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**C-746-S&T Landfills
Second Quarter Calendar Year 2019
(April–June)
Compliance Monitoring Report,
Paducah Gaseous Diffusion Plant,
Paducah, Kentucky**



This document is approved for public release per review by:

David Hayden

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Date

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Second Quarter Calendar Year 2019
(April-June)
Compliance Monitoring Report,
Paducah Gaseous Diffusion Plant,
Paducah, Kentucky**

Date Issued—August 2019

U.S. DEPARTMENT OF ENERGY
Office of Environmental Management

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

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ACRONYMS

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

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1. INTRODUCTION

This report, *C-746-S&T Landfills Second Quarter Calendar Year 2019 (April–June) Compliance Monitoring Report, Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, is being submitted in accordance with Solid Waste Landfill Permit Number 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 exceedances of the MCL and historical UTL that have occurred since the fourth quarter calendar year (CY) 2002. Methane monitoring results are documented on the approved C-746-S&T Landfills Methane Monitoring Report form provided in Appendix H. The form includes pertinent remarks/observations as required by 401 KAR 48:090 § 5. Surface water results are provided in Appendix I. Analytical laboratory certification is provided in Appendix J. Laboratory analytical methods used to analyze the included data set are provided in Appendix K. Micro-purging stability parameter results are provided in Appendix L.

1.1 BACKGROUND

The C-746-S&T Landfills are closed, solid waste landfills located north of the Paducah Site and south of the C-746-U Landfill. Construction and operation of the C-746-S Residential Landfill were permitted in April 1981 under Solid Waste Landfill Permit Number 073-00014. The permitted C-746-S Landfill area covers about 16 acres and contains a clay liner with a final cover of compacted soil. The C-746-S Landfill was a sanitary landfill for the Paducah Gaseous Diffusion Plant operations. The C-746-S Landfill is closed and has been inactive since July 1995.

Construction and operation of the C-746-T Inert Landfill were permitted in February 1985 under Solid Waste Landfill Permit Number 073-00015. The permitted C-746-T Landfill area covers about 20 acres and contains a clay liner with a final cover of compacted soil. The C-746-T Landfill was used to dispose of construction debris (e.g., concrete, wood, and rock) and steam plant fly ash from the Paducah Gaseous Diffusion Plant operations. The C-746-T Landfill is closed and has been inactive since June 1992.

1.2 MONITORING PERIOD ACTIVITIES

1.2.1 Groundwater Monitoring

Three zones are monitored at the site: the Upper Continental Recharge System (UCRS), the Upper Regional Gravel Aquifer (URGA), and the Lower Regional Gravel Aquifer (LRGA). There are 23 monitoring wells (MWs) under permit for the C-746-S&T Landfills: 5 UCRS wells, 11 URGA wells, and 7 LRGA wells. A map of the MW locations is presented in Figure 1. All MWs listed on the permit were

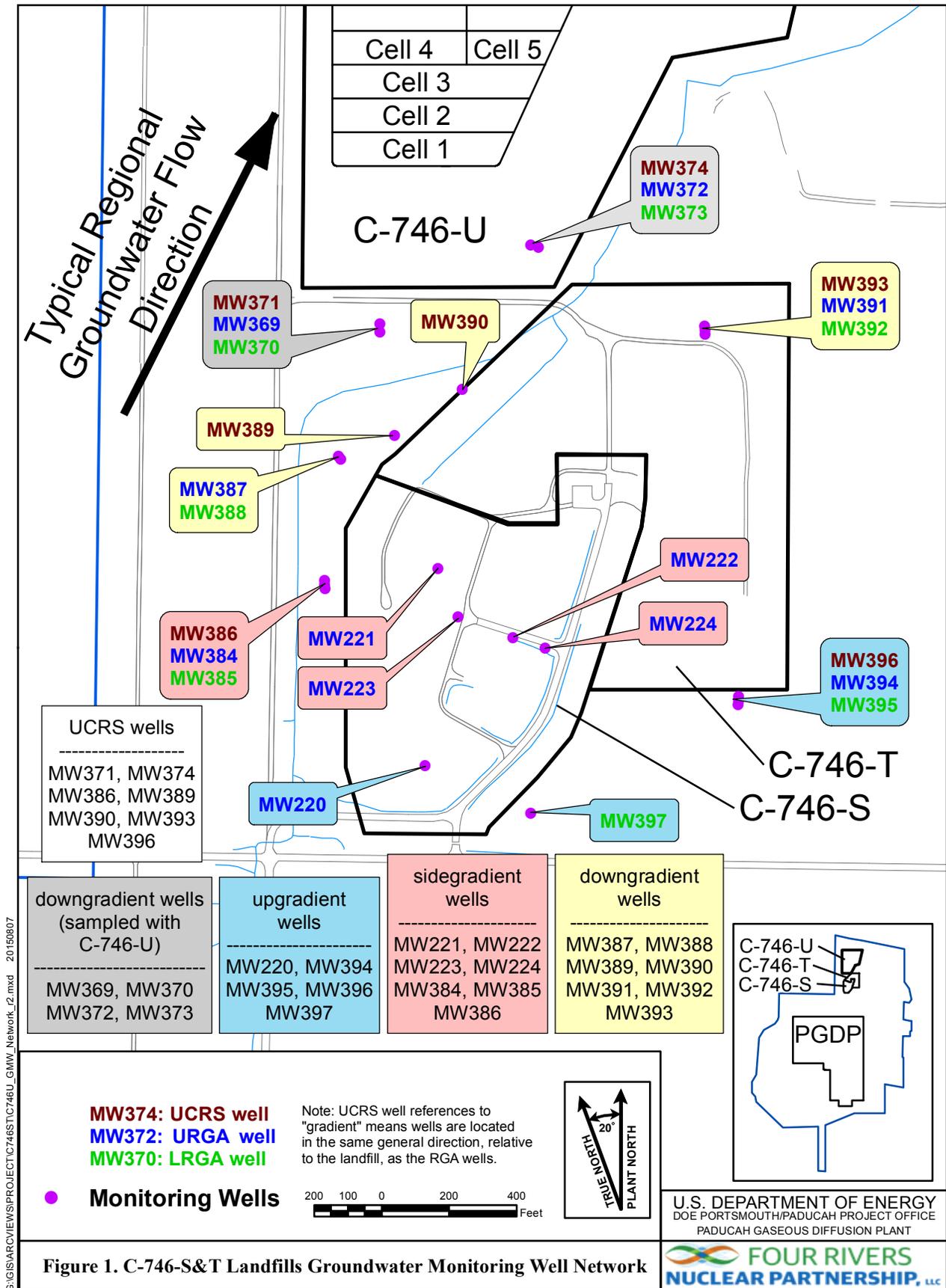


Figure 1. C-746-S&T Landfills Groundwater Monitoring Well Network

sampled this quarter except MW389 (screened in the UCRS), which had an insufficient amount of water to obtain a water level measurement or sample; therefore, there are no analytical results for this location.

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

Groundwater sampling was conducted within the second quarter 2019 in accordance with the Groundwater Monitoring Plan (LATA Kentucky 2014) using the Deactivation and Remediation Contractor, procedure CP4-ES-2101, *Groundwater Sampling*. Appropriate sample containers and preservatives were utilized. The laboratory also used U.S. Environmental Protection Agency-approved methods, as applicable. The parameters specified in Permit Condition GSTR0003, Special Condition 3, were analyzed for all locations sampled.

The groundwater flow rate and direction determination are provided in Appendix E. Depth-to-water was measured on April 23, 2019, in MWs of the C-746-S&T Landfills (see Table E.1); in MWs of the C-746-U Landfill; and in MWs of the surrounding region (shown on Figure E.3). Water level measurements in 39 vicinity wells define the potentiometric surface for the RGA. Typical regional flow in the RGA is northeastward, toward the Ohio River. During April, RGA groundwater flow in the area of the landfill was oriented northeastward. The hydraulic gradient for the RGA in the vicinity of the C-746-S&T Landfills in April was 5.08×10^{-4} ft/ft, while the gradient beneath the C-746-S&T Landfills was 4.91×10^{-4} ft/ft. Calculated groundwater flow rates (average linear velocities) for the RGA at the C-746-S&T Landfills range from 0.835 to 1.42 ft/day (see Table E.3).

1.2.2 Methane Monitoring

Methane monitoring was conducted in accordance with 401 KAR 48:090 § 5 and the Solid Waste Landfill Permit. Landfill operations staff monitored for the occurrence of methane in one on-site building location, four locations along the landfill boundary, and 27 passive-gas vents located in Cells 1, 2, and 3 of the C-746-S Landfill on May 30, 2019. See Appendix H for a map (Figure H.1) of the monitoring locations. Monitoring identified all locations to be compliant with the regulatory requirement of < 100% lower explosive limit (LEL) at boundary locations and < 25% LEL at all other locations. The results are documented on the C-746-S&T Landfills Methane Log provided in Appendix H.

1.2.3 Surface Water Monitoring

Surface water sampling was performed at the three locations (see Figure 2) monitored for the C-746-S&T Landfills: (1) upstream location L135; (2) downstream location, L154; and (3) L136, a location capturing

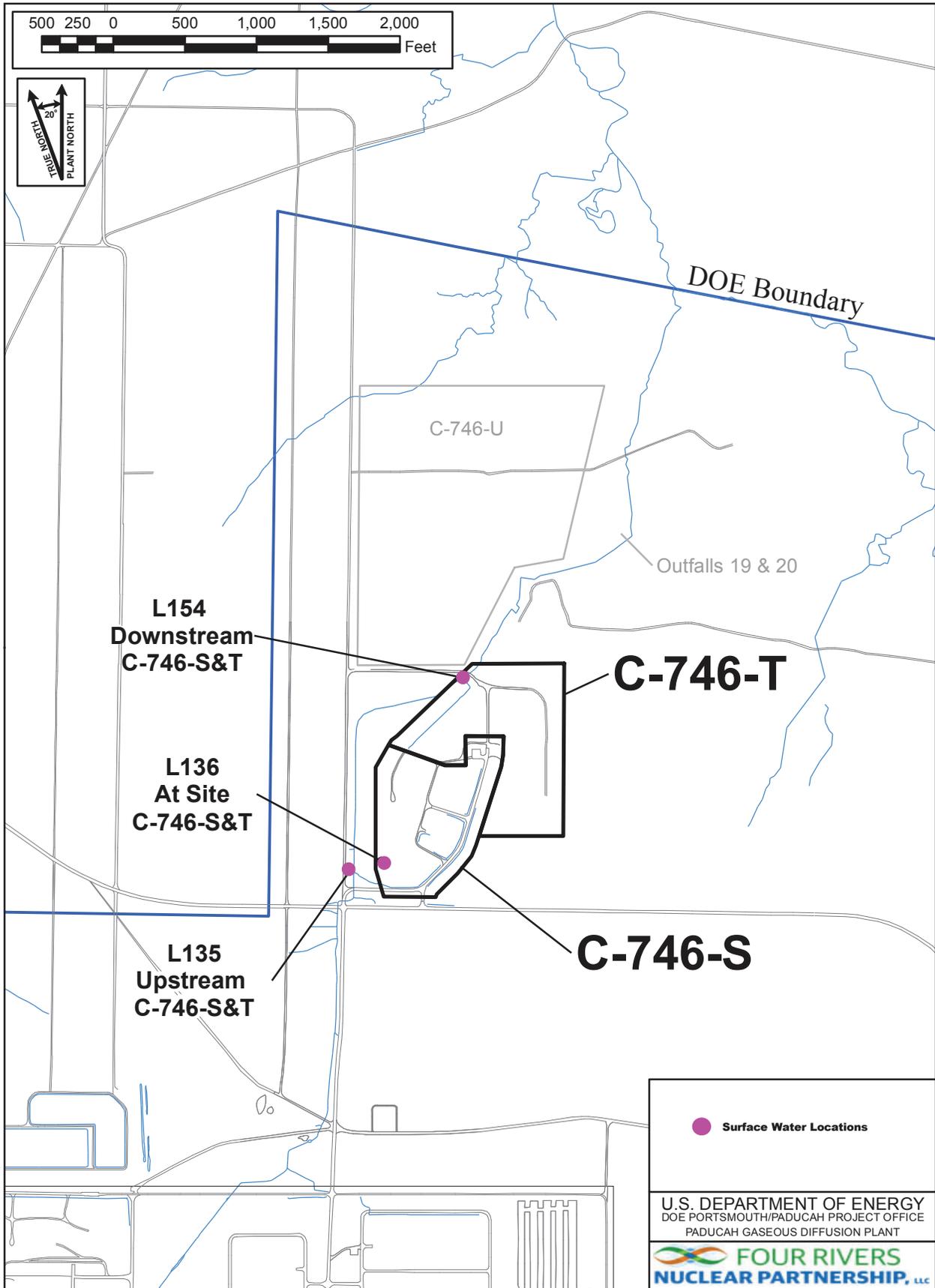


Figure 2. C-746-S&T Landfills Surface Water Monitoring Locations

runoff from the landfill surface. Surface water was monitored, as specified in 401 KAR 48:300 § 2, and the approved *Surface Water Monitoring Plan for C-746-S and C-746-T Landfills Permit Numbers KY-073-00014 and 073-00015, Paducah Gaseous Diffusion Plant, Paducah, Kentucky* (PRS 2008), which is Technical Application Attachment 24 of the Solid Waste Landfill Permit. Surface water results are provided in Appendix I.

1.3 KEY RESULTS

Groundwater data were evaluated in accordance with the approved Groundwater Monitoring Plan (LATA Kentucky 2014) which is Technical Application, Attachment 25, of the Solid Waste Landfill Permit. Parameters that had concentrations that exceeded their respective MCL are listed in Table 1. Those constituents that exceeded their respective MCL were further evaluated against their historical background UTL. Table 2 identifies parameters (that do not have MCLs) with concentrations that exceeded the statistically derived historical background UTL¹ during the second quarter 2019, 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 upgradient (Table 3).

The notification of parameters that exceeded the MCL has been submitted electronically to KDWM, in accordance with 401 KAR 48:300 § 7, prior to the submittal of this report.

The constituents that exceeded their MCL were subjected to a comparison against the UTL concentrations calculated using historical concentrations from wells identified as background. In accordance with the approved Groundwater Monitoring Plan, the MCL exceedances for trichloroethene in MW373, MW391, and MW392 (downgradient wells) do not exceed the historical background concentration and are considered to be a Type 1 exceedance—not attributable to the C-746-S&T Landfills.

The MCL exceedances for beta activity in MW369, MW370, MW387, and MW388 (downgradient wells) were shown to exceed both the historical background UTL and the current background UTL; therefore, preliminarily they were considered to be Type 2 exceedances. To evaluate these preliminary Type 2 exceedances further, the parameter was subjected to the Mann-Kendall statistical test for trend using the most recent eight quarters of data. The results are summarized in Table 4. All of these wells had no increasing Mann-Kendall trend for beta activity and are considered to be a Type 1 exceedance—not attributable to the C-746-S&T Landfills.

This report serves as the notification of parameters that had statistically significant increased concentrations relative to historical background concentrations, as required by Permit Number SW07300014, SW07300015, SW07300045, Condition GSTR0003, Standard Requirement 5, and 401 KAR 48:300 § 7.

The constituents listed in Table 2 that had exceedances of the statistically derived historical background UTL underwent additional statistical evaluation. The current-quarter concentrations were compared to the current background UTL, developed using the most recent eight quarters of data from wells identified as upgradient, to identify if the current downgradient concentrations are consistent with current background values. Table 3 summarizes the evaluation against current background UTL for those constituents present in downgradient wells with historical UTL exceedances. In accordance with the approved Groundwater Monitoring Plan, constituents in downgradient wells that exceed the historical UTL, but do not exceed the current UTL, are considered not to have a landfill source; therefore, they are a Type 1 exceedance.

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

Table 1. Summary of MCL Exceedances

| UCRS | URGA | LRGA |
|------|------------------------|------------------------|
| None | MW369: Beta activity | MW370: Beta activity |
| | MW384: Beta activity | MW373: Trichloroethene |
| | MW387: Beta activity | MW385: Beta activity |
| | MW391: Trichloroethene | MW388: Beta activity |
| | | MW392: Trichloroethene |

Table 2. Exceedances of Statistically Derived Historical Background Concentrations

| UCRS* | URGA | LRGA |
|---|---|--|
| MW386: Oxidation-reduction potential | MW220: Oxidation-reduction potential, sulfate | MW370: Beta activity, oxidation-reduction potential, sulfate, technetium-99 |
| MW390: Oxidation-reduction potential, technetium-99 | MW221: Oxidation-reduction potential | MW373: Calcium, chemical oxygen demand (COD), conductivity, dissolved solids, magnesium, oxidation-reduction potential, sulfate |
| MW393: Oxidation-reduction potential | MW222: Oxidation-reduction potential | MW385: Beta activity, oxidation-reduction potential, sulfate, technetium-99 |
| MW396: Chemical oxygen demand (COD), oxidation-reduction potential | MW223: Oxidation-reduction potential, sulfate | MW388: Beta activity, oxidation-reduction potential, sulfate, technetium-99 |
| | MW224: Oxidation-reduction potential | MW392: Chloride, oxidation-reduction potential |
| | MW369: Beta activity, technetium-99 | MW395: Oxidation-reduction potential |
| | MW372: Calcium, chemical oxygen demand (COD), dissolved solids, magnesium, oxidation-reduction potential, sulfate, technetium-99 | MW397: Oxidation-reduction potential |
| | MW384: Beta activity, oxidation-reduction potential, sulfate, technetium-99 | |
| | MW387: Beta activity, oxidation-reduction potential, sodium, sulfate, technetium-99 | |
| | MW391: Chemical oxygen demand (COD), oxidation-reduction potential, sulfate | |
| | MW394: Oxidation-reduction potential | |

*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.

Sidegradient wells: MW221, MW222, MW223, MW224, MW384, MW385, MW386

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

Upgradient wells: MW220, MW394, MW395, MW396, MW397

Table 3. Exceedances of Current Background UTL in Downgradient Wells

| URGA | LRGA |
|--|---|
| MW369: Beta activity, technetium-99 | MW370: Beta activity, sulfate, technetium-99 |
| MW372: Calcium, chemical oxygen demand (COD), magnesium, sulfate, technetium-99 | MW373: Calcium, conductivity, dissolved solids, magnesium, sulfate |
| MW387: Beta activity, sodium, technetium-99 | MW388: Beta activity, sulfate, technetium-99 |
| MW391: Chemical oxygen demand (COD), oxidation-reduction potential, sulfate | MW392: Chloride |

Table 4. C-746-S&T 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-S&T Landfill | MW369 | Beta activity | 8 | 0.05 | 0.451 | -2 | No Trend |
| | | Technetium-99 | 8 | 0.05 | 0.309 | 5 | No Trend |
| | MW370 | Beta activity | 8 | 0.05 | 0.355 | -4 | No Trend |
| | | Sulfate | 8 | 0.05 | 0.133 | 10 | No Trend |
| | | Technetium-99 | 8 | 0.05 | 0.451 | -2 | No Trend |
| | MW372 | Calcium | 8 | 0.05 | 0.159 | 9 | No Trend |
| | | Chemical oxygen demand (COD) | 8 | 0.05 | 0.133 | 10 | No Trend |
| | | Magnesium | 8 | 0.05 | 0.268 | 6 | No Trend |
| | | Sulfate | 8 | 0.05 | 0.268 | 6 | No Trend |
| | | Technetium-99 | 8 | 0.05 | 0.355 | 4 | No Trend |
| | MW373 | Calcium | 8 | 0.05 | 0.193 | 8 | No Trend |
| | | Conductivity | 8 | 0.05 | 0.193 | 8 | No Trend |
| | | Dissolved Solids | 8 | 0.05 | 0.309 | 5 | No Trend |
| | | Magnesium | 8 | 0.05 | 0.193 | 8 | No Trend |
| | | Sulfate | 8 | 0.05 | 0.193 | 8 | No Trend |
| | MW387 | Beta activity | 8 | 0.05 | 0.451 | -2 | No Trend |
| | | Sodium | 8 | 0.05 | 0.0539 | 14 | No Trend |
| | | Technetium-99 | 8 | 0.05 | 0.451 | 2 | No Trend |
| | MW388 | Beta activity | 8 | 0.05 | 0.355 | -4 | No Trend |
| | | Sulfate | 8 | 0.05 | 0.451 | 2 | No Trend |
| | | Technetium-99 | 8 | 0.05 | 0.548 | 0 | No Trend |
| | MW391 | Chemical oxygen demand (COD) | 8 | 0.05 | 0.106 | 11 | No Trend |
| | | Oxidation-reduction potential | 8 | 0.05 | 0.548 | 0 | No Trend |
| | | Sulfate | 8 | 0.05 | 0.355 | -4 | No Trend |

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

| Location | Well ID | Parameter | Sample Size | Alpha ¹ | p-Value ² | S ³ | Decision ⁴ |
|--------------------|---------|-----------|-------------|--------------------|----------------------|----------------|-----------------------|
| C-746-S&T Landfill | MW392 | Chloride | 8 | 0.05 | 0.355 | 4 | No Trend |

Footnotes:

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 H₀ and H_a. H₀ assumes there is no trend in the data, whereas H_a assumes either a positive or negative trend.

Note: Statistics generated using ProUCL.

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

In accordance with Permit Condition GSTR0003, Special Condition 2, of the Solid Waste Landfill Permit, the groundwater assessment and corrective action requirements of 401 KAR 48:300 § 8 shall not apply to the C-746-S Residential Landfill and the C-746-T Inert Landfill. This variance in the permit provides that groundwater assessment and corrective actions for these landfills will be conducted in accordance with the corrective action requirements of 401 KAR 34:060 § 12.

The statistical evaluation of current UCRS wells against the current UCRS background UTL identified oxidation-reduction potential and technetium-99 values in UCRS well MW390 and an oxidation-reduction potential value in UCRS well MW393 that exceed both the historical and current backgrounds (Table 5). Because these wells are not hydrogeologically downgradient of the C-746-S&T Landfills, these exceedances are not attributable to C-746-S&T sources and are considered to be a Type 1 exceedance.

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

| |
|---|
| UCRS |
| MW390: Oxidation-reduction potential, technetium-99 |
| MW393: Oxidation-reduction potential |

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

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

2. DATA EVALUATION/STATISTICAL SYNOPSIS

The statistical analyses conducted on the second quarter 2019 groundwater data collected from the C-746-S&T Landfills MWs were performed in accordance with the Groundwater Monitoring Plan (LATA Kentucky 2014). The statistical analyses for this report utilize data from the first eight quarters that were sampled for each parameter, beginning with the first two baseline sampling events in 2002, when available. The sampling dates associated with background data are listed next to the result in the statistical analysis sheets in Appendix D (Attachments D1 and D2).

For those parameters that exceed the MCL for Kentucky solid waste facilities found in 401 KAR 47:030 § 6, these exceedances were documented and evaluated further as follows. Exceedances were reviewed against historical background results (UTL). If the MCL exceedance was found not to exceed the historical UTL, the exceedance was noted as a Type 1 exceedance—an exceedance not attributable to the landfills. If there was an exceedance of the MCL in a downgradient well and this constituent also exceeded the historical background, the quarterly result was compared to the current background UTL (developed using the most recent eight quarters of data from wells identified as upgradient) 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 further evaluated using the Mann-Kendall test for trend. If there was not a statistically significant increasing trend for a constituent in a downgradient well, the exceedance was reclassified as a Type 1 exceedance (not attributable to the landfills).

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

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

For the statistical analysis of pH, a two-sided tolerance interval statistical test is conducted. The test well results are compared to both the UTL and LTL to determine if statistically significant deviations in concentrations exist with respect to upgradient (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 historically in the statistical analyses are listed in Table 6.

Table 6. Monitoring Wells Included in Statistical Analysis*

| UCRS | URGA | LRGA |
|-------------|--------------------|--------------------|
| MW386 | MW220 (upgradient) | MW370 |
| MW389** | MW221 | MW373 |
| MW390 | MW222 | MW385 |
| MW393 | MW223 | MW388 |
| MW396*** | MW224 | MW392 |
| | MW369 | MW395 (upgradient) |
| | MW372 | MW397 (upgradient) |
| | MW384 | |
| | MW387 | |
| | MW391 | |
| | MW394 (upgradient) | |

*A map showing the MW locations is shown on Figure 1.

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

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

2.1 STATISTICAL ANALYSIS OF GROUNDWATER DATA

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

2.1.1 Upper Continental Recharge System

In this quarter, 27 parameters, including those with MCLs, required statistical analysis in the UCRS. During the second quarter, chemical oxygen demand (COD), oxidation-reduction potential and technetium-99 displayed concentrations that exceeded their respective historical UTLs and are listed in Table 2. Oxidation-reduction potential and technetium-99 exceeded the current background UTL and is included in Table 5.

2.1.2 Upper Regional Gravel Aquifer

In this quarter, 32 parameters, including those with MCLs, required statistical analysis in the URGA. During the second quarter, beta activity, calcium, chemical oxygen demand (COD), dissolved solids, magnesium, oxidation-reduction potential, sodium, sulfate, and technetium-99 displayed concentrations that exceeded their respective historical UTLs and are listed in Table 2. Beta activity, calcium, chemical oxygen demand (COD), magnesium, oxidation-reduction potential, sodium, sulfate, and technetium-99 exceeded the current background UTL in downgradient wells and are included in Table 3.

2.1.3 Lower Regional Gravel Aquifer

In this quarter, 31 parameters, including those with MCLs, required statistical analysis in the LRGA. During the second quarter, beta activity, calcium, chemical oxygen demand (COD), chloride, 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. Beta activity, calcium, chloride, conductivity, dissolved solids, magnesium, sulfate, and technetium-99 exceeded the current background UTL in downgradient wells and are included in Table 3.

2.2 DATA VERIFICATION AND VALIDATION

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

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

Field quality control samples are collected for each sampling event. Field blanks, rinseate blanks, and trip blanks are obtained to ensure quality of field and laboratory practices, and data are reported in the Groundwater Sample Analysis 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.

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3. PROFESSIONAL GEOLOGIST AUTHORIZATION

DOCUMENT IDENTIFICATION: *C-746-S&T Landfills
Second Quarter Calendar Year 2019 (April-June)
Compliance Monitoring Report,
Paducah Gaseous Diffusion Plant,
Paducah, Kentucky (FRNP-RPT-0088/V2)*

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



PG 113927
K Davis
8-19-19

Kenneth R. Davis
Kenneth R. Davis

PG113927

August 19, 2019
Date

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4. REFERENCES

- 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, Number SW07300014, SW07300015, SW07300045, Technical Application Attachment 25, LATA Environmental Services of Kentucky, LLC, Kevil, KY, June.
- PRS (Paducah Remediation Services, LLC) 2008. *Surface Water Monitoring Plan for C-746-S and C-746-T Landfills Permit Numbers KY-073-00014 and 073-00015, Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, Solid Waste Landfill Permit, Number SW07300014, SW07300015, SW07300045, Technical Application Attachment 24, Paducah Remediation Services, LLC, Kevil, KY, June.

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APPENDIX A

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

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APPENDIX B
FACILITY INFORMATION SHEET

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FACILITY INFORMATION SHEET

Groundwater: April/May 2019
Surface water: May 2019
Methane: May 2019

County: McCracken Permit Nos. SW07300014,
SW07300015,
SW07300045

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

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

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

OWNER INFORMATION

Facility Owner: U.S. DOE, Robert E. Edwards III, Manager Phone No: (859) 227-5020

Contact Person: David Hutchison Phone No: (270) 441-5929

Contact Person Title: Director, Environmental Services, 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, LLC

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

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APPENDIX C
GROUNDWATER SAMPLE ANALYSES
AND WRITTEN COMMENTS

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

RESIDENTIAL/INERT-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

GROUNDWATER SAMPLE ANALYSIS (S)

| AKGWA NUMBER ¹ , Facility Well/Spring Number | 8000-5201 | 8000-5202 | 8000-5242 | 8000-5243 | | | | | | | | |
|---|-----------------------------|-----------------|-----------------------|-----------------|---|------------------------------------|---|-----------------------|---|-----------------------|---|-----------------------|
| Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.) | 220 | 221 | 222 | 223 | | | | | | | | |
| 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) | 4/16/2019 12:45 | 4/16/2019 08:56 | 4/16/2019 10:23 | 4/16/2019 09:47 | | | | | | | | |
| Duplicate ("Y" or "N") ² | N | N | N | N | | | | | | | | |
| Split ("Y" or "N") ³ | N | N | N | N | | | | | | | | |
| Facility Sample ID Number (if applicable) | MW220SG3-19 | MW221SG3-19 | MW222SG3-19 | MW223SG3-19 | | | | | | | | |
| Laboratory Sample ID Number (if applicable) | 476611003 | 476611007 | 476611009 | 476611011 | | | | | | | | |
| Date of Analysis (Month/Day/Year) For <u>Volatile Organics</u> Analysis | 4/23/2019 | 4/22/2019 | 4/22/2019 | 4/22/2019 | | | | | | | | |
| Gradient with respect to Monitored Unit (UP, DOWN, SIDE, UNKNOWN) | UP | SIDE | SIDE | SIDE | | | | | | | | |
| 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 | 0.211 | | 0.433 | | 0.424 | | 0.384 | |
| 16887-00-6 | Chloride(s) | T | mg/L | 9056 | 18.7 | * | 32.6 | * | 31.4 | * | 27.6 | * |
| 16984-48-8 | Fluoride | T | mg/L | 9056 | 0.284 | | 0.269 | | 0.349 | | 0.294 | |
| S0595- - | Nitrate & Nitrite | T | mg/L | 9056 | 1.18 | | 1.02 | | 0.843 | | 0.841 | |
| 14808-79-8 | Sulfate | T | mg/L | 9056 | 24.1 | * | 15.4 | * | 14.4 | * | 20.5 | * |
| NS1894 | Barometric Pressure Reading | T | Inches/Hg | Field | 30.1 | | 30.1 | | 30.1 | | 30.1 | |
| S0145- - | Specific Conductance | T | µMHO/cm | Field | 435 | | 427 | | 334 | | 425 | |

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

¹AKGWA # is 0000-0000 for any type of blank.

²Respond "Y" if the sample was a duplicate of another sample in this report.

³Respond "Y" if the sample was split and analyzed by separate laboratories.

⁴Chemical 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.

⁷Flags are as designated, do not use any other type. Use "*", then describe on "Written Comments Page."

RESIDENTIAL/INERT-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

GROUNDWATER SAMPLE ANALYSIS - (Cont.)

| AKGWA NUMBER ¹ , Facility Well/Spring Number | | | | | 8000-5201 | 8000-5202 | 8000-5242 | 8000-5243 | | | | |
|--|------------------------------|-------------|-----------------------|--------|---|-----------------------|---|-----------------------|---|-----------------------|---|-----------------------|
| Facility's Local Well or Spring Number (e.g., MW-1, MW-2, BLANK-F, etc.) | | | | | 220 | 221 | 222 | 223 | | | | |
| CAS RN ⁴ | CONSTITUENT | T D 5 | Unit OF MEASURE | METHOD | DETECTED VALUE OR PQL ⁶ | F L A G S |
| S0906 - - | Static Water Level Elevation | T | Ft. MSL | Field | 332.01 | | 331.88 | | 332.2 | | 332.13 | |
| N238 | Dissolved Oxygen | T | mg/L | Field | 3.69 | | 2.91 | | 2.99 | | 2.39 | |
| S0266- - | Total Dissolved Solids | T | mg/L | 160.1 | 273 | | 239 | | 234 | | 233 | |
| S0296- - | pH | T | Units | Field | 6.31 | | 6.21 | | 6.21 | | 6.18 | |
| NS215 | Eh | T | mV | Field | 471 | | 469 | | 463 | | 460 | |
| S0907 - - | Temperature | T | °C | Field | 17.94 | | 16.11 | | 16.94 | | 16.67 | |
| 7429-90-5 | Aluminum | T | mg/L | 6020 | <0.05 | | <0.05 | | <0.05 | | <0.05 | |
| 7440-36-0 | Antimony | T | mg/L | 6020 | 0.0013 | J | 0.00123 | J | 0.00123 | J | 0.00134 | J |
| 7440-38-2 | Arsenic | T | mg/L | 6020 | 0.00232 | J | 0.00247 | J | 0.00286 | J | 0.0045 | J |
| 7440-39-3 | Barium | T | mg/L | 6020 | 0.232 | | 0.201 | | 0.274 | | 0.227 | |
| 7440-41-7 | Beryllium | T | mg/L | 6020 | <0.0005 | | <0.0005 | | <0.0005 | | <0.0005 | |
| 7440-42-8 | Boron | T | mg/L | 6020 | 0.00652 | J | 0.0131 | J | 0.00887 | J | 0.00832 | J |
| 7440-43-9 | Cadmium | T | mg/L | 6020 | <0.001 | | <0.001 | | <0.001 | | <0.001 | |
| 7440-70-2 | Calcium | T | mg/L | 6020 | 35.8 | | 21.4 | | 19 | | 22.7 | |
| 7440-47-3 | Chromium | T | mg/L | 6020 | 0.00518 | J | 0.0114 | | <0.01 | | 0.0136 | |
| 7440-48-4 | Cobalt | T | mg/L | 6020 | <0.001 | | 0.000745 | J | 0.000401 | J | 0.000498 | J |
| 7440-50-8 | Copper | T | mg/L | 6020 | 0.000823 | J | 0.00101 | J | 0.000335 | J | 0.000459 | J |
| 7439-89-6 | Iron | T | mg/L | 6020 | 0.0374 | J | <0.1 | | <0.1 | | 0.0474 | J |
| 7439-92-1 | Lead | T | mg/L | 6020 | <0.002 | | <0.002 | | <0.002 | | <0.002 | |
| 7439-95-4 | Magnesium | T | mg/L | 6020 | 10.3 | | 9.25 | | 8.59 | | 9.65 | |
| 7439-96-5 | Manganese | T | mg/L | 6020 | 0.00188 | J | <0.005 | | 0.00829 | | 0.00962 | |
| 7439-97-6 | Mercury | T | mg/L | 7470 | <0.0002 | | <0.0002 | | <0.0002 | | <0.0002 | |

C4

RESIDENTIAL/INERT-QUARTERLY

Facility: US DOE - Paducah Gaseous Diffusion Plant

FINDS/UNIT: KY8-890-008-982 / 1

Permit Number: SW07300014, SW07300015, SW07300045

LAB ID: None

For Official Use Only

GROUNDWATER SAMPLE ANALYSIS - (Cont.)

| AKGWA NUMBER ¹ , Facility Well/Spring Number | | | | | 8000-5201 | 8000-5202 | 8000-5242 | 8000-5243 | | | | |
|---|--------------------|-------------|-----------------------|--------|---|-----------------------|---|-----------------------|---|-----------------------|---|-----------------------|
| Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.) | | | | | 220 | 221 | 222 | 223 | | | | |
| CAS RN ⁴ | CONSTITUENT | T D 5 | Unit OF MEASURE | METHOD | DETECTED VALUE OR PQL ⁶ | F L A G S |
| 7439-98-7 | Molybdenum | T | mg/L | 6020 | 0.00105 | | 0.0104 | | <0.001 | | 0.00644 | |
| 7440-02-0 | Nickel | T | mg/L | 6020 | 0.0237 | | 0.0715 | | 0.0639 | | 0.178 | |
| 7440-09-7 | Potassium | T | mg/L | 6020 | 1.87 | | 2.17 | | 1.56 | | 2.97 | |
| 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 | 47.4 | | 45.6 | | 46.7 | | 43.7 | |
| 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 | | <0.0002 | | <0.0002 | |
| 7440-62-2 | Vanadium | T | mg/L | 6020 | 0.00369 | BJ | 0.00464 | BJ | 0.00668 | BJ | 0.00931 | BJ |
| 7440-66-6 | Zinc | T | mg/L | 6020 | <0.02 | | <0.02 | | <0.02 | | <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 | |

C-5

RESIDENTIAL/INERT-QUARTERLY

Facility: US DOE - Paducah Gaseous Diffusion Plant

FINDS/UNIT: KY8-890-008-982 / 1

Permit Number: SW07300014, SW07300015, SW07300045

LAB ID: None

For Official Use Only

GROUNDWATER SAMPLE ANALYSIS - (Cont.)

| AKGWA NUMBER ¹ , Facility Well/Spring Number | | | | | 8000-5201 | | 8000-5202 | | 8000-5242 | | 8000-5243 | |
|---|-----------------------------|-------------|-----------------------|--------|---|-----------------------|---|-----------------------|---|-----------------------|---|-----------------------|
| Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.) | | | | | 220 | | 221 | | 222 | | 223 | |
| CAS RN ⁴ | CONSTITUENT | T D 5 | Unit OF MEASURE | METHOD | 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 | 0.00034 | J | <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 | 0.00105 | | <0.001 | | <0.001 | | <0.001 | |

C-6

RESIDENTIAL/INERT-QUARTERLY

Facility: US DOE - Paducah Gaseous Diffusion Plant

FINDS/UNIT: KY8-890-008-982 / 1

Permit Number: SW07300014, SW07300015, SW07300045

LAB ID: None

For Official Use Only

GROUNDWATER SAMPLE ANALYSIS - (Cont.)

| AKGWA NUMBER ¹ , Facility Well/Spring Number | | | | | 8000-5201 | | 8000-5202 | | 8000-5242 | | 8000-5243 | |
|---|-------------------------------|-------------|-----------------------|--------|---|-----------------------|---|-----------------------|---|-----------------------|---|-----------------------|
| Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.) | | | | | 220 | | 221 | | 222 | | 223 | |
| CAS RN ⁴ | CONSTITUENT | T D 5 | Unit OF MEASURE | METHOD | 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 | 0.00224 | BJ | 0.00256 | J | 0.00244 | J | 0.00282 | 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 | <0.0000196 | | <0.0000198 | | <0.0000197 | | <0.0000193 | |
| 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 | | * | | * | | * | | * |
| 12674-11-2 | PCB-1016 | T | ug/L | 8082 | | * | | * | | * | | * |
| 11104-28-2 | PCB-1221 | T | ug/L | 8082 | | * | | * | | * | | * |
| 11141-16-5 | PCB-1232 | T | ug/L | 8082 | | * | | * | | * | | * |
| 53469-21-9 | PCB-1242 | T | ug/L | 8082 | | * | | * | | * | | * |
| 12672-29-6 | PCB-1248 | T | ug/L | 8082 | | * | | * | | * | | * |

C-7

RESIDENTIAL/INERT-QUARTERLY

Facility: US DOE - Paducah Gaseous Diffusion Plant

FINDS/UNIT: KY8-890-008-982 / 1

Permit Number: SW07300014, SW07300015, SW07300045

LAB ID: None

For Official Use Only

GROUNDWATER SAMPLE ANALYSIS - (Cont.)

| AKGWA NUMBER ¹ , Facility Well/Spring Number | | | | | 8000-5201 | 8000-5202 | 8000-5242 | 8000-5243 | | | | |
|---|------------------------|-------------|-----------------------|----------|---|-----------------------|---|-----------------------|---|-----------------------|---|-----------------------|
| Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.) | | | | | 220 | 221 | 222 | 223 | | | | |
| CAS RN ⁴ | CONSTITUENT | T D 5 | Unit OF MEASURE | METHOD | DETECTED VALUE OR PQL ⁶ | F L A G S |
| 11097-69-1 | PCB-1254 | T | ug/L | 8082 | | * | | * | | * | | * |
| 11096-82-5 | PCB-1260 | T | ug/L | 8082 | | * | | * | | * | | * |
| 11100-14-4 | PCB-1268 | T | ug/L | 8082 | | * | | * | | * | | * |
| 12587-46-1 | Gross Alpha | T | pCi/L | 9310 | 1.15 | * | 4.47 | * | -0.124 | * | 2.91 | * |
| 12587-47-2 | Gross Beta | T | pCi/L | 9310 | 8.19 | * | 9.35 | * | 7.11 | * | 24.4 | * |
| 10043-66-0 | Iodine-131 | T | pCi/L | | | * | | * | | * | | * |
| 13982-63-3 | Radium-226 | T | pCi/L | AN-1418 | 0.313 | * | 0.304 | * | 0.478 | * | 0.432 | * |
| 10098-97-2 | Strontium-90 | T | pCi/L | 905.0 | -1.98 | * | -1.09 | * | -0.853 | * | -2.83 | * |
| 14133-76-7 | Technetium-99 | T | pCi/L | Tc-02-RC | 17.1 | * | 14.4 | * | 2.01 | * | 9.75 | * |
| 14269-63-7 | Thorium-230 | T | pCi/L | Th-01-RC | 0.356 | * | -0.426 | * | 0.0883 | * | -0.054 | * |
| 10028-17-8 | Tritium | T | pCi/L | 906.0 | -26.6 | * | 15.4 | * | 20 | * | 31.2 | * |
| S0130- - | Chemical Oxygen Demand | T | mg/L | 410.4 | 16.4 | J | <20 | | 13.3 | J | <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 | 1.09 | J | 0.931 | J | 0.886 | J | 1.03 | J |
| S0586- - | Total Organic Halides | T | mg/L | 9020 | | * | | * | | * | | * |
| | | | | | | | | | | | | |
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C-8

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

RESIDENTIAL/INERT-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

GROUNDWATER SAMPLE ANALYSIS (S)

| AKGWA NUMBER ¹ , Facility Well/Spring Number | 8000-5244 | 8004-4820 | 8004-4818 | 8004-4808 | | | | | | | | |
|---|-----------------------------|-----------------|-----------------------|-----------------|---|------------------------------------|---|-----------------------|---|-----------------------|---|-----------------------|
| Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.) | 224 | 369 | 370 | 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) | 4/16/2019 12:11 | 4/15/2019 07:37 | 4/15/2019 08:17 | 4/11/2019 09:04 | | | | | | | | |
| Duplicate ("Y" or "N") ² | N | N | N | N | | | | | | | | |
| Split ("Y" or "N") ³ | N | N | N | N | | | | | | | | |
| Facility Sample ID Number (if applicable) | MW224SG3-19 | MW369UG3-19 | MW370UG3-19 | MW372UG3-19 | | | | | | | | |
| Laboratory Sample ID Number (if applicable) | 476611013 | 476577001 | 476577003 | 476239007 | | | | | | | | |
| Date of Analysis (Month/Day/Year) For <u>Volatile Organics</u> Analysis | 4/22/2019 | 4/20/2019 | 4/20/2019 | 4/17/2019 | | | | | | | | |
| Gradient with respect to Monitored Unit (UP, DOWN, SIDE, UNKNOWN) | SIDE | 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 | 0.461 | | 0.404 | | 0.415 | | 0.586 | |
| 16887-00-6 | Chloride(s) | T | mg/L | 9056 | 36.7 | * | 34.7 | * | 34.8 | * | 46.2 | * |
| 16984-48-8 | Fluoride | T | mg/L | 9056 | 0.33 | | 0.184 | | 0.157 | | 0.198 | |
| S0595- - | Nitrate & Nitrite | T | mg/L | 9056 | 0.974 | | 0.544 | | 0.993 | | 0.676 | |
| 14808-79-8 | Sulfate | T | mg/L | 9056 | 14.1 | | 14.6 | | 20.7 | | 71.3 | * |
| NS1894 | Barometric Pressure Reading | T | Inches/Hg | Field | 30.11 | | 30.06 | | 30.09 | | 29.7 | |
| S0145- - | Specific Conductance | T | µMHO/cm | Field | 439 | | 439 | | 458 | | 632 | |

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

¹AKGWA # is 0000-0000 for any type of blank.

²Respond "Y" if the sample was a duplicate of another sample in this report.

³Respond "Y" if the sample was split and analyzed by separate laboratories.

⁴Chemical 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.

⁷Flags are as designated, do not use any other type. Use "*", then describe on "Written Comments Page."

RESIDENTIAL/INERT-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

GROUNDWATER SAMPLE ANALYSIS - (Cont.)

| AKGWA NUMBER ¹ , Facility Well/Spring Number | | | | | 8000-5244 | 8004-4820 | 8004-4818 | 8004-4808 | | | | |
|--|------------------------------|-------------|-----------------------|--------|---|-----------------------|---|-----------------------|---|-----------------------|---|-----------------------|
| Facility's Local Well or Spring Number (e.g., MW-1, MW-2, BLANK-F, etc.) | | | | | 224 | 369 | 370 | 372 | | | | |
| CAS RN ⁴ | CONSTITUENT | T D 5 | Unit OF MEASURE | METHOD | DETECTED VALUE OR PQL ⁶ | F L A G S |
| S0906 - - | Static Water Level Elevation | T | Ft. MSL | Field | 332.22 | | 332.24 | | 332.22 | | 332.9 | |
| N238 | Dissolved Oxygen | T | mg/L | Field | 2.97 | | 0.71 | | 2.99 | | 0.95 | |
| S0266- - | Total Dissolved Solids | T | mg/L | 160.1 | 219 | | 261 | B | 237 | B | 309 | * |
| S0296- - | pH | T | Units | Field | 6.23 | | 6.21 | | 6.18 | | 6.25 | |
| NS215 | Eh | T | mV | Field | 464 | | 372 | | 379 | | 383 | |
| S0907 - - | Temperature | T | °C | Field | 17.17 | | 15.11 | | 15.72 | | 17.5 | |
| 7429-90-5 | Aluminum | T | mg/L | 6020 | <0.05 | | <0.05 | | <0.05 | | <0.05 | |
| 7440-36-0 | Antimony | T | mg/L | 6020 | 0.00124 | J | <0.003 | | <0.003 | | 0.00125 | J |
| 7440-38-2 | Arsenic | T | mg/L | 6020 | 0.00487 | J | 0.00215 | J | 0.00259 | J | 0.00347 | J |
| 7440-39-3 | Barium | T | mg/L | 6020 | 0.2 | | 0.412 | | 0.207 | | 0.052 | |
| 7440-41-7 | Beryllium | T | mg/L | 6020 | <0.0005 | | <0.0005 | | <0.0005 | | <0.0005 | |
| 7440-42-8 | Boron | T | mg/L | 6020 | 0.0213 | | 0.0187 | | 0.0319 | | 0.86 | |
| 7440-43-9 | Cadmium | T | mg/L | 6020 | <0.001 | | <0.001 | | <0.001 | | <0.001 | |
| 7440-70-2 | Calcium | T | mg/L | 6020 | 21.3 | | 20 | | 26.5 | | 49.7 | |
| 7440-47-3 | Chromium | T | mg/L | 6020 | <0.01 | | <0.01 | | <0.01 | | <0.01 | |
| 7440-48-4 | Cobalt | T | mg/L | 6020 | 0.00162 | | 0.0033 | | 0.000377 | J | 0.000571 | J |
| 7440-50-8 | Copper | T | mg/L | 6020 | 0.000439 | J | 0.00247 | | 0.00192 | J | 0.00058 | J |
| 7439-89-6 | Iron | T | mg/L | 6020 | 0.0411 | J | 0.149 | | 0.0351 | J | 0.236 | |
| 7439-92-1 | Lead | T | mg/L | 6020 | <0.002 | | <0.002 | | <0.002 | | <0.002 | |
| 7439-95-4 | Magnesium | T | mg/L | 6020 | 9.54 | | 9.06 | | 12.1 | | 18.2 | |
| 7439-96-5 | Manganese | T | mg/L | 6020 | 0.0174 | | 0.0201 | | 0.00749 | | 0.0049 | J |
| 7439-97-6 | Mercury | T | mg/L | 7470 | <0.0002 | | <0.0002 | | <0.0002 | | <0.0002 | |

C-10

RESIDENTIAL/INERT-QUARTERLY

Facility: US DOE - Paducah Gaseous Diffusion Plant

FINDS/UNIT: KY8-890-008-982 / 1

Permit Number: SW07300014, SW07300015, SW07300045

LAB ID: None

For Official Use Only

GROUNDWATER SAMPLE ANALYSIS - (Cont.)

| AKGWA NUMBER ¹ , Facility Well/Spring Number | | | | | 8000-5244 | 8004-4820 | 8004-4818 | 8004-4808 | | | | |
|---|--------------------|-------------|-----------------------|--------|---|-----------------------|---|-----------------------|---|-----------------------|---|-----------------------|
| Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.) | | | | | 224 | 369 | 370 | 372 | | | | |
| CAS RN ⁴ | CONSTITUENT | T D 5 | Unit OF MEASURE | METHOD | DETECTED VALUE OR PQL ⁶ | F L A G S |
| 7439-98-7 | Molybdenum | T | mg/L | 6020 | <0.001 | | <0.001 | | <0.001 | | 0.000389 | J |
| 7440-02-0 | Nickel | T | mg/L | 6020 | 0.106 | | 0.00656 | | 0.000761 | J | 0.00125 | J |
| 7440-09-7 | Potassium | T | mg/L | 6020 | 1.13 | | 0.825 | | 2.46 | | 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 | <0.005 | | <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 | 48.6 | | 51.1 | | 45.1 | | 47.4 | |
| 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 | | <0.0002 | | <0.0002 | |
| 7440-62-2 | Vanadium | T | mg/L | 6020 | 0.00964 | BJ | 0.0103 | BJ | 0.00499 | BJ | 0.00669 | BJ |
| 7440-66-6 | Zinc | T | mg/L | 6020 | <0.02 | | <0.02 | | <0.02 | | 0.00375 | 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 | | 0.00455 | J | <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 | * |

C-11

RESIDENTIAL/INERT-QUARTERLY

Facility: US DOE - Paducah Gaseous Diffusion Plant

FINDS/UNIT: KY8-890-008-982 / 1

Permit Number: SW07300014, SW07300015, SW07300045

LAB ID: None

For Official Use Only

GROUNDWATER SAMPLE ANALYSIS - (Cont.)

| AKGWA NUMBER ¹ , Facility Well/Spring Number | | | | | 8000-5244 | 8004-4820 | 8004-4818 | 8004-4808 | | | | |
|---|-----------------------------|-------------|-----------------------|--------|---|-----------------------|---|-----------------------|---|-----------------------|---|-----------------------|
| Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.) | | | | | 224 | 369 | 370 | 372 | | | | |
| CAS RN ⁴ | CONSTITUENT | T D 5 | Unit OF MEASURE | METHOD | 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 | <0.001 | | 0.00052 | J | 0.00055 | J | 0.00478 | |

C-12

RESIDENTIAL/INERT-QUARTERLY

Facility: US DOE - Paducah Gaseous Diffusion Plant

FINDS/UNIT: KY8-890-008-982 / 1

Permit Number: SW07300014, SW07300015, SW07300045

LAB ID: None

For Official Use Only

GROUNDWATER SAMPLE ANALYSIS - (Cont.)

| AKGWA NUMBER ¹ , Facility Well/Spring Number | | | | | 8000-5244 | 8004-4820 | 8004-4818 | 8004-4808 | | | | |
|---|-------------------------------|-------------|-----------------------|--------|---|-----------------------|---|-----------------------|---|-----------------------|---|-----------------------|
| Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.) | | | | | 224 | 369 | 370 | 372 | | | | |
| CAS RN ⁴ | CONSTITUENT | T D 5 | Unit OF MEASURE | METHOD | 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 | 0.00238 | J | <0.005 | | <0.005 | | <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 | <0.0000193 | | <0.0000192 | | <0.0000192 | | <0.0000193 | |
| 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 | | <0.098 | | <0.0971 | |
| 12674-11-2 | PCB-1016 | T | ug/L | 8082 | | * | <0.1 | | <0.098 | | <0.0971 | |
| 11104-28-2 | PCB-1221 | T | ug/L | 8082 | | * | <0.1 | | <0.098 | | <0.0971 | |
| 11141-16-5 | PCB-1232 | T | ug/L | 8082 | | * | <0.1 | | <0.098 | | <0.0971 | |
| 53469-21-9 | PCB-1242 | T | ug/L | 8082 | | * | <0.1 | | <0.098 | | <0.0971 | |
| 12672-29-6 | PCB-1248 | T | ug/L | 8082 | | * | <0.1 | | <0.098 | | <0.0971 | |

C-13

RESIDENTIAL/INERT-QUARTERLY

Facility: US DOE - Paducah Gaseous Diffusion Plant

FINDS/UNIT: KY8-890-008-982 / 1

Permit Number: SW07300014, SW07300015, SW07300045

LAB ID: None

For Official Use Only

GROUNDWATER SAMPLE ANALYSIS - (Cont.)

| AKGWA NUMBER ¹ , Facility Well/Spring Number | | | | | 8000-5244 | 8004-4820 | 8004-4818 | 8004-4808 | | | | |
|---|------------------------|-------------|-----------------------|----------|---|-----------------------|---|-----------------------|---|-----------------------|---|-----------------------|
| Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.) | | | | | 224 | 369 | 370 | 372 | | | | |
| CAS RN ⁴ | CONSTITUENT | T D 5 | Unit OF MEASURE | METHOD | DETECTED VALUE OR PQL ⁶ | F L A G S |
| 11097-69-1 | PCB-1254 | T | ug/L | 8082 | | * | <0.1 | | <0.098 | | <0.0971 | |
| 11096-82-5 | PCB-1260 | T | ug/L | 8082 | | * | <0.1 | | <0.098 | | <0.0971 | |
| 11100-14-4 | PCB-1268 | T | ug/L | 8082 | | * | <0.1 | | <0.098 | | <0.0971 | |
| 12587-46-1 | Gross Alpha | T | pCi/L | 9310 | 0.843 | * | 5.69 | * | 0.212 | * | 3.12 | * |
| 12587-47-2 | Gross Beta | T | pCi/L | 9310 | 2.3 | * | 83.7 | * | 61 | * | 41 | * |
| 10043-66-0 | Iodine-131 | T | pCi/L | | | * | | * | | * | | * |
| 13982-63-3 | Radium-226 | T | pCi/L | AN-1418 | 0.449 | * | 0.366 | * | 0.21 | * | 0.316 | * |
| 10098-97-2 | Strontium-90 | T | pCi/L | 905.0 | 2.29 | * | 0.59 | * | -1.44 | * | 0.353 | * |
| 14133-76-7 | Technetium-99 | T | pCi/L | Tc-02-RC | 5.63 | * | 70.8 | * | 111 | * | 59.4 | * |
| 14269-63-7 | Thorium-230 | T | pCi/L | Th-01-RC | -0.194 | * | 0.0643 | * | -0.198 | * | -0.358 | * |
| 10028-17-8 | Tritium | T | pCi/L | 906.0 | 44.3 | * | -60.7 | * | -17.3 | * | 17.1 | * |
| S0130- - | Chemical Oxygen Demand | T | mg/L | 410.4 | 10.1 | J | 17.4 | J | <20 | | 52.6 | |
| 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 | 0.863 | J | 1.19 | J | 0.964 | J | 1.1 | J |
| S0586- - | Total Organic Halides | T | mg/L | 9020 | | * | | * | | * | | * |
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C-14

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

RESIDENTIAL/INERT-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

GROUNDWATER SAMPLE ANALYSIS (S)

| AKGWA NUMBER ¹ , Facility Well/Spring Number | 8004-4792 | 8004-4809 | 8004-4810 | 8004-4804 | | | | | | | | |
|---|-----------------------------|-----------------|-----------------------|-----------------|---|------------------------------------|---|-----------------------|---|-----------------------|---|-----------------------|
| Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.) | 373 | 384 | 385 | 386 | | | | | | | | |
| 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) | 4/11/2019 09:47 | 4/17/2019 09:22 | 4/17/2019 11:26 | 4/17/2019 11:53 | | | | | | | | |
| Duplicate ("Y" or "N") ² | N | N | N | N | | | | | | | | |
| Split ("Y" or "N") ³ | N | N | N | N | | | | | | | | |
| Facility Sample ID Number (if applicable) | MW373UG3-19 | MW384SG3-19 | MW385SG3-19 | MW386SG3-19 | | | | | | | | |
| Laboratory Sample ID Number (if applicable) | 476239009 | 476794003 | 476794005 | 476794007 | | | | | | | | |
| Date of Analysis (Month/Day/Year) For <u>Volatiles Organics</u> Analysis | 4/17/2019 | 4/24/2019 | 4/24/2019 | 4/24/2019 | | | | | | | | |
| Gradient with respect to Monitored Unit (UP, DOWN, SIDE, UNKNOWN) | DOWN | SIDE | SIDE | SIDE | | | | | | | | |
| 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 | 0.572 | | 0.33 | | 0.365 | | 0.169 | J |
| 16887-00-6 | Chloride(s) | T | mg/L | 9056 | 43.6 | * | 36.4 | * | 34.5 | * | 13.7 | * |
| 16984-48-8 | Fluoride | T | mg/L | 9056 | 0.262 | | 0.227 | | 0.155 | | 0.637 | |
| S0595- - | Nitrate & Nitrite | T | mg/L | 9056 | 0.944 | | 1.1 | | 0.912 | | 0.221 | |
| 14808-79-8 | Sulfate | T | mg/L | 9056 | 126 | * | 22.8 | * | 22.4 | * | 49.1 | * |
| NS1894 | Barometric Pressure Reading | T | Inches/Hg | Field | 29.7 | | 29.98 | | 29.97 | | 29.97 | |
| S0145- - | Specific Conductance | T | µMHO/cm | Field | 730 | | 452 | | 427 | | 593 | |

C-15

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

¹AKGWA # is 0000-0000 for any type of blank.

²Respond "Y" if the sample was a duplicate of another sample in this report.

³Respond "Y" if the sample was split and analyzed by separate laboratories.

⁴Chemical 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.

⁷Flags are as designated, do not use any other type. Use "*", then describe on "Written Comments Page."

RESIDENTIAL/INERT-QUARTERLY

Facility: US DOE - Paducah Gaseous Diffusion Plant

FINDS/UNIT: KY8-890-008-982 / 1

Permit Number: SW07300014, SW07300015, SW07300045

LAB ID: None

For Official Use Only

GROUNDWATER SAMPLE ANALYSIS - (Cont.)

| AKGWA NUMBER ¹ , Facility Well/Spring Number | | | | | 8004-4792 | 8004-4809 | 8004-4810 | 8004-4804 | | | | |
|--|------------------------------|-------------|-----------------------|--------|---|-----------------------|---|-----------------------|---|-----------------------|---|-----------------------|
| Facility's Local Well or Spring Number (e.g., MW-1, MW-2, BLANK-F, etc.) | | | | | 373 | 384 | 385 | 386 | | | | |
| CAS RN ⁴ | CONSTITUENT | T D 5 | Unit OF MEASURE | METHOD | DETECTED VALUE OR PQL ⁶ | F L A G S |
| S0906 - - | Static Water Level Elevation | T | Ft. MSL | Field | 332.89 | | 332.05 | | 332.02 | | 345.75 | |
| N238 | Dissolved Oxygen | T | mg/L | Field | 1.49 | | 3.38 | | 2.89 | | 3.3 | |
| S0266- - | Total Dissolved Solids | T | mg/L | 160.1 | 401 | * | 269 | B | 253 | B | 349 | B |
| S0296- - | pH | T | Units | Field | 6.21 | | 6.17 | | 6.14 | | 6.81 | |
| NS215 | Eh | T | mV | Field | 387 | | 391 | | 398 | | 375 | |
| S0907 - - | Temperature | T | °C | Field | 17.22 | | 16.17 | | 16.89 | | 17.67 | |
| 7429-90-5 | Aluminum | T | mg/L | 6020 | <0.05 | | <0.05 | | 0.0338 | J | 0.0198 | J |
| 7440-36-0 | Antimony | T | mg/L | 6020 | 0.00125 | J | 0.00138 | BJ | 0.00132 | BJ | 0.00134 | BJ |
| 7440-38-2 | Arsenic | T | mg/L | 6020 | 0.00338 | J | 0.00425 | J | 0.00349 | J | 0.00484 | J |
| 7440-39-3 | Barium | T | mg/L | 6020 | 0.0368 | | 0.143 | | 0.203 | | 0.131 | |
| 7440-41-7 | Beryllium | T | mg/L | 6020 | <0.0005 | | <0.0005 | | <0.0005 | | <0.0005 | |
| 7440-42-8 | Boron | T | mg/L | 6020 | 1.32 | | 0.0268 | | 0.0226 | | 0.00596 | J |
| 7440-43-9 | Cadmium | T | mg/L | 6020 | <0.001 | | <0.001 | | <0.001 | | <0.001 | |
| 7440-70-2 | Calcium | T | mg/L | 6020 | 64 | | 23.3 | | 22.8 | | 19.3 | |
| 7440-47-3 | Chromium | T | mg/L | 6020 | <0.01 | | <0.01 | | <0.01 | | <0.01 | |
| 7440-48-4 | Cobalt | T | mg/L | 6020 | 0.000473 | J | <0.001 | | <0.001 | | 0.000739 | J |
| 7440-50-8 | Copper | T | mg/L | 6020 | 0.000479 | J | 0.000617 | J | 0.000637 | J | 0.00102 | J |
| 7439-89-6 | Iron | T | mg/L | 6020 | 0.178 | | 0.357 | | 0.0611 | J | 0.318 | |
| 7439-92-1 | Lead | T | mg/L | 6020 | <0.002 | | <0.002 | | <0.002 | | <0.002 | |
| 7439-95-4 | Magnesium | T | mg/L | 6020 | 23.7 | | 9.71 | | 9.05 | | 8.85 | |
| 7439-96-5 | Manganese | T | mg/L | 6020 | 0.0177 | | 0.0128 | | 0.00288 | J | 0.0812 | |
| 7439-97-6 | Mercury | T | mg/L | 7470 | <0.0002 | | <0.0002 | | <0.0002 | | <0.0002 | |

C-16

RESIDENTIAL/INERT-QUARTERLY

Facility: US DOE - Paducah Gaseous Diffusion Plant

FINDS/UNIT: KY8-890-008-982 / 1

Permit Number: SW07300014, SW07300015, SW07300045

LAB ID: None

For Official Use Only

GROUNDWATER SAMPLE ANALYSIS - (Cont.)

| AKGWA NUMBER ¹ , Facility Well/Spring Number | | | | | 8004-4792 | 8004-4809 | 8004-4810 | 8004-4804 | | | | |
|---|--------------------|-------------|-----------------------|--------|---|-----------------------|---|-----------------------|---|-----------------------|---|-----------------------|
| Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.) | | | | | 373 | 384 | 385 | 386 | | | | |
| CAS RN ⁴ | CONSTITUENT | T D 5 | Unit OF MEASURE | METHOD | DETECTED VALUE OR PQL ⁶ | F L A G S |
| 7439-98-7 | Molybdenum | T | mg/L | 6020 | <0.001 | | <0.001 | | <0.001 | | <0.001 | |
| 7440-02-0 | Nickel | T | mg/L | 6020 | 0.000916 | J | 0.000607 | J | 0.000912 | J | 0.000699 | J |
| 7440-09-7 | Potassium | T | mg/L | 6020 | 2.43 | | 1.14 | | 1.5 | | 0.262 | J |
| 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 | 51.4 | | 49.6 | | 45.6 | | 93.9 | |
| 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 | | <0.0002 | | <0.0002 | |
| 7440-62-2 | Vanadium | T | mg/L | 6020 | 0.00646 | BJ | 0.00679 | J | 0.00524 | J | 0.0101 | J |
| 7440-66-6 | Zinc | T | mg/L | 6020 | <0.02 | | 0.00385 | J | 0.00386 | 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 | * |

C-17

RESIDENTIAL/INERT-QUARTERLY

Facility: US DOE - Paducah Gaseous Diffusion Plant

FINDS/UNIT: KY8-890-008-982 / 1

Permit Number: SW07300014, SW07300015, SW07300045

LAB ID: None

For Official Use Only

GROUNDWATER SAMPLE ANALYSIS - (Cont.)

| AKGWA NUMBER ¹ , Facility Well/Spring Number | | | | | 8004-4792 | | 8004-4809 | | 8004-4810 | | 8004-4804 | |
|---|-----------------------------|-------------|-----------------------|--------|---|-----------------------|---|-----------------------|---|-----------------------|---|-----------------------|
| Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.) | | | | | 373 | | 384 | | 385 | | 386 | |
| CAS RN ⁴ | CONSTITUENT | T D 5 | Unit OF MEASURE | METHOD | 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 | 0.0052 | | 0.00036 | J | 0.00041 | J | <0.001 | |

C-18

RESIDENTIAL/INERT-QUARTERLY

Facility: US DOE - Paducah Gaseous Diffusion Plant

FINDS/UNIT: KY8-890-008-982 / 1

Permit Number: SW07300014, SW07300015, SW07300045

LAB ID: None

For Official Use Only

GROUNDWATER SAMPLE ANALYSIS - (Cont.)

| AKGWA NUMBER ¹ , Facility Well/Spring Number | | | | | 8004-4792 | 8004-4809 | 8004-4810 | 8004-4804 | | | | |
|---|-------------------------------|-------------|-----------------------|--------|---|-----------------------|---|-----------------------|---|-----------------------|---|-----------------------|
| Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.) | | | | | 373 | 384 | 385 | 386 | | | | |
| CAS RN ⁴ | CONSTITUENT | T D 5 | Unit OF MEASURE | METHOD | 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 | <0.005 | | <0.005 | | <0.005 | | <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 | <0.0000193 | | <0.0000195 | | <0.0000195 | | <0.0000193 | |
| 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 | <0.099 | | | * | | * | | * |
| 12674-11-2 | PCB-1016 | T | ug/L | 8082 | <0.099 | | | * | | * | | * |
| 11104-28-2 | PCB-1221 | T | ug/L | 8082 | <0.099 | | | * | | * | | * |
| 11141-16-5 | PCB-1232 | T | ug/L | 8082 | <0.099 | | | * | | * | | * |
| 53469-21-9 | PCB-1242 | T | ug/L | 8082 | <0.099 | | | * | | * | | * |
| 12672-29-6 | PCB-1248 | T | ug/L | 8082 | <0.099 | | | * | | * | | * |

C-19

RESIDENTIAL/INERT-QUARTERLY

Facility: US DOE - Paducah Gaseous Diffusion Plant

FINDS/UNIT: KY8-890-008-982 / 1

Permit Number: SW07300014, SW07300015, SW07300045

LAB ID: None

For Official Use Only

GROUNDWATER SAMPLE ANALYSIS - (Cont.)

| AKGWA NUMBER ¹ , Facility Well/Spring Number | | | | | 8004-4792 | 8004-4809 | 8004-4810 | 8004-4804 | | | | |
|---|------------------------|-------------|-----------------------|----------|---|-----------------------|---|-----------------------|---|-----------------------|---|-----------------------|
| Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.) | | | | | 373 | 384 | 385 | 386 | | | | |
| CAS RN ⁴ | CONSTITUENT | T D 5 | Unit OF MEASURE | METHOD | DETECTED VALUE OR PQL ⁶ | F L A G S |
| 11097-69-1 | PCB-1254 | T | ug/L | 8082 | <0.099 | | | * | | * | | * |
| 11096-82-5 | PCB-1260 | T | ug/L | 8082 | <0.099 | | | * | | * | | * |
| 11100-14-4 | PCB-1268 | T | ug/L | 8082 | <0.099 | | | * | | * | | * |
| 12587-46-1 | Gross Alpha | T | pCi/L | 9310 | -0.109 | * | 0.122 | * | 2.56 | * | 1.4 | * |
| 12587-47-2 | Gross Beta | T | pCi/L | 9310 | 13.7 | * | 97 | * | 138 | * | -2.72 | * |
| 10043-66-0 | Iodine-131 | T | pCi/L | | | * | | * | | * | | * |
| 13982-63-3 | Radium-226 | T | pCi/L | AN-1418 | 0.213 | * | 0.192 | * | 0.443 | * | 0.0899 | * |
| 10098-97-2 | Strontium-90 | T | pCi/L | 905.0 | 0.966 | * | 0.592 | * | -2.28 | * | 0.653 | * |
| 14133-76-7 | Technetium-99 | T | pCi/L | Tc-02-RC | 22.7 | * | 155 | * | 164 | * | -2.67 | * |
| 14269-63-7 | Thorium-230 | T | pCi/L | Th-01-RC | -0.561 | * | 0.561 | * | -0.41 | * | -0.356 | * |
| 10028-17-8 | Tritium | T | pCi/L | 906.0 | 46.7 | * | -45.4 | * | 3 | * | -47 | * |
| S0130- - | Chemical Oxygen Demand | T | mg/L | 410.4 | 43.8 | | <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 | 1.28 | J | 1.06 | J | 1.07 | J | 4.24 | |
| S0586- - | Total Organic Halides | T | mg/L | 9020 | | * | | * | | * | | * |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |

C-20

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

GROUNDWATER SAMPLE ANALYSIS (S)

| AKGWA NUMBER ¹ , Facility Well/Spring Number | 8004-4815 | 8004-4816 | 8004-4812 | 8004-4811 | | | | | | | | |
|---|-----------------------------|-----------------|-----------------------|-----------------|---|------------------------------------|---|-----------------------|---|-----------------------|---|-----------------------|
| Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.) | 387 | 388 | 389 | 390 | | | | | | | | |
| 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) | 4/17/2019 08:09 | 4/17/2019 08:46 | NA | 4/17/2019 07:32 | | | | | | | | |
| Duplicate ("Y" or "N") ² | N | N | N | N | | | | | | | | |
| Split ("Y" or "N") ³ | N | N | N | N | | | | | | | | |
| Facility Sample ID Number (if applicable) | MW387SG3-19 | MW388SG3-19 | NA | MW390SG3-19 | | | | | | | | |
| Laboratory Sample ID Number (if applicable) | 476794009 | 476794011 | NA | 476794001 | | | | | | | | |
| Date of Analysis (Month/Day/Year) For <u>Volatile Organics</u> Analysis | 4/24/2019 | 4/24/2019 | NA | 4/24/2019 | | | | | | | | |
| 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 | 0.591 | | 0.431 | | * | | 0.692 | |
| 16887-00-6 | Chloride(s) | T | mg/L | 9056 | 43.7 | * | 33.5 | * | * | | 37.7 | * |
| 16984-48-8 | Fluoride | T | mg/L | 9056 | 0.49 | | 0.239 | | * | | 0.298 | |
| S0595- - | Nitrate & Nitrite | T | mg/L | 9056 | 1.39 | | 1.01 | | * | | 2.3 | |
| 14808-79-8 | Sulfate | T | mg/L | 9056 | 20.8 | * | 23.7 | * | * | | 43.5 | * |
| NS1894 | Barometric Pressure Reading | T | Inches/Hg | Field | 29.99 | | 29.99 | | * | | 29.99 | |
| S0145- - | Specific Conductance | T | µMH0/cm | Field | 524 | | 441 | | * | | 639 | |

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

¹AKGWA # is 0000-0000 for any type of blank.

²Respond "Y" if the sample was a duplicate of another sample in this report.

³Respond "Y" if the sample was split and analyzed by separate laboratories.

⁴Chemical 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.

⁷Flags are as designated, do not use any other type. Use "*", then describe on "Written Comments Page."

RESIDENTIAL/INERT-QUARTERLY

Facility: US DOE - Paducah Gaseous Diffusion Plant

FINDS/UNIT: KY8-890-008-982 / 1

Permit Number: SW07300014, SW07300015, SW07300045

LAB ID: None

For Official Use Only

GROUNDWATER SAMPLE ANALYSIS - (Cont.)

| AKGWA NUMBER ¹ , Facility Well/Spring Number | | | | | 8004-4815 | 8004-4816 | 8004-4812 | 8004-4811 | | | | |
|--|------------------------------|-------------|-----------------------|--------|---|-----------------------|---|-----------------------|---|-----------------------|---|-----------------------|
| Facility's Local Well or Spring Number (e.g., MW-1, MW-2, BLANK-F, etc.) | | | | | 387 | 388 | 389 | 390 | | | | |
| CAS RN ⁴ | CONSTITUENT | T D 5 | Unit OF MEASURE | METHOD | DETECTED VALUE OR PQL ⁶ | F L A G S |
| S0906 - - | Static Water Level Elevation | T | Ft. MSL | Field | 332.08 | | 332.03 | | * | | 332.23 | |
| N238 | Dissolved Oxygen | T | mg/L | Field | 2.62 | | 3.19 | | * | | 4.55 | |
| S0266- - | Total Dissolved Solids | T | mg/L | 160.1 | 276 | B | 253 | B | * | | 407 | B |
| S0296- - | pH | T | Units | Field | 6.26 | | 6.13 | | * | | 6.3 | |
| NS215 | Eh | T | mV | Field | 436 | | 364 | | * | | 425 | |
| S0907 - - | Temperature | T | °C | Field | 16.67 | | 16.39 | | * | | 15.83 | |
| 7429-90-5 | Aluminum | T | mg/L | 6020 | 0.0206 | J | 0.0233 | J | * | | 0.0818 | |
| 7440-36-0 | Antimony | T | mg/L | 6020 | 0.0013 | BJ | 0.00128 | BJ | * | | <0.003 | |
| 7440-38-2 | Arsenic | T | mg/L | 6020 | 0.00402 | J | 0.00417 | J | * | | 0.00226 | J |
| 7440-39-3 | Barium | T | mg/L | 6020 | 0.157 | | 0.174 | | * | | 0.232 | |
| 7440-41-7 | Beryllium | T | mg/L | 6020 | <0.0005 | | <0.0005 | | * | | <0.0005 | |
| 7440-42-8 | Boron | T | mg/L | 6020 | 0.0224 | | 0.0222 | | * | | 0.0265 | |
| 7440-43-9 | Cadmium | T | mg/L | 6020 | <0.001 | | <0.001 | | * | | <0.001 | |
| 7440-70-2 | Calcium | T | mg/L | 6020 | 29.8 | | 23.7 | | * | | 28.7 | |
| 7440-47-3 | Chromium | T | mg/L | 6020 | 0.00362 | J | <0.01 | | * | | <0.01 | |
| 7440-48-4 | Cobalt | T | mg/L | 6020 | <0.001 | | <0.001 | | * | | <0.001 | |
| 7440-50-8 | Copper | T | mg/L | 6020 | 0.000446 | J | 0.00043 | J | * | | 0.00251 | |
| 7439-89-6 | Iron | T | mg/L | 6020 | 0.171 | | 0.0964 | J | * | | 0.0878 | J |
| 7439-92-1 | Lead | T | mg/L | 6020 | <0.002 | | <0.002 | | * | | <0.002 | |
| 7439-95-4 | Magnesium | T | mg/L | 6020 | 12.4 | | 10.9 | | * | | 12.3 | |
| 7439-96-5 | Manganese | T | mg/L | 6020 | 0.0933 | | 0.00156 | J | * | | <0.005 | |
| 7439-97-6 | Mercury | T | mg/L | 7470 | <0.0002 | | <0.0002 | | * | | <0.0002 | |

C-22

RESIDENTIAL/INERT-QUARTERLY

Facility: US DOE - Paducah Gaseous Diffusion Plant

FINDS/UNIT: KY8-890-008-982 / 1

Permit Number: SW07300014, SW07300015, SW07300045

LAB ID: None

For Official Use Only

GROUNDWATER SAMPLE ANALYSIS - (Cont.)

| AKGWA NUMBER ¹ , Facility Well/Spring Number | | | | | 8004-4815 | 8004-4816 | 8004-4812 | 8004-4811 | | | |
|---|--------------------|-------------|-----------------------|--------|---|-----------------------|---|-----------------------|---|-----------------------|---|
| Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.) | | | | | 387 | 388 | 389 | 390 | | | |
| 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 | |
| 7439-98-7 | Molybdenum | T | mg/L | 6020 | <0.001 | | <0.001 | | * | 0.000498 | J |
| 7440-02-0 | Nickel | T | mg/L | 6020 | 0.000689 | J | 0.0011 | J | * | 0.0015 | J |
| 7440-09-7 | Potassium | T | mg/L | 6020 | 1.17 | | 1.79 | | * | 0.315 | |
| 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 | | * | <0.005 | |
| 7440-22-4 | Silver | T | mg/L | 6020 | <0.001 | | <0.001 | | * | <0.001 | |
| 7440-23-5 | Sodium | T | mg/L | 6020 | 58.6 | | 45.5 | | * | 100 | |
| 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 | | * | 0.000213 | |
| 7440-62-2 | Vanadium | T | mg/L | 6020 | 0.00514 | J | 0.00567 | J | * | <0.02 | |
| 7440-66-6 | Zinc | T | mg/L | 6020 | <0.02 | | <0.02 | | * | 0.00393 | J |
| 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 | * |

C-23

RESIDENTIAL/INERT-QUARTERLY

Facility: US DOE - Paducah Gaseous Diffusion Plant

FINDS/UNIT: KY8-890-008-982 / 1

Permit Number: SW07300014, SW07300015, SW07300045

LAB ID: None

For Official Use Only

GROUNDWATER SAMPLE ANALYSIS - (Cont.)

| AKGWA NUMBER ¹ , Facility Well/Spring Number | | | | | 8004-4815 | | 8004-4816 | | 8004-4812 | | 8004-4811 | |
|---|-----------------------------|-------------|-----------------------|--------|---|-----------------------|---|-----------------------|---|-----------------------|---|-----------------------|
| Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.) | | | | | 387 | | 388 | | 389 | | 390 | |
| CAS RN ⁴ | CONSTITUENT | T D 5 | Unit OF MEASURE | METHOD | 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 | 0.00062 | J | 0.00047 | J | | * | <0.001 | |

C-24

RESIDENTIAL/INERT-QUARTERLY

Facility: US DOE - Paducah Gaseous Diffusion Plant

FINDS/UNIT: KY8-890-008-982 / 1

Permit Number: SW07300014, SW07300015, SW07300045

LAB ID: None

For Official Use Only

GROUNDWATER SAMPLE ANALYSIS - (Cont.)

| AKGWA NUMBER ¹ , Facility Well/Spring Number | | | | | 8004-4815 | 8004-4816 | 8004-4812 | 8004-4811 | | | | |
|---|-------------------------------|-------------|-----------------------|--------|---|-----------------------|---|-----------------------|---|-----------------------|---|-----------------------|
| Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.) | | | | | 387 | 388 | 389 | 390 | | | | |
| CAS RN ⁴ | CONSTITUENT | T D 5 | Unit OF MEASURE | METHOD | 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 | | <0.005 | | * | <0.005 | | |
| 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 | <0.0000197 | | <0.0000193 | | * | <0.0000194 | | |
| 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 | | * | | * | * | | * | |
| 12674-11-2 | PCB-1016 | T | ug/L | 8082 | | * | | * | * | | * | |
| 11104-28-2 | PCB-1221 | T | ug/L | 8082 | | * | | * | * | | * | |
| 11141-16-5 | PCB-1232 | T | ug/L | 8082 | | * | | * | * | | * | |
| 53469-21-9 | PCB-1242 | T | ug/L | 8082 | | * | | * | * | | * | |
| 12672-29-6 | PCB-1248 | T | ug/L | 8082 | | * | | * | * | | * | |

C-25

RESIDENTIAL/INERT-QUARTERLY

Facility: US DOE - Paducah Gaseous Diffusion Plant

FINDS/UNIT: KY8-890-008-982 / 1

Permit Number: SW07300014, SW07300015, SW07300045

LAB ID: None

For Official Use Only

GROUNDWATER SAMPLE ANALYSIS - (Cont.)

| AKGWA NUMBER ¹ , Facility Well/Spring Number | | | | | 8004-4815 | 8004-4816 | 8004-4812 | 8004-4811 | | | | |
|---|------------------------|-------------|-----------------------|----------|---|-----------------------|---|-----------------------|---|-----------------------|---|-----------------------|
| Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.) | | | | | 387 | 388 | 389 | 390 | | | | |
| CAS RN ⁴ | CONSTITUENT | T D 5 | Unit OF MEASURE | METHOD | DETECTED VALUE OR PQL ⁶ | F L A G S |
| 11097-69-1 | PCB-1254 | T | ug/L | 8082 | | * | | * | | * | | * |
| 11096-82-5 | PCB-1260 | T | ug/L | 8082 | | * | | * | | * | | * |
| 11100-14-4 | PCB-1268 | T | ug/L | 8082 | | * | | * | | * | | * |
| 12587-46-1 | Gross Alpha | T | pCi/L | 9310 | 3.6 | * | 4.95 | * | | * | 1.82 | * |
| 12587-47-2 | Gross Beta | T | pCi/L | 9310 | 135 | * | 76.7 | * | | * | 47.6 | * |
| 10043-66-0 | Iodine-131 | T | pCi/L | | | * | | * | | * | | * |
| 13982-63-3 | Radium-226 | T | pCi/L | AN-1418 | 0.575 | * | 0.669 | * | | * | -0.0845 | * |
| 10098-97-2 | Strontium-90 | T | pCi/L | 905.0 | 0.545 | * | 1.43 | * | | * | 0.508 | * |
| 14133-76-7 | Technetium-99 | T | pCi/L | Tc-02-RC | 229 | * | 139 | * | | * | 63.1 | * |
| 14269-63-7 | Thorium-230 | T | pCi/L | Th-01-RC | 0.287 | * | 0.395 | * | | * | 0.357 | * |
| 10028-17-8 | Tritium | T | pCi/L | 906.0 | 30.1 | * | 11 | * | | * | -15 | * |
| S0130- - | Chemical Oxygen Demand | T | mg/L | 410.4 | <20 | | <20 | | | * | 35.1 | |
| 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 | 1.19 | J | 1.14 | J | | * | 2.46 | |
| S0586- - | Total Organic Halides | T | mg/L | 9020 | | * | | * | | * | | * |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |

C-26

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

RESIDENTIAL/INERT-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

GROUNDWATER SAMPLE ANALYSIS (S)

| AKGWA NUMBER ¹ , Facility Well/Spring Number | 8004-4805 | 8004-4806 | 8004-4807 | 8004-4802 | | | | | | | | |
|---|-----------------------------|-----------------|-----------------------|-----------------|---|------------------------------------|---|-----------------------|---|-----------------------|---|-----------------------|
| Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.) | 391 | 392 | 393 | 394 | | | | | | | | |
| 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) | 4/16/2019 07:36 | 4/16/2019 08:16 | 4/15/2019 10:33 | 4/22/2019 07:52 | | | | | | | | |
| Duplicate ("Y" or "N") ² | N | N | N | N | | | | | | | | |
| Split ("Y" or "N") ³ | N | N | N | N | | | | | | | | |
| Facility Sample ID Number (if applicable) | MW391SG3-19 | MW392SG3-19 | MW393SG3-19 | MW394SG3-19 | | | | | | | | |
| Laboratory Sample ID Number (if applicable) | 476611001 | 476611015 | 476561001 | 477227001 | | | | | | | | |
| Date of Analysis (Month/Day/Year) For <u>Volatile Organics</u> Analysis | 4/23/2019 | 4/22/2019 | 4/20/2019 | 4/29/2019 | | | | | | | | |
| Gradient with respect to Monitored Unit (UP, DOWN, SIDE, UNKNOWN) | DOWN | DOWN | DOWN | UP | | | | | | | | |
| 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 | 0.492 | | 0.597 | | 0.151 | J | 0.565 | |
| 16887-00-6 | Chloride(s) | T | mg/L | 9056 | 39.3 | * | 103 | * | 12.5 | * | 44.3 | |
| 16984-48-8 | Fluoride | T | mg/L | 9056 | 0.197 | | 0.258 | | 0.176 | | 0.107 | |
| S0595- - | Nitrate & Nitrite | T | mg/L | 9056 | 1.02 | | 0.48 | | 0.22 | | 1.41 | |
| 14808-79-8 | Sulfate | T | mg/L | 9056 | 57.5 | * | 14.5 | * | 21.1 | | 10.7 | |
| NS1894 | Barometric Pressure Reading | T | Inches/Hg | Field | 30.09 | | 30.1 | | 30.13 | | 30.12 | |
| S0145- - | Specific Conductance | T | µMHO/cm | Field | 439 | | 446 | | 473 | | 376 | |

C-27

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

¹AKGWA # is 0000-0000 for any type of blank.

