PAD-ENM-0090/V4

C-746-S&T Landfills
Fourth Quarter Calendar Year 2014
(October–December)
Compliance Monitoring Report,
Paducah Gaseous Diffusion Plant,
Paducah, Kentucky

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Fourth Quarter Calendar Year 2014
(October–December)
Compliance Monitoring Report,
Paducah Gaseous Diffusion Plant,
Paducah, Kentucky

Date Issued—February 2015

Prepared for the
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Office of Environmental Management

Prepared by
LATA ENVIRONMENTAL SERVICES OF KENTUCKY, LLC
managing the
Environmental Remediation Activities at the
Paducah Gaseous Diffusion Plant
under contract DE-AC30-10CC40020

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CONTENTS

FIGURE v

TABLES v

ACRONYMS vii

1. INTRODUCTION 1
   1.1 BACKGROUND 1
   1.2 MONITORING PERIOD ACTIVITIES 1
      1.2.1 Groundwater Monitoring 1
      1.2.2 Methane Monitoring 2
      1.2.3 Surface Water Monitoring 4
   1.3 KEY RESULTS 4
      1.3.1 Summary of C-746-S&T Results and Discussion 6

2. DATA EVALUATION/STATISTICAL SYNOPSIS 9

3. DATA VALIDATION 11

4. PROFESSIONAL GEOLOGIST AUTHORIZATION 13

5. REFERENCE 15

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

APPENDIX B: FACILITY INFORMATION SHEET B-1

APPENDIX C: GROUNDWATER SAMPLE ANALYSES AND WRITTEN COMMENTS C-1

APPENDIX D: STATISTICAL ANALYSES AND QUALIFICATION STATEMENT D-1

APPENDIX E: GROUNDWATER FLOW RATE AND DIRECTION E-1

APPENDIX F: NOTIFICATIONS F-1

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

APPENDIX H: METHANE MONITORING DATA H-1

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FIGURE

1. C-746-S&T Landfill Groundwater Monitoring Well Network 3

TABLES

1. Summary of MCL Exceedances 5
2. Exceedances of Statistically Derived Historical Background Concentrations 5
3. Exceedances of Current Background UTL in Downgradient Wells of Constituents that also Exceed the Historical Background UTL 5
4. C-746-S and T Landfills Downgradient Wells Trend Summary Utilizing the Previous Eight Quarters 7
5. Monitoring Wells included in Statistical Analysis* 10

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ACRONYMS

CFR	*Code of Federal Regulations*
COD	chemical oxygen demand
CY	calendar year
KAR	*Kentucky Administrative Regulations*
KDWM	Kentucky Division of Waste Management
KRS	*Kentucky Revised Statutes*
LATA Kentucky	LATA Environmental Services of Kentucky, LLC
LEL	lower explosive limit
LRGA	Lower Regional Gravel Aquifer
MCL	maximum contaminant level
MW	monitoring well
PGDP	Paducah Gaseous Diffusion Plant
RGA	Regional Gravel Aquifer
UCRS	Upper Continental Recharge System
URGA	Upper Regional Gravel Aquifer
UTL	upper tolerance limit

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1. INTRODUCTION

This report, *C-746-S&T Landfills Fourth Quarter Calendar Year 2014 (October–December) Compliance Monitoring Report, Paducah Gaseous Diffusion Plant, Paducah, Kentucky,* is being submitted in accordance with Solid Waste Landfill Permit Number SW07300014, SW07300015, SW07300045 for the C-746-S Residential Landfill and for the C-746-T Inert Landfill. This report was written using 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* (LATA Kentucky 2014).

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 reporting forms, which are presented in Appendix C. The statistical analyses and qualification statement are provided in Appendix D. The groundwater flow rate and direction determination are provided in Appendix E. Appendix F contains the notifications for all permit required parameters whose concentrations exceed the maximum contaminant level (MCL) 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), 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 Landfill Methane Monitoring Report form provided in Appendix H. The form includes pertinent remarks/observations as required by 401 *KAR* 48:090 § 4.

1.1 BACKGROUND

The C-746-S&T Landfills are closed solid waste landfills located north of the Paducah Gaseous Diffusion Plant (PGDP) 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 cover of compacted soil. The C-746-S Landfill was a sanitary landfill for PGDP. 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 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 PGDP. 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: (1) the Upper Continental Recharge System (UCRS), (2) the Upper Regional Gravel Aquifer (URGA), and (3) the Lower Regional Gravel Aquifer (LRGA).

A map of the monitoring well (MW) locations is presented in Figure 1. All MWs listed on the permit were sampled this quarter except MW389 (screened in the UCRS), which had an insufficient amount of water to obtain samples; therefore, there are no analytical results for this location.

Consistent with the approved 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 in a north-northeasterly direction in the vicinity of the C-746-S&T Landfill. The Ohio River and lower reaches of Little Bayou Creek are the discharge areas for the RGA flow system from the vicinity of the landfills. Consistent with the conceptual site model, the constituent concentrations in UCRS wells are considered to be representative only of the conditions local to the well or sourced from overlying soils; thus, no discussion of potential "upgradient" sources is relevant to the discussion for the UCRS. Nevertheless, a UTL for background also has been calculated for UCRS wells using concentrations from UCRS wells located in the same direction (relative to the landfill) as those RGA wells identified as upgradient. The results from these wells are considered to represent historical "background" for the UCRS water quality. 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 fourth quarter 2014 during October using LATA Environmental Services of Kentucky, LLC, (LATA Kentucky) procedure PAD-ENM-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 measurements were collected on October 28 and 29, 2014, 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 38 vicinity wells define the potentiometric surface for the RGA.[1] Regional flow in the RGA in October was northeastward, toward the Ohio River. The hydraulic gradient for the RGA in the vicinity of the C-746-S&T Landfills in October was 4.06×10^{-4} ft/ft, while the gradient beneath the C-746-S&T Landfills was 5.29×10^{-4} ft/ft. Calculated groundwater flow rates (average linear velocities) for the RGA at the C-746-S&T Landfills range from 0.69 to 1.53 ft/day (see Table E.3).

1.2.2 Methane Monitoring

The fourth quarter CY 2014 methane inspection was not completed during December 2014 because of inclement weather.

Landfill operations staff monitored for the occurrence of methane on January 16, 2015, in 1 on-site building location, 4 locations along the landfill boundary, and 27 gas-passive vents located in Cells 1, 2, and 3 of the C-746-S Landfill. See Appendix H for a map of the monitoring locations. Monitoring identified 0% of the lower explosive limit (LEL) of methane at all locations, which is compliant with the

[1] Although depth-to-water is measured in the UCRS wells, the UCRS has a strong vertical hydraulic gradient that varies locally. The UCRS wells are screened over different elevations; therefore, the UCRS well measurements are not sufficient for mapping the potentiometric surface.

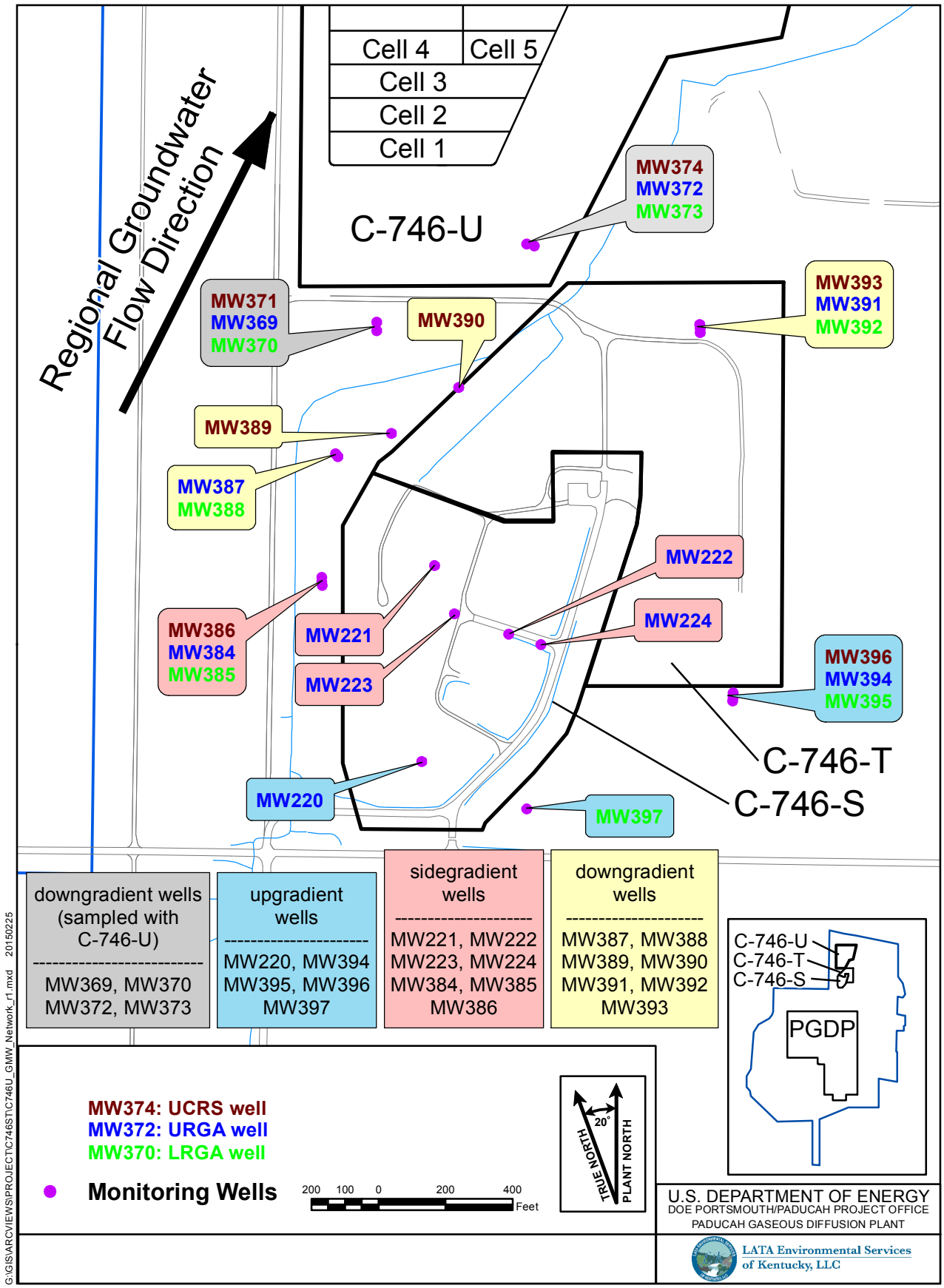

Figure 1. C-746-S&T Landfill Groundwater Monitoring Well Network

regulatory requirement of < 100% LEL at boundary locations and < 25% LEL at all other locations. The results are documented on the approved C-746-S&T Landfill Methane Monitoring Report form provided in Appendix H.

1.2.3 Surface Water Monitoring

There was no surface water sampling conducted during the fourth quarter 2014 due to insufficient rainfall during normal landfill operating hours.

1.3 KEY RESULTS

Parameters that had concentrations that exceeded the respective MCL are listed in Table 1. Those constituents (present in downgradient wells) that exceeded their respective MCL were further evaluated against their historical UTL. Table 2 identifies parameters (without MCLs) with concentrations that exceeded the statistically derived historical background UTL for the fourth quarter 2014, as well as parameters that exceeded their MCL (beta activity) that also exceeded their historical background MCL. Those constituents (present in downgradient wells) that exceed their historical UTL were evaluated against their current-background UTL derived 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 the KDWM in accordance with 401 *KAR* 48:300 § 7 prior to the submittal of this report.

There were no new MCL exceedances for this quarter. The constituents that exceeded their MCL were subjected to a comparison against the UTL concentrations calculated using historical concentrations from wells identified as background. Because the trichloroethene concentration did not exceed the historical UTL, the MCL exceedances for trichloroethene in MW372, MW373, MW391, MW392, and MW394 are not attributable to a C-746-S&T Landfill source and are considered a Type I exceedance per the approved Groundwater Monitoring Plan (LATA Kentucky 2014).

The MCL exceedances for beta activity in MW387 and MW388 also were shown to exceed both the historical background UTL and the current background UTL; therefore, they preliminarily were considered to be Type 2 exceedances (source unknown).

This report serves as the notification of parameters that had statistically significant increased concentrations relative to background concentrations, as required by Permit Number SW07300014, SW07300015, SW07300045, Condition GSTR0003, Standard Requirement 8; and 401 *KAR* 48:300 § 7.

In accordance with Permit Condition GSTR0003, Variance 2, of the Solid Waste Permit (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.

Of the constituents that had exceedances of the statistically derived historical background UTL, these parameters 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

Table 1. Summary of MCL Exceedances

UCRS	URGA	LRGA
NONE	MW372: Beta activity, trichloroethene	MW373:Trichloroethene
	MW384: Beta activity	MW385: Beta activity
	MW387: Beta activity	MW388: Beta activity
	MW391: Trichloroethene	MW392: Trichloroethene
	MW394: Trichloroethene	

Table 2. Exceedances of Statistically Derived Historical Background Concentrations
(Parameters with MCLs are included only if listed in Table 1.)

UCRS	URGA	LRGA
MW386: Oxidation-reduction potential, thorium-230	**MW222:** COD	**MW370:** Oxidation-reduction potential, radium-226, sulfate
MW390: Aluminum, chloride, oxidation-reduction potential, radium-226, technetium-99, thorium-230	**MW224:** Sodium	**MW373:** Calcium, conductivity, dissolved solids, magnesium, oxidation-reduction potential, sulfate, technetium-99
MW393: Oxidation-reduction potential	**MW369:** Oxidation-reduction potential, radium-226, technetium-99	**MW385:** Beta activity,[a] oxidation-reduction potential, sulfate, technetium-99
	MW372: Beta activity,[a] calcium, conductivity, dissolved solids, magnesium, sodium, sulfate, technetium-99	**MW388:** Beta activity,[a] oxidation-reduction potential, sulfate, technetium-99
	MW384: Beta activity,[a] sodium, sulfate, technetium-99	**MW392:** Oxidation-reduction potential, pH
	MW387: Beta activity,[a] dissolved solids, magnesium, oxidation-reduction potential, sulfate, technetium-99	

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,[b] MW397
[a] Beta activity has an MCL; the exceedances of the MCL were subjected to a comparison against the statistically derived historical background.
[b] In the same direction (relative to the landfill) as RGA wells considered to be upgradient

Table 3. Exceedances of Current Background UTL in Downgradient Wells of Constituents That Also Exceed the Historical Background UTL
(Parameters with MCLs are included only if listed in Table 1.)

UCRS	URGA	LRGA
	MW369: Technetium-99	**MW373:** Calcium, conductivity, dissolved solids, magnesium, sulfate, technetium-99
	MW372: Beta activity, calcium, conductivity, dissolved solids, magnesium, sodium, sulfate, technetium-99	**MW388:** Beta activity, sulfate, technetium-99
	MW387: Beta activity, sulfate, technetium-99	**MW392:** pH

constituents present in downgradient wells with historical UTL exceedances. 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. Those constituents listed in Table 3 that exceed both the historical UTL and the current UTL do not have an identified source and could have the C-746-S or C-746-T Landfills as a source. These preliminarily are considered to be Type 2 exceedances per the approved monitoring plan.

1.3.1 Summary of C-746-S&T Results and Discussion

Groundwater monitoring identified parameters (TCE, beta activity) that exceeded their respective MCL (see Table 1); however, the TCE exceedances did not exceed their respective historical UTL and are considered Type 1 exceedances (not attributable to the landfill). The beta activity MCL exceedances also exceeded their historical UTL.

Groundwater monitoring identified parameters that exceeded their respective historical UTL (see Table 2) but did not exceed the current UTL; thus, these also are considered to be Type I exceedances (not attributable to the landfill). The gradients in UCRS wells are downward. Thus, none of the UCRS wells are properly considered to be downgradient of the landfill. However, the statistical evaluation of current UCRS wells against the current UCRS background UTL identified UCRS wells with parameters that exceeded both the historical and current background. These exceedances are not attributable to C-746-S&T landfills and are considered Type 1 exceedances. These exceedances are identified in Appendix D2.

Groundwater monitoring identified parameters that exceeded both their historical UTL (see Table 2) and their current UTL (see Table 3). The source(s) of these exceedances are not determined; thus, they preliminarily are considered to be Type 2 exceedances.

A preliminary review of the Type 2 exceedances indicates that these do not likely have a landfill source for the following reasons.

- Only 6 of 11 downgradient wells have these exceedances; if there were a landfill source, it would be expected that more of the downgradient wells would have these exceedances, and it would be expected that there would be more exceedances in the (shallow) URGA relative to the (deeper) LRGA.

- The exceedances are largely localized to two areas.

- The exceedances of some constituents (beta activity/technetium-99) are explained by the presence of an upgradient source of technetium-99.

- There are several non-landfill potential source(s) of the calcium, conductivity, dissolved solids, magnesium, sodium, and sulfate exceedances.

- All of these exceedances previously have been seen in these same wells (see Appendix G).

To further evaluate these preliminary Type 2 exceedances, these 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. None of the parameters exhibits an increasing trend. In fact, most of the identified concentration trend slopes are negative. Downgradient concentrations do not exhibit a statistically significant increasing trend; thus, the UTL exceedances may be considered Type 1 exceedances (not attributable to the landfill). Further evaluation of the potential sources of these exceedances may be considered for the next quarter's monitoring program.

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

Location	Well ID	Parameter	Sample Size	Alpha[1]	p-value[2]	S[3]	Var(S)[4]	Sen's Slope[5]	Kendall Correlation[6]	Decision[7]
C-746-S and T Landfills Downgradient Wells	MW369	Technetium-99	8	0.05	0.274	-6.000	0.000	-0.510	-0.214	No Trend
	MW372	Beta Activity	8	0.05	0.452	-2.000	0.000	-5.205	-0.071	No Trend
		Calcium	8	0.05	0.054	-14.00	0.000	-1.233	-0.500	No Trend
		Conductivity	8	0.05	0.199	-8.000	0.000	-6.300	-0.286	No Trend
		Dissolved Solids	8	0.05	0.089	-12.00	0.000	-12.175	-0.429	No Trend
		Magnesium	8	0.05	0.159	-9.000	64.33	-0.621	-0.327	No Trend
		Sodium	8	0.05	0.452	-2.000	0.000	-0.163	-0.071	No Trend
		Sulfate	8	0.05	0.449	-2.000	60.67	0.000	-0.077	No Trend
		Technetium-99	8	0.05	0.309	-5.000	64.33	-3.350	-0.182	No Trend
	MW373	Calcium	8	0.05	0.500	-1.000	64.33	-0.025	-0.036	No Trend
		Conductivity	8	0.05	0.054	-14.00	0.000	-3.850	-0.500	No Trend
		Dissolved Solids	8	0.05	0.089	-12.00	0.000	-6.000	-0.429	No Trend
		Magnesium	8	0.05	0.023	-17.00	64.33	-0.508	-0.618	**Negative Trend**
		Sulfate	8	0.05	0.067	-13.00	64.33	-3.417	-0.473	No Trend
		Technetium-99	8	0.05	0.012	-19.00	64.33	-4.993	-0.691	**Negative Trend**
	MW387	Beta Activity	8	0.05	0.274	6.000	0.000	4.643	0.214	No Trend
		Magnesium	8	0.05	0.360	-4.000	0.000	-0.140	-0.143	No Trend
		Sulfate	8	0.05	0.500	1.000	64.33	0.067	0.036	No Trend
		Technetium-99	8	0.05	0.227	7.000	64.33	11.50	0.255	No Trend
	MW388	Beta Activity	8	0.05	0.548	0.000	0.000	-0.825	0.000	No Trend
		Sulfate	8	0.05	0.199	-8.000	0.000	-0.750	-0.286	No Trend
		Technetium-99	8	0.05	0.138	10.00	0.000	6.235	0.357	No Trend
	MW392	pH	8	0.05	0.402	3.000	64.33	0.005	0.109	No Trend

[1] An alpha of 0.05 represents a 95% confidence interval.

[2] The p-value represents the risk of acceptance the H_a hypothesis of a trend, in terms of a percentage.

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

[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] VAR(s) represents the variance of S in the sample set and takes into account statistical ties.
[5] The magnitude of trend is predicted by the Sen's Slope. Here, the slope is described as the median of all (x j-x k)/(j-k), where x is a data point and j and k are values of time.
[6] Kendall's correlation is described as the difference of concordant pairs and discordant pairs, also taking sample size and statistical ties into account. When the Kendall's correlation is positive, it indicates an increasing trend and when it is negative, it indicates a decreasing trend
[7] The Mann-Kendall decision operates on two hypotheses, the H_0 and H_a. H_0 assumes there is no trend in the data, whereas Ha assumes either a positive or negative trend. Two different tests were run to test for positive or negative trends. This table reports the test with the lowest p-value.

Note: Statistics generated using XLSTAT Version 2014.2.07.

2. DATA EVALUATION/STATISTICAL SYNOPSIS

The statistical analyses conducted on the fourth quarter 2014 groundwater data collected from the C-746-S&T Landfills MWs were performed in accordance with the *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 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, D2, and D3).

For those parameters that exceed the respective Kentucky solid waste facility MCL, 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 landfill. If there was an exceedance of the MCL in a downgradient well and this constituent also exceeded the historical background, the quarterly result was compared to the current background UTL (developed using the most recent eight quarters of data from wells identified as 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 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 landfill).

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 was conducted. The test well results were compared to both the upper and lower tolerance limit to determine if statistically significant deviations in concentrations exist with respect to upgradient (background) well data.

A stepwise list of the one-side 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 5.

Table 5. Monitoring Wells included in Statistical Analysis*

UCRS[1]	URGA	LRGA
MW386	MW220 (upgradient)	MW370
MW389 (dry)***	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 monitoring well locations is shown in Figure 1.

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

***MW389 had insufficient water to permit a water level measurement or to provide water samples for laboratory analysis.

[1] MW371 and MW374 are listed on Table 2 of the Groundwater Monitoring Plan as wells associated with the C-746-S&T Landfills; however, they are not listed in Condition GSTR0003 of the permit as wells permitted for the C-746-S&T monitoring well network. The inclusion of these wells on Table 2 of the Groundwater Monitoring Plan is an error and will be corrected in the next revision of the plan. Data for these wells is included appropriately in the C-746-U Landfill quarterly monitoring report.

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.

Upper Continental Recharge System

In this quarter, 30 parameters required statistical analysis in the UCRS. The statistical analysis was conducted separately for each parameter in each well. During the fourth quarter, aluminum, chloride, oxidation-reduction potential, radium-226, technetium-99, and thorium-230 exceeded their respective historical UTL and are listed in Table 2.

Upper Regional Gravel Aquifer

In this quarter, 33 parameters required statistical analysis in the URGA. The statistical analysis was conducted separately for each parameter in each well. During the fourth quarter, beta activity, calcium, COD, conductivity, dissolved solids, magnesium, oxidation-reduction potential, radium-226, sodium, sulfate, and technetium-99 displayed concentrations that exceeded their respective historical UTL and are listed in Table 2.

Lower Regional Gravel Aquifer

In this quarter, 31 parameters required statistical analysis in the LRGA. The statistical analysis was conducted separately for each parameter in each well. During the fourth quarter, beta activity, calcium, conductivity, dissolved solids, magnesium, oxidation-reduction potential, pH, radium-226, sulfate, and technetium-99 displayed concentrations that exceeded their respective historical UTL and are listed in Table 2.

3. DATA 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 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 validation results for this data set indicated that all data were considered acceptable.

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4. PROFESSIONAL GEOLOGIST AUTHORIZATION

DOCUMENT IDENTIFICATION: *C-746-S&T Landfills*
Fourth Quarter Calendar Year 2014 (October–December)
Compliance Monitoring Report,
Paducah Gaseous Diffusion Plant,
Paducah, Kentucky (PAD-ENM-0090/V4)

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

Kenneth R. Davis — Kenneth R. Davis

PG1194

February 26, 2015
Date

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5. REFERENCE

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, LATA Environmental Services of Kentucky, LLC, Kevil, KY, June.

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APPENDIX A

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

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

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

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

Activity: C-746-S&T Landfills

Permit No: 073-00014 & 073-00015 073-00045

Finds/Unit No: _____

Quarter & Year: 4th Qtr. CY 2014

Please check the following as applicable:

_____ Characterization X Quarterly _____ Semiannual _____ Annual _____ Assessment

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

_____ Leachate X Methane Monitoring

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

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

Mark J. Duff, Paducah Project Manager
LATA Environmental Services of Kentucky, LLC

2-27-15
Date

Jennifer Woodard, Paducah Site Lead
U.S. Department of Energy

2/27/15
Date

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APPENDIX B

FACILITY INFORMATION SHEET

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FACILITY INFORMATION SHEET

Sampling Date: Groundwater: October 2014; Methane: January 2015 | County: McCracken | Permit Nos. 073-00014 & 073-00015 & 073-00045

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

Site Address: 5501 Hobbs Road (Street) | Kevil, Kentucky (City/State) | 42053 (Zip)

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

OWNER INFORMATION

Facility Owner: U.S. DOE, W. E. Murphie, Manager | Phone No: (859) 219-4001

Contact Person: Mark J. Duff | Phone No: (270) 441-5030

Contact Person Title: Project Manager, LATA Environmental Services of Kentucky, LLC

Mailing Address: 761 Veterans Avenue (Street) | Kevil, Kentucky (City/State) | 42053 (Zip)

SAMPLING PERSONNEL
(IF OTHER THAN LANDFILL OR LABORATORY)

Company: LATA Environmental Services of Kentucky, LLC

Contact Person: Jeff Boulton | Phone No: (270) 441-5444

Mailing Address: 761 Veterans Avenue (Street) | Kevil, Kentucky (City/State) | 42053 (Zip)

LABORATORY RECORD #1

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

Contact Person: Joanne Harley | Phone No: (843) 769-7387

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

LABORATORY RECORD #2

Laboratory: | Lab ID No:

Contact Person: | Phone No:

Mailing Address: Street | City/State | Zip

LABORATORY RECORD #3

Laboratory: | Lab ID No:

Contact Person: | Phone No:

Mailing Address: 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: 073-00014 & 073-00015

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)	10/21/2014 08:20	10/21/2014 09:23	10/21/2014 13:36	10/21/2014 12:42
Duplicate ("Y" or "N")[2]	N	N	N	N
Split ("Y" or "N")[3]	N	N	N	N
Facility Sample ID Number (if applicable)	MW220SG1-15	MW221SG1-15	MW222SG1-15	MW223SG1-15
Laboratory Sample ID Number (if applicable)	359642001	359642002	359642003	359642004
Date of Analysis (Month/Day/Year) For Volatile Organics Analysis	10/27/2014	10/27/2014	10/27/2014	10/27/2014
Gradient with respect to Monitored Unit (UP, DOWN, SIDE, UNKNOWN)	UP	SIDE	SIDE	SIDE

CAS RN[4]		CONSTITUENT	TD[5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	FLAGS[7]	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS
24959-67-9		Bromide	T	mg/L	9056	0.269		0.494		0.446		0.465	
16887-00-6		Chloride(s)	T	mg/L	9056	24.3		37.6		33.8		34.2	
16984-48-8		Fluoride	T	mg/L	9056	0.146		0.171		0.243		0.223	
S0595- -		Nitrate & Nitrite	T	mg/L	9056	1.3		1.24		1.53		1.15	
14808-79-8		Sulfate	T	mg/L	9056	13.5		13.9		10.8		13.5	
NS1894		Barometric Pressure Reading	T	Inches/Hg	Field	30.05		30.07		30.09		30.09	
S0145- -		Specific Conductance	T	μMH0/cm	Field	316		380		327		383	

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

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

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	TD[5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS
S0906 - -		Static Water Level Elevation	T	Ft. MSL	Field	324.15		323.91		324.02		323.94	
N238		Dissolved Oxygen	T	mg/L	Field	6.39		4.88		4.3		1.9	
S0266- -		Total Dissolved Solids	T	mg/L	160.1	159		180		177		213	
S0296- -		pH	T	Units	Field	6.03		6.09		6.24		6.09	
NS215		Eh	T	mV	Field	401		329		321		383	
S0907 - -		Temperature	T	°C	Field	14.61		15.72		18.94		17.94	
7429-90-5		Aluminum	T	mg/L	6020	0.0283	J	<0.05		0.121		<0.05	
7440-36-0		Antimony	T	mg/L	6020	<0.003	*	<0.003	*	<0.003	*	<0.003	*
7440-38-2		Arsenic	T	mg/L	6020	<0.005		<0.005		0.00176	J	0.00175	J
7440-39-3		Barium	T	mg/L	6020	0.172		0.202		0.249		0.256	
7440-41-7		Beryllium	T	mg/L	6020	<0.0005	*	<0.0005	*	<0.0005	*	<0.0005	*
7440-42-8		Boron	T	mg/L	6020	0.00715	J	0.0147	J	0.00765	J	0.00659	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	18.4		20.4		14.6		21.4	
7440-47-3		Chromium	T	mg/L	6020	0.0035	J	0.0182		<0.01		0.0102	
7440-48-4		Cobalt	T	mg/L	6020	0.00027	J	0.00137		0.00128		0.00067	J
7440-50-8		Copper	T	mg/L	6020	0.00119	J	0.00135	J	0.00052	J	0.0004	J
7439-89-6		Iron	T	mg/L	6020	0.079	J	0.0896	J	0.153		<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	7.41		9.02		6.5		8.85	
7439-96-5		Manganese	T	mg/L	6020	0.00127	J	0.00346	J	0.0168		0.00426	J
7439-97-6		Mercury	T	mg/L	7470	<0.0002		<0.0002		<0.0002		<0.0002	

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	TD[5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS
7439-98-7		Molybdenum	T	mg/L	6020	0.00065	*	0.00369	*	0.0002	*J	0.00397	*
7440-02-0		Nickel	T	mg/L	6020	0.0413		0.108		0.0444		0.22	
7440-09-7		Potassium	T	mg/L	6020	3.26		1.2		0.412		1.68	
7440-16-6		Rhodium	T	mg/L	6020	<0.005		<0.005		<0.005		<0.005	
7782-49-2		Selenium	T	mg/L	6020	0.00176	J	<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	36		46.5		46.6		48.6	
7440-25-7		Tantalum	T	mg/L	6020	<0.005	*	<0.005	*	<0.005	*	<0.005	*
7440-28-0		Thallium	T	mg/L	6020	<0.002	*	<0.002	*	<0.002	*	<0.002	*
7440-61-1		Uranium	T	mg/L	6020	<0.0002		<0.0002		<0.0002		<0.0002	
7440-62-2		Vanadium	T	mg/L	6010	<0.005		<0.005		<0.005		<0.005	
7440-66-6		Zinc	T	mg/L	6020	0.00742	BJ	0.00637	BJ	0.00621	BJ	0.0105	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	

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	TD[5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS
75-27-4		Bromodichloromethane	T	mg/L	8260	<0.001		<0.001		<0.001		<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	

RESIDENTIAL/CONTAINED-QUARTERLY
Facility: US DOE - Paducah Gaseous Diffusion Plant
Permit Number: 073-00014 & 073-00015

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, etc.)						220		221		222		223	
CAS RN[4]		CONSTITUENT	TD[5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS
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	<0.0000202		<0.0000202		<0.0000202		<0.0000202	
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		<0.0952		<0.0962	
12674-11-2		PCB-1016	T	ug/L	8082	<0.1		<0.098		<0.0952		<0.0962	
11104-28-2		PCB-1221	T	ug/L	8082	<0.1		<0.098		<0.0952		<0.0962	
11141-16-5		PCB-1232	T	ug/L	8082	<0.1		<0.098		<0.0952		<0.0962	
53469-21-9		PCB-1242	T	ug/L	8082	<0.1		<0.098		<0.0952		<0.0962	
12672-29-6		PCB-1248	T	ug/L	8082	<0.1		<0.098		<0.0952		<0.0962	

RESIDENTIAL/CONTAINED-QUARTERLY
Facility: US DOE - Paducah Gaseous Diffusion Plant
Permit Number: 073-00014 & 073-00015

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, etc.)						220		221		222		223	
CAS RN[4]		CONSTITUENT	TD[5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS
11097-69-1		PCB-1254	T	ug/L	8082	<0.1		<0.098		<0.0952		<0.0962	
11096-82-5		PCB-1260	T	ug/L	8082	<0.1		<0.098		<0.0952		<0.0962	
11100-14-4		PCB-1268	T	ug/L	8082	<0.1		<0.098		<0.0952		<0.0962	
12587-46-1		Gross Alpha	T	pCi/L	9310	-0.658	*	-2.98	*	-4.96	*	-2.83	*
12587-47-2		Gross Beta	T	pCi/L	9310	9.99	*	8.62	*	4.16	*	5.27	*
10043-66-0		Iodine-131	T	pCi/L			*		*		*		*
13982-63-3		Radium-226	T	pCi/L	HASL 300	0.858	*	0.425	*	0.255	*	0.263	*
10098-97-2		Strontium-90	T	pCi/L	905.0	-0.616	*	0.649	*	-1.94	*	-0.138	*
14133-76-7		Technetium-99	T	pCi/L	Tc-02-RC	35	*	4.53	*	2.22	*	10.6	*
14269-63-7		Thorium-230	T	pCi/L	Th-01-RC	1.29	*	1.32	*	2.35	*	2.23	*
10028-17-8		Tritium	T	pCi/L	906.0	15.1	*	-62.5	*	145	*	13.6	*
S0130- -		Chemical Oxygen Demand	T	mg/L	410.4	10.2	J	<20		57.6		<20	
57-12-5		Cyanide	T	mg/L	9012	<0.2		<0.2		<0.2		<0.2	
20461-54-5		Iodide	T	mg/L	300.0	<0.5		<0.5		<0.5		<0.5	
S0268- -		Total Organic Carbon	T	mg/L	9060	0.948	J	1	J	0.864	J	1.09	J
S0586- -		Total Organic Halides	T	mg/L	9020	<0.01		<0.01		<0.01		<0.01	

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: 073-00014 & 073-00015

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)	10/22/2014 10:00	10/20/2014 08:42	10/20/2014 13:47	10/16/2014 13:05
Duplicate ("Y" or "N")[2]	N	N	N	N
Split ("Y" or "N")[3]	N	N	N	N
Facility Sample ID Number (if applicable)	MW224SG1-15	MW369UG1-15	MW370UG1-15	MW372UG1-15
Laboratory Sample ID Number (if applicable)	359642009	359506001	359506002	359287003
Date of Analysis (Month/Day/Year) For Volatile Organics Analysis	10/27/2014	10/23/2014	10/23/2014	10/23/2014
Gradient with respect to Monitored Unit (UP, DOWN, SIDE, UNKNOWN)	SIDE	DOWN	DOWN	DOWN

CAS RN[4]		CONSTITUENT	TD[5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	FLAGS[7]	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS
24959-67-9		Bromide	T	mg/L	9056	0.411		0.402		0.55		0.629	
16887-00-6		Chloride(s)	T	mg/L	9056	29.2		31.8		40		47.3	
16984-48-8		Fluoride	T	mg/L	9056	0.253		0.19		0.158		0.176	
S0595- -		Nitrate & Nitrite	T	mg/L	9056	0.614	J	0.474		1.22		0.798	
14808-79-8		Sulfate	T	mg/L	9056	15.5		7.65		19.1		118	
NS1894		Barometric Pressure Reading	T	Inches/Hg	Field	30.3		30.03		29.98		29.93	
S0145- -		Specific Conductance	T	μMH0/cm	Field	439		371		437		766	

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

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

RESIDENTIAL/INERT-QUARTERLY
Facility: US DOE - Paducah Gaseous Diffusion Plant
Permit Number: 073-00014 & 073-00015

