Quarter 2, 2012										■								▨			
Quarter 3, 2012										■					■						
Quarter 4, 2012															■						■
Quarter 1, 2013															■						■
Quarter 3, 2013															■						■
Quarter 4, 2013															■						
Quarter 1, 2014															■						
Quarter 4, 2014															■						
Quarter 1, 2015															■						
Quarter 2, 2015																■					
Quarter 4, 2015															■			■			
Quarter 3, 2016																				■	
Quarter 4, 2016													■								
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																				■	
BROMIDE																					
Quarter 2, 2004													✱								

Chart of MCL and Historical UTL Exceedances
for the C-746-U Contained Landfill (Continued)

Groundwater Flow System	UCRS									URGA						LRGA					
Gradient	D	S	S	S	D	D	D	U	U	D	D	D	D	U	U	D	D	D	D	U	U
Monitoring Well	368	375	376	377	359	362	365	371	374	366	360	363	357	369	372	367	361	364	358	370	373
CALCIUM																					
Quarter 3, 2003										✱											
Quarter 2, 2005																					✱
Quarter 3, 2006															✱						
Quarter 2, 2008															✱						
Quarter 3, 2009															✱						
Quarter 4, 2009															✱						
Quarter 1, 2010															✱						
Quarter 2, 2010															✱						
Quarter 3, 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 2, 2014															✱						✱
Quarter 3, 2014															✱						✱
Quarter 4, 2014															✱						
Quarter 2, 2015															✱						
Quarter 3, 2015															✱						
Quarter 4, 2015															✱						
Quarter 1, 2016															✱						
Quarter 2, 2016															✱						
Quarter 2, 2017	✱																				
Quarter 1, 2018	✱																				
Quarter 3, 2018	✱																				
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															✱						
CARBON DISULFIDE																					
Quarter 3, 2003										✱											
Quarter 2, 2005							✱														
Quarter 3, 2005					✱																
Quarter 4, 2005					✱																
Quarter 1, 2006					✱																
Quarter 2, 2006					✱																
Quarter 3, 2010		✱									✱										
Quarter 4, 2010														✱							
Quarter 1, 2011															✱						
CHEMICAL OXYGEN DEMAND																					
Quarter 3, 2002										✱	✱	✱	✱	✱	✱						
Quarter 4, 2002										✱	✱										
Quarter 1, 2003										✱	✱										
Quarter 2, 2003										✱	✱	✱									
Quarter 3, 2003	✱									✱	✱					✱					
Quarter 4, 2003						✱				✱	✱										
Quarter 3, 2004										✱											
Quarter 3, 2005						✱									✱	✱			✱		
Quarter 4, 2005						✱												✱	✱		
Quarter 1, 2006																			✱		
Quarter 4, 2016																		✱			
Quarter 1, 2017											✱										
Quarter 2, 2019												✱			✱						
Quarter 3, 2019															✱						✱
Quarter 4, 2019															✱						
CHLORIDE																					
Quarter 1, 2006																				✱	
Quarter 2, 2014															✱						
COBALT																					
Quarter 3, 2003	✱					✱				✱	✱		✱	✱	✱	✱	✱	✱		✱	
Quarter 1, 2004														✱							
Quarter 2, 2016														✱							

Groundwater Flow System	UCRS									URGA						LRGA					
Gradient	D	S	S	S	D	D	D	U	U	D	D	D	D	U	U	D	D	D	D	U	U
Monitoring Well	368	375	376	377	359	362	365	371	374	366	360	363	357	369	372	367	361	364	358	370	373
CONDUCTIVITY																					
Quarter 4, 2002										✳											
Quarter 1, 2003										✳											
Quarter 2, 2003										✳	✳										
Quarter 4, 2003										✳											
Quarter 1, 2004										✳											
Quarter 2, 2004										✳											
Quarter 3, 2004										✳											
Quarter 1, 2005															✳						
Quarter 2, 2005															✳						
Quarter 3, 2005					✳														✳		
Quarter 4, 2005															✳			✳			
Quarter 1, 2006															✳						
Quarter 2, 2006															✳						
Quarter 3, 2006															✳						
Quarter 1, 2007															✳						
Quarter 2, 2007															✳						
Quarter 3, 2007															✳						
Quarter 4, 2007															✳						
Quarter 1, 2008															✳						
Quarter 2, 2008															✳						
Quarter 3, 2008															✳						
Quarter 4, 2008															✳						
Quarter 1, 2009															✳						
Quarter 2, 2009															✳						
Quarter 3, 2009															✳						
Quarter 4, 2009															✳						
Quarter 1, 2010															✳						
Quarter 2, 2010															✳						
Quarter 3, 2010															✳						
Quarter 4, 2010															✳						
Quarter 1, 2011															✳						
Quarter 2, 2011															✳						
Quarter 3, 2011															✳						
Quarter 4, 2011															✳						
Quarter 1, 2012														✳	✳						
Quarter 2, 2012															✳						
Quarter 3, 2012															✳						
Quarter 4, 2012															✳						
Quarter 1, 2013															✳						
Quarter 2, 2013															✳						
Quarter 3, 2013															✳						
Quarter 4, 2013															✳						
Quarter 1, 2014															✳						
Quarter 2, 2014															✳						
Quarter 3, 2014															✳						
Quarter 4, 2014															✳						
Quarter 1, 2015															✳						
Quarter 2, 2015															✳						
Quarter 3, 2015															✳						
Quarter 4, 2015															✳						
Quarter 1, 2016															✳						
Quarter 2, 2016															✳						
Quarter 3, 2016															✳						
Quarter 2, 2019															✳						
Quarter 3, 2019															✳						
Quarter 4, 2019															✳						
Quarter 1, 2020															✳						
Quarter 2, 2020															✳						
Quarter 3, 2020															✳						
Quarter 4, 2020															✳						
Quarter 1, 2021															✳						
Quarter 2, 2021															✳						
Quarter 3, 2021															✳						
Quarter 1, 2022															✳						
Quarter 2, 2022															✳						
Quarter 3, 2022															✳						
Quarter 4, 2022															✳						
Quarter 1, 2023															✳						
DISSOLVED OXYGEN																					
Quarter 1, 2003					✳	✳				✳											
Quarter 3, 2003					✳					✳											
Quarter 4, 2003					✳																
Quarter 1, 2004					✳																
Quarter 2, 2004								✳								✳					
Quarter 1, 2005					✳																
Quarter 2, 2005								✳													
Quarter 1, 2006					✳																
Quarter 2, 2006					✳			✳													
Quarter 3, 2006					✳			✳													
Quarter 4, 2006					✳				✳												
Quarter 2, 2007					✳			✳													
Quarter 3, 2007					✳			✳	✳												
Quarter 1, 2008					✳														✳		
Quarter 2, 2008								✳	✳												
Quarter 3, 2008								✳													