²Respond "Y" if the sample was a duplicate of another sample in this report.

³Respond "Y" if the sample was split and analyzed by separate laboratories.

⁴Chemical 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.

⁷Flags are as designated, do not use any other type. Use "*", then describe on "Written Comments Page."

RESIDENTIAL/INERT-QUARTERLY

Facility: US DOE - Paducah Gaseous Diffusion Plant

FINDS/UNIT: KY8-890-008-982 / 1

Permit Number: SW07300014, SW07300015, SW07300045

LAB ID: None

For Official Use Only

GROUNDWATER SAMPLE ANALYSIS - (Cont.)

| AKGWA NUMBER ¹ , Facility Well/Spring Number | | | | | 8004-4805 | 8004-4806 | 8004-4807 | 8004-4802 | | | | |
|--|------------------------------|-------------|-----------------------|--------|---|-----------------------|---|-----------------------|---|-----------------------|---|-----------------------|
| Facility's Local Well or Spring Number (e.g., MW-1, MW-2, BLANK-F, etc.) | | | | | 391 | 392 | 393 | 394 | | | | |
| CAS RN ⁴ | CONSTITUENT | T D 5 | Unit OF MEASURE | METHOD | DETECTED VALUE OR PQL ⁶ | F L A G S |
| S0906 - - | Static Water Level Elevation | T | Ft. MSL | Field | 332.04 | | 331.9 | | 341.06 | | 332.2 | |
| N238 | Dissolved Oxygen | T | mg/L | Field | 4.58 | | 2.41 | | 2.76 | | 4.03 | |
| S0266- - | Total Dissolved Solids | T | mg/L | 160.1 | 289 | | 239 | | 281 | B | 216 | * |
| S0296- - | pH | T | Units | Field | 6.16 | | 6.24 | | 6.02 | | 6.14 | |
| NS215 | Eh | T | mV | Field | 469 | | 461 | | 305 | | 446 | |
| S0907 - - | Temperature | T | °C | Field | 15.28 | | 15.67 | | 14.61 | | 15.17 | |
| 7429-90-5 | Aluminum | T | mg/L | 6020 | <0.05 | | 0.0538 | | <0.05 | | <0.05 | |
| 7440-36-0 | Antimony | T | mg/L | 6020 | 0.0014 | J | 0.00123 | J | 0.00167 | J | 0.00126 | J |
| 7440-38-2 | Arsenic | T | mg/L | 6020 | 0.00253 | J | 0.00648 | | 0.00369 | J | <0.005 | |
| 7440-39-3 | Barium | T | mg/L | 6020 | 0.102 | | 0.199 | | 0.103 | | 0.242 | |
| 7440-41-7 | Beryllium | T | mg/L | 6020 | <0.0005 | | <0.0005 | | <0.0005 | | <0.0005 | |
| 7440-42-8 | Boron | T | mg/L | 6020 | 0.231 | | 0.0305 | | 0.0238 | | 0.0245 | |
| 7440-43-9 | Cadmium | T | mg/L | 6020 | <0.001 | | <0.001 | | <0.001 | | <0.001 | |
| 7440-70-2 | Calcium | T | mg/L | 6020 | 32 | | 28.4 | | 13.9 | | 24.7 | |
| 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 | | 0.000361 | J | <0.001 | | <0.001 | |
| 7440-50-8 | Copper | T | mg/L | 6020 | 0.000335 | J | 0.00138 | J | 0.000919 | J | 0.000541 | J |
| 7439-89-6 | Iron | T | mg/L | 6020 | 0.0526 | J | 0.67 | | 0.479 | | 0.107 | |
| 7439-92-1 | Lead | T | mg/L | 6020 | <0.002 | | <0.002 | | <0.002 | | <0.002 | |
| 7439-95-4 | Magnesium | T | mg/L | 6020 | 13.9 | | 11 | | 4.17 | | 11 | * |
| 7439-96-5 | Manganese | T | mg/L | 6020 | 0.00198 | J | 0.135 | | 0.00768 | | 0.00474 | J |
| 7439-97-6 | Mercury | T | mg/L | 7470 | <0.0002 | | <0.0002 | | <0.0002 | | <0.0002 | |

C-28

RESIDENTIAL/INERT-QUARTERLY

Facility: US DOE - Paducah Gaseous Diffusion Plant

FINDS/UNIT: KY8-890-008-982 / 1

Permit Number: SW07300014, SW07300015, SW07300045

LAB ID: None

For Official Use Only

GROUNDWATER SAMPLE ANALYSIS - (Cont.)

| AKGWA NUMBER ¹ , Facility Well/Spring Number | | | | | 8004-4805 | 8004-4806 | 8004-4807 | 8004-4802 | | | | |
|---|--------------------|-------------|-----------------------|--------|---|-----------------------|---|-----------------------|---|-----------------------|---|-----------------------|
| Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.) | | | | | 391 | 392 | 393 | 394 | | | | |
| CAS RN ⁴ | CONSTITUENT | T D 5 | Unit OF MEASURE | METHOD | DETECTED VALUE OR PQL ⁶ | F L A G S |
| 7439-98-7 | Molybdenum | T | mg/L | 6020 | <0.001 | | <0.001 | | <0.001 | | <0.001 | |
| 7440-02-0 | Nickel | T | mg/L | 6020 | <0.002 | | 0.00161 | J | <0.002 | | 0.00424 | |
| 7440-09-7 | Potassium | T | mg/L | 6020 | 1.61 | | 1.77 | | 0.476 | | 1.34 | |
| 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 | 39.7 | | 42.3 | | 83.1 | | 30.8 | * |
| 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 | | 0.000084 | J | <0.0002 | |
| 7440-62-2 | Vanadium | T | mg/L | 6020 | 0.00407 | BJ | 0.0139 | BJ | 0.0152 | BJ | <0.02 | |
| 7440-66-6 | Zinc | T | mg/L | 6020 | <0.02 | | 0.00352 | J | <0.02 | | 0.00354 | 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 | |

C-29

RESIDENTIAL/INERT-QUARTERLY

Facility: US DOE - Paducah Gaseous Diffusion Plant

FINDS/UNIT: KY8-890-008-982 / 1

Permit Number: SW07300014, SW07300015, SW07300045

LAB ID: None

For Official Use Only

GROUNDWATER SAMPLE ANALYSIS - (Cont.)

| AKGWA NUMBER ¹ , Facility Well/Spring Number | | | | | 8004-4805 | | 8004-4806 | | 8004-4807 | | 8004-4802 | |
|---|-----------------------------|-------------|-----------------------|--------|---|-----------------------|---|-----------------------|---|-----------------------|---|-----------------------|
| Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.) | | | | | 391 | | 392 | | 393 | | 394 | |
| CAS RN ⁴ | CONSTITUENT | T D 5 | Unit OF MEASURE | METHOD | 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 | 0.00285 | J | <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 | | 0.00131 | | <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 | 0.00688 | | 0.0112 | | <0.001 | | 0.00381 | |

C-30

RESIDENTIAL/INERT-QUARTERLY

Facility: US DOE - Paducah Gaseous Diffusion Plant

FINDS/UNIT: KY8-890-008-982 / 1

Permit Number: SW07300014, SW07300015, SW07300045

LAB ID: None

For Official Use Only

GROUNDWATER SAMPLE ANALYSIS - (Cont.)

| AKGWA NUMBER ¹ , Facility Well/Spring Number | | | | | 8004-4805 | | 8004-4806 | | 8004-4807 | | 8004-4802 | |
|---|-------------------------------|-------------|-----------------------|--------|---|-----------------------|---|-----------------------|---|-----------------------|---|-----------------------|
| Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.) | | | | | 391 | | 392 | | 393 | | 394 | |
| CAS RN ⁴ | CONSTITUENT | T D 5 | Unit OF MEASURE | METHOD | 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 | 0.00233 | BJ | 0.00262 | J | <0.005 | | <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 | <0.0000195 | | <0.0000193 | | <0.0000196 | | <0.0000196 | |
| 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 | | * | | * | | * | | * |
| 12674-11-2 | PCB-1016 | T | ug/L | 8082 | | * | | * | | * | | * |
| 11104-28-2 | PCB-1221 | T | ug/L | 8082 | | * | | * | | * | | * |
| 11141-16-5 | PCB-1232 | T | ug/L | 8082 | | * | | * | | * | | * |
| 53469-21-9 | PCB-1242 | T | ug/L | 8082 | | * | | * | | * | | * |
| 12672-29-6 | PCB-1248 | T | ug/L | 8082 | | * | | * | | * | | * |

C-31

RESIDENTIAL/INERT-QUARTERLY

Facility: US DOE - Paducah Gaseous Diffusion Plant

FINDS/UNIT: KY8-890-008-982 / 1

Permit Number: SW07300014, SW07300015, SW07300045

LAB ID: None

For Official Use Only

GROUNDWATER SAMPLE ANALYSIS - (Cont.)

| AKGWA NUMBER ¹ , Facility Well/Spring Number | | | | | 8004-4805 | 8004-4806 | 8004-4807 | 8004-4802 | | | | |
|---|------------------------|-------------|-----------------------|----------|---|-----------------------|---|-----------------------|---|-----------------------|---|-----------------------|
| Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.) | | | | | 391 | 392 | 393 | 394 | | | | |
| CAS RN ⁴ | CONSTITUENT | T D 5 | Unit OF MEASURE | METHOD | DETECTED VALUE OR PQL ⁶ | F L A G S |
| 11097-69-1 | PCB-1254 | T | ug/L | 8082 | | * | | * | | * | | * |
| 11096-82-5 | PCB-1260 | T | ug/L | 8082 | | * | | * | | * | | * |
| 11100-14-4 | PCB-1268 | T | ug/L | 8082 | | * | | * | | * | | * |
| 12587-46-1 | Gross Alpha | T | pCi/L | 9310 | -3.42 | * | -4.36 | * | 2.25 | * | -0.227 | * |
| 12587-47-2 | Gross Beta | T | pCi/L | 9310 | 15.3 | * | -4.1 | * | 1.83 | * | 2.82 | * |
| 10043-66-0 | Iodine-131 | T | pCi/L | | | * | | * | | * | | * |
| 13982-63-3 | Radium-226 | T | pCi/L | AN-1418 | 0.268 | * | 0.081 | * | 0.329 | * | 0.347 | * |
| 10098-97-2 | Strontium-90 | T | pCi/L | 905.0 | 1.82 | * | -1.26 | * | -1.26 | * | 1.51 | * |
| 14133-76-7 | Technetium-99 | T | pCi/L | Tc-02-RC | 12.5 | * | 2.84 | * | 4.03 | * | 2.55 | * |
| 14269-63-7 | Thorium-230 | T | pCi/L | Th-01-RC | 0.125 | * | -0.453 | * | -0.175 | * | -0.0679 | * |
| 10028-17-8 | Tritium | T | pCi/L | 906.0 | -25.4 | * | 30.7 | * | -57.8 | * | -48.7 | * |
| S0130- - | Chemical Oxygen Demand | T | mg/L | 410.4 | 44.5 | | <20 | | <20 | | 20.3 | |
| 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 | 0.888 | J | 1.15 | J | 2.51 | | 0.935 | J |
| S0586- - | Total Organic Halides | T | mg/L | 9020 | | * | | * | | * | | * |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |

C-32

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

GROUNDWATER SAMPLE ANALYSIS (S)

| AKGWA NUMBER ¹ , Facility Well/Spring Number | 8004-4801 | 8004-4803 | 8004-4817 | 0000-0000 | | | | | | | | |
|---|-----------------------------|--------------------------|-----------------------|-----------------|---|------------------------------------|---|-----------------------|---|-----------------------|---|-----------------------|
| Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.) | 395 | 396 | 397 | E. BLANK | | | | | | | | |
| 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 | E | | | | | | | | |
| Sample Date and Time (Month/Day/Year hour: minutes) | 4/22/2019 08:31 | 4/22/2019 09:09 | 4/16/2019 13:23 | 4/15/2019 09:50 | | | | | | | | |
| Duplicate ("Y" or "N") ² | N | N | N | N | | | | | | | | |
| Split ("Y" or "N") ³ | N | N | N | N | | | | | | | | |
| Facility Sample ID Number (if applicable) | MW395SG3-19 | MW396SG3-19 | MW397SG3-19 | R11SG3-19 | | | | | | | | |
| Laboratory Sample ID Number (if applicable) | 477227003 | 477227005 | 476611017 | 476561003 | | | | | | | | |
| Date of Analysis (Month/Day/Year) For <u>Volatile Organics</u> Analysis | 4/29/2019 | 4/29/2019 | 4/22/2019 | 4/20/2019 | | | | | | | | |
| Gradient with respect to Monitored Unit (UP, DOWN, SIDE, UNKNOWN) | UP | UP | UP | NA | | | | | | | | |
| CAS RN ⁴ | CONSTITUENT | T D S 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 | 0.533 | | 0.901 | | 0.397 | | | * |
| 16887-00-6 | Chloride(s) | T | mg/L | 9056 | 43.5 | | 54.7 | | 34.5 | * | | * |
| 16984-48-8 | Fluoride | T | mg/L | 9056 | 0.102 | | 0.602 | | 0.188 | | | * |
| S0595- - | Nitrate & Nitrite | T | mg/L | 9056 | 1.44 | | 0.109 | | 1.26 | | | * |
| 14808-79-8 | Sulfate | T | mg/L | 9056 | 10.5 | | 25.5 | | 10 | * | | * |
| NS1894 | Barometric Pressure Reading | T | Inches/Hg | Field | 30.13 | | 30.14 | | 30.08 | | | * |
| S0145- - | Specific Conductance | T | µMH0/cm | Field | 355 | | 710 | | 325 | | | * |

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

¹AKGWA # is 0000-0000 for any type of blank.

²Respond "Y" if the sample was a duplicate of another sample in this report.

³Respond "Y" if the sample was split and analyzed by separate laboratories.

⁴Chemical 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.

⁷Flags are as designated, do not use any other type. Use "*", then describe on "Written Comments Page."

RESIDENTIAL/INERT-QUARTERLY

Facility: US DOE - Paducah Gaseous Diffusion Plant

FINDS/UNIT: KY8-890-008-982 / 1

Permit Number: SW07300014, SW07300015, SW07300045

LAB ID: None

For Official Use Only

GROUNDWATER SAMPLE ANALYSIS - (Cont.)

| AKGWA NUMBER ¹ , Facility Well/Spring Number | | | | | 8004-4801 | 8004-4803 | 8004-4817 | 0000-0000 | | | | |
|--|------------------------------|-------------|-----------------------|--------|---|-----------------------|---|-----------------------|---|-----------------------|---|-----------------------|
| Facility's Local Well or Spring Number (e.g., MW-1, MW-2, BLANK-F, etc.) | | | | | 395 | 396 | 397 | E. BLANK | | | | |
| CAS RN ⁴ | CONSTITUENT | T D 5 | Unit OF MEASURE | METHOD | DETECTED VALUE OR PQL ⁶ | F L A G S |
| S0906 - - | Static Water Level Elevation | T | Ft. MSL | Field | 332.57 | | 374.11 | | 332.21 | | | * |
| N238 | Dissolved Oxygen | T | mg/L | Field | 4.41 | | 3.52 | | 5.28 | | | * |
| S0266- - | Total Dissolved Solids | T | mg/L | 160.1 | 173 | * | 393 | * | 229 | | | * |
| S0296- - | pH | T | Units | Field | 6.16 | | 6.6 | | 6.19 | | | * |
| NS215 | Eh | T | mV | Field | 464 | | 431 | | 505 | | | * |
| S0907 - - | Temperature | T | °C | Field | 15.72 | | 15.5 | | 17.56 | | | * |
| 7429-90-5 | Aluminum | T | mg/L | 6020 | 0.0296 | J | 0.0486 | J | 0.143 | | <0.05 | |
| 7440-36-0 | Antimony | T | mg/L | 6020 | 0.0013 | J | 0.00126 | J | 0.00123 | J | 0.00144 | J |
| 7440-38-2 | Arsenic | T | mg/L | 6020 | <0.005 | | <0.005 | | 0.00579 | | <0.005 | |
| 7440-39-3 | Barium | T | mg/L | 6020 | 0.239 | | 0.359 | | 0.134 | | <0.004 | |
| 7440-41-7 | Beryllium | T | mg/L | 6020 | <0.0005 | | <0.0005 | | <0.0005 | | <0.0005 | |
| 7440-42-8 | Boron | T | mg/L | 6020 | 0.0245 | | 0.00738 | J | 0.00975 | J | <0.015 | |
| 7440-43-9 | Cadmium | T | mg/L | 6020 | <0.001 | | <0.001 | | <0.001 | | <0.001 | |
| 7440-70-2 | Calcium | T | mg/L | 6020 | 25.4 | | 31.8 | | 16.9 | | <0.2 | |
| 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 | | 0.000348 | J | <0.001 | | <0.001 | |
| 7440-50-8 | Copper | T | mg/L | 6020 | 0.000551 | J | 0.00168 | J | 0.000691 | J | <0.002 | |
| 7439-89-6 | Iron | T | mg/L | 6020 | 0.108 | | 0.326 | | 0.448 | | <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 | 11.1 | * | 14.7 | * | 7.65 | | <0.03 | |
| 7439-96-5 | Manganese | T | mg/L | 6020 | 0.00283 | J | 0.0305 | | 0.0078 | | <0.005 | |
| 7439-97-6 | Mercury | T | mg/L | 7470 | <0.0002 | | <0.0002 | | <0.0002 | | <0.0002 | |

C-34

RESIDENTIAL/INERT-QUARTERLY

Facility: US DOE - Paducah Gaseous Diffusion Plant

FINDS/UNIT: KY8-890-008-982 / 1

Permit Number: SW07300014, SW07300015, SW07300045

LAB ID: None

For Official Use Only

GROUNDWATER SAMPLE ANALYSIS - (Cont.)

| AKGWA NUMBER ¹ , Facility Well/Spring Number | | | | | 8004-4801 | 8004-4803 | 8004-4817 | 0000-0000 | | | | |
|---|--------------------|-------------|-----------------------|--------|---|-----------------------|---|-----------------------|---|-----------------------|---|-----------------------|
| Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.) | | | | | 395 | 396 | 397 | E. BLANK | | | | |
| CAS RN ⁴ | CONSTITUENT | T D 5 | Unit OF MEASURE | METHOD | DETECTED VALUE OR PQL ⁶ | F L A G S |
| 7439-98-7 | Molybdenum | T | mg/L | 6020 | <0.001 | | 0.000266 | J | <0.001 | | <0.001 | |
| 7440-02-0 | Nickel | T | mg/L | 6020 | 0.000866 | J | 0.000641 | J | 0.00102 | J | <0.002 | |
| 7440-09-7 | Potassium | T | mg/L | 6020 | 1.53 | | 0.857 | | 1.57 | | <0.3 | |
| 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 | 30.6 | * | 98.1 | * | 36.2 | | <0.25 | |
| 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 | | 0.000069 | J | <0.0002 | | <0.0002 | |
| 7440-62-2 | Vanadium | T | mg/L | 6020 | <0.02 | | <0.02 | | 0.0135 | BJ | 0.0192 | BJ |
| 7440-66-6 | Zinc | T | mg/L | 6020 | 0.00334 | J | 0.00438 | J | 0.00386 | 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 | |

C-35

RESIDENTIAL/INERT-QUARTERLY

Facility: US DOE - Paducah Gaseous Diffusion Plant

FINDS/UNIT: KY8-890-008-982 / 1

Permit Number: SW07300014, SW07300015, SW07300045

LAB ID: None

For Official Use Only

GROUNDWATER SAMPLE ANALYSIS - (Cont.)

| AKGWA NUMBER ¹ , Facility Well/Spring Number | | | | | 8004-4801 | | 8004-4803 | | 8004-4817 | | 0000-0000 | |
|---|-----------------------------|-------------|-----------------------|--------|---|-----------------------|---|-----------------------|---|-----------------------|---|-----------------------|
| Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.) | | | | | 395 | | 396 | | 397 | | E. BLANK | |
| CAS RN ⁴ | CONSTITUENT | T D 5 | Unit OF MEASURE | METHOD | 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 | 0.00298 | | <0.001 | | <0.001 | | <0.001 | |

C-36

RESIDENTIAL/INERT-QUARTERLY

Facility: US DOE - Paducah Gaseous Diffusion Plant

FINDS/UNIT: KY8-890-008-982 / 1

Permit Number: SW07300014, SW07300015, SW07300045

LAB ID: None

For Official Use Only

GROUNDWATER SAMPLE ANALYSIS - (Cont.)

| AKGWA NUMBER ¹ , Facility Well/Spring Number | | | | | 8004-4801 | 8004-4803 | 8004-4817 | 0000-0000 | | | | |
|---|-------------------------------|-------------|-----------------------|--------|---|-----------------------|---|-----------------------|---|-----------------------|---|-----------------------|
| Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.) | | | | | 395 | 396 | 397 | E. BLANK | | | | |
| CAS RN ⁴ | CONSTITUENT | T D 5 | Unit OF MEASURE | METHOD | 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 | <0.005 | | <0.005 | | 0.00232 | 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 | <0.0000198 | | <0.0000194 | | <0.0000196 | | <0.0000194 | |
| 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 | | * | | * | | * | | * |
| 12674-11-2 | PCB-1016 | T | ug/L | 8082 | | * | | * | | * | | * |
| 11104-28-2 | PCB-1221 | T | ug/L | 8082 | | * | | * | | * | | * |
| 11141-16-5 | PCB-1232 | T | ug/L | 8082 | | * | | * | | * | | * |
| 53469-21-9 | PCB-1242 | T | ug/L | 8082 | | * | | * | | * | | * |
| 12672-29-6 | PCB-1248 | T | ug/L | 8082 | | * | | * | | * | | * |

C-37

RESIDENTIAL/INERT-QUARTERLY

Facility: US DOE - Paducah Gaseous Diffusion Plant

FINDS/UNIT: KY8-890-008-982 / 1

Permit Number: SW07300014, SW07300015, SW07300045

LAB ID: None

For Official Use Only

GROUNDWATER SAMPLE ANALYSIS - (Cont.)

| AKGWA NUMBER ¹ , Facility Well/Spring Number | | | | | 8004-4801 | 8004-4803 | 8004-4817 | 0000-0000 | | | | |
|---|------------------------|-------------|-----------------------|----------|---|-----------------------|---|-----------------------|---|-----------------------|---|-----------------------|
| Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.) | | | | | 395 | 396 | 397 | E. BLANK | | | | |
| CAS RN ⁴ | CONSTITUENT | T D 5 | Unit OF MEASURE | METHOD | DETECTED VALUE OR PQL ⁶ | F L A G S |
| 11097-69-1 | PCB-1254 | T | ug/L | 8082 | | * | | * | | * | | * |
| 11096-82-5 | PCB-1260 | T | ug/L | 8082 | | * | | * | | * | | * |
| 11100-14-4 | PCB-1268 | T | ug/L | 8082 | | * | | * | | * | | * |
| 12587-46-1 | Gross Alpha | T | pCi/L | 9310 | 3.71 | * | 10.6 | * | 5.93 | * | 3.09 | * |
| 12587-47-2 | Gross Beta | T | pCi/L | 9310 | 3.8 | * | -3.26 | * | 7.45 | * | 6.56 | * |
| 10043-66-0 | Iodine-131 | T | pCi/L | | | * | | * | | * | | * |
| 13982-63-3 | Radium-226 | T | pCi/L | AN-1418 | 0.449 | * | 0.162 | * | 0.457 | * | 0.145 | * |
| 10098-97-2 | Strontium-90 | T | pCi/L | 905.0 | 0.0257 | * | -0.695 | * | 1.34 | * | -0.871 | * |
| 14133-76-7 | Technetium-99 | T | pCi/L | Tc-02-RC | 11.2 | * | 5.89 | * | 32.1 | * | -1.33 | * |
| 14269-63-7 | Thorium-230 | T | pCi/L | Th-01-RC | -0.876 | * | 0.849 | * | -0.0319 | * | -0.00618 | * |
| 10028-17-8 | Tritium | T | pCi/L | 906.0 | -92.2 | * | 17.9 | * | 39.1 | * | 53.2 | * |
| S0130- - | Chemical Oxygen Demand | T | mg/L | 410.4 | 26.2 | | 43.8 | | <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 | | <0.5 | | <0.5 | | <0.5 | |
| S0268- - | Total Organic Carbon | T | mg/L | 9060 | 0.904 | J | 4.53 | | 0.784 | J | | * |
| S0586- - | Total Organic Halides | T | mg/L | 9020 | | * | | * | | * | | * |
| | | | | | | | | | | | | |
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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
For Official Use Only

GROUNDWATER SAMPLE ANALYSIS (S)

| AKGWA NUMBER ¹ , Facility Well/Spring Number | 0000-0000 | 0000-0000 | 0000-0000 | 0000-0000 | | | | | | | | |
|---|-----------------------------|-----------------|-----------------------|-----------------|---|------------------------------------|---|-----------------------|---|-----------------------|---|-----------------------|
| Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.) | F. BLANK | T. BLANK 1 | T. BLANK 2 | T. BLANK 3 | | | | | | | | |
| Sample Sequence # | 1 | 1 | 1 | 1 | | | | | | | | |
| If sample is a Blank, specify Type: (F)ield, (T)rip, (M)ethod, or (E)quipment | F | T | T | T | | | | | | | | |
| Sample Date and Time (Month/Day/Year hour: minutes) | 4/16/2019 07:40 | 4/15/2019 09:45 | 4/16/2019 05:30 | 4/17/2019 05:40 | | | | | | | | |
| Duplicate ("Y" or "N") ² | N | N | N | N | | | | | | | | |
| Split ("Y" or "N") ³ | N | N | N | N | | | | | | | | |
| Facility Sample ID Number (if applicable) | FB1SG3-19 | TB1SG3-19 | TB2SG3-19 | TB3SG3-19 | | | | | | | | |
| Laboratory Sample ID Number (if applicable) | 476611019 | 476561004 | 476611020 | 476794013 | | | | | | | | |
| Date of Analysis (Month/Day/Year) For <u>Volatile Organics</u> Analysis | 4/22/2019 | 4/20/2019 | 4/22/2019 | 4/24/2019 | | | | | | | | |
| Gradient with respect to Monitored Unit (UP, DOWN, SIDE, UNKNOWN) | NA | NA | NA | NA | | | | | | | | |
| 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 | | * | | * | | * | | * |
| 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 | µMH0/cm | Field | | * | | * | | * | | * |

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

¹AKGWA # is 0000-0000 for any type of blank.

²Respond "Y" if the sample was a duplicate of another sample in this report.

³Respond "Y" if the sample was split and analyzed by separate laboratories.

⁴Chemical 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.

⁷Flags are as designated, do not use any other type. Use "*", then describe on "Written Comments Page."

RESIDENTIAL/INERT-QUARTERLY

Facility: US DOE - Paducah Gaseous Diffusion Plant

FINDS/UNIT: KY8-890-008-982 / 1

Permit Number: SW07300014, SW07300015, SW07300045

LAB ID: None

For Official Use Only

GROUNDWATER SAMPLE ANALYSIS - (Cont.)

| AKGWA NUMBER ¹ , Facility Well/Spring Number | | | | | 0000-0000 | | 0000-0000 | | 0000-0000 | | 0000-0000 | |
|--|------------------------------|-------------|-----------------------|--------|---|-----------------------|---|-----------------------|---|-----------------------|---|-----------------------|
| Facility's Local Well or Spring Number (e.g., MW-1, MW-2, BLANK-F, etc.) | | | | | F. BLANK | | T. BLANK 1 | | T. BLANK 2 | | T. BLANK 3 | |
| CAS RN ⁴ | CONSTITUENT | T D 5 | Unit OF MEASURE | METHOD | DETECTED VALUE OR PQL ⁶ | F L A G S |
| 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 | | | * | | * | | * |
| 7440-36-0 | Antimony | T | mg/L | 6020 | 0.00116 | J | | * | | * | | * |
| 7440-38-2 | Arsenic | T | mg/L | 6020 | 0.00486 | J | | * | | * | | * |
| 7440-39-3 | Barium | T | mg/L | 6020 | <0.004 | | | * | | * | | * |
| 7440-41-7 | Beryllium | T | mg/L | 6020 | <0.0005 | | | * | | * | | * |
| 7440-42-8 | Boron | T | mg/L | 6020 | <0.015 | | | * | | * | | * |
| 7440-43-9 | Cadmium | T | mg/L | 6020 | <0.001 | | | * | | * | | * |
| 7440-70-2 | Calcium | T | mg/L | 6020 | <0.2 | | | * | | * | | * |
| 7440-47-3 | Chromium | T | mg/L | 6020 | <0.01 | | | * | | * | | * |
| 7440-48-4 | Cobalt | T | mg/L | 6020 | <0.001 | | | * | | * | | * |
| 7440-50-8 | Copper | T | mg/L | 6020 | <0.002 | | | * | | * | | * |
| 7439-89-6 | Iron | T | mg/L | 6020 | <0.1 | | | * | | * | | * |
| 7439-92-1 | Lead | T | mg/L | 6020 | <0.002 | | | * | | * | | * |
| 7439-95-4 | Magnesium | T | mg/L | 6020 | <0.03 | | | * | | * | | * |
| 7439-96-5 | Manganese | T | mg/L | 6020 | <0.005 | | | * | | * | | * |
| 7439-97-6 | Mercury | T | mg/L | 7470 | <0.0002 | | | * | | * | | * |

C-40

RESIDENTIAL/INERT-QUARTERLY

Facility: US DOE - Paducah Gaseous Diffusion Plant

FINDS/UNIT: KY8-890-008-982 / 1

Permit Number: SW07300014, SW07300015, SW07300045

LAB ID: None

For Official Use Only

GROUNDWATER SAMPLE ANALYSIS - (Cont.)

| AKGWA NUMBER ¹ , Facility Well/Spring Number | | | | | 0000-0000 | 0000-0000 | 0000-0000 | 0000-0000 | | | | |
|---|--------------------|-------------|-----------------------|--------|---|-----------------------|---|-----------------------|---|-----------------------|---|-----------------------|
| Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.) | | | | | F. BLANK | T. BLANK 1 | T. BLANK 2 | T. BLANK 3 | | | | |
| CAS RN ⁴ | CONSTITUENT | T D 5 | Unit OF MEASURE | METHOD | 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 | <0.002 | | | * | | * | | * |
| 7440-09-7 | Potassium | T | mg/L | 6020 | <0.3 | | | * | | * | | * |
| 7440-16-6 | Rhodium | T | mg/L | 6020 | <0.005 | | | * | | * | | * |
| 7782-49-2 | Selenium | T | mg/L | 6020 | <0.005 | | | * | | * | | * |
| 7440-22-4 | Silver | T | mg/L | 6020 | <0.001 | | | * | | * | | * |
| 7440-23-5 | Sodium | T | mg/L | 6020 | <0.25 | | | * | | * | | * |
| 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 | 0.013 | BJ | | * | | * | | * |
| 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 | | <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 | * |

C-41

RESIDENTIAL/INERT-QUARTERLY

Facility: US DOE - Paducah Gaseous Diffusion Plant

FINDS/UNIT: KY8-890-008-982 / 1

Permit Number: SW07300014, SW07300015, SW07300045

LAB ID: None

For Official Use Only

GROUNDWATER SAMPLE ANALYSIS - (Cont.)

| AKGWA NUMBER ¹ , Facility Well/Spring Number | | | | | 0000-0000 | | 0000-0000 | | 0000-0000 | | 0000-0000 | |
|---|-----------------------------|-------------|-----------------------|--------|---|-----------------------|---|-----------------------|---|-----------------------|---|-----------------------|
| Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.) | | | | | F. BLANK | | T. BLANK 1 | | T. BLANK 2 | | T. BLANK 3 | |
| CAS RN ⁴ | CONSTITUENT | T D 5 | Unit OF MEASURE | METHOD | 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 | <0.001 | | <0.001 | | <0.001 | | <0.001 | |

C-42

RESIDENTIAL/INERT-QUARTERLY

Facility: US DOE - Paducah Gaseous Diffusion Plant

FINDS/UNIT: KY8-890-008-982 / 1

Permit Number: SW07300014, SW07300015, SW07300045

LAB ID: None

For Official Use Only

GROUNDWATER SAMPLE ANALYSIS - (Cont.)

| AKGWA NUMBER ¹ , Facility Well/Spring Number | | | | | 0000-0000 | | 0000-0000 | | 0000-0000 | | 0000-0000 | |
|---|-------------------------------|-------------|-----------------------|--------|---|-----------------------|---|-----------------------|---|-----------------------|---|-----------------------|
| Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.) | | | | | F. BLANK | | T. BLANK 1 | | T. BLANK 2 | | T. BLANK 3 | |
| CAS RN ⁴ | CONSTITUENT | T D 5 | Unit OF MEASURE | METHOD | 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 | 0.00251 | J | <0.005 | | 0.00259 | 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 | <0.0000195 | | <0.0000193 | | <0.0000197 | | <0.0000197 | |
| 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 | | * | | * | | * | | * |
| 12674-11-2 | PCB-1016 | T | ug/L | 8082 | | * | | * | | * | | * |
| 11104-28-2 | PCB-1221 | T | ug/L | 8082 | | * | | * | | * | | * |
| 11141-16-5 | PCB-1232 | T | ug/L | 8082 | | * | | * | | * | | * |
| 53469-21-9 | PCB-1242 | T | ug/L | 8082 | | * | | * | | * | | * |
| 12672-29-6 | PCB-1248 | T | ug/L | 8082 | | * | | * | | * | | * |

C-43

RESIDENTIAL/INERT-QUARTERLY

Facility: US DOE - Paducah Gaseous Diffusion Plant

FINDS/UNIT: KY8-890-008-982 / 1

Permit Number: SW07300014, SW07300015, SW07300045

LAB ID: None

For Official Use Only

GROUNDWATER SAMPLE ANALYSIS - (Cont.)

| AKGWA NUMBER ¹ , Facility Well/Spring Number | | | | | 0000-0000 | 0000-0000 | 0000-0000 | 0000-0000 | | | | |
|---|------------------------|-------------|-----------------------|----------|---|-----------------------|---|-----------------------|---|-----------------------|---|-----------------------|
| Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.) | | | | | F. BLANK | T. BLANK 1 | T. BLANK 2 | T. BLANK 3 | | | | |
| CAS RN ⁴ | CONSTITUENT | T D 5 | Unit OF MEASURE | METHOD | DETECTED VALUE OR PQL ⁶ | F L A G S |
| 11097-69-1 | PCB-1254 | T | ug/L | 8082 | | * | | * | | * | | * |
| 11096-82-5 | PCB-1260 | T | ug/L | 8082 | | * | | * | | * | | * |
| 11100-14-4 | PCB-1268 | T | ug/L | 8082 | | * | | * | | * | | * |
| 12587-46-1 | Gross Alpha | T | pCi/L | 9310 | -0.213 | * | | * | | * | | * |
| 12587-47-2 | Gross Beta | T | pCi/L | 9310 | -0.00207 | * | | * | | * | | * |
| 10043-66-0 | Iodine-131 | T | pCi/L | | | * | | * | | * | | * |
| 13982-63-3 | Radium-226 | T | pCi/L | AN-1418 | 0.161 | * | | * | | * | | * |
| 10098-97-2 | Strontium-90 | T | pCi/L | 905.0 | 2.16 | * | | * | | * | | * |
| 14133-76-7 | Technetium-99 | T | pCi/L | Tc-02-RC | 5.01 | * | | * | | * | | * |
| 14269-63-7 | Thorium-230 | T | pCi/L | Th-01-RC | 0.27 | * | | * | | * | | * |
| 10028-17-8 | Tritium | T | pCi/L | 906.0 | -11.2 | * | | * | | * | | * |
| 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 | * | | * | | * | | * |
| S0268- - | Total Organic Carbon | T | mg/L | 9060 | | * | | * | | * | | * |
| S0586- - | Total Organic Halides | T | mg/L | 9020 | | * | | * | | * | | * |
| | | | | | | | | | | | | |
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C-44

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

RESIDENTIAL/INERT-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

GROUNDWATER SAMPLE ANALYSIS (S)

| AKGWA NUMBER ¹ , Facility Well/Spring Number | 0000-0000 | 8000-5202 | | | | | | | | | | |
|---|-----------------------------|--------------------------|-----------------------|--------|---|------------------------------------|---|-----------------------|---|-----------------------|---|-----------------------|
| Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.) | T. BLANK 4 | 221 | | | | | | | | | | |
| Sample Sequence # | 1 | 2 | | | | | | | | | | |
| If sample is a Blank, specify Type: (F)ield, (T)rip, (M)ethod, or (E)quipment | T | NA | | | | | | | | | | |
| Sample Date and Time (Month/Day/Year hour: minutes) | 4/22/2019 06:00 | 4/16/2019 08:56 | | | | | | | | | | |
| Duplicate ("Y" or "N") ² | N | Y | | | | | | | | | | |
| Split ("Y" or "N") ³ | N | N | | | | | | | | | | |
| Facility Sample ID Number (if applicable) | TB4SG3-19 | MW221DSG3-19 | | | | | | | | | | |
| Laboratory Sample ID Number (if applicable) | 477227007 | 476611005 | | | | | | | | | | |
| Date of Analysis (Month/Day/Year) For <u>Volatile Organics</u> Analysis | 4/29/2019 | 4/23/2019 | | | | | | | | | | |
| Gradient with respect to Monitored Unit (UP, DOWN, SIDE, UNKNOWN) | NA | SIDE | | | | | | | | | | |
| CAS RN ⁴ | CONSTITUENT | T D S 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 | | * | 0.427 | | | | | |
| 16887-00-6 | Chloride(s) | T | mg/L | 9056 | | * | 32.1 | * | | | | |
| 16984-48-8 | Fluoride | T | mg/L | 9056 | | * | 0.241 | | | | | |
| S0595- - | Nitrate & Nitrite | T | mg/L | 9056 | | * | 1.02 | | | | | |
| 14808-79-8 | Sulfate | T | mg/L | 9056 | | * | 15.5 | * | | | | |
| NS1894 | Barometric Pressure Reading | T | Inches/Hg | Field | | * | | * | | | | |
| S0145- - | Specific Conductance | T | µMH0/cm | Field | | * | | * | | | | |

C-45

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

¹AKGWA # is 0000-0000 for any type of blank.

²Respond "Y" if the sample was a duplicate of another sample in this report.

³Respond "Y" if the sample was split and analyzed by separate laboratories.

⁴Chemical 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.

⁷Flags are as designated, do not use any other type. Use "*", then describe on "Written Comments Page."

RESIDENTIAL/INERT-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

GROUNDWATER SAMPLE ANALYSIS - (Cont.)

| AKGWA NUMBER ¹ , Facility Well/Spring Number | | | | | 0000-0000 | 8000-5202 | | | | | | |
|--|------------------------------|-------------|-----------------------|--------|---|-----------------------|---|-----------------------|---|-----------------------|---|-----------------------|
| Facility's Local Well or Spring Number (e.g., MW-1, MW-2, BLANK-F, etc.) | | | | | T. BLANK 4 | 221 | | | | | | |
| CAS RN ⁴ | CONSTITUENT | T D 5 | Unit OF MEASURE | METHOD | DETECTED VALUE OR PQL ⁶ | F L A G S |
| 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 | | * | 266 | | | | | |
| 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 | | | | | |
| 7440-36-0 | Antimony | T | mg/L | 6020 | | * | 0.00126 | J | | | | |
| 7440-38-2 | Arsenic | T | mg/L | 6020 | | * | 0.00249 | J | | | | |
| 7440-39-3 | Barium | T | mg/L | 6020 | | * | 0.198 | | | | | |
| 7440-41-7 | Beryllium | T | mg/L | 6020 | | * | <0.0005 | | | | | |
| 7440-42-8 | Boron | T | mg/L | 6020 | | * | 0.0134 | J | | | | |
| 7440-43-9 | Cadmium | T | mg/L | 6020 | | * | <0.001 | | | | | |
| 7440-70-2 | Calcium | T | mg/L | 6020 | | * | 21.1 | | | | | |
| 7440-47-3 | Chromium | T | mg/L | 6020 | | * | 0.00763 | J | | | | |
| 7440-48-4 | Cobalt | T | mg/L | 6020 | | * | 0.00141 | | | | | |
| 7440-50-8 | Copper | T | mg/L | 6020 | | * | 0.00101 | J | | | | |
| 7439-89-6 | Iron | T | mg/L | 6020 | | * | <0.1 | | | | | |
| 7439-92-1 | Lead | T | mg/L | 6020 | | * | <0.002 | | | | | |
| 7439-95-4 | Magnesium | T | mg/L | 6020 | | * | 9.42 | | | | | |
| 7439-96-5 | Manganese | T | mg/L | 6020 | | * | 0.00284 | J | | | | |
| 7439-97-6 | Mercury | T | mg/L | 7470 | | * | <0.0002 | | | | | |

C-46

RESIDENTIAL/INERT-QUARTERLY

Facility: US DOE - Paducah Gaseous Diffusion Plant

FINDS/UNIT: KY8-890-008-982 / 1

Permit Number: SW07300014, SW07300015, SW07300045

LAB ID: None

For Official Use Only

GROUNDWATER SAMPLE ANALYSIS - (Cont.)

| AKGWA NUMBER ¹ , Facility Well/Spring Number | | | | | 0000-0000 | 8000-5202 | | | | | | |
|---|--------------------|-------------|-----------------------|--------|---|-----------------------|---|-----------------------|---|-----------------------|---|-----------------------|
| Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.) | | | | | T. BLANK 4 | 221 | | | | | | |
| CAS RN ⁴ | CONSTITUENT | T D 5 | Unit OF MEASURE | METHOD | DETECTED VALUE OR PQL ⁶ | F L A G S |
| 7439-98-7 | Molybdenum | T | mg/L | 6020 | | * | 0.00844 | | | | | |
| 7440-02-0 | Nickel | T | mg/L | 6020 | | * | 0.124 | | | | | |
| 7440-09-7 | Potassium | T | mg/L | 6020 | | * | 1.82 | | | | | |
| 7440-16-6 | Rhodium | T | mg/L | 6020 | | * | <0.005 | | | | | |
| 7782-49-2 | Selenium | T | mg/L | 6020 | | * | <0.005 | | | | | |
| 7440-22-4 | Silver | T | mg/L | 6020 | | * | <0.001 | | | | | |
| 7440-23-5 | Sodium | T | mg/L | 6020 | | * | 49.2 | | | | | |
| 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 | | * | 0.0045 | BJ | | | | |
| 7440-66-6 | Zinc | T | mg/L | 6020 | | * | <0.02 | | | | | |
| 108-05-4 | Vinyl acetate | T | mg/L | 8260 | <0.005 | | <0.005 | | | | | |
| 67-64-1 | Acetone | T | mg/L | 8260 | 0.00665 | | <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-47

RESIDENTIAL/INERT-QUARTERLY

Facility: US DOE - Paducah Gaseous Diffusion Plant

FINDS/UNIT: KY8-890-008-982 / 1

Permit Number: SW07300014, SW07300015, SW07300045

LAB ID: None

For Official Use Only

GROUNDWATER SAMPLE ANALYSIS - (Cont.)

| AKGWA NUMBER ¹ , Facility Well/Spring Number | | | | | 0000-0000 | | 8000-5202 | | | | | |
|---|-----------------------------|-------------|-----------------------|--------|---|-----------------------|---|-----------------------|---|-----------------------|---|-----------------------|
| Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.) | | | | | T. BLANK 4 | | 221 | | | | | |
| CAS RN ⁴ | CONSTITUENT | T D 5 | Unit OF MEASURE | METHOD | DETECTED VALUE OR PQL ⁶ | F L A G S |
| 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 | <0.001 | | <0.001 | | | | | |

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RESIDENTIAL/INERT-QUARTERLY

Facility: US DOE - Paducah Gaseous Diffusion Plant

FINDS/UNIT: KY8-890-008-982 / 1

Permit Number: SW07300014, SW07300015, SW07300045

LAB ID: None

For Official Use Only

GROUNDWATER SAMPLE ANALYSIS - (Cont.)

| AKGWA NUMBER ¹ , Facility Well/Spring Number | | | | | 0000-0000 | | 8000-5202 | | | | | |
|---|-------------------------------|-------------|-----------------------|--------|---|-----------------------|---|-----------------------|---|-----------------------|---|-----------------------|
| Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.) | | | | | T. BLANK 4 | | 221 | | | | | |
| CAS RN ⁴ | CONSTITUENT | T D 5 | Unit OF MEASURE | METHOD | 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 | | 0.00279 | BJ | | | | |
| 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 | <0.0000197 | | <0.0000196 | | | | | |
| 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 | | * | | * | | | | |
| 12674-11-2 | PCB-1016 | T | ug/L | 8082 | | * | | * | | | | |
| 11104-28-2 | PCB-1221 | T | ug/L | 8082 | | * | | * | | | | |
| 11141-16-5 | PCB-1232 | T | ug/L | 8082 | | * | | * | | | | |
| 53469-21-9 | PCB-1242 | T | ug/L | 8082 | | * | | * | | | | |
| 12672-29-6 | PCB-1248 | T | ug/L | 8082 | | * | | * | | | | |

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RESIDENTIAL/INERT-QUARTERLY

Facility: US DOE - Paducah Gaseous Diffusion Plant

FINDS/UNIT: KY8-890-008-982 / 1

Permit Number: SW07300014, SW07300015, SW07300045

LAB ID: None

For Official Use Only

GROUNDWATER SAMPLE ANALYSIS - (Cont.)

| AKGWA NUMBER ¹ , Facility Well/Spring Number | | | | | 0000-0000 | 8000-5202 | | | | | | |
|---|------------------------|-------------|-----------------------|----------|---|-----------------------|---|-----------------------|---|-----------------------|---|-----------------------|
| Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.) | | | | | T. BLANK 4 | 221 | | | | | | |
| CAS RN ⁴ | CONSTITUENT | T D 5 | Unit OF MEASURE | METHOD | DETECTED VALUE OR PQL ⁶ | F L A G S |
| 11097-69-1 | PCB-1254 | T | ug/L | 8082 | | * | | * | | | | |
| 11096-82-5 | PCB-1260 | T | ug/L | 8082 | | * | | * | | | | |
| 11100-14-4 | PCB-1268 | T | ug/L | 8082 | | * | | * | | | | |
| 12587-46-1 | Gross Alpha | T | pCi/L | 9310 | | * | 3.32 | * | | | | |
| 12587-47-2 | Gross Beta | T | pCi/L | 9310 | | * | 3.2 | * | | | | |
| 10043-66-0 | Iodine-131 | T | pCi/L | | | * | | * | | | | |
| 13982-63-3 | Radium-226 | T | pCi/L | AN-1418 | | * | 0.407 | * | | | | |
| 10098-97-2 | Strontium-90 | T | pCi/L | 905.0 | | * | -4.17 | * | | | | |
| 14133-76-7 | Technetium-99 | T | pCi/L | Tc-02-RC | | * | 12.4 | * | | | | |
| 14269-63-7 | Thorium-230 | T | pCi/L | Th-01-RC | | * | -0.762 | * | | | | |
| 10028-17-8 | Tritium | T | pCi/L | 906.0 | | * | 66.7 | * | | | | |
| 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 | | * | 0.996 | J | | | | |
| S0586- - | Total Organic Halides | T | mg/L | 9020 | | * | | * | | | | |
| | | | | | | | | | | | | |
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RESIDENTIAL/INERT – QUARTERLY

Finds/Unit: KY8-890-008-982 / 1

Facility: US DOE - Paducah Gaseous Diffusion Plant

LAB ID: None

Permit Number: SW07300014, SW07300015, SW07300045

For Official Use Only

GROUNDWATER WRITTEN COMMENTS

| Monitoring Point | Facility Sample ID | Constituent | Flag | Description |
|------------------|--------------------|-----------------------|------|---|
| 8000-5201 MW220 | MW220SG3-19 | Chloride | W | Post-digestion spike recovery out of control limits. |
| | | Sulfate | W | Post-digestion spike recovery out of control limits. |
| | | 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 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 6.38. Rad error is 6.37. |
| | | Gross beta | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 5.68. Rad error is 5.51. |
| | | Iodine-131 | | Analysis of constituent not required and not performed. |
| | | Radium-226 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 0.413. Rad error is 0.412. |
| | | Strontium-90 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 3.15. Rad error is 3.15. |
| | | Technetium-99 | | TPU is 8.66. Rad error is 8.45. |
| | | Thorium-230 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 0.839. Rad error is 0.834. |
| | | Tritium | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 133. Rad error is 133. |
| | | Total Organic Halides | | See resample. |

RESIDENTIAL/INERT – QUARTERLY

Finds/Unit: KY8-890-008-982 / 1

Facility: US DOE - Paducah Gaseous Diffusion Plant

LAB ID: None

Permit Number: SW07300014, SW07300015, SW07300045

For Official Use Only

GROUNDWATER WRITTEN COMMENTS

| Monitoring Point | Facility Sample ID | Constituent | Flag | Description |
|------------------|--------------------|-----------------------|------|---|
| 8000-5202 MW221 | MW221SG3-19 | Chloride | W | Post-digestion spike recovery out of control limits. |
| | | Sulfate | W | Post-digestion spike recovery out of control limits. |
| | | 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 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 6.4. Rad error is 6.35. |
| | | Gross beta | | TPU is 5.85. Rad error is 5.64. |
| | | Iodine-131 | | Analysis of constituent not required and not performed. |
| | | Radium-226 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 0.402. Rad error is 0.4. |
| | | Strontium-90 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 2.52. Rad error is 2.52. |
| | | Technetium-99 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 12.3. Rad error is 12.2. |
| | | Thorium-230 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 0.724. Rad error is 0.722. |
| | | Tritium | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 135. Rad error is 135. |
| | | Total Organic Halides | | See resample. |

RESIDENTIAL/INERT – QUARTERLY

Finds/Unit: KY8-890-008-982 / 1

Facility: US DOE - Paducah Gaseous Diffusion Plant

LAB ID: None

Permit Number: SW07300014, SW07300015, SW07300045

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GROUNDWATER WRITTEN COMMENTS

| Monitoring Point | Facility Sample ID | Constituent | Flag | Description |
|------------------|--------------------|-----------------------|------|---|
| 8000-5242 MW222 | MW222SG3-19 | Chloride | W | Post-digestion spike recovery out of control limits. |
| | | Sulfate | W | Post-digestion spike recovery out of control limits. |
| | | 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 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 4.17. Rad error is 4.17. |
| | | Gross beta | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 7.7. Rad error is 7.61. |
| | | Iodine-131 | | Analysis of constituent not required and not performed. |
| | | Radium-226 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 0.508. Rad error is 0.501. |
| | | Strontium-90 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 1.62. Rad error is 1.62. |
| | | Technetium-99 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 13. Rad error is 13. |
| | | Thorium-230 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 0.854. Rad error is 0.853. |
| | | Tritium | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 134. Rad error is 134. |
| | | Total Organic Halides | | See resample. |

RESIDENTIAL/INERT – QUARTERLY

Finds/Unit: KY8-890-008-982 / 1

Facility: US DOE - Paducah Gaseous Diffusion Plant

LAB ID: None

Permit Number: SW07300014, SW07300015, SW07300045

For Official Use Only

GROUNDWATER WRITTEN COMMENTS

| Monitoring Point | Facility Sample ID | Constituent | Flag | Description |
|-----------------------|--------------------|---------------|------|---|
| 8000-5243 MW223 | MW223SG3-19 | Chloride | W | Post-digestion spike recovery out of control limits. |
| | | Sulfate | W | Post-digestion spike recovery out of control limits. |
| | | 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 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 5.8. Rad error is 5.77. |
| | | Gross beta | | TPU is 11.1. Rad error is 10.3. |
| | | Iodine-131 | | Analysis of constituent not required and not performed. |
| | | Radium-226 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 0.43. Rad error is 0.422. |
| | | Strontium-90 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 2.69. Rad error is 2.69. |
| | | Technetium-99 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 8.51. Rad error is 8.44. |
| | | Thorium-230 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 0.557. Rad error is 0.557. |
| | | Tritium | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 135. Rad error is 134. |
| Total Organic Halides | | See resample. | | |

RESIDENTIAL/INERT – QUARTERLY

Finds/Unit: KY8-890-008-982 / 1

Facility: US DOE - Paducah Gaseous Diffusion Plant

LAB ID: None

Permit Number: SW07300014, SW07300015, SW07300045

For Official Use Only

GROUNDWATER WRITTEN COMMENTS

| Monitoring Point | Facility Sample ID | Constituent | Flag | Description |
|------------------|--------------------|---|------|---|
| 8000-5244 MW224 | MW224SG3-19 | Chloride | W | Post-digestion spike recovery out of control limits. |
| | | 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 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 5.55. Rad error is 5.54. |
| | | Gross beta | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 9.14. Rad error is 9.13. |
| | | Iodine-131 | | Analysis of constituent not required and not performed. |
| | | Radium-226 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 0.45. Rad error is 0.438. |
| | | Strontium-90 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 2.57. Rad error is 2.54. |
| | | Technetium-99 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 7.89. Rad error is 7.87. |
| | | Thorium-230 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 0.802. Rad error is 0.801. |
| Tritium | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 136. Rad error is 135. | | |
| | | Total Organic Halides | | See resample. |
| 8004-4820 MW369 | MW369UG3-19 | Chloride | W | Post-digestion spike recovery out of control limits. |
| | | Gross alpha | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 6.1. Rad error is 5.97. |
| | | Gross beta | | TPU is 18. Rad error is 11.9. |
| | | Iodine-131 | | Analysis of constituent not required and not performed. |
| | | Radium-226 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 0.484. Rad error is 0.482. |
| | | Strontium-90 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 2.48. Rad error is 2.48. |
| | | Technetium-99 | | TPU is 13.4. Rad error is 10.9. |
| | | Thorium-230 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 1.01. Rad error is 1. |
| | | Tritium | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 132. Rad error is 132. |
| | | | | Total Organic Halides |

RESIDENTIAL/INERT – QUARTERLY

Finds/Unit: KY8-890-008-982 / 1

Facility: US DOE - Paducah Gaseous Diffusion Plant

LAB ID: None

Permit Number: SW07300014, SW07300015, SW07300045

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GROUNDWATER WRITTEN COMMENTS

| Monitoring Point | Facility Sample ID | Constituent | Flag | Description |
|-----------------------|--------------------|--------------------------|------|---|
| 8004-4818 MW370 | MW370UG3-19 | Chloride | W | Post-digestion spike recovery out of control limits. |
| | | Gross alpha | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 6.6. Rad error is 6.59. |
| | | Gross beta | | TPU is 15. Rad error is 11.3. |
| | | Iodine-131 | | Analysis of constituent not required and not performed. |
| | | Radium-226 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 0.641. Rad error is 0.64. |
| | | Strontium-90 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 2.39. Rad error is 2.39. |
| | | Technetium-99 | | TPU is 17.5. Rad error is 12.4. |
| | | Thorium-230 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 0.572. Rad error is 0.571. |
| | | Tritium | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 134. Rad error is 134. |
| | | Total Organic Halides | | See resample. |
| 8004-4808 MW372 | MW372UG3-19 | Chloride | W | Post-digestion spike recovery out of control limits. |
| | | Sulfate | W | Post-digestion spike recovery out of control limits. |
| | | Total Dissolved Solids | * | Duplicate analysis not within control limits. |
| | | Chlorobromomethane | L | LCS or LCSD recovery outside of control limits |
| | | Methyl bromide | L | LCS or LCSD recovery outside of control limits |
| | | Carbon disulfide | Y1 | MS/MSD recovery outside acceptance criteria |
| | | 1,1-Dichloroethylene | Y1 | MS/MSD recovery outside acceptance criteria |
| | | Iodomethane | LY1 | LCS or LCSD recovery outside of control limits AND MS/MSD recovery outside acceptance criteria |
| | | trans-1,2-Dichloroethene | Y1 | MS/MSD recovery outside acceptance criteria |
| | | Gross alpha | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 6.74. Rad error is 6.72. |
| | | Gross beta | | TPU is 11.5. Rad error is 9.3. |
| | | Iodine-131 | | Analysis of constituent not required and not performed. |
| | | Radium-226 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 0.476. Rad error is 0.474. |
| | | 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 11.7. Rad error is 9.68. |
| | | Thorium-230 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 0.538. Rad error is 0.537. |
| | | Tritium | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 134. Rad error is 134. |
| Total Organic Halides | | See resample. | | |

RESIDENTIAL/INERT – QUARTERLY

Finds/Unit: KY8-890-008-982 / 1

Facility: US DOE - Paducah Gaseous Diffusion Plant

LAB ID: None

Permit Number: SW07300014, SW07300015, SW07300045

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GROUNDWATER WRITTEN COMMENTS

| Monitoring Point | Facility Sample ID | Constituent | Flag | Description |
|------------------|--------------------|--------------------------|------|---|
| 8004-4792 MW373 | MW373UG3-19 | Chloride | W | Post-digestion spike recovery out of control limits. |
| | | Sulfate | W | Post-digestion spike recovery out of control limits. |
| | | Total Dissolved Solids | * | Duplicate analysis not within control limits. |
| | | Chlorobromomethane | L | LCS or LCSD recovery outside of control limits |
| | | Methyl bromide | L | LCS or LCSD recovery outside of control limits |
| | | Carbon disulfide | Y1 | MS/MSD recovery outside acceptance criteria |
| | | 1,1-Dichloroethylene | Y1 | MS/MSD recovery outside acceptance criteria |
| | | Iodomethane | LY1 | LCS or LCSD recovery outside of control limits AND MS/MSD recovery outside acceptance criteria |
| | | trans-1,2-Dichloroethene | Y1 | MS/MSD recovery outside acceptance criteria |
| | | Gross alpha | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 4.76. Rad error is 4.76. |
| | | Gross beta | | TPU is 7.69. Rad error is 7.36. |
| | | Iodine-131 | | Analysis of constituent not required and not performed. |
| | | Radium-226 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 0.415. Rad error is 0.414. |
| | | Strontium-90 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 3.03. Rad error is 3.03. |
| | | Technetium-99 | | TPU is 9.14. Rad error is 8.8. |
| | | Thorium-230 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 0.788. Rad error is 0.786. |
| | | Tritium | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 139. Rad error is 138. |
| | | Total Organic Halides | | See resample. |

RESIDENTIAL/INERT – QUARTERLY

Finds/Unit: KY8-890-008-982 / 1

Facility: US DOE - Paducah Gaseous Diffusion Plant

LAB ID: None

Permit Number: SW07300014, SW07300015, SW07300045

For Official Use Only

GROUNDWATER WRITTEN COMMENTS

| Monitoring Point | Facility Sample ID | Constituent | Flag | Description |
|------------------|--------------------|---------------------------|------|---|
| 8004-4809 MW384 | MW384SG3-19 | Chloride | W | Post-digestion spike recovery out of control limits. |
| | | Sulfate | W | Post-digestion spike recovery out of control limits. |
| | | Tantalum | N | Sample spike (MS/MSD) recovery not within control limits |
| | | Benzene | Y2 | MS/MSD RPD outside acceptance criteria |
| | | Styrene | L | LCS or LCSD recovery outside of control limits |
| | | Toluene | Y2 | MS/MSD RPD outside acceptance criteria |
| | | Chlorobromomethane | Y1 | MS/MSD recovery outside acceptance criteria |
| | | 1,1,2-Trichloroethane | Y1Y2 | MS/MSD recovery outside acceptance criteria and MS/MSD RPD outside acceptance criteria |
| | | Tetrachloroethene | Y2 | MS/MSD RPD outside acceptance criteria |
| | | trans-1,3-Dichloropropene | Y1Y2 | MS/MSD recovery outside acceptance criteria and MS/MSD RPD outside acceptance criteria |
| | | 1,2-Dichlorobenzene | Y2 | MS/MSD RPD outside acceptance criteria |
| | | 1,4-Dichlorobenzene | Y2 | MS/MSD RPD 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 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 6.38. Rad error is 6.38. |
| | | Gross beta | | TPU is 20.7. Rad error is 13.4. |
| | | Iodine-131 | | Analysis of constituent not required and not performed. |
| | | Radium-226 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 0.373. Rad error is 0.373. |
| | | Strontium-90 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 2.02. Rad error is 2.02. |
| | | Technetium-99 | | TPU is 24.1. Rad error is 16.9. |
| | | Thorium-230 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 1.09. Rad error is 1.08. |
| | | Tritium | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 126. Rad error is 126. |
| | | Total Organic Halides | | See resample. |

RESIDENTIAL/INERT – QUARTERLY

Finds/Unit: KY8-890-008-982 / 1

Facility: US DOE - Paducah Gaseous Diffusion Plant

LAB ID: None

Permit Number: SW07300014, SW07300015, SW07300045

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GROUNDWATER WRITTEN COMMENTS

| Monitoring Point | Facility Sample ID | Constituent | Flag | Description |
|------------------|--------------------|---------------------------|------|---|
| 8004-4810 MW385 | MW385SG3-19 | Chloride | W | Post-digestion spike recovery out of control limits. |
| | | Sulfate | W | Post-digestion spike recovery out of control limits. |
| | | Tantalum | N | Sample spike (MS/MSD) recovery not within control limits |
| | | Benzene | Y2 | MS/MSD RPD outside acceptance criteria |
| | | Styrene | L | LCS or LCSD recovery outside of control limits |
| | | Toluene | Y2 | MS/MSD RPD outside acceptance criteria |
| | | Chlorobromomethane | Y1 | MS/MSD recovery outside acceptance criteria |
| | | 1,1,2-Trichloroethane | Y1Y2 | MS/MSD recovery outside acceptance criteria and MS/MSD RPD outside acceptance criteria |
| | | Tetrachloroethene | Y2 | MS/MSD RPD outside acceptance criteria |
| | | trans-1,3-Dichloropropene | Y1Y2 | MS/MSD recovery outside acceptance criteria and MS/MSD RPD outside acceptance criteria |
| | | 1,2-Dichlorobenzene | Y2 | MS/MSD RPD outside acceptance criteria |
| | | 1,4-Dichlorobenzene | Y2 | MS/MSD RPD 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 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 6.16. Rad error is 6.13. |
| | | Gross beta | | TPU is 27.6. Rad error is 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 0.51. Rad error is 0.508. |
| | | Strontium-90 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 1.82. Rad error is 1.82. |
| | | Technetium-99 | | TPU is 23.3. Rad error is 14.7. |
| | | Thorium-230 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 0.475. Rad error is 0.473. |
| | | Tritium | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 129. Rad error is 129. |
| | | Total Organic Halides | | See resample. |

RESIDENTIAL/INERT – QUARTERLY

Finds/Unit: KY8-890-008-982 / 1

Facility: US DOE - Paducah Gaseous Diffusion Plant

LAB ID: None

Permit Number: SW07300014, SW07300015, SW07300045

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GROUNDWATER WRITTEN COMMENTS

| Monitoring Point | Facility Sample ID | Constituent | Flag | Description |
|------------------|--------------------|---------------------------|------|---|
| 8004-4804 MW386 | MW386SG3-19 | Chloride | W | Post-digestion spike recovery out of control limits. |
| | | Sulfate | W | Post-digestion spike recovery out of control limits. |
| | | Tantalum | N | Sample spike (MS/MSD) recovery not within control limits |
| | | Benzene | Y2 | MS/MSD RPD outside acceptance criteria |
| | | Styrene | L | LCS or LCSD recovery outside of control limits |
| | | Toluene | Y2 | MS/MSD RPD outside acceptance criteria |
| | | Chlorobromomethane | Y1 | MS/MSD recovery outside acceptance criteria |
| | | 1,1,2-Trichloroethane | Y1Y2 | MS/MSD recovery outside acceptance criteria and MS/MSD RPD outside acceptance criteria |
| | | Tetrachloroethene | Y2 | MS/MSD RPD outside acceptance criteria |
| | | trans-1,3-Dichloropropene | Y1Y2 | MS/MSD recovery outside acceptance criteria and MS/MSD RPD outside acceptance criteria |
| | | 1,2-Dichlorobenzene | Y2 | MS/MSD RPD outside acceptance criteria |
| | | 1,4-Dichlorobenzene | Y2 | MS/MSD RPD 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 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 6.37. Rad error is 6.37. |
| | | Gross beta | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 6.64. Rad error is 6.64. |
| | | Iodine-131 | | Analysis of constituent not required and not performed. |
| | | Radium-226 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 0.378. Rad error is 0.377. |
| | | Strontium-90 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 2.13. Rad error is 2.13. |
| | | Technetium-99 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 10.6. Rad error is 10.6. |
| | | Thorium-230 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 0.671. Rad error is 0.671. |
| | | Tritium | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 127. Rad error is 127. |
| | | Total Organic Halides | | See resample. |

RESIDENTIAL/INERT – QUARTERLY

Finds/Unit: KY8-890-008-982 / 1

Facility: US DOE - Paducah Gaseous Diffusion Plant

LAB ID: None

Permit Number: SW07300014, SW07300015, SW07300045

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GROUNDWATER WRITTEN COMMENTS

| Monitoring Point | Facility Sample ID | Constituent | Flag | Description |
|------------------|--------------------|---------------------------|------|---|
| 8004-4815 MW387 | MW387SG3-19 | Chloride | W | Post-digestion spike recovery out of control limits. |
| | | Sulfate | W | Post-digestion spike recovery out of control limits. |
| | | Tantalum | N | Sample spike (MS/MSD) recovery not within control limits |
| | | Benzene | Y2 | MS/MSD RPD outside acceptance criteria |
| | | Styrene | L | LCS or LCSD recovery outside of control limits |
| | | Toluene | Y2 | MS/MSD RPD outside acceptance criteria |
| | | Chlorobromomethane | Y1 | MS/MSD recovery outside acceptance criteria |
| | | 1,1,2-Trichloroethane | Y1Y2 | MS/MSD recovery outside acceptance criteria and MS/MSD RPD outside acceptance criteria |
| | | Tetrachloroethene | Y2 | MS/MSD RPD outside acceptance criteria |
| | | trans-1,3-Dichloropropene | Y1Y2 | MS/MSD recovery outside acceptance criteria and MS/MSD RPD outside acceptance criteria |
| | | 1,2-Dichlorobenzene | Y2 | MS/MSD RPD outside acceptance criteria |
| | | 1,4-Dichlorobenzene | Y2 | MS/MSD RPD 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 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 7.86. Rad error is 7.84. |
| | | Gross beta | | TPU is 27. Rad error is 15.2. |
| | | Iodine-131 | | Analysis of constituent not required and not performed. |
| | | Radium-226 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 0.556. Rad error is 0.548. |
| | | Strontium-90 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 3.23. Rad error is 3.22. |
| | | Technetium-99 | | TPU is 30.7. Rad error is 17.3. |
| | | Thorium-230 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 0.648. Rad error is 0.644. |
| | | Tritium | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 134. Rad error is 134. |
| | | Total Organic Halides | | See resample. |

RESIDENTIAL/INERT – QUARTERLY

Finds/Unit: KY8-890-008-982 / 1

Facility: US DOE - Paducah Gaseous Diffusion Plant

LAB ID: None

Permit Number: SW07300014, SW07300015, SW07300045

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GROUNDWATER WRITTEN COMMENTS

| Monitoring Point | Facility Sample ID | Constituent | Flag | Description |
|------------------|--------------------|---------------------------|------|---|
| 8004-4816 MW388 | MW388SG3-19 | Chloride | W | Post-digestion spike recovery out of control limits. |
| | | Sulfate | W | Post-digestion spike recovery out of control limits. |
| | | Tantalum | N | Sample spike (MS/MSD) recovery not within control limits |
| | | Benzene | Y2 | MS/MSD RPD outside acceptance criteria |
| | | Styrene | L | LCS or LCSD recovery outside of control limits |
| | | Toluene | Y2 | MS/MSD RPD outside acceptance criteria |
| | | Chlorobromomethane | Y1 | MS/MSD recovery outside acceptance criteria |
| | | 1,1,2-Trichloroethane | Y1Y2 | MS/MSD recovery outside acceptance criteria and MS/MSD RPD outside acceptance criteria |
| | | Tetrachloroethene | Y2 | MS/MSD RPD outside acceptance criteria |
| | | trans-1,3-Dichloropropene | Y1Y2 | MS/MSD recovery outside acceptance criteria and MS/MSD RPD outside acceptance criteria |
| | | 1,2-Dichlorobenzene | Y2 | MS/MSD RPD outside acceptance criteria |
| | | 1,4-Dichlorobenzene | Y2 | MS/MSD RPD 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 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 7.34. Rad error is 7.28. |
| | | Gross beta | | TPU is 17. Rad error is 11.6. |
| | | Iodine-131 | | Analysis of constituent not required and not performed. |
| | | Radium-226 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 0.548. Rad error is 0.533. |
| | | Strontium-90 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 2.53. Rad error is 2.52. |
| | | Technetium-99 | | TPU is 20.9. Rad error is 14.2. |
| | | Thorium-230 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 0.904. Rad error is 0.898. |
| | | Tritium | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 133. Rad error is 133. |
| | | Total Organic Halides | | See resample. |

RESIDENTIAL/INERT – QUARTERLY

Finds/Unit: KY8-890-008-982 / 1

Facility: US DOE - Paducah Gaseous Diffusion Plant

LAB ID: None

Permit Number: SW07300014, SW07300015, SW07300045

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GROUNDWATER WRITTEN COMMENTS

| Monitoring Point | Facility Sample ID | Constituent | Flag | Description |
|------------------|--------------------|------------------------------|------|--|
| 8004-4812 MW389 | | Bromide | | During sampling, the well was dry; therefore, no sample was collected. |
| | | Chloride | | During sampling, the well was dry; therefore, no sample was collected. |
| | | Fluoride | | During sampling, the well was dry; therefore, no sample was collected. |
| | | Nitrate & Nitrite | | During sampling, the well was dry; therefore, no sample was collected. |
| | | Sulfate | | During sampling, the well was dry; therefore, no sample was collected. |
| | | Barometric Pressure Reading | | During sampling, the well was dry; therefore, no sample was collected. |
| | | Specific Conductance | | During sampling, the well was dry; therefore, no sample was collected. |
| | | Static Water Level Elevation | | During sampling, the well was dry; therefore, no sample was collected. |
| | | Dissolved Oxygen | | During sampling, the well was dry; therefore, no sample was collected. |
| | | Total Dissolved Solids | | During sampling, the well was dry; therefore, no sample was collected. |
| | | pH | | During sampling, the well was dry; therefore, no sample was collected. |
| | | Eh | | During sampling, the well was dry; therefore, no sample was collected. |
| | | Temperature | | During sampling, the well was dry; therefore, no sample was collected. |
| | | Aluminum | | During sampling, the well was dry; therefore, no sample was collected. |
| | | Antimony | | During sampling, the well was dry; therefore, no sample was collected. |
| | | Arsenic | | During sampling, the well was dry; therefore, no sample was collected. |
| | | Barium | | During sampling, the well was dry; therefore, no sample was collected. |
| | | Beryllium | | During sampling, the well was dry; therefore, no sample was collected. |
| | | Boron | | During sampling, the well was dry; therefore, no sample was collected. |
| | | Cadmium | | During sampling, the well was dry; therefore, no sample was collected. |
| | | Calcium | | During sampling, the well was dry; therefore, no sample was collected. |
| | | Chromium | | During sampling, the well was dry; therefore, no sample was collected. |
| | | Cobalt | | During sampling, the well was dry; therefore, no sample was collected. |
| | | Copper | | During sampling, the well was dry; therefore, no sample was collected. |
| | | Iron | | During sampling, the well was dry; therefore, no sample was collected. |
| | | Lead | | During sampling, the well was dry; therefore, no sample was collected. |
| | | Magnesium | | During sampling, the well was dry; therefore, no sample was collected. |
| | | Manganese | | During sampling, the well was dry; therefore, no sample was collected. |
| | | Mercury | | During sampling, the well was dry; therefore, no sample was collected. |

RESIDENTIAL/INERT – QUARTERLY

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LAB ID: None

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GROUNDWATER WRITTEN COMMENTS

| Monitoring Point | Facility Sample ID | Constituent | Flag | Description |
|------------------|--------------------|-----------------------------|------|--|
| 8004-4812 MW389 | | Molybdenum | | During sampling, the well was dry; therefore, no sample was collected. |
| | | Nickel | | During sampling, the well was dry; therefore, no sample was collected. |
| | | Potassium | | During sampling, the well was dry; therefore, no sample was collected. |
| | | Rhodium | | During sampling, the well was dry; therefore, no sample was collected. |
| | | Selenium | | During sampling, the well was dry; therefore, no sample was collected. |
| | | Silver | | During sampling, the well was dry; therefore, no sample was collected. |
| | | Sodium | | During sampling, the well was dry; therefore, no sample was collected. |
| | | Tantalum | | During sampling, the well was dry; therefore, no sample was collected. |
| | | Thallium | | During sampling, the well was dry; therefore, no sample was collected. |
| | | Uranium | | During sampling, the well was dry; therefore, no sample was collected. |
| | | Vanadium | | During sampling, the well was dry; therefore, no sample was collected. |
| | | Zinc | | During sampling, the well was dry; therefore, no sample was collected. |
| | | Vinyl acetate | | During sampling, the well was dry; therefore, no sample was collected. |
| | | Acetone | | During sampling, the well was dry; therefore, no sample was collected. |
| | | Acrolein | | During sampling, the well was dry; therefore, no sample was collected. |
| | | Acrylonitrile | | During sampling, the well was dry; therefore, no sample was collected. |
| | | Benzene | | During sampling, the well was dry; therefore, no sample was collected. |
| | | Chlorobenzene | | During sampling, the well was dry; therefore, no sample was collected. |
| | | Xylenes | | During sampling, the well was dry; therefore, no sample was collected. |
| | | Styrene | | During sampling, the well was dry; therefore, no sample was collected. |
| | | Toluene | | During sampling, the well was dry; therefore, no sample was collected. |
| | | Chlorobromomethane | | During sampling, the well was dry; therefore, no sample was collected. |
| | | Bromodichloromethane | | During sampling, the well was dry; therefore, no sample was collected. |
| | | Tribromomethane | | During sampling, the well was dry; therefore, no sample was collected. |
| | | Methyl bromide | | During sampling, the well was dry; therefore, no sample was collected. |
| | | Methyl Ethyl Ketone | | During sampling, the well was dry; therefore, no sample was collected. |
| | | trans-1,4-Dichloro-2-butene | | During sampling, the well was dry; therefore, no sample was collected. |
| | | Carbon disulfide | | During sampling, the well was dry; therefore, no sample was collected. |
| | | Chloroethane | | During sampling, the well was dry; therefore, no sample was collected. |

RESIDENTIAL/INERT – QUARTERLY

Finds/Unit: KY8-890-008-982 / 1

Facility: US DOE - Paducah Gaseous Diffusion Plant

LAB ID: None

Permit Number: SW07300014, SW07300015, SW07300045

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GROUNDWATER WRITTEN COMMENTS

| Monitoring Point | Facility Sample ID | Constituent | Flag | Description |
|------------------|--------------------|-----------------------------|------|--|
| 8004-4812 | MW389 | Chloroform | | During sampling, the well was dry; therefore, no sample was collected. |
| | | Methyl chloride | | During sampling, the well was dry; therefore, no sample was collected. |
| | | cis-1,2-Dichloroethene | | During sampling, the well was dry; therefore, no sample was collected. |
| | | Methylene bromide | | During sampling, the well was dry; therefore, no sample was collected. |
| | | 1,1-Dichloroethane | | During sampling, the well was dry; therefore, no sample was collected. |
| | | 1,2-Dichloroethane | | During sampling, the well was dry; therefore, no sample was collected. |
| | | 1,1-Dichloroethylene | | During sampling, the well was dry; therefore, no sample was collected. |
| | | 1,2-Dibromoethane | | During sampling, the well was dry; therefore, no sample was collected. |
| | | 1,1,2,2-Tetrachloroethane | | During sampling, the well was dry; therefore, no sample was collected. |
| | | 1,1,1-Trichloroethane | | During sampling, the well was dry; therefore, no sample was collected. |
| | | 1,1,2-Trichloroethane | | During sampling, the well was dry; therefore, no sample was collected. |
| | | 1,1,1,2-Tetrachloroethane | | During sampling, the well was dry; therefore, no sample was collected. |
| | | Vinyl chloride | | During sampling, the well was dry; therefore, no sample was collected. |
| | | Tetrachloroethene | | During sampling, the well was dry; therefore, no sample was collected. |
| | | Trichloroethene | | During sampling, the well was dry; therefore, no sample was collected. |
| | | Ethylbenzene | | During sampling, the well was dry; therefore, no sample was collected. |
| | | 2-Hexanone | | During sampling, the well was dry; therefore, no sample was collected. |
| | | Iodomethane | | During sampling, the well was dry; therefore, no sample was collected. |
| | | Dibromochloromethane | | During sampling, the well was dry; therefore, no sample was collected. |
| | | Carbon tetrachloride | | During sampling, the well was dry; therefore, no sample was collected. |
| | | Dichloromethane | | During sampling, the well was dry; therefore, no sample was collected. |
| | | Methyl Isobutyl Ketone | | During sampling, the well was dry; therefore, no sample was collected. |
| | | 1,2-Dibromo-3-chloropropane | | During sampling, the well was dry; therefore, no sample was collected. |
| | | 1,2-Dichloropropane | | During sampling, the well was dry; therefore, no sample was collected. |
| | | trans-1,3-Dichloropropene | | During sampling, the well was dry; therefore, no sample was collected. |
| | | cis-1,3-Dichloropropene | | During sampling, the well was dry; therefore, no sample was collected. |
| | | trans-1,2-Dichloroethene | | During sampling, the well was dry; therefore, no sample was collected. |
| | | Trichlorofluoromethane | | During sampling, the well was dry; therefore, no sample was collected. |
| | | 1,2,3-Trichloropropane | | During sampling, the well was dry; therefore, no sample was collected. |