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	TD[5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS
S0906 - -		Static Water Level Elevation	T	Ft. MSL	Field	323.78		323.43		323.51		323.61	
N238		Dissolved Oxygen	T	mg/L	Field	2.13		2.1		3.74		0.98	
S0266- -		Total Dissolved Solids	T	mg/L	160.1	224		193		190		476	
S0296- -		pH	T	Units	Field	6.25		6.09		6.03		6.16	
NS215		Eh	T	mV	Field	364		405		363		88	
S0907 - -		Temperature	T	°C	Field	15.39		14.5		19.5		17.39	
7429-90-5		Aluminum	T	mg/L	6020	0.0243	J	0.184		<0.05		0.0506	
7440-36-0		Antimony	T	mg/L	6020	<0.003	*	<0.003		<0.003		<0.003	
7440-38-2		Arsenic	T	mg/L	6020	<0.005		0.00171	J	<0.005		0.00186	J
7440-39-3		Barium	T	mg/L	6020	0.224		0.368		0.2		0.0678	
7440-41-7		Beryllium	T	mg/L	6020	<0.0005	*	0.00022	J	<0.0005		<0.0005	
7440-42-8		Boron	T	mg/L	6020	0.0129	J	0.0139	J	0.0323		1.08	
7440-43-9		Cadmium	T	mg/L	6020	<0.001		<0.001		<0.001		<0.001	
7440-70-2		Calcium	T	mg/L	6020	22.8		16.8		28		59.3	
7440-47-3		Chromium	T	mg/L	6020	0.00219	J	<0.01		<0.01		<0.01	
7440-48-4		Cobalt	T	mg/L	6020	0.0006	J	0.00805		0.00074	J	0.00031	J
7440-50-8		Copper	T	mg/L	6020	<0.001		0.00143		0.00075	J	0.00041	J
7439-89-6		Iron	T	mg/L	6020	0.0605	J	0.339		0.0369	J	0.476	
7439-92-1		Lead	T	mg/L	6020	<0.002	*	<0.002		0.00065	J	<0.002	
7439-95-4		Magnesium	T	mg/L	6020	9.58		7.03		12.2		22.4	
7439-96-5		Manganese	T	mg/L	6020	0.0051		0.038		0.0099		0.0208	
7439-97-6		Mercury	T	mg/L	7470	<0.0002		<0.0002		<0.0002		<0.0002	

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	TD[5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS
7439-98-7		Molybdenum	T	mg/L	6020	0.00036	*J	0.0002	J	0.00022	J	0.00041	J
7440-02-0		Nickel	T	mg/L	6020	0.00618		0.00827	J	0.00081	BJ	0.00166	J
7440-09-7		Potassium	T	mg/L	6020	0.924		0.534		2.38		2.37	
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		0.00169	J	<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	60		53.4		42.9		59.7	
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	6010	<0.005		0.00109	J	<0.005		<0.005	
7440-66-6		Zinc	T	mg/L	6020	0.00546	BJ	0.00607	J	0.00417	J	0.00799	BJ
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	

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	TD[5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS
75-27-4		Bromodichloromethane	T	mg/L	8260	<0.001		<0.001		<0.001		<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		0.00127		0.00111		0.00779	

RESIDENTIAL/CONTAINED-QUARTERLY
Facility: US DOE - Paducah Gaseous Diffusion Plant
Permit Number: 073-00014 & 073-00015

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, etc.)						224		369		370		372	
CAS RN[4]		CONSTITUENT	TD[5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS
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	<0.00002		<0.00002		<0.0000202		<0.0000204	
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	<0.0962		0.0385	J	<0.0962		0.103	
12674-11-2		PCB-1016	T	ug/L	8082	<0.0962		<0.0943		<0.0962		<0.0962	
11104-28-2		PCB-1221	T	ug/L	8082	<0.0962		<0.0943		<0.0962		<0.0962	
11141-16-5		PCB-1232	T	ug/L	8082	<0.0962		<0.0943		<0.0962		<0.0962	
53469-21-9		PCB-1242	T	ug/L	8082	<0.0962		0.0385	J	<0.0962		0.103	
12672-29-6		PCB-1248	T	ug/L	8082	<0.0962		<0.0943		<0.0962		<0.0962	

RESIDENTIAL/CONTAINED-QUARTERLY
Facility: US DOE - Paducah Gaseous Diffusion Plant
Permit Number: 073-00014 & 073-00015

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, etc.)						224		369		370		372	
CAS RN[4]		CONSTITUENT	TD[5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS
11097-69-1		PCB-1254	T	ug/L	8082	<0.0962		<0.0943		<0.0962		<0.0962	
11096-82-5		PCB-1260	T	ug/L	8082	<0.0962		<0.0943		<0.0962		<0.0962	
11100-14-4		PCB-1268	T	ug/L	8082	<0.0962		<0.0943		<0.0962		<0.0962	
12587-46-1		Gross Alpha	T	pCi/L	9310	1.37	*	-1.45	*	-3.22	*	6.26	*
12587-47-2		Gross Beta	T	pCi/L	9310	-4.79	*	32.1	*	14.5	*	74	*
10043-66-0		Iodine-131	T	pCi/L			*		*		*		*
13982-63-3		Radium-226	T	pCi/L	HASL 300	0.555	*	0.748	*	0.818	*	0.461	*
10098-97-2		Strontium-90	T	pCi/L	905.0	-2.48	*	-0.216	*	-1.54	*	-1.49	*
14133-76-7		Technetium-99	T	pCi/L	Tc-02-RC	11.9	*	43.3	*	22.5	*	107	*
14269-63-7		Thorium-230	T	pCi/L	Th-01-RC	0.466	*	4.4	*	3.82	*	4.97	*
10028-17-8		Tritium	T	pCi/L	906.0	-69.2	*	-66.2	*	26.1	*	-2.17	*
S0130- -		Chemical Oxygen Demand	T	mg/L	410.4	<20		<20		31.2		12.9	J
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	1.35	J	1.59	J	0.853	J	2.74	
S0586- -		Total Organic Halides	T	mg/L	9020	0.00516	J	0.0137		0.0038	J	0.00642	J

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: 073-00014 & 073-00015

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)						10/16/2014 12:26		10/23/2014 12:55		10/27/2014 13:43		10/27/2014 12:42	
Duplicate ("Y" or "N")[2]						N		N		N		N	
Split ("Y" or "N")[3]						N		N		N		N	
Facility Sample ID Number (if applicable)						MW373UG1-15		MW384SG1-15		MW385SG1-15		MW386SG1-15	
Laboratory Sample ID Number (if applicable)						359287004		359802001		359980001		359980003	
Date of Analysis (Month/Day/Year) For Volatile Organics Analysis						10/23/2014		10/29/2014		10/29/2014		10/29/2014	
Gradient with respect to Monitored Unit (UP, DOWN, SIDE, UNKNOWN)						DOWN		SIDE		SIDE		SIDE	
CAS RN[4]		**CONSTITUENT**	**TD[5]**	**Unit OF MEASURE**	**METHOD**	**DETECTED VALUE OR PQL[6]**	**FLAGS[7]**	**DETECTED VALUE OR PQL[6]**	**FLAGS**	**DETECTED VALUE OR PQL[6]**	**FLAGS**	**DETECTED VALUE OR PQL[6]**	**FLAGS**
24959-67-9		**Bromide**	**T**	**mg/L**	**9056**	0.609		0.637		0.284		0.174	J
16887-00-6		**Chloride(s)**	**T**	**mg/L**	**9056**	43.5		55.2		27.1		17	
16984-48-8		**Fluoride**	**T**	**mg/L**	**9056**	0.18		0.237		0.14		0.528	
S0595- -		**Nitrate & Nitrite**	**T**	**mg/L**	**9056**	0.908		1.43		0.605		<0.1	
14808-79-8		**Sulfate**	**T**	**mg/L**	**9056**	181		19.2		18.8		43.1	
NS1894		**Barometric Pressure Reading**	**T**	**Inches/Hg**	**Field**	29.93		30.22		29.88		29.9	
S0145- -		**Specific Conductance**	**T**	**μMH0/cm**	**Field**	901		522		456		639	

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

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

RESIDENTIAL/INERT-QUARTERLY
Facility: US DOE - Paducah Gaseous Diffusion Plant
Permit Number: 073-00014 & 073-00015

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	TD[5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS
S0906 - -		Static Water Level Elevation	T	Ft. MSL	Field	323.58		323.39		323.57		344.24	
N238		Dissolved Oxygen	T	mg/L	Field	1.37		4.17		0.81		1.07	
S0266- -		Total Dissolved Solids	T	mg/L	160.1	536		251		260		366	
S0296- -		pH	T	Units	Field	6.22		6.23		6.34		6.63	
NS215		Eh	T	mV	Field	404		278		312		125	
S0907 - -		Temperature	T	°C	Field	16.83		16.11		21.28		21.67	
7429-90-5		Aluminum	T	mg/L	6020	<0.05		<0.05		<0.05		0.0315	J
7440-36-0		Antimony	T	mg/L	6020	<0.003		<0.003		<0.003		<0.003	
7440-38-2		Arsenic	T	mg/L	6020	<0.005		0.00222	J	<0.005		0.00203	J
7440-39-3		Barium	T	mg/L	6020	0.0264		0.143		0.228		0.209	
7440-41-7		Beryllium	T	mg/L	6020	<0.0005		<0.0005		<0.0005		<0.0005	
7440-42-8		Boron	T	mg/L	6020	1.65		0.0143	J	0.0136	BJ	0.00643	BJ
7440-43-9		Cadmium	T	mg/L	6020	<0.001		<0.001		<0.001		<0.001	
7440-70-2		Calcium	T	mg/L	6020	72.4		29.8		29.4		22.5	
7440-47-3		Chromium	T	mg/L	6020	<0.01		0.00407	J	<0.01		<0.01	
7440-48-4		Cobalt	T	mg/L	6020	0.00098	J	0.00016	J	<0.001		0.00874	
7440-50-8		Copper	T	mg/L	6020	<0.001		0.00052	J	0.00058	BJ	<0.001	
7439-89-6		Iron	T	mg/L	6020	0.2		0.263		<0.1		1.15	
7439-92-1		Lead	T	mg/L	6020	<0.002		<0.002		<0.002		<0.002	
7439-95-4		Magnesium	T	mg/L	6020	27.4		12.1		11.3		9.63	
7439-96-5		Manganese	T	mg/L	6020	0.0598		0.0339		0.0015	J	1.16	
7439-97-6		Mercury	T	mg/L	7470	<0.0002		<0.0002		<0.0002		<0.0002	

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	TD[5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS
7439-98-7		Molybdenum	T	mg/L	6020	<0.0005		<0.0005		0.00031	J	0.00046	J
7440-02-0		Nickel	T	mg/L	6020	0.00255		<0.002		0.00088	J	0.00196	J
7440-09-7		Potassium	T	mg/L	6020	2.92		1.14		1.75		0.289	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		0.00249	J	<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	61		58.7		40.6		107	
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		0.00011	J	<0.0002	
7440-62-2		Vanadium	T	mg/L	6010	<0.005		<0.005		<0.005		<0.005	
7440-66-6		Zinc	T	mg/L	6020	0.00704	BJ	0.00389	J	0.00995	J	0.00801	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	

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	TD[5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS
75-27-4		Bromodichloromethane	T	mg/L	8260	<0.001		<0.001		<0.001		<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	0.00767		0.00034	J	<0.001		<0.001	

RESIDENTIAL/CONTAINED-QUARTERLY
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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, etc.)						373		384		385		386	
CAS RN[4]		CONSTITUENT	TD[5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS
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	<0.0000203		<0.0000204		<0.0000201		<0.0000201	
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	<0.0943		<0.098		<0.0952		<0.0952	
12674-11-2		PCB-1016	T	ug/L	8082	<0.0943		<0.098		<0.0952		<0.0952	
11104-28-2		PCB-1221	T	ug/L	8082	<0.0943		<0.098		<0.0952		<0.0952	
11141-16-5		PCB-1232	T	ug/L	8082	<0.0943		<0.098		<0.0952		<0.0952	
53469-21-9		PCB-1242	T	ug/L	8082	<0.0943		<0.098		<0.0952		<0.0952	
12672-29-6		PCB-1248	T	ug/L	8082	<0.0943		<0.098		<0.0952		<0.0952	

RESIDENTIAL/CONTAINED-QUARTERLY
Facility: US DOE - Paducah Gaseous Diffusion Plant
Permit Number: 073-00014 & 073-00015

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, etc.)						373		384		385		386	
CAS RN[4]		CONSTITUENT	TD[5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS
11097-69-1		PCB-1254	T	ug/L	8082	<0.0943		<0.098		<0.0952		<0.0952	
11096-82-5		PCB-1260	T	ug/L	8082	<0.0943		<0.098		<0.0952		<0.0952	
11100-14-4		PCB-1268	T	ug/L	8082	<0.0943		<0.098		<0.0952		<0.0952	
12587-46-1		Gross Alpha	T	pCi/L	9310	-1.21	*	-1.23	*	-1.58	*	2.26	*
12587-47-2		Gross Beta	T	pCi/L	9310	24.9	*	110	*	78.2	*	0.582	*
10043-66-0		Iodine-131	T	pCi/L			*		*		*		*
13982-63-3		Radium-226	T	pCi/L	HASL 300	0.42	*	0.253	*	0.513	*	0.352	*
10098-97-2		Strontium-90	T	pCi/L	905.0	-2	*	0.88	*	-1.89	*	0.831	*
14133-76-7		Technetium-99	T	pCi/L	Tc-02-RC	38	*	144	*	106	*	-0.956	*
14269-63-7		Thorium-230	T	pCi/L	Th-01-RC	3.9	*	-0.828	*	0.97	*	2.81	*
10028-17-8		Tritium	T	pCi/L	906.0	18.7	*	34.6	*	131	*	64.8	*
S0130- -		Chemical Oxygen Demand	T	mg/L	410.4	12.9	J	<20		<20		31.4	
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	1.89	J	1.24	J	1.35	J	10.6	
S0586- -		Total Organic Halides	T	mg/L	9020	0.028		0.0103		0.00608	J	0.205	

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

RESIDENTIAL/INERT-QUARTERLY
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FINDS/UNIT: KY8-890-008-982 / 1
LAB ID: None
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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)	10/23/2014 08:22	10/23/2014 09:22	NA	10/22/2014 08:59
Duplicate ("Y" or "N")[2]	N	N	N	N
Split ("Y" or "N")[3]	N	N	N	N
Facility Sample ID Number (if applicable)	MW387SG1-15	MW388SG1-15	NA	MW390SG1-15
Laboratory Sample ID Number (if applicable)	359802005	359802007	NA	359663019
Date of Analysis (Month/Day/Year) For Volatile Organics Analysis	10/29/2014	10/29/2014	NA	10/28/2014
Gradient with respect to Monitored Unit (UP, DOWN, SIDE, UNKNOWN)	DOWN	DOWN	SIDE	DOWN

CAS RN[4]		CONSTITUENT	TD[5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	FLAGS[7]	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS
24959-67-9		Bromide	T	mg/L	9056	0.517		0.405			*	1.03	
16887-00-6		Chloride(s)	T	mg/L	9056	40.4		31.2			*	121	
16984-48-8		Fluoride	T	mg/L	9056	0.586		0.196			*	0.265	
S0595- -		Nitrate & Nitrite	T	mg/L	9056	1.26		1.27			*	3.77	
14808-79-8		Sulfate	T	mg/L	9056	31.9		21.5			*	28.4	
NS1894		Barometric Pressure Reading	T	Inches/Hg	Field	30.21		30.21			*	30.29	
S0145- -		Specific Conductance	T	μMH0/cm	Field	555		433			*	761	

[1]AKGWA # is 0000-0000 for any type of blank.
[2]Respond "Y" if the sample was a duplicate of another sample in this report.
[3]Respond "Y" if the sample was split and analyzed by separate laboratories.
[4]Chemical Abstracts Service Registry Number or unique identifier number assigned by agency.
[5]"T" = Total; "D" = Dissolved
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* = See Comments
J = Estimated Value
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Permit Number: 073-00014 & 073-00015

FINDS/UNIT: KY8-890-008-982 / 1
LAB ID: None
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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	TD[5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS
S0906 - -		Static Water Level Elevation	T	Ft. MSL	Field	323.42		323.34			*	323.42	
N238		Dissolved Oxygen	T	mg/L	Field	4.47		4.89			*	5.65	
S0266- -		Total Dissolved Solids	T	mg/L	160.1	331		221			*	390	
S0296- -		pH	T	Units	Field	6.27		6.11			*	6.85	
NS215		Eh	T	mV	Field	449		363			*	446	
S0907 - -		Temperature	T	°C	Field	13.44		14.72			*	13.33	
7429-90-5		Aluminum	T	mg/L	6020	0.0299	J	0.015	J		*	1.03	
7440-36-0		Antimony	T	mg/L	6020	<0.003		<0.003			*	<0.003	*
7440-38-2		Arsenic	T	mg/L	6020	0.00399	J	0.0018	J		*	0.00228	J
7440-39-3		Barium	T	mg/L	6020	0.131		0.212			*	0.293	
7440-41-7		Beryllium	T	mg/L	6020	<0.0005		<0.0005			*	<0.0005	*
7440-42-8		Boron	T	mg/L	6020	0.0334		0.021			*	<0.015	
7440-43-9		Cadmium	T	mg/L	6020	<0.001		<0.001			*	<0.001	
7440-70-2		Calcium	T	mg/L	6020	37.3		26.8			*	36.8	
7440-47-3		Chromium	T	mg/L	6020	0.00393	J	<0.01			*	0.00756	J
7440-48-4		Cobalt	T	mg/L	6020	<0.001		<0.001			*	0.00101	
7440-50-8		Copper	T	mg/L	6020	0.00055	J	0.0005	J		*	0.00129	J
7439-89-6		Iron	T	mg/L	6020	0.0805	J	0.0331	J		*	1.08	
7439-92-1		Lead	T	mg/L	6020	<0.002		<0.002			*	0.00054	*J
7439-95-4		Magnesium	T	mg/L	6020	15.4		11.5			*	15.4	
7439-96-5		Manganese	T	mg/L	6020	0.0024	J	<0.005			*	0.00684	
7439-97-6		Mercury	T	mg/L	7470	<0.0002		<0.0002			*	<0.0002	

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	TD[5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS
7439-98-7		Molybdenum	T	mg/L	6020	<0.0005		<0.0005			*	0.00083	*
7440-02-0		Nickel	T	mg/L	6020	<0.002		0.00055	BJ		*	0.00204	
7440-09-7		Potassium	T	mg/L	6020	1.83		2.06			*	0.503	
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	55.5		48.7			*	97.7	
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			*	0.00013	BJ
7440-62-2		Vanadium	T	mg/L	6010	<0.005		<0.005			*	0.00315	J
7440-66-6		Zinc	T	mg/L	6020	0.00562	J	0.00427	J		*	0.00991	BJ
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	

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	TD[5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS
75-27-4		Bromodichloromethane	T	mg/L	8260	<0.001		<0.001			*	<0.001	
75-25-2		Tribromomethane	T	mg/L	8260	<0.001		<0.001			*	<0.001	
74-83-9		Methyl bromide	T	mg/L	8260	<0.001		<0.001			*	<0.001	
78-93-3		Methyl ethyl ketone	T	mg/L	8260	<0.005		<0.005			*	<0.005	
110-57-6		trans-1,4-Dichloro-2-butene	T	mg/L	8260	<0.005		<0.005			*	<0.005	
75-15-0		Carbon disulfide	T	mg/L	8260	<0.005		<0.005			*	<0.005	
75-00-3		Chloroethane	T	mg/L	8260	<0.001		<0.001			*	<0.001	
67-66-3		Chloroform	T	mg/L	8260	<0.001		<0.001			*	<0.001	
74-87-3		Methyl chloride	T	mg/L	8260	<0.001		<0.001			*	<0.001	
156-59-2		cis-1,2-Dichloroethene	T	mg/L	8260	0.00038	J	0.00051	J		*	<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	0.00061	J	0.00075	J		*	<0.001	

RESIDENTIAL/CONTAINED-QUARTERLY
Facility: US DOE - Paducah Gaseous Diffusion Plant FINDS/UNIT: KY8-890-008-982 / 1
Permit Number: 073-00014 & 073-00015 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	TD[5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS
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	<0.0000201		<0.0000201			*	<0.0000202	
78-87-5		Propane, 1,2-Dichloro-	T	mg/L	8260	<0.001		<0.001			*	<0.001	
10061-02-6		trans-1,3-Dichloro-1-propene	T	mg/L	8260	<0.001		<0.001			*	<0.001	
10061-01-5		cis-1,3-Dichloro-1-propene	T	mg/L	8260	<0.001		<0.001			*	<0.001	
156-60-5		trans-1,2-Dichloroethene	T	mg/L	8260	<0.001		<0.001			*	<0.001	
75-69-4		Trichlorofluoromethane	T	mg/L	8260	<0.001		<0.001			*	<0.001	
96-18-4		1,2,3-Trichloropropane	T	mg/L	8260	<0.001		<0.001			*	<0.001	
95-50-1		Benzene, 1,2-Dichloro-	T	mg/L	8260	<0.001		<0.001			*	<0.001	
106-46-7		Benzene, 1,4-Dichloro-	T	mg/L	8260	<0.001		<0.001			*	<0.001	
1336-36-3		PCB,Total	T	ug/L	8082	<0.099		<0.098			*	<0.0962	
12674-11-2		PCB-1016	T	ug/L	8082	<0.099		<0.098			*	<0.0962	
11104-28-2		PCB-1221	T	ug/L	8082	<0.099		<0.098			*	<0.0962	
11141-16-5		PCB-1232	T	ug/L	8082	<0.099		<0.098			*	<0.0962	
53469-21-9		PCB-1242	T	ug/L	8082	<0.099		<0.098			*	<0.0962	
12672-29-6		PCB-1248	T	ug/L	8082	<0.099		<0.098			*	<0.0962	

RESIDENTIAL/CONTAINED-QUARTERLY
Facility: US DOE - Paducah Gaseous Diffusion Plant
Permit Number: 073-00014 & 073-00015

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		8004-4812		8004-4811	
Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.)						387		388		389		390	
CAS RN[4]		CONSTITUENT	TD[5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS
11097-69-1		PCB-1254	T	ug/L	8082	<0.099		<0.098			*	<0.0962	
11096-82-5		PCB-1260	T	ug/L	8082	<0.099		<0.098			*	<0.0962	
11100-14-4		PCB-1268	T	ug/L	8082	<0.099		<0.098			*	<0.0962	
12587-46-1		Gross Alpha	T	pCi/L	9310	-2.37	*	0.589	*		*	0.198	*
12587-47-2		Gross Beta	T	pCi/L	9310	147	*	55.4	*		*	36	*
10043-66-0		Iodine-131	T	pCi/L			*		*		*		*
13982-63-3		Radium-226	T	pCi/L	HASL 300	0.429	*	0.364	*		*	1.13	*
10098-97-2		Strontium-90	T	pCi/L	905.0	2.56	*	2.93	*		*	2.23	*
14133-76-7		Technetium-99	T	pCi/L	Tc-02-RC	245	*	79	*		*	58	*
14269-63-7		Thorium-230	T	pCi/L	Th-01-RC	2.09	*	1.94	*		*	1.54	*
10028-17-8		Tritium	T	pCi/L	906.0	48	*	50.7	*		*	52.7	*
S0130- -		Chemical Oxygen Demand	T	mg/L	410.4	8.54	J	<20			*	7.55	J
57-12-5		Cyanide	T	mg/L	9012	<0.2		<0.2			*	<0.2	
20461-54-5		Iodide	T	mg/L	300.0	<0.5		<0.5			*	<0.5	
S0268- -		Total Organic Carbon	T	mg/L	9060	1.27	J	1.3	J		*	2.33	
S0586- -		Total Organic Halides	T	mg/L	9020	0.00922	J	0.00756	J		*	0.0208	

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: 073-00014 & 073-00015

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)	10/21/2014 12:39	10/21/2014 07:59	10/21/2014 08:35	10/27/2014 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)	MW391SG1-15	MW392SG1-15	MW393SG1-15	MW394SG1-15
Laboratory Sample ID Number (if applicable)	359642005	359642006	359642008	359980005
Date of Analysis (Month/Day/Year) For Volatile Organics Analysis	10/27/2014	10/27/2014	10/27/2014	10/29/2014
Gradient with respect to Monitored Unit (UP, DOWN, SIDE, UNKNOWN)	DOWN	DOWN	DOWN	UP

CAS RN[4]		CONSTITUENT	TD[5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	FLAGS[7]	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS
24959-67-9		Bromide	T	mg/L	9056	0.644		0.614		0.247		0.679	
16887-00-6		Chloride(s)	T	mg/L	9056	52.6		51.2		17.6		52.8	
16984-48-8		Fluoride	T	mg/L	9056	0.138		0.194		0.126		0.123	
S0595- -		Nitrate & Nitrite	T	mg/L	9056	1.21		0.361	J	<0.1		1.31	
14808-79-8		Sulfate	T	mg/L	9056	15		6.82		10.9		11.1	
NS1894		Barometric Pressure Reading	T	Inches/Hg	Field	30.09		30.07		30.07		29.92	
S0145- -		Specific Conductance	T	μMH0/cm	Field	340		405		332		397	

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

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

RESIDENTIAL/INERT-QUARTERLY
Facility: US DOE - Paducah Gaseous Diffusion Plant
Permit Number: 073-00014 & 073-00015

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						8004-4805		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	TD[5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS
S0906 - -		Static Water Level Elevation	T	Ft. MSL	Field	319.59		322.82		329.69		323.91	
N238		Dissolved Oxygen	T	mg/L	Field	3.76		1.03		1.17		4.09	
S0266- -		Total Dissolved Solids	T	mg/L	160.1	206		197		191		187	
S0296- -		pH	T	Units	Field	6.02		7		6.04		6.34	
NS215		Eh	T	mV	Field	340		430		208		453	
S0907 - -		Temperature	T	°C	Field	18.83		14.28		15.06		17.11	
7429-90-5		Aluminum	T	mg/L	6020	0.0303	J	<0.05		0.0241	J	0.0202	J
7440-36-0		Antimony	T	mg/L	6020	<0.003	*	<0.003	*	<0.003	*	<0.003	
7440-38-2		Arsenic	T	mg/L	6020	<0.005		<0.005		0.00476	J	<0.005	
7440-39-3		Barium	T	mg/L	6020	0.239		0.193		0.12		0.251	
7440-41-7		Beryllium	T	mg/L	6020	<0.0005	*	<0.0005	*	<0.0005	*	<0.0005	
7440-42-8		Boron	T	mg/L	6020	0.0265		0.0251		0.016		0.0211	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	26.9		27.4		11.3		26.5	
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		0.00018	J	0.00012	J	<0.001	
7440-50-8		Copper	T	mg/L	6020	0.00047	J	<0.001		<0.001		0.00037	BJ
7439-89-6		Iron	T	mg/L	6020	0.209		0.105		2.2		0.0738	J
7439-92-1		Lead	T	mg/L	6020	<0.002	*	<0.002	*	0.00069	*J	<0.002	
7439-95-4		Magnesium	T	mg/L	6020	11		9.7		3.35		11	
7439-96-5		Manganese	T	mg/L	6020	0.00203	J	0.124		0.0434		0.007	
7439-97-6		Mercury	T	mg/L	7470	<0.0002		<0.0002		<0.0002		<0.0002	

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	TD[5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS
7439-98-7		Molybdenum	T	mg/L	6020	<0.0005	*	0.00025	*J	<0.0005	*	<0.0005	
7440-02-0		Nickel	T	mg/L	6020	0.00087	J	0.00075	J	<0.002		0.0024	
7440-09-7		Potassium	T	mg/L	6020	1.5		1.74		0.374		1.17	
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	34.3		38.1		72.5		33.9	
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		0.00013	BJ	<0.0002	
7440-62-2		Vanadium	T	mg/L	6010	<0.005		<0.005		<0.005		<0.005	
7440-66-6		Zinc	T	mg/L	6020	0.00753	BJ	0.00669	BJ	0.00719	BJ	0.0064	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	

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	TD[5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS
75-27-4		Bromodichloromethane	T	mg/L	8260	<0.001		<0.001		<0.001		<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	0.00069	J	0.0007	J	<0.001		0.00032	J
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	0.0145		0.0182		<0.001		0.00764	

RESIDENTIAL/CONTAINED-QUARTERLY
Facility: US DOE - Paducah Gaseous Diffusion Plant
Permit Number: 073-00014 & 073-00015

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						8004-4805		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	TD[5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS
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	<0.0000199		<0.0000198		<0.00002		<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	<0.0952		<0.098		<0.0962		<0.099	
12674-11-2		PCB-1016	T	ug/L	8082	<0.0952		<0.098		<0.0962		<0.099	
11104-28-2		PCB-1221	T	ug/L	8082	<0.0952		<0.098		<0.0962		<0.099	
11141-16-5		PCB-1232	T	ug/L	8082	<0.0952		<0.098		<0.0962		<0.099	
53469-21-9		PCB-1242	T	ug/L	8082	<0.0952		<0.098		<0.0962		<0.099	
12672-29-6		PCB-1248	T	ug/L	8082	<0.0952		<0.098		<0.0962		<0.099	

RESIDENTIAL/CONTAINED-QUARTERLY
Facility: US DOE - Paducah Gaseous Diffusion Plant
Permit Number: 073-00014 & 073-00015

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						8004-4805		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	TD[5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS
11097-69-1		PCB-1254	T	ug/L	8082	<0.0952		<0.098		<0.0962		<0.099	
11096-82-5		PCB-1260	T	ug/L	8082	<0.0952		<0.098		<0.0962		<0.099	
11100-14-4		PCB-1268	T	ug/L	8082	<0.0952		<0.098		<0.0962		<0.099	
12587-46-1		Gross Alpha	T	pCi/L	9310	-5.16	*	-2.69	*	0.427	*	-1.84	*
12587-47-2		Gross Beta	T	pCi/L	9310	-3.02	*	1.48	*	0.813	*	3.99	*
10043-66-0		Iodine-131	T	pCi/L			*		*		*		*
13982-63-3		Radium-226	T	pCi/L	HASL 300	0.495	*	0.484	*	0.292	*	0.706	*
10098-97-2		Strontium-90	T	pCi/L	905.0	0.129	*	-3.1	*	-0.75	*	-1.37	*
14133-76-7		Technetium-99	T	pCi/L	Tc-02-RC	10.7	*	4.39	*	5.3	*	17.2	*
14269-63-7		Thorium-230	T	pCi/L	Th-01-RC	2.67	*	1.83	*	0.383	*	-0.143	*
10028-17-8		Tritium	T	pCi/L	906.0	85.8	*	-55.1	*	18.8	*	79.4	*
S0130- -		Chemical Oxygen Demand	T	mg/L	410.4	<20		10.2	J	12.8	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	1.26	J	1.8	J	3.01		1.11	J
S0586- -		Total Organic Halides	T	mg/L	9020	0.0113		0.0296		0.0148		0.0107	

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: 073-00014 & 073-00015

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)						10/27/2014 09:39		10/27/2014 08:59		10/21/2014 13:56		10/22/2014 07:35	
Duplicate ("Y" or "N")[2]						N		N		N		N	
Split ("Y" or "N")[3]						N		N		N		N	
Facility Sample ID Number (if applicable)						MW395SG1-15		MW396SG1-15		MW397SG1-15		RI1SG1-15	
Laboratory Sample ID Number (if applicable)						359980007		359980009		359642007		359756002	
Date of Analysis (Month/Day/Year) For Volatile Organics Analysis						10/29/2014		10/29/2014		10/27/2014		10/28/2014	
Gradient with respect to Monitored Unit (UP, DOWN, SIDE, UNKNOWN)						UP		UP		UP		NA	
CAS RN[4]		**CONSTITUENT**	**TD[5]**	**Unit OF MEASURE**	**METHOD**	**DETECTED VALUE OR PQL[6]**	**FLAGS[7]**	**DETECTED VALUE OR PQL[6]**	**FLAGS**	**DETECTED VALUE OR PQL[6]**	**FLAGS**	**DETECTED VALUE OR PQL[6]**	**FLAGS**
24959-67-9		**Bromide**	**T**	**mg/L**	**9056**	0.59		1.33		0.532			*
16887-00-6		**Chloride(s)**	**T**	**mg/L**	**9056**	49.7		88.5		42.1			*
16984-48-8		**Fluoride**	**T**	**mg/L**	**9056**	0.104		0.471		0.118			*
S0595- -		**Nitrate & Nitrite**	**T**	**mg/L**	**9056**	1.76		<1		1.54			*
14808-79-8		**Sulfate**	**T**	**mg/L**	**9056**	10.6		25.3		12.6			*
NS1894		**Barometric Pressure Reading**	**T**	**Inches/Hg**	**Field**	29.91		29.92		30.07			*
S0145- -		**Specific Conductance**	**T**	**μMH0/cm**	**Field**	387		808		337			*

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

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

RESIDENTIAL/INERT-QUARTERLY
Facility: US DOE - Paducah Gaseous Diffusion Plant
Permit Number: 073-00014 & 073-00015

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						8004-4801		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	TD[5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS
S0906 - -		Static Water Level Elevation	T	Ft. MSL	Field	324.24		367.18		319.82			*
N238		Dissolved Oxygen	T	mg/L	Field	4.25		0.75		5.71			*
S0266- -		Total Dissolved Solids	T	mg/L	160.1	181		419		161			*
S0296- -		pH	T	Units	Field	6.06		6.49		5.92			*
NS215		Eh	T	mV	Field	307		141		380			*
S0907 - -		Temperature	T	°C	Field	17.94		19.22		18.33			*
7429-90-5		Aluminum	T	mg/L	6020	<0.05		0.0162	J	<0.05		<0.05	
7440-36-0		Antimony	T	mg/L	6020	<0.003		<0.003		<0.003	*	<0.003	
7440-38-2		Arsenic	T	mg/L	6020	<0.005		0.00362	J	<0.005		<0.005	
7440-39-3		Barium	T	mg/L	6020	0.259		0.451		0.131		<0.002	
7440-41-7		Beryllium	T	mg/L	6020	<0.0005		<0.0005		0.00524	*	0.00035	J
7440-42-8		Boron	T	mg/L	6020	0.0206	J	0.00676	BJ	0.0067	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	26.6		37.9		19.8		<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		0.00372		<0.001		<0.001	
7440-50-8		Copper	T	mg/L	6020	0.00048	BJ	0.00043	BJ	0.00056	J	<0.001	
7439-89-6		Iron	T	mg/L	6020	<0.1		4.13		<0.1		<0.1	
7439-92-1		Lead	T	mg/L	6020	<0.002		<0.002		<0.002	*	<0.002	
7439-95-4		Magnesium	T	mg/L	6020	11.3		16.9		8.07		<0.03	
7439-96-5		Manganese	T	mg/L	6020	<0.005		0.549		0.00118	J	<0.005	
7439-97-6		Mercury	T	mg/L	7470	<0.0002		<0.0002		<0.0002		0.000069	J

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	TD[5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS
7439-98-7		Molybdenum	T	mg/L	6020	<0.0005		0.00081		<0.0005	*	<0.0005	
7440-02-0		Nickel	T	mg/L	6020	0.00063	J	0.00106	J	0.00073	J	<0.002	
7440-09-7		Potassium	T	mg/L	6020	1.59		0.804		1.85		<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	30.4		109		35.6		<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		0.00012	J	<0.0002		<0.0002	
7440-62-2		Vanadium	T	mg/L	6010	<0.005		<0.005		<0.005		<0.005	
7440-66-6		Zinc	T	mg/L	6020	0.00995	J	0.00841	J	0.00745	BJ	0.00547	BJ
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	

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	TD[5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS
75-27-4		Bromodichloromethane	T	mg/L	8260	<0.001		<0.001		<0.001		<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	0.00412		<0.001		0.00033	J	<0.001	

RESIDENTIAL/CONTAINED-QUARTERLY
Facility: US DOE - Paducah Gaseous Diffusion Plant
Permit Number: 073-00014 & 073-00015