Groundwater Flow System	UCRS									URGA						LRGA					
Gradient	D	S	S	S	D	D	D	U	U	D	D	D	D	U	U	D	D	D	D	U	U
Monitoring Well	368	375	376	377	359	362	365	371	374	366	360	363	357	369	372	367	361	364	358	370	373
DISSOLVED OXYGEN																					
Quarter 1, 2009							∗														
Quarter 2, 2009					∗			∗	∗												
Quarter 3, 2009						∗		∗	∗												
Quarter 1, 2010					∗		∗														
Quarter 2, 2010					∗	∗		∗	∗											∗	∗
Quarter 3, 2010					∗	∗															
Quarter 4, 2010							∗					∗								∗	
Quarter 1, 2011						∗															
Quarter 2, 2011					∗	∗	∗	∗	∗					∗							
Quarter 3, 2011						∗			∗												
Quarter 1, 2012							∗		∗												
Quarter 2, 2012	∗			∗	∗	∗		∗	∗												
Quarter 3, 2012						∗															
Quarter 4, 2012									∗												
Quarter 1, 2013						∗			∗												
Quarter 2, 2013							∗		∗												
Quarter 3, 2013	∗				∗		∗	∗	∗												
Quarter 4, 2013									∗											∗	
Quarter 2, 2014	∗				∗	∗	∗	∗	∗								∗				
Quarter 3, 2014	∗				∗	∗	∗														
Quarter 4, 2014						∗															
Quarter 2, 2015					∗	∗	∗	∗													
Quarter 3, 2015					∗	∗		∗													
Quarter 4, 2015	∗					∗	∗														
Quarter 1, 2016	∗					∗	∗														
Quarter 2, 2016	∗	∗			∗	∗	∗	∗	∗											∗	∗
Quarter 3, 2016					∗	∗	∗	∗				∗									
Quarter 4, 2016						∗			∗												
Quarter 1, 2017						∗							∗								
Quarter 2, 2017	∗				∗	∗	∗	∗													
Quarter 3, 2017	∗	∗			∗	∗	∗	∗									∗				
Quarter 4, 2017						∗	∗										∗				
Quarter 1, 2018					∗	∗	∗	∗										∗			
Quarter 2, 2018					∗	∗	∗	∗													
Quarter 3, 2018	∗				∗	∗	∗	∗													
Quarter 4, 2018						∗															
Quarter 1, 2019					∗	∗	∗	∗													
Quarter 2, 2019					∗	∗		∗													
Quarter 3, 2019	∗				∗	∗	∗	∗													
Quarter 4, 2019					∗	∗	∗														
Quarter 1, 2020							∗	∗	∗												
Quarter 2, 2020					∗	∗		∗													
Quarter 3, 2020	∗				∗	∗															
Quarter 4, 2020	∗						∗														
Quarter 1, 2021					∗		∗											∗			
Quarter 2, 2021					∗	∗	∗	∗	∗												
Quarter 3, 2021	∗				∗	∗	∗	∗										∗			
Quarter 4, 2021					∗	∗	∗											∗			
Quarter 1, 2022	∗				∗	∗	∗	∗				∗					∗	∗			
Quarter 2, 2022	∗				∗	∗	∗	∗	∗												
Quarter 3, 2022	∗	∗			∗	∗	∗	∗				∗					∗	∗			
Quarter 4, 2022		∗					∗	∗													
DISSOLVED SOLIDS																					
Quarter 4, 2002										∗											
Quarter 1, 2003										∗											
Quarter 2, 2003										∗											
Quarter 3, 2003						∗				∗	∗										
Quarter 4, 2003										∗											
Quarter 3, 2005					∗																
Quarter 4, 2006															∗						
Quarter 1, 2007															∗						
Quarter 2, 2007															∗						
Quarter 4, 2008															∗						
Quarter 1, 2009															∗						
Quarter 2, 2009															∗						
Quarter 3, 2009															∗						
Quarter 4, 2009															∗						
Quarter 1, 2010															∗						
Quarter 2, 2010															∗						
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															∗						

Groundwater Flow System	UCRS									URGA						LRGA					
Gradient	D	S	S	S	D	D	D	U	U	D	D	D	D	U	U	D	D	D	D	U	U
Monitoring Well	368	375	376	377	359	362	365	371	374	366	360	363	357	369	372	367	361	364	358	370	373
DISSOLVED SOLIDS																					
Quarter 1, 2014															✻						
Quarter 2, 2014															✻						
Quarter 4, 2014															✻						
Quarter 2, 2015															✻						
Quarter 3, 2015															✻						
Quarter 4, 2015															✻						
Quarter 1, 2016															✻						
Quarter 3, 2019															✻						
Quarter 4, 2019															✻						
Quarter 1, 2020															✻						
Quarter 2, 2020															✻						
Quarter 3, 2020															✻						
Quarter 4, 2020															✻						
Quarter 1, 2021															✻						
Quarter 2, 2021															✻						
Quarter 3, 2021															✻						
Quarter 4, 2021															✻						
Quarter 1, 2022															✻						
Quarter 2, 2022															✻						
Quarter 3, 2022															✻						
Quarter 4, 2022															✻						
Quarter 1, 2023															✻						
IODIDE																					
Quarter 2, 2003																✻					
Quarter 3, 2003	✻									✻											
Quarter 4, 2003						✻															
Quarter 3, 2010							✻	✻					✻				✻				
IODINE-131																					
Quarter 3, 2010																				■	
IODOMETHANE																					
Quarter 4, 2003						✻															
IRON																					
Quarter 4, 2002						✻															
Quarter 3, 2003																✻					
Quarter 4, 2003										✻						✻					
Quarter 1, 2004										✻						✻					
Quarter 2, 2004										✻											
Quarter 3, 2004										✻											
Quarter 3, 2005																✻					
MAGNESIUM																					
Quarter 2, 2005															✻						✻
Quarter 3, 2005						✻															✻
Quarter 2, 2006															✻						✻
Quarter 3, 2006															✻						
Quarter 1, 2007															✻						
Quarter 2, 2008															✻						
Quarter 2, 2009															✻						
Quarter 3, 2009															✻						
Quarter 4, 2009															✻						
Quarter 1, 2010															✻						
Quarter 2, 2010															✻						
Quarter 3, 2010															✻						
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 2, 2014															✻						
Quarter 4, 2014															✻						
Quarter 2, 2015															✻						
Quarter 3, 2015															✻						
Quarter 4, 2015															✻						
Quarter 1, 2016															✻						
Quarter 2, 2016															✻						
Quarter 3, 2016	✻																				
Quarter 4, 2016	✻																				
Quarter 2, 2017	✻																				
Quarter 3, 2017	✻																				
Quarter 1, 2018	✻																				
Quarter 3, 2018	✻																				
Quarter 3, 2019	✻																				
Quarter 4, 2019															✻						
Quarter 2, 2020															✻						
Quarter 4, 2020															✻						
Quarter 1, 2021															✻						
Quarter 2, 2021															✻						
Quarter 3, 2021															✻						
Quarter 4, 2021															✻						
Quarter 1, 2022															✻						
Quarter 2, 2022															✻						
Quarter 3, 2022								✻							✻						
Quarter 1, 2023								✻							✻						

Chart of MCL and Historical UTL Exceedances
for the C-746-U Contained Landfill (Continued)