RESIDENTIAL/INERT – QUARTERLY

Finds/Unit: KY8-890-008-982 / 1

Facility: US DOE - Paducah Gaseous Diffusion Plant

LAB ID: None

Permit Number: SW07300014, SW07300015, SW07300045

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GROUNDWATER WRITTEN COMMENTS

| Monitoring Point | Facility Sample ID | Constituent | Flag | Description |
|------------------|--------------------|------------------------|------|--|
| 8004-4812 MW389 | | 1,2-Dichlorobenzene | | During sampling, the well was dry; therefore, no sample was collected. |
| | | 1,4-Dichlorobenzene | | During sampling, the well was dry; therefore, no sample was collected. |
| | | PCB, Total | | During sampling, the well was dry; therefore, no sample was collected. |
| | | PCB-1016 | | During sampling, the well was dry; therefore, no sample was collected. |
| | | PCB-1221 | | During sampling, the well was dry; therefore, no sample was collected. |
| | | PCB-1232 | | During sampling, the well was dry; therefore, no sample was collected. |
| | | PCB-1242 | | During sampling, the well was dry; therefore, no sample was collected. |
| | | PCB-1248 | | During sampling, the well was dry; therefore, no sample was collected. |
| | | PCB-1254 | | During sampling, the well was dry; therefore, no sample was collected. |
| | | PCB-1260 | | During sampling, the well was dry; therefore, no sample was collected. |
| | | PCB-1268 | | During sampling, the well was dry; therefore, no sample was collected. |
| | | Gross alpha | | During sampling, the well was dry; therefore, no sample was collected. |
| | | Gross beta | | During sampling, the well was dry; therefore, no sample was collected. |
| | | Iodine-131 | | During sampling, the well was dry; therefore, no sample was collected. |
| | | Radium-226 | | During sampling, the well was dry; therefore, no sample was collected. |
| | | Strontium-90 | | During sampling, the well was dry; therefore, no sample was collected. |
| | | Technetium-99 | | During sampling, the well was dry; therefore, no sample was collected. |
| | | Thorium-230 | | During sampling, the well was dry; therefore, no sample was collected. |
| | | Tritium | | During sampling, the well was dry; therefore, no sample was collected. |
| | | Chemical Oxygen Demand | | During sampling, the well was dry; therefore, no sample was collected. |
| | | Cyanide | | During sampling, the well was dry; therefore, no sample was collected. |
| | | Iodide | | During sampling, the well was dry; therefore, no sample was collected. |
| | | Total Organic Carbon | | During sampling, the well was dry; therefore, no sample was collected. |
| | | Total Organic Halides | | During sampling, the well was dry; therefore, no sample was collected. |

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Finds/Unit: KY8-890-008-982 / 1

Facility: US DOE - Paducah Gaseous Diffusion Plant

LAB ID: None

Permit Number: SW07300014, SW07300015, SW07300045

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GROUNDWATER WRITTEN COMMENTS

| Monitoring Point | Facility Sample ID | Constituent | Flag | Description |
|------------------|--------------------|---------------------------|------|---|
| 8004-4811 MW390 | MW390SG3-19 | Chloride | W | Post-digestion spike recovery out of control limits. |
| | | Sulfate | W | Post-digestion spike recovery out of control limits. |
| | | Tantalum | N | Sample spike (MS/MSD) recovery not within control limits |
| | | Benzene | Y2 | MS/MSD RPD outside acceptance criteria |
| | | Styrene | L | LCS or LCSD recovery outside of control limits |
| | | Toluene | Y2 | MS/MSD RPD outside acceptance criteria |
| | | Chlorobromomethane | Y1 | MS/MSD recovery outside acceptance criteria |
| | | 1,1,2-Trichloroethane | Y1Y2 | MS/MSD recovery outside acceptance criteria and MS/MSD RPD outside acceptance criteria |
| | | Tetrachloroethene | Y2 | MS/MSD RPD outside acceptance criteria |
| | | trans-1,3-Dichloropropene | Y1Y2 | MS/MSD recovery outside acceptance criteria and MS/MSD RPD outside acceptance criteria |
| | | 1,2-Dichlorobenzene | Y2 | MS/MSD RPD outside acceptance criteria |
| | | 1,4-Dichlorobenzene | Y2 | MS/MSD RPD 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 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 7.84. Rad error is 7.81. |
| | | Gross beta | | TPU is 13.2. Rad error is 10.6. |
| | | Iodine-131 | | Analysis of constituent not required and not performed. |
| | | Radium-226 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 0.229. Rad error is 0.229. |
| | | Strontium-90 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 2.79. Rad error is 2.79. |
| | | Technetium-99 | | TPU is 13. Rad error is 10.9. |
| | | Thorium-230 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 0.842. Rad error is 0.837. |
| | | Tritium | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 127. Rad error is 127. |
| | | Total Organic Halides | | See resample. |

RESIDENTIAL/INERT – QUARTERLY

Finds/Unit: KY8-890-008-982 / 1

Facility: US DOE - Paducah Gaseous Diffusion Plant

LAB ID: None

Permit Number: SW07300014, SW07300015, SW07300045

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GROUNDWATER WRITTEN COMMENTS

| Monitoring Point | Facility Sample ID | Constituent | Flag | Description |
|-----------------------|--------------------|---|------|---|
| 8004-4805 MW391 | MW391SG3-19 | Chloride | W | Post-digestion spike recovery out of control limits. |
| | | Sulfate | W | Post-digestion spike recovery out of control limits. |
| | | 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 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 5.76. Rad error is 5.76. |
| | | Gross beta | | TPU is 8.42. Rad error is 8.03. |
| | | Iodine-131 | | Analysis of constituent not required and not performed. |
| | | Radium-226 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 0.376. Rad error is 0.376. |
| | | 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 10.9. Rad error is 10.8. |
| Thorium-230 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 0.786. Rad error is 0.784. | | |
| Tritium | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 131. Rad error is 131. | | |
| Total Organic Halides | | See resample. | | |

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Facility: US DOE - Paducah Gaseous Diffusion Plant

LAB ID: None

Permit Number: SW07300014, SW07300015, SW07300045

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GROUNDWATER WRITTEN COMMENTS

| Monitoring Point | Facility Sample ID | Constituent | Flag | Description |
|------------------|--------------------|-----------------------|------|---|
| 8004-4806 MW392 | MW392SG3-19 | Chloride | W | Post-digestion spike recovery out of control limits. |
| | | Sulfate | W | Post-digestion spike recovery out of control limits. |
| | | 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 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 3.76. Rad error is 3.75. |
| | | Gross beta | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 7.3. Rad error is 7.3. |
| | | Iodine-131 | | Analysis of constituent not required and not performed. |
| | | Radium-226 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 0.341. Rad error is 0.34. |
| | | Strontium-90 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 2.02. Rad error is 2.02. |
| | | Technetium-99 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 8.39. Rad error is 8.38. |
| | | Thorium-230 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 0.801. Rad error is 0.801. |
| | | Tritium | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 135. Rad error is 135. |
| | | Total Organic Halides | | See resample. |

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LAB ID: None

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GROUNDWATER WRITTEN COMMENTS

| Monitoring Point | Facility Sample ID | Constituent | Flag | Description |
|------------------|--------------------|-----------------------|------|---|
| 8004-4807 | MW393 MW393SG3-19 | Chloride | W | Post-digestion spike recovery out of control limits. |
| | | 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 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 6.32. Rad error is 6.3. |
| | | Gross beta | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 6.28. Rad error is 6.27. |
| | | Iodine-131 | | Analysis of constituent not required and not performed. |
| | | Radium-226 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 0.463. Rad error is 0.462. |
| | | Strontium-90 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 2.83. Rad error is 2.83. |
| | | Technetium-99 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 7.97. Rad error is 7.95. |
| | | Thorium-230 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 2.06. Rad error is 2.06. |
| | | Tritium | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 131. Rad error is 131. |
| | | Total Organic Halides | | See resample. |

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LAB ID: None

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GROUNDWATER WRITTEN COMMENTS

| Monitoring Point | Facility Sample ID | Constituent | Flag | Description |
|-----------------------|--------------------|---|------|---|
| 8004-4802 MW394 | MW394SG3-19 | Total Dissolved Solids | * | Duplicate analysis not within control limits. |
| | | Magnesium | E | Result estimated due to matrix interferences. |
| | | Sodium | E | Result estimated due to matrix interferences. |
| | | 1,4-Dichlorobenzene | Y2 | MS/MSD RPD 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 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 4.89. Rad error is 4.89. |
| | | Gross beta | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 6.08. Rad error is 6.06. |
| | | Iodine-131 | | Analysis of constituent not required and not performed. |
| | | Radium-226 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 0.487. Rad error is 0.487. |
| | | Strontium-90 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 3.78. Rad error is 3.77. |
| | | Technetium-99 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 10.3. Rad error is 10.3. |
| | | Thorium-230 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 1.09. Rad error is 1.09. |
| Tritium | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 128. Rad error is 128. | | |
| Total Organic Halides | | See resample. | | |

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GROUNDWATER WRITTEN COMMENTS

| Monitoring Point | Facility Sample ID | Constituent | Flag | Description |
|-----------------------|--------------------|---|------|--|
| 8004-4801 MW395 | MW395SG3-19 | Total Dissolved Solids | * | Duplicate analysis not within control limits. |
| | | Magnesium | E | Result estimated due to matrix interferences. |
| | | Sodium | E | Result estimated due to matrix interferences. |
| | | 1,4-Dichlorobenzene | Y2 | MS/MSD RPD 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 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 4.45. Rad error is 4.41. |
| | | Gross beta | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 5.87. Rad error is 5.83. |
| | | Iodine-131 | | Analysis of constituent not required and not performed. |
| | | Radium-226 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 0.54. Rad error is 0.539. |
| | | Strontium-90 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 3.7. Rad error is 3.7. |
| | | Technetium-99 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 11.5. Rad error is 11.5. |
| | | Thorium-230 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 1.68. Rad error is 1.68. |
| Tritium | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 126. Rad error is 126. | | |
| Total Organic Halides | | See resample. | | |

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LAB ID: None

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GROUNDWATER WRITTEN COMMENTS

| Monitoring Point | Facility Sample ID | Constituent | Flag | Description |
|------------------|--------------------|---|------|---|
| 8004-4803 MW396 | MW396SG3-19 | Total Dissolved Solids | * | Duplicate analysis not within control limits. |
| | | Magnesium | E | Result estimated due to matrix interferences. |
| | | Sodium | E | Result estimated due to matrix interferences. |
| | | 1,4-Dichlorobenzene | Y2 | MS/MSD RPD 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 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 9.03. Rad error is 8.86. |
| | | Gross beta | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 5.4. Rad error is 5.4. |
| | | Iodine-131 | | Analysis of constituent not required and not performed. |
| | | Radium-226 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 0.407. Rad error is 0.406. |
| | | Strontium-90 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 3.23. Rad error is 3.23. |
| | | Technetium-99 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 11.1. Rad error is 11.1. |
| | | Thorium-230 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 1.02. Rad error is 1.01. |
| Tritium | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 132. Rad error is 132. | | |
| | | Total Organic Halides | | See resample. |

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LAB ID: None

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GROUNDWATER WRITTEN COMMENTS

| Monitoring Point | Facility Sample ID | Constituent | Flag | Description |
|------------------|--------------------|-----------------------|------|---|
| 8004-4817 MW397 | MW397SG3-19 | Chloride | W | Post-digestion spike recovery out of control limits. |
| | | Sulfate | W | Post-digestion spike recovery out of control limits. |
| | | 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 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 7.39. Rad error is 7.32. |
| | | Gross beta | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 8.18. Rad error is 8.09. |
| | | 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 0.474. |
| | | Strontium-90 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 2.35. Rad error is 2.34. |
| | | Technetium-99 | | TPU is 11.2. Rad error is 10.6. |
| | | Thorium-230 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 0.752. Rad error is 0.752. |
| | | Tritium | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 137. Rad error is 137. |
| | | Total Organic Halides | | See resample. |

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LAB ID: None

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GROUNDWATER WRITTEN COMMENTS

| Monitoring Point | Facility Sample ID | Constituent | Flag | Description | |
|-----------------------|--------------------|------------------------------|---|---|---|
| 0000-0000 QC | RI1SG3-19 | 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. | |
| | | 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 | | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 5.75. Rad error is 5.73. |
| | | Gross beta | | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 7.27. Rad error is 7.19. |
| | | Iodine-131 | | | Analysis of constituent not required and not performed. |
| | | Radium-226 | | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 0.365. Rad error is 0.365. |
| | | Strontium-90 | | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 3.39. Rad error is 3.39. |
| | | Technetium-99 | | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 10.9. Rad error is 10.9. |
| | | Thorium-230 | | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 0.689. Rad error is 0.689. |
| | | Tritium | | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 136. Rad error is 136. |
| | | 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/INERT – QUARTERLY

Finds/Unit: KY8-890-008-982 / 1

Facility: US DOE - Paducah Gaseous Diffusion Plant

LAB ID: None

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GROUNDWATER WRITTEN COMMENTS

| Monitoring Point | Facility Sample ID | Constituent | Flag | Description | |
|-----------------------|--------------------|------------------------------|---|---|---|
| 0000-0000 QC | FB1SG3-19 | 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. | |
| | | 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 | | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 3.27. Rad error is 3.26. |
| | | Gross beta | | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 5.95. Rad error is 5.95. |
| | | Iodine-131 | | | Analysis of constituent not required and not performed. |
| | | Radium-226 | | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 0.407. Rad error is 0.404. |
| | | Strontium-90 | | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 2.22. Rad error is 2.2. |
| | | Technetium-99 | | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 8.49. Rad error is 8.47. |
| | | Thorium-230 | | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 0.629. Rad error is 0.626. |
| | | Tritium | | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 133. Rad error is 133. |
| | | 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/INERT – QUARTERLY

Finds/Unit: KY8-890-008-982 / 1

Facility: US DOE - Paducah Gaseous Diffusion Plant

LAB ID: None

Permit Number: SW07300014, SW07300015, SW07300045

For Official Use Only

GROUNDWATER WRITTEN COMMENTS

| Monitoring Point | Facility Sample ID | Constituent | Flag | Description |
|------------------|--------------------|------------------------------|------|---|
| 0000-0000 QC | TB1SG3-19 | 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. |

RESIDENTIAL/INERT – QUARTERLY

Finds/Unit: KY8-890-008-982 / 1

Facility: US DOE - Paducah Gaseous Diffusion Plant

LAB ID: None

Permit Number: SW07300014, SW07300015, SW07300045

For Official Use Only

GROUNDWATER WRITTEN COMMENTS

| Monitoring Point | Facility Sample ID | Constituent | Flag | Description |
|------------------|--------------------|------------------------|------|---|
| 0000-0000 QC | TB1SG3-19 | Vanadium | | Analysis of constituent not required and not performed. |
| | | Zinc | | 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/INERT – QUARTERLY

Finds/Unit: KY8-890-008-982 / 1

Facility: US DOE - Paducah Gaseous Diffusion Plant

LAB ID: None

Permit Number: SW07300014, SW07300015, SW07300045

For Official Use Only

GROUNDWATER WRITTEN COMMENTS

| Monitoring Point | Facility Sample ID | Constituent | Flag | Description |
|------------------|--------------------|------------------------------|------|---|
| 0000-0000 QC | TB2SG3-19 | 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. |

RESIDENTIAL/INERT – QUARTERLY

Finds/Unit: KY8-890-008-982 / 1

Facility: US DOE - Paducah Gaseous Diffusion Plant

LAB ID: None

Permit Number: SW07300014, SW07300015, SW07300045

For Official Use Only

GROUNDWATER WRITTEN COMMENTS

| Monitoring Point | Facility Sample ID | Constituent | Flag | Description |
|------------------|--------------------|------------------------|------|---|
| 0000-0000 QC | TB2SG3-19 | Vanadium | | Analysis of constituent not required and not performed. |
| | | Zinc | | 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/INERT – QUARTERLY

Finds/Unit: KY8-890-008-982 / 1

Facility: US DOE - Paducah Gaseous Diffusion Plant

LAB ID: None

Permit Number: SW07300014, SW07300015, SW07300045

For Official Use Only

GROUNDWATER WRITTEN COMMENTS

| Monitoring Point | Facility Sample ID | Constituent | Flag | Description |
|------------------|--------------------|------------------------------|------|---|
| 0000-0000 QC | TB3SG3-19 | 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. |

RESIDENTIAL/INERT – QUARTERLY

Finds/Unit: KY8-890-008-982 / 1

Facility: US DOE - Paducah Gaseous Diffusion Plant

LAB ID: None

Permit Number: SW07300014, SW07300015, SW07300045

For Official Use Only

GROUNDWATER WRITTEN COMMENTS

| Monitoring Point | Facility Sample ID | Constituent | Flag | Description |
|------------------|--------------------|---------------------------|------|--|
| 0000-0000 QC | TB3SG3-19 | Vanadium | | Analysis of constituent not required and not performed. |
| | | Zinc | | Analysis of constituent not required and not performed. |
| | | Benzene | Y2 | MS/MSD RPD outside acceptance criteria |
| | | Styrene | L | LCS or LCSD recovery outside of control limits |
| | | Toluene | Y2 | MS/MSD RPD outside acceptance criteria |
| | | Chlorobromomethane | Y1 | MS/MSD recovery outside acceptance criteria |
| | | 1,1,2-Trichloroethane | Y1Y2 | MS/MSD recovery outside acceptance criteria and MS/MSD RPD outside acceptance criteria |
| | | Tetrachloroethene | Y2 | MS/MSD RPD outside acceptance criteria |
| | | trans-1,3-Dichloropropene | Y1Y2 | MS/MSD recovery outside acceptance criteria and MS/MSD RPD outside acceptance criteria |
| | | 1,2-Dichlorobenzene | Y2 | MS/MSD RPD outside acceptance criteria |
| | | 1,4-Dichlorobenzene | Y2 | MS/MSD RPD 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/INERT – QUARTERLY

Finds/Unit: KY8-890-008-982 / 1

Facility: US DOE - Paducah Gaseous Diffusion Plant

LAB ID: None

Permit Number: SW07300014, SW07300015, SW07300045

For Official Use Only

GROUNDWATER WRITTEN COMMENTS

| Monitoring Point | Facility Sample ID | Constituent | Flag | Description |
|------------------|--------------------|------------------------------|------|---|
| 0000-0000 QC | TB4SG3-19 | 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. |

RESIDENTIAL/INERT – QUARTERLY

Finds/Unit: KY8-890-008-982 / 1

Facility: US DOE - Paducah Gaseous Diffusion Plant

LAB ID: None

Permit Number: SW07300014, SW07300015, SW07300045

For Official Use Only

GROUNDWATER WRITTEN COMMENTS

| Monitoring Point | Facility Sample ID | Constituent | Flag | Description |
|------------------------|--------------------|---|------|---|
| 0000-0000 QC | TB4SG3-19 | Vanadium | | Analysis of constituent not required and not performed. |
| | | Zinc | | Analysis of constituent not required and not performed. |
| | | 1,4-Dichlorobenzene | Y2 | MS/MSD RPD 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/INERT – QUARTERLY

Finds/Unit: KY8-890-008-982 / 1

Facility: US DOE - Paducah Gaseous Diffusion Plant

LAB ID: None

Permit Number: SW07300014, SW07300015, SW07300045

For Official Use Only

GROUNDWATER WRITTEN COMMENTS

| Monitoring Point | Facility Sample ID | Constituent | Flag | Description |
|------------------|--------------------|------------------------------|------|---|
| 8000-5202 MW221 | MW221DSG3-19 | Chloride | W | Post-digestion spike recovery out of control limits. |
| | | Sulfate | 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. |
| | | 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 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 5.1. Rad error is 5.07. |
| | | Gross beta | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 4.84. Rad error is 4.81. |
| | | Iodine-131 | | Analysis of constituent not required and not performed. |
| | | Radium-226 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 0.399. Rad error is 0.397. |
| | | Strontium-90 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 3.23. Rad error is 3.23. |
| | | Technetium-99 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 8.79. Rad error is 8.69. |
| | | Thorium-230 | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 0.688. Rad error is 0.685. |
| | | Tritium | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 134. Rad error is 133. |
| | | Total Organic Halides | | See resample. |

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

RESIDENTIAL/INERT-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

GROUNDWATER SAMPLE ANALYSIS (S)

| AKGWA NUMBER ¹ , Facility Well/Spring Number | 8000-5201 | 8000-5202 | 8000-5242 | 8000-5243 | | | | | | | | |
|---|-----------------------------|-----------------|-----------------------|-----------------|---|------------------------------------|---|-----------------------|---|-----------------------|---|-----------------------|
| Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.) | 220 | 221 | 222 | 223 | | | | | | | | |
| Sample Sequence # | 3 | 3 | 3 | 3 | | | | | | | | |
| 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) | 5/30/2019 09:38 | 5/30/2019 07:58 | 5/30/2019 08:47 | 5/30/2019 08:29 | | | | | | | | |
| Duplicate ("Y" or "N") ² | N | N | N | N | | | | | | | | |
| Split ("Y" or "N") ³ | N | N | N | N | | | | | | | | |
| Facility Sample ID Number (if applicable) | MW220SG3-19R | MW221SG3-19R | MW222SG3-19R | MW223SG3-19R | | | | | | | | |
| Laboratory Sample ID Number (if applicable) | 480527001 | 480527003 | 480527004 | 480527005 | | | | | | | | |
| Date of Analysis (Month/Day/Year) For <u>Volatiles Organics</u> Analysis | 6/7/2019 | 6/7/2019 | 6/7/2019 | 6/7/2019 | | | | | | | | |
| Gradient with respect to Monitored Unit (UP, DOWN, SIDE, UNKNOWN) | UP | SIDE | SIDE | SIDE | | | | | | | | |
| 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 | | * | | * | | * | | * |
| 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 | 29.84 | | 29.85 | | 29.85 | | 29.85 | |
| S0145- - | Specific Conductance | T | µMHO/cm | Field | 424 | | 396 | | 375 | | 407 | |

C-86

¹AKGWA # is 0000-0000 for any type of blank.

²Respond "Y" if the sample was a duplicate of another sample in this report.

³Respond "Y" if the sample was split and analyzed by separate laboratories.

⁴Chemical 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.

⁷Flags 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/INERT-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

GROUNDWATER SAMPLE ANALYSIS - (Cont.)

| AKGWA NUMBER ¹ , Facility Well/Spring Number | | | | | 8000-5201 | 8000-5202 | 8000-5242 | 8000-5243 | | | | |
|--|------------------------------|-------------|-----------------------|--------|---|-----------------------|---|-----------------------|---|-----------------------|---|-----------------------|
| Facility's Local Well or Spring Number (e.g., MW-1, MW-2, BLANK-F, etc.) | | | | | 220 | 221 | 222 | 223 | | | | |
| CAS RN ⁴ | CONSTITUENT | T D 5 | Unit OF MEASURE | METHOD | DETECTED VALUE OR PQL ⁶ | F L A G S |
| S0906 - - | Static Water Level Elevation | T | Ft. MSL | Field | 332.39 | | 332.34 | | 332.47 | | 332.5 | |
| N238 | Dissolved Oxygen | T | mg/L | Field | 4.02 | | 3.6 | | 3.29 | | 2.8 | |
| S0266- - | Total Dissolved Solids | T | mg/L | 160.1 | | * | | * | | * | | * |
| S0296- - | pH | T | Units | Field | 6.31 | | 6.2 | | 6.26 | | 6.23 | |
| NS215 | Eh | T | mV | Field | 523 | | 539 | | 519 | | 520 | |
| S0907 - - | Temperature | T | °C | Field | 17.22 | | 16.83 | | 17.33 | | 17.61 | |
| 7429-90-5 | Aluminum | T | mg/L | 6020 | | * | | * | | * | | * |
| 7440-36-0 | Antimony | T | mg/L | 6020 | | * | | * | | * | | * |
| 7440-38-2 | Arsenic | T | mg/L | 6020 | | * | | * | | * | | * |
| 7440-39-3 | Barium | T | mg/L | 6020 | | * | | * | | * | | * |
| 7440-41-7 | Beryllium | T | mg/L | 6020 | | * | | * | | * | | * |
| 7440-42-8 | Boron | T | mg/L | 6020 | | * | | * | | * | | * |
| 7440-43-9 | Cadmium | T | mg/L | 6020 | | * | | * | | * | | * |
| 7440-70-2 | Calcium | T | mg/L | 6020 | | * | | * | | * | | * |
| 7440-47-3 | Chromium | T | mg/L | 6020 | | * | | * | | * | | * |
| 7440-48-4 | Cobalt | T | mg/L | 6020 | | * | | * | | * | | * |
| 7440-50-8 | Copper | T | mg/L | 6020 | | * | | * | | * | | * |
| 7439-89-6 | Iron | T | mg/L | 6020 | | * | | * | | * | | * |
| 7439-92-1 | Lead | T | mg/L | 6020 | | * | | * | | * | | * |
| 7439-95-4 | Magnesium | T | mg/L | 6020 | | * | | * | | * | | * |
| 7439-96-5 | Manganese | T | mg/L | 6020 | | * | | * | | * | | * |
| 7439-97-6 | Mercury | T | mg/L | 7470 | | * | | * | | * | | * |

C-87

RESIDENTIAL/INERT-QUARTERLY

Facility: US DOE - Paducah Gaseous Diffusion Plant

FINDS/UNIT: KY8-890-008-982 / 1

Permit Number: SW07300014, SW07300015, SW07300045

LAB ID: None

For Official Use Only

GROUNDWATER SAMPLE ANALYSIS - (Cont.)

| AKGWA NUMBER ¹ , Facility Well/Spring Number | | | | | 8000-5201 | 8000-5202 | 8000-5242 | 8000-5243 | | | | |
|---|------------------------|-------------|-----------------------|----------|---|-----------------------|---|-----------------------|---|-----------------------|---|-----------------------|
| Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.) | | | | | 220 | 221 | 222 | 223 | | | | |
| CAS RN ⁴ | CONSTITUENT | T D 5 | Unit OF MEASURE | METHOD | DETECTED VALUE OR PQL ⁶ | F L A G S |
| 11097-69-1 | PCB-1254 | T | ug/L | 8082 | | * | | * | | * | | * |
| 11096-82-5 | PCB-1260 | T | ug/L | 8082 | | * | | * | | * | | * |
| 11100-14-4 | PCB-1268 | T | ug/L | 8082 | | * | | * | | * | | * |
| 12587-46-1 | Gross Alpha | T | pCi/L | 9310 | | * | | * | | * | | * |
| 12587-47-2 | Gross Beta | T | pCi/L | 9310 | | * | | * | | * | | * |
| 10043-66-0 | Iodine-131 | T | pCi/L | | | * | | * | | * | | * |
| 13982-63-3 | Radium-226 | T | pCi/L | AN-1418 | | * | | * | | * | | * |
| 10098-97-2 | Strontium-90 | T | pCi/L | 905.0 | | * | | * | | * | | * |
| 14133-76-7 | Technetium-99 | T | pCi/L | Tc-02-RC | | * | | * | | * | | * |
| 14269-63-7 | Thorium-230 | T | pCi/L | Th-01-RC | | * | | * | | * | | * |
| 10028-17-8 | Tritium | T | pCi/L | 906.0 | | * | | * | | * | | * |
| 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 | | * | | * | | * | | * |
| S0268- - | Total Organic Carbon | T | mg/L | 9060 | | * | | * | | * | | * |
| S0586- - | Total Organic Halides | T | mg/L | 9020 | 0.00822 | J | 0.00588 | J | 0.00434 | J | 0.00582 | J |
| | | | | | | | | | | | | |
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C-88

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

RESIDENTIAL/INERT-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

GROUNDWATER SAMPLE ANALYSIS (S)

| AKGWA NUMBER ¹ , Facility Well/Spring Number | 8000-5244 | 8004-4820 | 8004-4818 | 8004-4808 | | | | | | | | |
|---|-----------------------------|-----------------|-----------------------|-----------------|---|------------------------------------|---|-----------------------|---|-----------------------|---|-----------------------|
| Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.) | 224 | 369 | 370 | 372 | | | | | | | | |
| Sample Sequence # | 3 | 3 | 3 | 3 | | | | | | | | |
| 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) | 5/30/2019 09:13 | 5/28/2019 13:31 | 5/28/2019 14:07 | 5/28/2019 14:29 | | | | | | | | |
| Duplicate ("Y" or "N") ² | N | N | N | N | | | | | | | | |
| Split ("Y" or "N") ³ | N | N | N | N | | | | | | | | |
| Facility Sample ID Number (if applicable) | MW224SG3-19R | MW369UG3-19R | MW370UG3-19R | MW372UG3-19R | | | | | | | | |
| Laboratory Sample ID Number (if applicable) | 480527006 | 480404014 | 480404015 | 480404017 | | | | | | | | |
| Date of Analysis (Month/Day/Year) For <u>Volatile Organics</u> Analysis | 6/8/2019 | 5/30/2019 | 6/7/2019 | 5/31/2019 | | | | | | | | |
| Gradient with respect to Monitored Unit (UP, DOWN, SIDE, UNKNOWN) | SIDE | 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 | | * | | * | | * | | * |
| 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 | 29.84 | | 29.84 | | 29.81 | | 29.81 | |
| S0145- - | Specific Conductance | T | µMHO/cm | Field | 432 | | 387 | | 436 | | 628 | |

C-89

¹AKGWA # is 0000-0000 for any type of blank.

²Respond "Y" if the sample was a duplicate of another sample in this report.

³Respond "Y" if the sample was split and analyzed by separate laboratories.

⁴Chemical 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.

⁷Flags 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/INERT-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

GROUNDWATER SAMPLE ANALYSIS - (Cont.)

| AKGWA NUMBER ¹ , Facility Well/Spring Number | | | | | 8000-5244 | 8004-4820 | 8004-4818 | 8004-4808 | | | | |
|--|------------------------------|-------------|-----------------------|--------|---|-----------------------|---|-----------------------|---|-----------------------|---|-----------------------|
| Facility's Local Well or Spring Number (e.g., MW-1, MW-2, BLANK-F, etc.) | | | | | 224 | 369 | 370 | 372 | | | | |
| CAS RN ⁴ | CONSTITUENT | T D 5 | Unit OF MEASURE | METHOD | DETECTED VALUE OR PQL ⁶ | F L A G S |
| S0906 - - | Static Water Level Elevation | T | Ft. MSL | Field | 332.63 | | 332.7 | | 332.67 | | 332.76 | |
| N238 | Dissolved Oxygen | T | mg/L | Field | 2.95 | | 3.59 | | 3.46 | | 2.13 | |
| S0266- - | Total Dissolved Solids | T | mg/L | 160.1 | | * | | * | | * | | * |
| S0296- - | pH | T | Units | Field | 6.29 | | 6.4 | | 6.11 | | 6.22 | |
| NS215 | Eh | T | mV | Field | 516 | | 309 | | 400 | | 400 | |
| S0907 - - | Temperature | T | °C | Field | 17.67 | | 18.89 | | 20.11 | | 20.44 | |
| 7429-90-5 | Aluminum | T | mg/L | 6020 | | * | | * | | * | | * |
| 7440-36-0 | Antimony | T | mg/L | 6020 | | * | | * | | * | | * |
| 7440-38-2 | Arsenic | T | mg/L | 6020 | | * | | * | | * | | * |
| 7440-39-3 | Barium | T | mg/L | 6020 | | * | | * | | * | | * |
| 7440-41-7 | Beryllium | T | mg/L | 6020 | | * | | * | | * | | * |
| 7440-42-8 | Boron | T | mg/L | 6020 | | * | | * | | * | | * |
| 7440-43-9 | Cadmium | T | mg/L | 6020 | | * | | * | | * | | * |
| 7440-70-2 | Calcium | T | mg/L | 6020 | | * | | * | | * | | * |
| 7440-47-3 | Chromium | T | mg/L | 6020 | | * | | * | | * | | * |
| 7440-48-4 | Cobalt | T | mg/L | 6020 | | * | | * | | * | | * |
| 7440-50-8 | Copper | T | mg/L | 6020 | | * | | * | | * | | * |
| 7439-89-6 | Iron | T | mg/L | 6020 | | * | | * | | * | | * |
| 7439-92-1 | Lead | T | mg/L | 6020 | | * | | * | | * | | * |
| 7439-95-4 | Magnesium | T | mg/L | 6020 | | * | | * | | * | | * |
| 7439-96-5 | Manganese | T | mg/L | 6020 | | * | | * | | * | | * |
| 7439-97-6 | Mercury | T | mg/L | 7470 | | * | | * | | * | | * |

C-90

RESIDENTIAL/INERT-QUARTERLY

Facility: US DOE - Paducah Gaseous Diffusion Plant

FINDS/UNIT: KY8-890-008-982 / 1

Permit Number: SW07300014, SW07300015, SW07300045

LAB ID: None

For Official Use Only

GROUNDWATER SAMPLE ANALYSIS - (Cont.)

| AKGWA NUMBER ¹ , Facility Well/Spring Number | | | | | 8000-5244 | 8004-4820 | 8004-4818 | 8004-4808 | | | | |
|---|------------------------|-------------|-----------------------|----------|---|-----------------------|---|-----------------------|---|-----------------------|---|-----------------------|
| Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.) | | | | | 224 | 369 | 370 | 372 | | | | |
| CAS RN ⁴ | CONSTITUENT | T D 5 | Unit OF MEASURE | METHOD | DETECTED VALUE OR PQL ⁶ | F L A G S |
| 11097-69-1 | PCB-1254 | T | ug/L | 8082 | | * | | * | | * | | * |
| 11096-82-5 | PCB-1260 | T | ug/L | 8082 | | * | | * | | * | | * |
| 11100-14-4 | PCB-1268 | T | ug/L | 8082 | | * | | * | | * | | * |
| 12587-46-1 | Gross Alpha | T | pCi/L | 9310 | | * | | * | | * | | * |
| 12587-47-2 | Gross Beta | T | pCi/L | 9310 | | * | | * | | * | | * |
| 10043-66-0 | Iodine-131 | T | pCi/L | | | * | | * | | * | | * |
| 13982-63-3 | Radium-226 | T | pCi/L | AN-1418 | | * | | * | | * | | * |
| 10098-97-2 | Strontium-90 | T | pCi/L | 905.0 | | * | | * | | * | | * |
| 14133-76-7 | Technetium-99 | T | pCi/L | Tc-02-RC | | * | | * | | * | | * |
| 14269-63-7 | Thorium-230 | T | pCi/L | Th-01-RC | | * | | * | | * | | * |
| 10028-17-8 | Tritium | T | pCi/L | 906.0 | | * | | * | | * | | * |
| 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 | | * | | * | | * | | * |
| S0268- - | Total Organic Carbon | T | mg/L | 9060 | | * | | * | | * | | * |
| S0586- - | Total Organic Halides | T | mg/L | 9020 | 0.0135 | | 0.0143 | | 0.00514 | BJ | 0.0075 | J |
| | | | | | | | | | | | | |
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C-91

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

RESIDENTIAL/INERT-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

GROUNDWATER SAMPLE ANALYSIS (S)

| AKGWA NUMBER ¹ , Facility Well/Spring Number | 8004-4792 | 8004-4809 | 8004-8410 | 8004-4804 | | | | | | | | |
|---|-----------------------------|-----------------|-----------------------|-----------------|---|------------------------------------|---|-----------------------|---|-----------------------|---|-----------------------|
| Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.) | 373 | 384 | 385 | 386 | | | | | | | | |
| Sample Sequence # | 3 | 3 | 3 | 3 | | | | | | | | |
| 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) | 5/28/2019 15:09 | 5/29/2019 13:23 | 5/29/2019 14:01 | 5/29/2019 13:40 | | | | | | | | |
| Duplicate ("Y" or "N") ² | N | N | N | N | | | | | | | | |
| Split ("Y" or "N") ³ | N | N | N | N | | | | | | | | |
| Facility Sample ID Number (if applicable) | MW373UG3-19R | MW384SG3-19R | MW385SG3-19R | MW386SG3-19R | | | | | | | | |
| Laboratory Sample ID Number (if applicable) | 480404018 | 480527007 | 480527008 | 480527009 | | | | | | | | |
| Date of Analysis (Month/Day/Year) For <u>Volatile Organics</u> Analysis | 6/7/2019 | 6/8/2019 | 6/9/2019 | 6/9/2019 | | | | | | | | |
| Gradient with respect to Monitored Unit (UP, DOWN, SIDE, UNKNOWN) | DOWN | SIDE | SIDE | SIDE | | | | | | | | |
| 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 | | * | | * | | * | | * |
| 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 | 29.8 | | 29.81 | | 29.8 | | 29.81 | |
| S0145- - | Specific Conductance | T | µMHO/cm | Field | 767 | | 425 | | 418 | | 576 | |

C-92

¹AKGWA # is 0000-0000 for any type of blank.

²Respond "Y" if the sample was a duplicate of another sample in this report.

³Respond "Y" if the sample was split and analyzed by separate laboratories.

⁴Chemical 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.

⁷Flags 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/INERT-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

GROUNDWATER SAMPLE ANALYSIS - (Cont.)

| AKGWA NUMBER ¹ , Facility Well/Spring Number | | | | | 8004-4792 | 8004-4809 | 8004-4810 | 8004-4804 | | | | |
|--|------------------------------|-------------|-----------------------|--------|---|-----------------------|---|-----------------------|---|-----------------------|---|-----------------------|
| Facility's Local Well or Spring Number (e.g., MW-1, MW-2, BLANK-F, etc.) | | | | | 373 | 384 | 385 | 386 | | | | |
| CAS RN ⁴ | CONSTITUENT | T D 5 | Unit OF MEASURE | METHOD | DETECTED VALUE OR PQL ⁶ | F L A G S |
| S0906 - - | Static Water Level Elevation | T | Ft. MSL | Field | 332.76 | | 332.29 | | 332.33 | | 345.62 | |
| N238 | Dissolved Oxygen | T | mg/L | Field | 1.28 | | 4.72 | | 2.6 | | 3.51 | |
| S0266- - | Total Dissolved Solids | T | mg/L | 160.1 | | * | | * | | * | | * |
| S0296- - | pH | T | Units | Field | 6.21 | | 6.14 | | 6.14 | | 6.92 | |
| NS215 | Eh | T | mV | Field | 374 | | 423 | | 444 | | 429 | |
| S0907 - - | Temperature | T | °C | Field | 18.72 | | 18.61 | | 18.72 | | 18.28 | |
| 7429-90-5 | Aluminum | T | mg/L | 6020 | | * | | * | | * | | * |
| 7440-36-0 | Antimony | T | mg/L | 6020 | | * | | * | | * | | * |
| 7440-38-2 | Arsenic | T | mg/L | 6020 | | * | | * | | * | | * |
| 7440-39-3 | Barium | T | mg/L | 6020 | | * | | * | | * | | * |
| 7440-41-7 | Beryllium | T | mg/L | 6020 | | * | | * | | * | | * |
| 7440-42-8 | Boron | T | mg/L | 6020 | | * | | * | | * | | * |
| 7440-43-9 | Cadmium | T | mg/L | 6020 | | * | | * | | * | | * |
| 7440-70-2 | Calcium | T | mg/L | 6020 | | * | | * | | * | | * |
| 7440-47-3 | Chromium | T | mg/L | 6020 | | * | | * | | * | | * |
| 7440-48-4 | Cobalt | T | mg/L | 6020 | | * | | * | | * | | * |
| 7440-50-8 | Copper | T | mg/L | 6020 | | * | | * | | * | | * |
| 7439-89-6 | Iron | T | mg/L | 6020 | | * | | * | | * | | * |
| 7439-92-1 | Lead | T | mg/L | 6020 | | * | | * | | * | | * |
| 7439-95-4 | Magnesium | T | mg/L | 6020 | | * | | * | | * | | * |
| 7439-96-5 | Manganese | T | mg/L | 6020 | | * | | * | | * | | * |
| 7439-97-6 | Mercury | T | mg/L | 7470 | | * | | * | | * | | * |

C-93

RESIDENTIAL/INERT-QUARTERLY

Facility: US DOE - Paducah Gaseous Diffusion Plant

FINDS/UNIT: KY8-890-008-982 / 1

Permit Number: SW07300014, SW07300015, SW07300045

LAB ID: None

For Official Use Only

GROUNDWATER SAMPLE ANALYSIS - (Cont.)

| AKGWA NUMBER ¹ , Facility Well/Spring Number | | | | | 8004-4792 | 8004-4809 | 8004-4810 | 8004-4804 | | | | |
|---|------------------------|-------------|-----------------------|----------|---|-----------------------|---|-----------------------|---|-----------------------|---|-----------------------|
| Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.) | | | | | 373 | 384 | 385 | 386 | | | | |
| CAS RN ⁴ | CONSTITUENT | T D 5 | Unit OF MEASURE | METHOD | DETECTED VALUE OR PQL ⁶ | F L A G S |
| 11097-69-1 | PCB-1254 | T | ug/L | 8082 | | * | | * | | * | | * |
| 11096-82-5 | PCB-1260 | T | ug/L | 8082 | | * | | * | | * | | * |
| 11100-14-4 | PCB-1268 | T | ug/L | 8082 | | * | | * | | * | | * |
| 12587-46-1 | Gross Alpha | T | pCi/L | 9310 | | * | | * | | * | | * |
| 12587-47-2 | Gross Beta | T | pCi/L | 9310 | | * | | * | | * | | * |
| 10043-66-0 | Iodine-131 | T | pCi/L | | | * | | * | | * | | * |
| 13982-63-3 | Radium-226 | T | pCi/L | AN-1418 | | * | | * | | * | | * |
| 10098-97-2 | Strontium-90 | T | pCi/L | 905.0 | | * | | * | | * | | * |
| 14133-76-7 | Technetium-99 | T | pCi/L | Tc-02-RC | | * | | * | | * | | * |
| 14269-63-7 | Thorium-230 | T | pCi/L | Th-01-RC | | * | | * | | * | | * |
| 10028-17-8 | Tritium | T | pCi/L | 906.0 | | * | | * | | * | | * |
| 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 | | * | | * | | * | | * |
| S0268- - | Total Organic Carbon | T | mg/L | 9060 | | * | | * | | * | | * |
| S0586- - | Total Organic Halides | T | mg/L | 9020 | 0.0105 | B | 0.008 | J | 0.0114 | B | 0.108 | B |
| | | | | | | | | | | | | |
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C-94

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

RESIDENTIAL/INERT-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

GROUNDWATER SAMPLE ANALYSIS (S)

| AKGWA NUMBER ¹ , Facility Well/Spring Number | 8004-4815 | 8004-4816 | 8004-4811 | 8004-4805 | | | | | | | | |
|---|-----------------------------|-----------------|-----------------------|-----------------|---|------------------------------------|---|-----------------------|---|-----------------------|---|-----------------------|
| Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.) | 387 | 388 | 390 | 391 | | | | | | | | |
| Sample Sequence # | 3 | 3 | 3 | 3 | | | | | | | | |
| 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) | 5/29/2019 12:38 | 5/29/2019 12:58 | 5/29/2019 12:15 | 5/29/2019 08:15 | | | | | | | | |
| Duplicate ("Y" or "N") ² | N | N | N | N | | | | | | | | |
| Split ("Y" or "N") ³ | N | N | N | N | | | | | | | | |
| Facility Sample ID Number (if applicable) | MW387SG3-19R | MW388SG3-19R | MW390SG3-19R | MW391SG3-19R | | | | | | | | |
| Laboratory Sample ID Number (if applicable) | 480527010 | 480527011 | 480527012 | 480527013 | | | | | | | | |
| Date of Analysis (Month/Day/Year) For <u>Volatiles Organics</u> Analysis | 6/9/2019 | 6/9/2019 | 6/9/2019 | 6/9/2019 | | | | | | | | |
| 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 | | * | | * | | * | | * |
| 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 | 29.82 | | 29.81 | | 29.82 | | 29.8 | |
| S0145- - | Specific Conductance | T | µMH0/cm | Field | 526 | | 469 | | 676 | | 494 | |

C-95

¹AKGWA # is 0000-0000 for any type of blank.

²Respond "Y" if the sample was a duplicate of another sample in this report.

³Respond "Y" if the sample was split and analyzed by separate laboratories.

⁴Chemical 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.

⁷Flags 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/INERT-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

GROUNDWATER SAMPLE ANALYSIS - (Cont.)

| AKGWA NUMBER ¹ , Facility Well/Spring Number | | | | | 8004-4815 | 8004-4816 | 8004-4811 | 8004-4805 | | | | |
|--|------------------------------|-------------|-----------------------|--------|---|-----------------------|---|-----------------------|---|-----------------------|---|-----------------------|
| Facility's Local Well or Spring Number (e.g., MW-1, MW-2, BLANK-F, etc.) | | | | | 387 | 388 | 390 | 391 | | | | |
| CAS RN ⁴ | CONSTITUENT | T D 5 | Unit OF MEASURE | METHOD | DETECTED VALUE OR PQL ⁶ | F L A G S |
| S0906 - - | Static Water Level Elevation | T | Ft. MSL | Field | 332.34 | | 332.34 | | 332.5 | | 332.44 | |
| N238 | Dissolved Oxygen | T | mg/L | Field | 3.49 | | 2.9 | | 4.62 | | 2.92 | |
| S0266- - | Total Dissolved Solids | T | mg/L | 160.1 | | * | | * | | * | | * |
| S0296- - | pH | T | Units | Field | 6.25 | | 6.14 | | 6.41 | | 6.1 | |
| NS215 | Eh | T | mV | Field | 436 | | 405 | | 464 | | 462 | |
| S0907 - - | Temperature | T | °C | Field | 18.11 | | 18.61 | | 18.06 | | 18.67 | |
| 7429-90-5 | Aluminum | T | mg/L | 6020 | | * | | * | | * | | * |
| 7440-36-0 | Antimony | T | mg/L | 6020 | | * | | * | | * | | * |
| 7440-38-2 | Arsenic | T | mg/L | 6020 | | * | | * | | * | | * |
| 7440-39-3 | Barium | T | mg/L | 6020 | | * | | * | | * | | * |
| 7440-41-7 | Beryllium | T | mg/L | 6020 | | * | | * | | * | | * |
| 7440-42-8 | Boron | T | mg/L | 6020 | | * | | * | | * | | * |
| 7440-43-9 | Cadmium | T | mg/L | 6020 | | * | | * | | * | | * |
| 7440-70-2 | Calcium | T | mg/L | 6020 | | * | | * | | * | | * |
| 7440-47-3 | Chromium | T | mg/L | 6020 | | * | | * | | * | | * |
| 7440-48-4 | Cobalt | T | mg/L | 6020 | | * | | * | | * | | * |
| 7440-50-8 | Copper | T | mg/L | 6020 | | * | | * | | * | | * |
| 7439-89-6 | Iron | T | mg/L | 6020 | | * | | * | | * | | * |
| 7439-92-1 | Lead | T | mg/L | 6020 | | * | | * | | * | | * |
| 7439-95-4 | Magnesium | T | mg/L | 6020 | | * | | * | | * | | * |
| 7439-96-5 | Manganese | T | mg/L | 6020 | | * | | * | | * | | * |
| 7439-97-6 | Mercury | T | mg/L | 7470 | | * | | * | | * | | * |

C-96

RESIDENTIAL/INERT-QUARTERLY

Facility: US DOE - Paducah Gaseous Diffusion Plant

FINDS/UNIT: KY8-890-008-982 / 1

Permit Number: SW07300014, SW07300015, SW07300045

LAB ID: None

For Official Use Only

GROUNDWATER SAMPLE ANALYSIS - (Cont.)

| AKGWA NUMBER ¹ , Facility Well/Spring Number | | | | | 8004-4815 | 8004-4816 | 8004-4811 | 8004-4805 | | | | |
|---|------------------------|-------------|-----------------------|----------|---|-----------------------|---|-----------------------|---|-----------------------|---|-----------------------|
| Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.) | | | | | 387 | 388 | 390 | 391 | | | | |
| CAS RN ⁴ | CONSTITUENT | T D 5 | Unit OF MEASURE | METHOD | DETECTED VALUE OR PQL ⁶ | F L A G S |
| 11097-69-1 | PCB-1254 | T | ug/L | 8082 | | * | | * | | * | | * |
| 11096-82-5 | PCB-1260 | T | ug/L | 8082 | | * | | * | | * | | * |
| 11100-14-4 | PCB-1268 | T | ug/L | 8082 | | * | | * | | * | | * |
| 12587-46-1 | Gross Alpha | T | pCi/L | 9310 | | * | | * | | * | | * |
| 12587-47-2 | Gross Beta | T | pCi/L | 9310 | | * | | * | | * | | * |
| 10043-66-0 | Iodine-131 | T | pCi/L | | | * | | * | | * | | * |
| 13982-63-3 | Radium-226 | T | pCi/L | AN-1418 | | * | | * | | * | | * |
| 10098-97-2 | Strontium-90 | T | pCi/L | 905.0 | | * | | * | | * | | * |
| 14133-76-7 | Technetium-99 | T | pCi/L | Tc-02-RC | | * | | * | | * | | * |
| 14269-63-7 | Thorium-230 | T | pCi/L | Th-01-RC | | * | | * | | * | | * |
| 10028-17-8 | Tritium | T | pCi/L | 906.0 | | * | | * | | * | | * |
| 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 | | * | | * | | * | | * |
| S0268- - | Total Organic Carbon | T | mg/L | 9060 | | * | | * | | * | | * |
| S0586- - | Total Organic Halides | T | mg/L | 9020 | 0.00682 | BJ | 0.0129 | B | 0.0113 | B | 0.00728 | J |
| | | | | | | | | | | | | |
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C-97

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

RESIDENTIAL/INERT-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

GROUNDWATER SAMPLE ANALYSIS (S)

| AKGWA NUMBER ¹ , Facility Well/Spring Number | 8004-4806 | 8004-4807 | 8004-4802 | 8004-4801 | | | | | | | | |
|---|-----------------------------|-----------------|-----------------------|-----------------|---|------------------------------------|---|-----------------------|---|-----------------------|---|-----------------------|
| Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.) | 392 | 393 | 394 | 395 | | | | | | | | |
| Sample Sequence # | 3 | 3 | 3 | 3 | | | | | | | | |
| 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) | 5/29/2019 07:37 | 5/29/2019 07:56 | 5/29/2019 09:18 | 5/29/2019 08:40 | | | | | | | | |
| Duplicate ("Y" or "N") ² | N | N | N | N | | | | | | | | |
| Split ("Y" or "N") ³ | N | N | N | N | | | | | | | | |
| Facility Sample ID Number (if applicable) | MW392SG3-19R | MW393SG3-19R | MW394SG3-19R | MW395SG3-19R | | | | | | | | |
| Laboratory Sample ID Number (if applicable) | 480527014 | 480527015 | 480527016 | 480527017 | | | | | | | | |
| Date of Analysis (Month/Day/Year) For <u>Volatiles Organics</u> Analysis | 6/9/2019 | 6/9/2019 | 6/9/2019 | 6/9/2019 | | | | | | | | |
| Gradient with respect to Monitored Unit (UP, DOWN, SIDE, UNKNOWN) | DOWN | DOWN | UP | UP | | | | | | | | |
| 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 | | * | | * | | * | | * |
| 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 | 29.78 | | 29.8 | | 29.81 | | 29.8 | |
| S0145- - | Specific Conductance | T | µMHO/cm | Field | 441 | | 448 | | 383 | | 367 | |

C-98

¹AKGWA # is 0000-0000 for any type of blank.

²Respond "Y" if the sample was a duplicate of another sample in this report.

³Respond "Y" if the sample was split and analyzed by separate laboratories.

⁴Chemical 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.

⁷Flags 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/INERT-QUARTERLY

Facility: US DOE - Paducah Gaseous Diffusion Plant

FINDS/UNIT: KY8-890-008-982 / 1

Permit Number: SW07300014, SW07300015, SW07300045

LAB ID: None

For Official Use Only

GROUNDWATER SAMPLE ANALYSIS - (Cont.)

| AKGWA NUMBER ¹ , Facility Well/Spring Number | | | | | 8004-4806 | 8004-4807 | 8004-4802 | 8004-4801 | | | | |
|--|------------------------------|-------------|-----------------------|--------|---|-----------------------|---|-----------------------|---|-----------------------|---|-----------------------|
| Facility's Local Well or Spring Number (e.g., MW-1, MW-2, BLANK-F, etc.) | | | | | 392 | 393 | 394 | 395 | | | | |
| CAS RN ⁴ | CONSTITUENT | T D 5 | Unit OF MEASURE | METHOD | DETECTED VALUE OR PQL ⁶ | F L A G S |
| S0906 - - | Static Water Level Elevation | T | Ft. MSL | Field | 332.39 | | 342.05 | | 332.75 | | 333.11 | |
| N238 | Dissolved Oxygen | T | mg/L | Field | 0.81 | | 2.38 | | 3.93 | | 4.57 | |
| S0266- - | Total Dissolved Solids | T | mg/L | 160.1 | | * | | * | | * | | * |
| S0296- - | pH | T | Units | Field | 6.2 | | 6.3 | | 6.11 | | 6.08 | |
| NS215 | Eh | T | mV | Field | 429 | | 454 | | 463 | | 477 | |
| S0907 - - | Temperature | T | °C | Field | 17.89 | | 18.5 | | 17.5 | | 17.28 | |
| 7429-90-5 | Aluminum | T | mg/L | 6020 | | * | | * | | * | | * |
| 7440-36-0 | Antimony | T | mg/L | 6020 | | * | | * | | * | | * |
| 7440-38-2 | Arsenic | T | mg/L | 6020 | | * | | * | | * | | * |
| 7440-39-3 | Barium | T | mg/L | 6020 | | * | | * | | * | | * |
| 7440-41-7 | Beryllium | T | mg/L | 6020 | | * | | * | | * | | * |
| 7440-42-8 | Boron | T | mg/L | 6020 | | * | | * | | * | | * |
| 7440-43-9 | Cadmium | T | mg/L | 6020 | | * | | * | | * | | * |
| 7440-70-2 | Calcium | T | mg/L | 6020 | | * | | * | | * | | * |
| 7440-47-3 | Chromium | T | mg/L | 6020 | | * | | * | | * | | * |
| 7440-48-4 | Cobalt | T | mg/L | 6020 | | * | | * | | * | | * |
| 7440-50-8 | Copper | T | mg/L | 6020 | | * | | * | | * | | * |
| 7439-89-6 | Iron | T | mg/L | 6020 | | * | | * | | * | | * |
| 7439-92-1 | Lead | T | mg/L | 6020 | | * | | * | | * | | * |
| 7439-95-4 | Magnesium | T | mg/L | 6020 | | * | | * | | * | | * |
| 7439-96-5 | Manganese | T | mg/L | 6020 | | * | | * | | * | | * |
| 7439-97-6 | Mercury | T | mg/L | 7470 | | * | | * | | * | | * |

C-99

RESIDENTIAL/INERT-QUARTERLY

Facility: US DOE - Paducah Gaseous Diffusion Plant

FINDS/UNIT: KY8-890-008-982 / 1

Permit Number: SW07300014, SW07300015, SW07300045

LAB ID: None

For Official Use Only

GROUNDWATER SAMPLE ANALYSIS - (Cont.)

| AKGWA NUMBER ¹ , Facility Well/Spring Number | | | | | 8004-4806 | 8004-4807 | 8004-4802 | 8004-4801 | | | | |
|---|------------------------|-------------|-----------------------|----------|---|-----------------------|---|-----------------------|---|-----------------------|---|-----------------------|
| Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.) | | | | | 392 | 393 | 394 | 395 | | | | |
| CAS RN ⁴ | CONSTITUENT | T D 5 | Unit OF MEASURE | METHOD | DETECTED VALUE OR PQL ⁶ | F L A G S |
| 11097-69-1 | PCB-1254 | T | ug/L | 8082 | | * | | * | | * | | * |
| 11096-82-5 | PCB-1260 | T | ug/L | 8082 | | * | | * | | * | | * |
| 11100-14-4 | PCB-1268 | T | ug/L | 8082 | | * | | * | | * | | * |
| 12587-46-1 | Gross Alpha | T | pCi/L | 9310 | | * | | * | | * | | * |
| 12587-47-2 | Gross Beta | T | pCi/L | 9310 | | * | | * | | * | | * |
| 10043-66-0 | Iodine-131 | T | pCi/L | | | * | | * | | * | | * |
| 13982-63-3 | Radium-226 | T | pCi/L | AN-1418 | | * | | * | | * | | * |
| 10098-97-2 | Strontium-90 | T | pCi/L | 905.0 | | * | | * | | * | | * |
| 14133-76-7 | Technetium-99 | T | pCi/L | Tc-02-RC | | * | | * | | * | | * |
| 14269-63-7 | Thorium-230 | T | pCi/L | Th-01-RC | | * | | * | | * | | * |
| 10028-17-8 | Tritium | T | pCi/L | 906.0 | | * | | * | | * | | * |
| 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 | | * | | * | | * | | * |
| S0268- - | Total Organic Carbon | T | mg/L | 9060 | | * | | * | | * | | * |
| S0586- - | Total Organic Halides | T | mg/L | 9020 | 0.0227 | | 0.0171 | | 0.00508 | J | 0.00434 | J |
| | | | | | | | | | | | | |
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C-100

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

RESIDENTIAL/INERT-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

GROUNDWATER SAMPLE ANALYSIS (S)

| AKGWA NUMBER ¹ , Facility Well/Spring Number | 8004-4803 | 8004-4817 | 8000-5202 | | | | | | | | | |
|---|-----------------------------|-----------------|-----------------------|--------|---|------------------------------------|---|-----------------------|---|-----------------------|---|-----------------------|
| Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.) | 396 | 397 | 221 | | | | | | | | | |
| Sample Sequence # | 3 | 3 | 4 | | | | | | | | | |
| 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) | 5/29/2019 08:58 | 5/29/2019 11:53 | 5/30/2019 07:58 | | | | | | | | | |
| Duplicate ("Y" or "N") ² | N | N | Y | | | | | | | | | |
| Split ("Y" or "N") ³ | N | N | N | | | | | | | | | |
| Facility Sample ID Number (if applicable) | MW396SG3-19R | MW397SG3-19R | MW221DSG3-19R | | | | | | | | | |
| Laboratory Sample ID Number (if applicable) | 480527018 | 480527019 | 480527002 | | | | | | | | | |
| Date of Analysis (Month/Day/Year) For <u>Volatile Organics</u> Analysis | 6/9/2019 | 6/9/2019 | 6/7/2019 | | | | | | | | | |
| Gradient with respect to Monitored Unit (UP, DOWN, SIDE, UNKNOWN) | UP | UP | SIDE | | | | | | | | | |
| 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 | | * | | * | | * | | |
| 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 | 29.81 | | 29.82 | | | * | | |
| S0145- - | Specific Conductance | T | µMH0/cm | Field | 722 | | 318 | | | * | | |

C-101

¹AKGWA # is 0000-0000 for any type of blank.

²Respond "Y" if the sample was a duplicate of another sample in this report.

³Respond "Y" if the sample was split and analyzed by separate laboratories.

⁴Chemical 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.

⁷Flags 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/INERT-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

GROUNDWATER SAMPLE ANALYSIS - (Cont.)

| AKGWA NUMBER ¹ , Facility Well/Spring Number | | | | | 8004-4803 | 8004-4817 | 8000-5202 | | | | | |
|--|------------------------------|-------------|-----------------------|--------|---|-----------------------|---|-----------------------|---|-----------------------|---|-----------------------|
| Facility's Local Well or Spring Number (e.g., MW-1, MW-2, BLANK-F, etc.) | | | | | 396 | 397 | 221 | | | | | |
| CAS RN ⁴ | CONSTITUENT | T D 5 | Unit OF MEASURE | METHOD | DETECTED VALUE OR PQL ⁶ | F L A G S |
| S0906 - - | Static Water Level Elevation | T | Ft. MSL | Field | 372.99 | | 332.68 | | | * | | |
| N238 | Dissolved Oxygen | T | mg/L | Field | 1.47 | | 5.24 | | | * | | |
| S0266- - | Total Dissolved Solids | T | mg/L | 160.1 | | * | | * | | * | | |
| S0296- - | pH | T | Units | Field | 6.71 | | 6.11 | | | * | | |
| NS215 | Eh | T | mV | Field | 424 | | 488 | | | * | | |
| S0907 - - | Temperature | T | °C | Field | 17.61 | | 18.11 | | | * | | |
| 7429-90-5 | Aluminum | T | mg/L | 6020 | | * | | * | | * | | |
| 7440-36-0 | Antimony | T | mg/L | 6020 | | * | | * | | * | | |
| 7440-38-2 | Arsenic | T | mg/L | 6020 | | * | | * | | * | | |
| 7440-39-3 | Barium | T | mg/L | 6020 | | * | | * | | * | | |
| 7440-41-7 | Beryllium | T | mg/L | 6020 | | * | | * | | * | | |
| 7440-42-8 | Boron | T | mg/L | 6020 | | * | | * | | * | | |
| 7440-43-9 | Cadmium | T | mg/L | 6020 | | * | | * | | * | | |
| 7440-70-2 | Calcium | T | mg/L | 6020 | | * | | * | | * | | |
| 7440-47-3 | Chromium | T | mg/L | 6020 | | * | | * | | * | | |
| 7440-48-4 | Cobalt | T | mg/L | 6020 | | * | | * | | * | | |
| 7440-50-8 | Copper | T | mg/L | 6020 | | * | | * | | * | | |
| 7439-89-6 | Iron | T | mg/L | 6020 | | * | | * | | * | | |
| 7439-92-1 | Lead | T | mg/L | 6020 | | * | | * | | * | | |
| 7439-95-4 | Magnesium | T | mg/L | 6020 | | * | | * | | * | | |
| 7439-96-5 | Manganese | T | mg/L | 6020 | | * | | * | | * | | |
| 7439-97-6 | Mercury | T | mg/L | 7470 | | * | | * | | * | | |

C-102

RESIDENTIAL/INERT-QUARTERLY

Facility: US DOE - Paducah Gaseous Diffusion Plant

FINDS/UNIT: KY8-890-008-982 / 1

Permit Number: SW07300014, SW07300015, SW07300045

LAB ID: None

For Official Use Only

GROUNDWATER SAMPLE ANALYSIS - (Cont.)

| AKGWA NUMBER ¹ , Facility Well/Spring Number | | | | | 8004-4803 | 8004-4817 | 8000-5202 | | | | | |
|---|------------------------|-------------|-----------------------|----------|---|-----------------------|---|-----------------------|---|-----------------------|---|-----------------------|
| Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.) | | | | | 396 | 397 | 221 | | | | | |
| CAS RN ⁴ | CONSTITUENT | T D 5 | Unit OF MEASURE | METHOD | DETECTED VALUE OR PQL ⁶ | F L A G S |
| 11097-69-1 | PCB-1254 | T | ug/L | 8082 | | * | | * | | * | | |
| 11096-82-5 | PCB-1260 | T | ug/L | 8082 | | * | | * | | * | | |
| 11100-14-4 | PCB-1268 | T | ug/L | 8082 | | * | | * | | * | | |
| 12587-46-1 | Gross Alpha | T | pCi/L | 9310 | | * | | * | | * | | |
| 12587-47-2 | Gross Beta | T | pCi/L | 9310 | | * | | * | | * | | |
| 10043-66-0 | Iodine-131 | T | pCi/L | | | * | | * | | * | | |
| 13982-63-3 | Radium-226 | T | pCi/L | AN-1418 | | * | | * | | * | | |
| 10098-97-2 | Strontium-90 | T | pCi/L | 905.0 | | * | | * | | * | | |
| 14133-76-7 | Technetium-99 | T | pCi/L | Tc-02-RC | | * | | * | | * | | |
| 14269-63-7 | Thorium-230 | T | pCi/L | Th-01-RC | | * | | * | | * | | |
| 10028-17-8 | Tritium | T | pCi/L | 906.0 | | * | | * | | * | | |
| 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 | | * | | * | | * | | |
| S0268- - | Total Organic Carbon | T | mg/L | 9060 | | * | | * | | * | | |
| S0586- - | Total Organic Halides | T | mg/L | 9020 | 0.031 | | 0.0088 | J | 0.0167 | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |

C-103

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

GROUNDWATER WRITTEN COMMENTS

| Monitoring Point | Facility Sample ID | Constituent | Flag | Description |
|------------------|--------------------|------------------------|------|---|
| 8000-5201 MW220 | MW220SG3-19R | 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. |
| | | Total Dissolved Solids | | 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. |
| | | 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. |

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

GROUNDWATER WRITTEN COMMENTS

| Monitoring Point | Facility Sample ID | Constituent | Flag | Description |
|------------------|--------------------|------------------------|------|---|
| 8000-5202 MW221 | MW221SG3-19R | 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. |
| | | Total Dissolved Solids | | 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. |
| | | 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. |

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

GROUNDWATER WRITTEN COMMENTS

| Monitoring Point | Facility Sample ID | Constituent | Flag | Description |
|------------------|--------------------|------------------------|------|---|
| 8000-5242 MW222 | MW222SG3-19R | 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. |
| | | Total Dissolved Solids | | 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. |
| | | 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. |

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

GROUNDWATER WRITTEN COMMENTS

| Monitoring Point | Facility Sample ID | Constituent | Flag | Description |
|------------------|--------------------|------------------------|------|---|
| 8000-5243 MW223 | MW223SG3-19R | 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. |
| | | Total Dissolved Solids | | 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. |
| | | 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. |

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

GROUNDWATER WRITTEN COMMENTS

| Monitoring Point | Facility Sample ID | Constituent | Flag | Description |
|------------------|--------------------|------------------------|------|---|
| 8000-5244 MW224 | MW224SG3-19R | 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. |
| | | Total Dissolved Solids | | 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. |
| | | 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. |

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

GROUNDWATER WRITTEN COMMENTS

| Monitoring Point | Facility Sample ID | Constituent | Flag | Description |
|------------------|--------------------|------------------------|------|---|
| 8004-4820 | MW369 | MW369UG3-19R | | |
| | | 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. |
| | | Total Dissolved Solids | | 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. |
| | | 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. |

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

GROUNDWATER WRITTEN COMMENTS

| Monitoring Point | Facility Sample ID | Constituent | Flag | Description |
|------------------|--------------------|------------------------|------|---|
| 8004-4818 MW370 | MW370UG3-19R | 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. |
| | | Total Dissolved Solids | | 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. |
| | | 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. |

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

GROUNDWATER WRITTEN COMMENTS

| Monitoring Point | Facility Sample ID | Constituent | Flag | Description |
|------------------|--------------------|------------------------|------|---|
| 8004-4808 | MW372 | MW372UG3-19R | | |
| | | 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. |
| | | Total Dissolved Solids | | 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. |
| | | 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. |

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

GROUNDWATER WRITTEN COMMENTS

| Monitoring Point | Facility Sample ID | Constituent | Flag | Description |
|------------------|--------------------|------------------------|------|---|
| 8004-4792 | MW373 MW373UG3-19R | 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. |
| | | Total Dissolved Solids | | 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. |
| | | 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. |

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

GROUNDWATER WRITTEN COMMENTS

| Monitoring Point | Facility Sample ID | Constituent | Flag | Description |
|------------------|--------------------|------------------------|------|---|
| 8004-4809 MW384 | MW384SG3-19R | 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. |
| | | Total Dissolved Solids | | 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. |
| | | 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. |

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

GROUNDWATER WRITTEN COMMENTS

| Monitoring Point | Facility Sample ID | Constituent | Flag | Description |
|------------------|--------------------|------------------------|------|---|
| 8004-4810 | MW385 | MW385SG3-19R | | |
| | | 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. |
| | | Total Dissolved Solids | | 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. |
| | | 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. |

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

GROUNDWATER WRITTEN COMMENTS

| Monitoring Point | Facility Sample ID | Constituent | Flag | Description |
|------------------|--------------------|------------------------|------|---|
| 8004-4804 MW386 | MW386SG3-19R | 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. |
| | | Total Dissolved Solids | | 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. |
| | | 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. |

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

GROUNDWATER WRITTEN COMMENTS

| Monitoring Point | Facility Sample ID | Constituent | Flag | Description |
|------------------|--------------------|------------------------|------|---|
| 8004-4815 MW387 | MW387SG3-19R | 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. |
| | | Total Dissolved Solids | | 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. |
| | | 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. |

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

GROUNDWATER WRITTEN COMMENTS

| Monitoring Point | Facility Sample ID | Constituent | Flag | Description |
|------------------|--------------------|------------------------|------|---|
| 8004-4816 MW388 | MW388SG3-19R | 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. |
| | | Total Dissolved Solids | | 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. |
| | | 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. |

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

GROUNDWATER WRITTEN COMMENTS

| Monitoring Point | Facility Sample ID | Constituent | Flag | Description |
|------------------|--------------------|------------------------|------|---|
| 8004-4811 MW390 | MW390SG3-19R | 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. |
| | | Total Dissolved Solids | | 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. |
| | | 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. |

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

GROUNDWATER WRITTEN COMMENTS

| Monitoring Point | Facility Sample ID | Constituent | Flag | Description |
|------------------|--------------------|------------------------|------|---|
| 8004-4805 MW391 | MW391SG3-19R | 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. |
| | | Total Dissolved Solids | | 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. |
| | | 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. |

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

GROUNDWATER WRITTEN COMMENTS

| Monitoring Point | Facility Sample ID | Constituent | Flag | Description |
|------------------|--------------------|------------------------|------|---|
| 8004-4806 MW392 | MW392SG3-19R | 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. |
| | | Total Dissolved Solids | | 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. |
| | | 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. |

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

GROUNDWATER WRITTEN COMMENTS

| Monitoring Point | Facility Sample ID | Constituent | Flag | Description |
|------------------|--------------------|------------------------|------|---|
| 8004-4807 | MW393 MW393SG3-19R | 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. |
| | | Total Dissolved Solids | | 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. |
| | | 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. |

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Finds/Unit: KY8-890-008-982 / 1
 LAB ID: None
 For Official Use Only

GROUNDWATER WRITTEN COMMENTS

| Monitoring Point | Facility Sample ID | Constituent | Flag | Description |
|------------------|--------------------|------------------------|------|---|
| 8004-4802 | MW394 | MW394SG3-19R | | |
| | | 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. |
| | | Total Dissolved Solids | | 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. |
| | | 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. |

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

GROUNDWATER WRITTEN COMMENTS

| Monitoring Point | Facility Sample ID | Constituent | Flag | Description |
|------------------|--------------------|------------------------|------|---|
| 8004-4801 | MW395 | MW395SG3-19R | | |
| | | 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. |
| | | Total Dissolved Solids | | 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. |
| | | 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. |

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

GROUNDWATER WRITTEN COMMENTS

| Monitoring Point | Facility Sample ID | Constituent | Flag | Description |
|------------------|--------------------|------------------------|------|---|
| 8004-4803 MW396 | MW396SG3-19R | 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. |
| | | Total Dissolved Solids | | 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. |
| | | 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. |

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

GROUNDWATER WRITTEN COMMENTS

| Monitoring Point | Facility Sample ID | Constituent | Flag | Description |
|------------------|--------------------|------------------------|------|---|
| 8004-4817 | MW397 | MW397SG3-19R | | |
| | | 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. |
| | | Total Dissolved Solids | | 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. |
| | | 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. |

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

GROUNDWATER WRITTEN COMMENTS

| Monitoring Point | Facility Sample ID | Constituent | Flag | Description |
|------------------|--------------------|-----------------------------|------|---|
| 8000-5202 | MW221 | MW221DSG3-19R | | |
| | | 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 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. |
| | | 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. |
| | | 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. |

APPENDIX D
STATISTICAL ANALYSES AND
QUALIFICATION STATEMENT

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GROUNDWATER STATISTICAL COMMENTS

Introduction

The statistical analyses conducted on the second quarter 2019 groundwater data collected from the C-746-S&T Landfills monitoring wells (MWs) were performed in accordance with Permit GSTR0003, Standard Requirement 3, using the U.S. Environmental Protection Agency (EPA) guidance document, *EPA Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Interim Final Guidance* (1989).

The statistical evaluation was conducted separately for the three groundwater systems: the Upper Continental Recharge System (UCRS), the Upper Regional Gravel Aquifer (URGA), and the Lower Regional Gravel Aquifer (LRGA). For each groundwater system, data from wells considered to represent background conditions were compared with test wells (downgradient or sidegradient wells) (Exhibit D.1). The second quarter 2019 data used to conduct the statistical analyses were collected in April and May 2019. 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 was run on analytes that had at least one downgradient well that exceeded the historical background, using the last eight quarters. The sampling dates associated with both the historical and the current background data are listed next to the result in the statistical analysis sheets of this appendix.

Statistical Analysis Process

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

For the statistical analysis of pH, a two-sided tolerance interval statistical test is conducted for pH. The test well results are compared to both an upper and lower tolerance limit (TL) to determine if statistically significant deviations in concentrations exist with respect to upgradient (background) well data from the first eight quarters. 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 |
|---------------------|-------------|-----------------------------|
| MW220 | BG | URGA |
| MW221 | SG | URGA |
| MW222 | SG | URGA |
| MW223 | SG | URGA |
| MW224 | SG | URGA |
| MW369 | TW | URGA |
| MW370 | TW | LRGA |
| MW372 | TW | URGA |
| MW373 | TW | LRGA |
| MW384 | SG | URGA |
| MW385 | SG | LRGA |
| MW386 ¹ | SG | UCRS |
| MW387 | TW | URGA |
| MW388 | TW | LRGA |
| MW389 ^{1*} | TW | UCRS |
| MW390 ¹ | TW | UCRS |
| MW391 | TW | URGA |
| MW392 | TW | LRGA |
| MW393 ¹ | TW | UCRS |
| MW394 | BG | URGA |
| MW395 | BG | LRGA |
| MW396 ¹ | BG | UCRS |
| MW397 | BG | LRGA |

¹**NOTE:** The gradients in UCRS wells are downward. The UCRS wells identified as up-, side- or downgradient are those wells located in the same general direction as the RGA wells considered to be up-, side-, or downgradient.

BG: upgradient or background wells

TW: downgradient or test wells

SG: sidegradient wells

*Well was dry this quarter and a groundwater sample could not be collected.

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

For the statistical analysis of pH, a two-sided tolerance interval statistical test is conducted, if required. The test well pH results are compared to both an upper and lower TL to determine if the current pH is different from the current background level to a statistically significant level. Statistical analyses are performed on the last eight quarters of 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 a statistically significant difference in concentration compared to the current background concentration.

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

1. The TL is calculated for the background data (first using the first eight quarters, then using the last eight quarters).
 - For each parameter, the background data are used to establish a baseline. On this data set, the mean (X) and the standard deviation (S) are computed.
 - The data set is checked for normality using coefficient of variation (CV). If $CV \leq 1.0$, then the data are assumed to be normally distributed. Data sets with $CV > 1.0$ are assumed to be log-normally distributed; for data sets with $CV > 1.0$, the data are log-transformed and analyzed.
 - The factor (K) for one-sided upper TL with 95% minimum coverage is determined (Table 5, Appendix B; *EPA Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Interim Final Guidance*, 1989) based on the number of background data points.
 - The one-sided upper TL is calculated using the following equation:
$$TL = X + (K \times S)$$
2. Each observation from downgradient wells is compared to the calculated one-sided upper TL in Step 1. If an observation value exceeds the TL, 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-S&T Residential and Inert Landfills. Exhibit D.2 presents the parameters from the available data set for which a statistical test was performed using the one-sided tolerance interval.

Exhibits D.3, D.4, and D.5 list the number of analyses (observations), nondetects (censored observations), and detects (uncensored observations) by parameter in the UCRS, the URGA, and the LRGA, respectively. Those parameters displayed with bold-face type indicate the one-sided tolerance interval statistical test was performed. The data presented in Exhibits D.3, D.4, and D.5 were collected during the current quarter, second quarter 2019. The observations are representative of the current quarter data. Historical background data are presented in Attachment D1. The sampling dates associated with background data are listed next to the result in Attachment D1. When field duplicate data are available, the higher of the two readings is retained for further evaluation. When a data point has been rejected following data validation, this result is not used, and the next available data point is used for the background or current quarter data. A result has been considered a nondetect if it has a “U” validation code.

¹ For pH, two-sided TLs (upper and lower) were calculated with an adjusted K factor using the following equations:

$$\begin{aligned} \text{upper TL} &= X + (K \times S) \\ \text{lower TL} &= X - (K \times S) \end{aligned}$$

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

| Parameters |
|--------------------------------|
| Acetone |
| Aluminum |
| Antimony |
| Beta Activity |
| Boron |
| Bromide |
| Calcium |
| Carbon Disulfide |
| Chemical Oxygen Demand (COD) |
| Chloride |
| <i>cis</i> -1,2-Dichloroethene |
| Cobalt |
| Conductivity |
| Copper |
| Dissolved Oxygen |
| Dissolved Solids |
| Iron |
| Magnesium |
| Manganese |
| Methylene Chloride |
| Molybdenum |
| Nickel |
| Oxidation-Reduction Potential |
| pH* |
| Potassium |
| Sodium |
| Sulfate |
| Technetium-99 |
| Total Organic Carbon (TOC) |
| Total Organic Halides (TOX) |
| Trichloroethene |
| Vanadium |
| Zinc |

*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 | 1 | 3 | Yes |
| Antimony | 4 | 2 | 2 | Yes |
| Beryllium | 4 | 4 | 0 | No |
| Boron | 4 | 0 | 4 | Yes |
| Bromide | 4 | 0 | 4 | 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 |
| <i>cis</i> -1,2-Dichloroethene | 4 | 4 | 0 | No |
| <i>cis</i> -1,3-Dichloropropene | 4 | 4 | 0 | No |
| Cobalt | 4 | 2 | 2 | Yes |
| Conductivity | 4 | 0 | 4 | Yes |
| Copper | 4 | 0 | 4 | Yes |
| Cyanide | 4 | 4 | 0 | No |
| Dibromochloromethane | 4 | 4 | 0 | No |
| Dibromomethane | 4 | 4 | 0 | No |
| Dimethylbenzene, Total | 4 | 4 | 0 | No |
| Dissolved Oxygen | 4 | 0 | 4 | Yes |
| Dissolved Solids | 4 | 0 | 4 | Yes |
| Ethylbenzene | 4 | 4 | 0 | No |
| Iodide | 4 | 4 | 0 | No |

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

| Parameters | Observations | Censored Observation | Uncensored Observation | Statistical Analysis? |
|--------------------------------------|--------------|----------------------|------------------------|-----------------------|
| Iodomethane | 4 | 4 | 0 | No |
| Iron | 4 | 0 | 4 | Yes |
| Magnesium | 4 | 0 | 4 | Yes |
| Manganese | 4 | 1 | 3 | Yes |
| Methylene chloride | 4 | 4 | 0 | No |
| Molybdenum | 4 | 2 | 2 | Yes |
| Nickel | 4 | 1 | 3 | Yes |
| Oxidation-Reduction Potential | 4 | 0 | 4 | Yes |
| pH | 4 | 0 | 4 | Yes |
| Potassium | 4 | 0 | 4 | Yes |
| Radium-226 | 4 | 4 | 0 | No |
| Rhodium | 4 | 4 | 0 | No |
| Sodium | 4 | 0 | 4 | Yes |
| Styrene | 4 | 4 | 0 | No |
| Sulfate | 4 | 0 | 4 | Yes |
| Tantalum | 4 | 4 | 0 | No |
| Technetium-99 | 4 | 3 | 1 | Yes |
| Tetrachloroethene | 4 | 4 | 0 | No |
| Thallium | 4 | 4 | 0 | No |
| Thorium-230 | 4 | 4 | 0 | No |
| Toluene | 4 | 4 | 0 | No |
| Total Organic Carbon (TOC) | 4 | 0 | 4 | Yes |
| Total Organic Halides (TOX) | 4 | 0 | 4 | Yes |
| <i>trans</i> -1,2-Dichloroethene | 4 | 4 | 0 | No |
| <i>trans</i> -1,3-Dichloropropene | 4 | 4 | 0 | No |
| <i>trans</i> -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 | 2 | 2 | Yes |

Bold denotes parameters with at least one uncensored observation.