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						8004-4801		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	TD[5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS
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	<0.0000197		<0.0000201		<0.00002		<0.00002	
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	<0.098		<0.099		<0.0971		<0.0943	
12674-11-2		PCB-1016	T	ug/L	8082	<0.098		<0.099		<0.0971		<0.0943	
11104-28-2		PCB-1221	T	ug/L	8082	<0.098		<0.099		<0.0971		<0.0943	
11141-16-5		PCB-1232	T	ug/L	8082	<0.098		<0.099		<0.0971		<0.0943	
53469-21-9		PCB-1242	T	ug/L	8082	<0.098		<0.099		<0.0971		<0.0943	
12672-29-6		PCB-1248	T	ug/L	8082	<0.098		<0.099		<0.0971		<0.0943	

RESIDENTIAL/CONTAINED-QUARTERLY
Facility: US DOE - Paducah Gaseous Diffusion Plant
Permit Number: 073-00014 & 073-00015

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						8004-4801		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	TD[5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS
11097-69-1		PCB-1254	T	ug/L	8082	<0.098		<0.099		<0.0971		<0.0943	
11096-82-5		PCB-1260	T	ug/L	8082	<0.098		<0.099		<0.0971		<0.0943	
11100-14-4		PCB-1268	T	ug/L	8082	<0.098		<0.099		<0.0971		<0.0943	
12587-46-1		Gross Alpha	T	pCi/L	9310	-2.15	*	-3.36	*	-2.55	*	-4.31	*
12587-47-2		Gross Beta	T	pCi/L	9310	19.1	*	-5.77	*	10.4	*	0.842	*
10043-66-0		Iodine-131	T	pCi/L			*		*		*		*
13982-63-3		Radium-226	T	pCi/L	HASL 300	0.537	*	0.633	*	0.492	*	0.109	*
10098-97-2		Strontium-90	T	pCi/L	905.0	0.0905	*	1.85	*	-0.572	*	-1.41	*
14133-76-7		Technetium-99	T	pCi/L	Tc-02-RC	14.4	*	3.28	*	14.7	*	9.96	*
14269-63-7		Thorium-230	T	pCi/L	Th-01-RC	0.607	*	-1.08	*	1.31	*	3.57	*
10028-17-8		Tritium	T	pCi/L	906.0	152	*	98.7	*	76.9	*	100	*
S0130- -		Chemical Oxygen Demand	T	mg/L	410.4	<20		13	J	<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		0.789		<0.5			*
S0268- -		Total Organic Carbon	T	mg/L	9060	1.08	J	6.73		1.05	J		*
S0586- -		Total Organic Halides	T	mg/L	9020	0.00574	J	0.04		0.00646	J		*

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: 073-00014 & 073-00015

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)					10/22/2014 09:05		10/21/2014 07:03		10/21/2014 07:10		10/22/2014 07:30	
Duplicate ("Y" or "N")[2]					N		N		N		N	
Split ("Y" or "N")[3]					N		N		N		N	
Facility Sample ID Number (if applicable)					FB1SG1-15		TB1SG1-15		TB2SG1-15		TB3SG1-15	
Laboratory Sample ID Number (if applicable)					359756001		352606005		359642012		359642015	
Date of Analysis (Month/Day/Year) For Volatile Organics Analysis					10/28/2014		10/28/2014		10/28/2014		10/28/2014	
Gradient with respect to Monitored Unit (UP, DOWN, SIDE, UNKNOWN)					NA		NA		NA		NA	
CAS RN[4]		**CONSTITUENT**	**TD[5]**	**Unit OF MEASURE**	**METHOD**	**DETECTED VALUE OR PQL[6]**	**FLAGS[7]**	**DETECTED VALUE OR PQL[6]**	**FLAGS**	**DETECTED VALUE OR PQL[6]**	**FLAGS**	**DETECTED VALUE OR PQL[6]**	**FLAGS**
24959-67-9		**Bromide**	**T**	**mg/L**	**9056**		*		*		*		*
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**		*		*		*		*

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

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

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	TD[5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS
S0906 - -		Static Water Level Elevation	T	Ft. MSL	Field		*		*		*		*
N238		Dissolved Oxygen	T	mg/L	Field		*		*		*		*
S0266- -		Total Dissolved Solids	T	mg/L	160.1		*		*		*		*
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	<0.003			*		*		*
7440-38-2		Arsenic	T	mg/L	6020	<0.005			*		*		*
7440-39-3		Barium	T	mg/L	6020	<0.002			*		*		*
7440-41-7		Beryllium	T	mg/L	6020	0.00046	J		*		*		*
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	<0.001			*		*		*
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			*		*		*

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	TD[5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS
7439-98-7		Molybdenum	T	mg/L	6020	<0.0005			*		*		*
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	6010	<0.005			*		*		*
7440-66-6		Zinc	T	mg/L	6020	0.00454	BJ		*		*		*
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	

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	TD[5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS
75-27-4		Bromodichloromethane	T	mg/L	8260	<0.001		<0.001		<0.001		<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	

RESIDENTIAL/CONTAINED-QUARTERLY
Facility: US DOE - Paducah Gaseous Diffusion Plant
Permit Number: 073-00014 & 073-00015

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		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	TD[5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS
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	<0.0000204		<0.0000198		<0.0000201		<0.0000204	
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	<0.0935			*		*		*
12674-11-2		PCB-1016	T	ug/L	8082	<0.0935			*		*		*
11104-28-2		PCB-1221	T	ug/L	8082	<0.0935			*		*		*
11141-16-5		PCB-1232	T	ug/L	8082	<0.0935			*		*		*
53469-21-9		PCB-1242	T	ug/L	8082	<0.0935			*		*		*
12672-29-6		PCB-1248	T	ug/L	8082	<0.0935			*		*		*

RESIDENTIAL/CONTAINED-QUARTERLY
Facility: US DOE - Paducah Gaseous Diffusion Plant
Permit Number: 073-00014 & 073-00015

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		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	TD[5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS
11097-69-1		PCB-1254	T	ug/L	8082	<0.0935			*		*		*
11096-82-5		PCB-1260	T	ug/L	8082	<0.0935			*		*		*
11100-14-4		PCB-1268	T	ug/L	8082	<0.0935			*		*		*
12587-46-1		Gross Alpha	T	pCi/L	9310	-5.46	*		*		*		*
12587-47-2		Gross Beta	T	pCi/L	9310	16.6	*		*		*		*
10043-66-0		Iodine-131	T	pCi/L			*		*		*		*
13982-63-3		Radium-226	T	pCi/L	HASL 300	0.322	*		*		*		*
10098-97-2		Strontium-90	T	pCi/L	905.0	-1.34	*		*		*		*
14133-76-7		Technetium-99	T	pCi/L	Tc-02-RC	6.83	*		*		*		*
14269-63-7		Thorium-230	T	pCi/L	Th-01-RC	4.83	*		*		*		*
10028-17-8		Tritium	T	pCi/L	906.0	18.8	*		*		*		*
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		*		*		*		*

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: 073-00014 & 073-00015

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		8004-4815				
Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.)						T. BLANK 4		T. BLANK 5		387				
Sample Sequence #						1		1		2				
If sample is a Blank, specify Type: (F)ield, (T)rip, (M)ethod, or (E)quipment						T		T		NA				
Sample Date and Time (Month/Day/Year hour: minutes)						10/23/2014 06:50		10/27/2014 07:25		10/23/2014 08:22				
Duplicate ("Y" or "N")[2]						N		N		Y				
Split ("Y" or "N")[3]						N		N		N				
Facility Sample ID Number (if applicable)						TB4SG1-15		TB5SG1-15		MW387DSG1-15				
Laboratory Sample ID Number (if applicable)						359802009		359980011		359802003				
Date of Analysis (Month/Day/Year) For Volatile Organics Analysis						10/29/2014		10/29/2014		10/29/2014				
Gradient with respect to Monitored Unit (UP, DOWN, SIDE, UNKNOWN)						NA		NA		DOWN				
CAS RN[4]		**CONSTITUENT**	**TD[5]**	**Unit OF MEASURE**	**METHOD**	**DETECTED VALUE OR PQL[6]**	**FLAGS[7]**	**DETECTED VALUE OR PQL[6]**	**FLAGS**	**DETECTED VALUE OR PQL[6]**	**FLAGS**	**DETECTED VALUE OR PQL[6]**	**FLAGS**	
24959-67-9		**Bromide**	**T**	**mg/L**	**9056**		*		*	0.514				
16887-00-6		**Chloride(s)**	**T**	**mg/L**	**9056**		*		*	40.5				
16984-48-8		**Fluoride**	**T**	**mg/L**	**9056**		*		*	0.591				
S0595- -		**Nitrate & Nitrite**	**T**	**mg/L**	**9056**		*		*	1.24				
14808-79-8		**Sulfate**	**T**	**mg/L**	**9056**		*		*	32				
NS1894		**Barometric Pressure Reading**	**T**	**Inches/Hg**	**Field**		*		*	30.21				
S0145- -		**Specific Conductance**	**T**	**μMH0/cm**	**Field**		*		*	555				

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

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

RESIDENTIAL/INERT-QUARTERLY
Facility: US DOE - Paducah Gaseous Diffusion Plant
Permit Number: 073-00014 & 073-00015

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		0000-0000		8004-4815			
Facility's Local Well or Spring Number (e.g., MW-1, MW-2, BLANK-F, etc.)						T. BLANK 4		T. BLANK 5		387			
CAS RN[4]		CONSTITUENT	TD[5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS
S0906 - -		Static Water Level Elevation	T	Ft. MSL	Field		*		*	323.42			
N238		Dissolved Oxygen	T	mg/L	Field		*		*	4.47			
S0266- -		Total Dissolved Solids	T	mg/L	160.1		*		*	306			
S0296- -		pH	T	Units	Field		*		*	6.27			
NS215		Eh	T	mV	Field		*		*	449			
S0907 - -		Temperature	T	°C	Field		*		*	13.44			
7429-90-5		Aluminum	T	mg/L	6020		*		*	0.0205	J		
7440-36-0		Antimony	T	mg/L	6020		*		*	<0.003			
7440-38-2		Arsenic	T	mg/L	6020		*		*	0.00363	J		
7440-39-3		Barium	T	mg/L	6020		*		*	0.13			
7440-41-7		Beryllium	T	mg/L	6020		*		*	<0.0005			
7440-42-8		Boron	T	mg/L	6020		*		*	0.0329			
7440-43-9		Cadmium	T	mg/L	6020		*		*	<0.001			
7440-70-2		Calcium	T	mg/L	6020		*		*	37.6			
7440-47-3		Chromium	T	mg/L	6020		*		*	0.00385	J		
7440-48-4		Cobalt	T	mg/L	6020		*		*	<0.001			
7440-50-8		Copper	T	mg/L	6020		*		*	0.00073	J		
7439-89-6		Iron	T	mg/L	6020		*		*	0.0614	J		
7439-92-1		Lead	T	mg/L	6020		*		*	<0.002			
7439-95-4		Magnesium	T	mg/L	6020		*		*	15.6			
7439-96-5		Manganese	T	mg/L	6020		*		*	0.00151	J		
7439-97-6		Mercury	T	mg/L	7470		*		*	<0.0002			

GROUNDWATER SAMPLE ANALYSIS - (Cont.)

AKGWA NUMBER[1], Facility Well/Spring Number						0000-0000		0000-0000		8004-4815			
Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.)						T. BLANK 4		T. BLANK 5		387			
CAS RN[4]		CONSTITUENT	TD[5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS
7439-98-7		Molybdenum	T	mg/L	6020		*		*	<0.0005			
7440-02-0		Nickel	T	mg/L	6020		*		*	<0.002			
7440-09-7		Potassium	T	mg/L	6020		*		*	1.81			
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		*		*	54.2			
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	6010		*		*	<0.005			
7440-66-6		Zinc	T	mg/L	6020		*		*	0.00608	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			

GROUNDWATER SAMPLE ANALYSIS - (Cont.)

AKGWA NUMBER[1], Facility Well/Spring Number						0000-0000		0000-0000		8004-4815			
Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.)						T. BLANK 4		T. BLANK 5		387			
CAS RN[4]		CONSTITUENT	TD[5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS
75-27-4		Bromodichloromethane	T	mg/L	8260	<0.001		<0.001		<0.001			
75-25-2		Tribromomethane	T	mg/L	8260	<0.001		<0.001		<0.001			
74-83-9		Methyl bromide	T	mg/L	8260	<0.001		<0.001		<0.001			
78-93-3		Methyl ethyl ketone	T	mg/L	8260	<0.005		<0.005		<0.005			
110-57-6		trans-1,4-Dichloro-2-butene	T	mg/L	8260	<0.005		<0.005		<0.005			
75-15-0		Carbon disulfide	T	mg/L	8260	<0.005		<0.005		<0.005			
75-00-3		Chloroethane	T	mg/L	8260	<0.001		<0.001		<0.001			
67-66-3		Chloroform	T	mg/L	8260	<0.001		<0.001		<0.001			
74-87-3		Methyl chloride	T	mg/L	8260	<0.001		<0.001		<0.001			
156-59-2		cis-1,2-Dichloroethene	T	mg/L	8260	<0.001		<0.001		0.00051	J		
74-95-3		Methylene bromide	T	mg/L	8260	<0.001		<0.001		<0.001			
75-34-3		1,1-Dichloroethane	T	mg/L	8260	<0.001		<0.001		<0.001			
107-06-2		1,2-Dichloroethane	T	mg/L	8260	<0.001		<0.001		<0.001			
75-35-4		1,1-Dichloroethylene	T	mg/L	8260	<0.001		<0.001		<0.001			
106-93-4		Ethane, 1,2-dibromo	T	mg/L	8260	<0.001		<0.001		<0.001			
79-34-5		Ethane, 1,1,2,2-Tetrachloro	T	mg/L	8260	<0.001		<0.001		<0.001			
71-55-6		Ethane, 1,1,1-Trichloro-	T	mg/L	8260	<0.001		<0.001		<0.001			
79-00-5		Ethane, 1,1,2-Trichloro	T	mg/L	8260	<0.001		<0.001		<0.001			
630-20-6		Ethane, 1,1,1,2-Tetrachloro	T	mg/L	8260	<0.001		<0.001		<0.001			
75-01-4		Vinyl chloride	T	mg/L	8260	<0.001		<0.001		<0.001			
127-18-4		Ethene, Tetrachloro-	T	mg/L	8260	<0.001		<0.001		<0.001			
79-01-6		Ethene, Trichloro-	T	mg/L	8260	<0.001		<0.001		0.00084	J		

RESIDENTIAL/CONTAINED-QUARTERLY
Facility: US DOE - Paducah Gaseous Diffusion Plant
Permit Number: 073-00014 & 073-00015

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		0000-0000		8004-4815			
Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.)						T. BLANK 4		T. BLANK 5		387			
CAS RN[4]		CONSTITUENT	TD[5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS
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	<0.0000202		<0.0000202		<0.0000205			
78-87-5		Propane, 1,2-Dichloro-	T	mg/L	8260	<0.001		<0.001		<0.001			
10061-02-6		trans-1,3-Dichloro-1-propene	T	mg/L	8260	<0.001		<0.001		<0.001			
10061-01-5		cis-1,3-Dichloro-1-propene	T	mg/L	8260	<0.001		<0.001		<0.001			
156-60-5		trans-1,2-Dichloroethene	T	mg/L	8260	<0.001		<0.001		<0.001			
75-69-4		Trichlorofluoromethane	T	mg/L	8260	<0.001		<0.001		<0.001			
96-18-4		1,2,3-Trichloropropane	T	mg/L	8260	<0.001		<0.001		<0.001			
95-50-1		Benzene, 1,2-Dichloro-	T	mg/L	8260	<0.001		<0.001		<0.001			
106-46-7		Benzene, 1,4-Dichloro-	T	mg/L	8260	<0.001		<0.001		<0.001			
1336-36-3		PCB,Total	T	ug/L	8082		*		*	<0.098			
12674-11-2		PCB-1016	T	ug/L	8082		*		*	<0.098			
11104-28-2		PCB-1221	T	ug/L	8082		*		*	<0.098			
11141-16-5		PCB-1232	T	ug/L	8082		*		*	<0.098			
53469-21-9		PCB-1242	T	ug/L	8082		*		*	<0.098			
12672-29-6		PCB-1248	T	ug/L	8082		*		*	<0.098			

RESIDENTIAL/CONTAINED-QUARTERLY
Facility: US DOE - Paducah Gaseous Diffusion Plant
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LAB ID: None
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GROUNDWATER SAMPLE ANALYSIS - (Cont.)

AKGWA NUMBER[1], Facility Well/Spring Number						0000-0000		0000-0000		8004-4815			
Facility's Local Well or Spring Number (e.g., MW-1, MW-2, etc.)						T. BLANK 4		T. BLANK 5		387			
CAS RN[4]		CONSTITUENT	TD[5]	Unit OF MEASURE	METHOD	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS	DETECTED VALUE OR PQL[6]	FLAGS
11097-69-1		PCB-1254	T	ug/L	8082		*		*	<0.098			
11096-82-5		PCB-1260	T	ug/L	8082		*		*	<0.098			
11100-14-4		PCB-1268	T	ug/L	8082		*		*	<0.098			
12587-46-1		Gross Alpha	T	pCi/L	9310		*		*	-5.19	*		
12587-47-2		Gross Beta	T	pCi/L	9310		*		*	141	*		
10043-66-0		Iodine-131	T	pCi/L			*		*		*		
13982-63-3		Radium-226	T	pCi/L	HASL 300		*		*	0.255	*		
10098-97-2		Strontium-90	T	pCi/L	905.0		*		*	0.291	*		
14133-76-7		Technetium-99	T	pCi/L	Tc-02-RC		*		*	214	*		
14269-63-7		Thorium-230	T	pCi/L	Th-01-RC		*		*	3.17	*		
10028-17-8		Tritium	T	pCi/L	906.0		*		*	35.5	*		
S0130- -		Chemical Oxygen Demand	T	mg/L	410.4		*		*	26.5			
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		*		*	1.28	J		
S0586- -		Total Organic Halides	T	mg/L	9020		*		*	0.00886	J		

RESIDENTIAL/INERT – QUARTERLY Finds/Unit: KY8-890-008-982 / 1

Facility: US DOE - Paducah Gaseous Diffusion Plant LAB ID:None

Permit Numbers: 073-00014 and 073-00015 For Official Use Only

GROUNDWATER
WRITTEN COMMENTS

Monitoring Point	Facility Sample ID	Constituent	Flag	Description
8000-5201 MW220	MW220SG1-15	Beryllium	*	Duplicate analysis not within control limits.
		Molybdenum	N	Sample spike recovery not within control limits.
		Gross alpha	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 3.11. Rad error is 3.11.
		Gross beta		TPU is 6.57. Rad error is 6.36.
		Iodine-131		Analysis of constituent not required and not performed.
		Radium-226		TPU is 0.623. Rad error is 0.587.
		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 12.4. Rad error is 11.7.
		Thorium-230	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 2.48. Rad error is 2.46.
		Tritium	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 154. Rad error is 154.
8000-5202 MW221	MW221SG1-15	Beryllium	*	Duplicate analysis not within control limits.
		Molybdenum	N	Sample spike recovery not within control limits.
		Gross alpha	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 5.71. Rad error is 5.71.
		Gross beta	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 8.31. Rad error is 8.18.
		Iodine-131		Analysis of constituent not required and not performed.
		Radium-226	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 0.541. Rad error is 0.534.
		Strontium-90	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 2.65. Rad error is 2.64.
		Technetium-99	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 10.7. Rad error is 10.7.
		Thorium-230	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 2.08. Rad error is 2.06.
		Tritium	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 153. Rad error is 153.

RESIDENTIAL/INERT – QUARTERLY Finds/Unit: KY8-890-008-982 / 1

Facility: US DOE - Paducah Gaseous Diffusion Plant LAB ID:None

Permit Numbers: 073-00014 and 073-00015 For Official Use Only

GROUNDWATER
WRITTEN COMMENTS

Monitoring Point	Facility Sample ID	Constituent	Flag	Description
8000-5242 MW222	MW222SG1-15	Antimony	N	Sample spike recovery not within control limits.
		Beryllium	*	Duplicate analysis not within control limits.
		Lead	N	Sample spike recovery not within control limits.
		Molybdenum	N	Sample spike recovery not within control limits.
		Silver	N	Sample spike recovery not within control limits.
		Tantalum	N	Sample spike recovery not within control limits.
		Thallium	N	Sample spike recovery not within control limits.
		Gross alpha	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 4.88. Rad error is 4.88.
		Gross beta	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 6.93. Rad error is 6.89.
		Iodine-131		Analysis of constituent not required and not performed.
		Radium-226	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 0.418. Rad error is 0.414.
		Strontium-90	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 2.15. Rad error is 2.15.
		Technetium-99	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 10.8. Rad error is 10.8.
		Thorium-230	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 1.87. Rad error is 1.82.
		Tritium	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 164. Rad error is 162.
8000-5243 MW223	MW223SG1-15	Beryllium	*	Duplicate analysis not within control limits.
		Molybdenum	N	Sample spike recovery not within control limits.
		Gross alpha	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 4.27. Rad error is 4.27.
		Gross beta	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 6.65. Rad error is 6.59.
		Iodine-131		Analysis of constituent not required and not performed.
		Radium-226	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 0.464. Rad error is 0.46.
		Strontium-90	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 2.84. Rad error is 2.84.
		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 2.13. Rad error is 2.09.
		Tritium	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 153. Rad error is 153.

RESIDENTIAL/INERT – QUARTERLY Finds/Unit: KY8-890-008-982 / 1

Facility: US DOE - Paducah Gaseous Diffusion Plant LAB ID:None

Permit Numbers: 073-00014 and 073-00015 For Official Use Only

GROUNDWATER
WRITTEN COMMENTS

Monitoring Point	Facility Sample ID	Constituent	Flag	Description
8000-5244 MW224	MW224SG1-15	Antimony	N	Sample spike recovery not within control limits.
		Beryllium	*	Duplicate analysis not within control limits.
		Lead	N	Sample spike recovery not within control limits.
		Molybdenum	N	Sample spike recovery not within control limits.
		Silver	N	Sample spike recovery not within control limits.
		Tantalum	N	Sample spike recovery not within control limits.
		Thallium	N	Sample spike recovery not within control limits.
		Gross alpha	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 3.6. Rad error is 3.59.
		Gross beta	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 6.95. Rad error is 6.95.
		Iodine-131		Analysis of constituent not required and not performed.
		Radium-226		TPU is 0.509. Rad error is 0.497.
		Strontium-90	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 1.64. Rad error is 1.64.
		Technetium-99	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 10.8. Rad error is 10.7.
		Thorium-230	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 1.54. Rad error is 1.53.
		Tritium	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 149. Rad error is 149.
8004-4820 MW369	MW369UG1-15	Gross alpha	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 4.58. Rad error is 4.57.
		Gross beta		TPU is 10.1. Rad error is 8.7.
		Iodine-131		Analysis of constituent not required and not performed.
		Radium-226		TPU is 0.543. Rad error is 0.515.
		Strontium-90	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 1.91. Rad error is 1.91.
		Technetium-99		TPU is 15.6. Rad error is 14.8.
		Thorium-230		TPU is 2.54. Rad error is 2.45.
		Tritium	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 146. Rad error is 146.
8004-4818 MW370	MW370UG1-15	Gross alpha	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 5.86. Rad error is 5.86.
		Gross beta		TPU is 8.53. Rad error is 8.13.
		Iodine-131		Analysis of constituent not required and not performed.
		Radium-226		TPU is 0.64. Rad error is 0.619.
		Strontium-90	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 1.92. Rad error is 1.92.
		Technetium-99		TPU is 13.8. Rad error is 13.6.
		Thorium-230		TPU is 2.24. Rad error is 2.15.
		Tritium	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 151. Rad error is 151.

RESIDENTIAL/INERT – QUARTERLY Finds/Unit: KY8-890-008-982 / 1

Facility: US DOE - Paducah Gaseous Diffusion Plant LAB ID:None

Permit Numbers: 073-00014 and 073-00015 For Official Use Only

GROUNDWATER
WRITTEN COMMENTS

Monitoring Point	Facility Sample ID	Constituent	Flag	Description
8004-4808 MW372	MW372UG1-15	Gross alpha	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 7.87. Rad error is 7.72.
		Gross beta		TPU is 16.9. Rad error is 11.9.
		Iodine-131		Analysis of constituent not required and not performed.
		Radium-226		TPU is 0.404. Rad error is 0.391.
		Strontium-90	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 2.17. Rad error is 2.17.
		Technetium-99		TPU is 19.8. Rad error is 15.8.
		Thorium-230	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 7.32. Rad error is 7.2.
		Tritium	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 151. Rad error is 151.
8004-4792 MW373	MW373UG1-15	Gross alpha	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 4.59. Rad error is 4.59.
		Gross beta		TPU is 8.8. Rad error is 7.8.
		Iodine-131		Analysis of constituent not required and not performed.
		Radium-226	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 0.427. Rad error is 0.419.
		Strontium-90	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 2.51. Rad error is 2.51.
		Technetium-99		TPU is 14.6. Rad error is 13.9.
		Thorium-230	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 7.86. Rad error is 7.77.
		Tritium	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 147. Rad error is 147.
8004-4809 MW384	MW384SG1-15	Gross alpha	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 6.54. Rad error is 6.54.
		Gross beta		TPU is 23.2. Rad error is 14.7.
		Iodine-131		Analysis of constituent not required and not performed.
		Radium-226	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 0.357. Rad error is 0.352.
		Strontium-90	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 2.58. Rad error is 2.58.
		Technetium-99		TPU is 21.6. Rad error is 14.6.
		Thorium-230	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 2.23. Rad error is 2.22.
		Tritium	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 157. Rad error is 157.

RESIDENTIAL/INERT – QUARTERLY Finds/Unit: KY8-890-008-982 / 1

Facility: US DOE - Paducah Gaseous Diffusion Plant LAB ID:None

Permit Numbers: 073-00014 and 073-00015 For Official Use Only

GROUNDWATER
WRITTEN COMMENTS

Monitoring Point	Facility Sample ID	Constituent	Flag	Description
8004-4810 MW385	MW385SG1-15	Gross alpha	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 5.58. Rad error is 5.58.
		Gross beta		TPU is 18.4. Rad error is 13.2.
		Iodine-131		Analysis of constituent not required and not performed.
		Radium-226	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 0.569. Rad error is 0.558.
		Strontium-90	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 2.18. Rad error is 2.18.
		Technetium-99		TPU is 19.7. Rad error is 15.7.
		Thorium-230	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 1.54. Rad error is 1.52.
		Tritium	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 152. Rad error is 150.
8004-4804 MW386	MW386SG1-15	Gross alpha	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 6. Rad error is 5.98.
		Gross beta	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 5.86. Rad error is 5.85.
		Iodine-131		Analysis of constituent not required and not performed.
		Radium-226	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 0.413. Rad error is 0.407.
		Strontium-90	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 2.43. Rad error is 2.42.
		Technetium-99	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 12.7. Rad error is 12.7.
		Thorium-230		TPU is 2.46. Rad error is 2.37.
		Tritium	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 146. Rad error is 146.
8004-4815 MW387	MW387SG1-15	Gross alpha	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 4.79. Rad error is 4.79.
		Gross beta		TPU is 27.6. Rad error is 13.7.
		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 0.401.
		Strontium-90	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 2.7. Rad error is 2.67.
		Technetium-99		TPU is 32. Rad error is 16.9.
		Thorium-230	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 3.63. Rad error is 3.58.
		Tritium	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 157. Rad error is 157.

RESIDENTIAL/INERT – QUARTERLY Finds/Unit: KY8-890-008-982 / 1

Facility: US DOE - Paducah Gaseous Diffusion Plant LAB ID:None

Permit Numbers: 073-00014 and 073-00015 For Official Use Only

GROUNDWATER
WRITTEN COMMENTS

Monitoring Point	Facility Sample ID	Constituent	Flag	Description
8004-4816 MW388	MW388SG1-15	Gross alpha	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 5.37. Rad error is 5.37.
		Gross beta		TPU is 15.5. Rad error is 12.6.
		Iodine-131		Analysis of constituent not required and not performed.
		Radium-226	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 0.4. Rad error is 0.392.
		Strontium-90	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 4.57. Rad error is 4.54.
		Technetium-99		TPU is 15.6. Rad error is 12.9.
		Thorium-230	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 3.08. Rad error is 3.04.
		Tritium	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 157. Rad error is 157.

RESIDENTIAL/INERT – QUARTERLY Finds/Unit: KY8-890-008-982 / 1

Facility: US DOE - Paducah Gaseous Diffusion Plant LAB ID:None

Permit Numbers: 073-00014 and 073-00015 For Official Use Only

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.

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
8004-4812 MW389		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.
		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.

RESIDENTIAL/INERT – QUARTERLY Finds/Unit: KY8-890-008-982 / 1

Facility: US DOE - Paducah Gaseous Diffusion Plant LAB ID:None

Permit Numbers: 073-00014 and 073-00015 For Official Use Only

GROUNDWATER
WRITTEN COMMENTS

Monitoring Point	Facility Sample ID	Constituent	Flag	Description
8004-4812 MW389		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.
		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.

RESIDENTIAL/INERT – QUARTERLY Finds/Unit: KY8-890-008-982 / 1

Facility: US DOE - Paducah Gaseous Diffusion Plant LAB ID:None

Permit Numbers: 073-00014 and 073-00015 For Official Use Only

GROUNDWATER
WRITTEN COMMENTS

Monitoring Point	Facility Sample ID	Constituent	Flag	Description
8004-4812 MW389		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.
		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.

RESIDENTIAL/INERT – QUARTERLY Finds/Unit: KY8-890-008-982 / 1

Facility: US DOE - Paducah Gaseous Diffusion Plant LAB ID:None

Permit Numbers: 073-00014 and 073-00015 For Official Use Only

GROUNDWATER
WRITTEN COMMENTS

Monitoring Point	Facility Sample ID	Constituent	Flag	Description
8004-4812 MW389		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.
8004-4811 MW390	MW390SG1-15	Beryllium	*	Duplicate analysis not within control limits.
		Lead	N	Sample spike recovery not within control limits.
		Molybdenum	N	Sample spike recovery not within control limits.
		Tantalum	N	Sample spike recovery not within control limits.
		Gross alpha	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 6.9. Rad error is 6.9.
		Gross beta		TPU is 11.6. Rad error is 9.9.
		Iodine-131		Analysis of constituent not required and not performed.
		Radium-226		TPU is 0.814. Rad error is 0.773.
		Strontium-90	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 2.81. Rad error is 2.79.
		Technetium-99		TPU is 14.6. Rad error is 13.1.
		Thorium-230	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 2.08. Rad error is 2.05.
		Tritium	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 157. Rad error is 156.

RESIDENTIAL/INERT – QUARTERLY Finds/Unit: KY8-890-008-982 / 1

Facility: US DOE - Paducah Gaseous Diffusion Plant LAB ID:None

Permit Numbers: 073-00014 and 073-00015 For Official Use Only

GROUNDWATER
WRITTEN COMMENTS

Monitoring Point	Facility Sample ID	Constituent	Flag	Description
8004-4805 MW391	MW391SG1-15	Antimony	N	Sample spike recovery not within control limits.
		Beryllium	*	Duplicate analysis not within control limits.
		Lead	N	Sample spike recovery not within control limits.
		Molybdenum	N	Sample spike recovery not within control limits.
		Silver	N	Sample spike recovery not within control limits.
		Tantalum	N	Sample spike recovery not within control limits.
		Thallium	N	Sample spike recovery not within control limits.
		Gross alpha	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 4.58. Rad error is 4.58.
		Gross beta	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 5.3. Rad error is 5.3.
		Iodine-131		Analysis of constituent not required and not performed.
		Radium-226		TPU is 0.406. Rad error is 0.391.
		Strontium-90	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 2.39. Rad error is 2.39.
		Technetium-99	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 11.2. Rad error is 11.1.
		Thorium-230	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 2.48. Rad error is 2.44.
		Tritium	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 157. Rad error is 156.
8004-4806 MW392	MW392SG1-15	Antimony	N	Sample spike recovery not within control limits.
		Beryllium	*	Duplicate analysis not within control limits.
		Lead	N	Sample spike recovery not within control limits.
		Molybdenum	N	Sample spike recovery not within control limits.
		Silver	N	Sample spike recovery not within control limits.
		Tantalum	N	Sample spike recovery not within control limits.
		Thallium	N	Sample spike recovery not within control limits.
		Gross alpha	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 4.57. Rad error is 4.57.
		Gross beta	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 8.36. Rad error is 8.36.
		Iodine-131		Analysis of constituent not required and not performed.
		Radium-226		TPU is 0.422. Rad error is 0.41.
		Strontium-90	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 3.02. Rad error is 3.02.
		Technetium-99	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 10.4. Rad error is 10.4.
		Thorium-230	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 1.95. Rad error is 1.92.
		Tritium	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 150. Rad error is 150.

RESIDENTIAL/INERT – QUARTERLY Finds/Unit: KY8-890-008-982 / 1

Facility: US DOE - Paducah Gaseous Diffusion Plant LAB ID:None

Permit Numbers: 073-00014 and 073-00015 For Official Use Only

GROUNDWATER
WRITTEN COMMENTS

Monitoring Point	Facility Sample ID	Constituent	Flag	Description
8004-4807 MW393	MW393SG1-15	Antimony	N	Sample spike recovery not within control limits.
		Beryllium	*	Duplicate analysis not within control limits.
		Lead	N	Sample spike recovery not within control limits.
		Molybdenum	N	Sample spike recovery not within control limits.
		Silver	N	Sample spike recovery not within control limits.
		Tantalum	N	Sample spike recovery not within control limits.
		Thallium	N	Sample spike recovery not within control limits.
		Gross alpha	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 4.47. Rad error is 4.47.
		Gross beta	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 5.85. Rad error is 5.85.
		Iodine-131		Analysis of constituent not required and not performed.
		Radium-226	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 0.392. Rad error is 0.388.
		Strontium-90	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 2.11. Rad error is 2.11.
		Technetium-99	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 10.6. Rad error is 10.5.
		Thorium-230	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 1.88. Rad error is 1.87.
		Tritium	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 155. Rad error is 155.
8004-4802 MW394	MW394SG1-15	Gross alpha	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 3.26. Rad error is 3.26.
		Gross beta	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 7.6. Rad error is 7.57.
		Iodine-131		Analysis of constituent not required and not performed.
		Radium-226	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 0.644. Rad error is 0.625.
		Strontium-90	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 2.54. Rad error is 2.54.
		Technetium-99	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 13.9. Rad error is 13.8.
		Thorium-230	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 1.42. Rad error is 1.41.
		Tritium	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 147. Rad error is 146.

RESIDENTIAL/INERT – QUARTERLY Finds/Unit: KY8-890-008-982 / 1

Facility: US DOE - Paducah Gaseous Diffusion Plant LAB ID:None

Permit Numbers: 073-00014 and 073-00015 For Official Use Only

GROUNDWATER
WRITTEN COMMENTS

Monitoring Point	Facility Sample ID	Constituent	Flag	Description
8004-4801 MW395	MW395SG1-15	Gross alpha	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 5.17. Rad error is 5.17.
		Gross beta		TPU is 10.1. Rad error is 9.56.
		Iodine-131		Analysis of constituent not required and not performed.
		Radium-226		TPU is 0.55. Rad error is 0.537.
		Strontium-90	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 2.38. Rad error is 2.38.
		Technetium-99	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 13.5. Rad error is 13.4.
		Thorium-230	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 1.5. Rad error is 1.48.
		Tritium	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 152. Rad error is 150.
8004-4803 MW396	MW396SG1-15	Gross alpha	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 5.56. Rad error is 5.56.
		Gross beta	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 7.14. Rad error is 7.14.
		Iodine-131		Analysis of constituent not required and not performed.
		Radium-226		TPU is 0.584. Rad error is 0.566.
		Strontium-90	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 2.96. Rad error is 2.94.
		Technetium-99	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 13. Rad error is 12.9.
		Thorium-230	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 0.905. Rad error is 0.902.
		Tritium	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 148. Rad error is 147.