Groundwater Flow System	UCRS									URGA						LRGA					
Gradient	D	S	S	S	D	D	D	U	U	D	D	D	D	U	U	D	D	D	D	U	U
Monitoring Well	368	375	376	377	359	362	365	371	374	366	360	363	357	369	372	367	361	364	358	370	373
MANGANESE																					
Quarter 3, 2002										*		*									
Quarter 4, 2002		*				*	*			*		*	*								
Quarter 2, 2003										*		*									
Quarter 3, 2003										*		*	*			*	*	*	*		
Quarter 4, 2003										*	*	*	*				*	*			
Quarter 1, 2004										*	*	*				*	*	*			
Quarter 2, 2004							*			*	*	*						*			
Quarter 3, 2004							*			*	*	*				*					
Quarter 4, 2004										*		*				*					
Quarter 1, 2005										*		*									
Quarter 2, 2005										*		*									
Quarter 3, 2005										*		*				*					
Quarter 4, 2005										*						*					
Quarter 1, 2006										*											
Quarter 2, 2006							*			*		*									
Quarter 3, 2006										*						*					
Quarter 4, 2006										*											
Quarter 1, 2007										*											
Quarter 2, 2007							*			*											
Quarter 3, 2007							*														
Quarter 3, 2008							*														
Quarter 4, 2008							*														
Quarter 3, 2009							*														
Quarter 3, 2011							*														
Quarter 2, 2016														*							
Quarter 3, 2016									*												
Quarter 1, 2022																			*		
NICKEL																					
Quarter 3, 2003										*											
Quarter 1, 2022																			*		
Quarter 4, 2022																			*		
Quarter 1, 2023																			*		
NITRATE AS NITROGEN																					
Quarter 4, 2021												■									
OXIDATION-REDUCTION POTENTIAL																					
Quarter 4, 2002																*		*			
Quarter 1, 2003																*		*			
Quarter 2, 2003																		*			
Quarter 3, 2003	*																				
Quarter 4, 2003					*																
Quarter 2, 2004													*			*					*
Quarter 3, 2004					*		*						*	*	*	*				*	*
Quarter 4, 2004												*									*
Quarter 1, 2005																*				*	*
Quarter 2, 2005							*						*			*				*	
Quarter 3, 2005					*	*	*				*	*	*			*			*	*	*
Quarter 4, 2005		*					*						*			*				*	
Quarter 1, 2006					*		*	*								*					*
Quarter 2, 2006					*	*	*						*			*				*	
Quarter 3, 2006					*		*						*			*				*	
Quarter 4, 2006					*		*			*		*				*				*	*
Quarter 1, 2007		*			*		*					*				*				*	*
Quarter 2, 2007					*							*				*				*	
Quarter 3, 2007					*		*									*				*	
Quarter 4, 2007																*				*	*
Quarter 1, 2008					*		*					*	*							*	*
Quarter 2, 2008					*		*			*		*	*				*			*	*
Quarter 3, 2008					*	*	*	*		*		*	*	*			*	*		*	*
Quarter 4, 2008							*			*		*	*				*			*	*
Quarter 1, 2009							*	*		*		*	*					*		*	
Quarter 2, 2009					*		*	*		*		*	*				*	*	*	*	*
Quarter 3, 2009		*			*	*	*	*	*	*		*	*	*			*	*	*	*	*
Quarter 4, 2009		*				*	*	*	*	*		*	*				*	*	*	*	*
Quarter 1, 2010		*			*		*	*		*			*			*	*	*		*	
Quarter 2, 2010						*	*	*		*	*	*	*			*	*	*	*	*	*
Quarter 3, 2010		*			*	*	*	*	*	*	*		*	*	*	*	*	*	*	*	*
Quarter 4, 2010		*				*	*	*	*	*	*	*	*	*		*	*	*	*	*	*
Quarter 1, 2011						*	*			*	*	*	*	*		*	*	*	*		
Quarter 2, 2011		*			*	*	*	*	*	*	*	*	*	*		*	*	*	*	*	*
Quarter 3, 2011		*				*	*	*	*			*	*	*		*	*	*	*	*	*
Quarter 4, 2011		*				*		*	*	*	*	*	*	*		*	*	*		*	*
Quarter 1, 2012		*				*	*	*	*	*	*	*	*	*		*	*	*	*	*	*
Quarter 2, 2012	*	*		*	*	*	*	*	*	*	*	*	*	*		*	*	*	*	*	*
Quarter 3, 2012		*				*	*			*		*	*	*		*	*	*	*	*	*
Quarter 4, 2012		*				*	*	*		*	*	*	*	*		*	*	*	*	*	*
Quarter 1, 2013		*				*		*	*	*	*	*	*	*		*	*	*		*	
Quarter 2, 2013		*						*	*	*	*	*	*	*	*	*	*	*	*	*	*
Quarter 3, 2013	*	*			*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Quarter 4, 2013		*				*		*	*	*	*	*	*	*	*	*	*	*	*	*	*
Quarter 1, 2014		*				*		*	*	*	*	*	*	*		*	*	*	*	*	*
Quarter 2, 2014	*	*		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Quarter 3, 2014	*	*		*	*	*	*	*	*	*		*	*	*		*	*	*	*	*	*
Quarter 4, 2014		*				*		*	*	*		*	*	*		*	*	*	*		
Quarter 1, 2015		*				*		*	*	*	*	*	*	*	*	*	*	*	*	*	*
Quarter 2, 2015	*	*		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Quarter 3, 2015		*		*	*	*		*	*	*		*	*	*		*	*	*	*	*	*
Quarter 4, 2015	*	*			*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*

Chart of MCL and Historical UTL Exceedances
for the C-746-U Contained Landfill (Continued)