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

| Parameters | Observations | Censored Observation | Uncensored Observation | Statistical Analysis? |
|-------------------------------------|---------------------|-----------------------------|-------------------------------|------------------------------|
| 1,1,1,2-Tetrachloroethane | 11 | 11 | 0 | No |
| 1,1,2,2-Tetrachloroethane | 11 | 11 | 0 | No |
| 1,1,2-Trichloroethane | 11 | 11 | 0 | No |
| 1,1-Dichloroethane | 11 | 11 | 0 | No |
| 1,2,3-Trichloropropane | 11 | 11 | 0 | No |
| 1,2-Dibromo-3-chloropropane | 11 | 11 | 0 | No |
| 1,2-Dibromoethane | 11 | 11 | 0 | No |
| 1,2-Dichlorobenzene | 11 | 11 | 0 | No |
| 1,2-Dichloropropane | 11 | 11 | 0 | No |
| 2-Butanone | 11 | 11 | 0 | No |
| 2-Hexanone | 11 | 11 | 0 | No |
| 4-Methyl-2-pentanone | 11 | 11 | 0 | No |
| Acetone | 11 | 11 | 0 | No |
| Acrolein | 11 | 11 | 0 | No |
| Acrylonitrile | 11 | 11 | 0 | No |
| Aluminum | 11 | 10 | 1 | Yes |
| Antimony | 11 | 3 | 8 | Yes |
| Beryllium | 11 | 11 | 0 | No |
| Beta activity | 11 | 4 | 7 | Yes |
| Boron | 11 | 0 | 11 | Yes |
| Bromide | 11 | 0 | 11 | Yes |
| Bromochloromethane | 11 | 11 | 0 | No |
| Bromodichloromethane | 11 | 11 | 0 | No |
| Bromoform | 11 | 11 | 0 | No |
| Bromomethane | 11 | 11 | 0 | No |
| Calcium | 11 | 0 | 11 | Yes |
| Carbon disulfide | 11 | 10 | 1 | Yes |
| Chemical Oxygen Demand (COD) | 11 | 4 | 7 | Yes |
| Chloride | 11 | 0 | 11 | Yes |
| Chlorobenzene | 11 | 11 | 0 | No |
| Chloroethane | 11 | 11 | 0 | No |
| Chloroform | 11 | 11 | 0 | No |
| Chloromethane | 11 | 11 | 0 | No |
| cis-1,2-Dichloroethene | 11 | 10 | 1 | Yes |
| cis-1,3-Dichloropropene | 11 | 11 | 0 | No |
| Cobalt | 11 | 5 | 6 | Yes |
| Conductivity | 11 | 0 | 11 | Yes |
| Copper | 11 | 0 | 11 | Yes |
| Cyanide | 11 | 11 | 0 | No |
| Dibromochloromethane | 11 | 11 | 0 | No |
| Dibromomethane | 11 | 11 | 0 | No |
| Dimethylbenzene, Total | 11 | 11 | 0 | No |
| Dissolved Oxygen | 11 | 0 | 11 | Yes |
| Dissolved Solids | 11 | 0 | 11 | Yes |
| Ethylbenzene | 11 | 11 | 0 | No |

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

| Parameters | Observations | Censored Observation | Uncensored Observation | Statistical Analysis? |
|--------------------------------------|--------------|----------------------|------------------------|-----------------------|
| Iodide | 11 | 11 | 0 | No |
| Iodomethane | 11 | 11 | 0 | No |
| Iron | 11 | 2 | 9 | Yes |
| Magnesium | 11 | 0 | 11 | Yes |
| Manganese | 11 | 5 | 6 | Yes |
| Methylene chloride | 11 | 7 | 4 | Yes |
| Molybdenum | 11 | 7 | 4 | Yes |
| Nickel | 11 | 1 | 10 | Yes |
| Oxidation-Reduction Potential | 11 | 0 | 11 | Yes |
| pH | 11 | 0 | 11 | Yes |
| Potassium | 11 | 0 | 11 | Yes |
| Radium-226 | 11 | 11 | 0 | No |
| Rhodium | 11 | 11 | 0 | No |
| Sodium | 11 | 0 | 11 | Yes |
| Styrene | 11 | 11 | 0 | No |
| Sulfate | 11 | 0 | 11 | Yes |
| Tantalum | 11 | 11 | 0 | No |
| Technetium-99 | 11 | 6 | 5 | Yes |
| Tetrachloroethene | 11 | 11 | 0 | No |
| Thallium | 11 | 11 | 0 | No |
| Thorium-230 | 11 | 11 | 0 | No |
| Toluene | 11 | 11 | 0 | No |
| Total Organic Carbon (TOC) | 11 | 0 | 11 | Yes |
| Total Organic Halides (TOX) | 11 | 1 | 10 | Yes |
| <i>trans</i> -1,2-Dichloroethene | 11 | 11 | 0 | No |
| <i>trans</i> -1,3-Dichloropropene | 11 | 11 | 0 | No |
| <i>trans</i> -1,4-Dichloro-2-Butene | 11 | 11 | 0 | No |
| Trichloroethene | 11 | 4 | 7 | Yes |
| Trichlorofluoromethane | 11 | 11 | 0 | No |
| Vanadium | 11 | 9 | 2 | Yes |
| Vinyl Acetate | 11 | 11 | 0 | No |
| Zinc | 11 | 8 | 3 | Yes |

Bold denotes parameters with at least one uncensored observation.

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

| Parameters | Observations | Censored Observation | Uncensored Observation | Statistical Analysis? |
|-------------------------------------|---------------------|-----------------------------|-------------------------------|------------------------------|
| 1,1,1,2-Tetrachloroethane | 7 | 7 | 0 | No |
| 1,1,2,2-Tetrachloroethane | 7 | 7 | 0 | No |
| 1,1,2-Trichloroethane | 7 | 7 | 0 | No |
| 1,1-Dichloroethane | 7 | 7 | 0 | No |
| 1,2,3-Trichloropropane | 7 | 7 | 0 | No |
| 1,2-Dibromo-3-chloropropane | 7 | 7 | 0 | No |
| 1,2-Dibromoethane | 7 | 7 | 0 | No |
| 1,2-Dichlorobenzene | 7 | 7 | 0 | No |
| 1,2-Dichloropropane | 7 | 7 | 0 | No |
| 2-Butanone | 7 | 7 | 0 | No |
| 2-Hexanone | 7 | 7 | 0 | No |
| 4-Methyl-2-pentanone | 7 | 7 | 0 | No |
| Acetone | 7 | 6 | 1 | Yes |
| Acrolein | 7 | 7 | 0 | No |
| Acrylonitrile | 7 | 7 | 0 | No |
| Aluminum | 7 | 2 | 5 | Yes |
| Antimony | 7 | 3 | 4 | Yes |
| Beryllium | 7 | 7 | 0 | No |
| Beta activity | 7 | 3 | 4 | Yes |
| Boron | 7 | 0 | 7 | Yes |
| Bromide | 7 | 0 | 7 | Yes |
| Bromochloromethane | 7 | 7 | 0 | No |
| Bromodichloromethane | 7 | 7 | 0 | No |
| Bromoform | 7 | 7 | 0 | No |
| Bromomethane | 7 | 7 | 0 | No |
| Calcium | 7 | 0 | 7 | Yes |
| Carbon disulfide | 7 | 7 | 0 | No |
| Chemical Oxygen Demand (COD) | 7 | 5 | 2 | Yes |
| Chloride | 7 | 0 | 7 | Yes |
| Chlorobenzene | 7 | 7 | 0 | No |
| Chloroethane | 7 | 7 | 0 | No |
| Chloroform | 7 | 7 | 0 | No |
| Chloromethane | 7 | 7 | 0 | No |
| cis-1,2-Dichloroethene | 7 | 6 | 1 | Yes |
| cis-1,3-Dichloropropene | 7 | 7 | 0 | No |
| Cobalt | 7 | 4 | 3 | Yes |
| Conductivity | 7 | 0 | 7 | Yes |
| Copper | 7 | 0 | 7 | Yes |
| Cyanide | 7 | 7 | 0 | No |
| Dibromochloromethane | 7 | 7 | 0 | No |
| Dibromomethane | 7 | 7 | 0 | No |
| Dimethylbenzene, Total | 7 | 7 | 0 | No |
| Dissolved Oxygen | 7 | 0 | 7 | Yes |
| Dissolved Solids | 7 | 0 | 7 | Yes |
| Ethylbenzene | 7 | 7 | 0 | No |
| Iodide | 7 | 7 | 0 | No |
| Iodomethane | 7 | 7 | 0 | No |
| Iron | 7 | 0 | 7 | Yes |

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

| Parameters | Observations | Censored Observation | Uncensored Observation | Statistical Analysis? |
|--------------------------------------|---------------------|-----------------------------|-------------------------------|------------------------------|
| Magnesium | 7 | 0 | 7 | Yes |
| Manganese | 7 | 3 | 4 | Yes |
| Methylene chloride | 7 | 5 | 2 | Yes |
| Molybdenum | 7 | 7 | 0 | No |
| Nickel | 7 | 0 | 7 | Yes |
| Oxidation-Reduction Potential | 7 | 0 | 7 | Yes |
| pH | 7 | 0 | 7 | Yes |
| Potassium | 7 | 0 | 7 | Yes |
| Radium-226 | 7 | 7 | 0 | No |
| Rhodium | 7 | 7 | 0 | No |
| Sodium | 7 | 0 | 7 | Yes |
| Styrene | 7 | 7 | 0 | No |
| Sulfate | 7 | 0 | 7 | Yes |
| Tantalum | 7 | 7 | 0 | No |
| Technetium-99 | 7 | 2 | 5 | Yes |
| Tetrachloroethene | 7 | 7 | 0 | No |
| Thallium | 7 | 7 | 0 | No |
| Thorium-230 | 7 | 7 | 0 | No |
| Toluene | 7 | 7 | 0 | No |
| Total Organic Carbon (TOC) | 7 | 0 | 7 | Yes |
| Total Organic Halides (TOX) | 7 | 1 | 6 | Yes |
| <i>trans</i> -1,2-Dichloroethene | 7 | 7 | 0 | No |
| <i>trans</i> -1,3-Dichloropropene | 7 | 7 | 0 | No |
| <i>trans</i> -1,4-Dichloro-2-Butene | 7 | 7 | 0 | No |
| Trichloroethene | 7 | 1 | 6 | Yes |
| Trichlorofluoromethane | 7 | 7 | 0 | No |
| Vanadium | 7 | 5 | 2 | Yes |
| Vinyl Acetate | 7 | 7 | 0 | No |
| Zinc | 7 | 3 | 4 | Yes |

Bold denotes parameters with at least one uncensored observation.

Discussion of Results from Historical Background Comparison

For the UCRS, URGA, and LRGA, the concentrations of this quarter were compared to the results of the one-sided tolerance interval tests that were calculated using historical background and presented in Attachment D1. The statistician qualification statement is presented in Attachment D3. For the UCRS, URGA, and LRGA, the test was applied to 27, 32, and 31 parameters, respectively, including those listed in bold print in Exhibits D.3, D.4, and D.5, which includes those constituents (beta activity and trichloroethene) 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 exceedances of historical background UTL for chemical oxygen demand (COD), oxidation-reduction potential, and technetium-99.

URGA

This quarter's results identified exceedances of historical background UTL for beta activity, calcium, chemical oxygen demand (COD), dissolved solids, magnesium, oxidation-reduction potential, sodium, sulfate, and technetium-99.

LRGA

This quarter's results identified exceedances of historical background UTL for beta activity, calcium, chemical oxygen demand (COD), chloride, conductivity, dissolved solids, magnesium, oxidation-reduction potential, sulfate, and technetium-99.

Statistical Summary

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

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

| UCRS | URGA | LRGA |
|---|---|--|
| MW386: Oxidation-reduction potential | MW220: Oxidation-reduction potential, sulfate | MW370: Beta activity, oxidation-reduction potential, sulfate, technetium-99 |
| MW390: Oxidation-reduction potential, technetium-99 | MW221: Oxidation-reduction potential | MW373: Calcium, chemical oxygen demand (COD), conductivity, dissolved solids, magnesium, oxidation-reduction potential, sulfate |
| MW393: Oxidation-reduction potential | MW222: Oxidation-reduction potential | MW385: Beta activity, oxidation-reduction potential, sulfate, technetium-99 |
| MW396: Chemical Oxygen Demand (COD), oxidation-reduction potential | MW223: Oxidation-reduction potential, sulfate | MW388: Beta activity, oxidation-reduction potential, sulfate, technetium-99 |
| | MW224: Oxidation-reduction potential | MW392: Chloride, oxidation-reduction potential |
| | MW369: Beta activity, technetium-99 | MW395: Oxidation-reduction potential |
| | MW372: Calcium, chemical oxygen demand (COD), dissolved solids, magnesium, oxidation-reduction potential, sulfate, technetium-99 | MW397: Oxidation-reduction potential |
| | MW384: Beta activity, oxidation-reduction potential, sulfate, technetium-99 | |
| | MW387: Beta activity, oxidation-reduction potential, sodium, sulfate, technetium-99 | |
| | MW391: Chemical oxygen demand (COD), oxidation-reduction potential, sulfate | |
| | MW394: Oxidation-reduction potential | |

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

| Parameter | Performed Test | CV Normality Test* | Results of Tolerance Interval Test Conducted |
|------------------------------|-----------------------|---------------------------|--|
| Aluminum | Tolerance Interval | 0.57 | No exceedance of statistically derived historical background concentration. |
| Antimony | Tolerance Interval | 1.68 | No exceedance of statistically derived historical background concentration. |
| Boron | Tolerance Interval | 1.28 | No exceedance of statistically derived historical background concentration. |
| Bromide | Tolerance Interval | 0.24 | No exceedance of statistically derived historical background concentration. |
| Calcium | Tolerance Interval | 0.20 | No exceedance of statistically derived historical background concentration. |
| Chemical Oxygen Demand (COD) | Tolerance Interval | 0.02 | Current results exceed statistically derived historical background concentration in MW396. |
| Chloride | Tolerance Interval | 0.05 | No exceedance of statistically derived historical background concentration. |
| Cobalt | Tolerance Interval | 1.34 | No exceedance of statistically derived historical background concentration. |
| Conductivity | Tolerance Interval | 0.12 | No exceedance of statistically derived historical background concentration. |
| Copper | Tolerance Interval | 0.48 | No exceedance of statistically derived historical background concentration. |
| Dissolved Oxygen | Tolerance Interval | 1.20 | No exceedance of statistically derived historical background concentration. |
| Dissolved Solids | Tolerance Interval | 0.19 | No exceedance of statistically derived historical background concentration. |
| Iron | Tolerance Interval | 0.48 | No exceedance of statistically derived historical background concentration. |
| Magnesium | Tolerance Interval | 0.20 | No exceedance of statistically derived historical background concentration. |

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

| Parameter | Performed Test | CV Normality Test* | Results of Tolerance Interval Test Conducted |
|-------------------------------|-----------------------|---------------------------|---|
| Manganese | Tolerance Interval | 0.46 | No exceedance of statistically derived historical background concentration. |
| Molybdenum | Tolerance Interval | 1.51 | No exceedance of statistically derived historical background concentration. |
| Nickel | Tolerance Interval | 1.27 | No exceedance of statistically derived historical background concentration. |
| Oxidation-Reduction Potential | Tolerance Interval | 4.77 | Current results exceed statistically derived historical background concentration in MW386, MW390, MW393, and MW396. |
| pH | Tolerance Interval | 0.05 | No exceedance of statistically derived historical background concentration. |
| Potassium | Tolerance Interval | 0.28 | No exceedance of statistically derived historical background concentration. |
| Sodium | Tolerance Interval | 0.30 | No exceedance of statistically derived historical background concentration. |
| Sulfate | Tolerance Interval | 0.40 | No exceedance of statistically derived historical background concentration. |
| Technetium-99 | Tolerance Interval | 0.86 | Current results exceed statistically derived historical background concentration in MW390. |
| Total Organic Carbon (TOC) | Tolerance Interval | 0.47 | No exceedance of statistically derived historical background concentration. |
| Total Organic Halides (TOX) | Tolerance Interval | 0.38 | No exceedance of statistically derived historical background concentration. |
| Vanadium | Tolerance Interval | 0.11 | No exceedance of statistically derived historical background concentration. |
| Zinc | Tolerance Interval | 0.79 | No exceedance of statistically derived historical background concentration. |

CV: coefficient of variation

*If CV > 1.0, used log-transformed data.

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

| Parameter | Performed Test | CV Normality Test* | Results of Tolerance Interval Test Conducted |
|--------------------------------|-----------------------|---------------------------|---|
| Aluminum | Tolerance Interval | 0.28 | No exceedance of statistically derived historical background concentration. |
| Antimony | Tolerance Interval | 2.27 | No exceedance of statistically derived historical background concentration. |
| Beta Activity ¹ | Tolerance Interval | 0.97 | Current results exceed statistically derived historical background concentrations in MW369, MW384, and MW387. |
| Boron | Tolerance Interval | 1.45 | No exceedance of statistically derived historical background concentration. |
| Bromide | Tolerance Interval | 0.00 | No exceedance of statistically derived historical background concentration. |
| Calcium | Tolerance Interval | 0.17 | Current results exceed statistically derived historical background concentrations in MW372. |
| Carbon Disulfide | Tolerance Interval | 0.00 | No exceedance of statistically derived historical background concentration. |
| Chemical Oxygen Demand (COD) | Tolerance Interval | 0.00 | Current results exceed statistically derived historical background concentrations in MW372 and MW391. |
| Chloride | Tolerance Interval | 0.23 | No exceedance of statistically derived historical background concentration. |
| <i>cis</i> -1,2-Dichloroethene | Tolerance Interval | 0.00 | No exceedance of statistically derived historical background concentration. |
| Cobalt | Tolerance Interval | 2.44 | No exceedance of statistically derived historical background concentration. |
| Conductivity | Tolerance Interval | 0.28 | No exceedance of statistically derived historical background concentration. |
| Copper | Tolerance Interval | 0.43 | No exceedance of statistically derived historical background concentration. |
| Dissolved Oxygen | Tolerance Interval | 0.50 | No exceedance of statistically derived historical background concentration. |
| Dissolved Solids | Tolerance Interval | 0.12 | Current results exceed statistically derived historical background concentration in MW372. |
| Iron | Tolerance Interval | 1.17 | No exceedance of statistically derived historical background concentration. |
| Magnesium | Tolerance Interval | 0.16 | Current results exceed statistically derived historical background concentration in MW372. |

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

| Parameter | Performed Test | CV Normality Test* | Results of Tolerance Interval Test Conducted |
|-------------------------------|-----------------------|-----------------------------------|---|
| Manganese | Tolerance Interval | 2.16 | No exceedance of statistically derived historical background concentration. |
| Methylene Chloride | Tolerance Interval | 0.16 | No exceedance of statistically derived historical background concentration. |
| Molybdenum | Tolerance Interval | 1.26 | No exceedance of statistically derived historical background concentration. |
| Nickel | Tolerance Interval | 1.79 | No exceedance of statistically derived historical background concentration. |
| Oxidation-Reduction Potential | Tolerance Interval | 0.48 | Current results exceed statistically derived historical background concentration in MW220, MW221, MW222, MW223, MW224, MW372, MW384, MW387, MW391, and MW394. |
| pH | Tolerance Interval | 0.05 | No exceedance of statistically derived historical background concentration. |
| Potassium | Tolerance Interval | 1.40 | No exceedance of statistically derived historical background concentration. |
| Sodium | Tolerance Interval | 0.24 | Current results exceed statistically derived historical background concentration in MW387. |
| Sulfate | Tolerance Interval | 0.25 | Current results exceed statistically derived historical background concentration in MW220, MW223, MW372, MW384, MW387, and MW391. |
| Technetium-99 | Tolerance Interval | 0.99 | Current results exceed statistically derived historical background concentration in MW369, MW372, MW384, and MW387. |
| Total Organic Carbon (TOC) | Tolerance Interval | 0.49 | No exceedance of statistically derived historical background concentration. |
| Total Organic Halides (TOX) | Tolerance Interval | 2.57 | No exceedance of statistically derived historical background concentration. |
| Trichloroethene ¹ | Tolerance Interval | 0.95 | No exceedance of statistically derived historical background concentration. |
| Vanadium | Tolerance Interval | 0.08 | No exceedance of statistically derived historical background concentration. |
| Zinc | Tolerance Interval | 0.72 | No exceedance of statistically derived historical background concentration. |

CV: coefficient of variation

* If CV > 1.0, used log-transformed data.

¹ Tolerance interval was calculated based on an MCL exceedance.

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

| Parameter | Performed Test | CV Normality Test* | Results of Tolerance Interval Test Conducted |
|--------------------------------|-----------------------|-----------------------------------|--|
| Acetone | Tolerance Interval | 0.03 | No exceedance of statistically derived historical background concentration. |
| Aluminum | Tolerance Interval | 0.86 | No exceedance of statistically derived historical background concentration. |
| Antimony | Tolerance Interval | 1.62 | No exceedance of statistically derived historical background concentration. |
| Beta Activity ¹ | Tolerance Interval | 0.36 | Current results exceed statistically derived historical background concentration in MW370, MW385, and MW388. |
| Boron | Tolerance Interval | 1.24 | No exceedance of statistically derived historical background concentration. |
| Bromide | Tolerance Interval | 0.00 | No exceedance of statistically derived historical background concentration. |
| Calcium | Tolerance Interval | 0.50 | Current results exceed statistically derived historical background concentration in MW373. |
| Chemical Oxygen Demand (COD) | Tolerance Interval | 0.04 | Current results exceed statistically derived historical background concentration in MW373. |
| Chloride | Tolerance Interval | 0.22 | Current results exceed statistically derived historical background concentration in MW392. |
| <i>cis</i> -1,2-Dichloroethene | Tolerance Interval | 0.00 | No exceedance of statistically derived historical background concentration. |
| Cobalt | Tolerance Interval | 1.51 | No exceedance of statistically derived historical background concentration. |
| Conductivity | Tolerance Interval | 0.14 | Current results exceed statistically derived historical background concentration in MW373. |
| Copper | Tolerance Interval | 0.47 | No exceedance of statistically derived historical background concentration. |
| Dissolved Oxygen | Tolerance Interval | 0.52 | No exceedance of statistically derived historical background concentration. |
| Dissolved Solids | Tolerance Interval | 0.16 | Current results exceed statistically derived historical background concentration in MW373. |
| Iron | Tolerance Interval | 1.29 | No exceedance of statistically derived historical background concentration. |

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

| Parameter | Performed Test | CV Normality Test* | Results of Tolerance Interval Test Conducted |
|-------------------------------|-----------------------|-----------------------------------|--|
| Magnesium | Tolerance Interval | 0.51 | Current results exceed statistically derived historical background concentration in MW373. |
| Manganese | Tolerance Interval | 1.49 | No exceedance of statistically derived historical background concentration. |
| Methylene Chloride | Tolerance Interval | 0.55 | No exceedance of statistically derived historical background concentration. |
| Nickel | Tolerance Interval | 1.09 | No exceedance of statistically derived historical background concentration. |
| Oxidation-Reduction Potential | Tolerance Interval | 0.33 | Current results exceed statistically derived historical background concentration in MW370, MW373, MW385, MW388, MW392, MW395, and MW397. |
| pH | Tolerance Interval | 0.04 | No exceedance of statistically derived historical background concentration. |
| Potassium | Tolerance Interval | 0.40 | No exceedance of statistically derived historical background concentration. |
| Sodium | Tolerance Interval | 0.47 | No exceedance of statistically derived historical background concentration. |
| Sulfate | Tolerance Interval | 0.20 | Current results exceed statistically derived historical background concentration in MW370, MW373, MW385, and MW388. |
| Technetium-99 | Tolerance Interval | 0.80 | Current results exceed statistically derived historical background concentration in MW370, MW385, and MW388. |
| Total Organic Carbon (TOC) | Tolerance Interval | 0.55 | No exceedance of statistically derived historical background concentration. |
| Total Organic Halides (TOX) | Tolerance Interval | 0.59 | No exceedance of statistically derived historical background concentration. |
| Trichloroethene ¹ | Tolerance Interval | 0.78 | No exceedance of statistically derived historical background concentration. |
| Vanadium | Tolerance Interval | 0.11 | No exceedance of statistically derived historical background concentration. |
| Zinc | Tolerance Interval | 0.76 | No exceedance of statistically derived historical background concentration. |

CV: coefficient of variation

*If CV > 1.0, used log-transformed data.

¹ Tolerance interval was calculated based on an MCL exceedance.

Discussion of Results from Current Background Comparison

For concentrations in wells in the UCRS, URGA, and LRGA that exceeded the TL test using historical background, the concentrations were compared to the one-sided TL calculated using the most recent eight quarters of data and are presented in Attachment D2. The statistician qualification statement is presented in Attachment D3. For the UCRS, URGA, and LRGA, the test was applied to 3, 9, and 10 parameters, respectively, because these parameter concentrations exceeded the historical background TL.

For downgradient wells only, a summary of instances where concentrations exceeded the TL calculated using current background data is shown in Exhibit D.10.

Exhibit D.10. Summary of Exceedances (Downgradient Wells) of the TL Calculated Using Current Background Concentrations

| URGA | LRGA |
|--|---|
| MW369: Beta activity, technetium-99 | MW370: Beta activity, sulfate, technetium-99 |
| MW372: Calcium, chemical oxygen demand (COD), magnesium, sulfate, technetium-99 | MW373: Calcium, conductivity, dissolved solids, magnesium, sulfate |
| MW387: Beta activity, sodium, technetium-99 | MW388: Beta activity, sulfate, technetium-99 |
| MW391: Chemical oxygen demand (COD), oxidation-reduction potential, sulfate | MW392: Chloride |

UCRS

Because gradients in the UCRS are downward (vertical), there are no hydrogeologically downgradient UCRS wells. It should be noted; however, that the oxidation-reduction potential concentrations in two UCRS wells (i.e., MW390 and MW393) and technetium-99 concentration in one UCRS well (i.e., MW390) exceeded the current TL this quarter.

URGA

This quarter's results identified current background exceedances in downgradient wells for beta activity, calcium, chemical oxygen demand (COD), magnesium, oxidation-reduction potential, sodium, sulfate, and technetium-99.

LRGA

This quarter's results identified current background exceedances in downgradient wells for beta activity, calcium, chloride, conductivity, dissolved solids, magnesium, sulfate, and technetium-99.

Statistical Summary

Summaries of the statistical tests conducted on data obtained from wells in the UCRS, the URGA, and the LRGA are presented in Exhibit D.11, Exhibit D.12, and Exhibit D.13, respectively.

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

| Parameter | Performed Test | CV Normality Test* | Results of Tolerance Interval Test Conducted |
|-------------------------------|-----------------------|---------------------------|---|
| Chemical Oxygen Demand (COD) | Tolerance Interval | 0.34 | 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 | Because gradients in UCRS wells are downward, there are no UCRS wells that are hydrogeologically downgradient of the landfill; however, MW390, MW393, and MW396 exceeded the upper TL, which is evidence of elevated concentration with respect to current background data. |
| Technetium-99 | Tolerance Interval | -3.16 | Because gradients in UCRS wells are downward, there are no UCRS wells that are hydrogeologically downgradient of the landfill; however, MW390 exceeded the upper TL, which is evidence of elevated concentration with respect to current background data. |

CV: coefficient of variation

*If CV > 1.0, used log-transformed data.

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

| Parameter | Performed Test | CV Normality Test* | Results of Tolerance Interval Test Conducted |
|-------------------------------|-----------------------|---------------------------|---|
| Beta Activity | Tolerance Interval | 0.74 | MW369, MW384, and MW387 exceeded the upper TL, which is evidence of elevated concentration with respect to current background data. |
| Calcium | Tolerance Interval | 0.12 | MW372 exceeded the upper TL, which is evidence of elevated concentration with respect to current background data. |
| Chemical Oxygen Demand (COD) | Tolerance Interval | 0.41 | MW372 and MW391 exceeded the upper TL, which is evidence of elevated concentration with respect to current background data. |
| Dissolved Solids | Tolerance Interval | 0.32 | 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 | 0.12 | MW372 exceeded the upper TL, which is evidence of elevated concentration with respect to current background data. |
| Oxidation-Reduction Potential | Tolerance Interval | 0.14 | MW220, MW221, MW222, MW223, MW224, and MW391 exceeded the upper TL, which is evidence of elevated concentration with respect to current background data. |
| Sodium | Tolerance Interval | 0.17 | MW387 exceeded the upper TL, which is evidence of elevated concentration with respect to current background data. |
| Sulfate | Tolerance Interval | 0.35 | MW372 and MW391 exceeded the upper TL, which is evidence of elevated concentration with respect to current background data. |
| Technetium-99 | Tolerance Interval | 0.55 | MW369, MW372, MW384, and MW387 exceeded the upper TL, which is evidence of elevated concentration with respect to current background data. |

CV: coefficient of variation

*If CV > 1.0, used log-transformed data.

Exhibit D.13. Test Summaries for Qualified Parameters for Current Background—LRGA

| Parameter | Performed Test | CV Normality Test* | Results of Tolerance Interval Test Conducted |
|-------------------------------|-----------------------|-----------------------------------|---|
| Beta Activity | Tolerance Interval | 0.38 | MW370, MW385, and MW388 exceeded the upper TL, which is evidence of elevated concentration with respect to current background data. |
| Calcium | Tolerance Interval | 0.19 | MW373 exceeded the upper TL, which is evidence of elevated concentration with respect to current background data. |
| Chemical Oxygen Demand (COD) | Tolerance Interval | 0.63 | 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. |
| Chloride | Tolerance Interval | 0.15 | MW392 exceeded the upper TL, which is evidence of elevated concentration with respect to current background data. |
| Conductivity | Tolerance Interval | 0.09 | MW373 exceeded the upper TL, which is evidence of elevated concentration with respect to current background data. |
| Dissolved Solids | Tolerance Interval | 0.21 | MW373 exceeded the upper TL, which is evidence of elevated concentration with respect to current background data. |
| Magnesium | Tolerance Interval | 0.19 | MW373 exceeded the upper TL, which is evidence of elevated concentration with respect to current background data. |
| Oxidation-Reduction Potential | Tolerance Interval | 0.22 | 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 | 0.05 | MW370, MW373, MW385, and MW388 exceeded the upper TL, which is evidence of elevated concentration with respect to current background data. |
| Technetium-99 | Tolerance Interval | 0.45 | MW370, MW385, and MW388 exceeded the upper TL, which is evidence of elevated concentration with respect to current background data. |

CV: coefficient of variation

* If CV > 1.0, used log-transformed data.

ATTACHMENT D1

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

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C-746-S/T Second Quarter 2019 Statistical Analysis Historical Background Comparison

Aluminum

UNITS: mg/L

UCRS

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

| | | | | | | |
|---|-----------|----------|--------------|--------------------|--------------|-----------|
| Statistics-Background Data | X= 0.320 | S= 0.182 | CV(1)=0.567 | K factor***= 3.188 | TL(1)= 0.900 | LL(1)=N/A |
| Statistics-Transformed Background Data | X= -1.259 | S= 0.503 | CV(2)=-0.400 | K factor***= 3.188 | TL(2)= 0.345 | LL(2)=N/A |

Historical Background Data from Upgradient Wells with Transformed Result

| | | |
|----------------|--------|------------|
| Well Number: | MW396 | |
| Date Collected | Result | LN(Result) |
| 8/13/2002 | 0.393 | -0.934 |
| 9/16/2002 | 0.2 | -1.609 |
| 10/16/2002 | 0.2 | -1.609 |
| 1/13/2003 | 0.501 | -0.691 |
| 4/8/2003 | 0.2 | -1.609 |
| 7/16/2003 | 0.2 | -1.609 |
| 10/14/2003 | 0.2 | -1.609 |
| 1/14/2004 | 0.668 | -0.403 |

Dry/Partially Dry Wells

| | |
|----------|--------------|
| Well No. | Gradient |
| MW389 | Downgradient |

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

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|--------|----------------|------------|-------------------|
| MW386 | Sidegradient | Yes | 0.0198 | NO | -3.922 | N/A |
| MW390 | Downgradient | Yes | 0.0818 | NO | -2.503 | N/A |
| MW393 | Downgradient | No | 0.05 | N/A | -2.996 | N/A |
| MW396 | Upgradient | Yes | 0.0486 | NO | -3.024 | N/A |

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

Conclusion of Statistical Analysis on Historical Data

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

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

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

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

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

X Mean, $X = (\text{sum of background results})/(\text{count of background results})$

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

C-746-S/T Second Quarter 2019 Statistical Analysis Historical Background Comparison

Antimony

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= 0.054 | S= 0.090 | CV(1)= 1.679 | K factor***= 3.188 | TL(1)= 0.342 | LL(1)=N/A |
| Statistics-Transformed Background Data | X= -4.376 | S= 1.708 | CV(2)= -0.390 | K factor***= 3.188 | TL(2)= 1.068 | LL(2)=N/A |

Historical Background Data from Upgradient Wells with Transformed Result

Well Number: MW396

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 0.2 | -1.609 |
| 9/16/2002 | 0.2 | -1.609 |
| 10/16/2002 | 0.005 | -5.298 |
| 1/13/2003 | 0.005 | -5.298 |
| 4/8/2003 | 0.005 | -5.298 |
| 7/16/2003 | 0.005 | -5.298 |
| 10/14/2003 | 0.005 | -5.298 |
| 1/14/2004 | 0.005 | -5.298 |

Dry/Partially Dry Wells

| Well No. | Gradient |
|----------|--------------|
| MW389 | Downgradient |

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

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|---------|----------------|------------|-------------------|
| MW386 | Sidegradient | No | 0.00134 | N/A | -6.615 | N/A |
| MW390 | Downgradient | No | 0.003 | N/A | -5.809 | N/A |
| MW393 | Downgradient | Yes | 0.00167 | N/A | -6.395 | NO |
| MW396 | Upgradient | Yes | 0.00126 | N/A | -6.677 | NO |

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

Conclusion of Statistical Analysis on Historical Data

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

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

- CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
- S Standard Deviation, S = [Sum (((background result-X)^2)/[count of background results - 1])]^0.5
- TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)
- X Mean, X = (sum of background results)/(count of background results)

** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009. D1-4

C-746-S/T Second Quarter 2019 Statistical Analysis Historical Background Comparison

Boron

UNITS: mg/L

UCRS

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

| | | | | | | |
|---|-----------|----------|---------------|--------------------|--------------|-----------|
| Statistics-Background Data | X= 0.650 | S= 0.833 | CV(1)= 1.282 | K factor***= 3.188 | TL(1)= 3.306 | LL(1)=N/A |
| Statistics-Transformed Background Data | X= -1.034 | S= 1.066 | CV(2)= -1.031 | K factor***= 3.188 | TL(2)= 2.364 | LL(2)=N/A |

Historical Background Data from Upgradient Wells with Transformed Result

Well Number: MW396

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 2 | 0.693 |
| 9/16/2002 | 2 | 0.693 |
| 10/16/2002 | 0.2 | -1.609 |
| 1/13/2003 | 0.2 | -1.609 |
| 4/8/2003 | 0.2 | -1.609 |
| 7/16/2003 | 0.2 | -1.609 |
| 10/14/2003 | 0.2 | -1.609 |
| 1/14/2004 | 0.2 | -1.609 |

Dry/Partially Dry Wells

| Well No. | Gradient |
|----------|--------------|
| MW389 | Downgradient |

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

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|---------|----------------|------------|-------------------|
| MW386 | Sidegradient | Yes | 0.00596 | N/A | -5.123 | NO |
| MW390 | Downgradient | Yes | 0.0265 | N/A | -3.631 | NO |
| MW393 | Downgradient | Yes | 0.0238 | N/A | -3.738 | NO |
| MW396 | Upgradient | Yes | 0.00738 | N/A | -4.909 | NO |

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

Conclusion of Statistical Analysis on Historical Data

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

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

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

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

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

X Mean, $X = (\text{sum of background results})/(\text{count of background results})$

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

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Bromide

UNITS: mg/L

UCRS

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

| | | | | | | |
|---|------------------|------------------|---------------------|---------------------------|----------------------|-------------------|
| Statistics-Background Data | X = 1.388 | S = 0.327 | CV(1) =0.236 | K factor** = 3.188 | TL(1) = 2.430 | LL(1) =N/A |
| Statistics-Transformed Background Data | X = 0.301 | S = 0.252 | CV(2) =0.838 | K factor** = 3.188 | TL(2) = 1.105 | LL(2) =N/A |

Historical Background Data from Upgradient Wells with Transformed Result

Well Number: MW396

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 1.5 | 0.405 |
| 9/16/2002 | 1.6 | 0.470 |
| 10/16/2002 | 1.6 | 0.470 |
| 1/13/2003 | 1 | 0.000 |
| 4/8/2003 | 1 | 0.000 |
| 7/16/2003 | 1 | 0.000 |
| 10/14/2003 | 1.7 | 0.531 |
| 1/14/2004 | 1.7 | 0.531 |

Dry/Partially Dry Wells

| Well No. | Gradient |
|----------|--------------|
| MW389 | Downgradient |

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

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|--------|----------------|------------|-------------------|
| MW386 | Sidegradient | Yes | 0.169 | NO | -1.778 | N/A |
| MW390 | Downgradient | Yes | 0.692 | NO | -0.368 | N/A |
| MW393 | Downgradient | Yes | 0.151 | NO | -1.890 | N/A |
| MW396 | Upgradient | Yes | 0.901 | NO | -0.104 | 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

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

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

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

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

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

X Mean, $X = (\text{sum of background results})/(\text{count of background results})$

** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009. D1-6

C-746-S/T Second Quarter 2019 Statistical Analysis Historical Background Comparison

Calcium

UNITS: mg/L

UCRS

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

| | | | | | | |
|---|-------------------|------------------|---------------------|---------------------------|-----------------------|-------------------|
| Statistics-Background Data | X = 41.825 | S = 8.445 | CV(1) =0.202 | K factor **= 3.188 | TL(1) = 68.748 | LL(1) =N/A |
| Statistics-Transformed Background Data | X = 3.711 | S = 0.241 | CV(2) =0.065 | K factor **= 3.188 | TL(2) = 4.479 | LL(2) =N/A |

Historical Background Data from Upgradient Wells with Transformed Result

| | | |
|----------------|--------|------------|
| Well Number: | MW396 | |
| Date Collected | Result | LN(Result) |
| 8/13/2002 | 38.4 | 3.648 |
| 9/16/2002 | 42.9 | 3.759 |
| 10/16/2002 | 40.2 | 3.694 |
| 1/13/2003 | 46.7 | 3.844 |
| 4/8/2003 | 49.8 | 3.908 |
| 7/16/2003 | 43.3 | 3.768 |
| 10/14/2003 | 49.7 | 3.906 |
| 1/14/2004 | 23.6 | 3.161 |

Dry/Partially Dry Wells

| | |
|----------|--------------|
| Well No. | Gradient |
| MW389 | Downgradient |

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

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|--------|----------------|------------|-------------------|
| MW386 | Sidegradient | Yes | 19.3 | NO | 2.960 | N/A |
| MW390 | Downgradient | Yes | 28.7 | NO | 3.357 | N/A |
| MW393 | Downgradient | Yes | 13.9 | NO | 2.632 | N/A |
| MW396 | Upgradient | Yes | 31.8 | NO | 3.459 | N/A |

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

Conclusion of Statistical Analysis on Historical Data

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

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

- CV Coefficient-of-Variation, $CV = S/X$ If CV is less than or equal to 1 assume normal distribution.
- S Standard Deviation, $S = [\text{Sum}([(background\ result-X)^2]/[\text{count of background results} - 1])]^{0.5}$
- TL Upper Tolerance Limit, $TL = X + (K * S)$, LL Lower Tolerance Limit, $LL = X - (K * S)$
- X Mean, $X = (\text{sum of background results})/(\text{count of background results})$

** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009. D1-7

C-746-S/T Second Quarter 2019 Statistical Analysis Historical Background Comparison

Chloride

UNITS: mg/L

UCRS

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

Statistics-Background Data X= 101.725 S= 5.245 CV(1)=0.052 **K factor***= 3.188** TL(1)= 118.447 LL(1)=N/A

Statistics-Transformed Background Data X= 4.621 S= 0.053 CV(2)=0.011 **K factor***= 3.188** TL(2)= 4.789 LL(2)=N/A

Historical Background Data from Upgradient Wells with Transformed Result

| Well Number: | MW396 | |
|----------------|--------|------------|
| Date Collected | Result | LN(Result) |
| 8/13/2002 | 91.6 | 4.517 |
| 9/16/2002 | 98.3 | 4.588 |
| 10/16/2002 | 101.4 | 4.619 |
| 1/13/2003 | 108.3 | 4.685 |
| 4/8/2003 | 100.5 | 4.610 |
| 7/16/2003 | 102.5 | 4.630 |
| 10/14/2003 | 106.8 | 4.671 |
| 1/14/2004 | 104.4 | 4.648 |

Dry/Partially Dry Wells

| Well No. | Gradient |
|----------|--------------|
| MW389 | Downgradient |

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

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|--------|----------------|------------|-------------------|
| MW386 | Sidegradient | Yes | 13.7 | NO | 2.617 | N/A |
| MW390 | Downgradient | Yes | 37.7 | NO | 3.630 | N/A |
| MW393 | Downgradient | Yes | 12.5 | NO | 2.526 | N/A |
| MW396 | Upgradient | Yes | 54.7 | NO | 4.002 | N/A |

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

Conclusion of Statistical Analysis on Historical Data

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

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

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

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

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

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

*** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009.* D1-9

C-746-S/T Second Quarter 2019 Statistical Analysis Historical Background Comparison

Cobalt

UNITS: mg/L

UCRS

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

| | | | | | | |
|---|-----------|----------|---------------|--------------------|---------------|-----------|
| Statistics-Background Data | X= 0.008 | S= 0.011 | CV(1)= 1.340 | K factor***= 3.188 | TL(1)= 0.042 | LL(1)=N/A |
| Statistics-Transformed Background Data | X= -5.645 | S= 1.339 | CV(2)= -0.237 | K factor***= 3.188 | TL(2)= -1.377 | LL(2)=N/A |

Historical Background Data from Upgradient Wells with Transformed Result

| | | |
|----------------|---------|------------|
| Well Number: | MW396 | |
| Date Collected | Result | LN(Result) |
| 8/13/2002 | 0.025 | -3.689 |
| 9/16/2002 | 0.025 | -3.689 |
| 10/16/2002 | 0.001 | -6.908 |
| 1/13/2003 | 0.00324 | -5.732 |
| 4/8/2003 | 0.00436 | -5.435 |
| 7/16/2003 | 0.00276 | -5.893 |
| 10/14/2003 | 0.001 | -6.908 |
| 1/14/2004 | 0.001 | -6.908 |

Dry/Partially Dry Wells

| | |
|----------|--------------|
| Well No. | Gradient |
| MW389 | Downgradient |

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

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|----------|----------------|------------|-------------------|
| MW386 | Sidegradient | Yes | 0.000739 | N/A | -7.210 | NO |
| MW390 | Downgradient | No | 0.001 | N/A | -6.908 | N/A |
| MW393 | Downgradient | No | 0.001 | N/A | -6.908 | N/A |
| MW396 | Upgradient | Yes | 0.000348 | N/A | -7.963 | NO |

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

Conclusion of Statistical Analysis on Historical Data

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

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

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

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

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

X Mean, $X = (\text{sum of background results})/(\text{count of background results})$

** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009. D1-10

C-746-S/T Second Quarter 2019 Statistical Analysis Historical Background Comparison

Conductivity

UNITS: umho/cm

UCRS

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

Statistics-Background Data X= 922.500 S= 107.616 CV(1)=0.117 **K factor***= 3.188** TL(1)= 1265.579 LL(1)=N/A

Statistics-Transformed Background Data X= 6.822 S= 0.111 CV(2)=0.016 **K factor***= 3.188** TL(2)= 7.175 LL(2)=N/A

Historical Background Data from Upgradient Wells with Transformed Result

| Well Number: MW396 | | |
|--------------------|--------|------------|
| Date Collected | Result | LN(Result) |
| 8/13/2002 | 784 | 6.664 |
| 9/30/2002 | 871 | 6.770 |
| 10/16/2002 | 868 | 6.766 |
| 1/13/2003 | 912 | 6.816 |
| 4/8/2003 | 942 | 6.848 |
| 7/16/2003 | 910 | 6.813 |
| 10/14/2003 | 935 | 6.841 |
| 1/14/2004 | 1158 | 7.054 |

Dry/Partially Dry Wells

| Well No. | Gradient |
|----------|--------------|
| MW389 | Downgradient |

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

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|--------|----------------|------------|-------------------|
| MW386 | Sidegradient | Yes | 593 | NO | 6.385 | N/A |
| MW390 | Downgradient | Yes | 676 | NO | 6.516 | N/A |
| MW393 | Downgradient | Yes | 473 | NO | 6.159 | N/A |
| MW396 | Upgradient | Yes | 722 | NO | 6.582 | N/A |

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

Conclusion of Statistical Analysis on Historical Data

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

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

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

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

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

X Mean, $X = (\text{sum of background results})/(\text{count of background results})$

*** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009.* D1-11

C-746-S/T Second Quarter 2019 Statistical Analysis Historical Background Comparison

Copper

UNITS: mg/L

UCRS

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

| | | | | | | |
|---|-----------|----------|--------------|--------------------|---------------|-----------|
| Statistics-Background Data | X= 0.028 | S= 0.014 | CV(1)=0.481 | K factor***= 3.188 | TL(1)= 0.072 | LL(1)=N/A |
| Statistics-Transformed Background Data | X= -3.650 | S= 0.414 | CV(2)=-0.113 | K factor***= 3.188 | TL(2)= -2.331 | LL(2)=N/A |

Historical Background Data from Upgradient Wells with Transformed Result

Well Number: MW396

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 0.05 | -2.996 |
| 9/16/2002 | 0.05 | -2.996 |
| 10/16/2002 | 0.026 | -3.650 |
| 1/13/2003 | 0.02 | -3.912 |
| 4/8/2003 | 0.02 | -3.912 |
| 7/16/2003 | 0.02 | -3.912 |
| 10/14/2003 | 0.02 | -3.912 |
| 1/14/2004 | 0.02 | -3.912 |

Dry/Partially Dry Wells

| Well No. | Gradient |
|----------|--------------|
| MW389 | Downgradient |

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

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|----------|----------------|------------|-------------------|
| MW386 | Sidegradient | Yes | 0.00102 | NO | -6.888 | N/A |
| MW390 | Downgradient | Yes | 0.00251 | NO | -5.987 | N/A |
| MW393 | Downgradient | Yes | 0.000919 | NO | -6.992 | N/A |
| MW396 | Upgradient | Yes | 0.00168 | NO | -6.389 | N/A |

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

Conclusion of Statistical Analysis on Historical Data

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

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

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

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

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

X Mean, $X = (\text{sum of background results})/(\text{count of background results})$

*** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009. D1-12

C-746-S/T Second Quarter 2019 Statistical Analysis Historical Background Comparison

Dissolved Oxygen

UNITS: mg/L

UCRS

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

| | | | | | | |
|---|-----------|----------|----------------|--------------------|--------------|-----------|
| Statistics-Background Data | X= 1.395 | S= 1.677 | CV(1)= 1.202 | K factor***= 3.188 | TL(1)= 6.743 | LL(1)=N/A |
| Statistics-Transformed Background Data | X= -0.043 | S= 0.814 | CV(2)= -18.867 | K factor***= 3.188 | TL(2)= 2.553 | LL(2)=N/A |

Historical Background Data from Upgradient Wells with Transformed Result

| | | |
|----------------|--------|------------|
| Well Number: | MW396 | |
| Date Collected | Result | LN(Result) |
| 8/13/2002 | 5.45 | 1.696 |
| 9/16/2002 | 0.4 | -0.916 |
| 10/16/2002 | 0.54 | -0.616 |
| 1/13/2003 | 0.72 | -0.329 |
| 4/8/2003 | 0.69 | -0.371 |
| 7/16/2003 | 1.1 | 0.095 |
| 10/14/2003 | 0.71 | -0.342 |
| 1/14/2004 | 1.55 | 0.438 |

Dry/Partially Dry Wells

| | |
|----------|--------------|
| Well No. | Gradient |
| MW389 | Downgradient |

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

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|--------|----------------|------------|-------------------|
| MW386 | Sidegradient | Yes | 3.51 | N/A | 1.256 | NO |
| MW390 | Downgradient | Yes | 4.62 | N/A | 1.530 | NO |
| MW393 | Downgradient | Yes | 2.76 | N/A | 1.015 | NO |
| MW396 | Upgradient | Yes | 3.52 | N/A | 1.258 | NO |

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

Conclusion of Statistical Analysis on Historical Data

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

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

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

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

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

X Mean, $X = (\text{sum of background results})/(\text{count of background results})$

** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009. D1-13

C-746-S/T Second Quarter 2019 Statistical Analysis Historical Background Comparison

Dissolved Solids

UNITS: mg/L

UCRS

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

Statistics-Background Data X= 550.375 S= 104.330 CV(1)=0.190 **K factor***= 3.188** TL(1)= 882.980 LL(1)=N/A

Statistics-Transformed Background Data X= 6.298 S= 0.162 CV(2)=0.026 **K factor***= 3.188** TL(2)= 6.815 LL(2)=N/A

Historical Background Data from Upgradient Wells with Transformed Result

| Well Number: MW396 | | |
|--------------------|--------|------------|
| Date Collected | Result | LN(Result) |
| 8/13/2002 | 502 | 6.219 |
| 9/16/2002 | 506 | 6.227 |
| 10/16/2002 | 543 | 6.297 |
| 1/13/2003 | 521 | 6.256 |
| 4/8/2003 | 504 | 6.223 |
| 7/16/2003 | 532 | 6.277 |
| 10/14/2003 | 490 | 6.194 |
| 1/14/2004 | 805 | 6.691 |

Dry/Partially Dry Wells

| Well No. | Gradient |
|----------|--------------|
| MW389 | Downgradient |

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

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|--------|----------------|------------|-------------------|
| MW386 | Sidegradient | Yes | 349 | NO | 5.855 | N/A |
| MW390 | Downgradient | Yes | 407 | NO | 6.009 | N/A |
| MW393 | Downgradient | Yes | 281 | NO | 5.638 | N/A |
| MW396 | Upgradient | Yes | 393 | NO | 5.974 | N/A |

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

Conclusion of Statistical Analysis on Historical Data

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

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

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

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

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

X Mean, $X = (\text{sum of background results})/(\text{count of background results})$

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

C-746-S/T Second Quarter 2019 Statistical Analysis Historical Background Comparison

Iron

UNITS: mg/L

UCRS

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

| | | | | | | |
|---|----------|----------|-------------|--------------------|---------------|-----------|
| Statistics-Background Data | X= 7.796 | S= 3.723 | CV(1)=0.478 | K factor***= 3.188 | TL(1)= 19.666 | LL(1)=N/A |
| Statistics-Transformed Background Data | X= 1.880 | S= 0.723 | CV(2)=0.384 | K factor***= 3.188 | TL(2)= 4.184 | LL(2)=N/A |

Historical Background Data from Upgradient Wells with Transformed Result

Well Number: MW396

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 1.8 | 0.588 |
| 9/16/2002 | 9.53 | 2.254 |
| 10/16/2002 | 7.43 | 2.006 |
| 1/13/2003 | 9.93 | 2.296 |
| 4/8/2003 | 10.2 | 2.322 |
| 7/16/2003 | 9.16 | 2.215 |
| 10/14/2003 | 11.9 | 2.477 |
| 1/14/2004 | 2.42 | 0.884 |

Dry/Partially Dry Wells

| Well No. | Gradient |
|----------|--------------|
| MW389 | Downgradient |

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

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|--------|----------------|------------|-------------------|
| MW386 | Sidegradient | Yes | 0.318 | NO | -1.146 | N/A |
| MW390 | Downgradient | Yes | 0.0878 | NO | -2.433 | N/A |
| MW393 | Downgradient | Yes | 0.479 | NO | -0.736 | N/A |
| MW396 | Upgradient | Yes | 0.326 | NO | -1.121 | N/A |

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

Conclusion of Statistical Analysis on Historical Data

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

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

- CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
- S Standard Deviation, S = [Sum (((background result-X)^2)/[count of background results - 1])]^0.5
- TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)
- X Mean, X = (sum of background results)/(count of background results)

*** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009. D1-15

C-746-S/T Second Quarter 2019 Statistical Analysis Historical Background Comparison

Magnesium

UNITS: mg/L

UCRS

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

| | | | | | | |
|---|-------------------|------------------|---------------------|---------------------------|-----------------------|-------------------|
| Statistics-Background Data | X = 16.876 | S = 3.313 | CV(1) =0.196 | K factor **= 3.188 | TL(1) = 27.438 | LL(1) =N/A |
| Statistics-Transformed Background Data | X = 2.804 | S = 0.240 | CV(2) =0.086 | K factor **= 3.188 | TL(2) = 3.569 | LL(2) =N/A |

Historical Background Data from Upgradient Wells with Transformed Result

Well Number: MW396

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 15.5 | 2.741 |
| 9/16/2002 | 17.3 | 2.851 |
| 10/16/2002 | 17.8 | 2.879 |
| 1/13/2003 | 19.2 | 2.955 |
| 4/8/2003 | 17.8 | 2.879 |
| 7/16/2003 | 17.8 | 2.879 |
| 10/14/2003 | 20.2 | 3.006 |
| 1/14/2004 | 9.41 | 2.242 |

Dry/Partially Dry Wells

| Well No. | Gradient |
|----------|--------------|
| MW389 | Downgradient |

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

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|--------|----------------|------------|-------------------|
| MW386 | Sidegradient | Yes | 8.85 | NO | 2.180 | N/A |
| MW390 | Downgradient | Yes | 12.3 | NO | 2.510 | N/A |
| MW393 | Downgradient | Yes | 4.17 | NO | 1.428 | N/A |
| MW396 | Upgradient | Yes | 14.7 | NO | 2.688 | N/A |

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

Conclusion of Statistical Analysis on Historical Data

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

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

- CV Coefficient-of-Variation, $CV = S/X$ If CV is less than or equal to 1 assume normal distribution.
- S Standard Deviation, $S = [\text{Sum}([(background\ result-X)^2]/[\text{count of background results} - 1])]^{0.5}$
- TL Upper Tolerance Limit, $TL = X + (K * S)$, LL Lower Tolerance Limit, $LL = X - (K * S)$
- X Mean, $X = (\text{sum of background results})/(\text{count of background results})$

** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009. D1-16

C-746-S/T Second Quarter 2019 Statistical Analysis Historical Background Comparison

Manganese

UNITS: mg/L

UCRS

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

| | | | | | | |
|---|-------------------|------------------|----------------------|----------------------------|----------------------|-------------------|
| Statistics-Background Data | X = 0.774 | S = 0.353 | CV(1) =0.456 | K factor*** = 3.188 | TL(1) = 1.900 | LL(1) =N/A |
| Statistics-Transformed Background Data | X = -0.566 | S = 1.192 | CV(2) =-2.105 | K factor*** = 3.188 | TL(2) = 3.235 | LL(2) =N/A |

Historical Background Data from Upgradient Wells with Transformed Result

Well Number: MW396

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 0.57 | -0.562 |
| 9/16/2002 | 0.647 | -0.435 |
| 10/16/2002 | 0.88 | -0.128 |
| 1/13/2003 | 1.132 | 0.124 |
| 4/8/2003 | 0.965 | -0.036 |
| 7/16/2003 | 0.983 | -0.017 |
| 10/14/2003 | 0.984 | -0.016 |
| 1/14/2004 | 0.0314 | -3.461 |

Dry/Partially Dry Wells

| Well No. | Gradient |
|----------|--------------|
| MW389 | Downgradient |

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

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|---------|----------------|------------|-------------------|
| MW386 | Sidegradient | Yes | 0.0812 | NO | -2.511 | N/A |
| MW390 | Downgradient | No | 0.005 | N/A | -5.298 | N/A |
| MW393 | Downgradient | Yes | 0.00768 | NO | -4.869 | N/A |
| MW396 | Upgradient | Yes | 0.0305 | NO | -3.490 | N/A |

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

Conclusion of Statistical Analysis on Historical Data

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

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

- CV Coefficient-of-Variation, $CV = S/X$ If CV is less than or equal to 1 assume normal distribution.
- S Standard Deviation, $S = [\text{Sum}([(background\ result-X)^2]/[\text{count of background results} - 1])]^{0.5}$
- TL Upper Tolerance Limit, $TL = X + (K * S)$, LL Lower Tolerance Limit, $LL = X - (K * S)$
- X Mean, $X = (\text{sum of background results})/(\text{count of background results})$

** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009. D1-17

C-746-S/T Second Quarter 2019 Statistical Analysis Historical Background Comparison

Molybdenum

UNITS: mg/L

UCRS

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

| | | | | | | |
|---|-----------|----------|--------------|--------------------|---------------|-----------|
| Statistics-Background Data | X= 0.007 | S= 0.011 | CV(1)= 1.507 | K factor***= 3.188 | TL(1)= 0.042 | LL(1)=N/A |
| Statistics-Transformed Background Data | X= -5.928 | S= 1.420 | CV(2)=-0.240 | K factor***= 3.188 | TL(2)= -1.400 | LL(2)=N/A |

Historical Background Data from Upgradient Wells with Transformed Result

| Well Number: MW396 | | |
|--------------------|---------|------------|
| Date Collected | Result | LN(Result) |
| 8/13/2002 | 0.025 | -3.689 |
| 9/16/2002 | 0.025 | -3.689 |
| 10/16/2002 | 0.001 | -6.908 |
| 1/13/2003 | 0.00128 | -6.661 |
| 4/8/2003 | 0.00271 | -5.911 |
| 7/16/2003 | 0.00117 | -6.751 |
| 10/14/2003 | 0.001 | -6.908 |
| 1/14/2004 | 0.001 | -6.908 |

Dry/Partially Dry Wells

| Well No. | Gradient |
|----------|--------------|
| MW389 | Downgradient |

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

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|----------|----------------|------------|-------------------|
| MW386 | Sidegradient | No | 0.001 | N/A | -6.908 | N/A |
| MW390 | Downgradient | Yes | 0.000498 | N/A | -7.605 | NO |
| MW393 | Downgradient | No | 0.001 | N/A | -6.908 | N/A |
| MW396 | Upgradient | Yes | 0.000266 | N/A | -8.232 | NO |

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

Conclusion of Statistical Analysis on Historical Data

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

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

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

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

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

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

*** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009. D1-18

C-746-S/T Second Quarter 2019 Statistical Analysis Historical Background Comparison

Nickel

UNITS: mg/L

UCRS

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

Statistics-Background Data X= 0.016 S= 0.021 CV(1)= 1.272 **K factor***= 3.188** TL(1)= 0.083 LL(1)=N/A

Statistics-Transformed Background Data X= -4.706 S= 1.057 CV(2)=-0.225 **K factor***= 3.188** TL(2)= -1.338 LL(2)=N/A

Historical Background Data from Upgradient Wells with Transformed Result

| | | |
|----------------|---------|------------|
| Well Number: | MW396 | |
| Date Collected | Result | LN(Result) |
| 8/13/2002 | 0.05 | -2.996 |
| 9/16/2002 | 0.05 | -2.996 |
| 10/16/2002 | 0.005 | -5.298 |
| 1/13/2003 | 0.005 | -5.298 |
| 4/8/2003 | 0.00571 | -5.166 |
| 7/16/2003 | 0.005 | -5.298 |
| 10/14/2003 | 0.005 | -5.298 |
| 1/14/2004 | 0.005 | -5.298 |

Dry/Partially Dry Wells

| | |
|----------|--------------|
| Well No. | Gradient |
| MW389 | Downgradient |

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

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|----------|----------------|------------|-------------------|
| MW386 | Sidegradient | Yes | 0.000699 | N/A | -7.266 | NO |
| MW390 | Downgradient | Yes | 0.0015 | N/A | -6.502 | NO |
| MW393 | Downgradient | No | 0.002 | N/A | -6.215 | N/A |
| MW396 | Upgradient | Yes | 0.000641 | N/A | -7.352 | NO |

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

Conclusion of Statistical Analysis on Historical Data

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

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

CV Coefficient-of-Variation, $CV = S/X$ If CV is less than or equal to 1 assume normal distribution.
 S Standard Deviation, $S = [\text{Sum}([(background\ result-X)^2]/[\text{count of background results} - 1])]^{0.5}$
 TL Upper Tolerance Limit, $TL = X + (K * S)$, LL Lower Tolerance Limit, $LL = X - (K * S)$
 X Mean, $X = (\text{sum of background results})/(\text{count of background results})$

*** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009. D1-19

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Oxidation-Reduction Potential

UNITS: mV

UCRS

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

Statistics-Background Data X= 13.000 S= 61.952 CV(1)=4.766 **K factor**=** 3.188 TL(1)= 210.502 LL(1)=N/A

Statistics-Transformed Background Data X= 4.364 S= 0.333 CV(2)=0.076 **K factor**=** 3.188 TL(2)= 4.736 LL(2)=N/A

Historical Background Data from Upgradient Wells with Transformed Result

| Well Number: MW396 | | |
|--------------------|--------|------------|
| Date Collected | Result | LN(Result) |
| 8/13/2002 | 60 | 4.094 |
| 4/8/2003 | 71 | 4.263 |
| 7/16/2003 | -56 | #Func! |
| 10/14/2003 | -54 | #Func! |
| 1/14/2004 | -22 | #Func! |
| 4/12/2004 | -6 | #Func! |
| 7/20/2004 | -3 | #Func! |
| 10/12/2004 | 114 | 4.736 |

Dry/Partially Dry Wells

| Well No. | Gradient |
|----------|--------------|
| MW389 | Downgradient |

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

#Because the natural log was not possible for all background values, the TL was considered equal to the maximum background value.

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|--------|----------------|------------|-------------------|
| MW386 | Sidegradient | Yes | 429 | N/A | 6.061 | YES |
| MW390 | Downgradient | Yes | 464 | N/A | 6.140 | YES |
| MW393 | Downgradient | Yes | 454 | N/A | 6.118 | YES |
| MW396 | Upgradient | Yes | 431 | N/A | 6.066 | YES |

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

Conclusion of Statistical Analysis on Historical Data

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

Wells with Exceedances

- MW386
- MW390
- MW393
- MW396

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

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

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

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

X Mean, $X = (\text{sum of background results})/(\text{count of background results})$

** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009.* D1-20

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pH

UNITS: Std Unit

UCRS

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

| | | | | | | |
|---|------------------|------------------|---------------------|----------------------------|----------------------|----------------------|
| Statistics-Background Data | X = 6.460 | S = 0.350 | CV(1) =0.054 | K factor*** = 3.736 | TL(1) = 7.766 | LL(1) =5.1541 |
| Statistics-Transformed Background Data | X = 1.864 | S = 0.054 | CV(2) =0.029 | K factor*** = 3.736 | TL(2) = 2.067 | LL(2) =1.6621 |

Historical Background Data from Upgradient Wells with Transformed Result

| | | |
|----------------|--------|------------|
| Well Number: | MW396 | |
| Date Collected | Result | LN(Result) |
| 8/13/2002 | 6.17 | 1.820 |
| 9/16/2002 | 6.4 | 1.856 |
| 10/16/2002 | 5.9 | 1.775 |
| 1/13/2003 | 6.4 | 1.856 |
| 4/8/2003 | 6.65 | 1.895 |
| 7/16/2003 | 6.4 | 1.856 |
| 10/14/2003 | 6.71 | 1.904 |
| 1/14/2004 | 7.05 | 1.953 |

Dry/Partially Dry Wells

| | |
|----------|--------------|
| Well No. | Gradient |
| MW389 | Downgradient |

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

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? Result <LL(1)? | LN(Result) | LN(Result) >TL(2)? LN(Result) <LL(2)? |
|----------|--------------|-----------|--------|----------------------------------|------------|--|
| MW386 | Sidegradient | Yes | 6.92 | NO | 1.934 | N/A |
| MW390 | Downgradient | Yes | 6.41 | NO | 1.858 | N/A |
| MW393 | Downgradient | Yes | 6.3 | NO | 1.841 | N/A |
| MW396 | Upgradient | Yes | 6.71 | NO | 1.904 | N/A |

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

Conclusion of Statistical Analysis on Historical Data

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

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

- CV Coefficient-of-Variation, $CV = S/X$ If CV is less than or equal to 1 assume normal distribution.
- S Standard Deviation, $S = [\text{Sum}([(background\ result-X)^2]/[\text{count of background results} - 1])]^{0.5}$
- TL Upper Tolerance Limit, $TL = X + (K * S)$, LL Lower Tolerance Limit, $LL = X - (K * S)$
- X Mean, $X = (\text{sum of background results})/(\text{count of background results})$

** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009. D1-21

C-746-S/T Second Quarter 2019 Statistical Analysis Historical Background Comparison

Potassium

UNITS: mg/L

UCRS

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

| | | | | | | |
|---|------------------|------------------|---------------------|----------------------------|----------------------|-------------------|
| Statistics-Background Data | X = 1.411 | S = 0.399 | CV(1) =0.282 | K factor*** = 3.188 | TL(1) = 2.682 | LL(1) =N/A |
| Statistics-Transformed Background Data | X = 0.311 | S = 0.271 | CV(2) =0.870 | K factor*** = 3.188 | TL(2) = 1.175 | LL(2) =N/A |

Historical Background Data from Upgradient Wells with Transformed Result

Well Number: MW396

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 2 | 0.693 |
| 9/16/2002 | 2 | 0.693 |
| 10/16/2002 | 0.978 | -0.022 |
| 1/13/2003 | 1.08 | 0.077 |
| 4/8/2003 | 1.12 | 0.113 |
| 7/16/2003 | 1.38 | 0.322 |
| 10/14/2003 | 1.24 | 0.215 |
| 1/14/2004 | 1.49 | 0.399 |

Dry/Partially Dry Wells

| Well No. | Gradient |
|----------|--------------|
| MW389 | Downgradient |

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

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|--------|----------------|------------|-------------------|
| MW386 | Sidegradient | Yes | 0.262 | NO | -1.339 | N/A |
| MW390 | Downgradient | Yes | 0.315 | NO | -1.155 | N/A |
| MW393 | Downgradient | Yes | 0.476 | NO | -0.742 | N/A |
| MW396 | Upgradient | Yes | 0.857 | NO | -0.154 | N/A |

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

Conclusion of Statistical Analysis on Historical Data

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

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

- CV Coefficient-of-Variation, $CV = S/X$ If CV is less than or equal to 1 assume normal distribution.
- S Standard Deviation, $S = [\text{Sum}([(background\ result-X)^2]/[\text{count of background results} - 1])]^{0.5}$
- TL Upper Tolerance Limit, $TL = X + (K * S)$, LL Lower Tolerance Limit, $LL = X - (K * S)$
- X Mean, $X = (\text{sum of background results})/(\text{count of background results})$

*** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009. D1-22

C-746-S/T Second Quarter 2019 Statistical Analysis Historical Background Comparison

Sodium

UNITS: mg/L

UCRS

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

Statistics-Background Data X= 106.825 S= 32.041 CV(1)=0.300 **K factor***= 3.188** TL(1)= 208.973 LL(1)=N/A

Statistics-Transformed Background Data X= 4.595 S= 0.492 CV(2)=0.107 **K factor***= 3.188** TL(2)= 6.163 LL(2)=N/A

Historical Background Data from Upgradient Wells with Transformed Result

| | | |
|----------------|--------|------------|
| Well Number: | MW396 | |
| Date Collected | Result | LN(Result) |
| 8/13/2002 | 115 | 4.745 |
| 9/16/2002 | 116 | 4.754 |
| 10/16/2002 | 117 | 4.762 |
| 1/13/2003 | 122 | 4.804 |
| 4/8/2003 | 106 | 4.663 |
| 7/16/2003 | 117 | 4.762 |
| 10/14/2003 | 132 | 4.883 |
| 1/14/2004 | 29.6 | 3.388 |

Dry/Partially Dry Wells

| | |
|----------|--------------|
| Well No. | Gradient |
| MW389 | Downgradient |

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

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|--------|----------------|------------|-------------------|
| MW386 | Sidegradient | Yes | 93.9 | NO | 4.542 | N/A |
| MW390 | Downgradient | Yes | 100 | NO | 4.605 | N/A |
| MW393 | Downgradient | Yes | 83.1 | NO | 4.420 | N/A |
| MW396 | Upgradient | Yes | 98.1 | NO | 4.586 | N/A |

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

Conclusion of Statistical Analysis on Historical Data

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

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

CV Coefficient-of-Variation, $CV = S/X$ If CV is less than or equal to 1 assume normal distribution.
 S Standard Deviation, $S = [\text{Sum}([(background\ result-X)^2]/[\text{count of background results} - 1])]^{0.5}$
 TL Upper Tolerance Limit, $TL = X + (K * S)$, LL Lower Tolerance Limit, $LL = X - (K * S)$
 X Mean, $X = (\text{sum of background results})/(\text{count of background results})$

*** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009. D1-23

C-746-S/T Second Quarter 2019 Statistical Analysis Historical Background Comparison

Sulfate

UNITS: mg/L

UCRS

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

Statistics-Background Data X= 22.463 S= 8.876 CV(1)=0.395 K factor***= 3.188 TL(1)= 50.759 LL(1)=N/A

Statistics-Transformed Background Data X= 3.054 S= 0.351 CV(2)=0.115 K factor***= 3.188 TL(2)= 4.173 LL(2)=N/A

Historical Background Data from Upgradient Wells with Transformed Result

| Well Number: | MW396 | |
|----------------|--------|------------|
| Date Collected | Result | LN(Result) |
| 8/13/2002 | 41.9 | 3.735 |
| 9/16/2002 | 26.3 | 3.270 |
| 10/16/2002 | 20.6 | 3.025 |
| 1/13/2003 | 16.6 | 2.809 |
| 4/8/2003 | 23.9 | 3.174 |
| 7/16/2003 | 18.8 | 2.934 |
| 10/14/2003 | 12.9 | 2.557 |
| 1/14/2004 | 18.7 | 2.929 |

Dry/Partially Dry Wells

| Well No. | Gradient |
|----------|--------------|
| MW389 | Downgradient |

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

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|--------|----------------|------------|-------------------|
| MW386 | Sidegradient | Yes | 49.1 | NO | 3.894 | N/A |
| MW390 | Downgradient | Yes | 43.5 | NO | 3.773 | N/A |
| MW393 | Downgradient | Yes | 21.1 | NO | 3.049 | N/A |
| MW396 | Upgradient | Yes | 25.5 | NO | 3.239 | N/A |

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

Conclusion of Statistical Analysis on Historical Data

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

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

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

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

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

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

*** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009. D1-24

C-746-S/T Second Quarter 2019 Statistical Analysis Historical Background Comparison

Technetium-99

UNITS: pCi/L

UCRS

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

Statistics-Background Data X= 7.624 S= 6.558 CV(1)=0.860 K factor***= 3.188 TL(1)= 28.531 LL(1)=N/A

Statistics-Transformed Background Data X= 1.498 S= 1.321 CV(2)=0.882 K factor***= 3.188 TL(2)= 5.710 LL(2)=N/A

Historical Background Data from Upgradient Wells with Transformed Result

| | | |
|----------------|--------|------------|
| Well Number: | MW396 | |
| Date Collected | Result | LN(Result) |
| 8/13/2002 | 16.7 | 2.815 |
| 9/16/2002 | 6.39 | 1.855 |
| 10/16/2002 | 4.55 | 1.515 |
| 1/13/2003 | 16.5 | 2.803 |
| 4/8/2003 | 3.04 | 1.112 |
| 7/16/2003 | 0.354 | -1.038 |
| 10/14/2003 | 11.9 | 2.477 |
| 1/14/2004 | 1.56 | 0.445 |

Dry/Partially Dry Wells

| | |
|----------|--------------|
| Well No. | Gradient |
| MW389 | Downgradient |

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

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|--------|----------------|------------|-------------------|
| MW386 | Sidegradient | No | -2.67 | N/A | #Error | N/A |
| MW390 | Downgradient | Yes | 63.1 | YES | 4.145 | N/A |
| MW393 | Downgradient | No | 4.03 | N/A | 1.394 | N/A |
| MW396 | Upgradient | No | 5.89 | N/A | 1.773 | N/A |

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

Conclusion of Statistical Analysis on Historical Data

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

Wells with Exceedances

MW390

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

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

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

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

X Mean, $X = (\text{sum of background results})/(\text{count of background results})$

** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009. D1-25

C-746-S/T Second Quarter 2019 Statistical Analysis Historical Background Comparison

Total Organic Carbon (TOC)

UNITS: mg/L

UCRS

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

| | | | | | | |
|---|------------------|------------------|---------------------|---------------------------|-----------------------|-------------------|
| Statistics-Background Data | X = 9.988 | S = 4.696 | CV(1) =0.470 | K factor **= 3.188 | TL(1) = 24.959 | LL(1) =N/A |
| Statistics-Transformed Background Data | X = 2.210 | S = 0.454 | CV(2) =0.205 | K factor **= 3.188 | TL(2) = 3.657 | LL(2) =N/A |

Historical Background Data from Upgradient Wells with Transformed Result

| | | |
|----------------|--------|------------|
| Well Number: | MW396 | |
| Date Collected | Result | LN(Result) |
| 8/13/2002 | 19 | 2.944 |
| 9/16/2002 | 14.6 | 2.681 |
| 10/16/2002 | 10.4 | 2.342 |
| 1/13/2003 | 4.4 | 1.482 |
| 4/8/2003 | 7 | 1.946 |
| 7/16/2003 | 7.3 | 1.988 |
| 10/14/2003 | 9.1 | 2.208 |
| 1/14/2004 | 8.1 | 2.092 |

Dry/Partially Dry Wells

| | |
|----------|--------------|
| Well No. | Gradient |
| MW389 | Downgradient |

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

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|--------|----------------|------------|-------------------|
| MW386 | Sidegradient | Yes | 4.24 | NO | 1.445 | N/A |
| MW390 | Downgradient | Yes | 2.46 | NO | 0.900 | N/A |
| MW393 | Downgradient | Yes | 2.51 | NO | 0.920 | N/A |
| MW396 | Upgradient | Yes | 4.53 | NO | 1.511 | N/A |

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

Conclusion of Statistical Analysis on Historical Data

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

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

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

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

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

X Mean, $X = (\text{sum of background results})/(\text{count of background results})$

** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009. D1-26

C-746-S/T Second Quarter 2019 Statistical Analysis Historical Background Comparison

Total Organic Halides (TOX)

UNITS: ug/L

UCRS

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

Statistics-Background Data X= 142.650 S= 53.533 CV(1)=0.375 **K factor***= 3.188** TL(1)= 313.314 LL(1)=N/A

Statistics-Transformed Background Data X= 4.896 S= 0.390 CV(2)=0.080 **K factor***= 3.188** TL(2)= 6.138 LL(2)=N/A

Historical Background Data from Upgradient Wells with Transformed Result

| | | |
|----------------|--------|------------|
| Well Number: | MW396 | |
| Date Collected | Result | LN(Result) |
| 8/13/2002 | 193 | 5.263 |
| 9/16/2002 | 190 | 5.247 |
| 10/16/2002 | 221 | 5.398 |
| 1/13/2003 | 106 | 4.663 |
| 4/8/2003 | 77.8 | 4.354 |
| 7/16/2003 | 122 | 4.804 |
| 10/14/2003 | 86.4 | 4.459 |
| 1/14/2004 | 145 | 4.977 |

Dry/Partially Dry Wells

| | |
|----------|--------------|
| Well No. | Gradient |
| MW389 | Downgradient |

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

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|--------|----------------|------------|-------------------|
| MW386 | Sidegradient | Yes | 108 | NO | 4.682 | N/A |
| MW390 | Downgradient | Yes | 11.3 | NO | 2.425 | N/A |
| MW393 | Downgradient | Yes | 17.1 | NO | 2.839 | N/A |
| MW396 | Upgradient | Yes | 31 | NO | 3.434 | N/A |

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

Conclusion of Statistical Analysis on Historical Data

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

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

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

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

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

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

** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009. D1-27

C-746-S/T Second Quarter 2019 Statistical Analysis Historical Background Comparison

Vanadium

UNITS: mg/L

UCRS

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

| | | | | | | |
|---|-------------------|------------------|----------------------|---------------------------|-----------------------|-------------------|
| Statistics-Background Data | X = 0.021 | S = 0.002 | CV(1) =0.109 | K factor **= 3.188 | TL(1) = 0.029 | LL(1) =N/A |
| Statistics-Transformed Background Data | X = -3.856 | S = 0.103 | CV(2) =-0.027 | K factor **= 3.188 | TL(2) = -3.527 | LL(2) =N/A |

Historical Background Data from Upgradient Wells with Transformed Result

| | | |
|----------------|--------|------------|
| Well Number: | MW396 | |
| Date Collected | Result | LN(Result) |
| 8/13/2002 | 0.025 | -3.689 |
| 9/16/2002 | 0.025 | -3.689 |
| 10/16/2002 | 0.02 | -3.912 |
| 1/13/2003 | 0.02 | -3.912 |
| 4/8/2003 | 0.02 | -3.912 |
| 7/16/2003 | 0.02 | -3.912 |
| 10/14/2003 | 0.02 | -3.912 |
| 1/14/2004 | 0.02 | -3.912 |

Dry/Partially Dry Wells

| | |
|----------|--------------|
| Well No. | Gradient |
| MW389 | Downgradient |

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

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|--------|----------------|------------|-------------------|
| MW386 | Sidegradient | Yes | 0.0101 | NO | -4.595 | N/A |
| MW390 | Downgradient | No | 0.02 | N/A | -3.912 | N/A |
| MW393 | Downgradient | No | 0.0152 | N/A | -4.186 | N/A |
| MW396 | 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, $S = [\text{Sum}([(background\ result-X)^2]/[\text{count of background results} - 1])]^{0.5}$
 TL Upper Tolerance Limit, $TL = X + (K * S)$, LL Lower Tolerance Limit, $LL = X - (K * S)$
 X Mean, $X = (\text{sum of background results})/(\text{count of background results})$

** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009. D1-28

C-746-S/T Second Quarter 2019 Statistical Analysis Historical Background Comparison

Zinc

UNITS: mg/L

UCRS

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

| | | | | | | |
|---|-----------|----------|--------------|--------------------|---------------|-----------|
| Statistics-Background Data | X= 0.044 | S= 0.035 | CV(1)=0.786 | K factor***= 3.188 | TL(1)= 0.156 | LL(1)=N/A |
| Statistics-Transformed Background Data | X= -3.342 | S= 0.682 | CV(2)=-0.204 | K factor***= 3.188 | TL(2)= -1.168 | LL(2)=N/A |

Historical Background Data from Upgradient Wells with Transformed Result

Well Number: MW396

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 0.1 | -2.303 |
| 9/16/2002 | 0.1 | -2.303 |
| 10/16/2002 | 0.025 | -3.689 |
| 1/13/2003 | 0.035 | -3.352 |
| 4/8/2003 | 0.035 | -3.352 |
| 7/16/2003 | 0.02 | -3.912 |
| 10/14/2003 | 0.02 | -3.912 |
| 1/14/2004 | 0.02 | -3.912 |

Dry/Partially Dry Wells

| Well No. | Gradient |
|----------|--------------|
| MW389 | Downgradient |

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

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|---------|----------------|------------|-------------------|
| MW386 | Sidegradient | No | 0.02 | N/A | -3.912 | N/A |
| MW390 | Downgradient | Yes | 0.00393 | NO | -5.539 | N/A |
| MW393 | Downgradient | No | 0.02 | N/A | -3.912 | N/A |
| MW396 | Upgradient | Yes | 0.00438 | NO | -5.431 | N/A |

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

Conclusion of Statistical Analysis on Historical Data

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

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

- CV Coefficient-of-Variation, $CV = S/X$ If CV is less than or equal to 1 assume normal distribution.
- S Standard Deviation, $S = [\text{Sum}([(background\ result-X)^2]/[\text{count of background results} - 1])]^{0.5}$
- TL Upper Tolerance Limit, $TL = X + (K * S)$, LL Lower Tolerance Limit, $LL = X - (K * S)$
- X Mean, $X = (\text{sum of background results})/(\text{count of background results})$

*** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009. D1-29

C-746-S/T Second Quarter 2019 Statistical Analysis Historical Background Comparison

Aluminum

UNITS: mg/L

URGA

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

Statistics-Background Data X= 0.221 S= 0.061 CV(1)=0.277 K factor***= 2.523 TL(1)= 0.376 LL(1)=N/A

Statistics-Transformed Background Data X= -1.534 S= 0.212 CV(2)=-0.138 K factor***= 2.523 TL(2)= -0.999 LL(2)=N/A

Historical Background Data from Upgradient Wells with Transformed Result

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

Well Number: MW220

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 10/14/2002 | 0.2 | -1.609 |
| 1/15/2003 | 0.2 | -1.609 |
| 4/10/2003 | 0.2 | -1.609 |
| 7/14/2003 | 0.2 | -1.609 |
| 10/13/2003 | 0.427 | -0.851 |
| 1/13/2004 | 0.309 | -1.174 |
| 4/13/2004 | 0.2 | -1.609 |
| 7/21/2004 | 0.202 | -1.599 |

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|--------|----------------|------------|-------------------|
| MW220 | Upgradient | No | 0.05 | N/A | -2.996 | N/A |
| MW221 | Sidegradient | No | 0.05 | N/A | -2.996 | N/A |
| MW222 | Sidegradient | No | 0.05 | N/A | -2.996 | N/A |
| MW223 | Sidegradient | No | 0.05 | N/A | -2.996 | N/A |
| MW224 | Sidegradient | No | 0.05 | N/A | -2.996 | N/A |
| MW369 | Downgradient | No | 0.05 | N/A | -2.996 | N/A |
| MW372 | Downgradient | No | 0.05 | N/A | -2.996 | N/A |
| MW384 | Sidegradient | No | 0.05 | N/A | -2.996 | N/A |
| MW387 | Downgradient | Yes | 0.0206 | NO | -3.882 | N/A |
| MW391 | Downgradient | No | 0.05 | N/A | -2.996 | N/A |
| MW394 | 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.