RESIDENTIAL/INERT – QUARTERLY Finds/Unit: KY8-890-008-982 / 1

Facility: US DOE - Paducah Gaseous Diffusion Plant LAB ID:None

Permit Numbers: 073-00014 and 073-00015 For Official Use Only

GROUNDWATER
WRITTEN COMMENTS

Monitoring Point	Facility Sample ID	Constituent	Flag	Description
8004-4817 MW397	MW397SG1-15	Antimony	N	Sample spike recovery not within control limits.
		Beryllium	*	Duplicate analysis not within control limits.
		Lead	N	Sample spike recovery not within control limits.
		Molybdenum	N	Sample spike recovery not within control limits.
		Silver	N	Sample spike recovery not within control limits.
		Tantalum	N	Sample spike recovery not within control limits.
		Thallium	N	Sample spike recovery not within control limits.
		Gross alpha	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 4.7. Rad error is 4.7.
		Gross beta	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 8.87. Rad error is 8.69.
		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 0.469.
		Strontium-90	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 2.75. Rad error is 2.75.
		Technetium-99	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 11.3. Rad error is 11.2.
		Thorium-230	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 3.08. Rad error is 3.06.
		Tritium	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 160. Rad error is 159.

RESIDENTIAL/INERT – QUARTERLY Finds/Unit: KY8-890-008-982 / 1

Facility: US DOE - Paducah Gaseous Diffusion Plant LAB ID:None

Permit Numbers: 073-00014 and 073-00015 For Official Use Only

GROUNDWATER
WRITTEN COMMENTS

Monitoring Point	Facility Sample ID	Constituent	Flag	Description
0000-0000 QC	RI1SG1-15	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.
		Gross alpha	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 4.23. Rad error is 4.22.
		Gross beta	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 7.03. Rad error is 7.02.
		Iodine-131		Analysis of constituent not required and not performed.
		Radium-226	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 0.343. Rad error is 0.342.
		Strontium-90	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 2.11. Rad error is 2.11.
		Technetium-99	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 10.8. Rad error is 10.7.
		Thorium-230	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 4.15. Rad error is 4.07.
		Tritium	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 160. Rad error is 159.
		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 Numbers: 073-00014 and 073-00015 For Official Use Only

GROUNDWATER
WRITTEN COMMENTS

Monitoring Point	Facility Sample ID	Constituent	Flag	Description
0000-0000 QC	FB1SG1-15	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.
		Gross alpha	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 3.25. Rad error is 3.25.
		Gross beta		TPU is 9.72. Rad error is 9.34.
		Iodine-131		Analysis of constituent not required and not performed.
		Radium-226	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 0.384. Rad error is 0.376.
		Strontium-90	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 2.36. Rad error is 2.36.
		Technetium-99	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 10.2. Rad error is 10.2.
		Thorium-230	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 4.88. Rad error is 4.76.
		Tritium	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 155. Rad error is 155.
		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 Numbers: 073-00014 and 073-00015 For Official Use Only

GROUNDWATER
WRITTEN COMMENTS

Monitoring Point	Facility Sample ID	Constituent	Flag	Description
0000-0000 QC	TB1SG1-15	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 Numbers: 073-00014 and 073-00015 For Official Use Only

GROUNDWATER
WRITTEN COMMENTS

Monitoring Point	Facility Sample ID	Constituent	Flag	Description
0000-0000 QC	TB1SG1-15	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 Numbers: 073-00014 and 073-00015 For Official Use Only

GROUNDWATER
WRITTEN COMMENTS

Monitoring Point	Facility Sample ID	Constituent	Flag	Description
0000-0000 QC	TB2SG1-15	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 Numbers: 073-00014 and 073-00015 For Official Use Only

GROUNDWATER
WRITTEN COMMENTS

Monitoring Point	Facility Sample ID	Constituent	Flag	Description
0000-0000 QC	TB2SG1-15	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 Numbers: 073-00014 and 073-00015 For Official Use Only

GROUNDWATER
WRITTEN COMMENTS

Monitoring Point	Facility Sample ID	Constituent	Flag	Description
0000-0000 QC	TB3SG1-15	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 Numbers: 073-00014 and 073-00015 For Official Use Only

GROUNDWATER
WRITTEN COMMENTS

Monitoring Point	Facility Sample ID	Constituent	Flag	Description
0000-0000 QC	TB3SG1-15	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 Numbers: 073-00014 and 073-00015 For Official Use Only

GROUNDWATER
WRITTEN COMMENTS

Monitoring Point	Facility Sample ID	Constituent	Flag	Description
0000-0000 QC	TB4SG1-15	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 Numbers: 073-00014 and 073-00015 For Official Use Only

GROUNDWATER
WRITTEN COMMENTS

Monitoring Point	Facility Sample ID	Constituent	Flag	Description
0000-0000 QC	TB4SG1-15	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 Numbers: 073-00014 and 073-00015 For Official Use Only

GROUNDWATER
WRITTEN COMMENTS

Monitoring Point	Facility Sample ID	Constituent	Flag	Description
0000-0000 QC	TB5SG1-15	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 Numbers: 073-00014 and 073-00015 For Official Use Only

GROUNDWATER
WRITTEN COMMENTS

Monitoring Point	Facility Sample ID	Constituent	Flag	Description
0000-0000 QC	TB5SG1-15	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.
8004-4815 MW387	MW387DSG1-15	Gross alpha	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 3.99. Rad error is 3.98.
		Gross beta		TPU is 26.7. Rad error is 13.5.
		Iodine-131		Analysis of constituent not required and not performed.
		Radium-226	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 0.361. Rad error is 0.358.
		Strontium-90	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 2.53. Rad error is 2.53.
		Technetium-99		TPU is 28.7. Rad error is 16.1.
		Thorium-230	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 3.65. Rad error is 3.58.
		Tritium	U	Indicates analyte/nuclide was analyzed for, but not detected. TPU is 156. Rad error is 156.

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APPENDIX D

STATISTICAL ANALYSES AND QUALIFICATION STATEMENT

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Residential/Inert – QUARTERLY, 4th Quarter 2014 Finds/Unit: _____
Facility: U.S. DOE – Paducah Gaseous Diffusion Plant Lab ID: None
Permit Number: SW7300014, SW7300015, SW7300043 For Official Use Only

GROUNDWATER STATISTICAL COMMENTS

Introduction

The statistical analyses conducted on the fourth quarter 2014 groundwater data collected from the C-746-S&T Landfill monitoring wells (MWs) were performed in accordance with Permit GSTR0001, Standard Requirement 3, using the U.S. Environmental Protection Agency (EPA) guidance document, *EPA Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Interim Final Guidance* (1989).

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, results from wells considered to represent background conditions were compared with at least three test wells or sidegradient wells (Exhibit 1). The fourth quarter 2014 data used to conduct the statistical analyses were collected in October 2014. The statistical analyses for this report first 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. Then a second set of statistical analyses were run, using the last eight quarters, on analytes that had at least one downgradient well that exceeded the historical background. The sampling dates associated with background data are listed next to the result in the statistical analysis sheets of this appendix.

Statistical Analysis Process

For chemicals of concern that have Kentucky maximum contaminant levels (MCLs) and the results that do not exceed their respective MCL, no exceedance is reported. Parameters that have MCLs can be found in 401 *KAR* 47:030 § 6. For parameters with no established MCL and those parameters that exceed their MCLs, the 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 was conducted for pH. The test well results were compared to both an upper and lower tolerance limit 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 was 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 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	SG	UCRS
MW387	TW	URGA
MW388	TW	LRGA
MW389*	TW	UCRS
MW390	TW	UCRS
MW391	TW	URGA
MW392	TW	LRGA
MW393	TW	UCRS
MW394	BG	URGA
MW395	BG	LRGA
MW396	BG	UCRS
MW397	BG	LRGA

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

Statistical analyses are performed on the last eight quarters of current background data, not on the data for the current quarter. Once a statistical result is obtained using the background data, the result for the current quarter is compared to that value. If the value is exceeded, the well has 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 tolerance limit (TL) was calculated for the background data (first using the first eight quarters, then using the last eight quarters).

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

    - The data set was 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 tolerance limit with 95% minimum coverage was 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 tolerance limit was calculated using the following equation:
      $TL = X + (K \times S)$

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

Type of Data Used

Exhibit 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 2 lists the parameters from the available data set for which a statistically derived historical background concentration was developed using the one-sided tolerance interval and the statistical test performed using the one-sided tolerance interval.

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

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

Parameters
Aluminum
Beryllium
Beta activity
Boron
Bromide
Calcium
Chemical Oxygen Demand (COD)
Chloride
cis-1,2-Dichloroethene
Cobalt
Conductivity
Copper
Dissolved Oxygen
Dissolved Solids
Iodide
Iron
Magnesium
Manganese
Molybdenum
Nickel
Oxidation-Reduction Potential
PCB, Total
PCB-1242
pH
Potassium
Radium-226
Sodium
Sulfate
Technetium-99
Thorium-230
Total Organic Carbon (TOC)
Total Organic Halides (TOX)
Trichloroethene
Uranium
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.

Exhibits 3, 4, and 5 list the number of analyses (observations), nondetects (censored observations), detects (uncensored observations), and missing observations (wells were dry this quarter and groundwater samples could not be collected) 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 3, 4, and 5 were collected during the current quarter, fourth quarter 2014. The observations are representative of the current quarter data. 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 well is sampled on two different dates, the most current available data are used.

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

Parameters	Observations	Missing Observation	Censored Observation	Uncensored Observation	Statistical Analysis?
1,1,1,2-Tetrachloroethane	4	0	4	0	No
1,1,2,2-Tetrachloroethane	4	0	4	0	No
1,1,2-Trichloroethane	4	0	4	0	No
1,1-Dichloroethane	4	0	4	0	No
1,2,3-Trichloropropane	4	0	4	0	No
1,2-Dibromo-3-chloropropane	4	0	4	0	No
1,2-Dibromoethane	4	0	4	0	No
1,2-Dichlorobenzene	4	0	4	0	No
1,2-Dichloropropane	4	0	4	0	No
2-Butanone	4	0	4	0	No
2-Hexanone	4	0	4	0	No
4-Methyl-2-pentanone	4	0	4	0	No
Acetone	4	0	4	0	No
Acrolein	4	0	4	0	No
Acrylonitrile	4	0	4	0	No
Aluminum	**4**	**0**	**0**	**4**	**YES**
Antimony	4	0	4	0	No
Beryllium	4	0	4	0	No
Boron	**4**	**0**	**3**	**1**	**YES**
Bromide	**4**	**0**	**0**	**4**	**YES**
Bromochloromethane	4	0	4	0	No
Bromodichloromethane	4	0	4	0	No
Bromoform	4	0	4	0	No
Bromomethane	4	0	4	0	No
Calcium	**4**	**0**	**0**	**4**	**YES**
Carbon disulfide	4	0	4	0	No
Chemical Oxygen Demand (COD)	**4**	**0**	**0**	**4**	**YES**
Chloride	**4**	**0**	**0**	**4**	**YES**
Chlorobenzene	4	0	4	0	No
Chloroethane	4	0	4	0	No
Chloroform	4	0	4	0	No
Chloromethane	4	0	4	0	No
cis-1,2-Dichloroethene	4	0	4	0	No
cis-1,3-Dichloropropene	4	0	4	0	No
Cobalt	**4**	**0**	**0**	**4**	**YES**
Conductivity	**4**	**0**	**0**	**4**	**YES**
Copper	**4**	**0**	**2**	**2**	**YES**
Cyanide	4	0	4	0	No
Dibromochloromethane	4	0	4	0	No

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

Parameters	Observations	Missing Observation	Censored Observation	Uncensored Observation	Statistical Analysis?
Dibromomethane	4	0	4	0	No
Dimethylbenzene, Total	4	0	4	0	No
Dissolved Oxygen	**4**	**0**	**0**	**4**	**YES**
Dissolved Solids	**4**	**0**	**0**	**4**	**YES**
Ethylbenzene	4	0	4	0	No
Iodide	**4**	**0**	**3**	**1**	**YES**
Iodomethane	4	0	4	0	No
Iron	**4**	**0**	**0**	**4**	**YES**
Magnesium	**4**	**0**	**0**	**4**	**YES**
Manganese	**4**	**0**	**0**	**4**	**YES**
Methylene chloride	4	0	4	0	No
Molybdenum	**4**	**0**	**1**	**3**	**YES**
Nickel	**4**	**0**	**1**	**3**	**YES**
Oxidation-Reduction Potential	**4**	**0**	**0**	**4**	**YES**
PCB, Total	4	0	4	0	No
PCB-1016	4	0	4	0	No
PCB-1221	4	0	4	0	No
PCB-1232	4	0	4	0	No
PCB-1242	4	0	4	0	No
PCB-1248	4	0	4	0	No
PCB-1254	4	0	4	0	No
PCB-1260	4	0	4	0	No
PCB-1268	4	0	4	0	No
pH	**4**	**0**	**0**	**4**	**YES**
Potassium	**4**	**0**	**0**	**4**	**YES**
Radium-226	**4**	**0**	**2**	**2**	**YES**
Rhodium	4	0	4	0	No
Sodium	**4**	**0**	**0**	**4**	**YES**
Styrene	4	0	4	0	No
Sulfate	**4**	**0**	**0**	**4**	**YES**
Tantalum	4	0	4	0	No
Technetium-99	**4**	**0**	**3**	**1**	**YES**
Tetrachloroethene	4	0	4	0	No
Thallium	4	0	4	0	No
Thorium-230	**4**	**0**	**3**	**1**	**YES**
Toluene	4	0	4	0	No
Total Organic Carbon (TOC)	**4**	**0**	**0**	**4**	**YES**
Total Organic Halides (TOX)	**4**	**0**	**0**	**4**	**YES**
trans-1,2-Dichloroethene	4	0	4	0	No
trans-1,3-Dichloropropene	4	0	4	0	No

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

Parameters	Observations	Missing Observation	Censored Observation	Uncensored Observation	Statistical Analysis?
trans-1,4-Dichloro-2-butene	4	0	4	0	No
Trichlorofluoromethane	4	0	4	0	No
Uranium	**4**	**0**	**3**	**1**	**YES**
Vanadium	**4**	**0**	**3**	**1**	**YES**
Vinyl acetate	4	0	4	0	No
Zinc	**4**	**0**	**2**	**2**	**YES**

Bold denotes parameters with at least one uncensored observation.

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

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

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

Parameters	Observations	Missing Observation	Censored Observation	Uncensored Observation	Statistical Analysis?
Dimethylbenzene, Total	11	0	11	0	No
Dissolved Oxygen	**11**	**0**	**0**	**11**	**YES**
Dissolved Solids	**11**	**0**	**0**	**11**	**YES**
Ethylbenzene	11	0	11	0	No
Iodide	11	0	11	0	No
Iodomethane	11	0	11	0	No
Iron	**11**	**0**	**1**	**10**	**YES**
Magnesium	**11**	**0**	**0**	**11**	**YES**
Manganese	**11**	**0**	**0**	**11**	**YES**
Methylene chloride	11	0	11	0	No
Molybdenum	**11**	**0**	**4**	**7**	**YES**
Nickel	**11**	**0**	**2**	**9**	**YES**
Oxidation-Reduction Potential	**11**	**0**	**0**	**11**	**YES**
PCB, Total	**11**	**0**	**9**	**2**	**YES**
PCB-1016	11	0	11	0	No
PCB-1221	11	0	11	0	No
PCB-1232	11	0	11	0	No
PCB-1242	**11**	**0**	**9**	**2**	**YES**
PCB-1248	11	0	11	0	No
PCB-1254	11	0	11	0	No
PCB-1260	11	0	11	0	No
PCB-1268	11	0	11	0	No
pH	**11**	**0**	**0**	**11**	**YES**
Potassium	**11**	**0**	**0**	**11**	**YES**
Radium-226	**11**	**0**	**6**	**5**	**YES**
Rhodium	11	0	11	0	No
Sodium	**11**	**0**	**0**	**11**	**YES**
Styrene	11	0	11	0	No
Sulfate	**11**	**0**	**0**	**11**	**YES**
Tantalum	11	0	11	0	No
Technetium-99	**11**	**0**	**6**	**5**	**YES**
Tetrachloroethene	11	0	11	0	No
Thallium	11	0	11	0	No
Thorium-230	11	0	11	0	No
Toluene	11	0	11	0	No
Total Organic Carbon (TOC)	**11**	**0**	**0**	**11**	**YES**
Total Organic Halides (TOX)	**11**	**0**	**4**	**7**	**YES**
trans-1,2-Dichloroethene	11	0	11	0	No
trans-1,3-Dichloropropene	11	0	11	0	No
trans-1,4-Dichloro-2-butene	11	0	11	0	No

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

Parameters	Observations	Missing Observation	Censored Observation	Uncensored Observation	Statistical Analysis?
Trichlorofluoromethane	11	0	11	0	No
Uranium	11	0	11	0	No
Vanadium	**11**	**0**	**10**	**1**	**YES**
Vinyl acetate	11	0	11	0	No
Zinc	**11**	**0**	**7**	**4**	**YES**

Bold denotes parameters with at least one uncensored observation.

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

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

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

Parameters	Observations	Missing Observation	Censored Observation	Uncensored Observation	Statistical Analysis?
Dissolved Oxygen	**7**	**0**	**0**	**7**	**YES**
Dissolved Solids	**7**	**0**	**0**	**7**	**YES**
Ethylbenzene	7	0	7	0	No
Iodide	7	0	7	0	No
Iodomethane	7	0	7	0	No
Iron	**7**	**0**	**3**	**4**	**YES**
Magnesium	**7**	**0**	**0**	**7**	**YES**
Manganese	**7**	**0**	**2**	**5**	**YES**
Methylene chloride	7	0	7	0	No
Molybdenum	**7**	**0**	**4**	**3**	**YES**
Nickel	**7**	**0**	**2**	**5**	**YES**
Oxidation-Reduction Potential	**7**	**0**	**0**	**7**	**YES**
PCB, Total	7	0	7	0	No
PCB-1016	7	0	7	0	No
PCB-1221	7	0	7	0	No
PCB-1232	7	0	7	0	No
PCB-1242	7	0	7	0	No
PCB-1248	7	0	7	0	No
PCB-1254	7	0	7	0	No
PCB-1260	7	0	7	0	No
PCB-1268	7	0	7	0	No
pH	**7**	**0**	**0**	**7**	**YES**
Potassium	**7**	**0**	**0**	**7**	**YES**
Radium-226	**7**	**0**	**4**	**3**	**YES**
Rhodium	7	0	7	0	No
Sodium	**7**	**0**	**0**	**7**	**YES**
Styrene	7	0	7	0	No
Sulfate	**7**	**0**	**0**	**7**	**YES**
Tantalum	7	0	7	0	No
Technetium-99	**7**	**0**	**3**	**4**	**YES**
Tetrachloroethene	7	0	7	0	No
Thallium	7	0	7	0	No
Thorium-230	7	0	7	0	No
Toluene	7	0	7	0	No
Total Organic Carbon (TOC)	**7**	**0**	**0**	**7**	**YES**
Total Organic Halides (TOX)	**7**	**0**	**0**	**7**	**YES**
trans-1,2-Dichloroethene	7	0	7	0	No
trans-1,3-Dichloropropene	7	0	7	0	No
trans-1,4-Dichloro-2-butene	7	0	7	0	No
Trichlorofluoromethane	7	0	7	0	No
Uranium	**7**	**0**	**6**	**1**	**YES**
Vanadium	7	0	7	0	No

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

Parameters	Observations	Missing Observation	Censored Observation	Uncensored Observation	Statistical Analysis?
Vinyl acetate	7	0	7	0	No
Zinc	**7**	**0**	**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 upper tolerance interval test were calculated using historical background and are presented in Attachment D1. The statistician qualification statement is presented in Attachment D3. For the UCRS, URGA, and LRGA, the test was applied to 30, 33, and 31 parameters, respectively, including those listed in bold print in Exhibits 3, 4, and 5, plus those constituents (beta activity and TCE) that exceeded their MCL. A summary of exceedances when compared to statistically derived historical upgradient background by well number is shown in Exhibit 6.

UCRS

This quarter's results identified exceedances of historical background UTL for aluminum, chloride, oxidation-reduction potential, radium-226, technetium-99, and thorium-230.

URGA

This quarter's results identified exceedances of historical background UTL for beta activity, calcium, COD, conductivity, dissolved solids, magnesium, oxidation-reduction potential, radium-226, sodium, sulfate, and technetium-99.

LRGA

This quarter’s results identified exceedances of historical background UTL for beta activity, calcium, conductivity, dissolved solids, magnesium, oxidation-reduction potential, pH, radium-226, sulfate, and technetium-99.

Conclusion

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 7, Exhibit 8, and Exhibit 9, respectively.

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

UCRS	URGA	LRGA
MW386: Oxidation-Reduction Potential, Thorium-230	**MW222:** COD	**MW370:** Oxidation-Reduction Potential, Radium-226, Sulfate
MW390: Aluminum, Chloride, Oxidation-Reduction Potential, Radium-226, Technetium-99, Thorium-230	**MW224:** Sodium	**MW373:** Calcium, Conductivity, Dissolved Solids, Magnesium, Oxidation-Reduction Potential, Sulfate, Technetium-99
MW393: Oxidation-Reduction Potential	**MW369:** Oxidation-Reduction Potential, Radium-226, Technetium-99	**MW385:** Beta activity, Oxidation-Reduction Potential, Sulfate, Technetium-99
	MW372: Beta activity, Calcium, Conductivity, Dissolved Solids, Magnesium, Sodium, Sulfate, Technetium-99	**MW388:** Beta activity, Oxidation-Reduction Potential, Sulfate, Technetium-99
	MW384: Beta activity, Sodium, Sulfate, Technetium-99	**MW392:** Oxidation-Reduction Potential, pH
	MW387: Beta activity, Dissolved Solids, Magnesium, Oxidation-Reduction Potential, Sulfate, Technetium-99	

Exhibit 7. Test Summaries for Qualified Parameters—UCRS

Parameter	Performed Test	CV Normality Test*	Results of Tolerance Interval Test Conducted
Aluminum	Tolerance Interval	0.57	Current results exceed statistically derived historical background concentration in MW390.
Boron	Tolerance Interval	1.28	No exceedance of statistically derived historical background concentration.
Bromide	Tolerance Interval	0.24	No exceedance of statistically derived historical background concentration.
Calcium	Tolerance Interval	0.20	No exceedance of statistically derived historical background concentration.
COD	Tolerance Interval	0.02	Current results exceed statistically derived historical background concentration in MW386.
Chloride	Tolerance Interval	0.05	Current results exceed statistically derived historical background concentration in MW390.
Cobalt	Tolerance Interval	1.34	No exceedance of statistically derived historical background concentration.
Conductivity	Tolerance Interval	0.12	No exceedance of statistically derived historical background concentration.
Copper	Tolerance Interval	0.48	No exceedance of statistically derived historical background concentration.
Dissolved Oxygen	Tolerance Interval	1.20	No exceedance of statistically derived historical background concentration.
Dissolved Solids	Tolerance Interval	0.19	No exceedance of statistically derived historical background concentration.
Iodide	Tolerance Interval	0.13	No exceedance of statistically derived historical background concentration.
Iron	Tolerance Interval	0.48	No exceedance of statistically derived historical background concentration.
Magnesium	Tolerance Interval	0.20	No exceedance of statistically derived historical background concentration.

CV: coefficient of variation
*If CV > 1.0, used log-transformed data.

Exhibit 7. Test Summaries for Qualified Parameters—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, and MW393.
pH	Tolerance Interval	0.05	No exceedance of statistically derived historical background concentration.
Potassium	Tolerance Interval	0.28	No exceedance of statistically derived historical background concentration.
Radium-226	Tolerance Interval	1.78	Current results exceed statistically derived historical background concentration in MW390.
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.
Thorium-230	Tolerance Interval	2.01	Current results exceed statistically derived historical background concentration in MW386 and MW390.
Total Organic Carbon	Tolerance Interval	0.47	No exceedance of statistically derived historical background concentration.
Total Organic Halides	Tolerance Interval	0.37	No exceedance of statistically derived historical background concentration.
Uranium	Tolerance Interval	0.31	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 8. Test Summaries for Qualified Parameters—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.
Beryllium	Tolerance Interval	0.91	No exceedance of statistically derived historical background concentration.
Beta activity[1]	Tolerance Interval	0.97	Current results exceed statistically derived historical background concentration in MW372 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 concentration in MW372.
COD	Tolerance Interval	0.00	Current results exceed statistically derived historical background concentration in MW222.
Chloride	Tolerance Interval	0.23	No exceedance of statistically derived historical background concentration.
cis-1,2-Dichloroethene	Tolerance Interval	0.00	No exceedance of statistically derived historical background concentration.
Cobalt	Tolerance Interval	2.44	No exceedance of statistically derived historical background concentration.
Conductivity	Tolerance Interval	0.28	Current results exceed statistically derived historical background concentration in MW372.
Copper	Tolerance Interval	0.43	No exceedance of statistically derived historical background concentration.
Dissolved Oxygen	Tolerance Interval	0.50	No exceedance of statistically derived historical background concentration.
Dissolved Solids	Tolerance Interval	0.12	Current results exceed statistically derived historical background concentration in MW372 and MW387.
Iron	Tolerance Interval	1.17	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 8. Test Summaries for Qualified Parameters—URGA (Continued)

Parameter	Performed Test	CV Normality Test*	Results of Tolerance Interval Test Conducted
Magnesium	Tolerance Interval	0.16	Current results exceed statistically derived historical background concentration in MW372 and MW387.
Manganese	Tolerance Interval	2.16	No exceedance of statistically derived historical background concentration.
Molybdenum	Tolerance Interval	1.26	No exceedance of statistically derived historical background concentration.
Nickel	Tolerance Interval	1.79	No exceedance of statistically derived historical background concentration.
Oxidation-Reduction Potential	Tolerance Interval	0.48	Current results exceed statistically derived historical background concentration in MW369 and MW387.
PCB, total	Tolerance Interval	0.72	No exceedance of statistically derived historical background concentration.
PCB, 1242	Tolerance Interval	1.16	No exceedance of statistically derived historical background concentration.
pH	Tolerance Interval	0.05	No exceedance of statistically derived historical background concentration.
Potassium	Tolerance Interval	1.40	No exceedance of statistically derived historical background concentration.
Radium-226	Tolerance Interval	12.29	Current results exceed statistically derived historical background concentration in MW369.
Sodium	Tolerance Interval	0.24	Current results exceed statistically derived historical background concentration in MW224, MW372, and MW384.
Sulfate	Tolerance Interval	0.25	Current results exceed statistically derived historical background concentration in MW372, MW384, and MW387.
Technetium-99	Tolerance Interval	0.99	Current results exceed statistically derived historical background concentration in MW369, MW372, MW384 and MW387.
Total Organic Carbon	Tolerance Interval	0.49	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 8. Test Summaries for Qualified Parameters—URGA (Continued)

Parameter	Performed Test	CV Normality Test*	Results of Tolerance Interval Test Conducted
Total Organic Halides	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 9. Test Summaries for Qualified Parameters—LRGA

Parameter	Performed Test	CV Normality Test*	Results of Tolerance Interval Test Conducted
Aluminum	Tolerance Interval	0.86	No exceedance of statistically derived historical background concentration.
Beryllium	Tolerance Interval	0.89	No exceedance of statistically derived historical background concentration.
Beta activity[1]	Tolerance Interval	0.36	Current results exceed statistically derived historical background concentration in 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.
COD	Tolerance Interval	0.04	No exceedance of statistically derived historical background concentration.
Chloride	Tolerance Interval	0.23	No exceedance of statistically derived historical background concentration.
cis-1,2-Dichloroethene	Tolerance Interval	0.00	No exceedance of statistically derived historical background concentration.
Cobalt	Tolerance Interval	1.52	No exceedance of statistically derived historical background concentration.
Conductivity	Tolerance Interval	0.14	Current results exceed statistically derived historical background concentration in MW373.
Copper	Tolerance Interval	0.47	No exceedance of statistically derived historical background concentration.
Dissolved Oxygen	Tolerance Interval	0.52	No exceedance of statistically derived historical background concentration.
Dissolved Solids	Tolerance Interval	0.16	Current results exceed statistically derived historical background concentration in MW373.
Iron	Tolerance Interval	1.29	No exceedance of statistically derived historical background concentration.
Magnesium	Tolerance Interval	0.52	Current results exceed statistically derived historical background concentration in MW373.

CV: coefficient of variation
*If CV > 1.0, used log-transformed data.
[1] Tolerance interval was calculated based on an MCL exceedance.

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

Parameter	Performed Test	CV Normality Test*	Results of Tolerance Interval Test Conducted
Manganese	Tolerance Interval	1.49	No exceedance of statistically derived historical background concentration.
Molybdenum	Tolerance Interval	1.45	No exceedance of statistically derived historical background concentration.
Nickel	Tolerance Interval	1.09	No exceedance of statistically derived historical background concentration.
Oxidation-Reduction Potential	Tolerance Interval	0.33	Current results exceed statistically derived historical background concentration in MW370, MW373, MW385, MW388, and MW392.
pH	Tolerance Interval	0.04	Current results exceed statistically derived historical background concentration in MW392.
Potassium	Tolerance Interval	0.40	No exceedance of statistically derived historical background concentration.
Radium-226	Tolerance Interval	10.74	Current results exceed statistically derived historical background concentration in MW370.
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	0.81	Current results exceed statistically derived historical background concentration in MW373, MW385, and MW388.
Total Organic Carbon	Tolerance Interval	0.55	No exceedance of statistically derived historical background concentration.
Total Organic Halides	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.
Uranium	Tolerance Interval	0.00	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 the UCRS, URGA, and LRGA, the concentrations from downgradient wells were compared to the one-sided tolerance limit calculated using the most recent eight quarters of data and are presented in Attachment D2 and the statistician qualification statement is presented in Attachment D3. For the UCRS, URGA, and LRGA, the test was applied to 6, 11, and 10 parameters, respectively, because these parameter concentrations exceeded the historical background TL. A summary of instances where downgradient well concentrations exceeded the TL calculated using current background data is shown in Exhibit 10, presented by well number.

UCRS

Because gradients in the UCRS are downward, there are no truly downgradient UCRS wells that exceed the current background TL derived using the most recent eight quarters of data. NOTE: Aluminum, chloride, technetium-99, and thorium-230 concentrations in some UCRS wells exceeded the current TL this quarter.

URGA

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

LRGA

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

Conclusion

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

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

URGA	LRGA
MW369: Sodium, Technetium-99	**MW373:** Calcium, Conductivity, Dissolved Solids, Magnesium, Sulfate, Technetium-99
MW372: Beta activity, Calcium, Conductivity, Dissolved Solids, Magnesium, Sodium, Sulfate, Technetium-99	**MW388:** Beta activity, Sulfate, Technetium-99
MW387: Beta activity, Calcium, Conductivity, Magnesium, Sodium, Sulfate, Technetium-99	**MW392:** pH

Exhibit 11. Test Summaries for Qualified Parameters—UCRS

Parameter	Performed Test	CV Normality Test*	Results of Tolerance Interval Test Conducted
Aluminum	Tolerance Interval	0.36	Because gradients in UCRS wells are downward, there are no UCRS wells that are actually downgradient of the landfill. However, aluminum concentrations exceeded the TL calculated using current background data in MW390.
Chloride	Tolerance Interval	0.05	Because gradients in UCRS wells are downward, there are no UCRS wells that are actually downgradient of the landfill. However, chloride concentrations exceeded the TL calculated using current background data in MW390.
Oxidation-Reduction Potential	Tolerance Interval	0.29	No exceedance of statistically derived current background concentration.
Radium-226	Tolerance Interval	1.35	No exceedance of statistically derived current background concentration.
Technetium-99	Tolerance Interval	48.28	Because gradients in UCRS wells are downward, there are no UCRS wells that are actually downgradient of the landfill. However, technetium-99 concentrations exceeded the TL calculated using current background data in MW390.
Thorium-230	Tolerance Interval	1.81	Because gradients in UCRS wells are downward, there are no UCRS wells that are actually downgradient of the landfill. However, thorium-230 concentrations exceeded the TL calculated using current background data in MW386 and MW390.

CV: coefficient of variation
*If CV > 1.0, used log-transformed data.

Exhibit 12. Test Summaries for Qualified Parameters—URGA

Parameter	Performed Test	CV Normality Test*	Results of Tolerance Interval Test Conducted
Beta activity	Tolerance Interval	0.57	Current results exceed statistically derived current background concentration in MW372, MW384, and MW387.
Calcium	Tolerance Interval	0.13	Current results exceed statistically derived current background concentration in MW369, MW372 and MW387.
COD	Tolerance Interval	0.26	Current results exceed statistically derived current background concentration in MW222.
Conductivity	Tolerance Interval	0.07	Current results exceed statistically derived current background concentration in MW372, MW384, and MW387.
Dissolved Solids	Tolerance Interval	0.37	Current results exceed statistically derived current background concentration in MW372.
Magnesium	Tolerance Interval	0.13	Current results exceed statistically derived current background concentration in MW372 and MW387.
Oxidation-Reduction Potential	Tolerance Interval	0.34	No exceedance of statistically derived current background concentration.
Radium-226	Tolerance Interval	2.13	No exceedance of statistically derived current background concentration.
Sodium	Tolerance Interval	0.16	Current results exceed statistically derived current background concentration in MW223, MW224, MW369, MW372, MW384, and MW387.
Sulfate	Tolerance Interval	0.29	Current results exceed statistically derived current background concentration in MW372 and MW387.
Technetium-99	Tolerance Interval	0.85	Current results exceed statistically derived current background concentration in MW369, MW372, MW384, and MW387.

CV: coefficient of variation
*If CV > 1.0, used log-transformed data.

Exhibit 13. Test Summaries for Qualified Parameters—LRGA

Parameter	Performed Test	CV Normality Test*	Results of Tolerance Interval Test Conducted
Beta activity	Tolerance Interval	0.48	Current results exceed statistically derived current background concentration in MW385 and MW388.
Calcium	Tolerance Interval	0.20	Current results exceed statistically derived current background concentration in MW373.
Conductivity	Tolerance Interval	0.08	Current results exceed statistically derived current background concentration in MW373 and MW385.
Dissolved Solids	Tolerance Interval	0.13	Current results exceed statistically derived current background concentration in MW373.
Magnesium	Tolerance Interval	0.19	Current results exceed statistically derived current background concentration in MW373.
Oxidation-Reduction Potential	Tolerance Interval	0.29	No exceedance of statistically derived current background concentration.
pH	Tolerance Interval	0.02	Current results exceed statistically derived current background concentration in MW392.
Radium-226	Tolerance Interval	1.83	No exceedance of statistically derived current background concentration.
Sulfate	Tolerance Interval	0.30	Current results exceed statistically derived current background concentration in MW373 and MW388.
Technetium-99	Tolerance Interval	0.87	Current results exceed statistically derived current background concentration in MW373, MW385, and MW388.

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 and C-746-T Fourth Quarter 2014 Statistical Analysis UCRS
Aluminum UNITS: mg/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW396
Date Collected	Result
8/13/2002	0.393
9/16/2002	0.200
10/16/2002	0.200
1/13/2003	0.501
4/8/2003	0.200
7/16/2003	0.200
10/14/2003	0.200
1/14/2004	0.668

Statistics on Background Data

X= 0.320
S= 0.182
CV= 0.567
K factor = 3.188**
TL= 0.900

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW386	0.032	Sidegradient	NO
MW390	1.030	Downgradient	**YES**
MW393	0.024	Downgradient	NO

Fourth Quarter 2014 Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient

Conclusion of Statistical Analysis on Historical Data

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

MW390

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis UCRS
Boron UNITS: mg/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW396
Date Collected	Result
8/13/2002	2.000
9/16/2002	2.000
10/16/2002	0.200
1/13/2003	0.200
4/8/2003	0.200
7/16/2003	0.200
10/14/2003	0.200
1/14/2004	0.200

Statistics on Background Data

X= 0.650
S= 0.833
CV= 1.282
K factor = 3.188**
TL= 3.306

Because CV greater than 1, the natural logarithm of background and test well results were calculated.