Groundwater Flow System	UCRS									URGA						LRGA					
Gradient	D	S	S	S	D	D	D	U	U	D	D	D	D	U	U	D	D	D	D	U	U
Monitoring Well	368	375	376	377	359	362	365	371	374	366	360	363	357	369	372	367	361	364	358	370	373
OXIDATION-REDUCTION POTENTIAL																					
Quarter 1, 2016	*	*			*		*	*		*		*	*	*	*	*	*	*	*	*	*
Quarter 2, 2016	*	*			*	*	*	*		*		*	*	*	*	*	*	*	*	*	*
Quarter 3, 2016	*	*			*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Quarter 4, 2016	*	*				*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Quarter 1, 2017	*	*				*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Quarter 2, 2017	*	*			*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Quarter 3, 2017	*	*			*	*	*	*	*	*		*	*	*	*	*	*	*	*	*	*
Quarter 4, 2017		*				*	*	*	*	*		*	*	*	*	*	*	*		*	*
Quarter 1, 2018	*	*			*	*	*	*	*	*		*	*	*	*	*	*	*		*	*
Quarter 2, 2018	*	*			*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Quarter 3, 2018	*	*			*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Quarter 4, 2018		*			*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Quarter 1, 2019	*	*			*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Quarter 2, 2019	*	*			*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Quarter 3, 2019	*	*			*	*	*	*	*	*	*	*	*	*	*	*	*	*		*	*
Quarter 4, 2019	*	*			*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Quarter 1, 2020	*	*			*	*	*	*	*	*	*	*	*	*	*	*	*	*		*	*
Quarter 2, 2020	*	*			*	*	*	*	*	*	*	*	*	*	*	*	*	*		*	*
Quarter 3, 2020	*	*			*	*	*	*	*	*	*	*	*	*	*	*	*	*		*	*
Quarter 4, 2020	*	*				*	*	*	*	*	*		*	*	*	*	*	*		*	*
Quarter 1, 2021	*	*			*	*	*	*		*	*	*	*	*	*	*	*	*		*	*
Quarter 2, 2021	*	*			*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Quarter 3, 2021	*	*			*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Quarter 4, 2021	*	*			*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Quarter 1, 2022	*	*			*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Quarter 2, 2022	*	*			*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Quarter 3, 2022	*	*			*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Quarter 4, 2022		*			*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Quarter 1, 2023		*			*			*	*	*	*	*	*	*	*	*	*	*		*	*
PCB, TOTAL																					
Quarter 4, 2003																*					
Quarter 3, 2004												*									
Quarter 3, 2005							*														
Quarter 2, 2006							*														
Quarter 3, 2006							*														
Quarter 1, 2007							*														
Quarter 2, 2007							*														
Quarter 3, 2007							*														
Quarter 1, 2008							*														
Quarter 2, 2008							*														
Quarter 4, 2008							*														
Quarter 3, 2009							*														
Quarter 1, 2010							*														
Quarter 2, 2010							*														
Quarter 4, 2010							*														
PCB-1016																					
Quarter 3, 2004												*									
Quarter 2, 2006							*					*									
Quarter 1, 2007							*														
Quarter 2, 2007							*														
Quarter 3, 2007							*														
Quarter 2, 2008							*														
Quarter 4, 2008							*														
Quarter 3, 2009							*														
Quarter 1, 2010							*														
Quarter 2, 2010							*														
Quarter 4, 2010							*														
PCB-1242																					
Quarter 3, 2006							*					*									
Quarter 4, 2006						*															
Quarter 1, 2008							*														
Quarter 2, 2012							*														
PCB-1248																					
Quarter 2, 2008							*														
PCB-1260																					
Quarter 2, 2006							*														
pH																					
Quarter 3, 2002										*											
Quarter 4, 2002										*											
Quarter 1, 2003										*											
Quarter 2, 2003										*											
Quarter 3, 2003	*						*			*											
Quarter 4, 2003							*									*					
Quarter 1, 2004							*									*					
Quarter 3, 2005					*														*	*	
Quarter 4, 2005					*															*	
Quarter 3, 2006																*					
Quarter 2, 2011														*							
Quarter 3, 2011														*							
Quarter 4, 2011														*							
Quarter 1, 2012																*	*				
Quarter 2, 2012												*									
Quarter 1, 2013										*		*				*					
Quarter 3, 2015																	*				
Quarter 2, 2016																				*	*
Quarter 3, 2016																				*	
Quarter 2, 2017																*					

Chart of MCL and Historical UTL Exceedances
for the C-746-U Contained Landfill (Continued)

Groundwater Flow System	UCRS									URGA						LRGA					
Gradient	D	S	S	S	D	D	D	U	U	D	D	D	D	U	U	D	D	D	D	U	U
Monitoring Well	368	375	376	377	359	362	365	371	374	366	360	363	357	369	372	367	361	364	358	370	373
pH																					
Quarter 3, 2018					✱					✱	✱						✱	✱	✱		
Quarter 4, 2018																✱		✱			
Quarter 3, 2019																✱					
Quarter 1, 2021																✱		✱		✱	
Quarter 3, 2021																					✱
Quarter 4, 2021																✱					✱
POTASSIUM																					
Quarter 1, 2014																✱					
RADIUM-228																					
Quarter 2, 2005														■							
Quarter 4, 2005					■							■						■			
SELENIUM																					
Quarter 4, 2003									■												
SODIUM																					
Quarter 3, 2002										✱	✱		✱								
Quarter 4, 2002										✱	✱			✱							
Quarter 1, 2003										✱											
Quarter 2, 2003										✱	✱										
Quarter 3, 2003											✱										
Quarter 1, 2007											✱										
Quarter 1, 2012														✱							
Quarter 1, 2014															✱						
Quarter 3, 2014											✱										
Quarter 4, 2014											✱										
Quarter 4, 2015											✱										
Quarter 1, 2016											✱										
Quarter 2, 2016											✱										
Quarter 3, 2016											✱										
Quarter 4, 2016											✱										
Quarter 1, 2017											✱										
Quarter 2, 2017											✱										
Quarter 3, 2017											✱										
Quarter 4, 2017											✱										
Quarter 1, 2018											✱										
Quarter 3, 2018											✱										
STRONTIUM-90																					
Quarter 4, 2008							■														
SULFATE																					
Quarter 1, 2003							✱														
Quarter 2, 2003						✱	✱														
Quarter 3, 2003	✱						✱														
Quarter 4, 2003					✱		✱														
Quarter 1, 2004					✱	✱	✱														
Quarter 2, 2004					✱	✱	✱														
Quarter 3, 2004					✱	✱	✱														
Quarter 1, 2005					✱	✱			✱												
Quarter 2, 2005					✱		✱		✱						✱						
Quarter 3, 2005					✱	✱	✱														
Quarter 4, 2005															✱						
Quarter 1, 2006					✱				✱												
Quarter 2, 2006						✱	✱		✱						✱						
Quarter 3, 2006							✱														
Quarter 1, 2007							✱														
Quarter 2, 2007							✱														
Quarter 3, 2007							✱														
Quarter 4, 2007		✱																			
Quarter 1, 2008		✱			✱		✱		✱												
Quarter 2, 2008		✱			✱	✱	✱														
Quarter 3, 2008		✱			✱	✱	✱														
Quarter 4, 2008		✱				✱	✱														
Quarter 1, 2009		✱					✱														
Quarter 2, 2009		✱			✱	✱	✱														
Quarter 3, 2009		✱			✱	✱	✱								✱						
Quarter 4, 2009		✱			✱	✱									✱						
Quarter 1, 2010		✱			✱	✱	✱								✱						
Quarter 2, 2010		✱			✱	✱	✱								✱						
Quarter 3, 2010		✱			✱	✱	✱								✱						
Quarter 4, 2010		✱				✱	✱								✱						
Quarter 1, 2011		✱																			
Quarter 2, 2011		✱			✱	✱	✱								✱						
Quarter 3, 2011		✱				✱	✱	✱							✱						
Quarter 4, 2011		✱				✱									✱						
Quarter 1, 2012		✱					✱	✱							✱						
Quarter 2, 2012	✱	✱		✱	✱	✱	✱	✱	✱						✱						
Quarter 3, 2012		✱				✱									✱						
Quarter 4, 2012		✱													✱						
Quarter 1, 2013		✱				✱									✱						
Quarter 2, 2013		✱													✱						
Quarter 3, 2013	✱	✱		✱	✱	✱	✱								✱						
Quarter 4, 2013		✱													✱						
Quarter 1, 2014		✱													✱						
Quarter 2, 2014	✱	✱			✱		✱	✱							✱						
Quarter 3, 2014	✱	✱			✱	✱	✱	✱							✱						
Quarter 4, 2014		✱				✱															
Quarter 1, 2015		✱																			