Well Number: MW394

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 0.2 | -1.609 |
| 9/16/2002 | 0.2 | -1.609 |
| 10/16/2002 | 0.2 | -1.609 |
| 1/13/2003 | 0.2 | -1.609 |
| 4/10/2003 | 0.2 | -1.609 |
| 7/16/2003 | 0.2 | -1.609 |
| 10/14/2003 | 0.2 | -1.609 |
| 1/13/2004 | 0.2 | -1.609 |

Conclusion of Statistical Analysis on Historical Data

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

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

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

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

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

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

*** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009. D1-30

C-746-S/T Second Quarter 2019 Statistical Analysis Historical Background Comparison

Antimony

UNITS: mg/L

URGA

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

Statistics-Background Data X= 0.029 S= 0.067 CV(1)=2.267 K factor***= 2.523 TL(1)=0.197 LL(1)=N/A

Statistics-Transformed Background Data X= -4.837 S= 1.260 CV(2)=-0.260 K factor***= 2.523 TL(2)= -1.658 LL(2)=N/A

Historical Background Data from Upgradient Wells with Transformed Result

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

Well Number: MW220

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 10/14/2002 | 0.005 | -5.298 |
| 1/15/2003 | 0.005 | -5.298 |
| 4/10/2003 | 0.005 | -5.298 |
| 7/14/2003 | 0.005 | -5.298 |
| 10/13/2003 | 0.005 | -5.298 |
| 1/13/2004 | 0.005 | -5.298 |
| 4/13/2004 | 0.005 | -5.298 |
| 7/21/2004 | 0.005 | -5.298 |

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|---------|----------------|------------|-------------------|
| MW220 | Upgradient | Yes | 0.0013 | N/A | -6.645 | NO |
| MW221 | Sidegradient | Yes | 0.00126 | N/A | -6.677 | NO |
| MW222 | Sidegradient | Yes | 0.00123 | N/A | -6.701 | NO |
| MW223 | Sidegradient | Yes | 0.00134 | N/A | -6.615 | NO |
| MW224 | Sidegradient | Yes | 0.00124 | N/A | -6.693 | NO |
| MW369 | Downgradient | No | 0.003 | N/A | -5.809 | N/A |
| MW372 | Downgradient | Yes | 0.00125 | N/A | -6.685 | NO |
| MW384 | Sidegradient | No | 0.00138 | N/A | -6.586 | N/A |
| MW387 | Downgradient | No | 0.0013 | N/A | -6.645 | N/A |
| MW391 | Downgradient | Yes | 0.0014 | N/A | -6.571 | NO |
| MW394 | Upgradient | Yes | 0.00126 | N/A | -6.677 | NO |

Well Number: MW394

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 0.2 | -1.609 |
| 9/16/2002 | 0.2 | -1.609 |
| 10/16/2002 | 0.005 | -5.298 |
| 1/13/2003 | 0.005 | -5.298 |
| 4/10/2003 | 0.005 | -5.298 |
| 7/16/2003 | 0.005 | -5.298 |
| 10/14/2003 | 0.005 | -5.298 |
| 1/13/2004 | 0.005 | -5.298 |

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

Conclusion of Statistical Analysis on Historical Data

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

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

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

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

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

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

*** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009. D1-31

C-746-S/T Second Quarter 2019 Statistical Analysis Historical Background Comparison

Beta activity

UNITS: pCi/L

URGA

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

Statistics-Background Data X= 14.273 S= 13.883 CV(1)=0.973 **K factor***= 2.523** TL(1)= 49.300 LL(1)=N/A

Statistics-Transformed Background Data X= 2.213 S= 1.033 CV(2)=0.467 **K factor***= 2.523** TL(2)= 4.819 LL(2)=N/A

Historical Background Data from Upgradient Wells with Transformed Result

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

Well Number: MW220

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 10/14/2002 | 15.2 | 2.721 |
| 1/15/2003 | 42.5 | 3.750 |
| 4/10/2003 | 45.4 | 3.816 |
| 7/14/2003 | 8.53 | 2.144 |
| 10/13/2003 | 11.7 | 2.460 |
| 1/13/2004 | 13.5 | 2.603 |
| 4/13/2004 | 33.5 | 3.512 |
| 7/21/2004 | 13.7 | 2.617 |

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|--------|----------------|------------|-------------------|
| MW220 | Upgradient | No | 8.19 | N/A | 2.103 | N/A |
| MW221 | Sidegradient | Yes | 9.35 | N/A | 2.235 | N/A |
| MW222 | Sidegradient | No | 7.11 | N/A | 1.962 | N/A |
| MW223 | Sidegradient | Yes | 24.4 | N/A | 3.195 | N/A |
| MW224 | Sidegradient | No | 2.3 | N/A | 0.833 | N/A |
| MW369 | Downgradient | Yes | 83.7 | YES | 4.427 | N/A |
| MW372 | Downgradient | Yes | 41 | N/A | 3.714 | N/A |
| MW384 | Sidegradient | Yes | 97 | YES | 4.575 | N/A |
| MW387 | Downgradient | Yes | 135 | YES | 4.905 | N/A |
| MW391 | Downgradient | Yes | 15.3 | N/A | 2.728 | N/A |
| MW394 | Upgradient | No | 2.82 | N/A | 1.037 | N/A |

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

Well Number: MW394

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 5.03 | 1.615 |
| 9/16/2002 | 5.57 | 1.717 |
| 10/16/2002 | 12.8 | 2.549 |
| 1/13/2003 | 4.3 | 1.459 |
| 4/10/2003 | 9.52 | 2.253 |
| 7/16/2003 | 3.92 | 1.366 |
| 10/14/2003 | 1.06 | 0.058 |
| 1/13/2004 | 2.14 | 0.761 |

Conclusion of Statistical Analysis on Historical Data

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

Wells with Exceedances

- MW369
- MW384
- MW387

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

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

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

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

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

*** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009. D1-32

C-746-S/T Second Quarter 2019 Statistical Analysis Historical Background Comparison

Boron

UNITS: mg/L

URGA

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

| | | | | | | |
|---|-------------------|------------------|-----------------------|----------------------------|----------------------|-------------------|
| Statistics-Background Data | X = 0.425 | S = 0.615 | CV(1) = 1.447 | K factor*** = 2.523 | TL(1) = 1.976 | LL(1) =N/A |
| Statistics-Transformed Background Data | X = -1.322 | S = 0.786 | CV(2) = -0.595 | K factor*** = 2.523 | TL(2) = 0.663 | LL(2) =N/A |

Historical Background Data from Upgradient Wells with Transformed Result

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

Well Number: MW220

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 10/14/2002 | 0.2 | -1.609 |
| 1/15/2003 | 0.2 | -1.609 |
| 4/10/2003 | 0.2 | -1.609 |
| 7/14/2003 | 0.2 | -1.609 |
| 10/13/2003 | 0.2 | -1.609 |
| 1/13/2004 | 0.2 | -1.609 |
| 4/13/2004 | 0.2 | -1.609 |
| 7/21/2004 | 0.2 | -1.609 |

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|---------|----------------|------------|-------------------|
| MW220 | Upgradient | Yes | 0.00652 | N/A | -5.033 | NO |
| MW221 | Sidegradient | Yes | 0.0134 | N/A | -4.313 | NO |
| MW222 | Sidegradient | Yes | 0.00887 | N/A | -4.725 | NO |
| MW223 | Sidegradient | Yes | 0.00832 | N/A | -4.789 | NO |
| MW224 | Sidegradient | Yes | 0.0213 | N/A | -3.849 | NO |
| MW369 | Downgradient | Yes | 0.0187 | N/A | -3.979 | NO |
| MW372 | Downgradient | Yes | 0.86 | N/A | -0.151 | NO |
| MW384 | Sidegradient | Yes | 0.0268 | N/A | -3.619 | NO |
| MW387 | Downgradient | Yes | 0.0224 | N/A | -3.799 | NO |
| MW391 | Downgradient | Yes | 0.231 | N/A | -1.465 | NO |
| MW394 | Upgradient | Yes | 0.0245 | N/A | -3.709 | NO |

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

Well Number: MW394

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 2 | 0.693 |
| 9/16/2002 | 2 | 0.693 |
| 10/16/2002 | 0.2 | -1.609 |
| 1/13/2003 | 0.2 | -1.609 |
| 4/10/2003 | 0.2 | -1.609 |
| 7/16/2003 | 0.2 | -1.609 |
| 10/14/2003 | 0.2 | -1.609 |
| 1/13/2004 | 0.2 | -1.609 |

Conclusion of Statistical Analysis on Historical Data

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

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

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

S Standard Deviation, $S = \sqrt{[\text{Sum} ((\text{background result}-X)^2)/[\text{count of background results} - 1]]} \cdot 0.5$

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

X Mean, $X = (\text{sum of background results})/(\text{count of background results})$

*** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009. D1-33

C-746-S/T Second Quarter 2019 Statistical Analysis Historical Background Comparison

Bromide

UNITS: mg/L

URGA

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

| | | | | | | |
|---|-----------------|-----------------|--------------------|---------------------------|---------------------|------------------|
| Statistics-Background Data | X= 1.000 | S= 0.000 | CV(1)=0.000 | K factor***= 2.523 | TL(1)= 1.000 | 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: MW220

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 10/14/2002 | 1 | 0.000 |
| 1/15/2003 | 1 | 0.000 |
| 4/10/2003 | 1 | 0.000 |
| 7/14/2003 | 1 | 0.000 |
| 10/13/2003 | 1 | 0.000 |
| 1/13/2004 | 1 | 0.000 |
| 4/13/2004 | 1 | 0.000 |
| 7/21/2004 | 1 | 0.000 |

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|--------|----------------|------------|-------------------|
| MW220 | Upgradient | Yes | 0.211 | NO | -1.556 | N/A |
| MW221 | Sidegradient | Yes | 0.433 | NO | -0.837 | N/A |
| MW222 | Sidegradient | Yes | 0.424 | NO | -0.858 | N/A |
| MW223 | Sidegradient | Yes | 0.384 | NO | -0.957 | N/A |
| MW224 | Sidegradient | Yes | 0.461 | NO | -0.774 | N/A |
| MW369 | Downgradient | Yes | 0.404 | NO | -0.906 | N/A |
| MW372 | Downgradient | Yes | 0.586 | NO | -0.534 | N/A |
| MW384 | Sidegradient | Yes | 0.33 | NO | -1.109 | N/A |
| MW387 | Downgradient | Yes | 0.591 | NO | -0.526 | N/A |
| MW391 | Downgradient | Yes | 0.492 | NO | -0.709 | N/A |
| MW394 | Upgradient | Yes | 0.565 | NO | -0.571 | N/A |

Well Number: MW394

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 1 | 0.000 |
| 9/16/2002 | 1 | 0.000 |
| 10/16/2002 | 1 | 0.000 |
| 1/13/2003 | 1 | 0.000 |
| 4/10/2003 | 1 | 0.000 |
| 7/16/2003 | 1 | 0.000 |
| 10/14/2003 | 1 | 0.000 |
| 1/13/2004 | 1 | 0.000 |

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

Conclusion of Statistical Analysis on Historical Data

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

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

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

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

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

X Mean, $X = (\text{sum of background results})/(\text{count of background results})$

** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009. D1-34

C-746-S/T Second Quarter 2019 Statistical Analysis Historical Background Comparison

Calcium

UNITS: mg/L

URGA

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

Statistics-Background Data X= 27.638 S= 4.743 CV(1)=0.172 **K factor***= 2.523** TL(1)= 39.604 LL(1)=N/A

Statistics-Transformed Background Data X= 3.304 S= 0.183 CV(2)=0.055 **K factor***= 2.523** TL(2)= 3.765 LL(2)=N/A

Historical Background Data from Upgradient Wells with Transformed Result

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

Well Number: MW220

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 10/14/2002 | 23.6 | 3.161 |
| 1/15/2003 | 25.9 | 3.254 |
| 4/10/2003 | 30.4 | 3.414 |
| 7/14/2003 | 33.9 | 3.523 |
| 10/13/2003 | 21.3 | 3.059 |
| 1/13/2004 | 20.3 | 3.011 |
| 4/13/2004 | 23.8 | 3.170 |
| 7/21/2004 | 19 | 2.944 |

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|--------|----------------|------------|-------------------|
| MW220 | Upgradient | Yes | 35.8 | NO | 3.578 | N/A |
| MW221 | Sidegradient | Yes | 21.4 | NO | 3.063 | N/A |
| MW222 | Sidegradient | Yes | 19 | NO | 2.944 | N/A |
| MW223 | Sidegradient | Yes | 22.7 | NO | 3.122 | N/A |
| MW224 | Sidegradient | Yes | 21.3 | NO | 3.059 | N/A |
| MW369 | Downgradient | Yes | 20 | NO | 2.996 | N/A |
| MW372 | Downgradient | Yes | 49.7 | YES | 3.906 | N/A |
| MW384 | Sidegradient | Yes | 23.3 | NO | 3.148 | N/A |
| MW387 | Downgradient | Yes | 29.8 | NO | 3.395 | N/A |
| MW391 | Downgradient | Yes | 32 | NO | 3.466 | N/A |
| MW394 | Upgradient | Yes | 24.7 | NO | 3.207 | N/A |

Well Number: MW394

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 29.5 | 3.384 |
| 9/16/2002 | 29.9 | 3.398 |
| 10/16/2002 | 31.2 | 3.440 |
| 1/13/2003 | 30.7 | 3.424 |
| 4/10/2003 | 34.4 | 3.538 |
| 7/16/2003 | 29.6 | 3.388 |
| 10/14/2003 | 30.3 | 3.411 |
| 1/13/2004 | 28.4 | 3.346 |

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

Conclusion of Statistical Analysis on Historical Data

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

Wells with Exceedances

MW372

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

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

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

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

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

** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009. D1-35

C-746-S/T Second Quarter 2019 Statistical Analysis Historical Background Comparison

Carbon disulfide

UNITS: ug/L

URGA

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

| | | | | | | |
|---|------------------|------------------|---------------------|----------------------------|----------------------|-------------------|
| Statistics-Background Data | X = 5.000 | S = 0.000 | CV(1) =0.000 | K factor*** = 2.523 | TL(1) = 5.000 | LL(1) =N/A |
| Statistics-Transformed Background Data | X = 1.609 | S = 0.000 | CV(2) =0.000 | K factor*** = 2.523 | TL(2) = 1.609 | LL(2) =N/A |

Historical Background Data from Upgradient Wells with Transformed Result

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

Well Number: MW220

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 10/14/2002 | 5 | 1.609 |
| 1/15/2003 | 5 | 1.609 |
| 4/10/2003 | 5 | 1.609 |
| 7/14/2003 | 5 | 1.609 |
| 10/13/2003 | 5 | 1.609 |
| 1/13/2004 | 5 | 1.609 |
| 4/13/2004 | 5 | 1.609 |
| 7/21/2004 | 5 | 1.609 |

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|--------|----------------|------------|-------------------|
| MW220 | Upgradient | No | 5 | N/A | 1.609 | N/A |
| MW221 | Sidegradient | No | 5 | N/A | 1.609 | N/A |
| MW222 | Sidegradient | No | 5 | N/A | 1.609 | N/A |
| MW223 | Sidegradient | No | 5 | N/A | 1.609 | N/A |
| MW224 | Sidegradient | No | 5 | N/A | 1.609 | N/A |
| MW369 | Downgradient | No | 5 | N/A | 1.609 | N/A |
| MW372 | Downgradient | No | 5 | N/A | 1.609 | N/A |
| MW384 | Sidegradient | No | 5 | N/A | 1.609 | N/A |
| MW387 | Downgradient | No | 5 | N/A | 1.609 | N/A |
| MW391 | Downgradient | Yes | 2.85 | NO | 1.047 | N/A |
| MW394 | 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, $S = [\text{Sum}([(background\ result - X)^2]/[\text{count of background results} - 1])]^{0.5}$

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

X Mean, $X = (\text{sum of background results})/(\text{count of background results})$

** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009. D1-36

C-746-S/T Second Quarter 2019 Statistical Analysis Historical Background Comparison

Chloride

UNITS: mg/L

URGA

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

Statistics-Background Data X= 49.044 S= 11.278 CV(1)=0.230 **K factor***= 2.523** TL(1)= 77.499 LL(1)=N/A

Statistics-Transformed Background Data X= 3.866 S= 0.244 CV(2)=0.063 **K factor***= 2.523** TL(2)= 4.482 LL(2)=N/A

Historical Background Data from Upgradient Wells with Transformed Result

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

Well Number: MW220

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 10/14/2002 | 44.6 | 3.798 |
| 1/15/2003 | 43.2 | 3.766 |
| 4/10/2003 | 31.5 | 3.450 |
| 7/14/2003 | 30.8 | 3.428 |
| 10/13/2003 | 40.9 | 3.711 |
| 1/13/2004 | 40.8 | 3.709 |
| 4/13/2004 | 37.5 | 3.624 |
| 7/21/2004 | 40.8 | 3.709 |

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|--------|----------------|------------|-------------------|
| MW220 | Upgradient | Yes | 18.7 | NO | 2.929 | N/A |
| MW221 | Sidegradient | Yes | 32.6 | NO | 3.484 | N/A |
| MW222 | Sidegradient | Yes | 31.4 | NO | 3.447 | N/A |
| MW223 | Sidegradient | Yes | 27.6 | NO | 3.318 | N/A |
| MW224 | Sidegradient | Yes | 36.7 | NO | 3.603 | N/A |
| MW369 | Downgradient | Yes | 34.7 | NO | 3.547 | N/A |
| MW372 | Downgradient | Yes | 46.2 | NO | 3.833 | N/A |
| MW384 | Sidegradient | Yes | 36.4 | NO | 3.595 | N/A |
| MW387 | Downgradient | Yes | 43.7 | NO | 3.777 | N/A |
| MW391 | Downgradient | Yes | 39.3 | NO | 3.671 | N/A |
| MW394 | Upgradient | Yes | 44.3 | NO | 3.791 | N/A |

Well Number: MW394

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 60.4 | 4.101 |
| 9/16/2002 | 60.3 | 4.099 |
| 10/16/2002 | 58 | 4.060 |
| 1/13/2003 | 60.7 | 4.106 |
| 4/10/2003 | 62.9 | 4.142 |
| 7/16/2003 | 58.1 | 4.062 |
| 10/14/2003 | 58.2 | 4.064 |
| 1/13/2004 | 56 | 4.025 |

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

Conclusion of Statistical Analysis on Historical Data

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

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

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

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

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

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

** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009. D1-38

C-746-S/T Second Quarter 2019 Statistical Analysis Historical Background Comparison

cis-1,2-Dichloroethene

UNITS: ug/L

URGA

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

| | | | | | | |
|---|------------------|------------------|---------------------|----------------------------|----------------------|-------------------|
| Statistics-Background Data | X = 5.000 | S = 0.000 | CV(1) =0.000 | K factor*** = 2.523 | TL(1) = 5.000 | LL(1) =N/A |
| Statistics-Transformed Background Data | X = 1.609 | S = 0.000 | CV(2) =0.000 | K factor*** = 2.523 | TL(2) = 1.609 | LL(2) =N/A |

Historical Background Data from Upgradient Wells with Transformed Result

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

Well Number: MW220

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 10/14/2002 | 5 | 1.609 |
| 1/15/2003 | 5 | 1.609 |
| 4/10/2003 | 5 | 1.609 |
| 7/14/2003 | 5 | 1.609 |
| 10/13/2003 | 5 | 1.609 |
| 1/13/2004 | 5 | 1.609 |
| 4/13/2004 | 5 | 1.609 |
| 7/21/2004 | 5 | 1.609 |

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|--------|----------------|------------|-------------------|
| MW220 | Upgradient | Yes | 0.34 | NO | -1.079 | N/A |
| MW221 | Sidegradient | No | 1 | N/A | 0.000 | N/A |
| MW222 | Sidegradient | No | 1 | N/A | 0.000 | N/A |
| MW223 | Sidegradient | No | 1 | N/A | 0.000 | N/A |
| MW224 | Sidegradient | No | 1 | N/A | 0.000 | N/A |
| MW369 | Downgradient | No | 1 | N/A | 0.000 | N/A |
| MW372 | Downgradient | No | 1 | N/A | 0.000 | N/A |
| MW384 | Sidegradient | No | 1 | N/A | 0.000 | N/A |
| MW387 | Downgradient | No | 1 | N/A | 0.000 | N/A |
| MW391 | Downgradient | No | 1 | N/A | 0.000 | N/A |
| MW394 | Upgradient | No | 1 | N/A | 0.000 | N/A |

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

Well Number: MW394

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 5 | 1.609 |
| 9/30/2002 | 5 | 1.609 |
| 10/16/2002 | 5 | 1.609 |
| 1/13/2003 | 5 | 1.609 |
| 4/10/2003 | 5 | 1.609 |
| 7/16/2003 | 5 | 1.609 |
| 10/14/2003 | 5 | 1.609 |
| 1/13/2004 | 5 | 1.609 |

Conclusion of Statistical Analysis on Historical Data

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

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

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

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

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

X Mean, $X = (\text{sum of background results})/(\text{count of background results})$

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

C-746-S/T Second Quarter 2019 Statistical Analysis Historical Background Comparison

Cobalt

UNITS: mg/L

URGA

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

| | | | | | | |
|---|-------------------|------------------|----------------------|---------------------------|-----------------------|-------------------|
| Statistics-Background Data | X = 0.016 | S = 0.040 | CV(1) =2.440 | K factor** = 2.523 | TL(1) = 0.116 | LL(1) =N/A |
| Statistics-Transformed Background Data | X = -5.582 | S = 1.573 | CV(2) =-0.282 | K factor** = 2.523 | TL(2) = -1.613 | LL(2) =N/A |

Historical Background Data from Upgradient Wells with Transformed Result

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

| Well Number: MW220 | | |
|--------------------|---------|------------|
| Date Collected | Result | LN(Result) |
| 10/14/2002 | 0.0041 | -5.497 |
| 1/15/2003 | 0.00496 | -5.306 |
| 4/10/2003 | 0.00289 | -5.846 |
| 7/14/2003 | 0.161 | -1.826 |
| 10/13/2003 | 0.0226 | -3.790 |
| 1/13/2004 | 0.00464 | -5.373 |
| 4/13/2004 | 0.001 | -6.908 |
| 7/21/2004 | 0.00264 | -5.937 |
| Well Number: MW394 | | |
| Date Collected | Result | LN(Result) |
| 8/13/2002 | 0.025 | -3.689 |
| 9/16/2002 | 0.025 | -3.689 |
| 10/16/2002 | 0.001 | -6.908 |
| 1/13/2003 | 0.001 | -6.908 |
| 4/10/2003 | 0.001 | -6.908 |
| 7/16/2003 | 0.001 | -6.908 |
| 10/14/2003 | 0.001 | -6.908 |
| 1/13/2004 | 0.001 | -6.908 |

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|----------|----------------|------------|-------------------|
| MW220 | Upgradient | No | 0.001 | N/A | -6.908 | N/A |
| MW221 | Sidegradient | Yes | 0.00141 | N/A | -6.564 | NO |
| MW222 | Sidegradient | Yes | 0.000401 | N/A | -7.822 | NO |
| MW223 | Sidegradient | Yes | 0.000498 | N/A | -7.605 | NO |
| MW224 | Sidegradient | Yes | 0.00162 | N/A | -6.425 | NO |
| MW369 | Downgradient | Yes | 0.0033 | N/A | -5.714 | NO |
| MW372 | Downgradient | Yes | 0.000571 | N/A | -7.468 | NO |
| MW384 | Sidegradient | No | 0.001 | N/A | -6.908 | N/A |
| MW387 | Downgradient | No | 0.001 | N/A | -6.908 | N/A |
| MW391 | Downgradient | No | 0.001 | N/A | -6.908 | N/A |
| MW394 | 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, $S = \sqrt{[\text{Sum} ((\text{background result}-X)^2)/[\text{count of background results} - 1]]} \cdot 0.5$

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

X Mean, $X = (\text{sum of background results})/(\text{count of background results})$

** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009. D1-40

C-746-S/T Second Quarter 2019 Statistical Analysis Historical Background Comparison

Conductivity

UNITS: umho/cm

URGA

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

Statistics-Background Data X= 382.132 S= 107.134 CV(1)=0.280 **K factor***= 2.523** TL(1)= 652.432 LL(1)=N/A

Statistics-Transformed Background Data X= 5.716 S= 1.164 CV(2)=0.204 **K factor***= 2.523** TL(2)= 8.652 LL(2)=N/A

Historical Background Data from Upgradient Wells with Transformed Result

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

Well Number: MW220

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 10/14/2002 | 368 | 5.908 |
| 1/15/2003 | 433.2 | 6.071 |
| 4/10/2003 | 489 | 6.192 |
| 7/14/2003 | 430 | 6.064 |
| 10/13/2003 | 346 | 5.846 |
| 1/13/2004 | 365 | 5.900 |
| 4/13/2004 | 416 | 6.031 |
| 7/21/2004 | 353 | 5.866 |

Well Number: MW394

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 406 | 6.006 |
| 9/16/2002 | 418 | 6.035 |
| 10/16/2002 | 411 | 6.019 |
| 1/13/2003 | 422 | 6.045 |
| 4/10/2003 | 420 | 6.040 |
| 7/16/2003 | 438 | 6.082 |
| 10/14/2003 | 3.91 | 1.364 |
| 1/13/2004 | 395 | 5.979 |

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|--------|----------------|------------|-------------------|
| MW220 | Upgradient | Yes | 435 | NO | 6.075 | N/A |
| MW221 | Sidegradient | Yes | 427 | NO | 6.057 | N/A |
| MW222 | Sidegradient | Yes | 375 | NO | 5.927 | N/A |
| MW223 | Sidegradient | Yes | 425 | NO | 6.052 | N/A |
| MW224 | Sidegradient | Yes | 439 | NO | 6.084 | N/A |
| MW369 | Downgradient | Yes | 439 | NO | 6.084 | N/A |
| MW372 | Downgradient | Yes | 632 | NO | 6.449 | N/A |
| MW384 | Sidegradient | Yes | 452 | NO | 6.114 | N/A |
| MW387 | Downgradient | Yes | 526 | NO | 6.265 | N/A |
| MW391 | Downgradient | Yes | 494 | NO | 6.203 | N/A |
| MW394 | Upgradient | Yes | 383 | NO | 5.948 | N/A |

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

Conclusion of Statistical Analysis on Historical Data

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

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

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

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

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

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

*** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009.* D1-41

C-746-S/T Second Quarter 2019 Statistical Analysis Historical Background Comparison

Copper

UNITS: mg/L

URGA

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

Statistics-Background Data X= 0.024 S= 0.010 CV(1)=0.429 **K factor***= 2.523** TL(1)= 0.050 LL(1)=N/A

Statistics-Transformed Background Data X= -3.794 S= 0.312 CV(2)=-0.082 **K factor***= 2.523** TL(2)= -3.007 LL(2)=N/A

Historical Background Data from Upgradient Wells with Transformed Result

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

Well Number: MW220

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 10/14/2002 | 0.0211 | -3.858 |
| 1/15/2003 | 0.02 | -3.912 |
| 4/10/2003 | 0.02 | -3.912 |
| 7/14/2003 | 0.02 | -3.912 |
| 10/13/2003 | 0.02 | -3.912 |
| 1/13/2004 | 0.02 | -3.912 |
| 4/13/2004 | 0.02 | -3.912 |
| 7/21/2004 | 0.02 | -3.912 |

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|----------|----------------|------------|-------------------|
| MW220 | Upgradient | Yes | 0.000823 | NO | -7.103 | N/A |
| MW221 | Sidegradient | Yes | 0.00101 | NO | -6.898 | N/A |
| MW222 | Sidegradient | Yes | 0.000335 | NO | -8.001 | N/A |
| MW223 | Sidegradient | Yes | 0.000459 | NO | -7.686 | N/A |
| MW224 | Sidegradient | Yes | 0.000439 | NO | -7.731 | N/A |
| MW369 | Downgradient | Yes | 0.00247 | NO | -6.004 | N/A |
| MW372 | Downgradient | Yes | 0.00058 | NO | -7.452 | N/A |
| MW384 | Sidegradient | Yes | 0.000617 | NO | -7.391 | N/A |
| MW387 | Downgradient | Yes | 0.000446 | NO | -7.715 | N/A |
| MW391 | Downgradient | Yes | 0.000335 | NO | -8.001 | N/A |
| MW394 | Upgradient | Yes | 0.000541 | NO | -7.522 | N/A |

Well Number: MW394

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 0.05 | -2.996 |
| 9/16/2002 | 0.05 | -2.996 |
| 10/16/2002 | 0.02 | -3.912 |
| 1/13/2003 | 0.02 | -3.912 |
| 4/10/2003 | 0.02 | -3.912 |
| 7/16/2003 | 0.02 | -3.912 |
| 10/14/2003 | 0.02 | -3.912 |
| 1/13/2004 | 0.02 | -3.912 |

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

Conclusion of Statistical Analysis on Historical Data

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

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

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

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

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

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

*** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009. D1-42

C-746-S/T Second Quarter 2019 Statistical Analysis Historical Background Comparison

Dissolved Oxygen

UNITS: mg/L

URGA

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

Statistics-Background Data X= 3.784 S= 1.887 CV(1)=0.499 **K factor***= 2.523** TL(1)= 8.545 LL(1)=N/A

Statistics-Transformed Background Data X= 1.182 S= 0.612 CV(2)=0.518 **K factor***= 2.523** TL(2)= 2.727 LL(2)=N/A

Historical Background Data from Upgradient Wells with Transformed Result

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

Well Number: MW220

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 10/14/2002 | 6.79 | 1.915 |
| 1/15/2003 | 7.25 | 1.981 |
| 4/10/2003 | 3.6 | 1.281 |
| 7/14/2003 | 0.94 | -0.062 |
| 10/13/2003 | 1.65 | 0.501 |
| 1/13/2004 | 3.48 | 1.247 |
| 4/13/2004 | 1.05 | 0.049 |
| 7/21/2004 | 4.46 | 1.495 |

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|--------|----------------|------------|-------------------|
| MW220 | Upgradient | Yes | 4.02 | NO | 1.391 | N/A |
| MW221 | Sidegradient | Yes | 3.6 | NO | 1.281 | N/A |
| MW222 | Sidegradient | Yes | 3.29 | NO | 1.191 | N/A |
| MW223 | Sidegradient | Yes | 2.8 | NO | 1.030 | N/A |
| MW224 | Sidegradient | Yes | 2.97 | NO | 1.089 | N/A |
| MW369 | Downgradient | Yes | 3.59 | NO | 1.278 | N/A |
| MW372 | Downgradient | Yes | 2.13 | NO | 0.756 | N/A |
| MW384 | Sidegradient | Yes | 4.72 | NO | 1.552 | N/A |
| MW387 | Downgradient | Yes | 3.49 | NO | 1.250 | N/A |
| MW391 | Downgradient | Yes | 4.58 | NO | 1.522 | N/A |
| MW394 | Upgradient | Yes | 4.03 | NO | 1.394 | N/A |

Well Number: MW394

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 6.09 | 1.807 |
| 9/16/2002 | 3.85 | 1.348 |
| 10/16/2002 | 5.11 | 1.631 |
| 1/13/2003 | 3.83 | 1.343 |
| 4/10/2003 | 4.15 | 1.423 |
| 7/16/2003 | 1.83 | 0.604 |
| 10/14/2003 | 3.33 | 1.203 |
| 1/13/2004 | 3.14 | 1.144 |

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

Conclusion of Statistical Analysis on Historical Data

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

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

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

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

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

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

*** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009. D1-43

C-746-S/T Second Quarter 2019 Statistical Analysis Historical Background Comparison

Dissolved Solids

UNITS: mg/L

URGA

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

Statistics-Background Data X= 232.688 S= 27.490 CV(1)=0.118 **K factor***= 2.523** TL(1)= 302.045 LL(1)=N/A

Statistics-Transformed Background Data X= 5.443 S= 0.118 CV(2)=0.022 **K factor***= 2.523** TL(2)= 5.740 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: MW220

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 10/14/2002 | 208 | 5.338 |
| 1/15/2003 | 257 | 5.549 |
| 4/10/2003 | 288 | 5.663 |
| 7/14/2003 | 262 | 5.568 |
| 10/13/2003 | 197 | 5.283 |
| 1/13/2004 | 198 | 5.288 |
| 4/13/2004 | 245 | 5.501 |
| 7/21/2004 | 204 | 5.318 |

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|--------|----------------|------------|-------------------|
| MW220 | Upgradient | Yes | 273 | NO | 5.609 | N/A |
| MW221 | Sidegradient | Yes | 266 | NO | 5.583 | N/A |
| MW222 | Sidegradient | Yes | 234 | NO | 5.455 | N/A |
| MW223 | Sidegradient | Yes | 233 | NO | 5.451 | N/A |
| MW224 | Sidegradient | Yes | 219 | NO | 5.389 | N/A |
| MW369 | Downgradient | Yes | 261 | NO | 5.565 | N/A |
| MW372 | Downgradient | Yes | 309 | YES | 5.733 | N/A |
| MW384 | Sidegradient | Yes | 269 | NO | 5.595 | N/A |
| MW387 | Downgradient | Yes | 276 | NO | 5.620 | N/A |
| MW391 | Downgradient | Yes | 289 | NO | 5.666 | N/A |
| MW394 | Upgradient | Yes | 216 | NO | 5.375 | N/A |

Well Number: MW394

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 247 | 5.509 |
| 9/16/2002 | 259 | 5.557 |
| 10/16/2002 | 201 | 5.303 |
| 1/13/2003 | 228 | 5.429 |
| 4/10/2003 | 249 | 5.517 |
| 7/16/2003 | 240 | 5.481 |
| 10/14/2003 | 230 | 5.438 |
| 1/13/2004 | 210 | 5.347 |

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

Conclusion of Statistical Analysis on Historical Data

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

Wells with Exceedances

MW372

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

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

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

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

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

** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009.* D1-44

C-746-S/T Second Quarter 2019 Statistical Analysis Historical Background Comparison

Iron

UNITS: mg/L

URGA

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

Statistics-Background Data X= 0.897 S= 1.050 CV(1)= 1.170 K factor***= 2.523 TL(1)= 3.545 LL(1)=N/A

Statistics-Transformed Background Data X= -0.565 S= 0.951 CV(2)= -1.683 K factor***= 2.523 TL(2)= 1.834 LL(2)=N/A

Historical Background Data from Upgradient Wells with Transformed Result

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

Well Number: MW220

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 10/14/2002 | 0.2 | -1.609 |
| 1/15/2003 | 0.2 | -1.609 |
| 4/10/2003 | 0.429 | -0.846 |
| 7/14/2003 | 4.33 | 1.466 |
| 10/13/2003 | 1.81 | 0.593 |
| 1/13/2004 | 0.793 | -0.232 |
| 4/13/2004 | 0.13 | -2.040 |
| 7/21/2004 | 0.382 | -0.962 |

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|--------|----------------|------------|-------------------|
| MW220 | Upgradient | Yes | 0.0374 | N/A | -3.286 | NO |
| MW221 | Sidegradient | No | 0.1 | N/A | -2.303 | N/A |
| MW222 | Sidegradient | No | 0.1 | N/A | -2.303 | N/A |
| MW223 | Sidegradient | Yes | 0.0474 | N/A | -3.049 | NO |
| MW224 | Sidegradient | Yes | 0.0411 | N/A | -3.192 | NO |
| MW369 | Downgradient | Yes | 0.149 | N/A | -1.904 | NO |
| MW372 | Downgradient | Yes | 0.236 | N/A | -1.444 | NO |
| MW384 | Sidegradient | Yes | 0.357 | N/A | -1.030 | NO |
| MW387 | Downgradient | Yes | 0.171 | N/A | -1.766 | NO |
| MW391 | Downgradient | Yes | 0.0526 | N/A | -2.945 | NO |
| MW394 | Upgradient | Yes | 0.107 | N/A | -2.235 | NO |

Well Number: MW394

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 1.34 | 0.293 |
| 9/16/2002 | 0.328 | -1.115 |
| 10/16/2002 | 1.38 | 0.322 |
| 1/13/2003 | 1.3 | 0.262 |
| 4/10/2003 | 0.494 | -0.705 |
| 7/16/2003 | 0.62 | -0.478 |
| 10/14/2003 | 0.37 | -0.994 |
| 1/13/2004 | 0.251 | -1.382 |

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

Conclusion of Statistical Analysis on Historical Data

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

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

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

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

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

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

** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009. D1-45

C-746-S/T Second Quarter 2019 Statistical Analysis Historical Background Comparison

Magnesium

UNITS: mg/L

URGA

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

Statistics-Background Data X= 10.796 S= 1.703 CV(1)=0.158 **K factor***= 2.523** TL(1)= 15.092 LL(1)=N/A

Statistics-Transformed Background Data X= 2.368 S= 0.158 CV(2)=0.067 **K factor***= 2.523** TL(2)= 2.766 LL(2)=N/A

Historical Background Data from Upgradient Wells with Transformed Result

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

Well Number: MW220

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 10/14/2002 | 9.16 | 2.215 |
| 1/15/2003 | 10 | 2.303 |
| 4/10/2003 | 10.8 | 2.380 |
| 7/14/2003 | 14.7 | 2.688 |
| 10/13/2003 | 9.03 | 2.201 |
| 1/13/2004 | 8.49 | 2.139 |
| 4/13/2004 | 9.7 | 2.272 |
| 7/21/2004 | 8.06 | 2.087 |

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|--------|----------------|------------|-------------------|
| MW220 | Upgradient | Yes | 10.3 | NO | 2.332 | N/A |
| MW221 | Sidegradient | Yes | 9.42 | NO | 2.243 | N/A |
| MW222 | Sidegradient | Yes | 8.59 | NO | 2.151 | N/A |
| MW223 | Sidegradient | Yes | 9.65 | NO | 2.267 | N/A |
| MW224 | Sidegradient | Yes | 9.54 | NO | 2.255 | N/A |
| MW369 | Downgradient | Yes | 9.06 | NO | 2.204 | N/A |
| MW372 | Downgradient | Yes | 18.2 | YES | 2.901 | N/A |
| MW384 | Sidegradient | Yes | 9.71 | NO | 2.273 | N/A |
| MW387 | Downgradient | Yes | 12.4 | NO | 2.518 | N/A |
| MW391 | Downgradient | Yes | 13.9 | NO | 2.632 | N/A |
| MW394 | Upgradient | Yes | 11 | NO | 2.398 | N/A |

Well Number: MW394

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 11.8 | 2.468 |
| 9/16/2002 | 12.1 | 2.493 |
| 10/16/2002 | 11.3 | 2.425 |
| 1/13/2003 | 10.3 | 2.332 |
| 4/10/2003 | 11.7 | 2.460 |
| 7/16/2003 | 12 | 2.485 |
| 10/14/2003 | 12.2 | 2.501 |
| 1/13/2004 | 11.4 | 2.434 |

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

Conclusion of Statistical Analysis on Historical Data

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

Wells with Exceedances

MW372

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

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

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

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

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

*** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009.* D1-46

C-746-S/T Second Quarter 2019 Statistical Analysis Historical Background Comparison

Manganese

UNITS: mg/L

URGA

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

Statistics-Background Data X= 0.287 S= 0.619 CV(1)=2.156 **K factor***= 2.523** TL(1)= 1.848 LL(1)=N/A

Statistics-Transformed Background Data X= -2.455 S= 1.619 CV(2)=-0.659 **K factor***= 2.523** TL(2)= 1.630 LL(2)=N/A

Historical Background Data from Upgradient Wells with Transformed Result

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

Well Number: MW220

| Date Collected | Result | LN(Result) |
|----------------|---------|------------|
| 10/14/2002 | 0.0306 | -3.487 |
| 1/15/2003 | 0.0291 | -3.537 |
| 4/10/2003 | 0.0137 | -4.290 |
| 7/14/2003 | 2.54 | 0.932 |
| 10/13/2003 | 0.378 | -0.973 |
| 1/13/2004 | 0.159 | -1.839 |
| 4/13/2004 | 0.00707 | -4.952 |
| 7/21/2004 | 0.0841 | -2.476 |

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|---------|----------------|------------|-------------------|
| MW220 | Upgradient | No | 0.00188 | N/A | -6.276 | N/A |
| MW221 | Sidegradient | No | 0.005 | N/A | -5.298 | N/A |
| MW222 | Sidegradient | Yes | 0.00829 | N/A | -4.793 | NO |
| MW223 | Sidegradient | Yes | 0.00962 | N/A | -4.644 | NO |
| MW224 | Sidegradient | Yes | 0.0174 | N/A | -4.051 | NO |
| MW369 | Downgradient | Yes | 0.0201 | N/A | -3.907 | NO |
| MW372 | Downgradient | No | 0.0049 | N/A | -5.319 | N/A |
| MW384 | Sidegradient | Yes | 0.0128 | N/A | -4.358 | NO |
| MW387 | Downgradient | Yes | 0.0933 | N/A | -2.372 | NO |
| MW391 | Downgradient | No | 0.00198 | N/A | -6.225 | N/A |
| MW394 | Upgradient | No | 0.00474 | N/A | -5.352 | N/A |

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

Well Number: MW394

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 0.542 | -0.612 |
| 9/16/2002 | 0.155 | -1.864 |
| 10/16/2002 | 0.103 | -2.273 |
| 1/13/2003 | 0.128 | -2.056 |
| 4/10/2003 | 0.005 | -5.298 |
| 7/16/2003 | 0.272 | -1.302 |
| 10/14/2003 | 0.0795 | -2.532 |
| 1/13/2004 | 0.0658 | -2.721 |

Conclusion of Statistical Analysis on Historical Data

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

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

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

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

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

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

** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009. D1-47

C-746-S/T Second Quarter 2019 Statistical Analysis Historical Background Comparison

Methylene chloride

UNITS: ug/L

URGA

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

| | | | | | | |
|---|------------------|------------------|---------------------|----------------------------|----------------------|-------------------|
| Statistics-Background Data | X = 4.813 | S = 0.750 | CV(1) =0.156 | K factor*** = 2.523 | TL(1) = 6.705 | LL(1) =N/A |
| Statistics-Transformed Background Data | X = 1.552 | S = 0.229 | CV(2) =0.148 | K factor*** = 2.523 | TL(2) = 2.130 | LL(2) =N/A |

Historical Background Data from Upgradient Wells with Transformed Result

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

Well Number: MW220

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 10/14/2002 | 5 | 1.609 |
| 1/15/2003 | 5 | 1.609 |
| 4/10/2003 | 5 | 1.609 |
| 7/14/2003 | 5 | 1.609 |
| 10/13/2003 | 5 | 1.609 |
| 1/13/2004 | 5 | 1.609 |
| 4/13/2004 | 5 | 1.609 |
| 7/21/2004 | 5 | 1.609 |

Well Number: MW394

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 5 | 1.609 |
| 9/30/2002 | 2 | 0.693 |
| 10/16/2002 | 5 | 1.609 |
| 1/13/2003 | 5 | 1.609 |
| 4/10/2003 | 5 | 1.609 |
| 7/16/2003 | 5 | 1.609 |
| 10/14/2003 | 5 | 1.609 |
| 1/13/2004 | 5 | 1.609 |

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|--------|----------------|------------|-------------------|
| MW220 | Upgradient | No | 2.24 | N/A | 0.806 | N/A |
| MW221 | Sidegradient | Yes | 2.56 | NO | 0.940 | N/A |
| MW222 | Sidegradient | Yes | 2.44 | NO | 0.892 | N/A |
| MW223 | Sidegradient | Yes | 2.82 | NO | 1.037 | N/A |
| MW224 | Sidegradient | Yes | 2.38 | NO | 0.867 | N/A |
| MW369 | Downgradient | No | 5 | N/A | 1.609 | N/A |
| MW372 | Downgradient | No | 5 | N/A | 1.609 | N/A |
| MW384 | Sidegradient | No | 5 | N/A | 1.609 | N/A |
| MW387 | Downgradient | No | 5 | N/A | 1.609 | N/A |
| MW391 | Downgradient | No | 2.33 | N/A | 0.846 | N/A |
| MW394 | 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, $S = [\text{Sum}([(background\ result - X)^2]/[\text{count of background results} - 1])]^{0.5}$

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

X Mean, $X = (\text{sum of background results})/(\text{count of background results})$

** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009. D1-48

C-746-S/T Second Quarter 2019 Statistical Analysis Historical Background Comparison

Molybdenum

UNITS: mg/L

URGA

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

| | | | | | | |
|---|-------------------|------------------|-----------------------|----------------------------|-----------------------|-------------------|
| Statistics-Background Data | X = 0.006 | S = 0.008 | CV(1) = 1.261 | K factor*** = 2.523 | TL(1) = 0.026 | LL(1) =N/A |
| Statistics-Transformed Background Data | X = -5.747 | S = 1.205 | CV(2) = -0.210 | K factor*** = 2.523 | TL(2) = -2.708 | LL(2) =N/A |

Historical Background Data from Upgradient Wells with Transformed Result

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

Well Number: MW220

| Date Collected | Result | LN(Result) |
|----------------|---------|------------|
| 10/14/2002 | 0.00558 | -5.189 |
| 1/15/2003 | 0.00983 | -4.622 |
| 4/10/2003 | 0.0109 | -4.519 |
| 7/14/2003 | 0.00245 | -6.012 |
| 10/13/2003 | 0.00566 | -5.174 |
| 1/13/2004 | 0.00572 | -5.164 |
| 4/13/2004 | 0.001 | -6.908 |
| 7/21/2004 | 0.00392 | -5.542 |

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|----------|----------------|------------|-------------------|
| MW220 | Upgradient | Yes | 0.00105 | N/A | -6.859 | NO |
| MW221 | Sidegradient | Yes | 0.0104 | N/A | -4.566 | NO |
| MW222 | Sidegradient | No | 0.001 | N/A | -6.908 | N/A |
| MW223 | Sidegradient | Yes | 0.00644 | N/A | -5.045 | NO |
| MW224 | Sidegradient | No | 0.001 | N/A | -6.908 | N/A |
| MW369 | Downgradient | No | 0.001 | N/A | -6.908 | N/A |
| MW372 | Downgradient | Yes | 0.000389 | N/A | -7.852 | NO |
| MW384 | Sidegradient | No | 0.001 | N/A | -6.908 | N/A |
| MW387 | Downgradient | No | 0.001 | N/A | -6.908 | N/A |
| MW391 | Downgradient | No | 0.001 | N/A | -6.908 | N/A |
| MW394 | 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.

Well Number: MW394

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 0.025 | -3.689 |
| 9/16/2002 | 0.025 | -3.689 |
| 10/16/2002 | 0.001 | -6.908 |
| 1/13/2003 | 0.001 | -6.908 |
| 4/10/2003 | 0.001 | -6.908 |
| 7/16/2003 | 0.001 | -6.908 |
| 10/14/2003 | 0.001 | -6.908 |
| 1/13/2004 | 0.001 | -6.908 |

Conclusion of Statistical Analysis on Historical Data

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

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

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

S Standard Deviation, $S = \sqrt{[\text{Sum} ((\text{background result}-X)^2)/[\text{count of background results} - 1]]}^{0.5}$

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

X Mean, $X = (\text{sum of background results})/(\text{count of background results})$

** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009. D1-49

C-746-S/T Second Quarter 2019 Statistical Analysis Historical Background Comparison

Nickel

UNITS: mg/L

URGA

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

Statistics-Background Data X= 0.127 S= 0.228 CV(1)= 1.790 **K factor***= 2.523** TL(1)= 0.701 LL(1)=N/A

Statistics-Transformed Background Data X= -3.617 S= 1.837 CV(2)=-0.508 **K factor***= 2.523** TL(2)= 1.019 LL(2)=N/A

Historical Background Data from Upgradient Wells with Transformed Result

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

Well Number: MW220

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 10/14/2002 | 0.418 | -0.872 |
| 1/15/2003 | 0.738 | -0.304 |
| 4/10/2003 | 0.544 | -0.609 |
| 7/14/2003 | 0.106 | -2.244 |
| 10/13/2003 | 0.0529 | -2.939 |
| 1/13/2004 | 0.0209 | -3.868 |
| 4/13/2004 | 0.005 | -5.298 |
| 7/21/2004 | 0.0192 | -3.953 |

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|----------|----------------|------------|-------------------|
| MW220 | Upgradient | Yes | 0.0237 | N/A | -3.742 | NO |
| MW221 | Sidegradient | Yes | 0.124 | N/A | -2.087 | NO |
| MW222 | Sidegradient | Yes | 0.0639 | N/A | -2.750 | NO |
| MW223 | Sidegradient | Yes | 0.178 | N/A | -1.726 | NO |
| MW224 | Sidegradient | Yes | 0.106 | N/A | -2.244 | NO |
| MW369 | Downgradient | Yes | 0.00656 | N/A | -5.027 | NO |
| MW372 | Downgradient | Yes | 0.00125 | N/A | -6.685 | NO |
| MW384 | Sidegradient | Yes | 0.000607 | N/A | -7.407 | NO |
| MW387 | Downgradient | Yes | 0.000689 | N/A | -7.280 | NO |
| MW391 | Downgradient | No | 0.002 | N/A | -6.215 | N/A |
| MW394 | Upgradient | Yes | 0.00424 | N/A | -5.463 | NO |

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

Well Number: MW394

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 0.05 | -2.996 |
| 9/16/2002 | 0.05 | -2.996 |
| 10/16/2002 | 0.005 | -5.298 |
| 1/13/2003 | 0.005 | -5.298 |
| 4/10/2003 | 0.005 | -5.298 |
| 7/16/2003 | 0.005 | -5.298 |
| 10/14/2003 | 0.005 | -5.298 |
| 1/13/2004 | 0.005 | -5.298 |

Conclusion of Statistical Analysis on Historical Data

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

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

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

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

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

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

*** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009. D1-50

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Oxidation-Reduction Potential

UNITS: mV

URGA

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

Statistics-Background Data X= 179.872 S= 86.318 CV(1)=0.480 **K factor***= 2.523** TL(1)= 397.652 LL(1)=N/A

Statistics-Transformed Background Data X= 4.861 S= 1.252 CV(2)=0.258 **K factor***= 2.523** TL(2)= 8.021 LL(2)=N/A

Historical Background Data from Upgradient Wells with Transformed Result

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

Well Number: MW220

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 10/14/2002 | 205 | 5.323 |
| 1/15/2003 | 1.95 | 0.668 |
| 4/10/2003 | 203 | 5.313 |
| 7/14/2003 | 30 | 3.401 |
| 10/13/2003 | 107 | 4.673 |
| 1/13/2004 | 295 | 5.687 |
| 4/13/2004 | 190 | 5.247 |
| 7/21/2004 | 319 | 5.765 |

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|--------|----------------|------------|-------------------|
| MW220 | Upgradient | Yes | 523 | YES | 6.260 | N/A |
| MW221 | Sidegradient | Yes | 539 | YES | 6.290 | N/A |
| MW222 | Sidegradient | Yes | 519 | YES | 6.252 | N/A |
| MW223 | Sidegradient | Yes | 520 | YES | 6.254 | N/A |
| MW224 | Sidegradient | Yes | 516 | YES | 6.246 | N/A |
| MW369 | Downgradient | Yes | 372 | NO | 5.919 | N/A |
| MW372 | Downgradient | Yes | 400 | YES | 5.991 | N/A |
| MW384 | Sidegradient | Yes | 423 | YES | 6.047 | N/A |
| MW387 | Downgradient | Yes | 436 | YES | 6.078 | N/A |
| MW391 | Downgradient | Yes | 469 | YES | 6.151 | N/A |
| MW394 | Upgradient | Yes | 463 | YES | 6.138 | N/A |

Well Number: MW394

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 90 | 4.500 |
| 9/16/2002 | 240 | 5.481 |
| 10/16/2002 | 185 | 5.220 |
| 1/13/2003 | 220 | 5.394 |
| 4/10/2003 | 196 | 5.278 |
| 7/16/2003 | 172 | 5.147 |
| 10/14/2003 | 175 | 5.165 |
| 1/13/2004 | 249 | 5.517 |

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

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

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

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

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

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

*** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009.* D1-51

Conclusion of Statistical Analysis on Historical Data

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

Wells with Exceedances

- MW220
- MW221
- MW222
- MW223
- MW224
- MW372
- MW384
- MW387
- MW391
- MW394

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

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

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

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

X Mean, $X = (\text{sum of background results})/(\text{count of background results})$

** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009.* D1-52

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pH

UNITS: Std Unit

URGA

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

| | | | | | | |
|---|------------------|------------------|---------------------|---------------------------|----------------------|----------------------|
| Statistics-Background Data | X = 6.138 | S = 0.282 | CV(1) =0.046 | K factor** = 2.904 | TL(1) = 6.957 | LL(1) =5.3179 |
| Statistics-Transformed Background Data | X = 1.813 | S = 0.047 | CV(2) =0.026 | K factor** = 2.904 | TL(2) = 1.950 | LL(2) =1.6765 |

Historical Background Data from Upgradient Wells with Transformed Result

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

Well Number: MW220

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 10/14/2002 | 6.04 | 1.798 |
| 1/15/2003 | 6.31 | 1.842 |
| 4/10/2003 | 6.5 | 1.872 |
| 7/14/2003 | 6.3 | 1.841 |
| 10/13/2003 | 6.34 | 1.847 |
| 1/13/2004 | 6.33 | 1.845 |
| 4/13/2004 | 6.3 | 1.841 |
| 7/21/2004 | 5.9 | 1.775 |

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? Result <LL(1)? | LN(Result) | LN(Result) >TL(2)? LN(Result) <LL(2)? |
|----------|--------------|-----------|--------|----------------------------------|------------|--|
| MW220 | Upgradient | Yes | 6.31 | NO | 1.842 | N/A |
| MW221 | Sidegradient | Yes | 6.21 | NO | 1.826 | N/A |
| MW222 | Sidegradient | Yes | 6.26 | NO | 1.834 | N/A |
| MW223 | Sidegradient | Yes | 6.23 | NO | 1.829 | N/A |
| MW224 | Sidegradient | Yes | 6.29 | NO | 1.839 | N/A |
| MW369 | Downgradient | Yes | 6.4 | NO | 1.856 | N/A |
| MW372 | Downgradient | Yes | 6.25 | NO | 1.833 | N/A |
| MW384 | Sidegradient | Yes | 6.17 | NO | 1.820 | N/A |
| MW387 | Downgradient | Yes | 6.26 | NO | 1.834 | N/A |
| MW391 | Downgradient | Yes | 6.16 | NO | 1.818 | N/A |
| MW394 | Upgradient | Yes | 6.14 | NO | 1.815 | 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, $S = \sqrt{[\text{Sum} ((\text{background result}-X)^2)/(\text{count of background results} - 1)]}$

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

X Mean, $X = (\text{sum of background results})/(\text{count of background results})$

** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009. D1-53

C-746-S/T Second Quarter 2019 Statistical Analysis Historical Background Comparison

Potassium

UNITS: mg/L

URGA

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

| | | | | | | |
|---|----------|----------|--------------|--------------------|---------------|-----------|
| Statistics-Background Data | X= 6.654 | S= 9.310 | CV(1)= 1.399 | K factor***= 2.523 | TL(1)= 30.144 | LL(1)=N/A |
| Statistics-Transformed Background Data | X= 1.130 | S= 1.208 | CV(2)= 1.069 | K factor***= 2.523 | TL(2)= 4.178 | LL(2)=N/A |

Historical Background Data from Upgradient Wells with Transformed Result

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

Well Number: MW220

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 10/14/2002 | 6.7 | 1.902 |
| 1/15/2003 | 29.7 | 3.391 |
| 4/10/2003 | 24.9 | 3.215 |
| 7/14/2003 | 1.13 | 0.122 |
| 10/13/2003 | 3.43 | 1.233 |
| 1/13/2004 | 6.71 | 1.904 |
| 4/13/2004 | 19.3 | 2.960 |
| 7/21/2004 | 3.97 | 1.379 |

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|--------|----------------|------------|-------------------|
| MW220 | Upgradient | Yes | 1.87 | N/A | 0.626 | NO |
| MW221 | Sidegradient | Yes | 2.17 | N/A | 0.775 | NO |
| MW222 | Sidegradient | Yes | 1.56 | N/A | 0.445 | NO |
| MW223 | Sidegradient | Yes | 2.97 | N/A | 1.089 | NO |
| MW224 | Sidegradient | Yes | 1.13 | N/A | 0.122 | NO |
| MW369 | Downgradient | Yes | 0.825 | N/A | -0.192 | NO |
| MW372 | Downgradient | Yes | 2.1 | N/A | 0.742 | NO |
| MW384 | Sidegradient | Yes | 1.14 | N/A | 0.131 | NO |
| MW387 | Downgradient | Yes | 1.17 | N/A | 0.157 | NO |
| MW391 | Downgradient | Yes | 1.61 | N/A | 0.476 | NO |
| MW394 | Upgradient | Yes | 1.34 | N/A | 0.293 | NO |

Well Number: MW394

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 2 | 0.693 |
| 9/16/2002 | 2 | 0.693 |
| 10/16/2002 | 1.03 | 0.030 |
| 1/13/2003 | 1.1 | 0.095 |
| 4/10/2003 | 1.24 | 0.215 |
| 7/16/2003 | 1.14 | 0.131 |
| 10/14/2003 | 1.05 | 0.049 |
| 1/13/2004 | 1.07 | 0.068 |

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

Conclusion of Statistical Analysis on Historical Data

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

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

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

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

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

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

*** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009. D1-54

C-746-S/T Second Quarter 2019 Statistical Analysis Historical Background Comparison

Sodium

UNITS: mg/L

URGA

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

Statistics-Background Data X= 36.363 S= 8.666 CV(1)=0.238 **K factor***= 2.523** TL(1)= 58.227 LL(1)=N/A

Statistics-Transformed Background Data X= 3.570 S= 0.222 CV(2)=0.062 **K factor***= 2.523** TL(2)= 4.129 LL(2)=N/A

Historical Background Data from Upgradient Wells with Transformed Result

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

Well Number: MW220

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 10/14/2002 | 35.4 | 3.567 |
| 1/15/2003 | 40.6 | 3.704 |
| 4/10/2003 | 51 | 3.932 |
| 7/14/2003 | 58.2 | 4.064 |
| 10/13/2003 | 38.1 | 3.640 |
| 1/13/2004 | 37 | 3.611 |
| 4/13/2004 | 43.2 | 3.766 |
| 7/21/2004 | 33.8 | 3.520 |

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|--------|----------------|------------|-------------------|
| MW220 | Upgradient | Yes | 47.4 | NO | 3.859 | N/A |
| MW221 | Sidegradient | Yes | 49.2 | NO | 3.896 | N/A |
| MW222 | Sidegradient | Yes | 46.7 | NO | 3.844 | N/A |
| MW223 | Sidegradient | Yes | 43.7 | NO | 3.777 | N/A |
| MW224 | Sidegradient | Yes | 48.6 | NO | 3.884 | N/A |
| MW369 | Downgradient | Yes | 51.1 | NO | 3.934 | N/A |
| MW372 | Downgradient | Yes | 47.4 | NO | 3.859 | N/A |
| MW384 | Sidegradient | Yes | 49.6 | NO | 3.904 | N/A |
| MW387 | Downgradient | Yes | 58.6 | YES | 4.071 | N/A |
| MW391 | Downgradient | Yes | 39.7 | NO | 3.681 | N/A |
| MW394 | Upgradient | Yes | 30.8 | NO | 3.428 | N/A |

Well Number: MW394

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 32.9 | 3.493 |
| 9/16/2002 | 29.9 | 3.398 |
| 10/16/2002 | 29 | 3.367 |
| 1/13/2003 | 27.1 | 3.300 |
| 4/10/2003 | 24.8 | 3.211 |
| 7/16/2003 | 35.6 | 3.572 |
| 10/14/2003 | 33.9 | 3.523 |
| 1/13/2004 | 31.3 | 3.444 |

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

Conclusion of Statistical Analysis on Historical Data

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

Wells with Exceedances

MW387

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

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

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

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

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

*** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009. D1-55

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Sulfate

UNITS: mg/L

URGA

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

Statistics-Background Data X= 10.481 S= 2.648 CV(1)=0.253 K factor***= 2.523 TL(1)= 17.161 LL(1)=N/A

Statistics-Transformed Background Data X= 2.322 S= 0.239 CV(2)=0.103 K factor***= 2.523 TL(2)= 2.925 LL(2)=N/A

Historical Background Data from Upgradient Wells with Transformed Result

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

Well Number: MW220

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 10/14/2002 | 10.4 | 2.342 |
| 1/15/2003 | 9.8 | 2.282 |
| 4/10/2003 | 15.4 | 2.734 |
| 7/14/2003 | 14.9 | 2.701 |
| 10/13/2003 | 13.5 | 2.603 |
| 1/13/2004 | 10.3 | 2.332 |
| 4/13/2004 | 14.3 | 2.660 |
| 7/21/2004 | 10.5 | 2.351 |

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|--------|----------------|------------|-------------------|
| MW220 | Upgradient | Yes | 24.1 | YES | 3.182 | N/A |
| MW221 | Sidegradient | Yes | 15.5 | NO | 2.741 | N/A |
| MW222 | Sidegradient | Yes | 14.4 | NO | 2.667 | N/A |
| MW223 | Sidegradient | Yes | 20.5 | YES | 3.020 | N/A |
| MW224 | Sidegradient | Yes | 14.1 | NO | 2.646 | N/A |
| MW369 | Downgradient | Yes | 14.6 | NO | 2.681 | N/A |
| MW372 | Downgradient | Yes | 71.3 | YES | 4.267 | N/A |
| MW384 | Sidegradient | Yes | 22.8 | YES | 3.127 | N/A |
| MW387 | Downgradient | Yes | 20.8 | YES | 3.035 | N/A |
| MW391 | Downgradient | Yes | 57.5 | YES | 4.052 | N/A |
| MW394 | Upgradient | Yes | 10.7 | NO | 2.370 | N/A |

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

Well Number: MW394

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 11.2 | 2.416 |
| 9/16/2002 | 8.3 | 2.116 |
| 10/16/2002 | 8 | 2.079 |
| 1/13/2003 | 8.5 | 2.140 |
| 4/10/2003 | 7.9 | 2.067 |
| 7/16/2003 | 8.4 | 2.128 |
| 10/14/2003 | 8.2 | 2.104 |
| 1/13/2004 | 8.1 | 2.092 |

Conclusion of Statistical Analysis on Historical Data

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

Wells with Exceedances

- MW220
- MW223
- MW372
- MW384
- MW387
- MW391

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

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

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

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

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

** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009. D1-56

C-746-S/T Second Quarter 2019 Statistical Analysis Historical Background Comparison

Technetium-99

UNITS: pCi/L

URGA

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

Statistics-Background Data X= 9.354 S= 9.280 CV(1)=0.992 K factor***= 2.523 TL(1)= 32.768 LL(1)=N/A

Statistics-Transformed Background Data X= 2.270 S= 0.849 CV(2)=0.374 K factor***= 2.523 TL(2)= 3.262 LL(2)=N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number: MW220

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 10/14/2002 | 19.7 | 2.981 |
| 1/15/2003 | 26.1 | 3.262 |
| 4/10/2003 | 3.56 | 1.270 |
| 7/14/2003 | 0 | #Func! |
| 10/13/2003 | 21 | 3.045 |
| 1/13/2004 | 6.32 | 1.844 |
| 4/13/2004 | 3 | 1.099 |
| 7/21/2004 | 14.6 | 2.681 |

Well Number: MW394

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 14 | 2.639 |
| 9/16/2002 | 5.45 | 1.696 |
| 10/16/2002 | 2.49 | 0.912 |
| 1/13/2003 | 18.3 | 2.907 |
| 4/10/2003 | -1.45 | #Func! |
| 7/16/2003 | -1.71 | #Func! |
| 10/14/2003 | 18.3 | 2.907 |
| 1/13/2004 | 0 | #Func! |

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

#Because the natural log was not possible for all background values, the TL was considered equal to the maximum background value.

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|--------|----------------|------------|-------------------|
| MW220 | Upgradient | Yes | 17.1 | NO | 2.839 | N/A |
| MW221 | Sidegradient | No | 14.4 | N/A | 2.667 | N/A |
| MW222 | Sidegradient | No | 2.01 | N/A | 0.698 | N/A |
| MW223 | Sidegradient | No | 9.75 | N/A | 2.277 | N/A |
| MW224 | Sidegradient | No | 5.63 | N/A | 1.728 | N/A |
| MW369 | Downgradient | Yes | 70.8 | YES | 4.260 | N/A |
| MW372 | Downgradient | Yes | 59.4 | YES | 4.084 | N/A |
| MW384 | Sidegradient | Yes | 155 | YES | 5.043 | N/A |
| MW387 | Downgradient | Yes | 229 | YES | 5.434 | N/A |
| MW391 | Downgradient | No | 12.5 | N/A | 2.526 | N/A |
| MW394 | Upgradient | No | 2.55 | N/A | 0.936 | N/A |

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

Conclusion of Statistical Analysis on Historical Data

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

Wells with Exceedances

- MW369
- MW372
- MW384
- MW387

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

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

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

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

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

** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009. D1-57

C-746-S/T Second Quarter 2019 Statistical Analysis Historical Background Comparison

Total Organic Carbon (TOC)

UNITS: mg/L

URGA

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

Statistics-Background Data X= 1.494 S= 0.737 CV(1)=0.493 **K factor***= 2.523** TL(1)= 3.353 LL(1)=N/A

Statistics-Transformed Background Data X= 0.315 S= 0.402 CV(2)=1.279 **K factor***= 2.523** TL(2)= 1.330 LL(2)=N/A

Historical Background Data from Upgradient Wells with Transformed Result

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

Well Number: MW220

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 10/14/2002 | 1 | 0.000 |
| 1/15/2003 | 1.1 | 0.095 |
| 4/10/2003 | 1 | 0.000 |
| 7/14/2003 | 3.3 | 1.194 |
| 10/13/2003 | 1.8 | 0.588 |
| 1/13/2004 | 1 | 0.000 |
| 4/13/2004 | 2 | 0.693 |
| 7/21/2004 | 3.1 | 1.131 |

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|--------|----------------|------------|-------------------|
| MW220 | Upgradient | Yes | 1.09 | NO | 0.086 | N/A |
| MW221 | Sidegradient | Yes | 0.996 | NO | -0.004 | N/A |
| MW222 | Sidegradient | Yes | 0.886 | NO | -0.121 | N/A |
| MW223 | Sidegradient | Yes | 1.03 | NO | 0.030 | N/A |
| MW224 | Sidegradient | Yes | 0.863 | NO | -0.147 | N/A |
| MW369 | Downgradient | Yes | 1.19 | NO | 0.174 | N/A |
| MW372 | Downgradient | Yes | 1.1 | NO | 0.095 | N/A |
| MW384 | Sidegradient | Yes | 1.06 | NO | 0.058 | N/A |
| MW387 | Downgradient | Yes | 1.19 | NO | 0.174 | N/A |
| MW391 | Downgradient | Yes | 0.888 | NO | -0.119 | N/A |
| MW394 | Upgradient | Yes | 0.935 | NO | -0.067 | N/A |

Well Number: MW394

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 1.3 | 0.262 |
| 9/16/2002 | 1 | 0.000 |
| 10/16/2002 | 1 | 0.000 |
| 1/13/2003 | 1.6 | 0.470 |
| 4/10/2003 | 1 | 0.000 |
| 7/16/2003 | 1.4 | 0.336 |
| 10/14/2003 | 1.3 | 0.262 |
| 1/13/2004 | 1 | 0.000 |

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

Conclusion of Statistical Analysis on Historical Data

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

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

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

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

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

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

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

C-746-S/T Second Quarter 2019 Statistical Analysis Historical Background Comparison

Total Organic Halides (TOX)

UNITS: ug/L

URGA

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

Statistics-Background Data X= 63.475 S= 163.135 CV(1)=2.570 **K factor***= 2.523** TL(1)= 475.063 LL(1)=N/A

Statistics-Transformed Background Data X= 3.103 S= 1.145 CV(2)=0.369 **K factor***= 2.523** TL(2)= 5.992 LL(2)=N/A

Historical Background Data from Upgradient Wells with Transformed Result

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

Well Number: MW220

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 10/14/2002 | 50 | 3.912 |
| 1/15/2003 | 10 | 2.303 |
| 4/10/2003 | 10 | 2.303 |
| 7/14/2003 | 10 | 2.303 |
| 10/13/2003 | 10 | 2.303 |
| 1/13/2004 | 10 | 2.303 |
| 4/13/2004 | 10 | 2.303 |
| 7/21/2004 | 10 | 2.303 |

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|--------|----------------|------------|-------------------|
| MW220 | Upgradient | Yes | 8.22 | N/A | 2.107 | NO |
| MW221 | Sidegradient | Yes | 16.7 | N/A | 2.815 | NO |
| MW222 | Sidegradient | Yes | 4.34 | N/A | 1.468 | NO |
| MW223 | Sidegradient | Yes | 5.82 | N/A | 1.761 | NO |
| MW224 | Sidegradient | Yes | 13.5 | N/A | 2.603 | NO |
| MW369 | Downgradient | Yes | 14.3 | N/A | 2.660 | NO |
| MW372 | Downgradient | Yes | 7.5 | N/A | 2.015 | NO |
| MW384 | Sidegradient | Yes | 8 | N/A | 2.079 | NO |
| MW387 | Downgradient | No | 6.82 | N/A | 1.920 | N/A |
| MW391 | Downgradient | Yes | 7.28 | N/A | 1.985 | NO |
| MW394 | Upgradient | Yes | 5.08 | N/A | 1.625 | NO |

Well Number: MW394

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 50 | 3.912 |
| 9/16/2002 | 672 | 6.510 |
| 10/16/2002 | 50 | 3.912 |
| 1/13/2003 | 36.1 | 3.586 |
| 4/10/2003 | 10 | 2.303 |
| 7/16/2003 | 42.7 | 3.754 |
| 10/14/2003 | 22 | 3.091 |
| 1/13/2004 | 12.8 | 2.549 |

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

Conclusion of Statistical Analysis on Historical Data

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

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

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

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

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

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

*** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009.* D1-59

C-746-S/T Second Quarter 2019 Statistical Analysis Historical Background Comparison

Trichloroethene

UNITS: ug/L

URGA

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

| | | | | | | |
|---|------------------|------------------|---------------------|----------------------------|-----------------------|-------------------|
| Statistics-Background Data | X = 8.813 | S = 8.376 | CV(1) =0.951 | K factor*** = 2.523 | TL(1) = 29.946 | LL(1) =N/A |
| Statistics-Transformed Background Data | X = 1.395 | S = 1.449 | CV(2) =1.039 | K factor*** = 2.523 | TL(2) = 5.052 | LL(2) =N/A |

Historical Background Data from Upgradient Wells with Transformed Result

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

Well Number: MW220

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 10/14/2002 | 1 | 0.000 |
| 1/15/2003 | 1 | 0.000 |
| 4/10/2003 | 1 | 0.000 |
| 7/14/2003 | 1 | 0.000 |
| 10/13/2003 | 1 | 0.000 |
| 1/13/2004 | 1 | 0.000 |
| 4/13/2004 | 1 | 0.000 |
| 7/21/2004 | 1 | 0.000 |

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|--------|----------------|------------|-------------------|
| MW220 | Upgradient | Yes | 1.05 | N/A | 0.049 | N/A |
| MW221 | Sidegradient | No | 1 | N/A | 0.000 | N/A |
| MW222 | Sidegradient | No | 1 | N/A | 0.000 | N/A |
| MW223 | Sidegradient | No | 1 | N/A | 0.000 | N/A |
| MW224 | Sidegradient | No | 1 | N/A | 0.000 | N/A |
| MW369 | Downgradient | Yes | 0.52 | N/A | -0.654 | N/A |
| MW372 | Downgradient | Yes | 4.78 | N/A | 1.564 | N/A |
| MW384 | Sidegradient | Yes | 0.36 | N/A | -1.022 | N/A |
| MW387 | Downgradient | Yes | 0.62 | N/A | -0.478 | N/A |
| MW391 | Downgradient | Yes | 6.88 | NO | 1.929 | N/A |
| MW394 | Upgradient | Yes | 3.81 | N/A | 1.338 | N/A |

Well Number: MW394

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 16 | 2.773 |
| 9/30/2002 | 20 | 2.996 |
| 10/16/2002 | 17 | 2.833 |
| 1/13/2003 | 15 | 2.708 |
| 4/10/2003 | 10 | 2.303 |
| 7/16/2003 | 19 | 2.944 |
| 10/14/2003 | 20 | 2.996 |
| 1/13/2004 | 16 | 2.773 |

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

Conclusion of Statistical Analysis on Historical Data

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

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

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

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

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

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

** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009. D1-60

C-746-S/T Second Quarter 2019 Statistical Analysis Historical Background Comparison

Vanadium

UNITS: mg/L

URGA

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

Statistics-Background Data X= 0.021 S= 0.002 CV(1)=0.083 **K factor***= 2.523** TL(1)= 0.025 LL(1)=N/A

Statistics-Transformed Background Data X= -3.884 S= 0.076 CV(2)=-0.020 **K factor***= 2.523** TL(2)= -3.692 LL(2)=N/A

Historical Background Data from Upgradient Wells with Transformed Result

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

Well Number: MW220

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 10/14/2002 | 0.02 | -3.912 |
| 1/15/2003 | 0.02 | -3.912 |
| 4/10/2003 | 0.02 | -3.912 |
| 7/14/2003 | 0.02 | -3.912 |
| 10/13/2003 | 0.02 | -3.912 |
| 1/13/2004 | 0.02 | -3.912 |
| 4/13/2004 | 0.02 | -3.912 |
| 7/21/2004 | 0.02 | -3.912 |

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|---------|----------------|------------|-------------------|
| MW220 | Upgradient | No | 0.00369 | N/A | -5.602 | N/A |
| MW221 | Sidegradient | No | 0.00464 | N/A | -5.373 | N/A |
| MW222 | Sidegradient | No | 0.00668 | N/A | -5.009 | N/A |
| MW223 | Sidegradient | No | 0.00931 | N/A | -4.677 | N/A |
| MW224 | Sidegradient | No | 0.00964 | N/A | -4.642 | N/A |
| MW369 | Downgradient | No | 0.0103 | N/A | -4.576 | N/A |
| MW372 | Downgradient | No | 0.00669 | N/A | -5.007 | N/A |
| MW384 | Sidegradient | Yes | 0.00679 | NO | -4.992 | N/A |
| MW387 | Downgradient | Yes | 0.00514 | NO | -5.271 | N/A |
| MW391 | Downgradient | No | 0.00407 | N/A | -5.504 | N/A |
| MW394 | 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.

Well Number: MW394

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 0.025 | -3.689 |
| 9/16/2002 | 0.025 | -3.689 |
| 10/16/2002 | 0.02 | -3.912 |
| 1/13/2003 | 0.02 | -3.912 |
| 4/10/2003 | 0.02 | -3.912 |
| 7/16/2003 | 0.02 | -3.912 |
| 10/14/2003 | 0.02 | -3.912 |
| 1/13/2004 | 0.02 | -3.912 |

Conclusion of Statistical Analysis on Historical Data

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

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

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

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

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

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

*** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009. D1-61

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Zinc

UNITS: mg/L

URGA

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

| | | | | | | |
|---|-------------------|------------------|----------------------|----------------------------|-----------------------|-------------------|
| Statistics-Background Data | X = 0.036 | S = 0.026 | CV(1) =0.722 | K factor*** = 2.523 | TL(1) = 0.101 | LL(1) =N/A |
| Statistics-Transformed Background Data | X = -3.485 | S = 0.525 | CV(2) =-0.151 | K factor*** = 2.523 | TL(2) = -2.162 | LL(2) =N/A |

Historical Background Data from Upgradient Wells with Transformed Result

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

Well Number: MW220

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 10/14/2002 | 0.025 | -3.689 |
| 1/15/2003 | 0.035 | -3.352 |
| 4/10/2003 | 0.035 | -3.352 |
| 7/14/2003 | 0.0389 | -3.247 |
| 10/13/2003 | 0.026 | -3.650 |
| 1/13/2004 | 0.02 | -3.912 |
| 4/13/2004 | 0.02 | -3.912 |
| 7/21/2004 | 0.02 | -3.912 |

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|---------|----------------|------------|-------------------|
| MW220 | Upgradient | No | 0.02 | N/A | -3.912 | N/A |
| MW221 | Sidegradient | No | 0.02 | N/A | -3.912 | N/A |
| MW222 | Sidegradient | No | 0.02 | N/A | -3.912 | N/A |
| MW223 | Sidegradient | No | 0.02 | N/A | -3.912 | N/A |
| MW224 | Sidegradient | No | 0.02 | N/A | -3.912 | N/A |
| MW369 | Downgradient | No | 0.02 | N/A | -3.912 | N/A |
| MW372 | Downgradient | Yes | 0.00375 | NO | -5.586 | N/A |
| MW384 | Sidegradient | Yes | 0.00385 | NO | -5.560 | N/A |
| MW387 | Downgradient | No | 0.02 | N/A | -3.912 | N/A |
| MW391 | Downgradient | No | 0.02 | N/A | -3.912 | N/A |
| MW394 | Upgradient | Yes | 0.00354 | NO | -5.644 | 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.