Statistics on Transformed Background Data

X= -1.034
S= 1.066
CV= -1.031
K factor = 3.188**
TL= 2.364

Transformed Background Data from Upgradient Wells

Well Number:	MW396
Date Collected	LN(Result)
8/13/2002	0.693
9/16/2002	0.693
10/16/2002	-1.609
1/13/2003	-1.609
4/8/2003	-1.609
7/16/2003	-1.609
10/14/2003	-1.609
1/14/2004	-1.609

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW386	0.006	Sidegradient	N/A
MW390	0.015	Downgradient	N/A
MW393	0.016	Downgradient	N/A

Fourth Quarter 2014 Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient

Transformed Fourth Quarter 2014 Data Collected in October 2014

Well Number	LN(Result)	Result > TL?
MW386	-5.047	NO
MW390	-4.200	NO
MW393	-4.135	NO

Conclusion of Statistical Analysis on Transformed Historical Data

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

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis UCRS
Bromide UNITS: mg/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW396
Date Collected	Result
8/13/2002	1.500
9/16/2002	1.600
10/16/2002	1.600
1/13/2003	1.000
4/8/2003	1.000
7/16/2003	1.000
10/14/2003	1.700
1/14/2004	1.700

Statistics on Background Data

X= 1.388
S= 0.327
CV= 0.236
K factor = 3.188**
TL= 2.430

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW386	0.174	Sidegradient	NO
MW390	1.030	Downgradient	NO
MW393	0.247	Downgradient	NO

Fourth Quarter 2014 Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient

Conclusion of Statistical Analysis on Historical Data

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

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis UCRS
Calcium UNITS: mg/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW396
Date Collected	Result
8/13/2002	38.400
9/16/2002	42.900
10/16/2002	40.200
1/13/2003	46.700
4/8/2003	49.800
7/16/2003	43.300
10/14/2003	49.700
1/14/2004	23.600

Statistics on Background Data

X= 41.825
S= 8.445
CV= 0.202
K factor = 3.188**
TL= 68.748

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW386	22.500	Sidegradient	NO
MW390	36.800	Downgradient	NO
MW393	11.300	Downgradient	NO

Fourth Quarter 2014 Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient

Conclusion of Statistical Analysis on Historical Data

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

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis UCRS
Chemical Oxygen Demand (COD) UNITS: mg/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW396
Date Collected	Result
8/13/2002	36.000
9/16/2002	35.000
10/16/2002	37.000
1/13/2003	35.000
4/8/2003	35.000
7/16/2003	35.000
10/14/2003	35.000
1/14/2004	35.000

Statistics on Background Data

X= 35.375
S= 0.744
CV= 0.021
K factor = 3.188**
TL= 37.747

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW386	31.400	Sidegradient	NO
MW390	7.550	Downgradient	NO
MW393	12.800	Downgradient	NO

Fourth Quarter 2014 Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient

Conclusion of Statistical Analysis on Historical Data

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

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis UCRS
Chloride UNITS: mg/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW396
Date Collected	Result
8/13/2002	91.600
9/16/2002	98.300
10/16/2002	101.400
1/13/2003	108.300
4/8/2003	100.500
7/16/2003	102.500
10/14/2003	106.800
1/14/2004	104.400

Statistics on Background Data

X= 101.725
S= 5.245
CV= 0.052
K factor = 3.188**
TL= 118.447

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW386	17.000	Sidegradient	NO
MW390	121.00	Downgradient	**YES**
MW393	17.600	Downgradient	NO

Fourth Quarter 2014 Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient

Conclusion of Statistical Analysis on Historical Data

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

MW390

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis UCRS
Cobalt UNITS: mg/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW396
Date Collected	Result
8/13/2002	0.025
9/16/2002	0.025
10/16/2002	0.001
1/13/2003	0.003
4/8/2003	0.004
7/16/2003	0.003
10/14/2003	0.001
1/14/2004	0.001

Statistics on Background Data

X= 0.008
S= 0.011
CV= 1.340
K factor = 3.188**
TL= 0.042

Because CV greater than 1, the natural logarithm of background and test well results were calculated.

Statistics on Transformed Background Data

X= -5.645
S= 1.339
CV= -0.237
K factor = 3.188**
TL= -1.377

Transformed Background Data from Upgradient Wells

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW386	0.009	Sidegradient	N/A
MW390	0.001	Downgradient	N/A
MW393	0.000	Downgradient	N/A

Fourth Quarter 2014 Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient

Transformed Fourth Quarter 2014 Data Collected in October 2014

Well Number	LN(Result)	Result > TL?
MW386	-4.740	NO
MW390	-6.898	NO
MW393	-9.028	NO

Conclusion of Statistical Analysis on Transformed Historical Data

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

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis UCRS
Conductivity UNITS: umho/cm

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW396
Date Collected	Result
8/13/2002	784.000
9/30/2002	871.000
10/16/2002	868.000
1/13/2003	912.000
4/8/2003	942.000
7/16/2003	910.000
10/14/2003	935.000
1/14/2004	1158.00

Statistics on Background Data

X= 922.500
S= 107.616
CV= 0.117
K factor = 3.188**
TL= 1265.579

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW386	639.00	Sidegradient	NO
MW390	761.00	Downgradient	NO
MW393	332.00	Downgradient	NO

Fourth Quarter 2014 Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient

Conclusion of Statistical Analysis on Historical Data

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

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis UCRS
Copper UNITS: mg/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW396
Date Collected	Result
8/13/2002	0.050
9/16/2002	0.050
10/16/2002	0.026
1/13/2003	0.020
4/8/2003	0.020
7/16/2003	0.020
10/14/2003	0.020
1/14/2004	0.020

Statistics on Background Data

X= 0.028
S= 0.014
CV= 0.481
K factor = 3.188**
TL= 0.072

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW386	0.001	Sidegradient	NO
MW390	0.001	Downgradient	NO
MW393	0.001	Downgradient	NO

Fourth Quarter 2014 Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient

Conclusion of Statistical Analysis on Historical Data

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

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis UCRS
Dissolved Oxygen UNITS: mg/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW396
Date Collected	Result
8/13/2002	5.450
9/16/2002	0.400
10/16/2002	0.540
1/13/2003	0.720
4/8/2003	0.690
7/16/2003	1.100
10/14/2003	0.710
1/14/2004	1.550

Statistics on Background Data

X= 1.395
S= 1.677
CV= 1.202
K factor = 3.188**
TL= 6.743

Because CV greater than 1, the natural logarithm of background and test well results were calculated.

Statistics on Transformed Background Data

X= -0.043
S= 0.814
CV= -18.867
K factor = 3.188**
TL= 2.553

Transformed Background Data from Upgradient Wells

Well Number:	MW396
Date Collected	LN(Result)
8/13/2002	1.696
9/16/2002	-0.916
10/16/2002	-0.616
1/13/2003	-0.329
4/8/2003	-0.371
7/16/2003	0.095
10/14/2003	-0.342
1/14/2004	0.438

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW386	1.070	Sidegradient	N/A
MW390	5.650	Downgradient	N/A
MW393	1.170	Downgradient	N/A

Fourth Quarter 2014 Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient

Transformed Fourth Quarter 2014 Data Collected in October 2014

Well Number	LN(Result)	Result > TL?
MW386	0.068	NO
MW390	1.732	NO
MW393	0.157	NO

Conclusion of Statistical Analysis on Transformed Historical Data

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

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis UCRS
Dissolved Solids UNITS: mg/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW396
Date Collected	Result
8/13/2002	502.000
9/16/2002	506.000
10/16/2002	543.000
1/13/2003	521.000
4/8/2003	504.000
7/16/2003	532.000
10/14/2003	490.000
1/14/2004	805.000

Statistics on Background Data

X= 550.375
S= 104.330
CV= 0.190
K factor = 3.188**
TL= 882.980

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW386	366.00	Sidegradient	NO
MW390	390.00	Downgradient	NO
MW393	191.00	Downgradient	NO

Fourth Quarter 2014 Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient

Conclusion of Statistical Analysis on Historical Data

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

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis UCRS
Iodide UNITS: mg/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW396
Date Collected	Result
8/13/2002	2.000
9/16/2002	2.000
10/16/2002	2.000
1/13/2003	2.000
4/8/2003	2.000
7/16/2003	2.700
10/14/2003	2.500
1/14/2004	2.000

Statistics on Background Data

X= 2.150
S= 0.283
CV= 0.132
K factor = 3.188**
TL= 3.052

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW386	0.500	Sidegradient	NO
MW390	0.500	Downgradient	NO
MW393	0.500	Downgradient	NO

Fourth Quarter 2014 Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient

Conclusion of Statistical Analysis on Historical Data

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

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis UCRS
Iron UNITS: mg/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW396
Date Collected	Result
8/13/2002	1.800
9/16/2002	9.530
10/16/2002	7.430
1/13/2003	9.930
4/8/2003	10.200
7/16/2003	9.160
10/14/2003	11.900
1/14/2004	2.420

Statistics on Background Data

X= 7.796
S= 3.723
CV= 0.478
K factor = 3.188**
TL= 19.666

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW386	1.150	Sidegradient	NO
MW390	1.080	Downgradient	NO
MW393	2.200	Downgradient	NO

Fourth Quarter 2014 Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient

Conclusion of Statistical Analysis on Historical Data

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

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis UCRS
Magnesium UNITS: mg/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW396
Date Collected	Result
8/13/2002	15.500
9/16/2002	17.300
10/16/2002	17.800
1/13/2003	19.200
4/8/2003	17.800
7/16/2003	17.800
10/14/2003	20.200
1/14/2004	9.410

Statistics on Background Data

X= 16.876
S= 3.313
CV= 0.196
K factor = 3.188**
TL= 27.438

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW386	9.630	Sidegradient	NO
MW390	15.400	Downgradient	NO
MW393	3.350	Downgradient	NO

Fourth Quarter 2014 Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient

Conclusion of Statistical Analysis on Historical Data

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

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis UCRS
Manganese UNITS: mg/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW396
Date Collected	Result
8/13/2002	0.570
9/16/2002	0.647
10/16/2002	0.880
1/13/2003	1.132
4/8/2003	0.965
7/16/2003	0.983
10/14/2003	0.984
1/14/2004	0.031

Statistics on Background Data

X= 0.774
S= 0.353
CV= 0.456
K factor = 3.188**
TL= 1.900

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW386	1.160	Sidegradient	NO
MW390	0.007	Downgradient	NO
MW393	0.043	Downgradient	NO

Fourth Quarter 2014 Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient

Conclusion of Statistical Analysis on Historical Data

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

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis UCRS
Molybdenum UNITS: mg/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW396
Date Collected	Result
8/13/2002	0.025
9/16/2002	0.025
10/16/2002	0.001
1/13/2003	0.001
4/8/2003	0.003
7/16/2003	0.001
10/14/2003	0.001
1/14/2004	0.001

Statistics on Background Data

X= 0.007
S= 0.011
CV= 1.507
K factor = 3.188**
TL= 0.042

Because CV greater than 1, the natural logarithm of background and test well results were calculated.

Statistics on Transformed Background Data

X= -5.928
S= 1.420
CV= -0.240
K factor = 3.188**
TL= -1.400

Transformed Background Data from Upgradient Wells

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW386	0.000	Sidegradient	N/A
MW390	0.001	Downgradient	N/A
MW393	0.001	Downgradient	N/A

Fourth Quarter 2014 Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient

Transformed Fourth Quarter 2014 Data Collected in October 2014

Well Number	LN(Result)	Result > TL?
MW386	-7.684	NO
MW390	-7.094	NO
MW393	-7.601	NO

Conclusion of Statistical Analysis on Transformed Historical Data

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

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis UCRS
Nickel UNITS: mg/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW396
Date Collected	Result
8/13/2002	0.050
9/16/2002	0.050
10/16/2002	0.005
1/13/2003	0.005
4/8/2003	0.006
7/16/2003	0.005
10/14/2003	0.005
1/14/2004	0.005

Statistics on Background Data

X= 0.016
S= 0.021
CV= 1.272
K factor = 3.188**
TL= 0.083

Because CV greater than 1, the natural logarithm of background and test well results were calculated.

Statistics on Transformed Background Data

X= -4.706
S= 1.057
CV= -0.225
K factor = 3.188**
TL= -1.338

Transformed Background Data from Upgradient Wells

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW386	0.002	Sidegradient	N/A
MW390	0.002	Downgradient	N/A
MW393	0.002	Downgradient	N/A

Fourth Quarter 2014 Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient

Transformed Fourth Quarter 2014 Data Collected in October 2014

Well Number	LN(Result)	Result > TL?
MW386	-6.235	NO
MW390	-6.195	NO
MW393	-6.215	NO

Conclusion of Statistical Analysis on Transformed Historical Data

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

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis UCRS
Oxidation-Reduction Potential UNITS: mV

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW396
Date Collected	Result
8/13/2002	60.000
4/8/2003	71.000
7/16/2003	-56.000
10/14/2003	-54.000
1/14/2004	-22.000
4/12/2004	-6.000
7/20/2004	-3.000
10/12/2004	114.000

Statistics on Background Data

X= 13.000
S= 61.952
CV= 4.766
K factor = 3.188**
TL= 210.502

Because CV greater than 1, the natural logarithm of background and test well results were calculated.

Statistics on Transformed Background Data

X = error
S = error
CV = error
K factor = 3.188**
TL# = 4.736

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

Transformed Background Data from Upgradient Wells

Well Number:	MW396
Date Collected	LN(Result)
8/13/2002	4.094
4/8/2003	4.263
7/16/2003	#Func!
10/14/2003	#Func!
1/14/2004	#Func!
4/12/2004	#Func!
7/20/2004	#Func!
10/12/2004	4.736

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW386	125.000	Sidegradient	N/A
MW390	446.000	Downgradient	N/A
MW393	208.000	Downgradient	N/A

Fourth Quarter 2014 Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient

Transformed Fourth Quarter 2014 Data Collected in October 2014

Well Number	LN(Result)	Result >TL?
MW386	4.828	**YES**
MW390	6.100	**YES**
MW393	5.338	**YES**

Conclusion of Statistical Analysis on Transformed Historical Data

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

MW386

MW390

MW393

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis UCRS
pH UNITS: Std Unit

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL and LL. If the test well result exceeds the TL or is less than the LL, that is is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW396
Date Collected	Result
8/13/2002	6.170
9/16/2002	6.400
10/16/2002	5.900
1/13/2003	6.400
4/8/2003	6.650
7/16/2003	6.400
10/14/2003	6.710
1/14/2004	7.050

Statistics on Background Data

X= 6.460
S= 0.350
CV= 0.054
K factor = 3.736**
TL= 7.766
LL= 5.154

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result >TL?	Result <LL?
MW386	6.630	Sidegradient	NO	NO
MW390	6.850	Downgradient	NO	NO
MW393	6.040	Downgradient	NO	NO

Fourth Quarter 2014 Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient

Conclusion of Statistical Analysis on Historical Data

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

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)
X Mean, X = (sum of background results)/(count of background results)
** The K-factor was adjusted for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K- 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 and C-746-T Fourth Quarter 2014 Statistical Analysis UCRS
Potassium UNITS: mg/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW396
Date Collected	Result
8/13/2002	2.000
9/16/2002	2.000
10/16/2002	0.978
1/13/2003	1.080
4/8/2003	1.120
7/16/2003	1.380
10/14/2003	1.240
1/14/2004	1.490

Statistics on Background Data

X= 1.411
S= 0.399
CV= 0.282
K factor = 3.188**
TL= 2.682

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW386	0.289	Sidegradient	NO
MW390	0.503	Downgradient	NO
MW393	0.374	Downgradient	NO

Fourth Quarter 2014 Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient

Conclusion of Statistical Analysis on Historical Data

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

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis UCRS
Radium-226 UNITS: pCi/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW396
Date Collected	Result
10/16/2002	0.690
1/13/2003	-0.007
10/14/2003	-0.051
1/14/2004	0.494
4/12/2004	-0.082
7/20/2004	0.088
10/12/2004	0.041
1/18/2005	0.084

Statistics on Background Data

X= 0.157
S= 0.280
CV= 1.782
K factor = 3.188**
TL= 1.050

Because CV greater than 1, the natural logarithm of background and test well results were calculated.

Statistics on Transformed Background Data

X = error
S = error
CV = error
K factor = 3.188**
TL# = -0.371

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

Transformed Background Data from Upgradient Wells

Well Number:	MW396
Date Collected	LN(Result)
10/16/2002	-0.371
1/13/2003	#Func!
10/14/2003	#Func!
1/14/2004	-0.705
4/12/2004	#Func!
7/20/2004	-2.432
10/12/2004	-3.199
1/18/2005	-2.472

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW386	0.352	Sidegradient	N/A
MW390	1.130	Downgradient	N/A
MW393	0.292	Downgradient	N/A

Fourth Quarter 2014 Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient

Transformed Fourth Quarter 2014 Data Collected in October 2014

Well Number	LN(Result)	Result >TL?
MW386	-1.044	NO
MW390	0.122	**YES**
MW393	-1.231	NO

Conclusion of Statistical Analysis on Transformed Historical Data

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

MW390

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis UCRS
Sodium UNITS: mg/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW396
Date Collected	Result
8/13/2002	115.000
9/16/2002	116.000
10/16/2002	117.000
1/13/2003	122.000
4/8/2003	106.000
7/16/2003	117.000
10/14/2003	132.000
1/14/2004	29.600

Statistics on Background Data

X= 106.825
S= 32.041
CV= 0.300
K factor = 3.188**
TL= 208.973

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW386	107.00	Sidegradient	NO
MW390	97.700	Downgradient	NO
MW393	72.500	Downgradient	NO

Fourth Quarter 2014 Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient

Conclusion of Statistical Analysis on Historical Data

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

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis UCRS
Sulfate UNITS: mg/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW396
Date Collected	Result
8/13/2002	41.900
9/16/2002	26.300
10/16/2002	20.600
1/13/2003	16.600
4/8/2003	23.900
7/16/2003	18.800
10/14/2003	12.900
1/14/2004	18.700

Statistics on Background Data

X= 22.463
S= 8.876
CV= 0.395
K factor = 3.188**
TL= 50.759

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW386	43.100	Sidegradient	NO
MW390	28.400	Downgradient	NO
MW393	10.900	Downgradient	NO

Fourth Quarter 2014 Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient

Conclusion of Statistical Analysis on Historical Data

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

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis UCRS
Technetium-99 UNITS: pCi/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW396
Date Collected	Result
8/13/2002	16.700
9/16/2002	6.390
10/16/2002	4.550
1/13/2003	16.500
4/8/2003	3.040
7/16/2003	0.354
10/14/2003	11.900
1/14/2004	1.560

Statistics on Background Data

X= 7.624
S= 6.558
CV= 0.860
K factor = 3.188**
TL= 28.531

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW386	-0.956	Sidegradient	NO
MW390	58.000	Downgradient	**YES**
MW393	5.300	Downgradient	NO

Fourth Quarter 2014 Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient

Conclusion of Statistical Analysis on Historical Data

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

MW390

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis UCRS
Thorium-230 UNITS: pCi/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW396
Date Collected	Result
10/12/2004	0.543
1/18/2005	0.002
4/19/2005	0.285
7/11/2005	-0.011
10/17/2005	0.057
1/19/2006	-0.001
4/11/2006	-0.049
7/17/2006	-0.005

Statistics on Background Data

X= 0.103
S= 0.206
CV= 2.010
K factor = 3.188**
TL= 0.760

Because CV greater than 1, the natural logarithm of background and test well results were calculated.

Statistics on Transformed Background Data

X = error
S = error
CV = error
K factor = 3.188**
TL# = -0.611

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

Transformed Background Data from Upgradient Wells

Well Number:	MW396
Date Collected	LN(Result)
10/12/2004	-0.611
1/18/2005	-6.235
4/19/2005	-1.255
7/11/2005	#Func!
10/17/2005	-2.872
1/19/2006	#Func!
4/11/2006	#Func!
7/17/2006	#Func!

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW386	2.810	Sidegradient	N/A
MW390	1.540	Downgradient	N/A
MW393	0.383	Downgradient	N/A

Fourth Quarter 2014 Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient

Transformed Fourth Quarter 2014 Data Collected in October 2014

Well Number	LN(Result)	Result >TL?
MW386	1.033	**YES**
MW390	0.432	**YES**
MW393	-0.960	NO

Conclusion of Statistical Analysis on Transformed Historical Data

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

MW386

MW390

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis UCRS
Total Organic Carbon (TOC) UNITS: mg/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW396
Date Collected	Result
8/13/2002	19.000
9/16/2002	14.600
10/16/2002	10.400
1/13/2003	4.400
4/8/2003	7.000
7/16/2003	7.300
10/14/2003	9.100
1/14/2004	8.100

Statistics on Background Data

X= 9.988
S= 4.696
CV= 0.470
K factor = 3.188**
TL= 24.959

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW386	10.600	Sidegradient	NO
MW390	2.330	Downgradient	NO
MW393	3.010	Downgradient	NO

Fourth Quarter 2014 Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient

Conclusion of Statistical Analysis on Historical Data

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

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis UCRS
Total Organic Halides (TOX) UNITS: ug/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW396
Date Collected	Result
8/13/2002	193.000
9/16/2002	190.000
10/16/2002	221.000
1/13/2003	106.000
4/8/2003	77.800
7/16/2003	122.000
10/14/2003	86.400
1/14/2004	145.000

Statistics on Background Data

X= 142.650
S= 53.533
CV= 0.375
K factor = 3.188**
TL= 313.314

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW386	205.00	Sidegradient	NO
MW390	20.800	Downgradient	NO
MW393	14.800	Downgradient	NO

Fourth Quarter 2014 Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient

Conclusion of Statistical Analysis on Historical Data

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

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis UCRS
Uranium UNITS: mg/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW396
Date Collected	Result
8/13/2002	0.002
9/16/2002	0.001
10/16/2002	0.001
1/13/2003	0.001
4/8/2003	0.001
7/16/2003	0.001
10/14/2003	0.001
1/14/2004	0.001

Statistics on Background Data

X= 0.001
S= 0.000
CV= 0.314
K factor = 3.188**
TL= 0.002

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW386	0.000	Sidegradient	NO
MW390	0.000	Downgradient	NO
MW393	0.000	Downgradient	NO

Fourth Quarter 2014 Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient

Conclusion of Statistical Analysis on Historical Data

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

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis UCRS
Vanadium UNITS: mg/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW396
Date Collected	Result
8/13/2002	0.025
9/16/2002	0.025
10/16/2002	0.020
1/13/2003	0.020
4/8/2003	0.020
7/16/2003	0.020
10/14/2003	0.020
1/14/2004	0.020

Statistics on Background Data

X= 0.021
S= 0.002
CV= 0.109
K factor = 3.188**
TL= 0.029

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW386	0.005	Sidegradient	NO
MW390	0.003	Downgradient	NO
MW393	0.005	Downgradient	NO

Fourth Quarter 2014 Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient

Conclusion of Statistical Analysis on Historical Data

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

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis UCRS
Zinc UNITS: mg/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW396
Date Collected	Result
8/13/2002	0.100
9/16/2002	0.100
10/16/2002	0.025
1/13/2003	0.035
4/8/2003	0.035
7/16/2003	0.020
10/14/2003	0.020
1/14/2004	0.020

Statistics on Background Data

X= 0.044
S= 0.035
CV= 0.786
K factor = 3.188**
TL= 0.156

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW386	0.008	Sidegradient	NO
MW390	0.010	Downgradient	NO
MW393	0.007	Downgradient	NO

Fourth Quarter 2014 Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient

Conclusion of Statistical Analysis on Historical Data

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

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis URGA
Aluminum UNITS: mg/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW220
Date Collected	Result
10/14/2002	0.200
1/15/2003	0.200
4/10/2003	0.200
7/14/2003	0.200
10/13/2003	0.427
1/13/2004	0.309
4/13/2004	0.200
7/21/2004	0.202
Well Number:	MW394
Date Collected	Result
8/13/2002	0.200
9/16/2002	0.200
10/16/2002	0.200
1/13/2003	0.200
4/10/2003	0.200
7/16/2003	0.200
10/14/2003	0.200
1/13/2004	0.200

Statistics on Background Data

X= 0.221
S= 0.061
CV= 0.277
K factor = 2.523**
TL= 0.376

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW221	0.050	Sidegradient	NO
MW222	0.121	Sidegradient	NO
MW223	0.050	Sidegradient	NO
MW224	0.024	Sidegradient	NO
MW369	0.184	Downgradient	NO
MW372	0.051	Downgradient	NO
MW384	0.050	Sidegradient	NO
MW387	0.030	Downgradient	NO
MW391	0.030	Downgradient	NO

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis	URGA
Aluminum (Continued)	UNITS: mg/L

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

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis URGA
Beryllium UNITS: mg/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW220
Date Collected	Result
10/14/2002	0.001
1/15/2003	0.001
4/10/2003	0.001
7/14/2003	0.001
10/13/2003	0.001
1/13/2004	0.001
4/13/2004	0.001
7/21/2004	0.001
Well Number:	MW394
Date Collected	Result
8/13/2002	0.005
9/16/2002	0.005
10/16/2002	0.001
1/13/2003	0.001
4/10/2003	0.001
7/16/2003	0.001
10/14/2003	0.001
1/13/2004	0.001

Statistics on Background Data

X= 0.002
S= 0.001
CV= 0.911
K factor = 2.523**
TL= 0.005

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW221	0.001	Sidegradient	NO
MW222	0.001	Sidegradient	NO
MW223	0.001	Sidegradient	NO
MW224	0.001	Sidegradient	NO
MW369	0.000	Downgradient	NO
MW372	0.001	Downgradient	NO
MW384	0.001	Sidegradient	NO
MW387	0.001	Downgradient	NO
MW391	0.001	Downgradient	NO

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis	URGA
Beryllium	UNITS: mg/L

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

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis URGA
Beta activity UNITS: pCi/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW220
Date Collected	Result
10/14/2002	15.200
1/15/2003	42.500
4/10/2003	45.400
7/14/2003	8.530
10/13/2003	11.700
1/13/2004	13.500
4/13/2004	33.500
7/21/2004	13.700
Well Number:	MW394
Date Collected	Result
8/13/2002	5.030
9/16/2002	5.570
10/16/2002	12.800
1/13/2003	4.300
4/10/2003	9.520
7/16/2003	3.920
10/14/2003	1.060
1/13/2004	2.140

Statistics on Background Data

X= 14.273
S= 13.883
CV= 0.973
K factor = 2.523**
TL= 49.300

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW372	74.000	Downgradient	**YES**
MW384	110.00	Sidegradient	**YES**
MW387	147.00	Downgradient	**YES**

Conclusion of Statistical Analysis on Historical Data
The following test well(s) exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to historical background data.
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)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis URGA
Boron UNITS: mg/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW220
Date Collected	Result
10/14/2002	0.200
1/15/2003	0.200
4/10/2003	0.200
7/14/2003	0.200
10/13/2003	0.200
1/13/2004	0.200
4/13/2004	0.200
7/21/2004	0.200
Well Number:	MW394
Date Collected	Result
8/13/2002	2.000
9/16/2002	2.000
10/16/2002	0.200
1/13/2003	0.200
4/10/2003	0.200
7/16/2003	0.200
10/14/2003	0.200
1/13/2004	0.200

Statistics on Background Data

X= 0.425
S= 0.615
CV= 1.447
K factor = 2.523**
TL= 1.976

Because CV greater than 1, the natural logarithm of background and test well results were calculated.

Statistics on Transformed Background Data

X= -1.322
S= 0.786
CV= -0.595
K factor = 2.523**
TL= 0.663

Transformed Background Data from Upgradient Wells

Well Number:	MW220
Date Collected	LN(Result)
10/14/2002	-1.609
1/15/2003	-1.609
4/10/2003	-1.609
7/14/2003	-1.609
10/13/2003	-1.609
1/13/2004	-1.609
4/13/2004	-1.609
7/21/2004	-1.609
Well Number:	MW394
Date Collected	LN(Result)
8/13/2002	0.693
9/16/2002	0.693
10/16/2002	-1.609
1/13/2003	-1.609
4/10/2003	-1.609
7/16/2003	-1.609
10/14/2003	-1.609
1/13/2004	-1.609

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW221	0.015	Sidegradient	N/A
MW222	0.008	Sidegradient	N/A
MW223	0.007	Sidegradient	N/A
MW224	0.013	Sidegradient	N/A
MW369	0.014	Downgradient	N/A
MW372	1.080	Downgradient	N/A
MW384	0.014	Sidegradient	N/A
MW387	0.033	Downgradient	N/A
MW391	0.027	Downgradient	N/A

Transformed Fourth Quarter 2014 Data Collected in October 2014

Well Number	LN(Result)	Result > TL?
MW221	-4.220	NO
MW222	-4.873	NO
MW223	-5.022	NO
MW224	-4.351	NO
MW369	-4.276	NO
MW372	0.077	NO
MW384	-4.247	NO
MW387	-3.399	NO
MW391	-3.631	NO

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis	URGA
Boron (Continued)	UNITS: mg/L

Conclusion of Statistical Analysis on Transformed Historical Data
None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically significant level.

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis URGA
Bromide UNITS: mg/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW220
Date Collected	Result
10/14/2002	1.000
1/15/2003	1.000
4/10/2003	1.000
7/14/2003	1.000
10/13/2003	1.000
1/13/2004	1.000
4/13/2004	1.000
7/21/2004	1.000
Well Number:	MW394
Date Collected	Result
8/13/2002	1.000
9/16/2002	1.000
10/16/2002	1.000
1/13/2003	1.000
4/10/2003	1.000
7/16/2003	1.000
10/14/2003	1.000
1/13/2004	1.000

Statistics on Background Data

X= 1.000
S= 0.000
CV= 0.000
K factor = 2.523**
TL= 1.000

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW221	0.494	Sidegradient	NO
MW222	0.446	Sidegradient	NO
MW223	0.465	Sidegradient	NO
MW224	0.411	Sidegradient	NO
MW369	0.402	Downgradient	NO
MW372	0.629	Downgradient	NO
MW384	0.637	Sidegradient	NO
MW387	0.517	Downgradient	NO
MW391	0.644	Downgradient	NO

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis	URGA
Bromide (Continued)	UNITS: mg/L

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

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis URGA
Calcium UNITS: mg/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW220
Date Collected	Result
10/14/2002	23.600
1/15/2003	25.900
4/10/2003	30.400
7/14/2003	33.900
10/13/2003	21.300
1/13/2004	20.300
4/13/2004	23.800
7/21/2004	19.000
Well Number:	MW394
Date Collected	Result
8/13/2002	29.500
9/16/2002	29.900
10/16/2002	31.200
1/13/2003	30.700
4/10/2003	34.400
7/16/2003	29.600
10/14/2003	30.300
1/13/2004	28.400

Statistics on Background Data

X= 27.638
S= 4.743
CV= 0.172
K factor = 2.523**
TL= 39.604

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW221	20.400	Sidegradient	NO
MW222	14.600	Sidegradient	NO
MW223	21.400	Sidegradient	NO
MW224	22.800	Sidegradient	NO
MW369	16.800	Downgradient	NO
MW372	59.300	Downgradient	**YES**
MW384	29.800	Sidegradient	NO
MW387	37.600	Downgradient	NO
MW391	26.900	Downgradient	NO

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

Conclusion of Statistical Analysis on Historical Data
The following test well(s) exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to historical background data.
MW372

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis URGA
Chemical Oxygen Demand (COD) UNITS: mg/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW220
Date Collected	Result
10/14/2002	35.000
1/15/2003	35.000
4/10/2003	35.000
7/14/2003	35.000
10/13/2003	35.000
1/13/2004	35.000
4/13/2004	35.000
7/21/2004	35.000
Well Number:	MW394
Date Collected	Result
8/13/2002	35.000
9/16/2002	35.000
10/16/2002	35.000
1/13/2003	35.000
4/10/2003	35.000
7/16/2003	35.000
10/14/2003	35.000
1/13/2004	35.000

Statistics on Background Data

X= 35.000
S= 0.000
CV= 0.000
K factor = 2.523**
TL= 35.000

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW221	20.000	Sidegradient	NO
MW222	57.600	Sidegradient	**YES**
MW223	20.000	Sidegradient	NO
MW224	20.000	Sidegradient	NO
MW369	20.000	Downgradient	NO
MW372	12.900	Downgradient	NO
MW384	20.000	Sidegradient	NO
MW387	26.500	Downgradient	NO
MW391	20.000	Downgradient	NO

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis	URGA
Chemical Oxygen Demand (COD) (Continued)	UNITS: mg/L

Conclusion of Statistical Analysis on Historical Data
The following test well(s) exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to historical background data.
MW222

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis URGA
Chloride UNITS: mg/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW220
Date Collected	Result
10/14/2002	44.600
1/15/2003	43.200
4/10/2003	31.500
7/14/2003	30.800
10/13/2003	40.900
1/13/2004	40.800
4/13/2004	37.500
7/21/2004	40.800
Well Number:	MW394
Date Collected	Result
8/13/2002	60.400
9/16/2002	60.300
10/16/2002	58.000
1/13/2003	60.700
4/10/2003	62.900
7/16/2003	58.100
10/14/2003	58.200
1/13/2004	56.000

Statistics on Background Data

X= 49.044
S= 11.278
CV= 0.230
K factor = 2.523**
TL= 77.499

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW221	37.600	Sidegradient	NO
MW222	33.800	Sidegradient	NO
MW223	34.200	Sidegradient	NO
MW224	29.200	Sidegradient	NO
MW369	31.800	Downgradient	NO
MW372	47.300	Downgradient	NO
MW384	55.200	Sidegradient	NO
MW387	40.500	Downgradient	NO
MW391	52.600	Downgradient	NO

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis	URGA
Chloride (Continued)	UNITS: mg/L

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

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis URGA
cis-1,2-Dichloroethene UNITS: ug/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW220
Date Collected	Result
10/14/2002	5.000
1/15/2003	5.000
4/10/2003	5.000
7/14/2003	5.000
10/13/2003	5.000
1/13/2004	5.000
4/13/2004	5.000
7/21/2004	5.000

Well Number:	MW394
Date Collected	Result
8/13/2002	5.000
9/30/2002	5.000
10/16/2002	5.000
1/13/2003	5.000
4/10/2003	5.000
7/16/2003	5.000
10/14/2003	5.000
1/13/2004	5.000

Statistics on Background Data

X= 5.000
S= 0.000
CV= 0.000
K factor = 2.523**
TL= 5.000

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW221	1.000	Sidegradient	NO
MW222	1.000	Sidegradient	NO
MW223	1.000	Sidegradient	NO
MW224	1.000	Sidegradient	NO
MW369	1.000	Downgradient	NO
MW372	1.000	Downgradient	NO
MW384	1.000	Sidegradient	NO
MW387	0.510	Downgradient	NO
MW391	0.690	Downgradient	NO

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis	URGA
cis-1,2-Dichloroethene (Continued)	UNITS: ug/L

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

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis URGA
Cobalt UNITS: mg/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW220
Date Collected	Result
10/14/2002	0.004
1/15/2003	0.005
4/10/2003	0.003
7/14/2003	0.161
10/13/2003	0.023
1/13/2004	0.005
4/13/2004	0.001
7/21/2004	0.003
Well Number:	MW394
Date Collected	Result
8/13/2002	0.025
9/16/2002	0.025
10/16/2002	0.001
1/13/2003	0.001
4/10/2003	0.001
7/16/2003	0.001
10/14/2003	0.001
1/13/2004	0.001

Statistics on Background Data

X= 0.016
S= 0.040
CV= 2.440
K factor = 2.523**
TL= 0.116

Because CV greater than 1, the natural logarithm of background and test well results were calculated.