Groundwater Flow System	UCRS									URGA						LRGA					
Gradient	D	S	S	S	D	D	D	U	U	D	D	D	D	U	U	D	D	D	D	U	U
Monitoring Well	368	375	376	377	359	362	365	371	374	366	360	363	357	369	372	367	361	364	358	370	373
SULFATE																					
Quarter 2, 2015	*	*			*		*								*						
Quarter 3, 2015		*			*	*		*							*						
Quarter 4, 2015	*	*			*	*	*														
Quarter 1, 2016	*	*			*	*	*														
Quarter 2, 2016	*	*			*	*	*														
Quarter 3, 2016	*	*			*	*	*	*													
Quarter 4, 2016	*	*				*	*	*													
Quarter 1, 2017	*	*				*	*														
Quarter 2, 2017	*	*			*	*	*														
Quarter 3, 2017	*	*			*	*	*														
Quarter 4, 2017		*				*	*														
Quarter 1, 2018	*	*			*	*	*														
Quarter 2, 2018	*	*			*	*	*	*													
Quarter 3, 2018	*	*			*	*	*	*													
Quarter 4, 2018		*				*	*	*													
Quarter 1, 2019	*	*			*	*	*														
Quarter 2, 2019	*	*			*	*	*	*													
Quarter 3, 2019	*	*			*	*	*	*													
Quarter 4, 2019	*	*			*	*	*	*													
Quarter 1, 2020	*	*			*	*	*	*													
Quarter 2, 2020	*	*			*	*	*	*													
Quarter 3, 2020	*	*			*	*	*	*													
Quarter 4, 2020	*	*				*	*	*													
Quarter 1, 2021	*	*			*	*	*	*							*						
Quarter 2, 2021	*	*			*	*	*	*							*						
Quarter 3, 2021	*	*			*	*	*	*							*						
Quarter 4, 2021	*	*			*	*	*								*						
Quarter 1, 2022	*	*			*	*	*								*						
Quarter 2, 2022	*	*			*	*	*	*	*						*						
Quarter 3, 2022	*	*			*	*	*	*	*						*						
Quarter 4, 2022		*				*	*														
Quarter 1, 2023		*			*										*						
TECHNETIUM-99																					
Quarter 4, 2002																	*	*	*		
Quarter 2, 2003							*						*			*	*	*	*		*
Quarter 3, 2003																*					
Quarter 4, 2003																*					*
Quarter 1, 2004															*	*					*
Quarter 2, 2004															*						*
Quarter 3, 2004															*						*
Quarter 4, 2004															*		*				*
Quarter 3, 2005																	*				
Quarter 1, 2006															*						*
Quarter 2, 2006		*							*												*
Quarter 3, 2006																					*
Quarter 4, 2006															*						*
Quarter 1, 2007																					*
Quarter 2, 2007													*		*					*	
Quarter 3, 2007															*		*	*			
Quarter 4, 2007										*					*				*		*
Quarter 1, 2008															*					*	*
Quarter 2, 2008						*	*							*		*			*		
Quarter 3, 2008															*						
Quarter 4, 2008										*							*		*		
Quarter 1, 2009										*											
Quarter 2, 2009																		*			
Quarter 3, 2009								*		*					*						
Quarter 4, 2009										*					*			*	*		
Quarter 2, 2010										*						*	*	*	*		
Quarter 3, 2010										*					*						
Quarter 4, 2010																		*			
Quarter 1, 2011		*								*							*				
Quarter 2, 2011																*	*	*	*		
Quarter 1, 2012																	*	*			
Quarter 2, 2012								*										*			
Quarter 3, 2012																	*	*			
Quarter 4, 2012															*			*			*
Quarter 1, 2013																		*			*
Quarter 2, 2013																					*
Quarter 3, 2013										*											*
Quarter 4, 2013															*		*	*			*
Quarter 1, 2014															*		*	*			
Quarter 2, 2014																		*			
Quarter 3, 2014																	*	*	*		
Quarter 4, 2014															*						
Quarter 1, 2015															*			*			
Quarter 2, 2015																*					
Quarter 3, 2015																		*	*	*	
Quarter 4, 2015															*		*			*	
Quarter 1, 2016																*	*	*	*	*	
Quarter 2, 2016																*	*	*	*	*	
Quarter 3, 2016																	*		*	*	
Quarter 4, 2016										*				*			*	*			
Quarter 1, 2017																	*		*	*	
Quarter 2, 2017																					*
Quarter 3, 2017																		*			*
Quarter 4, 2017														*	*		*	*			*
Quarter 1, 2018																					*

Chart of MCL and Historical UTL Exceedances
for the C-746-U Contained Landfill (Continued)

Groundwater Flow System	UCRS									URGA						LRGA					
Gradient	D	S	S	S	D	D	D	U	U	D	D	D	D	U	U	D	D	D	D	U	U
Monitoring Well	368	375	376	377	359	362	365	371	374	366	360	363	357	369	372	367	361	364	358	370	373
TECHNETIUM-99																					
Quarter 2, 2018														✱		✱				✱	
Quarter 3, 2018															✱					✱	
Quarter 4, 2018															✱		✱	✱	✱	✱	
Quarter 1, 2019																✱				✱	
Quarter 2, 2019														✱						✱	
Quarter 3, 2019															✱			✱		✱	
Quarter 4, 2019															✱		✱	✱		✱	
Quarter 1, 2020															✱		✱	✱		✱	
Quarter 2, 2020																✱		✱	✱	✱	
Quarter 3, 2020															✱		✱	✱	✱	✱	
Quarter 4, 2020															✱		✱	✱		✱	
Quarter 1, 2021																				✱	
Quarter 2, 2021										✱						✱	✱	✱	✱		
Quarter 3, 2021														✱	✱			✱			
Quarter 4, 2021																	✱	✱			
Quarter 1, 2022										✱							✱	✱			
Quarter 2, 2022										✱					✱			✱			
Quarter 3, 2022															✱		✱	✱			
Quarter 4, 2022															✱						
Quarter 1, 2023										✱					✱		✱	✱			
THORIUM-230																					
Quarter 4, 2015																✱					
Quarter 2, 2016										✱											
Quarter 4, 2016	✱											✱				✱			✱		
Quarter 4, 2017													✱								
Quarter 2, 2018										✱			✱								
Quarter 2, 2021									✱												
TOLUENE																					
Quarter 2, 2014										✱				✱							
TOTAL ORGANIC CARBON																					
Quarter 3, 2002										✱	✱	✱		✱							✱
Quarter 4, 2002										✱	✱			✱							
Quarter 1, 2003												✱									
Quarter 3, 2003	✱									✱		✱				✱					
Quarter 4, 2003										✱	✱										
Quarter 1, 2004												✱									
Quarter 3, 2005							✱			✱					✱	✱			✱		
Quarter 4, 2005							✱											✱	✱		
Quarter 1, 2006																			✱		
TOTAL ORGANIC HALIDES																					
Quarter 4, 2002										✱											
Quarter 1, 2003										✱											
Quarter 2, 2003										✱											
Quarter 1, 2004																✱					
TRICHLOROETHENE																					
Quarter 3, 2002														■						■	
Quarter 4, 2002															■					■	
Quarter 1, 2003																				■	■
Quarter 2, 2003															■					■	
Quarter 3, 2003							■													■	■
Quarter 4, 2003															■					■	■
Quarter 1, 2004															■					■	■
Quarter 2, 2004															■					■	■
Quarter 3, 2004															■					■	■
Quarter 4, 2004															■					■	■
Quarter 1, 2005															■					■	■
Quarter 2, 2005															■					■	■
Quarter 3, 2005															■					■	■
Quarter 4, 2005															■					■	■
Quarter 1, 2006															■					■	■
Quarter 2, 2006															■					■	■
Quarter 3, 2006															■					■	■
Quarter 4, 2006															■						■
Quarter 1, 2007															■					■	■
Quarter 2, 2007															■						■
Quarter 3, 2007															■						■
Quarter 4, 2007															■						■
Quarter 1, 2008															■						■
Quarter 2, 2008															■				■		■
Quarter 3, 2008															■						■
Quarter 4, 2008															■						■
Quarter 1, 2009															■						■
Quarter 2, 2009															■						■
Quarter 3, 2009															■						■
Quarter 4, 2009							■	■			■			■	■	■					■
Quarter 1, 2010													■		■						■
Quarter 2, 2010													■		■						■
Quarter 3, 2010													■		■						■
Quarter 4, 2010													■		■						■
Quarter 2, 2011															■				■		■
Quarter 3, 2011													■		■				■		■
Quarter 4, 2011													■		■						■
Quarter 1, 2012													■		■	■			▨		■
Quarter 2, 2012															■						■