Well Number: MW394

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 0.1 | -2.303 |
| 9/16/2002 | 0.1 | -2.303 |
| 10/16/2002 | 0.025 | -3.689 |
| 1/13/2003 | 0.035 | -3.352 |
| 4/10/2003 | 0.035 | -3.352 |
| 7/16/2003 | 0.02 | -3.912 |
| 10/14/2003 | 0.02 | -3.912 |
| 1/13/2004 | 0.02 | -3.912 |

Conclusion of Statistical Analysis on Historical Data

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

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

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

S Standard Deviation, $S = \sqrt{[\text{Sum} ((\text{background result}-X)^2)/[\text{count of background results} - 1]]} \cdot 0.5$

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

X Mean, $X = (\text{sum of background results})/(\text{count of background results})$

*** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009. D1-62

C-746-S/T Second Quarter 2019 Statistical Analysis Historical Background Comparison

Acetone

UNITS: ug/L

LRGA

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

| | | | | | | |
|---|------------------|-----------------|---------------------|---------------------------|----------------------|-------------------|
| Statistics-Background Data | X= 10.063 | S= 0.250 | CV(1)= 0.025 | K factor***= 2.523 | TL(1)= 10.693 | LL(1)= N/A |
| Statistics-Transformed Background Data | X= 2.309 | S= 0.024 | CV(2)= 0.010 | K factor***= 2.523 | TL(2)= 2.369 | LL(2)= N/A |

Historical Background Data from Upgradient Wells with Transformed Result

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

Well Number: MW395

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 11 | 2.398 |
| 9/30/2002 | 10 | 2.303 |
| 10/16/2002 | 10 | 2.303 |
| 1/13/2003 | 10 | 2.303 |
| 4/10/2003 | 10 | 2.303 |
| 7/16/2003 | 10 | 2.303 |
| 10/14/2003 | 10 | 2.303 |
| 4/12/2004 | 10 | 2.303 |

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|--------|----------------|------------|-------------------|
| MW370 | Downgradient | Yes | 4.55 | NO | 1.515 | N/A |
| MW373 | Downgradient | No | 5 | N/A | 1.609 | N/A |
| MW385 | Sidegradient | No | 5 | N/A | 1.609 | N/A |
| MW388 | Downgradient | No | 5 | N/A | 1.609 | N/A |
| MW392 | Downgradient | No | 5 | N/A | 1.609 | N/A |
| MW395 | Upgradient | No | 5 | N/A | 1.609 | N/A |
| MW397 | 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.

Well Number: MW397

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 10 | 2.303 |
| 9/30/2002 | 10 | 2.303 |
| 10/17/2002 | 10 | 2.303 |
| 1/13/2003 | 10 | 2.303 |
| 4/8/2003 | 10 | 2.303 |
| 7/16/2003 | 10 | 2.303 |
| 10/14/2003 | 10 | 2.303 |
| 4/12/2004 | 10 | 2.303 |

Conclusion of Statistical Analysis on Historical Data

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

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

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

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

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

X Mean, $X = (\text{sum of background results})/(\text{count of background results})$

** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009. D1-63

C-746-S/T Second Quarter 2019 Statistical Analysis Historical Background Comparison

Aluminum

UNITS: mg/L

LRGA

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

| | | | | | | |
|---|-------------------|------------------|----------------------|----------------------------|----------------------|-------------------|
| Statistics-Background Data | X = 0.258 | S = 0.221 | CV(1) =0.856 | K factor*** = 2.523 | TL(1) = 0.815 | LL(1) =N/A |
| Statistics-Transformed Background Data | X = -2.266 | S = 2.485 | CV(2) =-1.097 | K factor*** = 2.523 | TL(2) = 4.003 | LL(2) =N/A |

Historical Background Data from Upgradient Wells with Transformed Result

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

Well Number: MW395

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 0.2 | -1.609 |
| 9/16/2002 | 0.2 | -1.609 |
| 10/16/2002 | 0.0002 | -8.517 |
| 1/13/2003 | 0.737 | -0.305 |
| 4/10/2003 | 0.2 | -1.609 |
| 7/16/2003 | 0.2 | -1.609 |
| 10/14/2003 | 0.2 | -1.609 |
| 1/13/2004 | 0.2 | -1.609 |

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|--------|----------------|------------|-------------------|
| MW370 | Downgradient | No | 0.05 | N/A | -2.996 | N/A |
| MW373 | Downgradient | No | 0.05 | N/A | -2.996 | N/A |
| MW385 | Sidegradient | Yes | 0.0338 | NO | -3.387 | N/A |
| MW388 | Downgradient | Yes | 0.0233 | NO | -3.759 | N/A |
| MW392 | Downgradient | Yes | 0.0538 | NO | -2.922 | N/A |
| MW395 | Upgradient | Yes | 0.0296 | NO | -3.520 | N/A |
| MW397 | Upgradient | Yes | 0.143 | NO | -1.945 | N/A |

Well Number: MW397

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 0.824 | -0.194 |
| 9/16/2002 | 0.2 | -1.609 |
| 10/17/2002 | 0.0002 | -8.517 |
| 1/13/2003 | 0.363 | -1.013 |
| 4/8/2003 | 0.2 | -1.609 |
| 7/16/2003 | 0.2 | -1.609 |
| 10/14/2003 | 0.2 | -1.609 |
| 1/13/2004 | 0.2 | -1.609 |

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

Conclusion of Statistical Analysis on Historical Data

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

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

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

S Standard Deviation, $S = \sqrt{[\text{Sum} \{((\text{background result}-X)^2)/[\text{count of background results} - 1]\}]^{0.5}}$

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

X Mean, $X = (\text{sum of background results})/(\text{count of background results})$

** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009. D1-64

C-746-S/T Second Quarter 2019 Statistical Analysis Historical Background Comparison

Antimony

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= 0.054 S= 0.087 CV(1)= 1.622 K factor***= 2.523 TL(1)= 0.274 LL(1)=N/A

Statistics-Transformed Background Data X= -4.376 S= 1.650 CV(2)=-0.377 K factor***= 2.523 TL(2)= -0.214 LL(2)=N/A

Historical Background Data from Upgradient Wells with Transformed Result

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

Well Number: MW395

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 0.2 | -1.609 |
| 9/16/2002 | 0.2 | -1.609 |
| 10/16/2002 | 0.005 | -5.298 |
| 1/13/2003 | 0.005 | -5.298 |
| 4/10/2003 | 0.005 | -5.298 |
| 7/16/2003 | 0.005 | -5.298 |
| 10/14/2003 | 0.005 | -5.298 |
| 1/13/2004 | 0.005 | -5.298 |

Well Number: MW397

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 0.2 | -1.609 |
| 9/16/2002 | 0.2 | -1.609 |
| 10/17/2002 | 0.005 | -5.298 |
| 1/13/2003 | 0.005 | -5.298 |
| 4/8/2003 | 0.005 | -5.298 |
| 7/16/2003 | 0.005 | -5.298 |
| 10/14/2003 | 0.005 | -5.298 |
| 1/13/2004 | 0.005 | -5.298 |

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|---------|----------------|------------|-------------------|
| MW370 | Downgradient | No | 0.003 | N/A | -5.809 | N/A |
| MW373 | Downgradient | Yes | 0.00125 | N/A | -6.685 | NO |
| MW385 | Sidegradient | No | 0.00132 | N/A | -6.630 | N/A |
| MW388 | Downgradient | No | 0.00128 | N/A | -6.661 | N/A |
| MW392 | Downgradient | Yes | 0.00123 | N/A | -6.701 | NO |
| MW395 | Upgradient | Yes | 0.0013 | N/A | -6.645 | NO |
| MW397 | Upgradient | Yes | 0.00123 | N/A | -6.701 | NO |

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

Conclusion of Statistical Analysis on Historical Data

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

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

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

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

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

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

*** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009. D1-65

C-746-S/T Second Quarter 2019 Statistical Analysis Historical Background Comparison

Beta activity

UNITS: pCi/L

LRGA

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

| | | | | | | |
|---|------------------|------------------|---------------------|----------------------------|-----------------------|-------------------|
| Statistics-Background Data | X = 7.183 | S = 2.612 | CV(1) =0.364 | K factor*** = 2.523 | TL(1) = 13.773 | LL(1) =N/A |
| Statistics-Transformed Background Data | X = 1.870 | S = 0.552 | CV(2) =0.295 | K factor*** = 2.523 | TL(2) = 3.261 | LL(2) =N/A |

Historical Background Data from Upgradient Wells with Transformed Result

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

Well Number: MW395

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 1.09 | 0.086 |
| 9/16/2002 | 5.79 | 1.756 |
| 10/16/2002 | 6.82 | 1.920 |
| 1/13/2003 | 5.01 | 1.611 |
| 4/10/2003 | 6.1 | 1.808 |
| 7/16/2003 | 8.51 | 2.141 |
| 10/14/2003 | 4.99 | 1.607 |
| 1/13/2004 | 6.58 | 1.884 |

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|--------|----------------|------------|-------------------|
| MW370 | Downgradient | Yes | 61 | YES | 4.111 | N/A |
| MW373 | Downgradient | Yes | 13.7 | N/A | 2.617 | N/A |
| MW385 | Sidegradient | Yes | 138 | YES | 4.927 | N/A |
| MW388 | Downgradient | Yes | 76.7 | YES | 4.340 | N/A |
| MW392 | Downgradient | No | -4.1 | N/A | #Error | N/A |
| MW395 | Upgradient | No | 3.8 | N/A | 1.335 | N/A |
| MW397 | Upgradient | No | 7.45 | N/A | 2.008 | N/A |

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

Well Number: MW397

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 9.57 | 2.259 |
| 9/16/2002 | 11 | 2.398 |
| 10/17/2002 | 9.3 | 2.230 |
| 1/13/2003 | 8.63 | 2.155 |
| 4/8/2003 | 10 | 2.303 |
| 7/16/2003 | 6.89 | 1.930 |
| 10/14/2003 | 10.1 | 2.313 |
| 1/13/2004 | 4.55 | 1.515 |

Conclusion of Statistical Analysis on Historical Data

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

Wells with Exceedances

- MW370
- MW385
- MW388

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

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

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

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

X Mean, $X = (\text{sum of background results})/(\text{count of background results})$

*** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009. D1-66

C-746-S/T Second Quarter 2019 Statistical Analysis Historical Background Comparison

Boron

UNITS: mg/L

LRGA

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

| | | | | | | |
|---|-------------------|------------------|-----------------------|----------------------------|----------------------|-------------------|
| Statistics-Background Data | X = 0.650 | S = 0.805 | CV(1) = 1.238 | K factor*** = 2.523 | TL(1) = 2.681 | 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

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

Well Number: MW395

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 2 | 0.693 |
| 9/16/2002 | 2 | 0.693 |
| 10/16/2002 | 0.2 | -1.609 |
| 1/13/2003 | 0.2 | -1.609 |
| 4/10/2003 | 0.2 | -1.609 |
| 7/16/2003 | 0.2 | -1.609 |
| 10/14/2003 | 0.2 | -1.609 |
| 1/13/2004 | 0.2 | -1.609 |

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|---------|----------------|------------|-------------------|
| MW370 | Downgradient | Yes | 0.0319 | N/A | -3.445 | NO |
| MW373 | Downgradient | Yes | 1.32 | N/A | 0.278 | NO |
| MW385 | Sidegradient | Yes | 0.0226 | N/A | -3.790 | NO |
| MW388 | Downgradient | Yes | 0.0222 | N/A | -3.808 | NO |
| MW392 | Downgradient | Yes | 0.0305 | N/A | -3.490 | NO |
| MW395 | Upgradient | Yes | 0.0245 | N/A | -3.709 | NO |
| MW397 | Upgradient | Yes | 0.00975 | N/A | -4.630 | NO |

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

Well Number: MW397

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 2 | 0.693 |
| 9/16/2002 | 2 | 0.693 |
| 10/17/2002 | 0.2 | -1.609 |
| 1/13/2003 | 0.2 | -1.609 |
| 4/8/2003 | 0.2 | -1.609 |
| 7/16/2003 | 0.2 | -1.609 |
| 10/14/2003 | 0.2 | -1.609 |
| 1/13/2004 | 0.2 | -1.609 |

Conclusion of Statistical Analysis on Historical Data

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

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

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

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

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

X Mean, $X = (\text{sum of background results})/(\text{count of background results})$

** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009. D1-67

C-746-S/T Second Quarter 2019 Statistical Analysis Historical Background Comparison

Bromide

UNITS: mg/L

LRGA

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

| | | | | | | |
|---|------------------|------------------|---------------------|----------------------------|----------------------|-------------------|
| Statistics-Background Data | X = 1.000 | S = 0.000 | CV(1) =0.000 | K factor*** = 2.523 | TL(1) = 1.000 | 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: MW395

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 1 | 0.000 |
| 9/16/2002 | 1 | 0.000 |
| 10/16/2002 | 1 | 0.000 |
| 1/13/2003 | 1 | 0.000 |
| 4/10/2003 | 1 | 0.000 |
| 7/16/2003 | 1 | 0.000 |
| 10/14/2003 | 1 | 0.000 |
| 1/13/2004 | 1 | 0.000 |

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|--------|----------------|------------|-------------------|
| MW370 | Downgradient | Yes | 0.415 | NO | -0.879 | N/A |
| MW373 | Downgradient | Yes | 0.572 | NO | -0.559 | N/A |
| MW385 | Sidegradient | Yes | 0.365 | NO | -1.008 | N/A |
| MW388 | Downgradient | Yes | 0.431 | NO | -0.842 | N/A |
| MW392 | Downgradient | Yes | 0.597 | NO | -0.516 | N/A |
| MW395 | Upgradient | Yes | 0.533 | NO | -0.629 | N/A |
| MW397 | Upgradient | Yes | 0.397 | NO | -0.924 | N/A |

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

Well Number: MW397

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 1 | 0.000 |
| 9/16/2002 | 1 | 0.000 |
| 10/17/2002 | 1 | 0.000 |
| 1/13/2003 | 1 | 0.000 |
| 4/8/2003 | 1 | 0.000 |
| 7/16/2003 | 1 | 0.000 |
| 10/14/2003 | 1 | 0.000 |
| 1/13/2004 | 1 | 0.000 |

Conclusion of Statistical Analysis on Historical Data

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

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

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

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

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

X Mean, $X = (\text{sum of background results})/(\text{count of background results})$

*** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009. D1-68

C-746-S/T Second Quarter 2019 Statistical Analysis Historical Background Comparison

Calcium

UNITS: mg/L

LRGA

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

Statistics-Background Data X= 23.103 S= 11.538 CV(1)=0.499 **K factor***= 2.523** TL(1)= 52.213 LL(1)=N/A

Statistics-Transformed Background Data X= 2.357 S= 2.411 CV(2)=1.023 **K factor***= 2.523** TL(2)= 8.439 LL(2)=N/A

Historical Background Data from Upgradient Wells with Transformed Result

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

Well Number: MW395

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 32.2 | 3.472 |
| 9/16/2002 | 33 | 3.497 |
| 10/16/2002 | 0.0295 | -3.523 |
| 1/13/2003 | 32.1 | 3.469 |
| 4/10/2003 | 40.2 | 3.694 |
| 7/16/2003 | 32.4 | 3.478 |
| 10/14/2003 | 33.9 | 3.523 |
| 1/13/2004 | 31.2 | 3.440 |

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|--------|----------------|------------|-------------------|
| MW370 | Downgradient | Yes | 26.5 | NO | 3.277 | N/A |
| MW373 | Downgradient | Yes | 64 | YES | 4.159 | N/A |
| MW385 | Sidegradient | Yes | 22.8 | NO | 3.127 | N/A |
| MW388 | Downgradient | Yes | 23.7 | NO | 3.165 | N/A |
| MW392 | Downgradient | Yes | 28.4 | NO | 3.346 | N/A |
| MW395 | Upgradient | Yes | 25.4 | NO | 3.235 | N/A |
| MW397 | Upgradient | Yes | 16.9 | NO | 2.827 | N/A |

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

Well Number: MW397

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 19.4 | 2.965 |
| 9/16/2002 | 19 | 2.944 |
| 10/17/2002 | 0.0179 | -4.023 |
| 1/13/2003 | 17.8 | 2.879 |
| 4/8/2003 | 20.3 | 3.011 |
| 7/16/2003 | 19.4 | 2.965 |
| 10/14/2003 | 19.9 | 2.991 |
| 1/13/2004 | 18.8 | 2.934 |

Conclusion of Statistical Analysis on Historical Data

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

Wells with Exceedances

MW373

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

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

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

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

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

*** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009.* D1-69

C-746-S/T Second Quarter 2019 Statistical Analysis Historical Background Comparison

Chloride

UNITS: mg/L

LRGA

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

Statistics-Background Data X= 51.844 S= 11.652 CV(1)=0.225 K factor***= 2.523 TL(1)= 81.242 LL(1)=N/A

Statistics-Transformed Background Data X= 3.924 S= 0.229 CV(2)=0.058 K factor***= 2.523 TL(2)= 4.501 LL(2)=N/A

Historical Background Data from Upgradient Wells with Transformed Result

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

Well Number: MW395

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 62.2 | 4.130 |
| 9/16/2002 | 64.7 | 4.170 |
| 10/16/2002 | 62.2 | 4.130 |
| 1/13/2003 | 63.5 | 4.151 |
| 4/10/2003 | 64.1 | 4.160 |
| 7/16/2003 | 64 | 4.159 |
| 10/14/2003 | 63.2 | 4.146 |
| 1/13/2004 | 60.6 | 4.104 |

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|--------|----------------|------------|-------------------|
| MW370 | Downgradient | Yes | 34.8 | NO | 3.550 | N/A |
| MW373 | Downgradient | Yes | 43.6 | NO | 3.775 | N/A |
| MW385 | Sidegradient | Yes | 34.5 | NO | 3.541 | N/A |
| MW388 | Downgradient | Yes | 33.5 | NO | 3.512 | N/A |
| MW392 | Downgradient | Yes | 103 | YES | 4.635 | N/A |
| MW395 | Upgradient | Yes | 43.5 | NO | 3.773 | N/A |
| MW397 | Upgradient | Yes | 34.5 | NO | 3.541 | N/A |

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

Well Number: MW397

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 38.9 | 3.661 |
| 9/16/2002 | 39.8 | 3.684 |
| 10/17/2002 | 39.3 | 3.671 |
| 1/13/2003 | 40.5 | 3.701 |
| 4/8/2003 | 42.1 | 3.740 |
| 7/16/2003 | 42 | 3.738 |
| 10/14/2003 | 40.8 | 3.709 |
| 1/13/2004 | 41.6 | 3.728 |

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

MW392

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

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

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

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

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

** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009. D1-71

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cis-1,2-Dichloroethene

UNITS: ug/L

LRGA

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

| | | | | | | |
|---|-----------------|-----------------|--------------------|---------------------------|---------------------|------------------|
| Statistics-Background Data | X= 5.000 | S= 0.000 | CV(1)=0.000 | K factor***= 2.523 | TL(1)= 5.000 | LL(1)=N/A |
| Statistics-Transformed Background Data | X= 1.609 | S= 0.000 | CV(2)=0.000 | K factor***= 2.523 | TL(2)= 1.609 | LL(2)=N/A |

Historical Background Data from Upgradient Wells with Transformed Result

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

Well Number: MW395

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 5 | 1.609 |
| 9/30/2002 | 5 | 1.609 |
| 10/16/2002 | 5 | 1.609 |
| 1/13/2003 | 5 | 1.609 |
| 4/10/2003 | 5 | 1.609 |
| 7/16/2003 | 5 | 1.609 |
| 10/14/2003 | 5 | 1.609 |
| 1/13/2004 | 5 | 1.609 |

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|--------|----------------|------------|-------------------|
| MW370 | Downgradient | No | 1 | N/A | 0.000 | N/A |
| MW373 | Downgradient | No | 1 | N/A | 0.000 | N/A |
| MW385 | Sidegradient | No | 1 | N/A | 0.000 | N/A |
| MW388 | Downgradient | No | 1 | N/A | 0.000 | N/A |
| MW392 | Downgradient | Yes | 1.31 | NO | 0.270 | N/A |
| MW395 | Upgradient | No | 1 | N/A | 0.000 | N/A |
| MW397 | Upgradient | No | 1 | N/A | 0.000 | N/A |

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

Well Number: MW397

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 5 | 1.609 |
| 9/30/2002 | 5 | 1.609 |
| 10/17/2002 | 5 | 1.609 |
| 1/13/2003 | 5 | 1.609 |
| 4/8/2003 | 5 | 1.609 |
| 7/16/2003 | 5 | 1.609 |
| 10/14/2003 | 5 | 1.609 |
| 1/13/2004 | 5 | 1.609 |

Conclusion of Statistical Analysis on Historical Data

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

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

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

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

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

X Mean, $X = (\text{sum of background results})/(\text{count of background results})$

** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009. D1-72

C-746-S/T Second Quarter 2019 Statistical Analysis Historical Background Comparison

Cobalt

UNITS: mg/L

LRGA

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

Statistics-Background Data X= 0.007 S= 0.011 CV(1)= 1.515 K factor***= 2.523 TL(1)= 0.034 LL(1)=N/A

Statistics-Transformed Background Data X= -6.053 S= 1.416 CV(2)=-0.234 K factor***= 2.523 TL(2)= -2.480 LL(2)=N/A

Historical Background Data from Upgradient Wells with Transformed Result

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

Well Number: MW395

| Date Collected | Result | LN(Result) |
|----------------|---------|------------|
| 8/13/2002 | 0.025 | -3.689 |
| 9/16/2002 | 0.025 | -3.689 |
| 10/16/2002 | 0.001 | -6.908 |
| 1/13/2003 | 0.00148 | -6.516 |
| 4/10/2003 | 0.00151 | -6.496 |
| 7/16/2003 | 0.001 | -6.908 |
| 10/14/2003 | 0.001 | -6.908 |
| 1/13/2004 | 0.001 | -6.908 |

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|----------|----------------|------------|-------------------|
| MW370 | Downgradient | Yes | 0.000377 | N/A | -7.883 | NO |
| MW373 | Downgradient | Yes | 0.000473 | N/A | -7.656 | NO |
| MW385 | Sidegradient | No | 0.001 | N/A | -6.908 | N/A |
| MW388 | Downgradient | No | 0.001 | N/A | -6.908 | N/A |
| MW392 | Downgradient | Yes | 0.000361 | N/A | -7.927 | NO |
| MW395 | Upgradient | No | 0.001 | N/A | -6.908 | N/A |
| MW397 | 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.

Well Number: MW397

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 0.025 | -3.689 |
| 9/16/2002 | 0.025 | -3.689 |
| 10/17/2002 | 0.001 | -6.908 |
| 1/13/2003 | 0.001 | -6.908 |
| 4/8/2003 | 0.001 | -6.908 |
| 7/16/2003 | 0.001 | -6.908 |
| 10/14/2003 | 0.001 | -6.908 |
| 1/13/2004 | 0.001 | -6.908 |

Conclusion of Statistical Analysis on Historical Data

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

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

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

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

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

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

*** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009. D1-73

C-746-S/T Second Quarter 2019 Statistical Analysis Historical Background Comparison

Conductivity

UNITS: umho/cm

LRGA

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

Statistics-Background Data X= 377.875 S= 52.101 CV(1)=0.138 **K factor***= 2.523** TL(1)= 509.326 LL(1)=N/A

Statistics-Transformed Background Data X= 5.926 S= 0.136 CV(2)=0.023 **K factor***= 2.523** TL(2)= 6.270 LL(2)=N/A

Historical Background Data from Upgradient Wells with Transformed Result

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

Well Number: MW395

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 405 | 6.004 |
| 9/16/2002 | 401 | 5.994 |
| 10/16/2002 | 392 | 5.971 |
| 1/13/2003 | 404 | 6.001 |
| 4/10/2003 | 488 | 6.190 |
| 7/16/2003 | 450 | 6.109 |
| 10/14/2003 | 410 | 6.016 |
| 1/13/2004 | 413 | 6.023 |

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|--------|----------------|------------|-------------------|
| MW370 | Downgradient | Yes | 458 | NO | 6.127 | N/A |
| MW373 | Downgradient | Yes | 767 | YES | 6.642 | N/A |
| MW385 | Sidegradient | Yes | 427 | NO | 6.057 | N/A |
| MW388 | Downgradient | Yes | 469 | NO | 6.151 | N/A |
| MW392 | Downgradient | Yes | 446 | NO | 6.100 | N/A |
| MW395 | Upgradient | Yes | 367 | NO | 5.905 | N/A |
| MW397 | Upgradient | Yes | 325 | NO | 5.784 | N/A |

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

Well Number: MW397

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 322 | 5.775 |
| 9/16/2002 | 315 | 5.753 |
| 10/17/2002 | 317 | 5.759 |
| 1/13/2003 | 320 | 5.768 |
| 4/8/2003 | 390 | 5.966 |
| 7/16/2003 | 354 | 5.869 |
| 10/14/2003 | 331 | 5.802 |
| 1/13/2004 | 334 | 5.811 |

Conclusion of Statistical Analysis on Historical Data

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

Wells with Exceedances

MW373

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

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

S Standard Deviation, $S = \sqrt{[\text{Sum} \{((\text{background result}-X)^2)/[\text{count of background results} - 1]\}]^{0.5}}$

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

X Mean, $X = (\text{sum of background results})/(\text{count of background results})$

*** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009.* D1-74

C-746-S/T Second Quarter 2019 Statistical Analysis Historical Background Comparison

Copper

UNITS: mg/L

LRGA

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

| | | | | | | |
|---|-----------|----------|--------------|--------------------|---------------|-----------|
| Statistics-Background Data | X= 0.028 | S= 0.013 | CV(1)=0.474 | K factor***= 2.523 | TL(1)= 0.061 | LL(1)=N/A |
| Statistics-Transformed Background Data | X= -3.662 | S= 0.406 | CV(2)=-0.111 | K factor***= 2.523 | TL(2)= -2.638 | LL(2)=N/A |

Historical Background Data from Upgradient Wells with Transformed Result

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

Well Number: MW395

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 0.05 | -2.996 |
| 9/16/2002 | 0.05 | -2.996 |
| 10/16/2002 | 0.0281 | -3.572 |
| 1/13/2003 | 0.02 | -3.912 |
| 4/10/2003 | 0.02 | -3.912 |
| 7/16/2003 | 0.02 | -3.912 |
| 10/14/2003 | 0.02 | -3.912 |
| 1/13/2004 | 0.02 | -3.912 |

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|----------|----------------|------------|-------------------|
| MW370 | Downgradient | Yes | 0.00192 | NO | -6.255 | N/A |
| MW373 | Downgradient | Yes | 0.000479 | NO | -7.644 | N/A |
| MW385 | Sidegradient | Yes | 0.000637 | NO | -7.359 | N/A |
| MW388 | Downgradient | Yes | 0.00043 | NO | -7.752 | N/A |
| MW392 | Downgradient | Yes | 0.00138 | NO | -6.586 | N/A |
| MW395 | Upgradient | Yes | 0.000551 | NO | -7.504 | N/A |
| MW397 | Upgradient | Yes | 0.000691 | NO | -7.277 | N/A |

Well Number: MW397

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 0.05 | -2.996 |
| 9/16/2002 | 0.05 | -2.996 |
| 10/17/2002 | 0.02 | -3.912 |
| 1/13/2003 | 0.02 | -3.912 |
| 4/8/2003 | 0.02 | -3.912 |
| 7/16/2003 | 0.02 | -3.912 |
| 10/14/2003 | 0.02 | -3.912 |
| 1/13/2004 | 0.02 | -3.912 |

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

Conclusion of Statistical Analysis on Historical Data

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

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

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

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

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

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

** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009. D1-75

C-746-S/T Second Quarter 2019 Statistical Analysis Historical Background Comparison

Dissolved Oxygen

UNITS: mg/L

LRGA

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

| | | | | | | |
|---|----------|----------|-------------|--------------------|---------------|-----------|
| Statistics-Background Data | X= 4.678 | S= 2.431 | CV(1)=0.520 | K factor***= 2.523 | TL(1)= 10.812 | LL(1)=N/A |
| Statistics-Transformed Background Data | X= 1.414 | S= 0.550 | CV(2)=0.389 | K factor***= 2.523 | TL(2)= 2.802 | LL(2)=N/A |

Historical Background Data from Upgradient Wells with Transformed Result

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

Well Number: MW395

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 7.29 | 1.987 |
| 9/30/2002 | 4.03 | 1.394 |
| 10/16/2002 | 3.85 | 1.348 |
| 1/13/2003 | 2.36 | 0.859 |
| 4/10/2003 | 1.14 | 0.131 |
| 7/16/2003 | 1.76 | 0.565 |
| 10/14/2003 | 4.05 | 1.399 |
| 1/13/2004 | 4.26 | 1.449 |

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|--------|----------------|------------|-------------------|
| MW370 | Downgradient | Yes | 3.46 | NO | 1.241 | N/A |
| MW373 | Downgradient | Yes | 1.49 | NO | 0.399 | N/A |
| MW385 | Sidegradient | Yes | 2.89 | NO | 1.061 | N/A |
| MW388 | Downgradient | Yes | 3.19 | NO | 1.160 | N/A |
| MW392 | Downgradient | Yes | 2.41 | NO | 0.880 | N/A |
| MW395 | Upgradient | Yes | 4.57 | NO | 1.520 | N/A |
| MW397 | Upgradient | 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.

Well Number: MW397

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 11.56 | 2.448 |
| 9/16/2002 | 5.86 | 1.768 |
| 10/17/2002 | 5.94 | 1.782 |
| 1/13/2003 | 4.66 | 1.539 |
| 4/8/2003 | 3.77 | 1.327 |
| 7/16/2003 | 3.47 | 1.244 |
| 10/14/2003 | 5.34 | 1.675 |
| 1/13/2004 | 5.51 | 1.707 |

Conclusion of Statistical Analysis on Historical Data

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

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

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

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

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

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

** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009. D1-76

C-746-S/T Second Quarter 2019 Statistical Analysis Historical Background Comparison

Dissolved Solids

UNITS: mg/L

LRGA

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

Statistics-Background Data X= 219.250 S= 34.107 CV(1)=0.156 **K factor***= 2.523** TL(1)= 305.301 LL(1)=N/A

Statistics-Transformed Background Data X= 5.379 S= 0.152 CV(2)=0.028 **K factor***= 2.523** TL(2)= 5.762 LL(2)=N/A

Historical Background Data from Upgradient Wells with Transformed Result

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

Well Number: MW395

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 249 | 5.517 |
| 9/16/2002 | 272 | 5.606 |
| 10/16/2002 | 255 | 5.541 |
| 1/13/2003 | 211 | 5.352 |
| 4/10/2003 | 289 | 5.666 |
| 7/16/2003 | 236 | 5.464 |
| 10/14/2003 | 224 | 5.412 |
| 1/13/2004 | 235 | 5.460 |

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|--------|----------------|------------|-------------------|
| MW370 | Downgradient | Yes | 237 | NO | 5.468 | N/A |
| MW373 | Downgradient | Yes | 401 | YES | 5.994 | N/A |
| MW385 | Sidegradient | Yes | 253 | NO | 5.533 | N/A |
| MW388 | Downgradient | Yes | 253 | NO | 5.533 | N/A |
| MW392 | Downgradient | Yes | 239 | NO | 5.476 | N/A |
| MW395 | Upgradient | Yes | 173 | NO | 5.153 | N/A |
| MW397 | Upgradient | Yes | 229 | NO | 5.434 | N/A |

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

Well Number: MW397

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 187 | 5.231 |
| 9/16/2002 | 197 | 5.283 |
| 10/17/2002 | 183 | 5.209 |
| 1/13/2003 | 182 | 5.204 |
| 4/8/2003 | 217 | 5.380 |
| 7/16/2003 | 196 | 5.278 |
| 10/14/2003 | 198 | 5.288 |
| 1/13/2004 | 177 | 5.176 |

Conclusion of Statistical Analysis on Historical Data

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

Wells with Exceedances

MW373

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

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

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

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

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

*** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009. D1-77

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Iron

UNITS: mg/L

LRGA

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

Statistics-Background Data X= 0.400 S= 0.514 CV(1)= 1.286 K factor***= 2.523 TL(1)= 1.698 LL(1)=N/A

Statistics-Transformed Background Data X= -2.197 S= 2.634 CV(2)= -1.199 K factor***= 2.523 TL(2)= 4.449 LL(2)=N/A

Historical Background Data from Upgradient Wells with Transformed Result

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

Well Number: MW395

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 0.294 | -1.224 |
| 9/16/2002 | 0.2 | -1.609 |
| 10/16/2002 | 0.0002 | -8.517 |
| 1/13/2003 | 1.33 | 0.285 |
| 4/10/2003 | 1.31 | 0.270 |
| 7/16/2003 | 0.2 | -1.609 |
| 10/14/2003 | 0.1 | -2.303 |
| 1/13/2004 | 0.1 | -2.303 |

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|--------|----------------|------------|-------------------|
| MW370 | Downgradient | Yes | 0.0351 | N/A | -3.350 | NO |
| MW373 | Downgradient | Yes | 0.178 | N/A | -1.726 | NO |
| MW385 | Sidegradient | Yes | 0.0611 | N/A | -2.795 | NO |
| MW388 | Downgradient | Yes | 0.0964 | N/A | -2.339 | NO |
| MW392 | Downgradient | Yes | 0.67 | N/A | -0.400 | NO |
| MW395 | Upgradient | Yes | 0.108 | N/A | -2.226 | NO |
| MW397 | Upgradient | Yes | 0.448 | N/A | -0.803 | NO |

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

Well Number: MW397

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 1.58 | 0.457 |
| 9/16/2002 | 0.232 | -1.461 |
| 10/17/2002 | 0.0002 | -8.517 |
| 1/13/2003 | 0.453 | -0.792 |
| 4/8/2003 | 0.2 | -1.609 |
| 7/16/2003 | 0.2 | -1.609 |
| 10/14/2003 | 0.1 | -2.303 |
| 1/13/2004 | 0.1 | -2.303 |

Conclusion of Statistical Analysis on Historical Data

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

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

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

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

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

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

*** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009. D1-78

C-746-S/T Second Quarter 2019 Statistical Analysis Historical Background Comparison

Magnesium

UNITS: mg/L

LRGA

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

| | | | | | | |
|---|------------------|------------------|---------------------|---------------------------|-----------------------|-------------------|
| Statistics-Background Data | X = 9.102 | S = 4.685 | CV(1) =0.515 | K factor **= 2.523 | TL(1) = 20.922 | LL(1) =N/A |
| Statistics-Transformed Background Data | X = 1.423 | S = 2.408 | CV(2) =1.692 | K factor **= 2.523 | TL(2) = 7.500 | LL(2) =N/A |

Historical Background Data from Upgradient Wells with Transformed Result

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

Well Number: MW395

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 12.5 | 2.526 |
| 9/16/2002 | 13 | 2.565 |
| 10/16/2002 | 0.0127 | -4.366 |
| 1/13/2003 | 11.2 | 2.416 |
| 4/10/2003 | 17.5 | 2.862 |
| 7/16/2003 | 12.9 | 2.557 |
| 10/14/2003 | 13.4 | 2.595 |
| 1/13/2004 | 12.4 | 2.518 |

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|--------|----------------|------------|-------------------|
| MW370 | Downgradient | Yes | 12.1 | NO | 2.493 | N/A |
| MW373 | Downgradient | Yes | 23.7 | YES | 3.165 | N/A |
| MW385 | Sidegradient | Yes | 9.05 | NO | 2.203 | N/A |
| MW388 | Downgradient | Yes | 10.9 | NO | 2.389 | N/A |
| MW392 | Downgradient | Yes | 11 | NO | 2.398 | N/A |
| MW395 | Upgradient | Yes | 11.1 | NO | 2.407 | N/A |
| MW397 | Upgradient | Yes | 7.65 | NO | 2.035 | N/A |

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

Well Number: MW397

| Date Collected | Result | LN(Result) |
|----------------|---------|------------|
| 8/13/2002 | 7.83 | 2.058 |
| 9/16/2002 | 7.64 | 2.033 |
| 10/17/2002 | 0.00658 | -5.024 |
| 1/13/2003 | 6.69 | 1.901 |
| 4/8/2003 | 7.28 | 1.985 |
| 7/16/2003 | 7.82 | 2.057 |
| 10/14/2003 | 7.94 | 2.072 |
| 1/13/2004 | 7.51 | 2.016 |

Conclusion of Statistical Analysis on Historical Data

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

Wells with Exceedances

MW373

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

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

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

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

X Mean, $X = (\text{sum of background results})/(\text{count of background results})$

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

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Manganese

UNITS: mg/L

LRGA

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

| | | | | | | |
|---|-------------------|------------------|----------------------|----------------------------|----------------------|-------------------|
| Statistics-Background Data | X = 0.131 | S = 0.195 | CV(1) = 1.487 | K factor*** = 2.523 | TL(1) = 0.624 | LL(1) =N/A |
| Statistics-Transformed Background Data | X = -3.104 | S = 1.529 | CV(2) =-0.493 | K factor*** = 2.523 | TL(2) = 0.755 | LL(2) =N/A |

Historical Background Data from Upgradient Wells with Transformed Result

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

Well Number: MW395

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 0.361 | -1.019 |
| 9/16/2002 | 0.028 | -3.576 |
| 10/16/2002 | 0.026 | -3.650 |
| 1/13/2003 | 0.0713 | -2.641 |
| 4/10/2003 | 0.629 | -0.464 |
| 7/16/2003 | 0.297 | -1.214 |
| 10/14/2003 | 0.0198 | -3.922 |
| 1/13/2004 | 0.0126 | -4.374 |

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|---------|----------------|------------|-------------------|
| MW370 | Downgradient | Yes | 0.00749 | N/A | -4.894 | NO |
| MW373 | Downgradient | Yes | 0.0177 | N/A | -4.034 | NO |
| MW385 | Sidegradient | No | 0.00288 | N/A | -5.850 | N/A |
| MW388 | Downgradient | No | 0.00156 | N/A | -6.463 | N/A |
| MW392 | Downgradient | Yes | 0.135 | N/A | -2.002 | NO |
| MW395 | Upgradient | No | 0.00283 | N/A | -5.867 | N/A |
| MW397 | Upgradient | Yes | 0.0078 | N/A | -4.854 | NO |

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

Well Number: MW397

| Date Collected | Result | LN(Result) |
|----------------|---------|------------|
| 8/13/2002 | 0.466 | -0.764 |
| 9/16/2002 | 0.077 | -2.564 |
| 10/17/2002 | 0.028 | -3.576 |
| 1/13/2003 | 0.0164 | -4.110 |
| 4/8/2003 | 0.0407 | -3.202 |
| 7/16/2003 | 0.0167 | -4.092 |
| 10/14/2003 | 0.00555 | -5.194 |
| 1/13/2004 | 0.005 | -5.298 |

Conclusion of Statistical Analysis on Historical Data

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

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

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

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

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

X Mean, $X = (\text{sum of background results})/(\text{count of background results})$

** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009. D1-80

C-746-S/T Second Quarter 2019 Statistical Analysis Historical Background Comparison

Methylene chloride

UNITS: ug/L

LRGA

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

Statistics-Background Data X= 5.625 S= 3.074 CV(1)=0.547 K factor***= 2.523 TL(1)= 13.381 LL(1)=N/A

Statistics-Transformed Background Data X= 1.614 S= 0.483 CV(2)=0.300 K factor***= 2.523 TL(2)= 2.834 LL(2)=N/A

Historical Background Data from Upgradient Wells with Transformed Result

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

Well Number: MW395

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 14 | 2.639 |
| 9/30/2002 | 2 | 0.693 |
| 10/16/2002 | 5 | 1.609 |
| 1/13/2003 | 5 | 1.609 |
| 4/10/2003 | 5 | 1.609 |
| 7/16/2003 | 5 | 1.609 |
| 10/14/2003 | 5 | 1.609 |
| 1/13/2004 | 5 | 1.609 |

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|--------|----------------|------------|-------------------|
| MW370 | Downgradient | No | 5 | N/A | 1.609 | N/A |
| MW373 | Downgradient | No | 5 | N/A | 1.609 | N/A |
| MW385 | Sidegradient | No | 5 | N/A | 1.609 | N/A |
| MW388 | Downgradient | No | 5 | N/A | 1.609 | N/A |
| MW392 | Downgradient | Yes | 2.62 | NO | 0.963 | N/A |
| MW395 | Upgradient | No | 5 | N/A | 1.609 | N/A |
| MW397 | Upgradient | Yes | 2.32 | NO | 0.842 | N/A |

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

Well Number: MW397

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 12 | 2.485 |
| 9/30/2002 | 2 | 0.693 |
| 10/17/2002 | 5 | 1.609 |
| 1/13/2003 | 5 | 1.609 |
| 4/8/2003 | 5 | 1.609 |
| 7/16/2003 | 5 | 1.609 |
| 10/14/2003 | 5 | 1.609 |
| 1/13/2004 | 5 | 1.609 |

Conclusion of Statistical Analysis on Historical Data

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

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

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

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

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

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

*** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009. D1-81

C-746-S/T Second Quarter 2019 Statistical Analysis Historical Background Comparison

Nickel

UNITS: mg/L

LRGA

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

| | | | | | | |
|---|-------------------|------------------|-----------------------|----------------------------|-----------------------|-------------------|
| Statistics-Background Data | X = 0.018 | S = 0.020 | CV(1) = 1.089 | K factor*** = 2.523 | TL(1) = 0.068 | LL(1) =N/A |
| Statistics-Transformed Background Data | X = -4.540 | S = 1.020 | CV(2) = -0.225 | K factor*** = 2.523 | TL(2) = -1.965 | LL(2) =N/A |

Historical Background Data from Upgradient Wells with Transformed Result

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

Well Number: MW395

| Date Collected | Result | LN(Result) |
|----------------|---------|------------|
| 8/13/2002 | 0.05 | -2.996 |
| 9/16/2002 | 0.05 | -2.996 |
| 10/16/2002 | 0.00702 | -4.959 |
| 1/13/2003 | 0.029 | -3.540 |
| 4/10/2003 | 0.0091 | -4.699 |
| 7/16/2003 | 0.00627 | -5.072 |
| 10/14/2003 | 0.005 | -5.298 |
| 1/13/2004 | 0.005 | -5.298 |

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|----------|----------------|------------|-------------------|
| MW370 | Downgradient | Yes | 0.000761 | N/A | -7.181 | NO |
| MW373 | Downgradient | Yes | 0.000916 | N/A | -6.995 | NO |
| MW385 | Sidegradient | Yes | 0.000912 | N/A | -7.000 | NO |
| MW388 | Downgradient | Yes | 0.0011 | N/A | -6.812 | NO |
| MW392 | Downgradient | Yes | 0.00161 | N/A | -6.432 | NO |
| MW395 | Upgradient | Yes | 0.000866 | N/A | -7.052 | NO |
| MW397 | Upgradient | Yes | 0.00102 | N/A | -6.888 | NO |

Well Number: MW397

| Date Collected | Result | LN(Result) |
|----------------|---------|------------|
| 8/13/2002 | 0.05 | -2.996 |
| 9/16/2002 | 0.05 | -2.996 |
| 10/17/2002 | 0.005 | -5.298 |
| 1/13/2003 | 0.00502 | -5.294 |
| 4/8/2003 | 0.005 | -5.298 |
| 7/16/2003 | 0.005 | -5.298 |
| 10/14/2003 | 0.005 | -5.298 |
| 1/13/2004 | 0.005 | -5.298 |

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

Conclusion of Statistical Analysis on Historical Data

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

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

- CV Coefficient-of-Variation, $CV = S/X$ If CV is less than or equal to 1 assume normal distribution.
- S Standard Deviation, $S = [\text{Sum}([(background\ result-X)^2]/[\text{count of background results} - 1])]^{0.5}$
- TL Upper Tolerance Limit, $TL = X + (K * S)$, LL Lower Tolerance Limit, $LL = X - (K * S)$
- X Mean, $X = (\text{sum of background results})/(\text{count of background results})$

** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009. D1-82

C-746-S/T Second Quarter 2019 Statistical Analysis Historical Background Comparison

Oxidation-Reduction Potential

UNITS: mV

LRGA

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

Statistics-Background Data X= 157.250 S= 52.376 CV(1)=0.333 **K factor***= 2.523** TL(1)= 289.395 LL(1)=N/A

Statistics-Transformed Background Data X= 5.003 S= 0.348 CV(2)=0.069 **K factor***= 2.523** TL(2)= 5.880 LL(2)=N/A

Historical Background Data from Upgradient Wells with Transformed Result

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

Well Number: MW395

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 80 | 4.382 |
| 9/16/2002 | 145 | 4.977 |
| 10/16/2002 | 125 | 4.828 |
| 1/13/2003 | 85 | 4.443 |
| 4/10/2003 | 159 | 5.069 |
| 7/16/2003 | 98 | 4.585 |
| 10/14/2003 | 138 | 4.927 |
| 1/13/2004 | 233 | 5.451 |

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|--------|----------------|------------|-------------------|
| MW370 | Downgradient | Yes | 400 | YES | 5.991 | N/A |
| MW373 | Downgradient | Yes | 387 | YES | 5.958 | N/A |
| MW385 | Sidegradient | Yes | 444 | YES | 6.096 | N/A |
| MW388 | Downgradient | Yes | 405 | YES | 6.004 | N/A |
| MW392 | Downgradient | Yes | 461 | YES | 6.133 | N/A |
| MW395 | Upgradient | Yes | 477 | YES | 6.168 | N/A |
| MW397 | Upgradient | Yes | 505 | YES | 6.225 | N/A |

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

Well Number: MW397

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 115 | 4.745 |
| 9/30/2002 | 140 | 4.942 |
| 10/17/2002 | 185 | 5.220 |
| 1/13/2003 | 230 | 5.438 |
| 4/8/2003 | 155 | 5.043 |
| 7/16/2003 | 188 | 5.236 |
| 10/14/2003 | 187 | 5.231 |
| 1/13/2004 | 253 | 5.533 |

Conclusion of Statistical Analysis on Historical Data

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

Wells with Exceedances

- MW370
- MW373
- MW385
- MW388
- MW392
- MW395
- MW397

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

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

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

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

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

*** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009. D1-83

C-746-S/T Second Quarter 2019 Statistical Analysis Historical Background Comparison

pH

UNITS: Std Unit

LRGA

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

| | | | | | | |
|---|------------------|------------------|---------------------|---------------------------|----------------------|----------------------|
| Statistics-Background Data | X = 6.048 | S = 0.248 | CV(1) =0.041 | K factor** = 2.904 | TL(1) = 6.767 | LL(1) =5.3289 |
| Statistics-Transformed Background Data | X = 1.799 | S = 0.042 | CV(2) =0.023 | K factor** = 2.904 | TL(2) = 1.920 | LL(2) =1.6782 |

Historical Background Data from Upgradient Wells with Transformed Result

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

Well Number: MW395

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 5.8 | 1.758 |
| 9/16/2002 | 6 | 1.792 |
| 10/16/2002 | 5.47 | 1.699 |
| 1/13/2003 | 6 | 1.792 |
| 4/10/2003 | 6.18 | 1.821 |
| 7/16/2003 | 6 | 1.792 |
| 10/14/2003 | 6.31 | 1.842 |
| 1/13/2004 | 6.24 | 1.831 |

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? Result <LL(1)? | LN(Result) | LN(Result) >TL(2)? LN(Result) <LL(2)? |
|----------|--------------|-----------|--------|----------------------------------|------------|--|
| MW370 | Downgradient | Yes | 6.18 | NO | 1.821 | N/A |
| MW373 | Downgradient | Yes | 6.21 | NO | 1.826 | N/A |
| MW385 | Sidegradient | Yes | 6.14 | NO | 1.815 | N/A |
| MW388 | Downgradient | Yes | 6.14 | NO | 1.815 | N/A |
| MW392 | Downgradient | Yes | 6.24 | NO | 1.831 | N/A |
| MW395 | Upgradient | Yes | 6.16 | NO | 1.818 | N/A |
| MW397 | Upgradient | Yes | 6.19 | NO | 1.823 | N/A |

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

Well Number: MW397

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 5.84 | 1.765 |
| 9/30/2002 | 6 | 1.792 |
| 10/17/2002 | 5.75 | 1.749 |
| 1/13/2003 | 6 | 1.792 |
| 4/8/2003 | 6.3 | 1.841 |
| 7/16/2003 | 6.2 | 1.825 |
| 10/14/2003 | 6.36 | 1.850 |
| 1/13/2004 | 6.32 | 1.844 |

Conclusion of Statistical Analysis on Historical Data

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

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

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

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

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

X Mean, $X = (\text{sum of background results})/(\text{count of background results})$

** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009. D1-84

C-746-S/T Second Quarter 2019 Statistical Analysis Historical Background Comparison

Potassium

UNITS: mg/L

LRGA

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

| | | | | | | |
|---|-------------------|------------------|----------------------|----------------------------|----------------------|-------------------|
| Statistics-Background Data | X = 1.590 | S = 0.642 | CV(1) =0.404 | K factor*** = 2.523 | TL(1) = 3.208 | LL(1) =N/A |
| Statistics-Transformed Background Data | X = -0.306 | S = 2.457 | CV(2) =-8.028 | K factor*** = 2.523 | TL(2) = 5.892 | LL(2) =N/A |

Historical Background Data from Upgradient Wells with Transformed Result

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

Well Number: MW395

| Date Collected | Result | LN(Result) |
|----------------|---------|------------|
| 8/13/2002 | 2 | 0.693 |
| 9/16/2002 | 2 | 0.693 |
| 10/16/2002 | 0.00129 | -6.653 |
| 1/13/2003 | 1.51 | 0.412 |
| 4/10/2003 | 1.67 | 0.513 |
| 7/16/2003 | 1.73 | 0.548 |
| 10/14/2003 | 1.7 | 0.531 |
| 1/13/2004 | 1.58 | 0.457 |

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|--------|----------------|------------|-------------------|
| MW370 | Downgradient | Yes | 2.46 | NO | 0.900 | N/A |
| MW373 | Downgradient | Yes | 2.43 | NO | 0.888 | N/A |
| MW385 | Sidegradient | Yes | 1.5 | NO | 0.405 | N/A |
| MW388 | Downgradient | Yes | 1.79 | NO | 0.582 | N/A |
| MW392 | Downgradient | Yes | 1.77 | NO | 0.571 | N/A |
| MW395 | Upgradient | Yes | 1.53 | NO | 0.425 | N/A |
| MW397 | Upgradient | Yes | 1.57 | NO | 0.451 | N/A |

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

Well Number: MW397

| Date Collected | Result | LN(Result) |
|----------------|---------|------------|
| 8/13/2002 | 2.03 | 0.708 |
| 9/16/2002 | 2 | 0.693 |
| 10/17/2002 | 0.00145 | -6.536 |
| 1/13/2003 | 1.69 | 0.525 |
| 4/8/2003 | 1.73 | 0.548 |
| 7/16/2003 | 2 | 0.693 |
| 10/14/2003 | 1.92 | 0.652 |
| 1/13/2004 | 1.87 | 0.626 |

Conclusion of Statistical Analysis on Historical Data

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

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

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

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

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

X Mean, $X = (\text{sum of background results})/(\text{count of background results})$

** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009. D1-85

C-746-S/T Second Quarter 2019 Statistical Analysis Historical Background Comparison

Sodium

UNITS: mg/L

LRGA

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

Statistics-Background Data X= 29.560 S= 13.894 CV(1)=0.470 **K factor***= 2.523** TL(1)= 64.616 LL(1)=N/A

Statistics-Transformed Background Data X= 2.615 S= 2.411 CV(2)=0.922 **K factor***= 2.523** TL(2)= 8.699 LL(2)=N/A

Historical Background Data from Upgradient Wells with Transformed Result

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

Well Number: MW395

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 27 | 3.296 |
| 9/16/2002 | 27.2 | 3.303 |
| 10/16/2002 | 0.0253 | -3.677 |
| 1/13/2003 | 22.6 | 3.118 |
| 4/10/2003 | 53.9 | 3.987 |
| 7/16/2003 | 30 | 3.401 |
| 10/14/2003 | 29.1 | 3.371 |
| 1/13/2004 | 26.4 | 3.273 |

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|--------|----------------|------------|-------------------|
| MW370 | Downgradient | Yes | 45.1 | NO | 3.809 | N/A |
| MW373 | Downgradient | Yes | 51.4 | NO | 3.940 | N/A |
| MW385 | Sidegradient | Yes | 45.6 | NO | 3.820 | N/A |
| MW388 | Downgradient | Yes | 45.5 | NO | 3.818 | N/A |
| MW392 | Downgradient | Yes | 42.3 | NO | 3.745 | N/A |
| MW395 | Upgradient | Yes | 30.6 | NO | 3.421 | N/A |
| MW397 | Upgradient | Yes | 36.2 | NO | 3.589 | N/A |

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

Well Number: MW397

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 35.2 | 3.561 |
| 9/16/2002 | 34.3 | 3.535 |
| 10/17/2002 | 0.0336 | -3.393 |
| 1/13/2003 | 31.3 | 3.444 |
| 4/8/2003 | 46.1 | 3.831 |
| 7/16/2003 | 38.4 | 3.648 |
| 10/14/2003 | 37.1 | 3.614 |
| 1/13/2004 | 34.3 | 3.535 |

Conclusion of Statistical Analysis on Historical Data

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

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

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

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

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

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

*** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009. D1-86

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Sulfate

UNITS: mg/L

LRGA

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

Statistics-Background Data X= 10.756 S= 2.147 CV(1)=0.200 K factor***= 2.523 TL(1)= 16.173 LL(1)=N/A

Statistics-Transformed Background Data X= 2.356 S= 0.203 CV(2)=0.086 K factor***= 2.523 TL(2)= 2.869 LL(2)=N/A

Historical Background Data from Upgradient Wells with Transformed Result

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

Well Number: MW395

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 10.3 | 2.332 |
| 9/16/2002 | 9.1 | 2.208 |
| 10/16/2002 | 8.8 | 2.175 |
| 1/13/2003 | 9 | 2.197 |
| 4/10/2003 | 8.3 | 2.116 |
| 7/16/2003 | 8.2 | 2.104 |
| 10/14/2003 | 8.3 | 2.116 |
| 1/13/2004 | 8.2 | 2.104 |

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|--------|----------------|------------|-------------------|
| MW370 | Downgradient | Yes | 20.7 | YES | 3.030 | N/A |
| MW373 | Downgradient | Yes | 126 | YES | 4.836 | N/A |
| MW385 | Sidegradient | Yes | 22.4 | YES | 3.109 | N/A |
| MW388 | Downgradient | Yes | 23.7 | YES | 3.165 | N/A |
| MW392 | Downgradient | Yes | 14.5 | NO | 2.674 | N/A |
| MW395 | Upgradient | Yes | 10.5 | NO | 2.351 | N/A |
| MW397 | Upgradient | Yes | 10 | NO | 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.

Well Number: MW397

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 14 | 2.639 |
| 9/16/2002 | 12.8 | 2.549 |
| 10/17/2002 | 12.3 | 2.510 |
| 1/13/2003 | 12.7 | 2.542 |
| 4/8/2003 | 12.8 | 2.549 |
| 7/16/2003 | 13.1 | 2.573 |
| 10/14/2003 | 12.1 | 2.493 |
| 1/13/2004 | 12.1 | 2.493 |

Conclusion of Statistical Analysis on Historical Data

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

Wells with Exceedances

- MW370
- MW373
- MW385
- MW388

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

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

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

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

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

** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009. D1-87

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Technetium-99

UNITS: pCi/L

LRGA

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

Statistics-Background Data X= 11.359 S= 9.138 CV(1)=0.805 K factor***= 2.523 TL(1)= 34.414 LL(1)=N/A

Statistics-Transformed Background Data X= 2.398 S= 0.859 CV(2)=0.358 K factor***= 2.523 TL(2)= 3.246 LL(2)=N/A

Historical Background Data from Upgradient Wells with Transformed Result

Well Number: MW395

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 20.8 | 3.035 |
| 9/16/2002 | 16.2 | 2.785 |
| 10/16/2002 | 8.28 | 2.114 |
| 1/13/2003 | 13 | 2.565 |
| 4/10/2003 | -9.37 | #Func! |
| 7/16/2003 | 0.826 | -0.191 |
| 10/14/2003 | 14.1 | 2.646 |
| 1/13/2004 | 0 | #Func! |

Well Number: MW397

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 6.06 | 1.802 |
| 9/16/2002 | 17.3 | 2.851 |
| 10/17/2002 | 25.7 | 3.246 |
| 1/13/2003 | 20.9 | 3.040 |
| 4/8/2003 | 20.1 | 3.001 |
| 7/16/2003 | 9.2 | 2.219 |
| 10/14/2003 | 10.1 | 2.313 |
| 1/13/2004 | 8.54 | 2.145 |

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

#Because the natural log was not possible for all background values, the TL was considered equal to the maximum background value.

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|--------|----------------|------------|-------------------|
| MW370 | Downgradient | Yes | 111 | YES | 4.710 | N/A |
| MW373 | Downgradient | Yes | 22.7 | NO | 3.122 | N/A |
| MW385 | Sidegradient | Yes | 164 | YES | 5.100 | N/A |
| MW388 | Downgradient | Yes | 139 | YES | 4.934 | N/A |
| MW392 | Downgradient | No | 2.84 | N/A | 1.044 | N/A |
| MW395 | Upgradient | No | 11.2 | N/A | 2.416 | N/A |
| MW397 | Upgradient | Yes | 32.1 | NO | 3.469 | N/A |

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

Conclusion of Statistical Analysis on Historical Data

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

Wells with Exceedances

- MW370
- MW385
- MW388

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

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

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

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

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

*** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009. D1-88

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Total Organic Carbon (TOC)

UNITS: mg/L

LRGA

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

| | | | | | | |
|---|------------------|------------------|---------------------|----------------------------|----------------------|-------------------|
| Statistics-Background Data | X = 1.544 | S = 0.856 | CV(1) =0.554 | K factor*** = 2.523 | TL(1) = 3.702 | LL(1) =N/A |
| Statistics-Transformed Background Data | X = 0.325 | S = 0.452 | CV(2) =1.393 | K factor*** = 2.523 | TL(2) = 1.465 | LL(2) =N/A |

Historical Background Data from Upgradient Wells with Transformed Result

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

Well Number: MW395

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 1.6 | 0.470 |
| 9/16/2002 | 1.1 | 0.095 |
| 10/16/2002 | 1 | 0.000 |
| 1/13/2003 | 2 | 0.693 |
| 4/10/2003 | 3.4 | 1.224 |
| 7/16/2003 | 2 | 0.693 |
| 10/14/2003 | 1 | 0.000 |
| 1/13/2004 | 1 | 0.000 |

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|--------|----------------|------------|-------------------|
| MW370 | Downgradient | Yes | 0.964 | NO | -0.037 | N/A |
| MW373 | Downgradient | Yes | 1.28 | NO | 0.247 | N/A |
| MW385 | Sidegradient | Yes | 1.07 | NO | 0.068 | N/A |
| MW388 | Downgradient | Yes | 1.14 | NO | 0.131 | N/A |
| MW392 | Downgradient | Yes | 1.15 | NO | 0.140 | N/A |
| MW395 | Upgradient | Yes | 0.904 | NO | -0.101 | N/A |
| MW397 | Upgradient | Yes | 0.784 | NO | -0.243 | N/A |

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

Well Number: MW397

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 1 | 0.000 |
| 9/16/2002 | 1 | 0.000 |
| 10/17/2002 | 1 | 0.000 |
| 1/13/2003 | 3.6 | 1.281 |
| 4/8/2003 | 1.9 | 0.642 |
| 7/16/2003 | 1.1 | 0.095 |
| 10/14/2003 | 1 | 0.000 |
| 1/13/2004 | 1 | 0.000 |

Conclusion of Statistical Analysis on Historical Data

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

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

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

S Standard Deviation, $S = \sqrt{[\text{Sum} \{((\text{background result}-X)^2)/[\text{count of background results} - 1]\}]^{0.5}}$

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

X Mean, $X = (\text{sum of background results})/(\text{count of background results})$

** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009. D1-89

C-746-S/T Second Quarter 2019 Statistical Analysis Historical Background Comparison

Total Organic Halides (TOX)

UNITS: ug/L

LRGA

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

Statistics-Background Data X= 31.513 S= 18.609 CV(1)=0.591 K factor***= 2.523 TL(1)= 78.462 LL(1)=N/A

Statistics-Transformed Background Data X= 3.240 S= 0.707 CV(2)=0.218 K factor***= 2.523 TL(2)= 5.024 LL(2)=N/A

Historical Background Data from Upgradient Wells with Transformed Result

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

Well Number: MW395

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 50 | 3.912 |
| 9/16/2002 | 50 | 3.912 |
| 10/16/2002 | 50 | 3.912 |
| 1/13/2003 | 18.3 | 2.907 |
| 4/10/2003 | 51.2 | 3.936 |
| 7/16/2003 | 42.6 | 3.752 |
| 10/14/2003 | 12.3 | 2.510 |
| 1/13/2004 | 10 | 2.303 |

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|--------|----------------|------------|-------------------|
| MW370 | Downgradient | No | 5.14 | N/A | 1.637 | N/A |
| MW373 | Downgradient | Yes | 10.5 | NO | 2.351 | N/A |
| MW385 | Sidegradient | Yes | 11.4 | NO | 2.434 | N/A |
| MW388 | Downgradient | Yes | 12.9 | NO | 2.557 | N/A |
| MW392 | Downgradient | Yes | 22.7 | NO | 3.122 | N/A |
| MW395 | Upgradient | Yes | 4.34 | NO | 1.468 | N/A |
| MW397 | Upgradient | Yes | 8.8 | NO | 2.175 | N/A |

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

Well Number: MW397

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 50 | 3.912 |
| 9/16/2002 | 50 | 3.912 |
| 10/17/2002 | 50 | 3.912 |
| 1/13/2003 | 12 | 2.485 |
| 4/8/2003 | 19.9 | 2.991 |
| 7/16/2003 | 17.9 | 2.885 |
| 10/14/2003 | 10 | 2.303 |
| 1/13/2004 | 10 | 2.303 |

Conclusion of Statistical Analysis on Historical Data

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

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

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

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

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

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

*** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009. D1-90

C-746-S/T Second Quarter 2019 Statistical Analysis Historical Background Comparison

Trichloroethene

UNITS: ug/L

LRGA

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

| | | | | | | |
|---|------------------|------------------|---------------------|----------------------------|-----------------------|-------------------|
| Statistics-Background Data | X = 7.313 | S = 5.701 | CV(1) =0.780 | K factor*** = 2.523 | TL(1) = 21.695 | LL(1) =N/A |
| Statistics-Transformed Background Data | X = 1.467 | S = 1.213 | CV(2) =0.827 | K factor*** = 2.523 | TL(2) = 4.528 | LL(2) =N/A |

Historical Background Data from Upgradient Wells with Transformed Result

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

Well Number: MW395

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 11 | 2.398 |
| 9/30/2002 | 14 | 2.639 |
| 10/16/2002 | 12 | 2.485 |
| 1/13/2003 | 14 | 2.639 |
| 4/10/2003 | 14 | 2.639 |
| 7/16/2003 | 13 | 2.565 |
| 10/14/2003 | 12 | 2.485 |
| 1/13/2004 | 11 | 2.398 |

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|--------|----------------|------------|-------------------|
| MW370 | Downgradient | Yes | 0.55 | N/A | -0.598 | N/A |
| MW373 | Downgradient | Yes | 5.2 | NO | 1.649 | N/A |
| MW385 | Sidegradient | Yes | 0.41 | N/A | -0.892 | N/A |
| MW388 | Downgradient | Yes | 0.47 | N/A | -0.755 | N/A |
| MW392 | Downgradient | Yes | 11.2 | NO | 2.416 | N/A |
| MW395 | Upgradient | Yes | 2.98 | N/A | 1.092 | N/A |
| MW397 | Upgradient | No | 1 | N/A | 0.000 | N/A |

Well Number: MW397

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 5 | 1.609 |
| 9/30/2002 | 5 | 1.609 |
| 10/17/2002 | 1 | 0.000 |
| 1/13/2003 | 1 | 0.000 |
| 4/8/2003 | 1 | 0.000 |
| 7/16/2003 | 1 | 0.000 |
| 10/14/2003 | 1 | 0.000 |
| 1/13/2004 | 1 | 0.000 |

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

Conclusion of Statistical Analysis on Historical Data

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

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

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

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

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

X Mean, $X = (\text{sum of background results})/(\text{count of background results})$

** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009. D1-91

C-746-S/T Second Quarter 2019 Statistical Analysis Historical Background Comparison

Vanadium

UNITS: mg/L

LRGA

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

| | | | | | | |
|---|-----------|----------|--------------|--------------------|---------------|-----------|
| Statistics-Background Data | X= 0.021 | S= 0.002 | CV(1)=0.105 | K factor***= 2.523 | TL(1)= 0.027 | LL(1)=N/A |
| Statistics-Transformed Background Data | X= -3.856 | S= 0.100 | CV(2)=-0.026 | K factor***= 2.523 | TL(2)= -3.604 | LL(2)=N/A |

Historical Background Data from Upgradient Wells with Transformed Result

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

Well Number: MW395

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 0.025 | -3.689 |
| 9/16/2002 | 0.025 | -3.689 |
| 10/16/2002 | 0.02 | -3.912 |
| 1/13/2003 | 0.02 | -3.912 |
| 7/16/2003 | 0.02 | -3.912 |
| 10/14/2003 | 0.02 | -3.912 |
| 1/13/2004 | 0.02 | -3.912 |
| 4/12/2004 | 0.02 | -3.912 |

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|---------|----------------|------------|-------------------|
| MW370 | Downgradient | No | 0.00499 | N/A | -5.300 | N/A |
| MW373 | Downgradient | No | 0.00646 | N/A | -5.042 | N/A |
| MW385 | Sidegradient | Yes | 0.00524 | NO | -5.251 | N/A |
| MW388 | Downgradient | Yes | 0.00567 | NO | -5.173 | N/A |
| MW392 | Downgradient | No | 0.0139 | N/A | -4.276 | N/A |
| MW395 | Upgradient | No | 0.02 | N/A | -3.912 | N/A |
| MW397 | Upgradient | No | 0.0135 | N/A | -4.305 | N/A |

Well Number: MW397

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 0.025 | -3.689 |
| 9/16/2002 | 0.025 | -3.689 |
| 10/17/2002 | 0.02 | -3.912 |
| 1/13/2003 | 0.02 | -3.912 |
| 4/8/2003 | 0.02 | -3.912 |
| 7/16/2003 | 0.02 | -3.912 |
| 10/14/2003 | 0.02 | -3.912 |
| 1/13/2004 | 0.02 | -3.912 |

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

Conclusion of Statistical Analysis on Historical Data

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

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

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

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

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

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

*** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009. D1-92

C-746-S/T Second Quarter 2019 Statistical Analysis Historical Background Comparison

Zinc

UNITS: mg/L

LRGA

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

| | | | | | | |
|---|-------------------|------------------|----------------------|----------------------------|-----------------------|-------------------|
| Statistics-Background Data | X = 0.044 | S = 0.034 | CV(1) =0.760 | K factor*** = 2.523 | TL(1) = 0.129 | LL(1) =N/A |
| Statistics-Transformed Background Data | X = -3.342 | S = 0.659 | CV(2) =-0.197 | K factor*** = 2.523 | TL(2) = -1.679 | LL(2) =N/A |

Historical Background Data from Upgradient Wells with Transformed Result

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

Well Number: MW395

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 0.1 | -2.303 |
| 9/16/2002 | 0.1 | -2.303 |
| 10/16/2002 | 0.025 | -3.689 |
| 1/13/2003 | 0.035 | -3.352 |
| 4/10/2003 | 0.035 | -3.352 |
| 7/16/2003 | 0.02 | -3.912 |
| 10/14/2003 | 0.02 | -3.912 |
| 1/13/2004 | 0.02 | -3.912 |

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|---------|----------------|------------|-------------------|
| MW370 | Downgradient | No | 0.02 | N/A | -3.912 | N/A |
| MW373 | Downgradient | No | 0.02 | N/A | -3.912 | N/A |
| MW385 | Sidegradient | Yes | 0.00386 | NO | -5.557 | N/A |
| MW388 | Downgradient | No | 0.02 | N/A | -3.912 | N/A |
| MW392 | Downgradient | Yes | 0.00352 | NO | -5.649 | N/A |
| MW395 | Upgradient | Yes | 0.00334 | NO | -5.702 | N/A |
| MW397 | Upgradient | Yes | 0.00386 | NO | -5.557 | N/A |

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

Well Number: MW397

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 8/13/2002 | 0.1 | -2.303 |
| 9/16/2002 | 0.1 | -2.303 |
| 10/17/2002 | 0.025 | -3.689 |
| 1/13/2003 | 0.035 | -3.352 |
| 4/8/2003 | 0.035 | -3.352 |
| 7/16/2003 | 0.02 | -3.912 |
| 10/14/2003 | 0.02 | -3.912 |
| 1/13/2004 | 0.02 | -3.912 |

Conclusion of Statistical Analysis on Historical Data

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

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

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

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

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

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

** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009. D1-93

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ATTACHMENT D2

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

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C-746-S/T Second Quarter 2019 Statistical Analysis Current Background Comparison

Beta activity

UNITS: pCi/L

URGA

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

Statistics-Background Data X= 10.292 S= 7.571 CV(1)=0.736 **K factor**= 2.523** TL(1)= 29.394 LL(1)=N/A

Statistics-Transformed Background Data X= 2.341 S= 0.598 CV(2)=0.255 **K factor**= 2.523** TL(2)= 3.135 LL(2)=N/A

Current Background Data from Upgradient Wells with Transformed Result

Well Number: MW220

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 4/19/2017 | 20.1 | 3.001 |
| 7/19/2017 | 22.5 | 3.114 |
| 10/9/2017 | 13.1 | 2.573 |
| 1/23/2018 | 12.8 | 2.549 |
| 4/17/2018 | 14.4 | 2.667 |
| 7/19/2018 | 8.64 | 2.156 |
| 10/15/2018 | 12.2 | 2.501 |
| 1/22/2019 | 23 | 3.135 |

Well Number: MW394

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 4/20/2017 | 9.09 | 2.207 |
| 7/19/2017 | 6.29 | 1.839 |
| 10/9/2017 | -0.603 | #Func! |
| 1/23/2018 | -3.27 | #Func! |
| 4/19/2018 | 8.1 | 2.092 |
| 7/19/2018 | 2.94 | 1.078 |
| 10/22/2018 | 11.1 | 2.407 |
| 1/23/2019 | 4.28 | 1.454 |

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

#Because the natural log was not possible for all background values, the TL was considered equal to the maximum background value.