Statistics on Transformed Background Data

X= -5.582
S= 1.573
CV= -0.282
K factor = 2.523**
TL= -1.613

Transformed Background Data from Upgradient Wells

Well Number:	MW220
Date Collected	LN(Result)
10/14/2002	-5.497
1/15/2003	-5.306
4/10/2003	-5.846
7/14/2003	-1.826
10/13/2003	-3.790
1/13/2004	-5.373
4/13/2004	-6.908
7/21/2004	-5.937
Well Number:	MW394
Date Collected	LN(Result)
8/13/2002	-3.689
9/16/2002	-3.689
10/16/2002	-6.908
1/13/2003	-6.908
4/10/2003	-6.908
7/16/2003	-6.908
10/14/2003	-6.908
1/13/2004	-6.908

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW221	0.001	Sidegradient	N/A
MW222	0.001	Sidegradient	N/A
MW223	0.001	Sidegradient	N/A
MW224	0.001	Sidegradient	N/A
MW369	0.008	Downgradient	N/A
MW372	0.000	Downgradient	N/A
MW384	0.000	Sidegradient	N/A
MW387	0.001	Downgradient	N/A
MW391	0.001	Downgradient	N/A

Transformed Fourth Quarter 2014 Data Collected in October 2014

Well Number	LN(Result)	Result > TL?
MW221	-6.593	NO
MW222	-6.661	NO
MW223	-7.308	NO
MW224	-7.419	NO
MW369	-4.822	NO
MW372	-8.079	NO
MW384	-8.740	NO
MW387	-6.908	NO
MW391	-6.908	NO

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis	URGA
Cobalt (Continued)	UNITS: mg/L

Conclusion of Statistical Analysis on Transformed Historical Data
None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically significant level.

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis URGA
Conductivity UNITS: umho/cm

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW220
Date Collected	Result
10/14/2002	368.000
1/15/2003	433.200
4/10/2003	489.000
7/14/2003	430.000
10/13/2003	346.000
1/13/2004	365.000
4/13/2004	416.000
7/21/2004	353.000
Well Number:	MW394
Date Collected	Result
8/13/2002	406.000
9/16/2002	418.000
10/16/2002	411.000
1/13/2003	422.000
4/10/2003	420.000
7/16/2003	438.000
10/14/2003	3.910
1/13/2004	395.000

Statistics on Background Data

X= 382.132
S= 107.134
CV= 0.280
K factor = 2.523**
TL= 652.432

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW221	380.00	Sidegradient	NO
MW222	327.00	Sidegradient	NO
MW223	383.00	Sidegradient	NO
MW224	439.00	Sidegradient	NO
MW369	371.00	Downgradient	NO
MW372	766.00	Downgradient	**YES**
MW384	522.00	Sidegradient	NO
MW387	555.00	Downgradient	NO
MW391	340.00	Downgradient	NO

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis URGA
Conductivity (Continued) UNITS: umho/cm

Conclusion of Statistical Analysis on Historical Data
The following test well(s) exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to historical background data.
MW372

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis URGA
Copper UNITS: mg/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW220
Date Collected	Result
10/14/2002	0.021
1/15/2003	0.020
4/10/2003	0.020
7/14/2003	0.020
10/13/2003	0.020
1/13/2004	0.020
4/13/2004	0.020
7/21/2004	0.020
Well Number:	MW394
Date Collected	Result
8/13/2002	0.050
9/16/2002	0.050
10/16/2002	0.020
1/13/2003	0.020
4/10/2003	0.020
7/16/2003	0.020
10/14/2003	0.020
1/13/2004	0.020

Statistics on Background Data

X= 0.024
S= 0.010
CV= 0.429
K factor = 2.523**
TL= 0.050

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW221	0.001	Sidegradient	NO
MW222	0.001	Sidegradient	NO
MW223	0.000	Sidegradient	NO
MW224	0.001	Sidegradient	NO
MW369	0.001	Downgradient	NO
MW372	0.000	Downgradient	NO
MW384	0.001	Sidegradient	NO
MW387	0.001	Downgradient	NO
MW391	0.000	Downgradient	NO

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis	URGA
Copper (Continued)	UNITS: mg/L

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

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis URGA
Dissolved Oxygen UNITS: mg/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW220
Date Collected	Result
10/14/2002	6.790
1/15/2003	7.250
4/10/2003	3.600
7/14/2003	0.940
10/13/2003	1.650
1/13/2004	3.480
4/13/2004	1.050
7/21/2004	4.460
Well Number:	MW394
Date Collected	Result
8/13/2002	6.090
9/16/2002	3.850
10/16/2002	5.110
1/13/2003	3.830
4/10/2003	4.150
7/16/2003	1.830
10/14/2003	3.330
1/13/2004	3.140

Statistics on Background Data

X= 3.784
S= 1.887
CV= 0.499
K factor = 2.523**
TL= 8.545

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW221	4.880	Sidegradient	NO
MW222	4.300	Sidegradient	NO
MW223	1.900	Sidegradient	NO
MW224	2.130	Sidegradient	NO
MW369	2.100	Downgradient	NO
MW372	0.980	Downgradient	NO
MW384	4.170	Sidegradient	NO
MW387	4.470	Downgradient	NO
MW391	3.760	Downgradient	NO

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis	URGA
Dissolved Oxygen (Continued)	UNITS: mg/L

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

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis URGA
Dissolved Solids UNITS: mg/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW220
Date Collected	Result
10/14/2002	208.000
1/15/2003	257.000
4/10/2003	288.000
7/14/2003	262.000
10/13/2003	197.000
1/13/2004	198.000
4/13/2004	245.000
7/21/2004	204.000
Well Number:	MW394
Date Collected	Result
8/13/2002	247.000
9/16/2002	259.000
10/16/2002	201.000
1/13/2003	228.000
4/10/2003	249.000
7/16/2003	240.000
10/14/2003	230.000
1/13/2004	210.000

Statistics on Background Data

X= 232.688
S= 27.490
CV= 0.118
K factor = 2.523**
TL= 302.045

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW221	180.00	Sidegradient	NO
MW222	177.00	Sidegradient	NO
MW223	213.00	Sidegradient	NO
MW224	224.00	Sidegradient	NO
MW369	193.00	Downgradient	NO
MW372	476.00	Downgradient	**YES**
MW384	251.00	Sidegradient	NO
MW387	331.00	Downgradient	**YES**
MW391	206.00	Downgradient	NO

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis	URGA
Dissolved Solids (Continued)	UNITS: mg/L

Conclusion of Statistical Analysis on Historical Data
The following test well(s) exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to historical background data.
MW372
MW387

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis URGA
Iron UNITS: mg/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW220
Date Collected	Result
10/14/2002	0.200
1/15/2003	0.200
4/10/2003	0.429
7/14/2003	4.330
10/13/2003	1.810
1/13/2004	0.793
4/13/2004	0.130
7/21/2004	0.382
Well Number:	MW394
Date Collected	Result
8/13/2002	1.340
9/16/2002	0.328
10/16/2002	1.380
1/13/2003	1.300
4/10/2003	0.494
7/16/2003	0.620
10/14/2003	0.370
1/13/2004	0.251

Statistics on Background Data

X= 0.897
S= 1.050
CV= 1.170
K factor = 2.523**
TL= 3.545

Because CV greater than 1, the natural logarithm of background and test well results were calculated.

Statistics on Transformed Background Data

X= -0.565
S= 0.951
CV= -1.683
K factor = 2.523**
TL= 1.834

Transformed Background Data from Upgradient Wells

Well Number:	MW220
Date Collected	LN(Result)
10/14/2002	-1.609
1/15/2003	-1.609
4/10/2003	-0.846
7/14/2003	1.466
10/13/2003	0.593
1/13/2004	-0.232
4/13/2004	-2.040
7/21/2004	-0.962
Well Number:	MW394
Date Collected	LN(Result)
8/13/2002	0.293
9/16/2002	-1.115
10/16/2002	0.322
1/13/2003	0.262
4/10/2003	-0.705
7/16/2003	-0.478
10/14/2003	-0.994
1/13/2004	-1.382

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW221	0.090	Sidegradient	N/A
MW222	0.153	Sidegradient	N/A
MW223	0.100	Sidegradient	N/A
MW224	0.061	Sidegradient	N/A
MW369	0.339	Downgradient	N/A
MW372	0.476	Downgradient	N/A
MW384	0.263	Sidegradient	N/A
MW387	0.081	Downgradient	N/A
MW391	0.209	Downgradient	N/A

Transformed Fourth Quarter 2014 Data Collected in October 2014

Well Number	LN(Result)	Result > TL?
MW221	-2.412	NO
MW222	-1.877	NO
MW223	-2.303	NO
MW224	-2.805	NO
MW369	-1.082	NO
MW372	-0.742	NO
MW384	-1.336	NO
MW387	-2.519	NO
MW391	-1.565	NO

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis	URGA
Iron (Continued)	UNITS: mg/L

Conclusion of Statistical Analysis on Transformed Historical Data
None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically significant level.

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis URGA
Magnesium UNITS: mg/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW220
Date Collected	Result
10/14/2002	9.160
1/15/2003	10.000
4/10/2003	10.800
7/14/2003	14.700
10/13/2003	9.030
1/13/2004	8.490
4/13/2004	9.700
7/21/2004	8.060
Well Number:	MW394
Date Collected	Result
8/13/2002	11.800
9/16/2002	12.100
10/16/2002	11.300
1/13/2003	10.300
4/10/2003	11.700
7/16/2003	12.000
10/14/2003	12.200
1/13/2004	11.400

Statistics on Background Data

X= 10.796
S= 1.703
CV= 0.158
K factor = 2.523**
TL= 15.092

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW221	9.020	Sidegradient	NO
MW222	6.500	Sidegradient	NO
MW223	8.850	Sidegradient	NO
MW224	9.580	Sidegradient	NO
MW369	7.030	Downgradient	NO
MW372	22.400	Downgradient	**YES**
MW384	12.100	Sidegradient	NO
MW387	15.600	Downgradient	**YES**
MW391	11.000	Downgradient	NO

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis	URGA
Magnesium (Continued)	UNITS: mg/L

Conclusion of Statistical Analysis on Historical Data
The following test well(s) exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to historical background data.
MW372
MW387

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis URGA
Manganese UNITS: mg/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW220
Date Collected	Result
10/14/2002	0.031
1/15/2003	0.029
4/10/2003	0.014
7/14/2003	2.540
10/13/2003	0.378
1/13/2004	0.159
4/13/2004	0.007
7/21/2004	0.084
Well Number:	MW394
Date Collected	Result
8/13/2002	0.542
9/16/2002	0.155
10/16/2002	0.103
1/13/2003	0.128
4/10/2003	0.005
7/16/2003	0.272
10/14/2003	0.080
1/13/2004	0.066

Statistics on Background Data

X= 0.287
S= 0.619
CV= 2.156
K factor = 2.523**
TL= 1.848

Because CV greater than 1, the natural logarithm of background and test well results were calculated.

Statistics on Transformed Background Data

X= -2.455
S= 1.619
CV= -0.659
K factor = 2.523**
TL= 1.630

Transformed Background Data from Upgradient Wells

Well Number:	MW220
Date Collected	LN(Result)
10/14/2002	-3.487
1/15/2003	-3.537
4/10/2003	-4.290
7/14/2003	0.932
10/13/2003	-0.973
1/13/2004	-1.839
4/13/2004	-4.952
7/21/2004	-2.476
Well Number:	MW394
Date Collected	LN(Result)
8/13/2002	-0.612
9/16/2002	-1.864
10/16/2002	-2.273
1/13/2003	-2.056
4/10/2003	-5.298
7/16/2003	-1.302
10/14/2003	-2.532
1/13/2004	-2.721

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW221	0.003	Sidegradient	N/A
MW222	0.017	Sidegradient	N/A
MW223	0.004	Sidegradient	N/A
MW224	0.005	Sidegradient	N/A
MW369	0.038	Downgradient	N/A
MW372	0.021	Downgradient	N/A
MW384	0.034	Sidegradient	N/A
MW387	0.002	Downgradient	N/A
MW391	0.002	Downgradient	N/A

Transformed Fourth Quarter 2014 Data Collected in October 2014

Well Number	LN(Result)	Result > TL?
MW221	-5.666	NO
MW222	-4.086	NO
MW223	-5.458	NO
MW224	-5.279	NO
MW369	-3.270	NO
MW372	-3.873	NO
MW384	-3.384	NO
MW387	-6.032	NO
MW391	-6.200	NO

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis	URGA
Manganese (Continued)	UNITS: mg/L

Conclusion of Statistical Analysis on Transformed Historical Data
None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically significant level.

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis URGA
Molybdenum UNITS: mg/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW220
Date Collected	Result
10/14/2002	0.006
1/15/2003	0.010
4/10/2003	0.011
7/14/2003	0.002
10/13/2003	0.006
1/13/2004	0.006
4/13/2004	0.001
7/21/2004	0.004
Well Number:	MW394
Date Collected	Result
8/13/2002	0.025
9/16/2002	0.025
10/16/2002	0.001
1/13/2003	0.001
4/10/2003	0.001
7/16/2003	0.001
10/14/2003	0.001
1/13/2004	0.001

Statistics on Background Data

X= 0.006
S= 0.008
CV= 1.261
K factor = 2.523**
TL= 0.026

Because CV greater than 1, the natural logarithm of background and test well results were calculated.

Statistics on Transformed Background Data

X= -5.747
S= 1.205
CV= -0.210
K factor = 2.523**
TL= -2.708

Transformed Background Data from Upgradient Wells

Well Number:	MW220
Date Collected	LN(Result)
10/14/2002	-5.189
1/15/2003	-4.622
4/10/2003	-4.519
7/14/2003	-6.012
10/13/2003	-5.174
1/13/2004	-5.164
4/13/2004	-6.908
7/21/2004	-5.542
Well Number:	MW394
Date Collected	LN(Result)
8/13/2002	-3.689
9/16/2002	-3.689
10/16/2002	-6.908
1/13/2003	-6.908
4/10/2003	-6.908
7/16/2003	-6.908
10/14/2003	-6.908
1/13/2004	-6.908

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW221	0.004	Sidegradient	N/A
MW222	0.000	Sidegradient	N/A
MW223	0.004	Sidegradient	N/A
MW224	0.000	Sidegradient	N/A
MW369	0.000	Downgradient	N/A
MW372	0.000	Downgradient	N/A
MW384	0.001	Sidegradient	N/A
MW387	0.001	Downgradient	N/A
MW391	0.001	Downgradient	N/A

Transformed Fourth Quarter 2014 Data Collected in October 2014

Well Number	LN(Result)	Result > TL?
MW221	-5.602	NO
MW222	-8.517	NO
MW223	-5.529	NO
MW224	-7.929	NO
MW369	-8.517	NO
MW372	-7.799	NO
MW384	-7.601	NO
MW387	-7.601	NO
MW391	-7.601	NO

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis	URGA
Molybdenum (Continued)	UNITS: mg/L

Conclusion of Statistical Analysis on Transformed Historical Data
None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically significant level.

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis URGA
Nickel UNITS: mg/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW220
Date Collected	Result
10/14/2002	0.418
1/15/2003	0.738
4/10/2003	0.544
7/14/2003	0.106
10/13/2003	0.053
1/13/2004	0.021
4/13/2004	0.005
7/21/2004	0.019
Well Number:	MW394
Date Collected	Result
8/13/2002	0.050
9/16/2002	0.050
10/16/2002	0.005
1/13/2003	0.005
4/10/2003	0.005
7/16/2003	0.005
10/14/2003	0.005
1/13/2004	0.005

Statistics on Background Data

X= 0.127
S= 0.228
CV= 1.790
K factor = 2.523**
TL= 0.701

Because CV greater than 1, the natural logarithm of background and test well results were calculated.

Statistics on Transformed Background Data

X= -3.617
S= 1.837
CV= -0.508
K factor = 2.523**
TL= 1.019

Transformed Background Data from Upgradient Wells

Well Number:	MW220
Date Collected	LN(Result)
10/14/2002	-0.872
1/15/2003	-0.304
4/10/2003	-0.609
7/14/2003	-2.244
10/13/2003	-2.939
1/13/2004	-3.868
4/13/2004	-5.298
7/21/2004	-3.953
Well Number:	MW394
Date Collected	LN(Result)
8/13/2002	-2.996
9/16/2002	-2.996
10/16/2002	-5.298
1/13/2003	-5.298
4/10/2003	-5.298
7/16/2003	-5.298
10/14/2003	-5.298
1/13/2004	-5.298

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW221	0.108	Sidegradient	N/A
MW222	0.044	Sidegradient	N/A
MW223	0.220	Sidegradient	N/A
MW224	0.006	Sidegradient	N/A
MW369	0.008	Downgradient	N/A
MW372	0.002	Downgradient	N/A
MW384	0.002	Sidegradient	N/A
MW387	0.002	Downgradient	N/A
MW391	0.001	Downgradient	N/A

Transformed Fourth Quarter 2014 Data Collected in October 2014

Well Number	LN(Result)	Result > TL?
MW221	-2.226	NO
MW222	-3.115	NO
MW223	-1.514	NO
MW224	-5.086	NO
MW369	-4.795	NO
MW372	-6.401	NO
MW384	-6.215	NO
MW387	-6.215	NO
MW391	-7.047	NO

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis	URGA
Nickel (Continued)	UNITS: mg/L

Conclusion of Statistical Analysis on Transformed Historical Data
None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically significant level.

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis URGA
Oxidation-Reduction Potential UNITS: mV

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW220
Date Collected	Result
10/14/2002	205.000
1/15/2003	1.950
4/10/2003	203.000
7/14/2003	30.000
10/13/2003	107.000
1/13/2004	295.000
4/13/2004	190.000
7/21/2004	319.000

Well Number:	MW394
Date Collected	Result
8/13/2002	90.000
9/16/2002	240.000
10/16/2002	185.000
1/13/2003	220.000
4/10/2003	196.000
7/16/2003	172.000
10/14/2003	175.000
1/13/2004	249.000

Statistics on Background Data

X= 179.872
S= 86.318
CV= 0.480
K factor = 2.523**
TL= 397.652

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW221	329.00	Sidegradient	NO
MW222	321.00	Sidegradient	NO
MW223	383.00	Sidegradient	NO
MW224	364.00	Sidegradient	NO
MW369	405.00	Downgradient	**YES**
MW372	88.000	Downgradient	NO
MW384	278.00	Sidegradient	NO
MW387	449.00	Downgradient	**YES**
MW391	340.00	Downgradient	NO

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis	URGA
Oxidation-Reduction Potential (Continued)	UNITS: mV

Conclusion of Statistical Analysis on Historical Data
The following test well(s) exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to historical background data.
MW369
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)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis URGA
PCB, total UNITS: ug/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW220
Date Collected	Result
7/14/2003	0.780
10/13/2003	0.170
7/21/2004	0.180
7/14/2005	0.180
7/17/2006	0.180
7/18/2007	0.170
10/24/2007	0.170
1/24/2008	0.170
Well Number:	MW394
Date Collected	Result
8/13/2002	0.170
9/16/2002	0.170
7/16/2003	0.170
10/14/2003	0.170
7/20/2004	0.180
7/11/2005	0.180
7/17/2006	0.180
7/17/2007	0.170

Statistics on Background Data

X= 0.212
S= 0.152
CV= 0.715
K factor = 2.523**
TL= 0.594

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW221	0.098	Sidegradient	NO
MW222	0.095	Sidegradient	NO
MW223	0.096	Sidegradient	NO
MW224	0.096	Sidegradient	NO
MW369	0.039	Downgradient	NO
MW372	0.103	Downgradient	NO
MW384	0.098	Sidegradient	NO
MW387	0.099	Downgradient	NO
MW391	0.095	Downgradient	NO

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis	URGA
PCB, total (Continued)	UNITS: ug/L

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

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis URGA
PCB-1242 UNITS: ug/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW220
Date Collected	Result
7/14/2003	0.780
10/13/2003	0.090
7/21/2004	0.100
7/14/2005	0.100
7/17/2006	0.100
7/18/2007	0.100
10/24/2007	0.100
1/24/2008	0.100
Well Number:	MW394
Date Collected	Result
8/13/2002	0.110
9/16/2002	0.130
7/16/2003	0.130
10/14/2003	0.090
7/20/2004	0.100
7/11/2005	0.100
7/17/2006	0.100
7/17/2007	0.100

Statistics on Background Data

X= 0.146
S= 0.170
CV= 1.164
K factor = 2.523**
TL= 0.573

Because CV greater than 1, the natural logarithm of background and test well results were calculated.

Statistics on Transformed Background Data

X= -2.149
S= 0.517
CV= -0.241
K factor = 2.523**
TL= -0.844

Transformed Background Data from Upgradient Wells

Well Number:	MW220
Date Collected	LN(Result)
7/14/2003	-0.248
10/13/2003	-2.408
7/21/2004	-2.303
7/14/2005	-2.303
7/17/2006	-2.303
7/18/2007	-2.303
10/24/2007	-2.303
1/24/2008	-2.303
Well Number:	MW394
Date Collected	LN(Result)
8/13/2002	-2.207
9/16/2002	-2.040
7/16/2003	-2.040
10/14/2003	-2.408
7/20/2004	-2.303
7/11/2005	-2.303
7/17/2006	-2.303
7/17/2007	-2.303

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW221	0.098	Sidegradient	N/A
MW222	0.095	Sidegradient	N/A
MW223	0.096	Sidegradient	N/A
MW224	0.096	Sidegradient	N/A
MW369	0.039	Downgradient	N/A
MW372	0.103	Downgradient	N/A
MW384	0.098	Sidegradient	N/A
MW387	0.099	Downgradient	N/A
MW391	0.095	Downgradient	N/A

Transformed Fourth Quarter 2014 Data Collected in October 2014

Well Number	LN(Result)	Result > TL?
MW221	-2.323	NO
MW222	-2.352	NO
MW223	-2.341	NO
MW224	-2.341	NO
MW369	-3.257	NO
MW372	-2.273	NO
MW384	-2.323	NO
MW387	-2.313	NO
MW391	-2.352	NO

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis	URGA
PCB-1242 (Continued)	UNITS: ug/L

Conclusion of Statistical Analysis on Transformed Historical Data
None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically significant level.

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis URGA
pH UNITS: Std Unit

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL and LL. If the test well result exceeds the TL or is less than the LL, that is is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW220
Date Collected	Result
10/14/2002	6.040
1/15/2003	6.310
4/10/2003	6.500
7/14/2003	6.300
10/13/2003	6.340
1/13/2004	6.330
4/13/2004	6.300
7/21/2004	5.900
Well Number:	MW394
Date Collected	Result
8/13/2002	5.800
9/30/2002	5.930
10/16/2002	5.420
1/13/2003	6.000
4/10/2003	6.040
7/16/2003	6.200
10/14/2003	6.400
1/13/2004	6.390

Statistics on Background Data

X= 6.138
S= 0.282
CV= 0.046
K factor = 2.904**
TL= 6.957
LL= 5.318

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result >TL?	Result <LL?
MW221	6.090	Sidegradient	NO	NO
MW222	6.240	Sidegradient	NO	NO
MW223	6.090	Sidegradient	NO	NO
MW224	6.250	Sidegradient	NO	NO
MW369	6.090	Downgradient	NO	NO
MW372	6.160	Downgradient	NO	NO
MW384	6.230	Sidegradient	NO	NO
MW387	6.270	Downgradient	NO	NO
MW391	6.020	Downgradient	NO	NO

Conclusion of Statistical Analysis on Historical Data

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

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)
X Mean, X = (sum of background results)/(count of background results)
** The K-factor was adjusted for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K- 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 and C-746-T Fourth Quarter 2014 Statistical Analysis URGA
Potassium UNITS: mg/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW220
Date Collected	Result
10/14/2002	6.700
1/15/2003	29.700
4/10/2003	24.900
7/14/2003	1.130
10/13/2003	3.430
1/13/2004	6.710
4/13/2004	19.300
7/21/2004	3.970
Well Number:	MW394
Date Collected	Result
8/13/2002	2.000
9/16/2002	2.000
10/16/2002	1.030
1/13/2003	1.100
4/10/2003	1.240
7/16/2003	1.140
10/14/2003	1.050
1/13/2004	1.070

Statistics on Background Data

X= 6.654
S= 9.310
CV= 1.399
K factor = 2.523**
TL= 30.144

Because CV greater than 1, the natural logarithm of background and test well results were calculated.

Statistics on Transformed Background Data

X= 1.130
S= 1.208
CV= 1.069
K factor = 2.523**
TL= 4.178

Transformed Background Data from Upgradient Wells

Well Number:	MW220
Date Collected	LN(Result)
10/14/2002	1.902
1/15/2003	3.391
4/10/2003	3.215
7/14/2003	0.122
10/13/2003	1.233
1/13/2004	1.904
4/13/2004	2.960
7/21/2004	1.379
Well Number:	MW394
Date Collected	LN(Result)
8/13/2002	0.693
9/16/2002	0.693
10/16/2002	0.030
1/13/2003	0.095
4/10/2003	0.215
7/16/2003	0.131
10/14/2003	0.049
1/13/2004	0.068

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW221	1.200	Sidegradient	N/A
MW222	0.412	Sidegradient	N/A
MW223	1.680	Sidegradient	N/A
MW224	0.924	Sidegradient	N/A
MW369	0.534	Downgradient	N/A
MW372	2.370	Downgradient	N/A
MW384	1.140	Sidegradient	N/A
MW387	1.830	Downgradient	N/A
MW391	1.500	Downgradient	N/A

Transformed Fourth Quarter 2014 Data Collected in October 2014

Well Number	LN(Result)	Result > TL?
MW221	0.182	NO
MW222	-0.887	NO
MW223	0.519	NO
MW224	-0.079	NO
MW369	-0.627	NO
MW372	0.863	NO
MW384	0.131	NO
MW387	0.604	NO
MW391	0.405	NO

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis	URGA
Potassium (Continued)	UNITS: mg/L

Conclusion of Statistical Analysis on Transformed Historical Data
None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically significant level.

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis URGA
Radium-226 UNITS: pCi/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW220
Date Collected	Result
10/14/2002	-0.804
1/15/2003	0.000
10/13/2003	0.389
1/13/2004	-0.120
4/13/2004	0.159
7/21/2004	0.382
10/11/2004	0.211
1/20/2005	0.229
Well Number:	MW394
Date Collected	Result
10/16/2002	0.584
1/13/2003	-0.839
10/14/2003	0.033
1/13/2004	-0.004
4/12/2004	-0.079
7/20/2004	0.290
10/12/2004	0.037
1/18/2005	0.032

Statistics on Background Data

X= 0.031
S= 0.383
CV= 12.290
K factor = 2.523**
TL= 0.998

Because CV greater than 1, the natural logarithm of background and test well results were calculated.

Statistics on Transformed Background Data

X = error
S = error
CV = error
K factor = 2.523**
TL# = -0.538

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

Transformed Background Data from Upgradient Wells

Well Number:	MW220
Date Collected	LN(Result)
10/14/2002	#Func!
1/15/2003	#Func!
10/13/2003	-0.944
1/13/2004	#Func!
4/13/2004	-1.839
7/21/2004	-0.962
10/11/2004	-1.556
1/20/2005	-1.474
Well Number:	MW394
Date Collected	LN(Result)
10/16/2002	-0.538
1/13/2003	#Func!
10/14/2003	-3.427
1/13/2004	#Func!
4/12/2004	#Func!
7/20/2004	-1.238
10/12/2004	-3.308
1/18/2005	-3.445

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW221	0.425	Sidegradient	N/A
MW222	0.255	Sidegradient	N/A
MW223	0.263	Sidegradient	N/A
MW224	0.555	Sidegradient	N/A
MW369	0.748	Downgradient	N/A
MW372	0.461	Downgradient	N/A
MW384	0.253	Sidegradient	N/A
MW387	0.429	Downgradient	N/A
MW391	0.495	Downgradient	N/A

Transformed Fourth Quarter 2014 Data Collected in October 2014

Well Number	LN(Result)	Result >TL?
MW221	-0.856	NO
MW222	-1.366	NO
MW223	-1.336	NO
MW224	-0.589	NO
MW369	-0.290	**YES**
MW372	-0.774	NO
MW384	-1.374	NO
MW387	-0.846	NO
MW391	-0.703	NO

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis URGA
Radium-226 (Continued) UNITS: pCi/L

Conclusion of Statistical Analysis on Transformed Historical Data
The following test well(s) exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to historical background data.
MW369

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis URGA
Sodium UNITS: mg/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW220
Date Collected	Result
10/14/2002	35.400
1/15/2003	40.600
4/10/2003	51.000
7/14/2003	58.200
10/13/2003	38.100
1/13/2004	37.000
4/13/2004	43.200
7/21/2004	33.800
Well Number:	MW394
Date Collected	Result
8/13/2002	32.900
9/16/2002	29.900
10/16/2002	29.000
1/13/2003	27.100
4/10/2003	24.800
7/16/2003	35.600
10/14/2003	33.900
1/13/2004	31.300

Statistics on Background Data

X= 36.363
S= 8.666
CV= 0.238
K factor = 2.523**
TL= 58.227

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW221	46.500	Sidegradient	NO
MW222	46.600	Sidegradient	NO
MW223	48.600	Sidegradient	NO
MW224	60.000	Sidegradient	**YES**
MW369	53.400	Downgradient	NO
MW372	59.700	Downgradient	**YES**
MW384	58.700	Sidegradient	**YES**
MW387	55.500	Downgradient	NO
MW391	34.300	Downgradient	NO

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis	URGA
Sodium (Continued)	UNITS: mg/L

Conclusion of Statistical Analysis on Historical Data
The following test well(s) exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to historical background data.
MW224
MW372
MW384

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis URGA
Sulfate UNITS: mg/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW220
Date Collected	Result
10/14/2002	10.400
1/15/2003	9.800
4/10/2003	15.400
7/14/2003	14.900
10/13/2003	13.500
1/13/2004	10.300
4/13/2004	14.300
7/21/2004	10.500
Well Number:	MW394
Date Collected	Result
8/13/2002	11.200
9/16/2002	8.300
10/16/2002	8.000
1/13/2003	8.500
4/10/2003	7.900
7/16/2003	8.400
10/14/2003	8.200
1/13/2004	8.100

Statistics on Background Data

X= 10.481
S= 2.648
CV= 0.253
K factor = 2.523**
TL= 17.161

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW221	13.900	Sidegradient	NO
MW222	10.800	Sidegradient	NO
MW223	13.500	Sidegradient	NO
MW224	15.500	Sidegradient	NO
MW369	7.650	Downgradient	NO
MW372	118.00	Downgradient	**YES**
MW384	19.200	Sidegradient	**YES**
MW387	32.000	Downgradient	**YES**
MW391	15.000	Downgradient	NO

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis	URGA
Sulfate (Continued)	UNITS: mg/L

Conclusion of Statistical Analysis on Historical Data
The following test well(s) exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to historical background data.
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)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis URGA
Technetium-99 UNITS: pCi/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW220
Date Collected	Result
10/14/2002	19.700
1/15/2003	26.100
4/10/2003	3.560
7/14/2003	0.000
10/13/2003	21.000
1/13/2004	6.320
4/13/2004	3.000
7/21/2004	14.600
Well Number:	MW394
Date Collected	Result
8/13/2002	14.000
9/16/2002	5.450
10/16/2002	2.490
1/13/2003	18.300
4/10/2003	-1.450
7/16/2003	-1.710
10/14/2003	18.300
1/13/2004	0.000

Statistics on Background Data

X= 9.354
S= 9.280
CV= 0.992
K factor = 2.523**
TL= 32.768

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW221	4.530	Sidegradient	NO
MW222	2.220	Sidegradient	NO
MW223	10.600	Sidegradient	NO
MW224	11.900	Sidegradient	NO
MW369	43.300	Downgradient	**YES**
MW372	107.00	Downgradient	**YES**
MW384	144.00	Sidegradient	**YES**
MW387	245.00	Downgradient	**YES**
MW391	10.700	Downgradient	NO

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

Conclusion of Statistical Analysis on Historical Data
The following test well(s) exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to historical background data.
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)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis URGA
Total Organic Carbon (TOC) UNITS: mg/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW220
Date Collected	Result
10/14/2002	1.000
1/15/2003	1.100
4/10/2003	1.000
7/14/2003	3.300
10/13/2003	1.800
1/13/2004	1.000
4/13/2004	2.000
7/21/2004	3.100
Well Number:	MW394
Date Collected	Result
8/13/2002	1.300
9/16/2002	1.000
10/16/2002	1.000
1/13/2003	1.600
4/10/2003	1.000
7/16/2003	1.400
10/14/2003	1.300
1/13/2004	1.000

Statistics on Background Data

X= 1.494
S= 0.737
CV= 0.493
K factor = 2.523**
TL= 3.353

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW221	1.000	Sidegradient	NO
MW222	0.864	Sidegradient	NO
MW223	1.090	Sidegradient	NO
MW224	1.350	Sidegradient	NO
MW369	1.590	Downgradient	NO
MW372	2.740	Downgradient	NO
MW384	1.240	Sidegradient	NO
MW387	1.280	Downgradient	NO
MW391	1.260	Downgradient	NO

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis	URGA
Total Organic Carbon (TOC) (Continued)	UNITS: mg/L

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

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis URGA
Total Organic Halides (TOX) UNITS: ug/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW220
Date Collected	Result
10/14/2002	50.000
1/15/2003	10.000
4/10/2003	10.000
7/14/2003	10.000
10/13/2003	10.000
1/13/2004	10.000
4/13/2004	10.000
7/21/2004	10.000
Well Number:	MW394
Date Collected	Result
8/13/2002	50.000
9/16/2002	672.000
10/16/2002	50.000
1/13/2003	36.100
4/10/2003	10.000
7/16/2003	42.700
10/14/2003	22.000
1/13/2004	12.800

Statistics on Background Data

X= 63.475
S= 163.135
CV= 2.570
K factor = 2.523**
TL= 475.063

Because CV greater than 1, the natural logarithm of background and test well results were calculated.

Statistics on Transformed Background Data

X= 3.103
S= 1.145
CV= 0.369
K factor = 2.523**
TL= 5.992

Transformed Background Data from Upgradient Wells

Well Number:	MW220
Date Collected	LN(Result)
10/14/2002	3.912
1/15/2003	2.303
4/10/2003	2.303
7/14/2003	2.303
10/13/2003	2.303
1/13/2004	2.303
4/13/2004	2.303
7/21/2004	2.303
Well Number:	MW394
Date Collected	LN(Result)
8/13/2002	3.912
9/16/2002	6.510
10/16/2002	3.912
1/13/2003	3.586
4/10/2003	2.303
7/16/2003	3.754
10/14/2003	3.091
1/13/2004	2.549

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW221	10.000	Sidegradient	N/A
MW222	10.000	Sidegradient	N/A
MW223	10.000	Sidegradient	N/A
MW224	5.160	Sidegradient	N/A
MW369	13.700	Downgradient	N/A
MW372	6.420	Downgradient	N/A
MW384	10.300	Sidegradient	N/A
MW387	9.220	Downgradient	N/A
MW391	11.300	Downgradient	N/A

Transformed Fourth Quarter 2014 Data Collected in October 2014

Well Number	LN(Result)	Result > TL?
MW221	2.303	NO
MW222	2.303	NO
MW223	2.303	NO
MW224	1.641	NO
MW369	2.617	NO
MW372	1.859	NO
MW384	2.332	NO
MW387	2.221	NO
MW391	2.425	NO

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis	URGA
Total Organic Halides (TOX) (Continued)	UNITS: ug/L

Conclusion of Statistical Analysis on Transformed Historical Data
None of the test wells exceeded the Upper Tolerance Limit, which is evidence that concentrations in these wells are not different from historical background concentrations to a statistically significant level.