Groundwater Flow System	UCRS									URGA						LRGA					
Gradient	D	S	S	S	D	D	D	U	U	D	D	D	D	U	U	D	D	D	D	U	U
Monitoring Well	368	375	376	377	359	362	365	371	374	366	360	363	357	369	372	367	361	364	358	370	373
TRICHLOROETHENE																					
Quarter 3, 2012															■						■
Quarter 4, 2012														■	■						■
Quarter 1, 2013												■			■						■
Quarter 2, 2013												■			■		■		■		■
Quarter 3, 2013																	■	■			
Quarter 3, 2013												■			■						■
Quarter 4, 2013												■			■				■		■
Quarter 1, 2014												■			■				■		■
Quarter 2, 2014															■		■		■		
Quarter 3, 2014												■			■				■		■
Quarter 4, 2014												■			■				■		■
Quarter 1, 2015												■			■						■
Quarter 2, 2015					■										■				■		■
Quarter 3, 2015												■			■		■				■
Quarter 4, 2015												■			■						■
Quarter 1, 2016												■			■		■	■			■
Quarter 2, 2016											■	■			■		■	■			■
Quarter 3, 2016												■			■		■	■			■
Quarter 4, 2016												■			■		■	■	■		■
Quarter 1, 2017															■			■			■
Quarter 2, 2017															■		■	■			■
Quarter 3, 2017															■		■	■			■
Quarter 4, 2017										■		■	■				■	■			■
Quarter 1, 2018															■		■	■			■
Quarter 2, 2018												■			■	■	■	■	■		■
Quarter 3, 2018										■					■		■	■			■
Quarter 4, 2018										■		■			■		■	■	■		■
Quarter 1, 2019										■					■	■	■	■			
Quarter 2, 2019										■						■	■	■			■
Quarter 3, 2019																	■	■	■		
Quarter 4, 2019																	■	■			
Quarter 1, 2020															■		■	■			
Quarter 2, 2020																■		■			
Quarter 3, 2020																	■	■			
Quarter 4, 2020																	■	■			
Quarter 1, 2021																	■	■			
Quarter 2, 2021																		■			■
Quarter 3, 2021																	■	■			
Quarter 4, 2021																	■	■			■
Quarter 1, 2022																		■			■
Quarter 2, 2022																		■			■
Quarter 3, 2022																		■			
Quarter 1, 2023												■	■		■		■				■
TURBIDITY																					
Quarter 1, 2003										✱											
URANIUM																					
Quarter 4, 2002		✱			✱	✱	✱			✱	✱	✱	✱	✱	✱	✱		✱	✱	✱	✱
Quarter 4, 2006																					✱
ZINC																					
Quarter 3, 2005																			✱		

✱ Statistical test results indicate an elevated concentration (i.e., a statistical exceedance).

■ MCL Exceedance

■ Previously reported as an MCL exceedance; however, result was equal to MCL

UCRS Upper Continental Recharge System

URGA Upper Regional Gravel Aquifer

LRGA Lower Regional Gravel Aquifer

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX H

METHANE MONITORING DATA
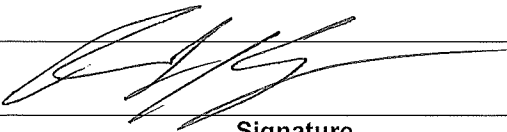
THIS PAGE INTENTIONALLY LEFT BLANK

CP3-WM-0017-F04 - C-746-U LANDFILL METHANE MONITORING REPORT

PADUCAH GASEOUS DIFFUSION PLANT

Permit #: 073-00045

McCracken County, Kentucky

Date:	March 6, 2023	Time:	1300	Monitor:	Robert Kirby
Weather Conditions: Sunny, 70° F, slight wind, humidity: 68%					
Monitoring Equipment::Multi RAE – Serial # 11882					

Monitoring Location		Reading (% LEL)
C-746-U1	Checked at floor level	0
C-746-U2	Checked at floor level	0
C-746-U-T-14	Checked at floor level	0
C-746-U15	Checked at floor level	0
MG1	Checked 1" from opening	0
MG2	Checked 1" from opening	0
MG3	Checked 1" from opening	0
MG4	Checked 1" from opening	0
Suspect or Problem Areas	No problems noted	None
Remarks:	N/A	

Performed by: _(signature)_ 03/15/23

Signature   Date

Figure H.1. C-746-U Landfill Methane Monitoring Locations

APPENDIX I

SURFACE WATER ANALYSES AND WRITTEN COMMENTS

THIS PAGE INTENTIONALLY LEFT BLANK

Division of Waste Management
Solid Waste Branch
14 Reilly Road
Frankfort, KY 40601 (502)564-6716

RESIDENTIAL/CONTAINED-QUARTERLY
Facility: US DOE - Paducah Gaseous Diffusion Plant
Permit Number: SW07300014, SW07300015, SW07300045

FINDS/UNIT: KY8-890-008-982 / 1
LAB ID: None
For Official Use Only

SURFACE WATER SAMPLE ANALYSIS (S)