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|--------|----------------|------------|-------------------|
| MW369 | Downgradient | Yes | 83.7 | YES | 4.427 | N/A |
| MW384 | Sidegradient | Yes | 97 | YES | 4.575 | N/A |
| MW387 | Downgradient | Yes | 135 | YES | 4.905 | N/A |

Conclusion of Statistical Analysis on Current Data

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

Wells with Exceedances

MW369
MW384
MW387

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

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

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

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

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

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

C-746-S/T Second Quarter 2019 Statistical Analysis Current Background Comparison

Calcium

UNITS: mg/L

URGA

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

Statistics-Background Data X= 24.325 S= 2.997 CV(1)=0.123 **K factor**= 2.523** TL(1)= 31.886 LL(1)=N/A

Statistics-Transformed Background Data X= 3.184 S= 0.128 CV(2)=0.040 **K factor**= 2.523** TL(2)= 3.508 LL(2)=N/A

Current Background Data from Upgradient Wells with Transformed Result

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

Well Number: MW220

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 4/19/2017 | 20.8 | 3.035 |
| 7/19/2017 | 22.7 | 3.122 |
| 10/9/2017 | 19.9 | 2.991 |
| 1/23/2018 | 18.8 | 2.934 |
| 4/17/2018 | 22.6 | 3.118 |
| 7/19/2018 | 25.5 | 3.239 |
| 10/15/2018 | 20.6 | 3.025 |
| 1/22/2019 | 26 | 3.258 |

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|--------|----------------|------------|-------------------|
| MW372 | Downgradient | Yes | 49.7 | YES | 3.906 | N/A |

Well Number: MW394

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 4/20/2017 | 27.9 | 3.329 |
| 7/19/2017 | 26.1 | 3.262 |
| 10/9/2017 | 25.7 | 3.246 |
| 1/23/2018 | 26 | 3.258 |
| 4/19/2018 | 25.4 | 3.235 |
| 7/19/2018 | 27.9 | 3.329 |
| 10/22/2018 | 25.4 | 3.235 |
| 1/23/2019 | 27.9 | 3.329 |

Conclusion of Statistical Analysis on Current Data

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

Wells with Exceedances

MW372

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

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

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

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

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

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

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Dissolved Solids

UNITS: mg/L

URGA

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

Statistics-Background Data X= 213.750 S= 69.035 CV(1)=0.323 **K factor**= 2.523** TL(1)= 387.925 LL(1)=N/A

Statistics-Transformed Background Data X= 5.331 S= 0.249 CV(2)=0.047 **K factor**= 2.523** TL(2)= 5.960 LL(2)=N/A

Current Background Data from Upgradient Wells with Transformed Result

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

Well Number: MW220

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 4/19/2017 | 193 | 5.263 |
| 7/19/2017 | 451 | 6.111 |
| 10/9/2017 | 147 | 4.990 |
| 1/23/2018 | 163 | 5.094 |
| 4/17/2018 | 183 | 5.209 |
| 7/19/2018 | 207 | 5.333 |
| 10/15/2018 | 226 | 5.421 |
| 1/22/2019 | 209 | 5.342 |

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|--------|----------------|------------|-------------------|
| MW372 | Downgradient | Yes | 309 | NO | 5.733 | N/A |

Well Number: MW394

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 4/20/2017 | 203 | 5.313 |
| 7/19/2017 | 203 | 5.313 |
| 10/9/2017 | 170 | 5.136 |
| 1/23/2018 | 187 | 5.231 |
| 4/19/2018 | 271 | 5.602 |
| 7/19/2018 | 204 | 5.318 |
| 10/22/2018 | 206 | 5.328 |
| 1/23/2019 | 197 | 5.283 |

Conclusion of Statistical Analysis on Current Data

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

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

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

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

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

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

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

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Magnesium

UNITS: mg/L

URGA

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

Statistics-Background Data X= 10.488 S= 1.309 CV(1)=0.125 **K factor**= 2.523** TL(1)= 13.790 LL(1)=N/A

Statistics-Transformed Background Data X= 2.342 S= 0.131 CV(2)=0.056 **K factor**= 2.523** TL(2)= 2.672 LL(2)=N/A

Current Background Data from Upgradient Wells with Transformed Result

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

Well Number: MW220

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 4/19/2017 | 9.11 | 2.209 |
| 7/19/2017 | 9.36 | 2.236 |
| 10/9/2017 | 8.67 | 2.160 |
| 1/23/2018 | 8.04 | 2.084 |
| 4/17/2018 | 9.63 | 2.265 |
| 7/19/2018 | 11.1 | 2.407 |
| 10/15/2018 | 8.8 | 2.175 |
| 1/22/2019 | 10.8 | 2.380 |

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|--------|----------------|------------|-------------------|
| MW372 | Downgradient | Yes | 18.2 | YES | 2.901 | N/A |

Well Number: MW394

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 4/20/2017 | 11.6 | 2.451 |
| 7/19/2017 | 11.4 | 2.434 |
| 10/9/2017 | 11.4 | 2.434 |
| 1/23/2018 | 11.5 | 2.442 |
| 4/19/2018 | 11.7 | 2.460 |
| 7/19/2018 | 12 | 2.485 |
| 10/22/2018 | 11.3 | 2.425 |
| 1/23/2019 | 11.4 | 2.434 |

Conclusion of Statistical Analysis on Current Data

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

Wells with Exceedances

MW372

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

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

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

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

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

** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009. D2-10

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Sodium

UNITS: mg/L

URGA

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

Statistics-Background Data X= 37.163 S= 6.336 CV(1)=0.170 **K factor**= 2.523** TL(1)= 53.148 LL(1)=N/A

Statistics-Transformed Background Data X= 3.602 S= 0.169 CV(2)=0.047 **K factor**= 2.523** TL(2)= 4.027 LL(2)=N/A

Current Background Data from Upgradient Wells with Transformed Result

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

Well Number: MW220

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 4/19/2017 | 41.4 | 3.723 |
| 7/19/2017 | 42 | 3.738 |
| 10/9/2017 | 40.9 | 3.711 |
| 1/23/2018 | 38.8 | 3.658 |
| 4/17/2018 | 44.6 | 3.798 |
| 7/19/2018 | 49.6 | 3.904 |
| 10/15/2018 | 39 | 3.664 |
| 1/22/2019 | 45.1 | 3.809 |

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|--------|----------------|------------|-------------------|
| MW387 | Downgradient | Yes | 58.6 | YES | 4.071 | N/A |

Well Number: MW394

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 4/20/2017 | 30.7 | 3.424 |
| 7/19/2017 | 28.7 | 3.357 |
| 10/9/2017 | 33.6 | 3.515 |
| 1/23/2018 | 33.5 | 3.512 |
| 4/19/2018 | 30.4 | 3.414 |
| 7/19/2018 | 30.2 | 3.408 |
| 10/22/2018 | 33.4 | 3.509 |
| 1/23/2019 | 32.7 | 3.487 |

Conclusion of Statistical Analysis on Current Data

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

Wells with Exceedances

MW387

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

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

S Standard Deviation, $S = \sqrt{[\text{Sum } ((\text{background result}-X)^2)/[\text{count of background results } -1]]}^{0.5}$

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

X Mean, $X = (\text{sum of background results})/(\text{count of background results})$

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

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Sulfate

UNITS: mg/L

URGA

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

Statistics-Background Data X= 15.300 S= 5.341 CV(1)=0.349 **K factor**= 2.523** TL(1)= 28.776 LL(1)=N/A

Statistics-Transformed Background Data X= 2.671 S= 0.345 CV(2)=0.129 **K factor**= 2.523** TL(2)= 3.542 LL(2)=N/A

Current Background Data from Upgradient Wells with Transformed Result

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

Well Number: MW220

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 4/19/2017 | 19.9 | 2.991 |
| 7/19/2017 | 22.7 | 3.122 |
| 10/9/2017 | 17.6 | 2.868 |
| 1/23/2018 | 16.4 | 2.797 |
| 4/17/2018 | 21.1 | 3.049 |
| 7/19/2018 | 24.7 | 3.207 |
| 10/15/2018 | 16.9 | 2.827 |
| 1/22/2019 | 21.4 | 3.063 |

Well Number: MW394

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 4/20/2017 | 10.5 | 2.351 |
| 7/19/2017 | 10.2 | 2.322 |
| 10/9/2017 | 10.5 | 2.351 |
| 1/23/2018 | 10.4 | 2.342 |
| 4/19/2018 | 10.4 | 2.342 |
| 7/19/2018 | 10.5 | 2.351 |
| 10/22/2018 | 10.6 | 2.361 |
| 1/23/2019 | 11 | 2.398 |

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|--------|----------------|------------|-------------------|
| MW220 | Upgradient | Yes | 24.1 | NO | 3.182 | N/A |
| MW223 | Sidegradient | Yes | 20.5 | NO | 3.020 | N/A |
| MW372 | Downgradient | Yes | 71.3 | YES | 4.267 | N/A |
| MW384 | Sidegradient | Yes | 22.8 | NO | 3.127 | N/A |
| MW387 | Downgradient | Yes | 20.8 | NO | 3.035 | N/A |
| MW391 | Downgradient | Yes | 57.5 | YES | 4.052 | N/A |

Conclusion of Statistical Analysis on Current Data

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

Wells with Exceedances

MW372
MW391

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

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

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

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

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

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

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Technetium-99

UNITS: pCi/L

URGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is 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= 14.120 S= 7.706 CV(1)=0.546 **K factor**= 2.523** TL(1)= 33.563 LL(1)=N/A

Statistics-Transformed Background Data X= 2.283 S= 1.274 CV(2)=0.558 **K factor**= 2.523** TL(2)= 5.498 LL(2)=N/A

Current Background Data from Upgradient Wells with Transformed Result

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

Well Number: MW220

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 4/19/2017 | 20.7 | 3.030 |
| 7/19/2017 | 22.7 | 3.122 |
| 10/9/2017 | 18.3 | 2.907 |
| 1/23/2018 | 27.4 | 3.311 |
| 4/17/2018 | 19.9 | 2.991 |
| 7/19/2018 | 14 | 2.639 |
| 10/15/2018 | 20.8 | 3.035 |
| 1/22/2019 | 19.4 | 2.965 |

Well Number: MW394

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 4/20/2017 | 7.82 | 2.057 |
| 7/19/2017 | 11.1 | 2.407 |
| 10/9/2017 | 1.99 | 0.688 |
| 1/23/2018 | 6.15 | 1.816 |
| 4/19/2018 | 0.158 | -1.845 |
| 7/19/2018 | 10.6 | 2.361 |
| 10/22/2018 | 13.4 | 2.595 |
| 1/23/2019 | 11.5 | 2.442 |

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|--------|----------------|------------|-------------------|
| MW369 | Downgradient | Yes | 70.8 | YES | 4.260 | N/A |
| MW372 | Downgradient | Yes | 59.4 | YES | 4.084 | N/A |
| MW384 | Sidegradient | Yes | 155 | YES | 5.043 | N/A |
| MW387 | Downgradient | Yes | 229 | YES | 5.434 | N/A |

Conclusion of Statistical Analysis on Current Data

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

Wells with Exceedances

- MW369
- MW372
- MW384
- MW387

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

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

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

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

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

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

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Beta activity

UNITS: pCi/L

LRGA

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

Statistics-Background Data X= 7.833 S= 2.999 CV(1)=0.383 **K factor**= 2.523** TL(1)= 15.399 LL(1)=N/A

Statistics-Transformed Background Data X= 1.983 S= 0.417 CV(2)=0.210 **K factor**= 2.523** TL(2)= 3.034 LL(2)=N/A

Current Background Data from Upgradient Wells with Transformed Result

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

Well Number: MW395

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 4/20/2017 | 7.61 | 2.029 |
| 7/19/2017 | 5.16 | 1.641 |
| 10/9/2017 | 8.17 | 2.100 |
| 1/23/2018 | 7.59 | 2.027 |
| 4/19/2018 | 5.4 | 1.686 |
| 7/19/2018 | 7.89 | 2.066 |
| 10/22/2018 | 9.41 | 2.242 |
| 1/23/2019 | 5.24 | 1.656 |

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|--------|----------------|------------|-------------------|
| MW370 | Downgradient | Yes | 61 | YES | 4.111 | N/A |
| MW385 | Sidegradient | Yes | 138 | YES | 4.927 | N/A |
| MW388 | Downgradient | Yes | 76.7 | YES | 4.340 | N/A |

Well Number: MW397

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 4/20/2017 | 12.1 | 2.493 |
| 7/19/2017 | 9.5 | 2.251 |
| 10/9/2017 | 11.9 | 2.477 |
| 1/23/2018 | 2.66 | 0.978 |
| 4/17/2018 | 5.57 | 1.717 |
| 7/19/2018 | 13.8 | 2.625 |
| 10/15/2018 | 5.14 | 1.637 |
| 1/23/2019 | 8.19 | 2.103 |

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
- MW385
- MW388

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

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

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

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

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

** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009. D2-15

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Calcium

UNITS: mg/L

LRGA

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

Statistics-Background Data X= 22.063 S= 4.193 CV(1)=0.190 **K factor**= 2.523** TL(1)= 32.642 LL(1)=N/A

Statistics-Transformed Background Data X= 3.077 S= 0.192 CV(2)=0.062 **K factor**= 2.523** TL(2)= 3.561 LL(2)=N/A

Current Background Data from Upgradient Wells with Transformed Result

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

Well Number: MW395

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 4/20/2017 | 28.2 | 3.339 |
| 7/19/2017 | 26.2 | 3.266 |
| 10/9/2017 | 25.3 | 3.231 |
| 1/23/2018 | 24.5 | 3.199 |
| 4/19/2018 | 24.5 | 3.199 |
| 7/19/2018 | 27.1 | 3.300 |
| 10/22/2018 | 24.4 | 3.195 |
| 1/23/2019 | 27.3 | 3.307 |

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|--------|----------------|------------|-------------------|
| MW373 | Downgradient | Yes | 64 | YES | 4.159 | N/A |

Well Number: MW397

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 4/20/2017 | 18.2 | 2.901 |
| 7/19/2017 | 17.2 | 2.845 |
| 10/9/2017 | 18.7 | 2.929 |
| 1/23/2018 | 19.4 | 2.965 |
| 4/17/2018 | 16.8 | 2.821 |
| 7/19/2018 | 16.9 | 2.827 |
| 10/15/2018 | 19.3 | 2.960 |
| 1/23/2019 | 19 | 2.944 |

Conclusion of Statistical Analysis on Current Data

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

Wells with Exceedances

MW373

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

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

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

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

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

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

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Chloride

UNITS: mg/L

LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is 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= 40.006 S= 6.032 CV(1)=0.151 **K factor**= 2.523** TL(1)= 55.225 LL(1)=N/A

Statistics-Transformed Background Data X= 3.679 S= 0.149 CV(2)=0.041 **K factor**= 2.523** TL(2)= 4.055 LL(2)=N/A

Current Background Data from Upgradient Wells with Transformed Result

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

Well Number: MW395

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 4/20/2017 | 51.6 | 3.944 |
| 7/19/2017 | 48.1 | 3.873 |
| 10/9/2017 | 43 | 3.761 |
| 1/23/2018 | 40.6 | 3.704 |
| 4/19/2018 | 46.5 | 3.839 |
| 7/19/2018 | 47.5 | 3.861 |
| 10/22/2018 | 39.9 | 3.686 |
| 1/23/2019 | 41.7 | 3.731 |

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|--------|----------------|------------|-------------------|
| MW392 | Downgradient | Yes | 103 | YES | 4.635 | N/A |

Well Number: MW397

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 4/20/2017 | 35.5 | 3.570 |
| 7/19/2017 | 34 | 3.526 |
| 10/9/2017 | 37.6 | 3.627 |
| 1/23/2018 | 39.1 | 3.666 |
| 4/17/2018 | 30.7 | 3.424 |
| 7/19/2018 | 33.5 | 3.512 |
| 10/15/2018 | 36.1 | 3.586 |
| 1/23/2019 | 34.7 | 3.547 |

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

MW392

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, $CV = S/X$ If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, $S = [\text{Sum}([(background\ result-X)^2]/[\text{count of background results} - 1])]^{0.5}$

TL Upper Tolerance Limit, $TL = X + (K * S)$, LL Lower Tolerance Limit, $LL = X - (K * S)$

X Mean, $X = (\text{sum of background results})/(\text{count of background results})$

** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009.

C-746-S/T Second Quarter 2019 Statistical Analysis Current Background Comparison

Conductivity

UNITS: umho/cm

LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is statistically significant evidence of elevated concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data X= 350.750 S= 32.840 CV(1)=0.094 **K factor**= 2.523** TL(1)= 433.605 LL(1)=N/A

Statistics-Transformed Background Data X= 5.856 S= 0.094 CV(2)=0.016 **K factor**= 2.523** TL(2)= 6.092 LL(2)=N/A

Current Background Data from Upgradient Wells with Transformed Result

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Well Number: MW395

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 4/20/2017 | 392 | 5.971 |
| 7/19/2017 | 392 | 5.971 |
| 10/9/2017 | 378 | 5.935 |
| 1/23/2018 | 384 | 5.951 |
| 4/19/2018 | 372 | 5.919 |
| 7/19/2018 | 396 | 5.981 |
| 10/22/2018 | 375 | 5.927 |
| 1/23/2019 | 359 | 5.883 |

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|--------|----------------|------------|-------------------|
| MW373 | Downgradient | Yes | 767 | YES | 6.642 | N/A |

Well Number: MW397

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 4/20/2017 | 320 | 5.768 |
| 7/19/2017 | 315 | 5.753 |
| 10/9/2017 | 333 | 5.808 |
| 1/23/2018 | 326 | 5.787 |
| 4/17/2018 | 307 | 5.727 |
| 8/21/2018 | 326 | 5.787 |
| 10/15/2018 | 321 | 5.771 |
| 1/23/2019 | 316 | 5.756 |

Conclusion of Statistical Analysis on Current Data

The test well(s) listed exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to current background data.

Wells with Exceedances

MW373

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, $CV = S/X$ If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, $S = \sqrt{[\text{Sum } ((\text{background result}-X)^2)/[\text{count of background results} - 1]]}^{0.5}$

TL Upper Tolerance Limit, $TL = X + (K * S)$, LL Lower Tolerance Limit, $LL = X - (K * S)$

X Mean, $X = (\text{sum of background results})/(\text{count of background results})$

** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009. D2-19

C-746-S/T Second Quarter 2019 Statistical Analysis Current Background Comparison

Dissolved Solids

UNITS: mg/L

LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is statistically significant evidence of elevated concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data X= 186.688 S= 39.128 CV(1)=0.210 **K factor**= 2.523** TL(1)= 285.408 LL(1)=N/A

Statistics-Transformed Background Data X= 5.211 S= 0.197 CV(2)=0.038 **K factor**= 2.523** TL(2)= 5.709 LL(2)=N/A

Current Background Data from Upgradient Wells with Transformed Result

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Well Number: MW395

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 4/20/2017 | 204 | 5.318 |
| 7/19/2017 | 210 | 5.347 |
| 10/9/2017 | 163 | 5.094 |
| 1/23/2018 | 176 | 5.170 |
| 4/19/2018 | 257 | 5.549 |
| 7/19/2018 | 203 | 5.313 |
| 10/22/2018 | 176 | 5.170 |
| 1/23/2019 | 284 | 5.649 |

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|--------|----------------|------------|-------------------|
| MW373 | Downgradient | Yes | 401 | YES | 5.994 | N/A |

Well Number: MW397

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 4/20/2017 | 180 | 5.193 |
| 7/19/2017 | 171 | 5.142 |
| 10/9/2017 | 156 | 5.050 |
| 1/23/2018 | 179 | 5.187 |
| 4/17/2018 | 124 | 4.820 |
| 7/19/2018 | 160 | 5.075 |
| 10/15/2018 | 184 | 5.215 |
| 1/23/2019 | 160 | 5.075 |

Conclusion of Statistical Analysis on Current Data

The test well(s) listed exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to current background data.

Wells with Exceedances

MW373

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, $CV = S/X$ If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, $S = \sqrt{[\text{Sum} ((\text{background result}-X)^2)/[\text{count of background results} - 1]]^{0.5}}$

TL Upper Tolerance Limit, $TL = X + (K * S)$, LL Lower Tolerance Limit, $LL = X - (K * S)$

X Mean, $X = (\text{sum of background results})/(\text{count of background results})$

** *Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009.*

C-746-S/T Second Quarter 2019 Statistical Analysis Current Background Comparison

Magnesium

UNITS: mg/L

LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is statistically significant evidence of elevated concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data X= 9.532 S= 1.804 CV(1)=0.189 **K factor**= 2.523** TL(1)= 14.085 LL(1)=N/A

Statistics-Transformed Background Data X= 2.237 S= 0.194 CV(2)=0.087 **K factor**= 2.523** TL(2)= 2.727 LL(2)=N/A

Current Background Data from Upgradient Wells with Transformed Result

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Well Number: MW395

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 4/20/2017 | 11.6 | 2.451 |
| 7/19/2017 | 10.9 | 2.389 |
| 10/9/2017 | 11.4 | 2.434 |
| 1/23/2018 | 10.8 | 2.380 |
| 4/19/2018 | 11.4 | 2.434 |
| 7/19/2018 | 11.7 | 2.460 |
| 10/22/2018 | 10.7 | 2.370 |
| 1/23/2019 | 11.2 | 2.416 |

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|--------|----------------|------------|-------------------|
| MW373 | Downgradient | Yes | 23.7 | YES | 3.165 | N/A |

Well Number: MW397

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 4/20/2017 | 7.83 | 2.058 |
| 7/19/2017 | 7.37 | 1.997 |
| 10/9/2017 | 8.41 | 2.129 |
| 1/23/2018 | 8.61 | 2.153 |
| 4/17/2018 | 6.89 | 1.930 |
| 7/19/2018 | 7.38 | 1.999 |
| 10/15/2018 | 8.48 | 2.138 |
| 1/23/2019 | 7.84 | 2.059 |

Conclusion of Statistical Analysis on Current Data

The test well(s) listed exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to current background data.

Wells with Exceedances

MW373

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ((background result-X)^2)/[count of background results -1]]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009. D2-21

C-746-S/T Second Quarter 2019 Statistical Analysis Current Background Comparison

Sulfate

UNITS: mg/L

LRGA

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is statistically significant evidence of elevated concentration in that well. For pH only, the current test well results are compared to the TL and LL. If the test well result for pH exceeds the TL or is less than the LL, that is statistically significant evidence of elevated or lowered concentration in that well.

Statistics-Background Data X= 10.284 S= 0.511 CV(1)=0.050 **K factor**= 2.523** TL(1)= 11.573 LL(1)=N/A

Statistics-Transformed Background Data X= 2.329 S= 0.050 CV(2)=0.021 **K factor**= 2.523** TL(2)= 2.455 LL(2)=N/A

Current Background Data from Upgradient Wells with Transformed Result

Because CV(1) is less than or equal to 1, assume normal distribution and continue with statistical analysis utilizing TL(1).

Well Number: MW395

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 4/20/2017 | 10.4 | 2.342 |
| 7/19/2017 | 10 | 2.303 |
| 10/9/2017 | 10.1 | 2.313 |
| 1/23/2018 | 10.4 | 2.342 |
| 4/19/2018 | 10.5 | 2.351 |
| 7/19/2018 | 10.4 | 2.342 |
| 10/22/2018 | 10.2 | 2.322 |
| 1/23/2019 | 10.6 | 2.361 |

Well Number: MW397

| Date Collected | Result | LN(Result) |
|----------------|--------|------------|
| 4/20/2017 | 9.7 | 2.272 |
| 7/19/2017 | 10.1 | 2.313 |
| 10/9/2017 | 11.1 | 2.407 |
| 1/23/2018 | 11.4 | 2.434 |
| 4/17/2018 | 9.21 | 2.220 |
| 7/19/2018 | 9.94 | 2.297 |
| 10/15/2018 | 10.4 | 2.342 |
| 1/23/2019 | 10.1 | 2.313 |

Current Quarter Data

| Well No. | Gradient | Detected? | Result | Result >TL(1)? | LN(Result) | LN(Result) >TL(2) |
|----------|--------------|-----------|--------|----------------|------------|-------------------|
| MW370 | Downgradient | Yes | 20.7 | YES | 3.030 | N/A |
| MW373 | Downgradient | Yes | 126 | YES | 4.836 | N/A |
| MW385 | Sidegradient | Yes | 22.4 | YES | 3.109 | N/A |
| MW388 | Downgradient | Yes | 23.7 | YES | 3.165 | N/A |

Conclusion of Statistical Analysis on Current Data

The test well(s) listed exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to current background data.

Wells with Exceedances

- MW370
- MW373
- MW385
- MW388

NOTE: For UCRS wells, background ("upgradient") wells are those located in the same direction as RGA wells located upgradient from the landfill.

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.

S Standard Deviation, S = [Sum ((background result-X)^2)/[count of background results -1]]^0.5

TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)

X Mean, X = (sum of background results)/(count of background results)

** Read from Table 5, Appendix B of Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Guidance, EPA, 1989, based on total number of background results - The K-factor for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K-factor for pH was computed using a formula from NIST/SEMATECH e-Handbook of Statistical Methods, <http://www.itl.nist.gov/div898/handbook/>, 2009. D2-23

ATTACHMENT D3
STATISTICIAN QUALIFICATION STATEMENT

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July 2, 2019

Ms. Kelly Layne
Four Rivers Nuclear Partnership, LLC
5511 Hobbs Road
Kevil, KY 42053

Dear Ms. Layne:

This statement is submitted in response to your request that it be included with the completed statistical analysis that I have performed on the groundwater data for the C-746-S&T and C-746-U Landfills at the Paducah Gaseous Diffusion Plant.

As an Environmental Scientist, with a bachelor's degree in science, I have over 20 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 observed and reviewed by a senior chemist and geologist with Four Rivers Nuclear Partnership, LLC.

For this project, the statistical analyses conducted on the second quarter 2019 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,



Jennifer R. Watson

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APPENDIX E
GROUNDWATER FLOW RATE AND DIRECTION

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GROUNDWATER FLOW RATE AND DIRECTION

Whenever monitoring wells (MWs) are sampled, 401 KAR 48:300, Section 11, requires determination of groundwater flow rate and direction of flow in the uppermost aquifer. The uppermost aquifer below the C-746-S&T Landfills is the Regional Gravel Aquifer (RGA). Water level measurements currently are recorded in several wells at the landfill on a quarterly basis. These measurements were used to plot the potentiometric surface of the RGA for the second quarter 2019 and to determine the groundwater flow rate and direction.

Water levels during this reporting period were measured on April 23, 2019. As shown on Figure E.1, MW389, screened in the Upper Continental Recharge System (UCRS), is usually dry, while other UCRS wells have recordable water levels. During this reporting period, MW389 had insufficient water for both measurement of the water level and for sampling.

The UCRS has a strong vertical hydraulic gradient; therefore, the limited number of available UCRS wells, screened over different elevations, is not sufficient for mapping the potentiometric surface. Figure E.1 shows the location of UCRS MWs. The Upper Regional Gravel Aquifer (URGA) and Lower Regional Gravel Aquifer (LRGA) data were corrected for barometric pressure, if necessary, and converted to elevations to plot the potentiometric surface of the RGA, as a whole, as shown on Table E.1. Figure E.2 is a composite or average map of the URGA and LRGA elevations where well clusters exist. The contour lines are placed based on the average water level elevations of the clusters.¹ Based on the site potentiometric map (Figure E.2), the hydraulic gradient beneath the landfill, as measured along the defined groundwater flow directions, is 4.91×10^{-4} ft/ft. Additional water level measurements in April (Figure E.3) document the vicinity groundwater hydraulic gradient for the RGA to be 5.08×10^{-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. 073-00045NWC1 and range from 425 to 725 ft/day (0.150 to 0.256 cm/s). RGA effective porosity is assumed to be 25%. Vicinity and site flow velocities were calculated using the low and high values for hydraulic conductivity, as shown in Table E.3.

Regional groundwater flow near the C-746-S&T Landfills typically trends northeastward toward the Ohio River. As demonstrated on the potentiometric map for April 2019, the groundwater flow direction in the immediate area of the landfill was oriented to the northeast.

¹ Additional water level measurements, in wells at the C-746-U Landfill and in wells of the surrounding region (MW98, MW100, MW125, MW139, MW165A, MW173, MW193, MW197, and MW200), were used to contour the RGA potentiometric surface.

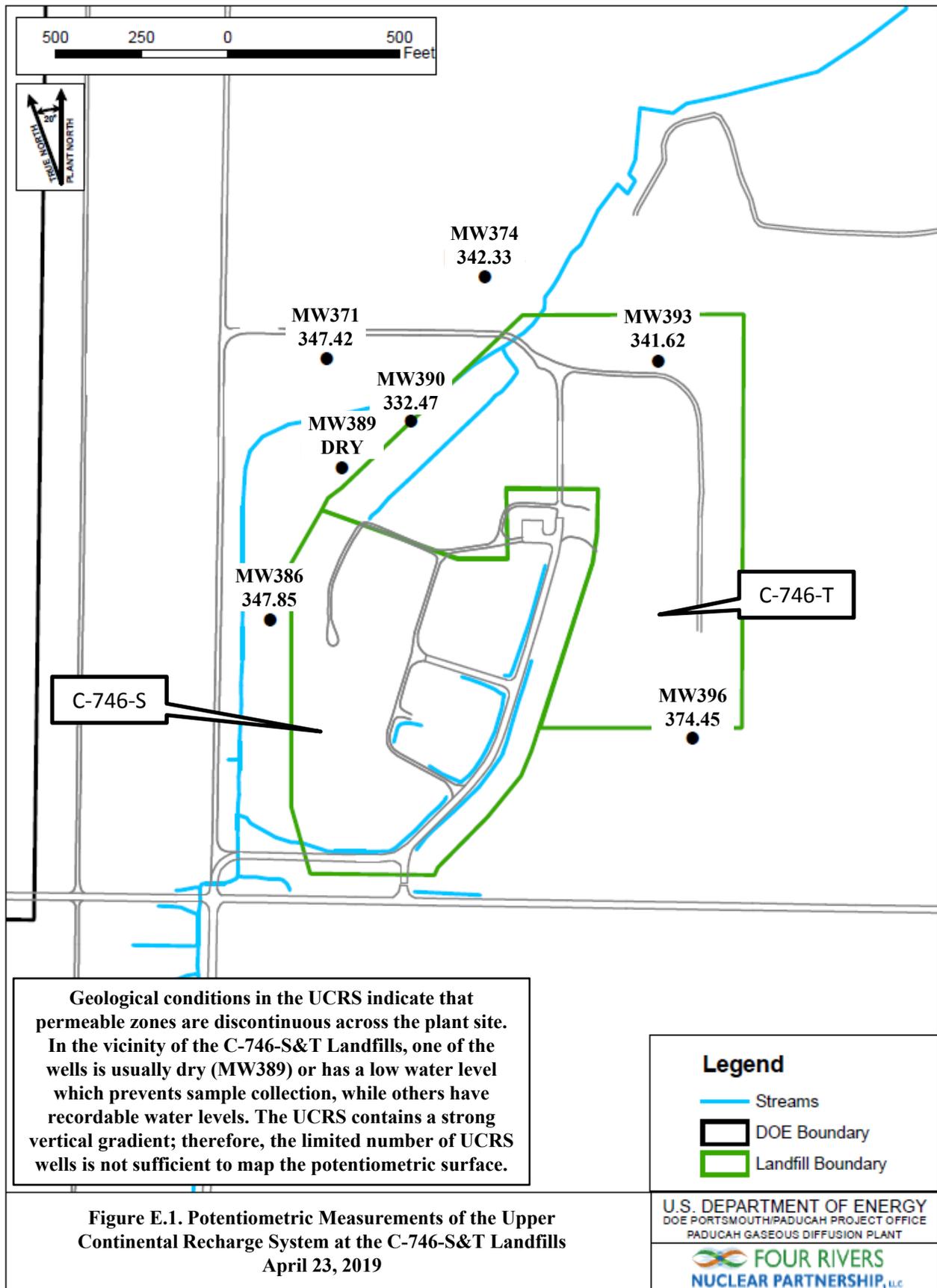


Table E.1. C-746-S&T Landfills Second Quarter 2019 (April) Water Levels

| C-746-S&T Landfills (April 2019) Water Levels | | | | | | | | | | |
|---|-------|-------|--------------|-------------------------|---------------|-----------------------------------|-------------|-------------------|-----------------|-------------------|
| Date | Time | Well | Formation | Datum Elev (ft amsl) | BP (in Hg) | Delta BP (ft H ₂ O) | Raw Data | | *Corrected Data | |
| | | | | | | | DTW (ft) | Elev (ft amsl) | DTW (ft) | Elev (ft amsl) |
| 4/23/2019 | 14:15 | MW220 | URGA | 382.27 | 30.01 | 0.01 | 49.61 | 332.66 | 49.62 | 332.65 |
| 4/23/2019 | 14:22 | MW221 | URGA | 391.51 | 30.01 | 0.01 | 59.10 | 332.41 | 59.11 | 332.40 |
| 4/23/2019 | 14:20 | MW222 | URGA | 395.39 | 30.01 | 0.01 | 63.03 | 332.36 | 63.04 | 332.35 |
| 4/23/2019 | 14:21 | MW223 | URGA | 394.49 | 30.01 | 0.01 | 62.14 | 332.35 | 62.15 | 332.34 |
| 4/23/2019 | 14:19 | MW224 | URGA | 395.82 | 30.01 | 0.01 | 63.42 | 332.40 | 63.43 | 332.39 |
| 4/23/2019 | 14:17 | MW225 | URGA | 385.88 | 30.01 | 0.01 | 53.47 | 332.41 | 53.48 | 332.40 |
| 4/23/2019 | 12:54 | MW353 | LRGA | 375.12 | 30.02 | 0.00 | 42.52 | 332.60 | 42.52 | 332.60 |
| 4/23/2019 | 14:11 | MW384 | URGA | 365.42 | 30.01 | 0.01 | 32.97 | 332.45 | 32.98 | 332.44 |
| 4/23/2019 | 14:12 | MW385 | LRGA | 365.86 | 30.01 | 0.01 | 33.36 | 332.50 | 33.37 | 332.49 |
| 4/23/2019 | 14:13 | MW386 | UCRS | 365.47 | 30.01 | 0.01 | 17.61 | 347.86 | 17.62 | 347.85 |
| 4/23/2019 | 14:09 | MW387 | URGA | 363.65 | 30.01 | 0.01 | 31.20 | 332.45 | 31.21 | 332.44 |
| 4/23/2019 | 14:10 | MW388 | LRGA | 363.64 | 30.01 | 0.01 | 31.18 | 332.46 | 31.19 | 332.45 |
| 4/23/2019 | 14:08 | MW389 | UCRS | 364.26 | -- | -- | DRY | -- | DRY | -- |
| 4/23/2019 | 14:07 | MW390 | UCRS | 360.60 | 30.01 | 0.01 | 28.12 | 332.48 | 28.13 | 332.47 |
| 4/23/2019 | 13:54 | MW391 | URGA | 366.83 | 30.01 | 0.01 | 34.41 | 332.42 | 34.42 | 332.41 |
| 4/23/2019 | 13:55 | MW392 | LRGA | 366.07 | 30.01 | 0.01 | 33.61 | 332.46 | 33.62 | 332.45 |
| 4/23/2019 | 13:56 | MW393 | UCRS | 366.81 | 30.01 | 0.01 | 25.18 | 341.63 | 25.19 | 341.62 |
| 4/23/2019 | 14:00 | MW394 | URGA | 378.64 | 30.01 | 0.01 | 45.97 | 332.67 | 45.98 | 332.66 |
| 4/23/2019 | 14:01 | MW395 | LRGA | 379.34 | 30.01 | 0.01 | 46.66 | 332.68 | 46.67 | 332.67 |
| 4/23/2019 | 14:02 | MW396 | UCRS | 378.84 | 30.01 | 0.01 | 4.38 | 374.46 | 4.39 | 374.45 |
| 4/23/2019 | 14:03 | MW397 | LRGA | 387.12 | 30.01 | 0.01 | 54.52 | 332.60 | 54.53 | 332.59 |
| 4/23/2019 | 13:57 | MW418 | URGA | 367.37 | 30.01 | 0.01 | 34.84 | 332.53 | 34.85 | 332.52 |
| 4/23/2019 | 13:58 | MW419 | LRGA | 367.22 | 30.01 | 0.01 | 34.70 | 332.52 | 34.71 | 332.51 |
| Initial Barometric Pressure | | | 30.02 | | | | | | | |
| Elev = elevation | | | | | | | | | | |
| amsl = above mean sea level | | | | | | | | | | |
| BP = barometric pressure | | | | | | | | | | |
| DTW = depth to water in feet below datum | | | | | | | | | | |
| URGA = Upper Regional Gravel Aquifer | | | | | | | | | | |
| LRGA = Lower Regional Gravel Aquifer | | | | | | | | | | |
| UCRS = Upper Continental Recharge System | | | | | | | | | | |
| *Assumes a barometric efficiency of 1.0 | | | | | | | | | | |

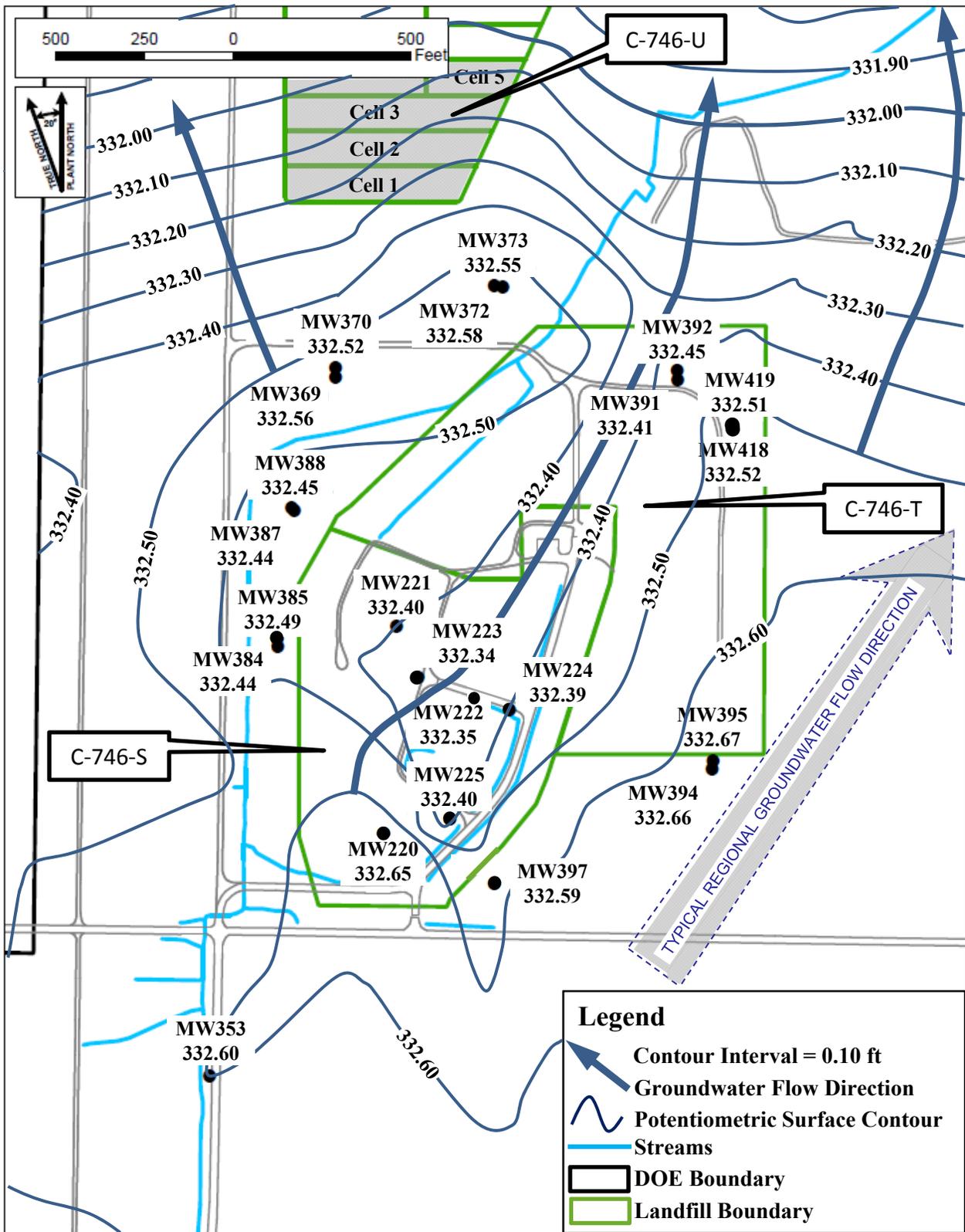


Figure E.2. Composite Potentiometric Surface of the Regional Gravel Aquifer at the C-746-S&T Landfills April 23, 2019

U.S. DEPARTMENT OF ENERGY
DOE PORTSMOUTH/PADUCAH PROJECT OFFICE
PADUCAH GASEOUS DIFFUSION PLANT
FOUR RIVERS
NUCLEAR PARTNERSHIP, LLC

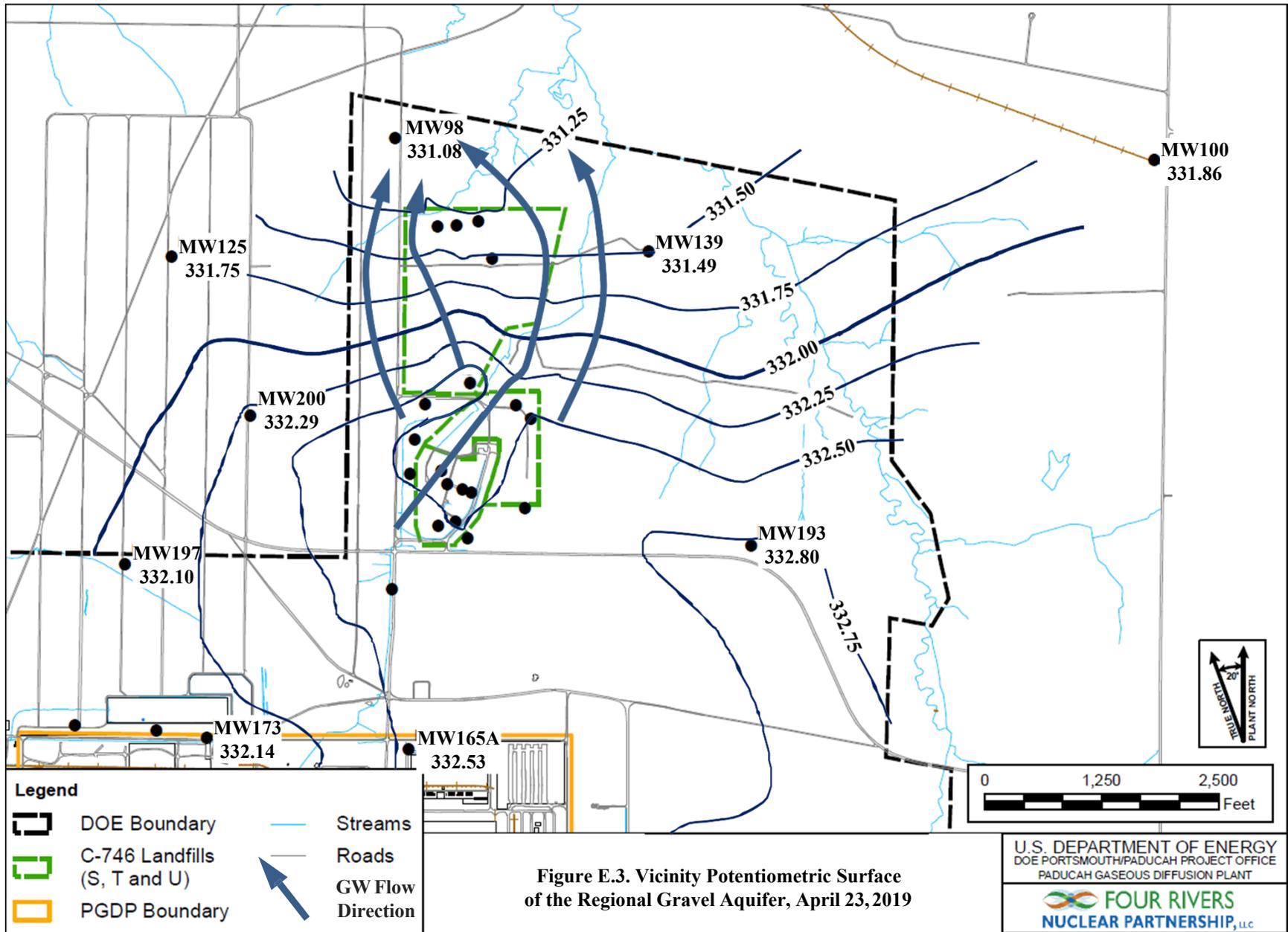


Figure E.3. Vicinity Potentiometric Surface of the Regional Gravel Aquifer, April 23, 2019

U.S. DEPARTMENT OF ENERGY
DOE PORTSMOUTH/PADUCAH PROJECT OFFICE
PADUCAH GASEOUS DIFFUSION PLANT

FOUR RIVERS
NUCLEAR PARTNERSHIP, LLC

Table E.2. C-746-S&T Landfills Hydraulic Gradients

| | ft/ft |
|------------------------|-----------------------|
| Beneath Landfill Mound | 4.91×10^{-4} |
| Vicinity | 5.08×10^{-4} |

Table E.3. C-746-S&T Landfills Groundwater Flow Rate

| Hydraulic Conductivity (K) | | Specific Discharge (q) | | Average Linear Velocity (v) | |
|-------------------------------|-------|------------------------|-----------------------|-----------------------------|-----------------------|
| ft/day | cm/s | ft/day | cm/s | ft/day | cm/s |
| <u>Beneath Landfill Mound</u> | | | | | |
| 725 | 0.256 | 0.356 | 1.26×10^{-4} | 1.42 | 5.03×10^{-4} |
| 425 | 0.150 | 0.209 | 7.37×10^{-5} | 0.835 | 2.95×10^{-4} |
| <u>Vicinity</u> | | | | | |
| 725 | 0.256 | 0.369 | 1.30×10^{-4} | 1.47 | 5.21×10^{-4} |
| 425 | 0.150 | 0.216 | 7.63×10^{-5} | 0.864 | 3.05×10^{-4} |

APPENDIX F
NOTIFICATIONS

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NOTIFICATIONS

In accordance with 401 KAR 48:300 § 7, the notification for parameters that exceed the maximum contaminant level (MCL) has been submitted to the Kentucky Division of Waste Management. The parameters are listed on the page F-4. The notification for parameters that do not have MCLs but had statistically significant increased concentrations relative to historical background concentrations is provided below.

STATISTICAL ANALYSIS OF PARAMETERS NOTIFICATION

The statistical analyses conducted on the second quarter 2019 groundwater data collected from the C-746-S&T Landfills monitoring wells were performed in accordance with *Groundwater Monitoring Plan for the Solid Waste Permitted Landfills (C-746-S Residential Landfill, C-746-T Inert Landfill, and C-746-U Contained Landfill) at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky* (LATA Kentucky 2014).

The following are the permit required parameters in 40 CFR § 302.4, Appendix A, which had statistically significant increased concentrations relative to historical background concentrations.

| | <u>Parameter</u> | <u>Monitoring Well</u> |
|--|-------------------------|--|
| Upper Continental Recharge System | Technetium-99 | MW390 |
| Upper Regional Gravel Aquifer | Sodium Technetium-99 | MW387 MW369, MW372, MW384, MW387 |
| Lower Regional Gravel Aquifer | Technetium-99 | MW370, MW385, MW388 |

NOTE: Although technetium-99 is not cited in 40 CFR § 302.4, Appendix A, this radionuclide is being reported along with the parameters of this regulation.

6/11/2019

**Four Rivers Nuclear Partnership, LLC
PROJECT ENVIRONMENTAL MEASUREMENTS SYSTEM
C-746-S&T LANDFILLS
SOLID WASTE PERMIT NUMBER SW07300014, SW07300015, SW07300045
MAXIMUM CONTAMINANT LEVEL (MCL) EXCEEDANCE REPORT
Quarterly Groundwater Sampling**

| AKGWA | Station | Analysis | Method | Results | Units | MCL |
|--------------|----------------|-----------------|---------------|----------------|--------------|------------|
| 8004-4820 | MW369 | Beta activity | 9310 | 83.7 | pCi/L | 50 |
| 8004-4818 | MW370 | Beta activity | 9310 | 61 | pCi/L | 50 |
| 8004-4792 | MW373 | Trichloroethene | 8260B | 5.2 | ug/L | 5 |
| 8004-4809 | MW384 | Beta activity | 9310 | 97 | pCi/L | 50 |
| 8004-4810 | MW385 | Beta activity | 9310 | 138 | pCi/L | 50 |
| 8004-4815 | MW387 | Beta activity | 9310 | 135 | pCi/L | 50 |
| 8004-4816 | MW388 | Beta activity | 9310 | 76.7 | pCi/L | 50 |
| 8004-4805 | MW391 | Trichloroethene | 8260B | 6.88 | ug/L | 5 |
| 8004-4806 | MW392 | Trichloroethene | 8260B | 11.2 | ug/L | 5 |

NOTE 1: MCLs are defined in 401 KAR 47:030.

NOTE 2: MW369, MW370, MW372, and MW373 are down-gradient wells for the C-746-S and C-746-T Landfills and upgradient for the C-746-U Landfill. These wells are sampled with the C-746-U Landfill monitoring well network. These wells are reported on the exceedance reports for C-746-S, C-746-T, and C-746-U.

APPENDIX G
CHART OF MCL AND UTL EXCEEDANCES

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Chart of MCL and Historical UTL Exceedances for the C-746-S&T Landfills

| Groundwater Flow System | UCRS | | | | | URGA | | | | | | | | | | LRGA | | | | | | | |
|-------------------------|------|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|-----|-----|
| | S | D | D | D | U | S | S | S | S | S | D | D | D | D | U | U | S | D | D | D | D | U | U |
| Monitoring Well | 386 | 389 | 390 | 393 | 396 | 221 | 222 | 223 | 224 | 384 | 369 | 372 | 387 | 391 | 220 | 394 | 385 | 370 | 373 | 388 | 392 | 395 | 397 |
| ACETONE | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 3, 2003 | | | | | | | * | | | | | * | | | | | | | | | | | |
| Quarter 4, 2003 | | | | | | | | | | | * | | | | | | | | * | | | | |
| Quarter 1, 2005 | | | | | | | | | * | | | | | | | | | | | | | | |
| ALPHA ACTIVITY | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 4, 2002 | | | | ■ | ■ | | | | | | | | ■ | | | | | | | | | | |
| Quarter 4, 2008 | | | | | | | | | | | ■ | | | | | | | | | | | | |
| Quarter 4, 2010 | | | | | | | | | | | ■ | | | | | | | | | | | | |
| ALUMINUM | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 1, 2003 | | | * | | | | * | | | | | * | * | * | | | | | | | | | |
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| Quarter 1, 2004 | | | * | | | | * | * | | | * | | | * | | | | | | | | | |
| Quarter 2, 2004 | | | | | | | * | | | | | | | * | | | | | | | | | |
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| Quarter 1, 2006 | | | | | | | * | | | | | | * | | | | | | | | | | |
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| Quarter 3, 2006 | | | | | | | * | | | | | | | | | | | | | | | | |
| Quarter 4, 2006 | | | * | | | | * | | | | | | | | | | | | | | | | |
| Quarter 1, 2007 | | | | | | | * | | | | | | | | | | | * | | | | | |
| Quarter 2, 2007 | | | | | | | * | | | | | | | | | | | * | | | | | |
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| Quarter 4, 2008 | | | | | | | * | | | | | | | | | | | | | | | | |
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| Quarter 1, 2011 | | | | | | | * | | | | * | | | | | | | | | | | | |
| Quarter 2, 2011 | | | * | | | | | | | | * | | | | | | | | | | | | |
| Quarter 2, 2012 | | | * | | | | | | | | | | | | | | | | | | | | |
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| BARIUM | | | | | | | | | | | | | | | | | | | | | | | |
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| BETA ACTIVITY | | | | | | | | | | | | | | | | | | | | | | | |
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Chart of MCL and Historical UTL Exceedances for the C-746-S&T Landfills (Continued)

| Groundwater Flow System | UCRS | | | | | URGA | | | | | | | | | | LRGA | | | | | | | | |
|-------------------------|------|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|-----|-----|--|
| | S | D | D | D | U | S | S | S | S | S | D | D | D | D | U | U | S | D | D | D | D | U | U | |
| Monitoring Well | 386 | 389 | 390 | 393 | 396 | 221 | 222 | 223 | 224 | 384 | 369 | 372 | 387 | 391 | 220 | 394 | 385 | 370 | 373 | 388 | 392 | 395 | 397 | |
| BETA ACTIVITY | | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 2, 2003 | | | ■ | ■ | | | | | | | | | | | | | ■ | | | ■ | | | | |
| Quarter 3, 2003 | | | ■ | | | | | | | | | | ■ | | | | ■ | | | | | | | |
| Quarter 4, 2003 | | | ■ | | | | | | | ■ | | | | | | | | | | | | | | |
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| Quarter 2, 2004 | | | ■ | | | | | | | | | ■ | ■ | | | | ■ | | ■ | ■ | | | | |
| Quarter 3, 2004 | | | ■ | | | | | | | | | ■ | ■ | | | | ■ | | | | | | | |
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| Quarter 3, 2010 | | | | | | | | | | ■ | | ■ | ■ | | | | ■ | | ■ | ■ | | | | |
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| Quarter 4, 2016 | | | | | | | | | | ■ | ■ | ■ | ■ | | | | ■ | | ■ | ■ | | | | |
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| Quarter 2, 2017 | | | | | | | | | | ■ | | ■ | ■ | | | | ■ | ■ | ■ | ■ | | | | |
| Quarter 3, 2017 | | | | | | | | | | ■ | | ■ | ■ | | | | ■ | ■ | ■ | ■ | | | | |

Chart of MCL and Historical UTL Exceedances for the C-746-S&T Landfills (Continued)

| Groundwater Flow System | UCRS | | | | | URGA | | | | | | | | | | LRGA | | | | | | | | |
|-------------------------|------|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|-----|-----|--|
| | S | D | D | D | U | S | S | S | S | S | D | D | D | D | U | U | S | D | D | D | D | U | U | |
| Monitoring Well | 386 | 389 | 390 | 393 | 396 | 221 | 222 | 223 | 224 | 384 | 369 | 372 | 387 | 391 | 220 | 394 | 385 | 370 | 373 | 388 | 392 | 395 | 397 | |
| BETA ACTIVITY | | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 4, 2017 | | | | | | | | | | ■ | | ■ | ■ | | | | ■ | ■ | | ■ | | | | |
| Quarter 1, 2018 | | | ■ | | | | | | | ■ | | | ■ | | | | ■ | ■ | | ■ | | | | |
| Quarter 2, 2018 | | | ■ | | | | | | | ■ | ■ | | ■ | | | | ■ | ■ | | ■ | | | | |
| Quarter 3, 2018 | | | ■ | | | | | | | ■ | | | ■ | | | | ■ | ■ | | ■ | | | | |
| Quarter 4, 2018 | | | | | | | | | | ■ | | ■ | ■ | | | | ■ | ■ | | ■ | | | | |
| Quarter 1, 2019 | | | | | | | | | | ■ | | | ■ | | | | ■ | ■ | | ■ | | | | |
| Quarter 2, 2019 | | | | | | | | | | ■ | ■ | | ■ | | | | ■ | ■ | | ■ | | | | |
| BROMIDE | | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 1, 2003 | | | * | | | | | | | | | | | | | | | | | | | | | |
| Quarter 4, 2003 | | | * | | | | | | | | | | | | | | | | | | | | | |
| Quarter 1, 2004 | | | * | | | | | | | | | | | | | | | | | | | | | |
| Quarter 2, 2004 | | | * | | | | | | | | | | | | | | | | | | | | | |
| Quarter 3, 2004 | | | * | | | | | | | | | | | | | | | | | | | | | |
| Quarter 4, 2004 | | | * | | | | | | | | | | | | | | | | | | | | | |
| Quarter 1, 2005 | | | * | | | | | | | | | | | | | | | | | | | | | |
| Quarter 3, 2006 | | | * | | | | | | | | | | | | | | | | | | | | | |
| CALCIUM | | | | | | | | | | | | | | | | | | | | | | | | |
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| Quarter 2, 2003 | | | * | | | | | | | | | * | | | | | | | | | | | | |
| Quarter 3, 2003 | | | * | | | | | | | | | | | | | | | | | | | | | |
| Quarter 4, 2003 | | | * | | | | | | | | | * | | | | | | | * | | | | | |
| Quarter 1, 2004 | | | * | | | | | | | | | * | | * | | | | | * | | | | | |
| Quarter 2, 2004 | | | * | | | | | | | | | * | | | | | | | * | | | | | |
| Quarter 3, 2004 | | | * | | | | | | | | | * | | | | | | | * | | | | | |
| Quarter 4, 2004 | | | * | | | | | | | | | * | | | | | | | * | | | | | |
| Quarter 1, 2005 | | | | | | | | | | | | * | | | | | | | * | | | | | |
| Quarter 2, 2005 | | | | | | | | | | | | * | | | | | | | * | | | | | |
| Quarter 3, 2005 | | | | | | | | | | | | * | | | | | | | * | | | | | |
| Quarter 4, 2005 | | | | | | | | | | | | * | | | | | | | * | | | | | |
| Quarter 1, 2006 | | | | | | | | | | | | * | | | | | | | * | | | | | |
| Quarter 2, 2006 | | | | | | | | | | | | * | | | | | | | * | | | | | |
| Quarter 3, 2006 | | | | | | | | | | | | * | | | | | | | * | | | | | |
| Quarter 4, 2006 | | | | | | | | | | | | * | | | | | | | * | | | | | |
| Quarter 1, 2007 | | | | | | | | | | | | * | | | | | | | * | | | | | |
| Quarter 2, 2007 | | | | | | | | | | | | * | | | | | | | * | | | | | |
| Quarter 3, 2007 | | | | | | | | | | | | * | | | | | | | * | | | | | |
| Quarter 4, 2007 | | | | | | | | | | | | * | | | | | | | * | | | | | |
| Quarter 1, 2008 | | | | | | | | | | | | * | | | | | | | * | | | | | |
| Quarter 2, 2008 | | | | | | | | | | | | * | | | | | | | * | | | | | |
| Quarter 3, 2008 | | | | | | | | | | | | * | | | | | | | * | | | | | |
| Quarter 4, 2008 | | | | | | | | | | | | * | | | | | | | * | | | | | |
| Quarter 1, 2009 | | | | | | | | | | | | * | | | | | | | * | | | | | |
| Quarter 2, 2009 | | | | | | | | | | | | * | | | | | | | * | | | | | |
| Quarter 3, 2009 | | | | | | | | | | | | * | | | | | | | * | | | | | |
| Quarter 4, 2009 | | | | | | | | | | | | * | | | | | | | * | | | | | |
| Quarter 1, 2010 | | | | | | | | | | | | * | | | | | | | * | | | | | |
| Quarter 2, 2010 | | | | | | | | | | | | * | | | | | | | * | | | | | |
| Quarter 3, 2010 | | | | | | | | | | | | * | | | | | | | * | | | | | |
| Quarter 4, 2010 | | | | | | | | | | | | * | | | | | | | * | | | | | |
| Quarter 1, 2011 | | | | | | | | | | | | * | | | | | | | * | | | | | |
| Quarter 2, 2011 | | | | | | | | | | | | * | * | | | | | | * | | | | | |
| Quarter 3, 2011 | | | | | | | | | | | | * | | | | | | | * | | | | | |
| Quarter 4, 2011 | | | | | | | | | | | | * | | | | | | | * | | | | | |
| Quarter 1, 2012 | | | | | | | | | | | | * | | | | | | | * | | | | | |
| Quarter 2, 2012 | | | | | | | | | | | | * | | | | | | | * | | | | | |
| Quarter 3, 2012 | | | | | | | | | | | | * | | | | | | | * | | | | | |

Chart of MCL and Historical UTL Exceedances for the C-746-S&T Landfills (Continued)

| Groundwater Flow System | UCRS | | | | | URGA | | | | | | | | | | LRGA | | | | | | | | |
|-------------------------------|------|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|-----|-----|--|
| | S | D | D | D | U | S | S | S | S | S | D | D | D | D | U | U | S | D | D | D | D | U | U | |
| Monitoring Well | 386 | 389 | 390 | 393 | 396 | 221 | 222 | 223 | 224 | 384 | 369 | 372 | 387 | 391 | 220 | 394 | 385 | 370 | 373 | 388 | 392 | 395 | 397 | |
| CALCIUM | | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 4, 2012 | | | | | | | | | | | | * | | | | | | | | * | | | | |
| Quarter 1, 2013 | | | | | | | | | | | | * | | | | | | | | * | | | | |
| Quarter 2, 2013 | | | | | | | | | | | | * | | | | | | | | * | | | | |
| Quarter 3, 2013 | | | | | | | | | | | | * | | | | | | | | * | | | | |
| Quarter 4, 2013 | | | | | | | | | | | | * | | | | | | | | * | | | | |
| Quarter 1, 2014 | | | | | | | | | | | | | | | | | | | * | * | | | | |
| Quarter 2, 2014 | | | | | | | | | | | | * | | | | | | | | * | | | | |
| Quarter 3, 2014 | | | | | | | | | | | | * | | | | | | | * | * | | | | |
| Quarter 4, 2014 | | | | | | | | | | | | * | | | | | | | | * | | | | |
| Quarter 1, 2015 | | | | | | | | | | | | * | * | | | | | | | * | | | | |
| Quarter 2, 2015 | | | | | | | | | | | | * | | | | | | | | * | | | | |
| Quarter 3, 2015 | | | | | | | | | | | | * | | | | | | | | * | | | | |
| Quarter 4, 2015 | | | | | | | | | | | | * | | | | | | | | * | | | | |
| Quarter 1, 2016 | | | | | | | | | | | | * | | | | | | | | * | | | | |
| Quarter 2, 2016 | | | | | | | | | | | | * | | * | | | | | | * | | | | |
| Quarter 3, 2016 | | | | | | | | | | | | * | | | | | | | | * | | | | |
| Quarter 4, 2016 | | | | | | | | | | | | * | | | | | | | | * | | | | |
| Quarter 1, 2017 | | | | | | | | | | | | * | | | | | | | | * | | | | |
| Quarter 2, 2017 | | | | | | | | | | | | * | | | | | | | | * | | | | |
| Quarter 3, 2017 | | | | | | | | | | | | * | | | | | | | | * | | | | |
| Quarter 4, 2017 | | | | | | | | | | | | * | | | | | | | | * | | | | |
| Quarter 1, 2018 | | | | | | | | | | | | * | | | | | | | | * | | | | |
| Quarter 2, 2018 | | | | | | | | | | | | * | | | | | | | | * | | | | |
| Quarter 4, 2018 | | | | | | | | | | | | * | | | | | | | | * | | | | |
| Quarter 1, 2019 | | | | | | | | | | | | * | | | | | | | | * | | | | |
| Quarter 2, 2019 | | | | | | | | | | | | * | | | | | | | | * | | | | |
| CARBON DISULFIDE | | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 4, 2010 | | | | | | | | | | | | * | | | | | | | | | | | | |
| Quarter 1, 2011 | | | | | | | | | | | | * | | | | | | | | | | * | | |
| Quarter 2, 2017 | | | | | | | | | | | | | * | | | | | | | | | | | |
| CHEMICAL OXYGEN DEMAND | | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 1, 2003 | | | | * | | | | | | | | | | | | | | | | | | | | |
| Quarter 2, 2003 | | | | * | | | | | | | | | | | | | | | | | | | | |
| Quarter 3, 2003 | | | | * | | * | | | * | | | | | | | | | | | | | | | |
| Quarter 4, 2003 | | | | * | | | | | | | | | | | | | | | | | | | | |
| Quarter 1, 2004 | * | | | * | | | | | | | | | | | | | | | | | | | | |
| Quarter 4, 2004 | * | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 1, 2005 | * | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 2, 2005 | * | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 3, 2005 | * | | | | | | | | * | | * | | | | | | | | | | | * | | |
| Quarter 4, 2005 | * | | | | | | | | * | | | | | | | | | | | | | | | |
| Quarter 1, 2006 | * | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 2, 2006 | * | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 3, 2006 | * | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 4, 2006 | | | | | | | | | | | | | | | | | * | | | | | | | |
| Quarter 1, 2007 | * | | | | | | | | * | | | | | | | | | | | | | | | |
| Quarter 2, 2007 | * | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 3, 2007 | * | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 4, 2007 | * | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 1, 2008 | * | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 2, 2008 | * | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 3, 2008 | * | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 4, 2008 | * | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 1, 2009 | * | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 2, 2009 | * | | | | | | | | | | | | | | | | | | | * | | | | |
| Quarter 3, 2009 | * | | | | | | | | | | | | | | | | | | | | | | | |

Chart of MCL and Historical UTL Exceedances for the C-746-S&T Landfills (Continued)

| Groundwater Flow System | UCRS | | | | | URGA | | | | | | | | | | LRGA | | | | | | | | |
|-------------------------------|------|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|-----|-----|---|
| | S | D | D | D | U | S | S | S | S | S | D | D | D | D | U | U | S | D | D | D | D | U | U | |
| Monitoring Well | 386 | 389 | 390 | 393 | 396 | 221 | 222 | 223 | 224 | 384 | 369 | 372 | 387 | 391 | 220 | 394 | 385 | 370 | 373 | 388 | 392 | 395 | 397 | |
| CHEMICAL OXYGEN DEMAND | | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 4, 2009 | * | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 1, 2010 | * | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 2, 2010 | * | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 3, 2010 | * | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 4, 2010 | * | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 3, 2011 | * | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 4, 2011 | * | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 1, 2012 | * | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 1, 2013 | * | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 3, 2013 | * | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 3, 2014 | * | | | | | | | | * | | | * | | | | | | * | | | | | | |
| Quarter 4, 2014 | | | | | | | | * | | | | | | | | | | | | | | | | |
| Quarter 2, 2015 | | | | | | | | | | | | | | | | * | | | | | | | | |
| Quarter 3, 2015 | | | | | | | | | | | | | | | * | | | | | | | | | |
| Quarter 3, 2016 | | | * | | | | | | | | * | | | | | | | | | | | | | |
| Quarter 4, 2016 | | | | | | | | | | | | | | | | | * | | | | | | | |
| Quarter 2, 2017 | | | | | | | | * | | | | | | | | | | | | | | | | |
| Quarter 3, 2017 | * | | | | | | | | | | | | | | * | | | | | | | | | |
| Quarter 4, 2017 | | | | | | * | | | | | | | | | | | | | | | | | | |
| Quarter 2, 2018 | | | | | | | | | | | | | * | | | | | | | | | | * | |
| Quarter 3, 2018 | | | | | | | | | | | | * | | | | | | | | | | | | |
| Quarter 4, 2018 | | | | | | | | | | | | | | | | | | | | | | | | * |
| Quarter 2, 2019 | | | | | * | | | | | | * | | * | | | | | * | | | | | | |
| CHLORIDE | | | | | | | | | | | | | | | | | | | | | | | | |
| 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 | | | * | | | | | | | | | | | | | | | | | | | | | |

Chart of MCL and Historical UTL Exceedances for the C-746-S&T Landfills (Continued)

| Groundwater Flow System | UCRS | | | | | URGA | | | | | | | | | | LRGA | | | | | | | |
|-------------------------|------|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|-----|-----|
| | S | D | D | D | U | S | S | S | S | S | D | D | D | D | U | U | S | D | D | D | D | U | U |
| Monitoring Well | 386 | 389 | 390 | 393 | 396 | 221 | 222 | 223 | 224 | 384 | 369 | 372 | 387 | 391 | 220 | 394 | 385 | 370 | 373 | 388 | 392 | 395 | 397 |
| CHLORIDE | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 2, 2011 | | | * | | | | | | | | | | | | | | | | | | | | |
| Quarter 3, 2011 | | | * | | | | | | | | | | | | | | | | | | | | |
| Quarter 4, 2011 | | | * | | | | | | | | | | | | | | | | | | | | |
| Quarter 3, 2012 | | | * | | | | | | | | | | | | | | | | | | | | |
| Quarter 3, 2013 | | | * | | | | | | | | | | | | | | | | | | | | |
| Quarter 4, 2013 | | | * | | | | | | | | | | | | | | | | | | | | |
| Quarter 4, 2014 | | | * | | | | | | | | | | | | | | | | | | | | |
| Quarter 2, 2019 | | | | | | | | | | | | | | | | | | | | | | * | |
| CHROMIUM | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 4, 2002 | | | | | | | | | ■ | | | | | | | | | | | | | | |
| Quarter 1, 2003 | | | | | | | | | ■ | | | | | | | | | | | | | | ■ |
| Quarter 2, 2003 | | | | | | | | ■ | ■ | | | | | | | | | | | | | | |
| Quarter 3, 2009 | | | | | | ■ | | | | | | | | | | | | | | | | | |
| Quarter 1, 2019 | | | | | | ■ | | | | | | | | | | | | | | | | | |
| COBALT | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 3, 2003 | | | | | | | | * | | | | | | | | | | | | | | | |
| CONDUCTIVITY | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 4, 2002 | | | | | | | | | | * | | | | | | | | | | * | | | |
| Quarter 1, 2003 | | | * | | | | | | | * | | | | | | | | | * | | | | |
| Quarter 2, 2003 | | | * | | | | | | | * | | | | | | | | | * | | | | |
| Quarter 3, 2003 | | | * | | | | | * | | * | | | | | | | | | * | | | | |
| Quarter 4, 2003 | | | * | | | | | | | * | | | | | | | | | * | | | | |
| Quarter 1, 2004 | | | | | | | | | | * | | | | | | | | | * | | | | |
| Quarter 2, 2004 | | | | | | | | | | * | | | | | | | | | * | | | | |
| Quarter 3, 2004 | | | | | | | | | | * | | | | | | | | | * | | | | |
| Quarter 4, 2004 | | | * | | | | | | | * | | | | | | | | | * | | | | |
| Quarter 1, 2005 | | | | | | | | | | * | | * | | | | | | | * | | | | |
| Quarter 2, 2005 | | | | | | | | | | | * | | | | | | | | * | | | | |
| Quarter 3, 2005 | | | | | | | | | | | | * | | | | | | | * | | | | |
| Quarter 4, 2005 | | | | | | | | | | * | | * | | | | | | | * | | | | |
| Quarter 1, 2006 | | | | | | | | | | | * | | | | | | | | * | | | | |
| Quarter 2, 2006 | | | | | | | | | | | * | | | | | | | | * | | | | |
| Quarter 3, 2006 | | | | | | | | | | | * | | | | | | | | * | | | | |
| Quarter 4, 2006 | | | | | | | | | | | * | | | | | | * | | * | | | | |
| Quarter 1, 2007 | | | | | | | | | | | * | | | | | | | * | * | | | | |
| Quarter 2, 2007 | | | | | | | | | | | * | | | | | | * | * | * | | | | |
| Quarter 3, 2007 | | | | | | | | | | | * | | | | | | * | * | * | | | | |
| Quarter 4, 2007 | | | | | | | | | | | * | | | | | | * | * | * | | | | |
| Quarter 1, 2008 | | | | | | | | | | | * | | | | | | | * | * | * | | | |
| Quarter 2, 2008 | | | | | | | | | | | * | | | | | | | * | * | * | | | |
| Quarter 3, 2008 | | | | | | | | | | | * | | | | | | * | * | * | | | | |
| Quarter 4, 2008 | | | | | | | | | | | * | | | | | | | * | * | * | | | |
| Quarter 1, 2009 | | | | | | | | | | | * | | | | | | | * | * | * | | | |
| Quarter 2, 2009 | | | | | | | | | | | * | | | | | | | * | * | * | | | |
| Quarter 3, 2009 | | | | | | | | | | | * | | | | | | | * | * | * | | | |
| Quarter 4, 2009 | | | | | | | | | | | * | | | | | | * | * | * | | | | |
| Quarter 1, 2010 | | | | | | | | | | | * | | | | | | * | * | * | | | | |
| Quarter 2, 2010 | | | | | | | | | | | * | | | | | | | * | * | * | | | |
| Quarter 3, 2010 | | | | | | | | | | | * | | | | | | | * | * | * | | | |
| Quarter 4, 2010 | | | | | | | | | | | * | | | | | | | * | * | * | | | |
| Quarter 1, 2011 | | | | | | | | | | * | | * | | | | | | * | * | * | | | |
| Quarter 2, 2011 | | | | | | | | | | * | | * | | | | | | * | * | * | | | |
| Quarter 3, 2011 | | | | | | | | | | * | | * | | | | | | * | * | * | | | |
| Quarter 4, 2011 | | | | | | | | | | * | | * | | | | | | * | * | * | | | |
| Quarter 1, 2012 | | | | | | | | | | * | * | * | | | | | | * | * | * | | | |
| Quarter 2, 2012 | | | | | | | | | | * | * | * | | | | | | * | * | * | | | |
| Quarter 3, 2012 | | | | | | | | | | * | * | * | | | | | | * | * | * | | | |

Chart of MCL and Historical UTL Exceedances for the C-746-S&T Landfills (Continued)

| Groundwater Flow System | UCRS | | | | | URGA | | | | | | | | | | LRGA | | | | | | | |
|-------------------------|------|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|-----|-----|
| | S | D | D | D | U | S | S | S | S | S | D | D | D | D | U | U | S | D | D | D | D | U | U |
| Monitoring Well | 386 | 389 | 390 | 393 | 396 | 221 | 222 | 223 | 224 | 384 | 369 | 372 | 387 | 391 | 220 | 394 | 385 | 370 | 373 | 388 | 392 | 395 | 397 |
| CONDUCTIVITY | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 4, 2012 | | | | | | | | | | | | * | | | | | | | * | | | | |
| Quarter 1, 2013 | | | | | | | | | | | | * | | | | | | | * | | | | |
| Quarter 2, 2013 | | | | | | | | | | | | * | | | | | | | * | | | | |
| Quarter 3, 2013 | | | | | | | | | | | | * | | | | | | | * | | | | |
| Quarter 4, 2013 | | | | | | | | | | | | * | | | | | | | * | | | | |
| Quarter 1, 2014 | | | | | | | | | | | | * | | | | | | | * | | | | |
| Quarter 2, 2014 | | | | | | | | | | | | * | | | | | | | * | | | | |
| Quarter 3, 2014 | | | | | | | | | | | | * | | | | | | | * | | | | |
| Quarter 4, 2014 | | | | | | | | | | | | * | | | | | | | * | | | | |
| Quarter 1, 2015 | | | | | | | | | | | | * | | | | | | | * | | | | |
| Quarter 2, 2015 | | | | | | | | | | | | * | | | | | | | * | | | | |
| Quarter 3, 2015 | | | | | | | | | | | | * | | | | | | | * | | | | |
| Quarter 4, 2015 | | | | | | | | | | | | * | | | | | | | * | | | | |
| Quarter 1, 2016 | | | | | | | | | | | | * | | | | | | | * | | | | |
| Quarter 2, 2016 | | | | | | | | | | | | * | | | | | | | * | | | | |
| Quarter 3, 2016 | | | | | | | | | | | | * | | | | | | | * | | | | |
| Quarter 4, 2016 | | | | | | | | | | | | * | | | | | | | * | | | | |
| Quarter 1, 2017 | | | | | | | | | | | | * | | | | | | | * | | | | |
| Quarter 2, 2017 | | | | | | | | | | | | * | | | | | | | * | | | | |
| Quarter 3, 2017 | | | | | | | | | | | | * | | | | | | | * | | | | |
| Quarter 4, 2017 | | | | | | | | | | | | * | | | | | | | * | | | | |
| Quarter 1, 2018 | | | | | | | | | | | | * | | | | | | | * | | | | |
| Quarter 2, 2018 | | | | | | | | | | | | * | | | | | | | * | | | | |
| Quarter 3, 2018 | | | | | | | | | | | | * | | | | | | | * | | | | |
| Quarter 4, 2018 | | | | | | | | | | | | * | | | | | | | * | | | | |
| Quarter 1, 2019 | | | | | | | | | | | | * | | | | | | | * | | | | |
| Quarter 2, 2019 | | | | | | | | | | | | * | | | | | | | * | | | | |
| DISSOLVED OXYGEN | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 3, 2006 | | | * | | | | | | * | | | | | | | | | | | | | | |
| DISSOLVED SOLIDS | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 4, 2002 | | | | | | | | | | | * | | | | | | | | * | | | | |
| Quarter 1, 2003 | | | * | | | | | | | | * | | | | | | | | * | | | | |
| Quarter 2, 2003 | | | * | | | | | | | | * | | | | | | | | * | | | | |
| Quarter 3, 2003 | | | * | | | | * | * | | | * | * | | | | | | | * | | | | |
| Quarter 4, 2003 | | | * | | | | * | * | * | * | * | * | | | | | | | * | | | | |
| Quarter 1, 2004 | | | * | | | | | | | | * | * | | | | | | | * | | | | |
| Quarter 2, 2004 | | | | | | | | | | | * | * | | | | | | | * | | | | |
| Quarter 3, 2004 | | | | | | | | | | | * | * | | | | | | | * | | | | |
| Quarter 4, 2004 | | | | | | | | | | | * | * | | | | | | | * | | | | |
| Quarter 1, 2005 | | | | | | | | | | | * | * | | | | | | | * | | | | |
| Quarter 2, 2005 | | | | | | | | | | | * | * | | | | | | | * | | | | |
| Quarter 3, 2005 | | | | | | | | | | | * | * | | | | | * | * | * | * | * | * | |
| Quarter 4, 2005 | | | | | | | | | | | * | * | | | | | * | * | * | * | * | * | |
| Quarter 1, 2006 | | | | | | | | | | | * | * | | | | | * | * | * | * | * | * | |
| Quarter 2, 2006 | | | | | | | | | | | * | * | | | | | * | * | * | * | * | * | |
| Quarter 3, 2006 | | | | | | | | | | | * | * | | | | | * | * | * | * | * | * | |
| Quarter 4, 2006 | | | | | | | | | | | * | * | | | | | * | * | * | * | * | * | |
| Quarter 1, 2007 | | | | | | | | | | | * | * | | | | | | | * | | | | |
| Quarter 2, 2007 | | | | | | | | | | | * | * | | | | | | | * | | | | |
| Quarter 3, 2007 | | | | | | | | | | | * | * | | | | | | | * | | | | |
| Quarter 4, 2007 | | | | | | | | | | | * | * | | | | | | | * | | | | |
| Quarter 1, 2008 | | | | | | | | | | | * | * | | | | | | | * | | | | |
| Quarter 2, 2008 | | | | | | | | | | | * | * | | | | | | | * | | | | |
| Quarter 3, 2008 | | | | | | | | | | | * | * | | | | | | | * | | | | |
| Quarter 4, 2008 | | | | | | | | | | | * | * | | | | | | | * | | | | |
| Quarter 1, 2009 | | | | | | | | | | | * | * | | | | | | | * | | | | |
| Quarter 2, 2009 | | | | | | | | | | | * | * | * | | | | | | * | | | | |

Chart of MCL and Historical UTL Exceedances for the C-746-S&T Landfills (Continued)

| Groundwater Flow System | UCRS | | | | | URGA | | | | | | | | | | LRGA | | | | | | | |
|-------------------------|------|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|-----|-----|
| | S | D | D | D | U | S | S | S | S | S | D | D | D | D | U | U | S | D | D | D | D | U | U |
| Monitoring Well | 386 | 389 | 390 | 393 | 396 | 221 | 222 | 223 | 224 | 384 | 369 | 372 | 387 | 391 | 220 | 394 | 385 | 370 | 373 | 388 | 392 | 395 | 397 |
| DISSOLVED SOLIDS | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 3, 2009 | | | | | | | | | | | | * | * | | | | | | | * | | | |
| Quarter 4, 2009 | | | | | | | | | | | | * | * | | | | | | | * | | | |
| Quarter 1, 2010 | | | | | | | | | | | | * | * | | | | | | | * | | | |
| Quarter 2, 2010 | | | | | | | | | | * | | * | * | | | | | | | * | | | |
| Quarter 3, 2010 | | | | | | | | | | * | | * | | | | | | | | * | | | |
| Quarter 4, 2010 | | | | | | | | | | * | | * | | | | | | | | * | | | |
| Quarter 1, 2011 | | | | | | | | | | * | | * | | | | | | | | * | | | |
| Quarter 2, 2011 | | | | | | | | | | | | * | * | | | | | | | * | | | |
| Quarter 3, 2011 | | | | | | | | | | | | * | | | | | | | | * | | | |
| Quarter 4, 2011 | | | | | | | | | | | | * | | | | | | | | * | | | |
| Quarter 1, 2012 | | | | | | | | | | | * | * | * | | | | | | | * | | | |
| Quarter 2, 2012 | | | | | | | | | | | | * | | | | | | | | * | | | |
| Quarter 3, 2012 | | | | | | | | | | | * | * | * | | | | | | | * | | | |
| Quarter 4, 2012 | | | | | | | | | | | * | * | * | | | | | | | * | | | |
| Quarter 1, 2013 | | | | | | | | | | * | | * | | | | | | | | * | | | |
| Quarter 2, 2013 | | | | | | | | | | | | * | | | | | | | | * | | | |
| Quarter 3, 2013 | | | | | | | | | | | | * | | | | | | | | * | | | |
| Quarter 4, 2013 | | | | | | | | | | | | * | | | | | | | | * | | | |
| Quarter 1, 2014 | | | | | | | | | | | | * | * | | | | | | | * | | | |
| Quarter 2, 2014 | | | | | | | | | | | | * | | | | | | | | * | | | |
| Quarter 3, 2014 | | | | | | | | | * | | | * | * | | | | | | | * | | | |
| Quarter 4, 2014 | | | | | | | | | | | | * | * | | | | | | | * | | | |
| Quarter 1, 2015 | | | | | | | | | | | | * | | | | | | | | * | | | |
| Quarter 2, 2015 | | | | | | | | | | | | * | | | | | | | | * | | | |
| Quarter 3, 2015 | | | | | | | | | | | | * | | | | | | | | * | | | |
| Quarter 4, 2015 | | | | | | | | | * | | | * | | | | | | * | | * | | | |
| Quarter 1, 2016 | | | | | | | | | | | | * | | | | | | | | * | | | |
| Quarter 2, 2016 | | | | | | | | | | | | * | * | * | | | | | | * | | | |
| Quarter 3, 2016 | | | | | | | | | | | | * | | | | | | | | * | | | |
| Quarter 4, 2016 | | | | | | | | | | | | * | | | | | | | | * | | | |
| Quarter 1, 2017 | | | | | | | | | | | | * | | | | | | | | * | | | |
| Quarter 2, 2017 | | | | | | | | | | | | * | | | | | | | | * | | | |
| Quarter 3, 2017 | | | | | | | | | | | | * | | * | * | | | | | * | | | |
| Quarter 4, 2017 | | | | | | | | | | | | * | | | | | | | | * | | | |
| Quarter 1, 2018 | | | | | | | | | | | | * | | | | | | | | * | | | |
| Quarter 2, 2018 | | | | | | | | | | | | * | | | | | | | | * | | | |
| Quarter 3, 2018 | | | | | | | | | | | | * | | * | | | | | | * | | | |
| Quarter 4, 2018 | | | | | | | | | | | | * | | | | | | | | * | | | |
| Quarter 1, 2019 | | | | | | | | | | | | * | | | | | | | | * | | | |
| Quarter 2, 2019 | | | | | | | | | | | | * | | | | | | | | * | | | |
| IODIDE | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 4, 2002 | | | | | | | | | | | | | | | | | | | | | | * | |
| Quarter 2, 2003 | | | | | | | * | | | | | | | | | | | | | | | | |
| Quarter 3, 2003 | | | | | | | | | | | | | * | | | | | | | | | | |
| Quarter 1, 2004 | | | | * | | | | | | | | | | | | | | | | | | | |
| Quarter 3, 2010 | | | | | | | | | | | | | | | | | | | | | | * | |
| Quarter 2, 2013 | | | | | | | | | | | * | | | | | | | | | | | | |
| IRON | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 1, 2003 | | | | | | | * | | | * | * | | | * | | | | | | | | | |
| Quarter 2, 2003 | | | | | | | | | | * | * | * | * | | | | | | | | | | |
| Quarter 3, 2003 | | | | | | | * | * | * | * | * | * | | | | | | | | | | | |
| Quarter 4, 2003 | | | | | | | | | | | * | | | | | | | | | | | | |
| Quarter 1, 2004 | | | | | | | | | | | * | | | | | | | | | | | | |
| Quarter 2, 2004 | | | | | | | | | | | * | * | | | | | | | | | | | |
| Quarter 3, 2004 | | | | | | | | | | | * | | | | | | | | | | | | |
| Quarter 4, 2004 | | | | | | | | | | | * | | | | | | | | | | | | |

Chart of MCL and Historical UTL Exceedances for the C-746-S&T Landfills (Continued)

| Groundwater Flow System | UCRS | | | | | URGA | | | | | | | | | | LRGA | | | | | | | |
|-------------------------|------|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|-----|-----|
| | S | D | D | D | U | S | S | S | S | S | D | D | D | D | U | U | S | D | D | D | U | U | |
| Monitoring Well | 386 | 389 | 390 | 393 | 396 | 221 | 222 | 223 | 224 | 384 | 369 | 372 | 387 | 391 | 220 | 394 | 385 | 370 | 373 | 388 | 392 | 395 | 397 |
| IRON | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 1, 2005 | | | | | | | | | | | | * | | | | | | | | | | | |
| Quarter 2, 2005 | | | | | | | | | | | * | * | | | | | | | | | | | |
| Quarter 1, 2006 | | | | | | | * | | | | | | | | | | | | | | | | |
| Quarter 2, 2006 | | | | | | | | | | | | * | | | | | | | | | | | |
| Quarter 3, 2006 | | | | | | | | | | | * | | | | | | | | | | | | |
| Quarter 1, 2007 | | | | | | | | | | | * | * | | | | | | | | | | | |
| Quarter 2, 2007 | | | | | | | | | | | * | | | | | | | | | | | | |
| Quarter 2, 2008 | | | | | | | | | | | * | | | | | | | | | | | | |
| Quarter 3, 2008 | | | | | | | | | | | * | | | | | | | | | | | | |
| MAGNESIUM | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 1, 2003 | | | * | | | | | | | | | | | | | | | | | | | | |
| Quarter 2, 2003 | | | * | | | | | | | | * | | | | | | | | * | | | | |
| Quarter 3, 2003 | | | * | | | | * | | | | * | | | | | | | | | | | | |
| Quarter 4, 2003 | | | * | | | | | | | | * | | | | | | | | * | | | | |
| Quarter 1, 2004 | | | * | | | | | | | | * | | * | | | | | | * | | | | |
| Quarter 2, 2004 | | | * | | | | | | | | * | | | | | | | | * | | | | |
| Quarter 3, 2004 | | | * | | | | | | | | * | | | | | | | | * | | | | |
| Quarter 4, 2004 | | | * | | | | | | | | * | | | | | | | | * | | | | |
| Quarter 1, 2005 | | | | | | | | | | | * | | | | | | | | * | | | | |
| Quarter 2, 2005 | | | | | | | | | | | * | | | | | | | | * | | | | |
| Quarter 3, 2005 | | | | | | | | | | | * | | | | | | | | * | | | | |
| Quarter 4, 2005 | | | | | | | | | | | * | | | | | | | | * | | | | |
| Quarter 1, 2006 | | | | | | | | | | | * | | | | | | | | * | | | | |
| Quarter 2, 2006 | | | | | | | | | | | * | | | | | | | | * | | | | |
| Quarter 3, 2006 | | | | | | | | | | | * | | | | | | | | * | | | | |
| Quarter 4, 2006 | | | | | | | | | | | * | | | | | | | | * | | | | |
| Quarter 1, 2007 | | | | | | | | | | | * | | | | | | | | * | | | | |
| Quarter 2, 2007 | | | | | | | | | | | * | | | | | | | | * | | | | |
| Quarter 3, 2007 | | | | | | | | | | | * | | | | | | | | * | | | | |
| Quarter 4, 2007 | | | | | | | | | | | * | | | | | | | | * | | | | |
| Quarter 1, 2008 | | | | | | | | | | | * | | | | | | | | * | | | | |
| Quarter 2, 2008 | | | | | | | | | | | * | | | | | | | | * | | | | |
| Quarter 3, 2008 | | | | | | | | | | | * | | | | | | | | * | | | | |
| Quarter 4, 2008 | | | | | | | | | | | * | | | | | | | | * | | | | |
| Quarter 1, 2009 | | | | | | | | | | | * | | | | | | | | * | | | | |
| Quarter 2, 2009 | | | | | | | | | | | * | | | | | | | | * | | | | |
| Quarter 3, 2009 | | | | | | | | | | | * | * | | | | | | | * | | | | |
| Quarter 4, 2009 | | | | | | | | | | | * | | | | | | | | * | | | | |
| Quarter 1, 2010 | | | | | | | | | | | * | | | | | | | | * | | | | |
| Quarter 2, 2010 | | | | | | | | | | | * | * | | | | | | | * | | | | |
| Quarter 3, 2010 | | | | | | | | | | | * | | | | | | | | * | | | | |
| Quarter 4, 2010 | | | | | | | | | | | * | | | | | | | | * | | | | |
| Quarter 1, 2011 | | | | | | | | | | | * | | | | | | | | * | | | | |
| Quarter 2, 2011 | | | | | | | | | | | * | * | | | | | | | * | | | | |
| Quarter 3, 2011 | | | | | | | | | | | * | | | | | | | | * | | | | |
| Quarter 4, 2011 | | | | | | | | | | | * | | | | | | | | * | | | | |
| Quarter 1, 2012 | | | | | | | | | | | * | | | | | | | | * | | | | |
| Quarter 2, 2012 | | | | | | | | | | | * | | | | | | | | * | | | | |
| Quarter 3, 2012 | | | | | | | | | | | * | * | | | | | | | * | | | | |
| Quarter 4, 2012 | | | | | | | | | | | * | * | | | | | | | * | | | | |
| Quarter 1, 2013 | | | | | | | | | | | * | | | | | | | | * | | | | |
| Quarter 2, 2013 | | | | | | | | | | | * | | | | | | | | * | | | | |
| Quarter 3, 2013 | | | | | | | | | | | * | | | | | | | | * | | | | |
| Quarter 4, 2013 | | | | | | | | | | | * | | | | | | | | * | | | | |
| Quarter 1, 2014 | | | | | | | | | | | | | | | | | | * | * | | | | |