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

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

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

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

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

** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis URGA
Trichloroethene UNITS: ug/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW220
Date Collected	Result
10/14/2002	1.000
1/15/2003	1.000
4/10/2003	1.000
7/14/2003	1.000
10/13/2003	1.000
1/13/2004	1.000
4/13/2004	1.000
7/21/2004	1.000
Well Number:	MW394
Date Collected	Result
8/13/2002	16.000
9/30/2002	20.000
10/16/2002	17.000
1/13/2003	15.000
4/10/2003	10.000
7/16/2003	19.000
10/14/2003	20.000
1/13/2004	16.000

Statistics on Background Data

X= 8.813
S= 8.376
CV= 0.951
K factor = 2.523**
TL= 29.946

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW372	7.790	Downgradient	NO
MW391	14.500	Downgradient	NO

Conclusion of Statistical Analysis on Historical Data

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

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis URGA
Vanadium UNITS: mg/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW220
Date Collected	Result
10/14/2002	0.020
1/15/2003	0.020
4/10/2003	0.020
7/14/2003	0.020
10/13/2003	0.020
1/13/2004	0.020
4/13/2004	0.020
7/21/2004	0.020
Well Number:	MW394
Date Collected	Result
8/13/2002	0.025
9/16/2002	0.025
10/16/2002	0.020
1/13/2003	0.020
4/10/2003	0.020
7/16/2003	0.020
10/14/2003	0.020
1/13/2004	0.020

Statistics on Background Data

X= 0.021
S= 0.002
CV= 0.083
K factor = 2.523**
TL= 0.025

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW221	0.005	Sidegradient	NO
MW222	0.005	Sidegradient	NO
MW223	0.005	Sidegradient	NO
MW224	0.005	Sidegradient	NO
MW369	0.001	Downgradient	NO
MW372	0.005	Downgradient	NO
MW384	0.005	Sidegradient	NO
MW387	0.005	Downgradient	NO
MW391	0.005	Downgradient	NO

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis	URGA
Vanadium (Continued)	UNITS: mg/L

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

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis URGA
Zinc UNITS: mg/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW220
Date Collected	Result
10/14/2002	0.025
1/15/2003	0.035
4/10/2003	0.035
7/14/2003	0.039
10/13/2003	0.026
1/13/2004	0.020
4/13/2004	0.020
7/21/2004	0.020
Well Number:	MW394
Date Collected	Result
8/13/2002	0.100
9/16/2002	0.100
10/16/2002	0.025
1/13/2003	0.035
4/10/2003	0.035
7/16/2003	0.020
10/14/2003	0.020
1/13/2004	0.020

Statistics on Background Data

X= 0.036
S= 0.026
CV= 0.722
K factor = 2.523**
TL= 0.101

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW221	0.006	Sidegradient	NO
MW222	0.006	Sidegradient	NO
MW223	0.011	Sidegradient	NO
MW224	0.005	Sidegradient	NO
MW369	0.006	Downgradient	NO
MW372	0.008	Downgradient	NO
MW384	0.004	Sidegradient	NO
MW387	0.006	Downgradient	NO
MW391	0.008	Downgradient	NO

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis	URGA
Zinc (Continued)	UNITS: mg/L

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

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis LRGA
Aluminum UNITS: mg/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW395
Date Collected	Result
8/13/2002	0.200
9/16/2002	0.200
10/16/2002	0.000
1/13/2003	0.737
4/10/2003	0.200
7/16/2003	0.200
10/14/2003	0.200
1/13/2004	0.200

Well Number:	MW397
Date Collected	Result
8/13/2002	0.824
9/16/2002	0.200
10/17/2002	0.000
1/13/2003	0.363
4/8/2003	0.200
7/16/2003	0.200
10/14/2003	0.200
1/13/2004	0.200

Statistics on Background Data

X= 0.258
S= 0.221
CV= 0.856
K factor = 2.523**
TL= 0.815

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW370	0.050	Downgradient	NO
MW373	0.050	Downgradient	NO
MW385	0.050	Sidegradient	NO
MW388	0.015	Downgradient	NO
MW392	0.050	Downgradient	NO

Conclusion of Statistical Analysis on Historical Data

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

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis LRGA
Beryllium UNITS: mg/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW395
Date Collected	Result
8/13/2002	0.005
9/16/2002	0.005
10/16/2002	0.001
1/13/2003	0.001
4/10/2003	0.001
7/16/2003	0.001
10/14/2003	0.001
1/13/2004	0.001

Well Number:	MW397
Date Collected	Result
8/13/2002	0.005
9/16/2002	0.005
10/17/2002	0.001
1/13/2003	0.001
4/8/2003	0.001
7/16/2003	0.001
10/14/2003	0.001
1/13/2004	0.001

Statistics on Background Data

X= 0.002
S= 0.002
CV= 0.894
K factor = 2.523**
TL= 0.007

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW370	0.001	Downgradient	NO
MW373	0.001	Downgradient	NO
MW385	0.001	Sidegradient	NO
MW388	0.001	Downgradient	NO
MW392	0.001	Downgradient	NO

Conclusion of Statistical Analysis on Historical Data

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

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis LRGA
Beta activity UNITS: pCi/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW395
Date Collected	Result
8/13/2002	1.090
9/16/2002	5.790
10/16/2002	6.820
1/13/2003	5.010
4/10/2003	6.100
7/16/2003	8.510
10/14/2003	4.990
1/13/2004	6.580
Well Number:	MW397
Date Collected	Result
8/13/2002	9.570
9/16/2002	11.000
10/17/2002	9.300
1/13/2003	8.630
4/8/2003	10.000
7/16/2003	6.890
10/14/2003	10.100
1/13/2004	4.550

Statistics on Background Data

X= 7.183
S= 2.612
CV= 0.364
K factor = 2.523**
TL= 13.773

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW385	78.200	Sidegradient	**YES**
MW388	55.400	Downgradient	**YES**

Conclusion of Statistical Analysis on Historical Data
The following test well(s) exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to historical background data.
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)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis LRGA
Boron UNITS: mg/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW395
Date Collected	Result
8/13/2002	2.000
9/16/2002	2.000
10/16/2002	0.200
1/13/2003	0.200
4/10/2003	0.200
7/16/2003	0.200
10/14/2003	0.200
1/13/2004	0.200
Well Number:	MW397
Date Collected	Result
8/13/2002	2.000
9/16/2002	2.000
10/17/2002	0.200
1/13/2003	0.200
4/8/2003	0.200
7/16/2003	0.200
10/14/2003	0.200
1/13/2004	0.200

Statistics on Background Data

X= 0.650
S= 0.805
CV= 1.238
K factor = 2.523**
TL= 2.681

Because CV greater than 1, the natural logarithm of background and test well results were calculated.

Statistics on Transformed Background Data

X= -1.034
S= 1.030
CV= -0.996
K factor = 2.523**
TL= 1.564

Transformed Background Data from Upgradient Wells

Well Number:	MW395
Date Collected	LN(Result)
8/13/2002	0.693
9/16/2002	0.693
10/16/2002	-1.609
1/13/2003	-1.609
4/10/2003	-1.609
7/16/2003	-1.609
10/14/2003	-1.609
1/13/2004	-1.609
Well Number:	MW397
Date Collected	LN(Result)
8/13/2002	0.693
9/16/2002	0.693
10/17/2002	-1.609
1/13/2003	-1.609
4/8/2003	-1.609
7/16/2003	-1.609
10/14/2003	-1.609
1/13/2004	-1.609

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW370	0.032	Downgradient	N/A
MW373	1.650	Downgradient	N/A
MW385	0.014	Sidegradient	N/A
MW388	0.021	Downgradient	N/A
MW392	0.025	Downgradient	N/A

Transformed Fourth Quarter 2014 Data Collected in October 2014

Well Number	LN(Result)	Result > TL?
MW370	-3.433	NO
MW373	0.501	NO
MW385	-4.298	NO
MW388	-3.863	NO
MW392	-3.685	NO

Conclusion of Statistical Analysis on Transformed Historical Data

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

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis LRGA
Bromide UNITS: mg/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW395
Date Collected	Result
8/13/2002	1.000
9/16/2002	1.000
10/16/2002	1.000
1/13/2003	1.000
4/10/2003	1.000
7/16/2003	1.000
10/14/2003	1.000
1/13/2004	1.000

Well Number:	MW397
Date Collected	Result
8/13/2002	1.000
9/16/2002	1.000
10/17/2002	1.000
1/13/2003	1.000
4/8/2003	1.000
7/16/2003	1.000
10/14/2003	1.000
1/13/2004	1.000

Statistics on Background Data

X= 1.000
S= 0.000
CV= 0.000
K factor = 2.523**
TL= 1.000

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW370	0.550	Downgradient	NO
MW373	0.609	Downgradient	NO
MW385	0.284	Sidegradient	NO
MW388	0.405	Downgradient	NO
MW392	0.614	Downgradient	NO

Conclusion of Statistical Analysis on Historical Data

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

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis LRGA
Calcium UNITS: mg/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW395
Date Collected	Result
8/13/2002	32.200
9/16/2002	33.000
10/16/2002	0.030
1/13/2003	32.100
4/10/2003	40.200
7/16/2003	32.400
10/14/2003	33.900
1/13/2004	31.200

Well Number:	MW397
Date Collected	Result
8/13/2002	19.400
9/16/2002	19.000
10/17/2002	0.018
1/13/2003	17.800
4/8/2003	20.300
7/16/2003	19.400
10/14/2003	19.900
1/13/2004	18.800

Statistics on Background Data

X= 23.103
S= 11.538
CV= 0.499
K factor = 2.523**
TL= 52.213

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW370	28.000	Downgradient	NO
MW373	72.400	Downgradient	**YES**
MW385	29.400	Sidegradient	NO
MW388	26.800	Downgradient	NO
MW392	27.400	Downgradient	NO

Conclusion of Statistical Analysis on Historical Data

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

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)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis LRGA
Chemical Oxygen Demand (COD) UNITS: mg/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW395
Date Collected	Result
8/13/2002	35.000
9/16/2002	35.000
10/16/2002	35.000
1/13/2003	35.000
4/10/2003	35.000
7/16/2003	35.000
10/14/2003	35.000
1/13/2004	35.000
Well Number:	MW397
Date Collected	Result
8/13/2002	40.000
9/16/2002	35.000
10/17/2002	35.000
1/13/2003	35.000
4/8/2003	35.000
7/16/2003	35.000
10/14/2003	35.000
1/13/2004	35.000

Statistics on Background Data

X= 35.313
S= 1.250
CV= 0.035
K factor = 2.523**
TL= 38.466

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW370	31.200	Downgradient	NO
MW373	12.900	Downgradient	NO
MW385	20.000	Sidegradient	NO
MW388	20.000	Downgradient	NO
MW392	10.200	Downgradient	NO

Conclusion of Statistical Analysis on Historical Data

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

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis LRGA
Chloride UNITS: mg/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW395
Date Collected	Result
8/13/2002	62.200
9/16/2002	64.700
10/16/2002	62.200
1/13/2003	63.500
4/10/2003	64.100
7/16/2003	64.000
10/14/2003	63.200
1/13/2004	60.600

Well Number:	MW397
Date Collected	Result
8/13/2002	38.900
9/16/2002	39.800
10/17/2002	39.300
1/13/2003	40.500
4/8/2003	42.100
7/16/2003	42.000
10/14/2003	40.800
1/13/2004	41.600

Statistics on Background Data

X= 51.844
S= 11.652
CV= 0.225
K factor = 2.523**
TL= 81.242

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW370	40.000	Downgradient	NO
MW373	43.500	Downgradient	NO
MW385	27.100	Sidegradient	NO
MW388	31.200	Downgradient	NO
MW392	51.200	Downgradient	NO

Conclusion of Statistical Analysis on Historical Data

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

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis LRGA
cis-1,2-Dichloroethene UNITS: ug/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW395
Date Collected	Result
8/13/2002	5.000
9/30/2002	5.000
10/16/2002	5.000
1/13/2003	5.000
4/10/2003	5.000
7/16/2003	5.000
10/14/2003	5.000
1/13/2004	5.000

Well Number:	MW397
Date Collected	Result
8/13/2002	5.000
9/30/2002	5.000
10/17/2002	5.000
1/13/2003	5.000
4/8/2003	5.000
7/16/2003	5.000
10/14/2003	5.000
1/13/2004	5.000

Statistics on Background Data

X= 5.000
S= 0.000
CV= 0.000
K factor = 2.523**
TL= 5.000

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW370	1.000	Downgradient	NO
MW373	1.000	Downgradient	NO
MW385	1.000	Sidegradient	NO
MW388	0.510	Downgradient	NO
MW392	0.700	Downgradient	NO

Conclusion of Statistical Analysis on Historical Data

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

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis LRGA
Cobalt UNITS: mg/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW395
Date Collected	Result
8/13/2002	0.025
9/16/2002	0.025
10/16/2002	0.001
1/13/2003	0.001
4/10/2003	0.002
7/16/2003	0.001
10/14/2003	0.001
1/13/2004	0.001
Well Number:	MW397
Date Collected	Result
8/13/2002	0.025
9/16/2002	0.025
10/17/2002	0.001
1/13/2003	0.001
4/8/2003	0.001
7/16/2003	0.001
10/14/2003	0.001
1/13/2004	0.001

Statistics on Background Data

X= 0.007
S= 0.011
CV= 1.515
K factor = 2.523**
TL= 0.034

Because CV greater than 1, the natural logarithm of background and test well results were calculated.

Statistics on Transformed Background Data

X= -6.053
S= 1.416
CV= -0.234
K factor = 2.523**
TL= -2.480

Transformed Background Data from Upgradient Wells

Well Number:	MW395
Date Collected	LN(Result)
8/13/2002	-3.689
9/16/2002	-3.689
10/16/2002	-6.908
1/13/2003	-6.516
4/10/2003	-6.496
7/16/2003	-6.908
10/14/2003	-6.908
1/13/2004	-6.908
Well Number:	MW397
Date Collected	LN(Result)
8/13/2002	-3.689
9/16/2002	-3.689
10/17/2002	-6.908
1/13/2003	-6.908
4/8/2003	-6.908
7/16/2003	-6.908
10/14/2003	-6.908
1/13/2004	-6.908

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW370	0.001	Downgradient	N/A
MW373	0.001	Downgradient	N/A
MW385	0.001	Sidegradient	N/A
MW388	0.001	Downgradient	N/A
MW392	0.000	Downgradient	N/A

Transformed Fourth Quarter 2014 Data Collected in October 2014

Well Number	LN(Result)	Result > TL?
MW370	-7.209	NO
MW373	-6.928	NO
MW385	-6.908	NO
MW388	-6.908	NO
MW392	-8.623	NO

Conclusion of Statistical Analysis on Transformed Historical Data

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

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis LRGA
Conductivity UNITS: umho/cm

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW395
Date Collected	Result
8/13/2002	405.000
9/16/2002	401.000
10/16/2002	392.000
1/13/2003	404.000
4/10/2003	488.000
7/16/2003	450.000
10/14/2003	410.000
1/13/2004	413.000

Well Number:	MW397
Date Collected	Result
8/13/2002	322.000
9/16/2002	315.000
10/17/2002	317.000
1/13/2003	320.000
4/8/2003	390.000
7/16/2003	354.000
10/14/2003	331.000
1/13/2004	334.000

Statistics on Background Data

X= 377.875
S= 52.101
CV= 0.138
K factor = 2.523**
TL= 509.326

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW370	437.00	Downgradient	NO
MW373	901.00	Downgradient	**YES**
MW385	456.00	Sidegradient	NO
MW388	433.00	Downgradient	NO
MW392	405.00	Downgradient	NO

Conclusion of Statistical Analysis on Historical Data

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

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)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis LRGA
Copper UNITS: mg/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW395
Date Collected	Result
8/13/2002	0.050
9/16/2002	0.050
10/16/2002	0.028
1/13/2003	0.020
4/10/2003	0.020
7/16/2003	0.020
10/14/2003	0.020
1/13/2004	0.020

Well Number:	MW397
Date Collected	Result
8/13/2002	0.050
9/16/2002	0.050
10/17/2002	0.020
1/13/2003	0.020
4/8/2003	0.020
7/16/2003	0.020
10/14/2003	0.020
1/13/2004	0.020

Statistics on Background Data

X= 0.028
S= 0.013
CV= 0.474
K factor = 2.523**
TL= 0.061

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW370	0.001	Downgradient	NO
MW373	0.001	Downgradient	NO
MW385	0.001	Sidegradient	NO
MW388	0.001	Downgradient	NO
MW392	0.001	Downgradient	NO

Conclusion of Statistical Analysis on Historical Data

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

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis LRGA
Dissolved Oxygen UNITS: mg/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW395
Date Collected	Result
8/13/2002	7.290
9/30/2002	4.030
10/16/2002	3.850
1/13/2003	2.360
4/10/2003	1.140
7/16/2003	1.760
10/14/2003	4.050
1/13/2004	4.260
Well Number:	MW397
Date Collected	Result
8/13/2002	11.560
9/16/2002	5.860
10/17/2002	5.940
1/13/2003	4.660
4/8/2003	3.770
7/16/2003	3.470
10/14/2003	5.340
1/13/2004	5.510

Statistics on Background Data

X= 4.678
S= 2.431
CV= 0.520
K factor = 2.523**
TL= 10.812

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW370	3.740	Downgradient	NO
MW373	1.370	Downgradient	NO
MW385	0.810	Sidegradient	NO
MW388	4.890	Downgradient	NO
MW392	1.030	Downgradient	NO

Conclusion of Statistical Analysis on Historical Data

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

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis LRGA
Dissolved Solids UNITS: mg/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW395
Date Collected	Result
8/13/2002	249.000
9/16/2002	272.000
10/16/2002	255.000
1/13/2003	211.000
4/10/2003	289.000
7/16/2003	236.000
10/14/2003	224.000
1/13/2004	235.000

Well Number:	MW397
Date Collected	Result
8/13/2002	187.000
9/16/2002	197.000
10/17/2002	183.000
1/13/2003	182.000
4/8/2003	217.000
7/16/2003	196.000
10/14/2003	198.000
1/13/2004	177.000

Statistics on Background Data

X= 219.250
S= 34.107
CV= 0.156
K factor = 2.523**
TL= 305.301

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW370	190.00	Downgradient	NO
MW373	536.00	Downgradient	**YES**
MW385	260.00	Sidegradient	NO
MW388	221.00	Downgradient	NO
MW392	197.00	Downgradient	NO

Conclusion of Statistical Analysis on Historical Data

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

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)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis LRGA
Iron UNITS: mg/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW395
Date Collected	Result
8/13/2002	0.294
9/16/2002	0.200
10/16/2002	0.000
1/13/2003	1.330
4/10/2003	1.310
7/16/2003	0.200
10/14/2003	0.100
1/13/2004	0.100
Well Number:	MW397
Date Collected	Result
8/13/2002	1.580
9/16/2002	0.232
10/17/2002	0.000
1/13/2003	0.453
4/8/2003	0.200
7/16/2003	0.200
10/14/2003	0.100
1/13/2004	0.100

Statistics on Background Data

X= 0.400
S= 0.514
CV= 1.286
K factor = 2.523**
TL= 1.698

Because CV greater than 1, the natural logarithm of background and test well results were calculated.

Statistics on Transformed Background Data

X= -2.197
S= 2.634
CV= -1.199
K factor = 2.523**
TL= 4.449

Transformed Background Data from Upgradient Wells

Well Number:	MW395
Date Collected	LN(Result)
8/13/2002	-1.224
9/16/2002	-1.609
10/16/2002	-8.517
1/13/2003	0.285
4/10/2003	0.270
7/16/2003	-1.609
10/14/2003	-2.303
1/13/2004	-2.303
Well Number:	MW397
Date Collected	LN(Result)
8/13/2002	0.457
9/16/2002	-1.461
10/17/2002	-8.517
1/13/2003	-0.792
4/8/2003	-1.609
7/16/2003	-1.609
10/14/2003	-2.303
1/13/2004	-2.303

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW370	0.037	Downgradient	N/A
MW373	0.200	Downgradient	N/A
MW385	0.100	Sidegradient	N/A
MW388	0.033	Downgradient	N/A
MW392	0.105	Downgradient	N/A

Transformed Fourth Quarter 2014 Data Collected in October 2014

Well Number	LN(Result)	Result > TL?
MW370	-3.300	NO
MW373	-1.609	NO
MW385	-2.303	NO
MW388	-3.408	NO
MW392	-2.254	NO

Conclusion of Statistical Analysis on Transformed Historical Data

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

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis LRGA
Magnesium UNITS: mg/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW395
Date Collected	Result
8/13/2002	12.500
9/16/2002	13.000
10/16/2002	0.013
1/13/2003	11.200
4/10/2003	17.500
7/16/2003	12.900
10/14/2003	13.400
1/13/2004	12.400
Well Number:	MW397
Date Collected	Result
8/13/2002	7.830
9/16/2002	7.640
10/17/2002	0.007
1/13/2003	6.690
4/8/2003	7.280
7/16/2003	7.820
10/14/2003	7.940
1/13/2004	7.510

Statistics on Background Data

X= 9.102
S= 4.685
CV= 0.515
K factor = 2.523**
TL= 20.922

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW370	12.200	Downgradient	NO
MW373	27.400	Downgradient	**YES**
MW385	11.300	Sidegradient	NO
MW388	11.500	Downgradient	NO
MW392	9.700	Downgradient	NO

Conclusion of Statistical Analysis on Historical Data

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

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)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis LRGA
Manganese UNITS: mg/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW395
Date Collected	Result
8/13/2002	0.361
9/16/2002	0.028
10/16/2002	0.026
1/13/2003	0.071
4/10/2003	0.629
7/16/2003	0.297
10/14/2003	0.020
1/13/2004	0.013
Well Number:	MW397
Date Collected	Result
8/13/2002	0.466
9/16/2002	0.077
10/17/2002	0.028
1/13/2003	0.016
4/8/2003	0.041
7/16/2003	0.017
10/14/2003	0.006
1/13/2004	0.005

Statistics on Background Data

X= 0.131
S= 0.195
CV= 1.487
K factor = 2.523**
TL= 0.624

Because CV greater than 1, the natural logarithm of background and test well results were calculated.

Statistics on Transformed Background Data

X= -3.104
S= 1.529
CV= -0.493
K factor = 2.523**
TL= 0.755

Transformed Background Data from Upgradient Wells

Well Number:	MW395
Date Collected	LN(Result)
8/13/2002	-1.019
9/16/2002	-3.576
10/16/2002	-3.650
1/13/2003	-2.641
4/10/2003	-0.464
7/16/2003	-1.214
10/14/2003	-3.922
1/13/2004	-4.374
Well Number:	MW397
Date Collected	LN(Result)
8/13/2002	-0.764
9/16/2002	-2.564
10/17/2002	-3.576
1/13/2003	-4.110
4/8/2003	-3.202
7/16/2003	-4.092
10/14/2003	-5.194
1/13/2004	-5.298

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW370	0.010	Downgradient	N/A
MW373	0.060	Downgradient	N/A
MW385	0.002	Sidegradient	N/A
MW388	0.005	Downgradient	N/A
MW392	0.124	Downgradient	N/A

Transformed Fourth Quarter 2014 Data Collected in October 2014

Well Number	LN(Result)	Result > TL?
MW370	-4.615	NO
MW373	-2.817	NO
MW385	-6.502	NO
MW388	-5.298	NO
MW392	-2.087	NO

Conclusion of Statistical Analysis on Transformed Historical Data

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

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis LRGA
Molybdenum UNITS: mg/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW395
Date Collected	Result
8/13/2002	0.025
9/16/2002	0.025
10/16/2002	0.001
1/13/2003	0.006
4/10/2003	0.001
7/16/2003	0.001
10/14/2003	0.001
1/13/2004	0.001
Well Number:	MW397
Date Collected	Result
8/13/2002	0.025
9/16/2002	0.025
10/17/2002	0.001
1/13/2003	0.001
4/8/2003	0.001
7/16/2003	0.001
10/14/2003	0.001
1/13/2004	0.001

Statistics on Background Data

X= 0.007
S= 0.011
CV= 1.451
K factor = 2.523**
TL= 0.034

Because CV greater than 1, the natural logarithm of background and test well results were calculated.

Statistics on Transformed Background Data

X= -5.990
S= 1.443
CV= -0.241
K factor = 2.523**
TL= -2.349

Transformed Background Data from Upgradient Wells

Well Number:	MW395
Date Collected	LN(Result)
8/13/2002	-3.689
9/16/2002	-3.689
10/16/2002	-6.908
1/13/2003	-5.101
4/10/2003	-6.908
7/16/2003	-6.908
10/14/2003	-6.908
1/13/2004	-6.908
Well Number:	MW397
Date Collected	LN(Result)
8/13/2002	-3.689
9/16/2002	-3.689
10/17/2002	-6.908
1/13/2003	-6.908
4/8/2003	-6.908
7/16/2003	-6.908
10/14/2003	-6.908
1/13/2004	-6.908

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW370	0.000	Downgradient	N/A
MW373	0.001	Downgradient	N/A
MW385	0.000	Sidegradient	N/A
MW388	0.001	Downgradient	N/A
MW392	0.000	Downgradient	N/A

Transformed Fourth Quarter 2014 Data Collected in October 2014

Well Number	LN(Result)	Result > TL?
MW370	-8.422	NO
MW373	-7.601	NO
MW385	-8.079	NO
MW388	-7.601	NO
MW392	-8.294	NO

Conclusion of Statistical Analysis on Transformed Historical Data

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

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis LRGA
Nickel UNITS: mg/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW395
Date Collected	Result
8/13/2002	0.050
9/16/2002	0.050
10/16/2002	0.007
1/13/2003	0.029
4/10/2003	0.009
7/16/2003	0.006
10/14/2003	0.005
1/13/2004	0.005
Well Number:	MW397
Date Collected	Result
8/13/2002	0.050
9/16/2002	0.050
10/17/2002	0.005
1/13/2003	0.005
4/8/2003	0.005
7/16/2003	0.005
10/14/2003	0.005
1/13/2004	0.005

Statistics on Background Data

X= 0.018
S= 0.020
CV= 1.089
K factor = 2.523**
TL= 0.068

Because CV greater than 1, the natural logarithm of background and test well results were calculated.

Statistics on Transformed Background Data

X= -4.540
S= 1.020
CV= -0.225
K factor = 2.523**
TL= -1.965

Transformed Background Data from Upgradient Wells

Well Number:	MW395
Date Collected	LN(Result)
8/13/2002	-2.996
9/16/2002	-2.996
10/16/2002	-4.959
1/13/2003	-3.540
4/10/2003	-4.699
7/16/2003	-5.072
10/14/2003	-5.298
1/13/2004	-5.298
Well Number:	MW397
Date Collected	LN(Result)
8/13/2002	-2.996
9/16/2002	-2.996
10/17/2002	-5.298
1/13/2003	-5.294
4/8/2003	-5.298
7/16/2003	-5.298
10/14/2003	-5.298
1/13/2004	-5.298

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW370	0.001	Downgradient	N/A
MW373	0.003	Downgradient	N/A
MW385	0.001	Sidegradient	N/A
MW388	0.001	Downgradient	N/A
MW392	0.001	Downgradient	N/A

Transformed Fourth Quarter 2014 Data Collected in October 2014

Well Number	LN(Result)	Result > TL?
MW370	-7.118	NO
MW373	-5.972	NO
MW385	-7.036	NO
MW388	-7.506	NO
MW392	-7.195	NO

Conclusion of Statistical Analysis on Transformed Historical Data

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

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis LRGA
Oxidation-Reduction Potential UNITS: mV

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW395
Date Collected	Result
8/13/2002	80.000
9/16/2002	145.000
10/16/2002	125.000
1/13/2003	85.000
4/10/2003	159.000
7/16/2003	98.000
10/14/2003	138.000
1/13/2004	233.000
Well Number:	MW397
Date Collected	Result
8/13/2002	115.000
9/30/2002	140.000
10/17/2002	185.000
1/13/2003	230.000
4/8/2003	155.000
7/16/2003	188.000
10/14/2003	187.000
1/13/2004	253.000

Statistics on Background Data

X= 157.250
S= 52.376
CV= 0.333
K factor = 2.523**
TL= 289.395

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW370	363.00	Downgradient	**YES**
MW373	404.00	Downgradient	**YES**
MW385	312.00	Sidegradient	**YES**
MW388	363.00	Downgradient	**YES**
MW392	430.00	Downgradient	**YES**

Conclusion of Statistical Analysis on Historical Data
The following test well(s) exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to historical background data.
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)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis	LRGA
Oxidation-Reduction Potential (Continued)	UNITS: mV

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)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis LRGA
pH UNITS: Std Unit

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL and LL. If the test well result exceeds the TL or is less than the LL, that is is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW395
Date Collected	Result
8/13/2002	5.800
9/16/2002	6.000
10/16/2002	5.470
1/13/2003	6.000
4/10/2003	6.180
7/16/2003	6.000
10/14/2003	6.310
1/13/2004	6.240

Well Number:	MW397
Date Collected	Result
8/13/2002	5.840
9/30/2002	6.000
10/17/2002	5.750
1/13/2003	6.000
4/8/2003	6.300
7/16/2003	6.200
10/14/2003	6.360
1/13/2004	6.320

Statistics on Background Data

X= 6.048
S= 0.248
CV= 0.041
K factor = 2.904**
TL= 6.767
LL= 5.329

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result >TL?	Result <LL?
MW370	6.030	Downgradient	NO	NO
MW373	6.220	Downgradient	NO	NO
MW385	6.340	Sidegradient	NO	NO
MW388	6.110	Downgradient	NO	NO
MW392	7.000	Downgradient	**YES**	NO

Conclusion of Statistical Analysis on Historical Data

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

MW392

CV Coefficient-of-Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S), LL Lower Tolerance Limit, LL = X - (K * S)
X Mean, X = (sum of background results)/(count of background results)
** The K-factor was adjusted for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K- 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 and C-746-T Fourth Quarter 2014 Statistical Analysis LRGA
Potassium UNITS: mg/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW395
Date Collected	Result
8/13/2002	2.000
9/16/2002	2.000
10/16/2002	0.001
1/13/2003	1.510
4/10/2003	1.670
7/16/2003	1.730
10/14/2003	1.700
1/13/2004	1.580

Well Number:	MW397
Date Collected	Result
8/13/2002	2.030
9/16/2002	2.000
10/17/2002	0.001
1/13/2003	1.690
4/8/2003	1.730
7/16/2003	2.000
10/14/2003	1.920
1/13/2004	1.870

Statistics on Background Data

X= 1.590
S= 0.642
CV= 0.404
K factor = 2.523**
TL= 3.208

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW370	2.380	Downgradient	NO
MW373	2.920	Downgradient	NO
MW385	1.750	Sidegradient	NO
MW388	2.060	Downgradient	NO
MW392	1.740	Downgradient	NO

Conclusion of Statistical Analysis on Historical Data

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

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis LRGA
Radium-226 UNITS: pCi/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW395
Date Collected	Result
10/16/2002	0.661
1/13/2003	-0.839
10/14/2003	0.027
1/13/2004	-0.078
4/12/2004	-0.115
7/20/2004	0.105
10/12/2004	0.408
1/18/2005	0.056
Well Number:	MW397
Date Collected	Result
10/17/2002	0.576
1/13/2003	-0.841
10/14/2003	-0.179
1/13/2004	-0.056
4/12/2004	0.174
7/21/2004	0.227
10/12/2004	0.379
1/20/2005	0.119

Statistics on Background Data

X= 0.039
S= 0.419
CV= 10.740
K factor = 2.523**
TL= 1.096

Because CV greater than 1, the natural logarithm of background and test well results were calculated.

Statistics on Transformed Background Data

X = error
S = error
CV = error
K factor = 2.523**
TL# = -0.414

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

Transformed Background Data from Upgradient Wells

Well Number:	MW395
Date Collected	LN(Result)
10/16/2002	-0.414
1/13/2003	#Func!
10/14/2003	-3.627
1/13/2004	#Func!
4/12/2004	#Func!
7/20/2004	-2.254
10/12/2004	-0.896
1/18/2005	-2.875
Well Number:	MW397
Date Collected	LN(Result)
10/17/2002	-0.552
1/13/2003	#Func!
10/14/2003	#Func!
1/13/2004	#Func!
4/12/2004	-1.749
7/21/2004	-1.483
10/12/2004	-0.970
1/20/2005	-2.129

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW370	0.818	Downgradient	N/A
MW373	0.420	Downgradient	N/A
MW385	0.513	Sidegradient	N/A
MW388	0.364	Downgradient	N/A
MW392	0.484	Downgradient	N/A

Transformed Fourth Quarter 2014 Data Collected in October 2014

Well Number	LN(Result)	Result >TL?
MW370	-0.201	**YES**
MW373	-0.868	NO
MW385	-0.667	NO
MW388	-1.011	NO
MW392	-0.726	NO

Conclusion of Statistical Analysis on Transformed Historical Data

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

MW370

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis LRGA
Sodium UNITS: mg/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW395
Date Collected	Result
8/13/2002	27.000
9/16/2002	27.200
10/16/2002	0.025
1/13/2003	22.600
4/10/2003	53.900
7/16/2003	30.000
10/14/2003	29.100
1/13/2004	26.400
Well Number:	MW397
Date Collected	Result
8/13/2002	35.200
9/16/2002	34.300
10/17/2002	0.034
1/13/2003	31.300
4/8/2003	46.100
7/16/2003	38.400
10/14/2003	37.100
1/13/2004	34.300

Statistics on Background Data

X= 29.560
S= 13.894
CV= 0.470
K factor = 2.523**
TL= 64.616

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW370	42.900	Downgradient	NO
MW373	61.000	Downgradient	NO
MW385	40.600	Sidegradient	NO
MW388	48.700	Downgradient	NO
MW392	38.100	Downgradient	NO

Conclusion of Statistical Analysis on Historical Data

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

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis LRGA
Sulfate UNITS: mg/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW395
Date Collected	Result
8/13/2002	10.300
9/16/2002	9.100
10/16/2002	8.800
1/13/2003	9.000
4/10/2003	8.300
7/16/2003	8.200
10/14/2003	8.300
1/13/2004	8.200
Well Number:	MW397
Date Collected	Result
8/13/2002	14.000
9/16/2002	12.800
10/17/2002	12.300
1/13/2003	12.700
4/8/2003	12.800
7/16/2003	13.100
10/14/2003	12.100
1/13/2004	12.100

Statistics on Background Data

X= 10.756
S= 2.147
CV= 0.200
K factor = 2.523**
TL= 16.173

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW370	19.100	Downgradient	**YES**
MW373	181.00	Downgradient	**YES**
MW385	18.800	Sidegradient	**YES**
MW388	21.500	Downgradient	**YES**
MW392	6.820	Downgradient	NO

Conclusion of Statistical Analysis on Historical Data
The following test well(s) exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to historical background data.
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)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis LRGA
Technetium-99 UNITS: pCi/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW395
Date Collected	Result
8/13/2002	20.800
9/16/2002	16.200
10/16/2002	8.280
1/13/2003	13.000
4/10/2003	-9.370
7/16/2003	0.826
10/14/2003	14.100
1/13/2004	0.000
Well Number:	MW397
Date Collected	Result
8/13/2002	6.060
9/16/2002	17.300
10/17/2002	25.700
1/13/2003	20.900
4/8/2003	20.100
7/16/2003	9.200
10/14/2003	10.100
1/13/2004	8.540

Statistics on Background Data

X= 11.359
S= 9.138
CV= 0.805
K factor = 2.523**
TL= 34.414

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW370	22.500	Downgradient	NO
MW373	38.000	Downgradient	**YES**
MW385	106.00	Sidegradient	**YES**
MW388	79.000	Downgradient	**YES**
MW392	4.390	Downgradient	NO

Conclusion of Statistical Analysis on Historical Data
The following test well(s) exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to historical background data.
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)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis LRGA
Total Organic Carbon (TOC) UNITS: mg/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW395
Date Collected	Result
8/13/2002	1.600
9/16/2002	1.100
10/16/2002	1.000
1/13/2003	2.000
4/10/2003	3.400
7/16/2003	2.000
10/14/2003	1.000
1/13/2004	1.000

Well Number:	MW397
Date Collected	Result
8/13/2002	1.000
9/16/2002	1.000
10/17/2002	1.000
1/13/2003	3.600
4/8/2003	1.900
7/16/2003	1.100
10/14/2003	1.000
1/13/2004	1.000

Statistics on Background Data

X= 1.544
S= 0.856
CV= 0.554
K factor = 2.523**
TL= 3.702

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW370	0.853	Downgradient	NO
MW373	1.890	Downgradient	NO
MW385	1.350	Sidegradient	NO
MW388	1.300	Downgradient	NO
MW392	1.800	Downgradient	NO

Conclusion of Statistical Analysis on Historical Data

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

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis LRGA
Total Organic Halides (TOX) UNITS: ug/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW395
Date Collected	Result
8/13/2002	50.000
9/16/2002	50.000
10/16/2002	50.000
1/13/2003	18.300
4/10/2003	51.200
7/16/2003	42.600
10/14/2003	12.300
1/13/2004	10.000

Well Number:	MW397
Date Collected	Result
8/13/2002	50.000
9/16/2002	50.000
10/17/2002	50.000
1/13/2003	12.000
4/8/2003	19.900
7/16/2003	17.900
10/14/2003	10.000
1/13/2004	10.000

Statistics on Background Data

X= 31.513
S= 18.609
CV= 0.591
K factor = 2.523**
TL= 78.462

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW370	3.800	Downgradient	NO
MW373	28.000	Downgradient	NO
MW385	6.080	Sidegradient	NO
MW388	7.560	Downgradient	NO
MW392	29.600	Downgradient	NO

Conclusion of Statistical Analysis on Historical Data

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

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis LRGA
Trichloroethene UNITS: ug/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW395
Date Collected	Result
8/13/2002	11.000
9/30/2002	14.000
10/16/2002	12.000
1/13/2003	14.000
4/10/2003	14.000
7/16/2003	13.000
10/14/2003	12.000
1/13/2004	11.000
Well Number:	MW397
Date Collected	Result
8/13/2002	5.000
9/30/2002	5.000
10/17/2002	1.000
1/13/2003	1.000
4/8/2003	1.000
7/16/2003	1.000
10/14/2003	1.000
1/13/2004	1.000

Statistics on Background Data

X= 7.313
S= 5.701
CV= 0.780
K factor = 2.523**
TL= 21.695

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW373	7.670	Downgradient	NO
MW392	18.200	Downgradient	NO

Conclusion of Statistical Analysis on Historical Data

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

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis LRGA
Uranium UNITS: mg/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW395
Date Collected	Result
8/13/2002	0.001
9/16/2002	0.001
10/16/2002	0.001
1/13/2003	0.001
4/10/2003	0.001
7/16/2003	0.001
10/14/2003	0.001
1/13/2004	0.001

Well Number:	MW397
Date Collected	Result
8/13/2002	0.001
9/16/2002	0.001
10/17/2002	0.001
1/13/2003	0.001
4/8/2003	0.001
7/16/2003	0.001
10/14/2003	0.001
1/13/2004	0.001

Statistics on Background Data

X= 0.001
S= 0.000
CV= 0.000
K factor = 2.523**
TL= 0.001

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW370	0.000	Downgradient	NO
MW373	0.000	Downgradient	NO
MW385	0.000	Sidegradient	NO
MW388	0.000	Downgradient	NO
MW392	0.000	Downgradient	NO

Conclusion of Statistical Analysis on Historical Data

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

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis LRGA
Zinc UNITS: mg/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of the statistically-derived historical background concentration that well.