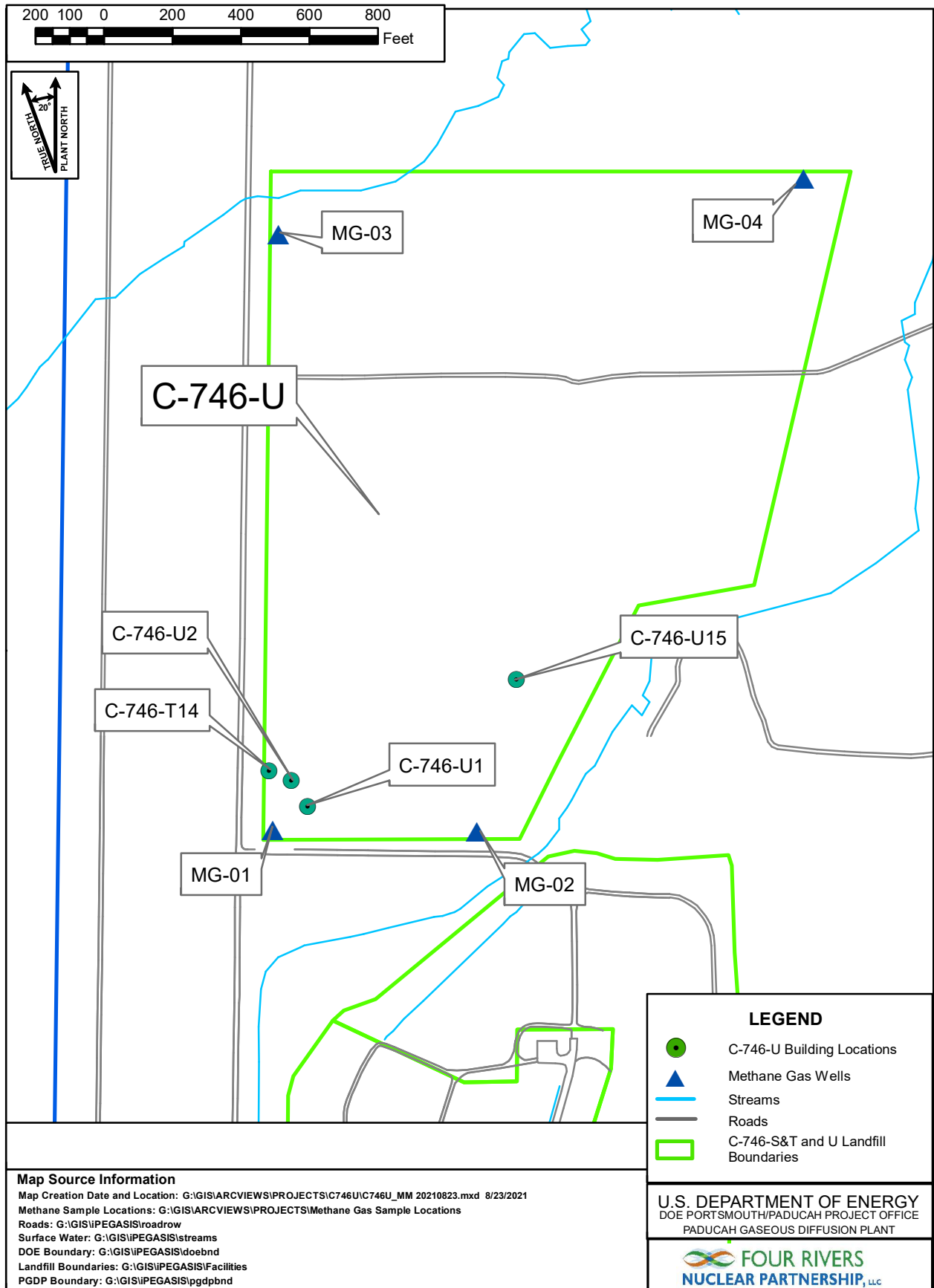| Monitoring Point (KPDES Discharge Number, or "UPSTREAM", or "DOWNSTREAM")	L150 INSTREAM	L154 INSTREAM	L351 DOWNSTREAM	
Sample Sequence #	1	1	1	
If sample is a Blank, specify Type: (F)ield, (T)rip, (M)ethod, or (E)quipment	NA	NA	NA	
Sample Date and Time (Month/Day/Year hour:minutes)	1/3/2023 1539	1/3/2023 1556	1/3/2023 1453	
Duplicate ("Y" or "N")[1]	N	N	N	
Split ('Y' or "N")[2]	N	N	N	
Facility Sample ID Number (if applicable)	L150US2-23	L154US2-23	L351US2-23	
Laboratory Sample ID Number (if applicable)	605998001	605998002	605998003	
Date of Analysis (Month/Day/Year)	1/25/2023	1/20/2023	1/20/2023	

CAS RN[3]		CONSTITUENT	T D[4]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[5]	FLAGS[7]	DETECTED VALUE OR PQL[5]	FLAGS[7]	DETECTED VALUE OR PQL[5]	FLAGS[7]	DETECTED VALUE OR PQL[5]	FLAGS[7]
A200-00-0	0	Flow	T	MGD	Field		*		*		*		
16887-00-6	2	Chloride(s)	T	mg/L	300.0	12	*	7.51	*	7.02	*		
14808-79-8	0	Sulfate	T	mg/L	300.0	70.8		4.4		6.47			
7439-89-6	0	Iron	T	mg/L	200.8	1.37		1.23		1.61			
7440-23-5	0	Sodium	T	mg/L	200.8	21.1		5.13		5.3			
S0268- -	0	Organic Carbon[6]	T	mg/L	9060	12.4		11		10.9			
S0097- -	0	BOD[6]	T	mg/L	not applicable		*		*		*		
S0130- -	0	Chemical Oxygen Demand	T	mg/L	410.4	53		61.5		55.1			

[1]Respond "Y" if the sample was a duplicate of another sample in this report
[2]Respond "Y" if the sample was split and analyzed by separate laboratories.
[3]Chemical Abstracts Service Registry Number or unique identifier number assigned by agency.
[4]"T" = Total; "D" = Dissolved
[5]"<" indicates a non-detect; do not use "ND" or "BDL". Value then shown is Practical Quantification Limit
[6]Facility has either/or option on Organic Carbon and (BOD) Biochemical Oxygen Demand - both are not required
[7]Flags are as designated, do not use any other type. Use "*," then describe on "Written Comments" page.

STANDARD FLAGS:
* = See Comments
J = Estimated Value
B = Analyte found in blank
A = Average value
N = Presumptive ID
D = Concentration from analysis of
     a secondary dilution factor

SURFACE WATER – QUARTERLY
Facility: **US DOE – Paducah Gaseous Diffusion Plant**
Permit Number: **SW07300015, SW07300015, SW07300045**

SURFACE WATER SAMPLE ANALYSIS – (Cont.)