Chart of MCL and Historical UTL Exceedances for the C-746-S&T Landfills (Continued)

| Groundwater Flow System | UCRS | | | | | URGA | | | | | | | | | | LRGA | | | | | | | |
|--------------------------------------|------|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|-----|-----|
| | S | D | D | D | U | S | S | S | S | S | D | D | D | D | U | U | S | D | D | D | D | U | U |
| Monitoring Well | 386 | 389 | 390 | 393 | 396 | 221 | 222 | 223 | 224 | 384 | 369 | 372 | 387 | 391 | 220 | 394 | 385 | 370 | 373 | 388 | 392 | 395 | 397 |
| MAGNESIUM | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 2, 2014 | | | | | | | | | | | | * | * | | | | | | * | | | | |
| Quarter 3, 2014 | | | | | | | | | | | | * | | | | | | | * | | | | |
| Quarter 4, 2014 | | | | | | | | | | | | * | * | | | | | | * | | | | |
| Quarter 1, 2015 | | | | | | | | | | | | * | * | | | | | | * | | | | |
| Quarter 2, 2015 | | | | | | | | | | | | * | | | | | | | * | | | | |
| Quarter 3, 2015 | | | | | | | | | | | | * | | | | | | | * | | | | |
| Quarter 4, 2015 | | | | | | | | | | | | * | | | | | | | * | | | | |
| Quarter 1, 2016 | | | | | | | | | | | | * | | | | | | | * | | | | |
| Quarter 2, 2016 | | | | | | | | | | | | * | | * | | | | | * | | | | |
| Quarter 3, 2016 | | | | | | | | | | | | * | | | | | | | * | | | | |
| Quarter 4, 2016 | | | | | | | | | | | | * | | * | | | | | * | | | | |
| Quarter 1, 2017 | | | | | | | | | | | | * | | * | | | | | * | | | | |
| Quarter 2, 2017 | | | | | | | | | | | | * | | | | | | | * | | | | |
| Quarter 3, 2017 | | | | | | | | | | | | * | | * | | | | | * | | | | |
| Quarter 4, 2017 | | | | | | | | | | | | * | | | | | | | * | | | | |
| Quarter 1, 2018 | | | | | | | | | | | | * | * | | | | | | * | | | | |
| Quarter 2, 2018 | | | | | | | | | | | | * | | | | | | | * | | | | |
| Quarter 3, 2018 | | | | | | | | | | | | * | | | | | | | * | | | | |
| Quarter 4, 2018 | | | | | | | | | | | | * | * | * | | | | | * | | | | |
| Quarter 1, 2019 | | | | | | | | | | | | * | | * | | | | | * | | | | |
| Quarter 2, 2019 | | | | | | | | | | | | * | | | | | | | * | | | | |
| MANGANESE | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 4, 2002 | | | | | | | | | | | | | | | | | | | | | * | | |
| Quarter 3, 2003 | | | | | | | | * | * | | | | | | | | | | | | | | |
| Quarter 4, 2003 | | | | | | | | * | * | | | | | | | | | | | | | | |
| Quarter 1, 2004 | | | | | | | | * | | | | | | | | | | | | | | | |
| Quarter 2, 2004 | | | | | | | | * | | | | | | | | | | | | | | | |
| Quarter 4, 2004 | | | | | | | | * | * | | | | | | | | | | | | | | |
| Quarter 1, 2005 | | | | | | | | * | | | | | | | | | | | | | | | |
| Quarter 3, 2005 | | | | | | | | | | | | | | | | | | | | | * | | |
| Quarter 3, 2009 | * | | | | | | | | | | | | | | | | | | | | | | |
| OXIDATION-REDUCTION POTENTIAL | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 4, 2003 | | | * | | | | | | | | | | | | | | | | | | | | |
| Quarter 2, 2004 | | | * | | | | | | | | | | | | | | | | | | | | |
| Quarter 3, 2004 | | | * | | | | | | | | | | | | | | | * | | | | | |
| Quarter 4, 2004 | | | * | | | * | | | | | | | | | | | | | | | | | |
| Quarter 1, 2005 | | | * | | | | | | | | | | | | | | | * | | | | | |
| Quarter 2, 2005 | * | | * | | | | | | | | | | | | | | | | | | | | |
| Quarter 3, 2005 | * | | * | | | | | | | | | | | | | | | | | | | | |
| Quarter 4, 2005 | | | * | | | | | | | | | | | | | | | | | | | | |
| Quarter 2, 2006 | | | * | | | | | | | | | | | | | | | * | | | | | |
| Quarter 3, 2006 | | | * | | | | | | | | | | | | | | | * | | | | | |
| Quarter 4, 2006 | | | * | | | | | | | | | | | | | | | | | | | | |
| Quarter 1, 2007 | | | * | | | | | | | | | | | | | | | | | | | | |
| Quarter 2, 2007 | | | * | | | | | * | | | | | | | | | | | | | | | |
| Quarter 3, 2007 | | | * | | | | | * | | | | | | | | | | | | | | | |
| Quarter 4, 2007 | | | * | | | | | | | | | | | | | | | | | | | | |
| Quarter 1, 2008 | | | * | | | * | | | * | | | | | | | | | | | | | | |
| Quarter 2, 2008 | * | | * | * | * | * | | | | | | * | | | | | * | * | * | * | | | |
| Quarter 3, 2008 | | | * | * | * | * | | | | | | * | | | | | * | * | * | * | | | |
| Quarter 4, 2008 | | | * | * | * | * | * | * | * | | | * | | | | | * | * | * | * | | | |
| Quarter 1, 2009 | | | * | | | * | * | * | * | | | * | * | | | | * | * | * | * | | | |
| Quarter 3, 2009 | | | * | * | * | * | | | | | | | | | | | * | * | * | * | | | |
| Quarter 4, 2009 | | | * | * | * | * | | | | | | | | | | | * | * | * | * | | | |
| Quarter 1, 2010 | * | | * | | | | | | | | | | | | | | | | | * | | | |
| Quarter 2, 2010 | * | | * | * | | | | * | | | | * | | | | | * | * | * | * | | | |
| Quarter 3, 2010 | * | | * | * | * | * | | | | | | | | | | | * | * | * | * | | | |

Chart of MCL and Historical UTL Exceedances for the C-746-S&T Landfills (Continued)

| Groundwater Flow System | UCRS | | | | | URGA | | | | | | | | | | LRGA | | | | | | | |
|--------------------------------------|------|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|-----|-----|
| | S | D | D | D | U | S | S | S | S | S | D | D | D | D | U | U | S | D | D | D | D | U | U |
| Monitoring Well | 386 | 389 | 390 | 393 | 396 | 221 | 222 | 223 | 224 | 384 | 369 | 372 | 387 | 391 | 220 | 394 | 385 | 370 | 373 | 388 | 392 | 395 | 397 |
| OXIDATION-REDUCTION POTENTIAL | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 4, 2010 | | | * | | | | | * | | | * | | | * | | | * | * | * | * | | | |
| Quarter 1, 2011 | * | | | * | | * | * | * | * | * | * | * | * | * | | | * | * | * | * | * | * | * |
| Quarter 2, 2011 | * | | * | * | | * | * | * | * | * | * | * | * | * | | | * | * | * | * | * | * | * |
| Quarter 3, 2011 | * | | * | * | | * | * | * | * | * | * | * | * | * | * | | * | * | * | * | * | * | * |
| Quarter 4, 2011 | * | | * | * | | * | * | * | * | * | * | * | * | * | | | * | * | * | * | * | * | * |
| Quarter 1, 2012 | * | | * | * | | * | * | * | * | * | * | * | * | * | | | * | * | * | * | * | * | * |
| Quarter 2, 2012 | * | | * | * | | * | * | * | * | * | * | * | * | * | | | * | * | * | * | * | * | * |
| Quarter 3, 2012 | * | | * | * | | * | * | * | * | * | * | * | * | * | | | * | * | * | * | * | * | * |
| Quarter 4, 2012 | | | | * | | * | * | * | * | * | * | * | * | * | | | * | * | * | * | * | * | * |
| Quarter 1, 2013 | | | | * | | * | * | * | * | * | * | * | * | * | | | * | * | * | * | * | * | * |
| Quarter 2, 2013 | * | | | * | | * | * | * | * | * | * | * | * | * | | | * | * | * | * | * | * | * |
| Quarter 3, 2013 | * | | * | * | | * | * | * | * | * | * | * | * | * | | | * | * | * | * | * | * | * |
| Quarter 4, 2013 | | | * | * | | * | * | * | * | * | * | * | * | * | | | * | * | * | * | * | * | * |
| Quarter 1, 2014 | * | | * | * | | * | * | * | * | * | * | * | * | * | | | * | * | * | * | * | * | * |
| Quarter 2, 2014 | * | | * | * | | * | * | * | * | * | * | * | * | * | | | * | * | * | * | * | * | * |
| Quarter 3, 2014 | * | | * | * | | * | * | * | * | * | * | * | * | * | | | * | * | * | * | * | * | * |
| Quarter 4, 2014 | * | | * | * | | * | * | * | * | * | * | * | * | * | | | * | * | * | * | * | * | * |
| Quarter 1, 2015 | * | | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| Quarter 2, 2015 | * | | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| Quarter 3, 2015 | * | | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| Quarter 4, 2015 | * | | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| Quarter 1, 2016 | * | | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| Quarter 2, 2016 | * | | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| Quarter 3, 2016 | * | | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| Quarter 4, 2016 | * | | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| Quarter 1, 2017 | * | | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| Quarter 2, 2017 | * | | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| Quarter 3, 2017 | * | | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| Quarter 4, 2017 | * | | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| Quarter 1, 2018 | * | | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| Quarter 2, 2018 | * | | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| Quarter 3, 2018 | * | | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| Quarter 4, 2018 | * | | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| Quarter 1, 2019 | * | | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| Quarter 2, 2019 | * | | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| PCB-1016 | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 4, 2003 | | | | | | | * | * | * | | * | | | | | | | * | | | | | |
| Quarter 3, 2004 | | | | | | | | | | | * | | | | | | | | | | | | |
| Quarter 3, 2005 | | | | | | | * | | | | * | | | | | | | | | | | | |
| Quarter 1, 2006 | | | | | | | | | | | * | | | | | | | | | | | | |
| Quarter 2, 2006 | | | | | | | | | | | * | | | | | | | | | | | | |
| Quarter 4, 2006 | | | | | | | | | | | * | | | | | | | | | | | | |
| Quarter 1, 2007 | | | | | | | | | | | * | * | | | | | | | | | | | |
| Quarter 2, 2007 | | | | | | | | | | | * | * | | | | | | | | | | | |
| Quarter 3, 2007 | | | | | | | | | | | * | | | | | | | | | | | | |
| Quarter 2, 2008 | | | | | | | | | | | * | * | | | | | | | | | | | |
| Quarter 3, 2008 | | | | | | | | | | | * | | | | | | | | | | | | |
| Quarter 4, 2008 | | | | | | | | | | | * | | | | | | | | | | | | |
| Quarter 1, 2009 | | | | | | | | | | | * | | | | | | | | | | | | |
| Quarter 2, 2009 | | | | | | | | | | | * | | | | | | | | | | | | |
| Quarter 3, 2009 | | | | | | | | | | | * | | | | | | | | | | | | |
| Quarter 4, 2009 | | | | | | | | | | | * | | | | | | | | | | | | |
| Quarter 1, 2010 | | | | | | | | | | | * | | | | | | | | | | | | |
| Quarter 2, 2010 | | | | | | | | | | | * | | | | | | | | | | | | |
| Quarter 3, 2010 | | | | | | | | | | | * | | | | | | | | | | | | |
| Quarter 4, 2010 | | | | | | | | | | | * | | | | | | | | | | | | |

Chart of MCL and Historical UTL Exceedances for the C-746-S&T Landfills (Continued)

| Groundwater Flow System | UCRS | | | | | URGA | | | | | | | | | | | LRGA | | | | | | |
|-------------------------|------|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|-----|
| | S | D | D | D | U | S | S | S | S | S | D | D | D | D | U | U | S | D | D | D | D | U | U |
| Monitoring Well | 386 | 389 | 390 | 393 | 396 | 221 | 222 | 223 | 224 | 384 | 369 | 372 | 387 | 391 | 220 | 394 | 385 | 370 | 373 | 388 | 392 | 395 | 397 |
| PCB-1232 | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 1, 2011 | | | | | | | | | | | * | | | | | | | | | | | | |
| PCB-1248 | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 2, 2008 | | | | | | | | | | | | * | | | | | | | | | | | |
| PCB-1260 | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 2, 2006 | | | | | | | | | | | | | | | | | | * | | | | | |
| pH | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 4, 2002 | | | | | | | | | | | | | | | | | * | | | | | | |
| Quarter 2, 2003 | | | | | | | | | | | | | | | | | * | | | | | | |
| Quarter 3, 2003 | | | | | | | | | | | | | | | | | * | | | | | | |
| Quarter 4, 2003 | | | | | | | | | * | | | | | | | | * | | | | | | |
| Quarter 1, 2004 | | | | | | | | | * | | | | | | | | * | | | | | | |
| Quarter 2, 2004 | | | | | | | | | | | | | | | | | * | | | | | | |
| Quarter 3, 2004 | | | | | | | | | | | | | | | | | * | | | | | | |
| Quarter 4, 2004 | | | | | | | | | | | | | | | | | * | | | | | | |
| Quarter 3, 2005 | | | | | | | | | | | * | | | | | | * | | | | * | | |
| Quarter 4, 2005 | | | | | | | | | | | * | | | | | | * | | | | | | |
| Quarter 1, 2006 | | | | | | | | | | | | | | | | | * | | | | | | |
| Quarter 2, 2006 | | | | | | | | | | | | | | | | | * | | | | | | |
| Quarter 3, 2006 | | | | | | | | | | | | | | | | | * | | | | | | |
| Quarter 3, 2007 | | | | | | | | | | | | | | | | | * | | | | | | |
| Quarter 4, 2007 | | | | | | | | | | | | | | | | | * | | | | | | |
| Quarter 4, 2008 | | | | | | | | | | | | | | | | | * | | | | | | |
| Quarter 1, 2009 | | | | | | | | | | | | | | | | | * | | | | | | |
| Quarter 1, 2011 | | | | | | | | | | | | | | | | | * | | | | | | |
| Quarter 2, 2011 | | | | | | | | | | | * | | | | | | | | | | | | |
| Quarter 3, 2011 | | | | | | | | | | | * | | | | | | | | | | | | |
| Quarter 1, 2012 | | | | | | | | | | | | | | * | | | | | | | | | |
| Quarter 1, 2013 | | | | | | | | | | | * | | * | | | | * | | | | | | |
| Quarter 4, 2014 | | | | | | | | | | | | | | | | | | | | | | * | |
| Quarter 2, 2016 | | | | | | | | | | | | | | | | | | * | * | | | | |
| POTASSIUM | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 4, 2002 | | | | | | | | | | | | | | | | | | * | * | | | | |
| Quarter 3, 2004 | | | | | | | | | | | | | | | | | | | * | | | | |
| Quarter 2, 2005 | | | | | | | | | | | | | | | | | | | * | | | | |
| Quarter 3, 2005 | | | | | | | | | | | | | | | | | | | * | | | | |
| Quarter 4, 2005 | | | | | | | | | | | | | | | | | | | * | | | | |
| Quarter 2, 2006 | | | | | | | | | | | | | | | | | | | * | | | | |
| Quarter 3, 2006 | | | | | | | | | | | | | | | | | | | * | | | | |
| Quarter 4, 2006 | | | | | | | | | | | | | | | | | | | * | | | | |
| Quarter 4, 2008 | | | | | | | | | | | | | | | | | | | * | | | | |
| Quarter 3, 2012 | | | | | | | | | | | | | | | | | | | * | | | | |
| Quarter 1, 2013 | | | | | | | | | | | | | | | | | | | * | | | | |
| Quarter 2, 2013 | | | | | | | | | | | | | | | | | | | * | | | | |
| Quarter 3, 2013 | | | | | | | | | | | | | | | | | | | * | | | | |
| RADIUM-226 | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 4, 2002 | | | * | | | | | | | | | * | * | | | | | | | | | * | |
| Quarter 2, 2004 | | | | | | | | | | | | | | | | | | | * | | | | |
| Quarter 2, 2005 | | | | | | | | | * | | | | | | | | | | | | | | |
| Quarter 1, 2009 | | | | | | | | | | | * | | | | | | | | | | | | |
| Quarter 3, 2014 | | | | | | | | | * | | | * | | | | | | | | | | | |
| Quarter 4, 2014 | | | * | | | | | | | | * | | | | | | | | * | | | | |
| Quarter 1, 2015 | | | * | | | | * | | | * | * | | | | | | | | * | | | | |
| Quarter 2, 2015 | | | * | | | | * | | | * | * | | | | | | | | * | | | | |
| Quarter 3, 2015 | | | * | | | | | | | | | | | | | | | | | | | | |

Chart of MCL and Historical UTL Exceedances for the C-746-S&T Landfills (Continued)

| Groundwater Flow System | UCRS | | | | | URGA | | | | | | | | | | LRGA | | | | | | | |
|-------------------------|------|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|-----|-----|
| | S | D | D | D | U | S | S | S | S | S | D | D | D | D | U | U | S | D | D | D | D | U | U |
| Monitoring Well | 386 | 389 | 390 | 393 | 396 | 221 | 222 | 223 | 224 | 384 | 369 | 372 | 387 | 391 | 220 | 394 | 385 | 370 | 373 | 388 | 392 | 395 | 397 |
| RADIUM-226 | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 4, 2015 | | | | | * | * | | | | | | | | | * | | * | | | | * | * | |
| Quarter 2, 2016 | | | * | | | | | * | | * | * | * | * | * | * | * | | * | | | | | |
| Quarter 3, 2016 | | | | | | | | | | | | | | | | | | * | | | | | |
| Quarter 4, 2016 | * | | * | | | * | | * | | | | * | | * | | * | | | | * | | * | |
| Quarter 1, 2017 | | | * | | | | | * | * | | | | | | | | | * | | | | | |
| Quarter 2, 2017 | | | | | | | | | * | * | * | | | | | | * | * | | * | * | | |
| Quarter 3, 2017 | | | | | * | | | * | * | * | | | | | | | | | | * | * | | |
| Quarter 4, 2017 | | | | | | | | | | | | | | | | | | * | | * | * | | |
| Quarter 1, 2018 | | | | | | | | | | | | * | | | | | * | * | | * | * | | |
| Quarter 4, 2018 | | | | | | | | | | | | * | | | | | * | | | | | | |
| RADIUM-228 | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 2, 2005 | | | | | | | | ■ | | | | ■ | | | | | | | | | | | |
| Quarter 3, 2005 | | | | ■ | | | | | | | | | | | | | | | | | | | |
| Quarter 4, 2005 | | | | | | | | ■ | | ■ | | | | | | | | | | | | | |
| Quarter 1, 2006 | | | | | ■ | | | | | | | | | | | | | | | | | | |
| SELENIUM | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 4, 2002 | | | | ■ | | ■ | | | | | | | | | | | | | | | | | |
| Quarter 1, 2003 | | | | | | ■ | | | | | | | | | | | | | | | | | ■ |
| Quarter 2, 2003 | | | | ■ | | | | | | | | | | | | | | | | | | | |
| Quarter 3, 2003 | | | | ■ | | ■ | | | | | | | | | | | | | | | | | |
| Quarter 4, 2003 | | | | ■ | | | | | | | | | | | | | | | | | | | |
| SODIUM | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 4, 2002 | | | | | | | | | | | | | | | | | | | * | | * | | |
| Quarter 1, 2003 | | | | * | | | | | * | * | * | | | | | | | | | | | | |
| Quarter 2, 2003 | | | | * | | | | | * | * | * | | * | | | | | | | | | | |
| Quarter 3, 2003 | | | | | | * | * | | * | * | * | | | | | | | | | | | | |
| Quarter 4, 2003 | | | | | | * | | * | * | * | | | | | | | | | | | | | |
| Quarter 1, 2004 | | | | | | | | * | * | * | | | | * | | | | | | | | | |
| Quarter 2, 2004 | | | | | | | | | * | * | | | | | | | | | | | | | |
| Quarter 3, 2004 | | | | | | | | | * | * | | | | | | | | | | | | | |
| Quarter 4, 2004 | | | | | | | | * | * | * | | | | | | | | | | | | | |
| Quarter 1, 2005 | | | | | | | | | * | * | | | | | | | | | * | | | | |
| Quarter 2, 2005 | | | | | | | | | * | * | | | | | | | | | * | | | | |
| Quarter 3, 2005 | | | | | | | | | * | * | | | | | | | | | * | | | | |
| Quarter 4, 2005 | | | | | | | | | * | * | | | | | | | | | * | | | | |
| Quarter 1, 2006 | | | | | | | | | * | * | | | | | | | | | * | | | | |
| Quarter 2, 2006 | | | | | | | | | * | * | | | | | | | | | * | | | | |
| Quarter 3, 2006 | | | | | | | | | * | * | * | | | | | | | | * | | | | |
| Quarter 4, 2006 | | | | | | | | | * | * | * | | | | | | * | | * | | | | |
| Quarter 1, 2007 | | | | | | | | | * | * | * | | * | | | | | | * | | | | |
| Quarter 2, 2007 | | | | | | | | | * | * | | | | | | | | | * | | | | |
| Quarter 3, 2007 | | | | | | | | | * | * | | | | | | | | | * | | | | |
| Quarter 4, 2007 | | | | | | | | | * | * | | | | | | | | | * | | | | |
| Quarter 1, 2008 | | | | | | | | | * | * | | | | | | | | | * | | | | |
| Quarter 3, 2008 | | | | | | | | | | * | * | | * | | | | | | * | | | | |
| Quarter 4, 2008 | | | | | | | | | * | * | | * | | | | | | | * | | | | |
| Quarter 1, 2009 | | | | | | | | | * | * | | * | | | | | | | * | | | | |
| Quarter 3, 2009 | | | | | | | | | * | * | | * | | | | | | | * | | | | |
| Quarter 4, 2009 | | | | | | | | | * | * | | * | | | | | | | * | | | | |
| Quarter 1, 2010 | | | | | | | | | * | * | | * | | | | | | | * | | | | |
| Quarter 2, 2010 | | | | | | | | | * | * | | * | | | | | | | * | | | | |
| Quarter 3, 2010 | | | | | | | | | * | * | | * | | | | | | | * | | | | |
| Quarter 4, 2010 | | | | | | | | | * | * | | * | | | | | | | * | | | | |
| Quarter 1, 2011 | | | | | | | | | * | * | | * | | | | | | | * | | | | |
| Quarter 2, 2011 | | | | | | | | | * | * | | * | | | | | | | * | | | | |
| Quarter 4, 2011 | | | | | | | | | * | * | | * | | | | | | | * | | | | |

Chart of MCL and Historical UTL Exceedances for the C-746-S&T Landfills (Continued)

| Groundwater Flow System | UCRS | | | | | URGA | | | | | | | | | | LRGA | | | | | | | |
|-------------------------|------|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|-----|-----|
| | S | D | D | D | U | S | S | S | S | S | D | D | D | D | U | U | S | D | D | D | D | U | U |
| Monitoring Well | 386 | 389 | 390 | 393 | 396 | 221 | 222 | 223 | 224 | 384 | 369 | 372 | 387 | 391 | 220 | 394 | 385 | 370 | 373 | 388 | 392 | 395 | 397 |
| SODIUM | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 1, 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 2, 2016 | | | | | | | | | | | * | * | | | | | | | * | | | | |
| Quarter 3, 2016 | | | | | | | | | | | * | * | | | | | | | * | | | | * |
| Quarter 1, 2017 | | | | | | | | | | * | * | * | | | | | | * | | | | | |
| Quarter 2, 2017 | | | | | | | | | * | * | * | * | | | | | | | * | | | | |
| Quarter 2, 2018 | | | | | | | | | | | * | * | * | | | | | | * | | | | |
| Quarter 3, 2018 | | | | | | | | | | | * | * | * | | * | | | | * | | | | |
| Quarter 1, 2019 | | | | | | | | | | | * | * | * | | | | | | * | | | | |
| Quarter 2, 2019 | | | | | | | | | | | * | * | * | | | | | | * | | | | |
| STRONTIUM-90 | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 2, 2003 | | | | | | | | | | ■ | | | | | | | | | | | | | |
| Quarter 1, 2004 | | | | | | | | | | ■ | | | | | | | | | | | | | |
| SULFATE | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 4, 2002 | | | | | | | | | | | | | | | | | | | * | | | | |
| Quarter 1, 2003 | | | | | | | | | | | * | * | * | | | | * | * | * | | | | |
| Quarter 2, 2003 | | | | | | | | | | * | * | * | * | | | | * | * | * | | | | |
| Quarter 3, 2003 | | | | | | | | | | * | * | * | * | | | | * | * | * | | | | |
| Quarter 4, 2003 | | | | | | | | | | * | * | * | * | | | | * | * | * | | | | |
| Quarter 1, 2004 | | | | | | | | | | * | * | * | * | | | | * | * | * | | | | |
| Quarter 2, 2004 | | | | | | | | | | * | * | * | * | | | | * | * | * | * | | | |
| Quarter 3, 2004 | | | | | | | | * | * | * | * | * | | | | | * | * | * | | | | |
| Quarter 4, 2004 | | | | | | | | * | * | * | * | * | | | | | * | * | * | * | | | |
| Quarter 1, 2005 | | | | | | | | | | * | * | * | * | | | | * | * | * | | | | |
| Quarter 2, 2005 | | | | | | | | | | * | * | * | * | | | | * | * | * | | | | |
| Quarter 3, 2005 | | | | | | | | | | * | * | * | * | | | | * | * | * | | | | |
| Quarter 4, 2005 | | | | | | | | | | * | * | * | * | | | | * | * | * | * | | | |
| Quarter 1, 2006 | | | | | | | | | | * | * | * | * | | | | * | * | * | * | | | |
| Quarter 2, 2006 | | | | | | | | * | * | * | * | * | | | | | * | * | * | * | | | |
| Quarter 3, 2006 | | | | | | | | * | * | * | * | * | | | | | * | * | * | * | | | |
| Quarter 4, 2006 | | | | | | | | * | * | * | * | * | | | | | * | * | * | * | | | |
| Quarter 1, 2007 | | | | | | | | * | * | * | * | * | | | | | * | * | * | * | | | |
| Quarter 2, 2007 | | | | | | | | * | * | * | * | * | | | | | * | * | * | * | | | |
| Quarter 3, 2007 | | | | | | | | * | * | * | * | * | | | | | * | * | * | * | | | |
| Quarter 4, 2007 | | | | | | | | * | * | * | * | * | | | | | * | * | * | * | | | |
| Quarter 1, 2008 | | | | | | | | * | * | * | * | * | | | | | * | * | * | * | | | |
| Quarter 2, 2008 | | | | | | | * | * | * | * | * | * | * | | | | * | * | * | * | | | |
| Quarter 3, 2008 | | | | | | | * | * | * | * | * | * | * | | | | * | * | * | * | | | |
| Quarter 4, 2008 | | | | | | | * | * | * | * | * | * | * | | | | * | * | * | * | | | |
| Quarter 1, 2009 | | | | | | | * | * | * | * | * | * | * | | | | * | * | * | * | | | |
| Quarter 2, 2009 | | | | | | | * | * | * | * | * | * | * | | | | * | * | * | * | | | |
| Quarter 3, 2009 | | | | | | | * | * | * | * | * | * | * | | | | * | * | * | * | | | |
| Quarter 4, 2009 | * | | | | | | * | * | * | * | * | * | * | | | | * | * | * | * | | | |
| Quarter 1, 2010 | * | | | | | | * | * | * | * | * | * | * | | | | * | * | * | * | | | |

Chart of MCL and Historical UTL Exceedances for the C-746-S&T Landfills (Continued)

| Groundwater Flow System | UCRS | | | | | URGA | | | | | | | | | | LRGA | | | | | | | | |
|-------------------------|------|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|-----|-----|--|
| | S | D | D | D | U | S | S | S | S | S | D | D | D | D | U | U | S | D | D | D | D | U | U | |
| Monitoring Well | 386 | 389 | 390 | 393 | 396 | 221 | 222 | 223 | 224 | 384 | 369 | 372 | 387 | 391 | 220 | 394 | 385 | 370 | 373 | 388 | 392 | 395 | 397 | |
| SULFATE | | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 2, 2010 | | | | | | | | | * | * | | * | * | | | | * | * | * | * | | | | |
| Quarter 3, 2010 | | | | | | | | | | * | | * | * | | | | * | * | * | * | | | | |
| Quarter 4, 2010 | * | | | | | | | | | * | | * | * | | | | * | * | * | * | | | | |
| Quarter 1, 2011 | * | | | | | | | | | * | | * | * | | | | * | * | * | * | | | | |
| Quarter 2, 2011 | * | | | | | | | | | * | | * | * | * | | | * | * | * | * | | | | |
| Quarter 3, 2011 | * | | | | | | | | | * | | * | * | * | | | * | * | * | * | | | | |
| Quarter 4, 2011 | * | | | | | | | | | * | | * | * | | | | * | * | * | * | | | | |
| Quarter 1, 2012 | * | | | | | | | | | * | | * | * | | | | * | * | * | * | | | | |
| Quarter 2, 2012 | * | | | | | | | | | * | | * | * | | | | * | * | * | * | | | | |
| Quarter 3, 2012 | * | | | | | | | | | * | | * | * | | | | * | * | * | * | | | | |
| Quarter 4, 2012 | | | | | | | | | | * | | * | * | | | | * | * | * | * | | | | |
| Quarter 1, 2013 | | | | | | | | | | * | | * | * | | | | * | * | * | * | | | | |
| Quarter 2, 2013 | | | | | | | | | | * | | * | * | * | | | * | * | * | * | | | | |
| Quarter 3, 2013 | | | | | | | | | | * | | * | * | * | | | * | * | * | * | | | | |
| Quarter 4, 2013 | | | | | | | | | | * | | * | * | | | | * | * | * | * | | | | |
| Quarter 1, 2014 | | | | | | | | | * | | * | * | * | | | | * | * | * | * | | | | |
| Quarter 2, 2014 | | | | | | | | | | * | | * | * | * | | | * | * | * | * | | | | |
| Quarter 3, 2014 | | | | | | | | | | * | | * | * | * | | | * | * | * | * | | | | |
| Quarter 4, 2014 | | | | | | | | | | * | | * | * | | | | * | * | * | * | | | | |
| Quarter 1, 2015 | | | | | | | | | | * | | * | * | | | | * | * | * | * | | | | |
| Quarter 2, 2015 | | | | | | | | | | * | * | * | * | * | * | | * | * | * | * | | | | |
| Quarter 3, 2015 | | | | | | | | | * | * | * | * | * | * | * | | * | * | * | * | | | | |
| Quarter 4, 2015 | | | | | | | | | | * | | * | * | * | | | * | * | * | * | | | | |
| Quarter 1, 2016 | | | | | | | | | * | * | * | * | * | * | | | * | * | * | * | | | | |
| Quarter 2, 2016 | | | | | | | | | * | * | * | * | * | * | * | | * | * | * | * | | | | |
| Quarter 3, 2016 | | | | | | | | | * | * | * | * | * | * | * | | * | * | * | * | | | | |
| Quarter 4, 2016 | | | | | | | | | | * | * | * | * | * | * | | * | * | * | * | | | | |
| Quarter 1, 2017 | | | | | | | | | | * | * | * | * | * | * | | * | * | * | * | | | | |
| Quarter 2, 2017 | | | | | | | | | * | * | * | * | * | * | * | | * | * | * | * | | | | |
| Quarter 3, 2017 | | | | | | | | | * | * | * | * | * | * | * | | * | * | * | * | | | | |
| Quarter 4, 2017 | | | | | | | | | | * | * | * | * | * | * | | * | * | * | * | | | | |
| Quarter 1, 2018 | | | | | | | | | | * | * | * | * | * | * | | * | * | * | * | | | | |
| Quarter 2, 2018 | | | | | | | | | * | * | * | * | * | * | * | | * | * | * | * | | | | |
| Quarter 3, 2018 | | | | | | | | | * | * | * | * | * | * | * | | * | * | * | * | | | | |
| Quarter 4, 2018 | | | | | | | | | | * | * | * | * | * | * | | * | * | * | * | | | | |
| Quarter 1, 2019 | | | | | | | | | * | * | * | * | * | * | * | | * | * | * | * | | | | |
| Quarter 2, 2019 | | | | | | | | | * | * | * | * | * | * | * | | * | * | * | * | | | | |
| TECHNETIUM-99 | | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 4, 2002 | | | | | | | | | | | | | | | | | | | * | | | | | |
| Quarter 1, 2003 | | | | | | | | | | | | | * | | | | * | | * | | | | | |
| Quarter 2, 2003 | * | | * | | | | | | | * | | * | | | | | * | | * | | | | | |
| Quarter 3, 2003 | | | * | | | | | | | | | * | | | | | * | | * | | * | | | |
| Quarter 4, 2003 | | | * | | | | | | | * | | * | * | | | | * | | * | * | | | | |
| Quarter 1, 2004 | | | * | | | | | | | | | * | * | | | | * | | * | | | | | |
| Quarter 2, 2004 | | | * | | | | | | | | | * | * | | | | * | | * | * | | | | |
| Quarter 3, 2004 | | | * | | | | | | | | | * | | | | | * | | * | | | | | |
| Quarter 4, 2004 | | | * | | | | | | | * | | * | * | | | | * | * | * | | | | | |
| Quarter 1, 2005 | | | * | | | | | | | * | | * | * | | | | * | | * | | * | | | |
| Quarter 2, 2005 | | | * | | | | | | | * | | * | * | | | | * | * | * | * | | | | |
| Quarter 3, 2005 | | | * | | | | | | | * | | * | * | | | | * | * | * | * | | | | |
| Quarter 4, 2005 | | | * | | | | | | | * | | * | * | | | | * | | * | * | | | | |
| Quarter 1, 2006 | | | * | | | | | | | * | | * | * | | | | * | | * | * | | | | |
| Quarter 2, 2006 | | | * | | | | | | | * | | * | * | | | | * | * | * | * | | | | |
| Quarter 3, 2006 | | | * | | | | | | | * | | * | * | | | | * | * | * | * | | | | |
| Quarter 4, 2006 | * | | | | | | | | | * | | * | * | | | | * | * | * | * | | | | |
| Quarter 1, 2007 | | | * | | | | | | | * | | * | * | | | | * | | * | * | | | | |

Chart of MCL and Historical UTL Exceedances for the C-746-S&T Landfills (Continued)

| Groundwater Flow System | UCRS | | | | | URGA | | | | | | | | | | LRGA | | | | | | | |
|-------------------------|------|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|-----|-----|
| | S | D | D | D | U | S | S | S | S | S | D | D | D | D | U | U | S | D | D | D | D | U | U |
| Monitoring Well | 386 | 389 | 390 | 393 | 396 | 221 | 222 | 223 | 224 | 384 | 369 | 372 | 387 | 391 | 220 | 394 | 385 | 370 | 373 | 388 | 392 | 395 | 397 |
| TECHNETIUM-99 | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 2, 2007 | | | * | | | | | | | * | | * | * | | | | * | * | | * | | | |
| Quarter 3, 2007 | | | * | | | | | | | * | * | * | * | | | | * | | * | * | | | |
| Quarter 4, 2007 | | | * | | | | | | | * | | * | * | | | | * | | * | * | | | |
| Quarter 1, 2008 | | | * | | | | | | | * | | * | * | | | | * | * | * | * | | | |
| Quarter 2, 2008 | | | * | | | | | | | * | * | | * | | | | * | | * | * | | | |
| Quarter 3, 2008 | | | | | | | | | | * | | * | * | | | | * | | | * | | | |
| Quarter 4, 2008 | | | * | | | | | | | * | | * | * | | | | * | * | * | * | | | |
| Quarter 1, 2009 | | | * | | | | | | | * | | * | * | | | | * | | * | * | | | |
| Quarter 2, 2009 | | | * | | | | | | | * | | * | * | | | | * | * | | * | | | |
| Quarter 3, 2009 | | | * | | | | | | | * | * | * | * | | | | * | | | * | | | |
| Quarter 4, 2009 | | | * | | | | | | | * | | * | * | | | | * | | | | | | |
| Quarter 1, 2010 | | | * | | | | | | | * | | * | * | | | | * | | | | | | |
| Quarter 2, 2010 | | | * | | | | | | | * | | * | * | | | | * | * | | * | | | |
| Quarter 3, 2010 | | | * | | | | | | | * | * | * | * | | | | * | | | | | | |
| Quarter 4, 2010 | | | * | | | | | | | * | | * | * | | | | * | | | | | | |
| Quarter 1, 2011 | | | | | | | | | | * | | | * | | | | * | | | | | | |
| Quarter 2, 2011 | | | * | | | | | | | * | | | * | | | | * | | | * | | | |
| Quarter 3, 2011 | | | * | | | | | | | * | | * | * | | | | * | | | * | | | |
| Quarter 4, 2011 | | | * | | | | | | | * | * | * | * | | | | * | | | | | | |
| Quarter 1, 2012 | | | * | | | | | | | * | | | * | | | | * | | | * | | | |
| Quarter 2, 2012 | | | * | | | | | | | * | | * | * | | | | * | | * | * | | | |
| Quarter 3, 2012 | | | * | | | | | | | * | | * | * | | | | * | | | | | | |
| Quarter 4, 2012 | | | | | | | | | | * | | * | * | | | | * | | * | * | | | |
| Quarter 1, 2013 | | | | | | | | | | * | | * | * | | | | * | | * | * | | | |
| Quarter 2, 2013 | | | | | | | | | | * | | * | * | | | | * | | * | * | | | |
| Quarter 3, 2013 | | | * | | | | | | | * | | * | * | | | | * | | * | * | | | |
| Quarter 4, 2013 | | | * | | | | | | | * | | * | * | | | | * | | * | * | | | |
| Quarter 1, 2014 | | | * | | | | | | | * | * | * | * | | | | * | | * | * | | | |
| Quarter 2, 2014 | | | * | | | | | | | * | * | | * | * | | | * | | * | * | | | |
| Quarter 3, 2014 | | | * | | | | | | | * | | * | * | | | | * | | | * | | | |
| Quarter 4, 2014 | | | * | | | | | | | * | * | * | * | | | | * | | * | * | | | |
| Quarter 1, 2015 | | | * | | | | | | | * | * | * | * | | | | * | | | * | | | |
| Quarter 2, 2015 | | | * | | | | | | | * | * | * | * | | | | * | | * | * | | | |
| Quarter 3, 2015 | | | * | | | | | | | * | * | * | * | | | | * | * | * | * | | | |
| Quarter 4, 2015 | | | * | | | | | | | * | * | * | * | | | | * | * | * | * | | | |
| Quarter 1, 2016 | | | * | | | | | | | * | * | * | * | | | | * | | * | * | | | |
| Quarter 2, 2016 | | | * | | | | * | | | * | | * | * | | | | * | * | * | * | | | |
| Quarter 3, 2016 | | | * | | | | | | | * | * | * | * | | | | * | * | * | * | | | |
| Quarter 4, 2016 | | | * | | | | | | | * | * | * | * | | | | * | | * | * | | | |
| Quarter 1, 2017 | | | * | | | | | | | * | | * | * | | | | * | * | * | * | | | |
| Quarter 2, 2017 | | | * | | | | | | | * | | * | * | | | | * | * | * | * | | | |
| Quarter 3, 2017 | | | * | | | | | | | * | * | * | * | | | | * | * | * | * | | | |
| Quarter 4, 2017 | | | * | | | | | | | * | * | * | * | | | | * | * | * | * | | | |
| Quarter 1, 2018 | | | * | | | | | | | * | * | * | * | | | | * | * | * | * | | | |
| Quarter 2, 2018 | | | * | | | | | | | * | * | * | * | | | | * | * | * | * | | | |
| Quarter 3, 2018 | | | * | | | | | | | * | * | * | * | | | | * | * | * | * | | | |
| Quarter 4, 2018 | | | * | | | | | | | * | * | * | * | | | | * | * | * | * | | | |
| Quarter 1, 2019 | | | * | | | | | | | * | * | * | * | | | | * | * | * | * | | | |
| Quarter 2, 2019 | | | * | | | | | | | * | * | * | * | | | | * | * | * | * | | | |
| THORIUM-230 | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 1, 2012 | * | | | | | | | | * | | | | | * | | | | | | | | | |
| Quarter 4, 2014 | * | * | | | | | | | * | * | | | * | | * | | | | | | | | |
| Quarter 3, 2015 | * | | | | | | | | * | * | | | * | | * | | | | | | | | |
| Quarter 1, 2017 | | * | | | | | | | * | | | | | | | | * | | | | | | |
| THORIUM-234 | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 2, 2003 | | | | | | * | | | * | | | | | * | | | | | | | | | |
| Quarter 4, 2007 | | | | | | | | | * | | | | | | | | | | | | | | |

Chart of MCL and Historical UTL Exceedances for the C-746-S&T Landfills (Continued)

| Groundwater Flow System | UCRS | | | | | URGA | | | | | | | | | | LRGA | | | | | | | |
|------------------------------|------|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|-----|-----|
| | S | D | D | D | U | S | S | S | S | S | D | D | D | D | U | U | S | D | D | D | D | U | U |
| Monitoring Well | 386 | 389 | 390 | 393 | 396 | 221 | 222 | 223 | 224 | 384 | 369 | 372 | 387 | 391 | 220 | 394 | 385 | 370 | 373 | 388 | 392 | 395 | 397 |
| TOLUENE | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 2, 2014 | | | | | | | | | | * | * | | * | | | | | | | | | | |
| TOTAL ORGANIC CARBON | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 4, 2002 | | | | | | | | | | | | | | | | | | | | | | * | |
| Quarter 1, 2003 | | | | * | | | | | | * | * | | | | | | | * | * | | | * | |
| Quarter 2, 2003 | | | | | | | | | | * | * | | * | | | | | | | | | * | |
| Quarter 3, 2003 | | | | | | | | | * | * | * | * | * | * | | | | | | | | | |
| Quarter 4, 2003 | | | | | | | | | * | * | * | * | * | | | | | | | | | | |
| Quarter 1, 2004 | | | | | | | | | | * | | | | | | | | | | | | | |
| Quarter 2, 2004 | | | | | | | | | | * | * | | | | | | | | | | | | |
| Quarter 3, 2004 | | | | | | | | | | * | | | | | | | | | | | | | |
| Quarter 4, 2004 | | | | | | | | | | * | | | | | | | | | | | | | |
| Quarter 1, 2005 | | | | | | | | | | * | | | | | | | | | | | | | |
| Quarter 2, 2005 | | | | | | | | | | * | | | | | | | | | | | | * | |
| Quarter 3, 2005 | | | | | | | | | | * | | * | | | | | | | | | | * | |
| Quarter 4, 2005 | | | | | | | | | | * | | * | | | | | | | | | | * | |
| Quarter 1, 2006 | | | | | | | | | | * | | | | | | | | | | | | | |
| Quarter 2, 2006 | | | | | | | | | | * | | * | | | | | | | | | | | |
| Quarter 4, 2006 | | | | | | | | | | | | | | | | | * | | | | | | |
| Quarter 1, 2007 | * | | | | | | | | | * | | | | | | | | | | | | | |
| Quarter 3, 2007 | * | | | | | | * | * | * | * | * | | * | * | | | * | | | | | | |
| Quarter 2, 2011 | | | | | | | | | | | | * | | | | | | | | | | | |
| Quarter 3, 2012 | * | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 3, 2016 | | | | | | | | | | | | | | | | | | | | * | | | |
| TOTAL ORGANIC HALIDES | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 4, 2002 | | | | | | | | | | | | | | | | | | * | * | | | * | |
| Quarter 1, 2003 | | | | * | | | | | | | | | | | | | | * | * | | | * | |
| Quarter 3, 2003 | | | | * | | | | | | | | | | | | | | | | | | * | |
| Quarter 2, 2004 | | | | | | | | | | | | | | | | | | | | | | * | |
| Quarter 3, 2004 | * | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 1, 2005 | * | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 2, 2005 | * | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 3, 2005 | * | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 4, 2005 | * | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 1, 2006 | * | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 2, 2006 | * | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 3, 2006 | * | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 4, 2006 | | | | | | | | | | | | | | | | | * | | | | | | |
| Quarter 1, 2007 | * | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 2, 2007 | * | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 3, 2007 | * | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 4, 2007 | * | | | | | | | | | | | | | | | | | | | | | * | |
| Quarter 1, 2008 | * | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 4, 2008 | * | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 4, 2008 | * | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 1, 2009 | * | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 2, 2009 | * | | | | | | | | | | | | | | | | | | | | | * | |
| Quarter 3, 2009 | * | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 4, 2009 | * | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 1, 2010 | * | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 2, 2010 | * | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 3, 2010 | * | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 4, 2010 | * | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 1, 2011 | * | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 3, 2013 | | | | | | | | | | | | | | | | | | | | | | * | |

Chart of MCL and Historical UTL Exceedances for the C-746-S&T Landfills (Continued)

| Groundwater Flow System | UCRS | | | | | URGA | | | | | | | | | | LRGA | | | | | | | | |
|-------------------------|------|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|-----|-----|--|
| | S | D | D | D | U | S | S | S | S | S | D | D | D | D | U | U | S | D | D | D | D | U | U | |
| Monitoring Well | 386 | 389 | 390 | 393 | 396 | 221 | 222 | 223 | 224 | 384 | 369 | 372 | 387 | 391 | 220 | 394 | 385 | 370 | 373 | 388 | 392 | 395 | 397 | |
| TRICHLOROETHENE | | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 4, 2002 | | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 1, 2003 | | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 2, 2003 | | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 3, 2003 | | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 4, 2003 | | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 1, 2004 | | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 2, 2004 | | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 3, 2004 | | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 4, 2004 | | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 1, 2005 | | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 2, 2005 | | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 3, 2005 | | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 4, 2005 | | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 1, 2006 | | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 2, 2006 | | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 2, 2007 | | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 3, 2007 | | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 4, 2007 | | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 1, 2008 | | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 2, 2008 | | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 3, 2008 | | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 4, 2008 | | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 1, 2009 | | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 2, 2009 | | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 3, 2009 | | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 4, 2009 | | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 1, 2010 | | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 2, 2010 | | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 3, 2010 | | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 4, 2010 | | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 1, 2011 | | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 2, 2011 | | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 3, 2011 | | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 4, 2011 | | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 1, 2012 | | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 2, 2012 | | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 3, 2012 | | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 4, 2012 | | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 1, 2013 | | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 2, 2013 | | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 3, 2013 | | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 4, 2013 | | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 1, 2014 | | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 2, 2014 | | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 3, 2014 | | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 4, 2014 | | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 1, 2015 | | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 2, 2015 | | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 3, 2015 | | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 4, 2015 | | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 1, 2016 | | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 2, 2016 | | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 3, 2016 | | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 4, 2016 | | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 1, 2017 | | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 2, 2017 | | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 3, 2017 | | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 4, 2017 | | | | | | | | | | | | | | | | | | | | | | | | |

Chart of MCL and Historical UTL Exceedances for the C-746-S&T Landfills (Continued)

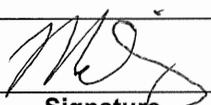
| Groundwater Flow System | UCRS | | | | | URGA | | | | | | | | | | LRGA | | | | | | | |
|---|------|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|-----|-----|
| | S | D | D | D | U | S | S | S | S | S | D | D | D | D | U | U | S | D | D | D | D | U | U |
| Monitoring Well | 386 | 389 | 390 | 393 | 396 | 221 | 222 | 223 | 224 | 384 | 369 | 372 | 387 | 391 | 220 | 394 | 385 | 370 | 373 | 388 | 392 | 395 | 397 |
| TRICHLOROETHENE | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 1, 2018 | | | | | | | | | | | | | ■ | | ■ | | ■ | | | | | | |
| Quarter 2, 2018 | | | | | | | | | | | | ■ | ■ | ■ | | | | | ■ | | ■ | | |
| Quarter 3, 2018 | | | | | | | | | | | | ■ | | ■ | | | | | ■ | | ■ | | |
| Quarter 4, 2018 | | | | | | | | | | | | ■ | | ■ | | | | | ■ | | ■ | | |
| Quarter 1, 2019 | | | | | | | | | | | | ■ | | ■ | | | | | | ■ | | ■ | |
| Quarter 2, 2019 | | | | | | | | | | | | | | ■ | | | | | ■ | | ■ | | |
| TURBIDITY | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 4, 2002 | | | | | | | | | | | | | | | | | | | | | | * | |
| Quarter 1, 2003 | | | | | | | * | | | | | * | | * | | | | | | | | | |
| URANIUM | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 4, 2002 | | | | | | | | | | | | | | | | | | * | * | | | | |
| Quarter 1, 2003 | | | | | | | | | | | | | | | | | | | * | | | | |
| Quarter 4, 2003 | | | | | | | * | | | | | | | | | | | | | | | | |
| Quarter 1, 2004 | | | | | | | * | * | * | | | | | * | | | | * | | | | | |
| Quarter 4, 2004 | | | | | | | | | | | | | | | | | | * | | | | | |
| Quarter 4, 2006 | | | | | | | | | | | | | | | | | | | * | | * | | |
| ZINC | | | | | | | | | | | | | | | | | | | | | | | |
| Quarter 3, 2003 | | | | | | | | | | | | | * | | | | | | | | | | |
| Quarter 4, 2003 | | | | | | | * | | * | | | * | | | | | | | | | | | |
| Quarter 4, 2004 | | | | | | | * | | | | | | | | | | | | | | | | |
| Quarter 4, 2007 | | | | | | | * | * | * | | | | | | | | | | | | | | |
| * Statistical test results indicate an elevated concentration (i.e., a statistically significant increase). | | | | | | | | | | | | | | | | | | | | | | | |
| ■ MCL Exceedance | | | | | | | | | | | | | | | | | | | | | | | |
| ■ Previously reported as an MCL exceedance; however, result was equal to MCL. | | | | | | | | | | | | | | | | | | | | | | | |
| UCRS = Upper Continental Recharge System | | | | | | | | | | | | | | | | | | | | | | | |
| URGA = Upper Regional Gravel Aquifer | | | | | | | | | | | | | | | | | | | | | | | |
| LRGA = Lower Regional Gravel Aquifer | | | | | | | | | | | | | | | | | | | | | | | |
| S = Sidegradient; D = Downgradient; U = Upgradient | | | | | | | | | | | | | | | | | | | | | | | |

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APPENDIX H
METHANE MONITORING DATA

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CP3-WM-0017-F03 - C-746-S & T LANDFILL METHANE MONITORING REPORT

| | | | | | | | | | | | | | | | | | | | |
|--|-------------------------|---|-----------|-----------------|----------------------------|--------|--------|--------|--------|---------|---------|---------|---------|---------|---------|---------|---------|---|---|
| Date: | 5/30/2019 | Time: | 0830-0945 | Monitor: | Michael Hideg | | | | | | | | | | | | | | |
| Weather Conditions: Cloudy, Slight Wind and 70 Degrees | | | | | | | | | | | | | | | | | | | |
| Monitoring Equipment: RAE Systems, Multi-RAE Serial # 4495 | | | | | | | | | | | | | | | | | | | |
| Monitoring Location | | | | | Reading (% LEL) | | | | | | | | | | | | | | |
| Ogden Landing Road Entrance | Checked at ground level | | | | 0 | | | | | | | | | | | | | | |
| North Landfill Gate | Checked at ground level | | | | 0 | | | | | | | | | | | | | | |
| West Side of Landfill: North 37° 07.652' West 88° 48.029' | Checked at ground level | | | | 0 | | | | | | | | | | | | | | |
| East Side of Landfill: North 37° 07.628' West 88° 47.798' | Checked at ground level | | | | 0 | | | | | | | | | | | | | | |
| Cell 1 Gas Vent (17) | 1 0 | 2 0 | 3 0 | 4 0 | 5 0 | 6 0 | 7 0 | 8 0 | 9 0 | 10 0 | 11 0 | 12 0 | 13 0 | 14 0 | 15 0 | 16 0 | 17 0 | 0 | |
| Cell 2 Gas Vent (3) | 1 0 | 2 0 | 3 0 | | | | | | | | | | | | | | | 0 | |
| Cell 3 Gas Vent (7) | 1 0 | 2 0 | 3 0 | 4 0 | 5 0 | 6 0 | 7 0 | | | | | | | | | | | | 0 |
| Landfill Office | Checked at floor level | | | | 0 | | | | | | | | | | | | | | |
| Suspect or Problem Areas | No areas noted | | | | NA | | | | | | | | | | | | | | |
| Remarks: ALL VENTS CHECKED 1" FROM THE MOUTH OF VENT . | | | | | | | | | | | | | | | | | | | |
| Performed by: Michael Hideg | |  | | | 5/30/19 | | | | | | | | | | | | | | |
| | | Signature | | | Date | | | | | | | | | | | | | | |

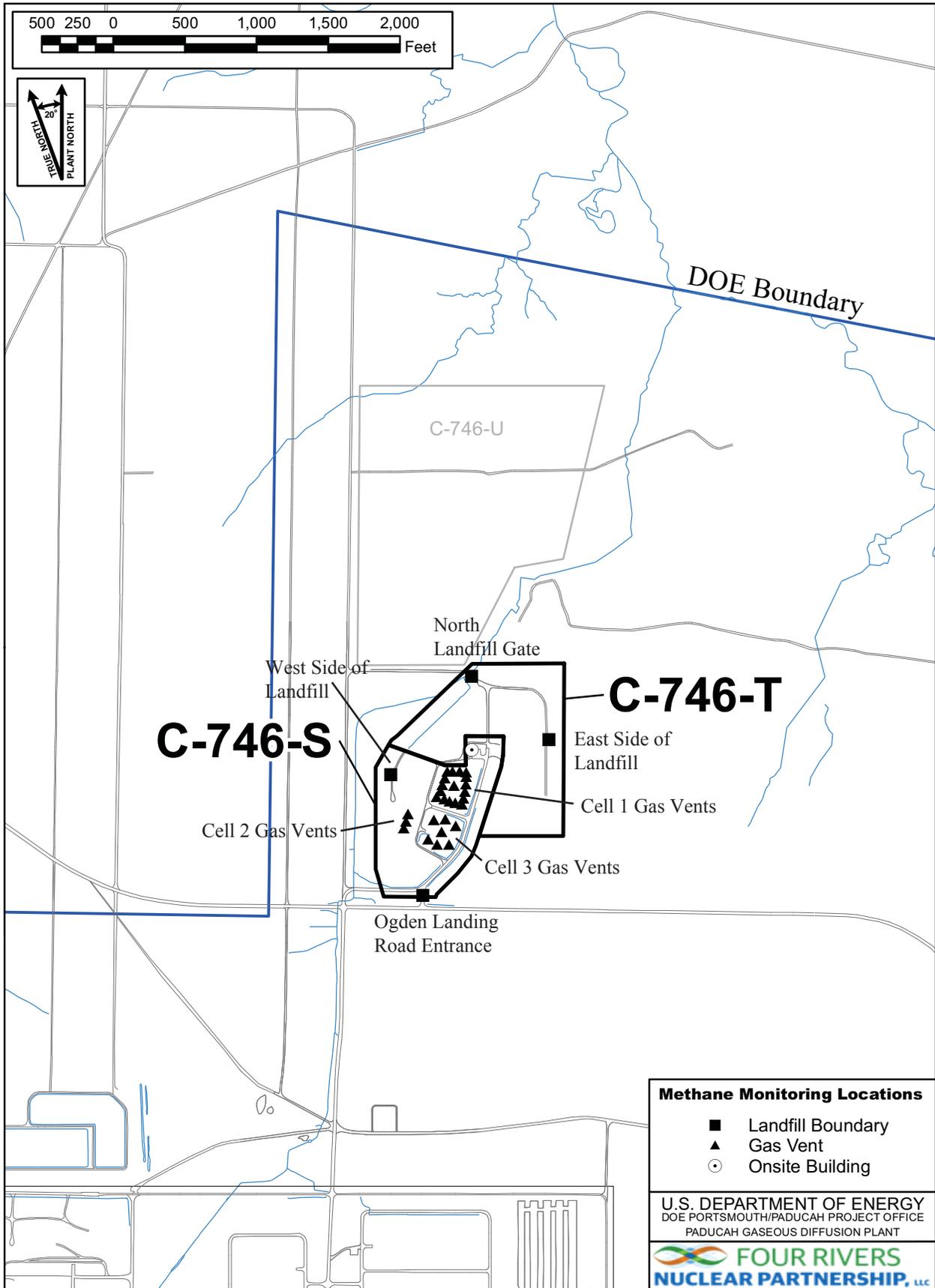


Figure H.1. C-746-S&T Methane Monitoring Locations

APPENDIX I

SURFACE WATER ANALYSES AND WRITTEN COMMENTS

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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") | | | | L135 UPSTREAM | L154 DOWNSTREAM | L136 AT SITE | | | | | | | |
|---|---|-----------------------------|-------------|-----------------------|-----------------|---|------------------------------------|---|------------------------------------|---|------------------------------------|---|------------------------------------|
| 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) | | | | 5/2/2019 15:01 | 5/2/2019 14:36 | 5/2/2019 14:50 | | | | | | | |
| Duplicate ("Y" or "N") ¹ | | | | N | N | N | | | | | | | |
| Split ('Y' or "N") ² | | | | N | N | N | | | | | | | |
| Facility Sample ID Number (if applicable) | | | | L135SS3-19 | L154US3-19 | L136SS3-19 | | | | | | | |
| Laboratory Sample ID Number (if applicable) | | | | 478099001 | 478102002 | 478099002 | | | | | | | |
| Date of Analysis (Month/Day/Year) | | | | 5/25/2019 | 5/26/2019 | 5/25/2019 | | | | | | | |
| CAS RN ³ | | CONSTITUENT | T D 4 | Unit OF MEASURE | METHOD | DETECTED VALUE OR PQL ⁵ | F L A G S ⁷ |
| A200-00-0 | 0 | Flow | T | MGD | Field | | * | | * | | * | | |
| 16887-00-6 | 2 | Chloride(s) | T | MG/L | 300.0 | 0.635 | | 0.597 | | 0.322 | | | |
| 14808-79-8 | 0 | Sulfate | T | MG/L | 300.0 | 1.68 | | 1.81 | | 5.42 | | | |
| 7439-89-6 | 0 | Iron | T | MG/L | 200.8 | 0.748 | | 1.41 | | 0.592 | | | |
| 7440-23-5 | 0 | Sodium | T | MG/L | 200.8 | 0.885 | | 0.899 | | 0.945 | | | |
| S0268- - | 0 | Organic Carbon ⁶ | T | MG/L | 9060 | 14.3 | | 14 | | 11.9 | | | |
| S0097- - | 0 | BOD ⁶ | T | MG/L | not applicable | | * | | * | | * | | |
| S0130- - | 0 | Chemical Oxygen Demand | T | MG/L | 410.4 | 81.1 | B | 34.9 | B | 63.1 | B | | |

S-1

¹Respond "Y" if the sample was a duplicate of another sample in this report

²Respond "Y" if the sample was split and analyzed by separate laboratories.

³Chemical 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

⁶Facility has either/or option on Organic Carbon and (BOD) Biochemical Oxygen Demand - both are not required

⁷Flags 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

RESIDENTIAL/INERT – 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 WRITTEN COMMENTS

| Monitoring Point | Facility Sample ID | Constituent | Flag | Description |
|------------------|--------------------|---------------------------------|------|---|
| L135 | L135SS3-19 | Flow Rate | | Analysis of constituent not required and not performed. |
| | | Biochemical Oxygen Demand (BOD) | | Analysis of constituent not required and not performed. |
| | | Suspended Solids | * | Duplicate analysis not within control limits. |
| | | Dissolved Solids | * | Duplicate analysis not within control limits. |
| | | Alpha activity | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 6.49. Rad error is 6.41. |
| | | Beta activity | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 4.92. Rad error is 4.89. |
| L154 | L154US3-19 | Flow Rate | | Analysis of constituent not required and not performed. |
| | | Biochemical Oxygen Demand (BOD) | | Analysis of constituent not required and not performed. |
| | | Suspended Solids | * | Duplicate analysis not within control limits. |
| | | Dissolved Solids | * | Duplicate analysis not within control limits. |
| | | Alpha activity | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 3.01. Rad error is 3. |
| | | Beta activity | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 4.39. Rad error is 4.39. |
| L136 | L136SS3-19 | Flow Rate | | Analysis of constituent not required and not performed. |
| | | Biochemical Oxygen Demand (BOD) | | Analysis of constituent not required and not performed. |
| | | Suspended Solids | * | Duplicate analysis not within control limits. |
| | | Dissolved Solids | * | Duplicate analysis not within control limits. |
| | | Alpha activity | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 3.98. Rad error is 3.98. |
| | | Beta activity | U | Indicates analyte/nuclide was analyzed for, but not detected. TPU is 6.29. Rad error is 6.29. |

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APPENDIX J

ANALYTICAL LABORATORY CERTIFICATION

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Accredited Laboratory

A2LA has accredited

GEL LABORATORIES, LLC

Charleston, SC

for technical competence in the field of

Environmental Testing

In recognition of the successful completion of the A2LA evaluation process that includes an assessment of the laboratory's compliance with ISO/IEC 17025:2005, the 2009 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 5.1.1 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 8 January 2009).



Presented this 30th day of August 2017.

A handwritten signature in black ink, appearing to read "L. L. L.", written over a horizontal line.

President and CEO
For the Accreditation Council
Certificate Number 2567.01
Valid to June 30, 2019
Revised July 30, 2018

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APPENDIX K
LABORATORY ANALYTICAL METHODS

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LABORATORY ANALYTICAL METHODS

| Analytical Method | Preparation Method | Product |
|--|---------------------------|---|
| SW846 8260B | | 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 3535A/8082 | SW846 3535A | Analysis of The Analysis of Polychlorinated Biphenyls by GC/ECD by ECD |
| SW846 6020 | 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 9056 | | 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/SW846 9320 Modified | | 904.0Mod, Ra228, Liquid |
| EPA 900.0/SW846 9310 | | 9310, Alpha/Beta Activity, liquid |
| EPA 905.0 Modified/DOE RP501 Rev. 1 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 |

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APPENDIX L

MICRO-PURGING STABILITY PARAMETERS

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**Micro-Purge Stability Parameters
for the C-746-S&T Landfills**

| | Temperature | Conductivity | pH | Dissolved oxygen | Turbidity | | Temperature | Conductivity | pH | Dissolved oxygen | Turbidity |
|----------------------------------|-------------|--------------|------|------------------|-----------|----------------------------------|-------------|--------------|------|------------------|-----------|
| MW220 | | | | | | MW221 | | | | | |
| Date Collected: 4/16/2019 | | | | | | Date Collected: 4/16/2019 | | | | | |
| 1238 | 63.3 | 436 | 6.32 | 3.79 | 0.0 | 0849 | 60.4 | 426 | 6.22 | 3.28 | 0.0 |
| 1241 | 64.0 | 436 | 6.29 | 3.71 | 0.0 | 0852 | 60.8 | 426 | 6.21 | 2.95 | 0.0 |
| 1244 | 64.3 | 435 | 6.31 | 3.69 | 0.0 | 0855 | 61.0 | 427 | 6.21 | 2.91 | 0.0 |
| MW222 | | | | | | MW223 | | | | | |
| Date Collected: 4/16/2019 | | | | | | Date Collected: 4/16/2019 | | | | | |
| 1016 | 61.6 | 335 | 6.23 | 3.11 | 0.0 | 0940 | 61.2 | 425 | 6.18 | 2.54 | 0.0 |
| 1019 | 62.3 | 334 | 6.22 | 3.01 | 0.0 | 0943 | 61.9 | 425 | 6.19 | 2.40 | 0.0 |
| 1022 | 62.5 | 334 | 6.21 | 2.99 | 0.0 | 0946 | 62.0 | 425 | 6.18 | 2.39 | 0.0 |
| MW224 | | | | | | MW369 | | | | | |
| Date Collected: 4/16/2019 | | | | | | Date Collected: 4/15/2019 | | | | | |
| 1204 | 62.1 | 439 | 6.21 | 3.21 | 0.0 | 0730 | 59.4 | 439 | 6.20 | 0.70 | 1.3 |
| 1207 | 62.8 | 439 | 6.24 | 3.01 | 0.0 | 0733 | 59.3 | 439 | 6.20 | 0.70 | 0.9 |
| 1210 | 62.9 | 439 | 6.23 | 2.97 | 0.0 | 0736 | 59.2 | 439 | 6.21 | 0.71 | 0.5 |
| MW370¹ | | | | | | MW372 | | | | | |
| Date Collected: 4/15/2019 | | | | | | Date Collected: 4/11/2019 | | | | | |
| 0812 | 60.1 | 458 | 6.17 | 3.19 | 0.0 | 0857 | 62.8 | 633 | 6.26 | 1.08 | 3.1 |
| 0814 | 60.3 | 457 | 6.16 | 3.04 | 0.0 | 0900 | 63.2 | 632 | 6.25 | 0.97 | 3.3 |
| 0816 | 60.3 | 458 | 6.18 | 2.99 | 0.0 | 0903 | 63.5 | 632 | 6.25 | 0.95 | 3.3 |
| MW373 | | | | | | MW384 | | | | | |
| Date Collected: 4/11/2019 | | | | | | Date Collected: 4/17/2019 | | | | | |
| 0940 | 62.2 | 731 | 6.23 | 1.57 | 5.3 | 0915 | 60.9 | 453 | 6.17 | 3.34 | 0.1 |
| 0943 | 62.6 | 730 | 6.22 | 1.51 | 4.8 | 0918 | 61.0 | 452 | 6.16 | 3.35 | 0.0 |
| 0946 | 63.0 | 730 | 6.21 | 1.49 | 4.6 | 0921 | 61.1 | 452 | 6.17 | 3.38 | 0.0 |
| MW385 | | | | | | MW386 | | | | | |
| Date Collected: 4/17/2019 | | | | | | Date Collected: 4/17/2019 | | | | | |
| 1119 | 61.3 | 428 | 6.17 | 2.90 | 0.0 | 1146 | 62.6 | 592 | 6.73 | 3.46 | 0.0 |
| 1122 | 62.0 | 428 | 6.13 | 2.86 | 0.0 | 1149 | 63.2 | 593 | 6.84 | 3.32 | 0.0 |
| 1125 | 62.4 | 427 | 6.14 | 2.89 | 0.0 | 1152 | 63.8 | 593 | 6.81 | 3.30 | 0.0 |
| MW387 | | | | | | MW388 | | | | | |
| Date Collected: 4/17/2019 | | | | | | Date Collected: 4/17/2019 | | | | | |
| 0802 | 61.9 | 525 | 6.27 | 2.87 | 0.0 | 0839 | 61.4 | 441 | 6.16 | 3.24 | 0.0 |
| 0805 | 61.9 | 524 | 6.26 | 2.66 | 0.0 | 0842 | 61.4 | 441 | 6.14 | 3.17 | 0.0 |
| 0808 | 62.0 | 524 | 6.26 | 2.62 | 0.0 | 0845 | 61.5 | 441 | 6.13 | 3.19 | 0.0 |
| MW390 | | | | | | MW391 | | | | | |
| Date Collected: 4/17/2019 | | | | | | Date Collected: 4/16/2019 | | | | | |
| 0725 | 60.4 | 638 | 6.29 | 4.71 | 0.0 | 0729 | 59.4 | 438 | 6.17 | 5.17 | 0.0 |
| 0728 | 60.5 | 639 | 6.29 | 4.59 | 0.0 | 0732 | 59.5 | 439 | 6.16 | 4.62 | 0.0 |
| 0731 | 60.5 | 639 | 6.30 | 4.55 | 0.0 | 0735 | 59.5 | 439 | 6.16 | 4.58 | 0.0 |
| MW392 | | | | | | MW393 | | | | | |
| Date Collected: 4/16/2019 | | | | | | Date Collected: 4/15/2019 | | | | | |
| 0809 | 60.1 | 446 | 6.25 | 2.92 | 10.0 | 1026 | 57.8 | 474 | 5.96 | 3.35 | 5.7 |
| 0812 | 60.1 | 446 | 6.23 | 2.48 | 10.8 | 1029 | 58.1 | 474 | 6.04 | 2.80 | 4.7 |
| 0815 | 60.2 | 446 | 6.24 | 2.41 | 10.4 | 1032 | 58.3 | 473 | 6.02 | 2.76 | 4.1 |
| MW394 | | | | | | MW395 | | | | | |
| Date Collected: 4/22/2019 | | | | | | Date Collected: 4/22/2019 | | | | | |
| 0745 | 59.0 | 375 | 6.13 | 4.17 | 0.0 | 0824 | 59.6 | 354 | 6.17 | 4.51 | 0.0 |
| 0748 | 59.2 | 376 | 6.14 | 4.06 | 0.0 | 0827 | 60.2 | 355 | 6.15 | 4.40 | 0.0 |
| 0751 | 59.3 | 376 | 6.14 | 4.03 | 0.0 | 0830 | 60.3 | 355 | 6.16 | 4.41 | 0.0 |
| MW396 | | | | | | MW397 | | | | | |
| Date Collected: 4/22/2019 | | | | | | Date Collected: 4/16/2019 | | | | | |
| 0902 | 59.8 | 709 | 6.58 | 3.51 | 0.0 | 1316 | 62.8 | 326 | 6.20 | 5.86 | 1.4 |
| 0905 | 59.8 | 710 | 6.61 | 3.53 | 0.0 | 1319 | 63.3 | 325 | 6.18 | 5.29 | 2.2 |
| 0908 | 59.9 | 710 | 6.60 | 3.52 | 0.0 | 1322 | 63.6 | 325 | 6.19 | 5.28 | 1.9 |

¹ Readings were collected at a frequency not consistent with procedure. Data was considered useable based on consistent stability of parameters.

**Micro-Purge Stability Parameters
for the C-746-S&T Landfills (Continued)**

| | Temperature | Conductivity | pH | Dissolved oxygen | Turbidity | | Temperature | Conductivity | pH | Dissolved oxygen | Turbidity |
|---------------------------|-------------|--------------|------|------------------|-----------|---------------------------|-------------|--------------|------|------------------|-----------|
| MW220 | | | | | | MW221 | | | | | |
| Date Collected: 5/30/2019 | | | | | | Date Collected: 5/30/2019 | | | | | |
| 0931 | 61.6 | 426 | 6.33 | 4.52 | 0.2 | 0751 | 61.1 | 398 | 6.19 | 3.57 | 0.1 |
| 0934 | 63.1 | 423 | 6.32 | 4.04 | 2.1 | 0754 | 62.2 | 396 | 6.18 | 3.52 | 0.3 |
| 0937 | 63.0 | 424 | 6.31 | 4.02 | 2.9 | 0757 | 62.3 | 396 | 6.20 | 3.60 | 0.1 |
| MW222 | | | | | | MW223 | | | | | |
| Date Collected: 5/30/2019 | | | | | | Date Collected: 5/30/2019 | | | | | |
| 0840 | 62.6 | 373 | 6.28 | 3.90 | 0.0 | 0822 | 61.9 | 409 | 6.25 | 3.25 | 0.0 |
| 0843 | 63.1 | 372 | 6.25 | 3.31 | 0.1 | 0825 | 63.4 | 408 | 6.21 | 2.73 | 0.2 |
| 0846 | 63.2 | 375 | 6.26 | 3.29 | 0.0 | 0828 | 63.7 | 407 | 6.23 | 2.80 | 0.4 |
| MW224 | | | | | | MW369 | | | | | |
| Date Collected: 5/30/2019 | | | | | | Date Collected: 5/28/2019 | | | | | |
| 0906 | 62.4 | 433 | 6.31 | 3.99 | 0.0 | 1324 | 66.0 | 382 | 6.45 | 2.99 | 4.9 |
| 0909 | 63.7 | 432 | 6.27 | 2.98 | 0.5 | 1327 | 65.9 | 387 | 6.44 | 3.53 | 0.8 |
| 0912 | 63.8 | 432 | 6.29 | 2.95 | 0.0 | 1330 | 66.0 | 387 | 6.40 | 3.59 | 0.8 |
| MW370 | | | | | | MW372 | | | | | |
| Date Collected: 5/28/2019 | | | | | | Date Collected: 5/28/2019 | | | | | |
| 1400 | 66.2 | 444 | 6.23 | 5.04 | 5.3 | 1422 | 67.2 | 608 | 6.19 | 3.04 | 0.0 |
| 1403 | 68.0 | 437 | 6.12 | 3.54 | 0.0 | 1425 | 68.6 | 625 | 6.20 | 2.18 | 0.5 |
| 1406 | 68.2 | 436 | 6.11 | 3.46 | 0.0 | 1428 | 68.8 | 628 | 6.22 | 2.13 | 0.4 |
| MW373 | | | | | | MW384 | | | | | |
| Date Collected: 5/28/2019 | | | | | | Date Collected: 5/29/2019 | | | | | |
| 1502 | 68.1 | 772 | 6.23 | 1.35 | 1.4 | 1313 | 67.9 | 433 | 6.19 | 4.60 | 1.4 |
| 1505 | 65.8 | 768 | 6.20 | 1.28 | 0.2 | 1316 | 68.4 | 425 | 6.70 | 4.45 | 1.9 |
| 1508 | 65.7 | 767 | 6.21 | 1.28 | 1.1 | 1319 | 65.0 | 422 | 6.11 | 4.76 | 0.0 |
| MW385 | | | | | | 1322 | 65.5 | 425 | 6.14 | 4.72 | 0.0 |
| Date Collected: 5/29/2019 | | | | | | MW386 | | | | | |
| 1354 | 65.1 | 418 | 6.17 | 3.02 | 1.4 | Date Collected: 5/29/2019 | | | | | |
| 1357 | 65.6 | 419 | 6.19 | 2.57 | 0.3 | 1333 | 64.0 | 581 | 6.90 | 4.04 | 0.0 |
| 1400 | 65.7 | 418 | 6.14 | 2.60 | 1.0 | 1336 | 64.8 | 581 | 6.92 | 3.59 | 0.3 |
| MW387 | | | | | | 1339 | 64.9 | 576 | 6.92 | 3.51 | 0.0 |
| Date Collected: 5/29/2019 | | | | | | MW388 | | | | | |
| 1231 | 63.8 | 525 | 6.27 | 4.02 | 0.1 | Date Collected: 5/29/2019 | | | | | |
| 1234 | 64.5 | 524 | 6.24 | 3.57 | 0.7 | 1251 | 64.9 | 470 | 6.13 | 3.12 | 5.7 |
| 1237 | 64.6 | 526 | 6.25 | 3.49 | 0.5 | 1254 | 65.2 | 470 | 6.13 | 2.83 | 5.2 |
| MW390 | | | | | | 1257 | 65.5 | 469 | 6.14 | 2.90 | 5.1 |
| Date Collected: 5/29/2019 | | | | | | MW391 | | | | | |
| 1208 | 63.0 | 676 | 6.47 | 5.12 | 1.3 | Date Collected: 5/29/2019 | | | | | |
| 1211 | 64.4 | 676 | 6.42 | 4.68 | 3.2 | 0808 | 63.8 | 495 | 6.15 | 3.42 | 0.2 |
| 1214 | 64.5 | 676 | 6.41 | 4.62 | 3.0 | 0811 | 65.3 | 495 | 6.13 | 3.01 | 0.7 |
| MW392 | | | | | | 0814 | 65.6 | 494 | 6.10 | 2.92 | 0.6 |
| Date Collected: 5/29/2019 | | | | | | MW393 | | | | | |
| 0730 | 62.9 | 443 | 6.22 | 1.46 | 2.0 | Date Collected: 5/29/2019 | | | | | |
| 0733 | 64.1 | 442 | 6.25 | 0.89 | 3.0 | 0749 | 62.8 | 444 | 6.35 | 3.08 | 11.1 |
| 0736 | 64.2 | 441 | 6.20 | 0.81 | 2.3 | 0752 | 65.0 | 448 | 6.34 | 2.41 | 10.2 |
| MW394 | | | | | | 0755 | 65.3 | 448 | 6.30 | 2.38 | 8.4 |
| Date Collected: 5/29/2019 | | | | | | MW395 | | | | | |
| 0911 | 61.4 | 383 | 6.13 | 4.57 | 1.8 | Date Collected: 5/29/2019 | | | | | |
| 0914 | 63.5 | 384 | 6.11 | 3.98 | 3.5 | 0833 | 64.1 | 366 | 6.09 | 4.79 | 0.2 |
| 0917 | 63.5 | 383 | 6.11 | 3.93 | 4.0 | 0836 | 63.4 | 366 | 6.09 | 4.62 | 0.0 |
| MW396 | | | | | | 0839 | 63.1 | 367 | 6.08 | 4.57 | 0.2 |
| Date Collected: 5/29/2019 | | | | | | MW397 | | | | | |
| 0851 | 61.6 | 723 | 6.71 | 1.91 | 0.9 | Date Collected: 5/29/2019 | | | | | |
| 0854 | 63.5 | 722 | 6.68 | 1.50 | 1.3 | 1146 | 64.4 | 316 | 6.09 | 5.66 | 2.4 |
| 0857 | 63.7 | 722 | 6.71 | 1.47 | 1.4 | 1149 | 64.6 | 315 | 6.06 | 5.27 | 2.7 |
| | | | | | | 1152 | 64.6 | 318 | 6.11 | 5.24 | 2.3 |