Monitoring Point (KPDES Discharge Number, or "UPSTREAM" or "DOWNSTREAM")					L150 INSTREAM		L154 INSTREAM		L351 DOWNSTREAM		DETECTED VALUE OR PQL[5]	FLAGS[7]
CAS RN[3]		CONSTITUENT	TD[4]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[5]	FLAGS[7]	DETECTED VALUE OR PQL[5]	FLAGS[7]	DETECTED VALUE OR PQL[5]	FLAGS[7]	DETECTED VALUE OR PQL[5]	FLAGS[7]
S0145- –	1	Specific Conductance	T	μmho/cm	Field	452		153		128			
S0270- –	0	Total Suspended Solids	T	mg/L	160.2	13.9		16.5		40.4			
S0266- –	0	Total Dissolved Solids	T	mg/L	160.1	307	*	96	*	113	*		
S0269- –	0	Total Solids	T	mg/L	SM-2540 B 17	210	*	97	*	124	*		
S0296- –	0	pH	T	Units	Field	7.87		7.74		7.19			
7440-61-1		Uranium	T	mg/L	200.8	0.00692		0.00136		0.00176			
12587-46-1		Gross Alpha (α)	T	pCi/L	9310	4.39	*	6.08	*	10.8			
12587-47-2		Gross Beta (β)	T	pCi/L	9310	13.6		0.655	*	35.3			

I-4

RESIDENTIAL/CONTAINED – QUARTERLY
Facility: US DOE - Paducah Gaseous Diffusion Plant
Permit Number: SW07300014, SW07300015, SW07300045

Finds/Unit: <u>**KY8-890-008-982 / 1**</u>
LAB ID:<u>   None   </u>

SURFACE WATER
WRITTEN COMMENTS

Monitoring Point	Facility Sample ID	Constituent	Flag	Description
L150	L150US2-23	Flow Rate		Analysis of constituent not required and not performed.
		Chloride	W	Post-digestion spike recovery out of control limits.
		Biochemical Oxygen Demand (BOD)		Analysis of constituent not required and not performed.
		Dissolved Solids	*	Duplicate analysis not within control limits.
		Total Solids	*	Duplicate analysis not within control limits.
		Alpha activity	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 7.57. Rad error is 7.53.
		Beta activity		TPU is 7.31. Rad error is 6.94.
L154	L154US2-23	Flow Rate		Analysis of constituent not required and not performed.
		Chloride	W	Post-digestion spike recovery out of control limits.
		Biochemical Oxygen Demand (BOD)		Analysis of constituent not required and not performed.
		Dissolved Solids	*	Duplicate analysis not within control limits.
		Total Solids	*	Duplicate analysis not within control limits.
		Alpha activity	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 6.08. Rad error is 6.
		Beta activity	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 5.17. Rad error is 5.16.
L351	L351US2-23	Flow Rate		Analysis of constituent not required and not performed.
		Chloride	W	Post-digestion spike recovery out of control limits.
		Biochemical Oxygen Demand (BOD)		Analysis of constituent not required and not performed.
		Dissolved Solids	*	Duplicate analysis not within control limits.
		Total Solids	*	Duplicate analysis not within control limits.
		Alpha activity		TPU is 7.28. Rad error is 7.07.
		Beta activity		TPU is 11. Rad error is 9.35.

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX J

ANALYTICAL LABORATORY CERTIFICATION

THIS PAGE INTENTIONALLY LEFT BLANK

ilac-MRA   A2LA

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 5.3 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 16th day of June 2021.

Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 2567.01
Valid to June 30, 2023

For the tests to which this accreditation applies, please refer to the laboratory's Environmental Scope of Accreditation.

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX K

LABORATORY ANALYTICAL METHODS

THIS PAGE INTENTIONALLY LEFT BLANK

LABORATORY ANALYTICAL METHODS

Analytical Method	Preparation Method	Product
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 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)

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX L

MICRO-PURGING STABILITY PARAMETERS

THIS PAGE INTENTIONALLY LEFT BLANK

Micro-Purge Stability Parameters
for the C-746-U Contained Landfill

	Temperature (°F)	Conductivity (umho/cm)	pH (Std Unit)	Dissolved oxygen (mg/L)	Turbidity (NTU)		Temperature (°F)	Conductivity (umho/cm)	pH (Std Unit)	Dissolved oxygen (mg/L)	Turbidity (NTU)
MW357						**MW358**					
Date Collected:1/17/23						**Date Collected:1/17/23**					
0944	60.4	436	6.10	4.60	0.00	1027	59.8	541	6.37	1.11	0.00
0947	60.5	433	6.07	4.34	0.00	1030	60.0	540	6.36	0.80	0.00
0950	60.5	435	6.07	4.30	0.00	1033	60.1	540	6.35	0.77	0.00
MW360						**MW361**					
Date Collected:1/17/23						**Date Collected: 1/17/23**					
0716	58.3	396	6.18	1.77	0.00	0820	58.9	517	6.04	3.99	0.00
0719	58.0	395	6.14	1.66	0.00	0823	59.0	518	6.01	3.80	0.00
0722	58.0	394	6.13	1.64	0.00	0826	59.3	518	6.00	3.74	0.00
MW362						**MW363**					
Date Collected:1/17/23						**Date Collected: 1/18/23**					
0901	59.9	632	6.85	1.77	6.08	0717	56.5	423	6.20	2.33	2.90
0904	59.8	634	6.82	1.41	5.99	0720	56.8	424	6.13	1.52	1.44
0907	59.8	635	6.83	1.37	5.87	0723	57.0	423	6.09	1.44	1.36
MW364						**MW366**					
Date Collected:1/18/23						**Date Collected: 1/18/23**					
0759	59.1	486	6.04	3.78	0.00	0903	60.7	497	6.18	4.71	0.00
0802	59.3	488	6.00	3.69	0.00	0906	61.4	500	6.15	3.63	0.00
0805	59.5	490	5.98	3.67	0.00	0909	61.5	501	6.13	3.60	0.00
MW367						**MW369**					
Date Collected:1/18/23						**Date Collected: 1/19/23**					
0946	61.7	240	5.94	1.96	1.45	0732	60.1	360	6.15	3.03	1.05
0949	62.0	238	5.93	1.89	1.13	0735	59.8	359	6.10	2.79	1.08
0952	62.2	238	5.92	1.87	1.04	0738	59.7	359	6.09	2.76	1.01
MW370						**MW371**					
Date Collected: 1/19/23						**Date Collected:1/19/23**					
0814	60.7	460	6.10	4.71	0.00	0913	62.0	739	6.50	1.45	2.41
0817	60.7	464	6.05	4.03	0.00	0916	61.4	741	6.49	1.29	2.21
0820	60.8	466	6.05	4.00	0.00	0919	61.3	742	6.49	1.24	2.03
MW372						**MW373**					
Date Collected:1/19/23						**Date Collected: 1/19/23**					
0956	61.1	750	6.20	2.48	0.00	1036	60.7	787	6.12	2.51	0.00
0959	61.1	753	6.18	2.29	0.00	1039	60.9	787	6.10	2.19	0.00
1002	61.2	754	6.15	2.23	0.00	1042	60.9	788	6.09	2.11	0.00
MW374						**MW375**					
Date Collected: 1/19/23						**Date Collected:1/18/23**					
1116	61.6	714	6.77	1.23	5.28	1032	62.7	335	6.40	1.70	0.00
1119	61.8	715	6.73	0.96	5.16	1035	62.8	336	6.37	1.61	0.00
1122	61.9	715	6.74	0.90	5.33	1038	63.0	336	6.37	1.63	0.00

THIS PAGE INTENTIONALLY LEFT BLANK