Background Data from Upgradient Wells

Well Number:	MW395
Date Collected	Result
8/13/2002	0.100
9/16/2002	0.100
10/16/2002	0.025
1/13/2003	0.035
4/10/2003	0.035
7/16/2003	0.020
10/14/2003	0.020
1/13/2004	0.020

Well Number:	MW397
Date Collected	Result
8/13/2002	0.100
9/16/2002	0.100
10/17/2002	0.025
1/13/2003	0.035
4/8/2003	0.035
7/16/2003	0.020
10/14/2003	0.020
1/13/2004	0.020

Statistics on Background Data

X= 0.044
S= 0.034
CV= 0.760
K factor = 2.523**
TL= 0.129

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW370	0.004	Downgradient	NO
MW373	0.007	Downgradient	NO
MW385	0.010	Sidegradient	NO
MW388	0.004	Downgradient	NO
MW392	0.007	Downgradient	NO

Conclusion of Statistical Analysis on Historical Data

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

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

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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 and C-746-T Fourth Quarter 2014 Statistical Analysis UCRS
Aluminum UNITS: mg/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of elevated concentration in that well.

Background Data from Upgradient Wells

Well Number:	MW396
Date Collected	Result
10/17/2012	0.200
1/15/2013	0.200
4/16/2013	0.200
7/10/2013	0.200
10/3/2013	0.200
1/22/2014	0.200
4/9/2014	0.098
7/17/2014	0.050

Statistics on Background Data

X= 0.168
S= 0.060
CV= 0.355
K factor = 3.188**
TL= 0.359

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL
MW386	0.032	Sidegradient	NO
MW390	1.030	Downgradient	**YES**
MW393	0.024	Downgradient	NO

Fourth Quarter 2014 Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient

Conclusion of Statistical Analysis on Current Data

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

MW390

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis UCRS
Chloride UNITS: mg/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of elevated concentration in that well.

Background Data from Upgradient Wells

Well Number: MW396

Date Collected	Result
10/17/2012	87.000
1/15/2013	87.000
4/16/2013	80.000
7/10/2013	76.000
10/3/2013	80.000
1/22/2014	86.000
4/9/2014	80.500
7/17/2014	78.000

Statistics on Background Data

X= 81.813
S= 4.276
CV= 0.052
K factor = 3.188**
TL= 95.443

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL
MW386	17.000	Sidegradient	NO
MW390	121.000	Downgradient	**YES**
MW393	17.600	Downgradient	NO

Fourth Quarter 2014 Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient

Conclusion of Statistical Analysis on Current Data

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

MW390

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis UCRS
Oxidation-Reduction Potential UNITS: mV

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of elevated concentration in that well.

Background Data from Upgradient Wells

Well Number: MW396

Date Collected	Result
10/17/2012	456.000
1/15/2013	298.000
4/16/2013	251.000
7/10/2013	472.000
10/3/2013	323.000
1/22/2014	549.000
4/9/2014	427.000
7/17/2014	265.000

Statistics on Background Data

X= 380.125
S= 110.097
CV= 0.290
K factor = 3.188**
TL= 731.113

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL
MW386	125.000	Sidegradient	NO
MW390	446.000	Downgradient	NO
MW393	208.000	Downgradient	NO

Fourth Quarter 2014 Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient

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)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis UCRS
Radium-226 UNITS: pCi/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of elevated concentration in that well.

Background Data from Upgradient Wells

Well Number:	MW396
Date Collected	Result
10/17/2012	0.264
1/15/2013	0.144
4/16/2013	0.003
7/10/2013	0.280
10/3/2013	0.404
1/22/2014	0.255
4/9/2014	2.280
7/17/2014	0.709

Statistics on Background Data

X= 0.542
S= 0.731
CV= 1.349
K factor = 3.188**
TL= 2.874

Because CV greater than 1, the natural logarithm of background and test well results were calculated.

Statistics on Transformed Background Data

X= -1.530
S= 1.955
CV= -1.278
K factor = 3.188**
TL= 4.704

Transformed Background Data from Upgradient Wells

Well Number:	MW396
Date Collected	LN(Result)
10/17/2012	-1.332
1/15/2013	-1.938
4/16/2013	-5.903
7/10/2013	-1.273
10/3/2013	-0.906
1/22/2014	-1.366
4/9/2014	0.824
7/17/2014	-0.344

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW386	0.352	Sidegradient	N/A
MW390	1.130	Downgradient	N/A
MW393	0.292	Downgradient	N/A

Fourth Quarter 2014 Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient

Transformed Fourth Quarter 2014 Data Collected in October 2014

Well Number	LN(Result)	Result > TL?
MW386	-1.044	NO
MW390	0.122	NO
MW393	-1.231	NO

Conclusion of Statistical Analysis on Transformed 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)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis UCRS
Technetium-99 UNITS: pCi/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of elevated concentration in that well.

Background Data from Upgradient Wells

Well Number:	MW396
Date Collected	Result
10/17/2012	-8.400
1/15/2013	3.900
4/16/2013	-1.170
7/10/2013	0.223
10/3/2013	2.120
1/22/2014	8.860
4/9/2014	-5.670
7/17/2014	1.030

Statistics on Background Data

X= 0.112
S= 5.389
CV= 48.278
K factor = 3.188**
TL= 17.292

Because CV greater than 1, the natural logarithm of background and test well results were calculated.

Statistics on Transformed Background Data

X = error
S = error
CV = error
K factor = 3.188**
TL# = 2.182

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

Transformed Background Data from Upgradient Wells

Well Number:	MW396
Date Collected	LN(Result)
10/17/2012	#Func!
1/15/2013	1.361
4/16/2013	#Func!
7/10/2013	-1.501
10/3/2013	0.751
1/22/2014	2.182
4/9/2014	#Func!
7/17/2014	0.030

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW386	-0.956	Sidegradient	N/A
MW390	58.000	Downgradient	N/A
MW393	5.300	Downgradient	N/A

Fourth Quarter 2014 Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient

Transformed Fourth Quarter 2014 Data Collected in October 2014

Well Number	LN(Result)	Result >TL?
MW386	#Error	NO
MW390	4.060	**YES**
MW393	1.668	NO

Conclusion of Statistical Analysis on Current Data

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

MW390

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis UCRS
Thorium-230 UNITS: pCi/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of elevated concentration in that well.

Background Data from Upgradient Wells

Well Number:	MW396
Date Collected	Result
10/17/2012	0.031
1/15/2013	-0.026
4/16/2013	-0.035
7/10/2013	0.026
10/3/2013	0.021
1/22/2014	0.030
4/9/2014	0.768
7/17/2014	0.541

Statistics on Background Data

X= 0.169
S= 0.307
CV= 1.810
K factor = 3.188**
TL= 1.147

Because CV greater than 1, the natural logarithm of background and test well results were calculated.

Statistics on Transformed Background Data

X = error
S = error
CV = error
K factor = 3.188**
TL# = -0.264

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

Transformed Background Data from Upgradient Wells

Well Number:	MW396
Date Collected	LN(Result)
10/17/2012	-3.474
1/15/2013	#Func!
4/16/2013	#Func!
7/10/2013	-3.665
10/3/2013	-3.854
1/22/2014	-3.510
4/9/2014	-0.264
7/17/2014	-0.614

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW386	2.810	Sidegradient	N/A
MW390	1.540	Downgradient	N/A
MW393	0.383	Downgradient	N/A

Fourth Quarter 2014 Dry/Partially Dry Wells

Well No.	Gradient
MW389	Downgradient

Transformed Fourth Quarter 2014 Data Collected in October 2014

Well Number	LN(Result)	Result >TL?
MW386	1.033	**YES**
MW390	0.432	**YES**
MW393	-0.960	NO

Conclusion of Statistical Analysis on Current Data

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

MW386
MW390

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis URGA
Beta activity UNITS: pCi/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of elevated concentration in that well.

Background Data from Upgradient Wells

Well Number:	MW220
Date Collected	Result
10/24/2012	17.400
1/15/2013	15.700
4/17/2013	16.500
7/15/2013	13.400
10/1/2013	23.400
1/22/2014	21.200
4/7/2014	7.940
7/17/2014	20.300
Well Number:	MW394
Date Collected	Result
10/17/2012	5.990
1/15/2013	2.540
4/22/2013	9.390
7/10/2013	5.210
10/3/2013	7.390
1/22/2014	5.630
4/9/2014	6.270
7/17/2014	6.900

Statistics on Background Data

X= 11.573
S= 6.640
CV= 0.574
K factor = 2.523**
TL= 28.325

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL
MW372	74.000	Downgradient	**YES**
MW384	110.000	Sidegradient	**YES**
MW387	147.000	Downgradient	**YES**

Conclusion of Statistical Analysis on Current Data

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

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)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis URGA
Calcium UNITS: mg/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of elevated concentration in that well.

Background Data from Upgradient Wells

Well Number:	MW220
Date Collected	Result
10/24/2012	18.600
1/15/2013	19.300
4/17/2013	23.700
7/15/2013	23.300
10/1/2013	19.700
1/22/2014	22.900
4/7/2014	25.600
7/17/2014	21.600
Well Number:	MW394
Date Collected	Result
10/17/2012	26.000
1/15/2013	27.000
4/22/2013	28.000
7/10/2013	28.500
10/3/2013	25.700
1/22/2014	25.600
4/9/2014	27.300
7/17/2014	26.300

Statistics on Background Data

X= 24.319
S= 3.153
CV= 0.130
K factor = 2.523**
TL= 32.273

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL
MW221	20.400	Sidegradient	NO
MW222	14.600	Sidegradient	NO
MW223	21.400	Sidegradient	NO
MW224	22.800	Sidegradient	NO
MW369	16.800	Downgradient	NO
MW372	59.300	Downgradient	**YES**
MW384	29.800	Sidegradient	NO
MW387	37.600	Downgradient	**YES**
MW391	26.900	Downgradient	NO

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis	URGA
Calcium (Continued)	UNITS: mg/L

Conclusion of Statistical Analysis on Current Data
The following test well(s) exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to current background data.
MW372
MW387

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis URGA
Chemical Oxygen Demand (COD) UNITS: mg/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of elevated concentration in that well.

Background Data from Upgradient Wells

Well Number:	MW220
Date Collected	Result
10/24/2012	25.000
1/15/2013	25.000
4/17/2013	25.000
7/15/2013	36.000
10/1/2013	36.000
1/22/2014	36.000
4/7/2014	20.000
7/17/2014	20.000
Well Number:	MW394
Date Collected	Result
10/17/2012	25.000
1/15/2013	25.000
4/22/2013	25.000
7/10/2013	36.000
10/3/2013	36.000
1/22/2014	36.000
4/9/2014	16.100
7/17/2014	18.800

Statistics on Background Data

X= 27.556
S= 7.253
CV= 0.263
K factor = 2.523**
TL= 45.856

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL
MW221	20.000	Sidegradient	NO
MW222	57.600	Sidegradient	**YES**
MW223	20.000	Sidegradient	NO
MW224	20.000	Sidegradient	NO
MW369	20.000	Downgradient	NO
MW372	12.900	Downgradient	NO
MW384	20.000	Sidegradient	NO
MW387	26.500	Downgradient	NO
MW391	20.000	Downgradient	NO

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis	URGA
Chemical Oxygen Demand (COD) (Continued)	UNITS: mg/L

Conclusion of Statistical Analysis on Current Data
The following test well(s) exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to current background data.
MW222

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis URGA
Conductivity UNITS: umho/cm

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of elevated concentration in that well.

Background Data from Upgradient Wells

Well Number:	MW220
Date Collected	Result
10/24/2012	317.000
1/15/2013	335.000
4/17/2013	390.000
7/15/2013	392.000
10/1/2013	353.000
1/22/2014	386.000
4/7/2014	403.000
7/17/2014	407.000
Well Number:	MW394
Date Collected	Result
10/17/2012	390.000
1/15/2013	398.000
4/22/2013	393.000
7/10/2013	405.000
10/3/2013	386.000
1/22/2014	382.000
4/9/2014	404.000
7/17/2014	391.000

Statistics on Background Data

X= 383.250
S= 25.880
CV= 0.068
K factor = 2.523**
TL= 448.546

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL
MW221	380.000	Sidegradient	NO
MW222	327.000	Sidegradient	NO
MW223	383.000	Sidegradient	NO
MW224	439.000	Sidegradient	NO
MW369	371.000	Downgradient	NO
MW372	766.000	Downgradient	**YES**
MW384	522.000	Sidegradient	**YES**
MW387	555.000	Downgradient	**YES**
MW391	340.000	Downgradient	NO

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis URGA
Conductivity (Continued) UNITS: umho/cm

Conclusion of Statistical Analysis on Current Data
The following test well(s) exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to current background data.
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)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis URGA
Dissolved Solids UNITS: mg/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of elevated concentration in that well.

Background Data from Upgradient Wells

Well Number:	MW220
Date Collected	Result
10/24/2012	196.000
1/15/2013	196.000
4/17/2013	218.000
7/15/2013	233.000
10/1/2013	200.000
1/22/2014	219.000
4/7/2014	226.000
7/17/2014	556.000

Well Number:	MW394
Date Collected	Result
10/17/2012	204.000
1/15/2013	218.000
4/22/2013	223.000
7/10/2013	246.000
10/3/2013	226.000
1/22/2014	208.000
4/9/2014	214.000
7/17/2014	196.000

Statistics on Background Data

X= 236.188
S= 86.488
CV= 0.366
K factor = 2.523**
TL= 454.397

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL
MW221	180.000	Sidegradient	NO
MW222	177.000	Sidegradient	NO
MW223	213.000	Sidegradient	NO
MW224	224.000	Sidegradient	NO
MW369	193.000	Downgradient	NO
MW372	476.000	Downgradient	**YES**
MW384	251.000	Sidegradient	NO
MW387	331.000	Downgradient	NO
MW391	206.000	Downgradient	NO

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis	URGA
Dissolved Solids (Continued)	UNITS: mg/L

Conclusion of Statistical Analysis on Current Data
The following test well(s) exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to current background data.
MW372

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis URGA
Magnesium UNITS: mg/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of elevated concentration in that well.

Background Data from Upgradient Wells

Well Number:	MW220
Date Collected	Result
10/24/2012	7.580
1/15/2013	7.740
4/17/2013	9.730
7/15/2013	9.070
10/1/2013	7.700
1/22/2014	9.570
4/7/2014	10.500
7/17/2014	8.950
Well Number:	MW394
Date Collected	Result
10/17/2012	10.900
1/15/2013	11.200
4/22/2013	10.900
7/10/2013	11.100
10/3/2013	10.700
1/22/2014	10.300
4/9/2014	11.000
7/17/2014	11.100

Statistics on Background Data

X= 9.878
S= 1.305
CV= 0.132
K factor = 2.523**
TL= 13.170

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL
MW221	9.020	Sidegradient	NO
MW222	6.500	Sidegradient	NO
MW223	8.850	Sidegradient	NO
MW224	9.580	Sidegradient	NO
MW369	7.030	Downgradient	NO
MW372	22.400	Downgradient	**YES**
MW384	12.100	Sidegradient	NO
MW387	15.600	Downgradient	**YES**
MW391	11.000	Downgradient	NO

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis	URGA
Magnesium (Continued)	UNITS: mg/L

Conclusion of Statistical Analysis on Current Data
The following test well(s) exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to current background data.
MW372
MW387

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis URGA
Oxidation-Reduction Potential UNITS: mV

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of elevated concentration in that well.

Background Data from Upgradient Wells

Well Number:	MW220
Date Collected	Result
10/24/2012	418.000
1/15/2013	353.000
4/17/2013	558.000
7/15/2013	467.000
10/1/2013	777.000
1/22/2014	381.000
4/7/2014	400.000
7/17/2014	395.000

Well Number:	MW394
Date Collected	Result
10/17/2012	377.000
1/15/2013	641.000
4/22/2013	823.000
7/10/2013	756.000
10/3/2013	803.000
1/22/2014	832.000
4/9/2014	516.000
7/17/2014	356.000

Statistics on Background Data

X= 553.313
S= 187.461
CV= 0.339
K factor = 2.523**
TL= 1026.277

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL
MW221	329.000	Sidegradient	NO
MW222	321.000	Sidegradient	NO
MW223	383.000	Sidegradient	NO
MW224	364.000	Sidegradient	NO
MW369	405.000	Downgradient	NO
MW372	88.000	Downgradient	NO
MW384	278.000	Sidegradient	NO
MW387	449.000	Downgradient	NO
MW391	340.000	Downgradient	NO

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis	URGA
Oxidation-Reduction Potential (Continued)	UNITS: mV

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)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis URGA
Radium-226 UNITS: pCi/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of elevated concentration in that well.

Background Data from Upgradient Wells

Well Number:	MW220
Date Collected	Result
10/24/2012	-0.095
1/15/2013	0.342
4/17/2013	0.054
7/15/2013	0.252
10/1/2013	0.199
1/22/2014	0.357
4/7/2014	1.300
7/17/2014	0.583
Well Number:	MW394
Date Collected	Result
10/17/2012	0.153
1/15/2013	0.296
4/22/2013	0.125
7/10/2013	0.032
10/3/2013	-0.051
1/22/2014	-0.083
4/9/2014	4.260
7/17/2014	0.232

Statistics on Background Data

X= 0.497
S= 1.057
CV= 2.126
K factor = 2.523**
TL= 3.165

Because CV greater than 1, the natural logarithm of background and test well results were calculated.

Statistics on Transformed Background Data

X = error
S = error
CV = error
K factor = 2.523**
TL# = 1.449

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

Transformed Background Data from Upgradient Wells

Well Number:	MW220
Date Collected	LN(Result)
10/24/2012	#Func!
1/15/2013	-1.073
4/17/2013	-2.913
7/15/2013	-1.378
10/1/2013	-1.614
1/22/2014	-1.030
4/7/2014	0.262
7/17/2014	-0.540
Well Number:	MW394
Date Collected	LN(Result)
10/17/2012	-1.877
1/15/2013	-1.217
4/22/2013	-2.079
7/10/2013	-3.430
10/3/2013	#Func!
1/22/2014	#Func!
4/9/2014	1.449
7/17/2014	-1.461

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW221	0.425	Sidegradient	N/A
MW222	0.255	Sidegradient	N/A
MW223	0.263	Sidegradient	N/A
MW224	0.555	Sidegradient	N/A
MW369	0.748	Downgradient	N/A
MW372	0.461	Downgradient	N/A
MW384	0.253	Sidegradient	N/A
MW387	0.429	Downgradient	N/A
MW391	0.495	Downgradient	N/A

Transformed Fourth Quarter 2014 Data Collected in October 2014

Well Number	LN(Result)	Result >TL?
MW221	-0.856	NO
MW222	-1.366	NO
MW223	-1.336	NO
MW224	-0.589	NO
MW369	-0.290	NO
MW372	-0.774	NO
MW384	-1.374	NO
MW387	-0.846	NO
MW391	-0.703	NO

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis	URGA
Radium-226 (Continued)	UNITS: pCi/L

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)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis URGA
Sodium UNITS: mg/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of elevated concentration in that well.

Background Data from Upgradient Wells

Well Number:	MW220
Date Collected	Result
10/24/2012	33.500
1/15/2013	35.000
4/17/2013	41.400
7/15/2013	40.500
10/1/2013	34.600
1/22/2014	39.500
4/7/2014	43.900
7/17/2014	39.100
Well Number:	MW394
Date Collected	Result
10/17/2012	29.700
1/15/2013	30.700
4/22/2013	28.200
7/10/2013	29.300
10/3/2013	28.800
1/22/2014	28.800
4/9/2014	29.900
7/17/2014	29.600

Statistics on Background Data

X= 33.906
S= 5.342
CV= 0.158
K factor = 2.523**
TL= 47.385

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL
MW221	46.500	Sidegradient	NO
MW222	46.600	Sidegradient	NO
MW223	48.600	Sidegradient	**YES**
MW224	60.000	Sidegradient	**YES**
MW369	53.400	Downgradient	**YES**
MW372	59.700	Downgradient	**YES**
MW384	58.700	Sidegradient	**YES**
MW387	55.500	Downgradient	**YES**
MW391	34.300	Downgradient	NO

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis	URGA
Sodium (Continued)	UNITS: mg/L

Conclusion of Statistical Analysis on Current Data
The following test well(s) exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to current background data.
MW223
MW224
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)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis URGA
Sulfate UNITS: mg/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of elevated concentration in that well.

Background Data from Upgradient Wells

Well Number:	MW220
Date Collected	Result
10/24/2012	13.000
1/15/2013	15.000
4/17/2013	19.000
7/15/2013	17.000
10/1/2013	14.000
1/22/2014	18.000
4/7/2014	18.900
7/17/2014	19.400

Well Number:	MW394
Date Collected	Result
10/17/2012	10.000
1/15/2013	10.000
4/22/2013	9.800
7/10/2013	9.700
10/3/2013	10.000
1/22/2014	10.000
4/9/2014	10.000
7/17/2014	10.300

Statistics on Background Data

X= 13.381
S= 3.906
CV= 0.292
K factor = 2.523**
TL= 23.236

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL
MW221	13.900	Sidegradient	NO
MW222	10.800	Sidegradient	NO
MW223	13.500	Sidegradient	NO
MW224	15.500	Sidegradient	NO
MW369	7.650	Downgradient	NO
MW372	118.000	Downgradient	**YES**
MW384	19.200	Sidegradient	NO
MW387	32.000	Downgradient	**YES**
MW391	15.000	Downgradient	NO

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis Sulfate (Continued)	URGA UNITS: mg/L

Conclusion of Statistical Analysis on Current Data
The following test well(s) exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to current background data.
MW372
MW387

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis URGA
Technetium-99 UNITS: pCi/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of elevated concentration in that well.

Background Data from Upgradient Wells

Well Number:	MW220
Date Collected	Result
10/24/2012	4.030
1/15/2013	13.600
4/17/2013	6.610
7/15/2013	21.300
10/1/2013	20.700
1/22/2014	32.100
4/7/2014	24.800
7/17/2014	12.100
Well Number:	MW394
Date Collected	Result
10/17/2012	-10.800
1/15/2013	-0.751
4/22/2013	13.900
7/10/2013	15.000
10/3/2013	9.680
1/22/2014	18.800
4/9/2014	4.320
7/17/2014	10.100

Statistics on Background Data

X= 12.218
S= 10.436
CV= 0.854
K factor = 2.523**
TL= 38.548

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL
MW221	4.530	Sidegradient	NO
MW222	2.220	Sidegradient	NO
MW223	10.600	Sidegradient	NO
MW224	11.900	Sidegradient	NO
MW369	43.300	Downgradient	**YES**
MW372	107.000	Downgradient	**YES**
MW384	144.000	Sidegradient	**YES**
MW387	245.000	Downgradient	**YES**
MW391	10.700	Downgradient	NO

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis	URGA
Technetium-99 (Continued)	UNITS: pCi/L

Conclusion of Statistical Analysis on Current Data
The following test well(s) exceeded the Upper Tolerance Limit, which is evidence of elevated concentration with respect to current background data.
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)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis LRGA
Beta activity UNITS: pCi/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of elevated concentration in that well.

Background Data from Upgradient Wells

Well Number:	MW395
Date Collected	Result
10/17/2012	8.210
1/15/2013	6.850
4/22/2013	6.420
7/11/2013	6.340
10/3/2013	10.300
1/22/2014	9.400
4/9/2014	2.090
7/17/2014	11.500

Well Number:	MW397
Date Collected	Result
10/16/2012	7.210
1/15/2013	14.000
4/18/2013	14.400
7/8/2013	16.200
10/2/2013	17.600
1/22/2014	10.000
4/8/2014	4.030
7/16/2014	5.180

Statistics on Background Data

X= 9.358
S= 4.444
CV= 0.475
K factor = 2.523**
TL= 20.570

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL
MW385	78.200	Sidegradient	**YES**
MW388	55.400	Downgradient	**YES**

Conclusion of Statistical Analysis on Current Data

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

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)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis LRGA
Calcium UNITS: mg/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of elevated concentration in that well.

Background Data from Upgradient Wells

Well Number:	MW395
Date Collected	Result
10/17/2012	27.100
1/15/2013	26.800
4/22/2013	28.700
7/11/2013	28.100
10/3/2013	26.700
1/22/2014	27.000
4/9/2014	27.700
7/17/2014	26.500

Well Number:	MW397
Date Collected	Result
10/16/2012	18.800
1/15/2013	19.500
4/18/2013	18.100
7/8/2013	18.200
10/2/2013	18.600
1/22/2014	19.500
4/8/2014	19.400
7/16/2014	17.800

Statistics on Background Data

X= 23.031
S= 4.489
CV= 0.195
K factor = 2.523**
TL= 34.358

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL
MW370	28.000	Downgradient	NO
MW373	72.400	Downgradient	**YES**
MW385	29.400	Sidegradient	NO
MW388	26.800	Downgradient	NO
MW392	27.400	Downgradient	NO

Conclusion of Statistical Analysis on Current Data

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

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)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis LRGA
Conductivity UNITS: umho/cm

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of elevated concentration in that well.

Background Data from Upgradient Wells

Well Number:	MW395
Date Collected	Result
10/17/2012	402.000
1/15/2013	384.000
4/22/2013	394.000
7/11/2013	394.000
10/3/2013	376.000
1/22/2014	387.000
4/9/2014	402.000
7/17/2014	401.000

Well Number:	MW397
Date Collected	Result
10/16/2012	346.000
1/15/2013	320.000
4/18/2013	362.000
7/8/2013	335.000
10/2/2013	353.000
1/22/2014	338.000
4/8/2014	328.000
7/16/2014	336.000

Statistics on Background Data

X= 366.125
S= 29.484
CV= 0.081
K factor = 2.523**
TL= 440.514

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL
MW370	437.000	Downgradient	NO
MW373	901.000	Downgradient	**YES**
MW385	456.000	Sidegradient	**YES**
MW388	433.000	Downgradient	NO
MW392	405.000	Downgradient	NO

Conclusion of Statistical Analysis on Current Data

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

MW373

MW385

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

CV Coefficient of Variation, CV = S/X If CV is less than or equal to 1 assume normal distribution.
S Standard Deviation, S = [Sum ([(background result-X)^2]/[count of background results -1])]^0.5
TL Upper Tolerance Limit, TL = X + (K * S)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis LRGA
Dissolved Solids UNITS: mg/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of elevated concentration in that well.

Background Data from Upgradient Wells

Well Number:	MW395
Date Collected	Result
10/17/2012	214.000
1/15/2013	234.000
4/22/2013	226.000
7/11/2013	229.000
10/3/2013	225.000
1/22/2014	213.000
4/9/2014	217.000
7/17/2014	166.000

Well Number:	MW397
Date Collected	Result
10/16/2012	176.000
1/15/2013	195.000
4/18/2013	166.000
7/8/2013	182.000
10/2/2013	169.000
1/22/2014	190.000
4/8/2014	171.000
7/16/2014	167.000

Statistics on Background Data

X= 196.250
S= 25.762
CV= 0.131
K factor = 2.523**
TL= 261.247

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL
MW370	190.000	Downgradient	NO
MW373	536.000	Downgradient	**YES**
MW385	260.000	Sidegradient	NO
MW388	221.000	Downgradient	NO
MW392	197.000	Downgradient	NO

Conclusion of Statistical Analysis on Current Data

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

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)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis LRGA
Magnesium UNITS: mg/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of elevated concentration in that well.

Background Data from Upgradient Wells

Well Number:	MW395
Date Collected	Result
10/17/2012	11.200
1/15/2013	11.100
4/22/2013	11.100
7/11/2013	10.900
10/3/2013	10.400
1/22/2014	10.800
4/9/2014	12.200
7/17/2014	11.000

Well Number:	MW397
Date Collected	Result
10/16/2012	7.680
1/15/2013	7.990
4/18/2013	7.400
7/8/2013	7.100
10/2/2013	7.320
1/22/2014	8.080
4/8/2014	8.360
7/16/2014	7.490

Statistics on Background Data

X= 9.383
S= 1.820
CV= 0.194
K factor = 2.523**
TL= 13.973

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL
MW370	12.200	Downgradient	NO
MW373	27.400	Downgradient	**YES**
MW385	11.300	Sidegradient	NO
MW388	11.500	Downgradient	NO
MW392	9.700	Downgradient	NO

Conclusion of Statistical Analysis on Current Data

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

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)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis LRGA
Oxidation-Reduction Potential UNITS: mV

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of elevated concentration in that well.

Background Data from Upgradient Wells

Well Number:	MW395
Date Collected	Result
10/17/2012	374.000
1/15/2013	527.000
4/22/2013	635.000
7/11/2013	495.000
10/3/2013	542.000
1/22/2014	803.000
4/9/2014	537.000
7/17/2014	381.000

Well Number:	MW397
Date Collected	Result
10/16/2012	586.000
1/15/2013	823.000
4/18/2013	383.000
7/8/2013	443.000
10/2/2013	679.000
1/22/2014	389.000
4/8/2014	363.000
7/16/2014	382.000

Statistics on Background Data

X= 521.375
S= 151.077
CV= 0.290
K factor = 2.523**
TL= 902.543

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL
MW370	363.000	Downgradient	NO
MW373	404.000	Downgradient	NO
MW385	312.000	Sidegradient	NO
MW388	363.000	Downgradient	NO
MW392	430.000	Downgradient	NO

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)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Third Quarter 2014 Statistical Analysis LRGA
pH UNITS: Std Unit

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL and LL. If the test well result exceeds the TL or is less than the LL, that is is evidence of an exceedance of elevated concentration in that well.

Background Data from Upgradient Wells

Well Number:	MW395
Date Collected	Result
10/17/2012	6.070
1/15/2013	6.060
4/22/2013	6.210
7/11/2013	6.020
10/3/2013	6.020
1/22/2014	6.150
4/9/2014	6.070
7/17/2014	6.070
Well Number:	MW397
Date Collected	Result
10/16/2012	6.060
1/15/2013	6.000
4/18/2013	5.970
7/8/2013	6.100
10/2/2013	6.010
1/22/2014	6.340
4/8/2014	6.080
7/16/2014	6.070

Statistics on Background Data

X= 6.081
S= 0.090
CV= 0.015
K factor = 2.904**
TL= 6.343
LL= 5.820

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

Third Quarter 2014 Data Collected in July 2014

Well No.	Result	Gradient	Result >TL?	Result <LL?
MW370	6.030	Downgradient	NO	NO
MW373	6.220	Downgradient	NO	NO
MW385	6.340	Sidegradient	NO	NO
MW388	6.110	Downgradient	NO	NO
MW392	7.000	Downgradient	**YES**	NO

Conclusion of Statistical Analysis on Current Data

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

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.

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

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

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

** The K-factor was adjusted for pH to account for a two-sided tolerance interval instead of a one-sided tolerance limit. The K- 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 and C-746-T Fourth Quarter 2014 Statistical Analysis LRGA
Radium-226 UNITS: pCi/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of elevated concentration in that well.

Background Data from Upgradient Wells

Well Number:	MW395
Date Collected	Result
10/17/2012	0.303
1/15/2013	0.308
4/22/2013	0.222
7/11/2013	0.246
10/3/2013	-0.081
1/22/2014	0.116
4/9/2014	2.130
7/17/2014	0.833
Well Number:	MW397
Date Collected	Result
10/16/2012	0.008
1/15/2013	0.297
4/18/2013	0.065
7/8/2013	0.135
10/2/2013	-0.087
1/22/2014	0.070
4/8/2014	3.110
7/16/2014	0.033

Statistics on Background Data

X= 0.482
S= 0.881
CV= 1.828
K factor = 2.523**
TL= 2.703

Because CV greater than 1, the natural logarithm of background and test well results were calculated.

Statistics on Transformed Background Data

X = error
S = error
CV = error
K factor = 2.523**
TL# = 1.135

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

Transformed Background Data from Upgradient Wells

Well Number:	MW395
Date Collected	LN(Result)
10/17/2012	-1.194
1/15/2013	-1.178
4/22/2013	-1.505
7/11/2013	-1.402
10/3/2013	#Func!
1/22/2014	-2.154
4/9/2014	0.756
7/17/2014	-0.183
Well Number:	MW397
Date Collected	LN(Result)
10/16/2012	-4.868
1/15/2013	-1.214
4/18/2013	-2.727
7/8/2013	-2.002
10/2/2013	#Func!
1/22/2014	-2.662
4/8/2014	1.135
7/16/2014	-3.427

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL?
MW370	0.818	Downgradient	N/A
MW373	0.420	Downgradient	N/A
MW385	0.513	Sidegradient	N/A
MW388	0.364	Downgradient	N/A
MW392	0.484	Downgradient	N/A

Transformed Fourth Quarter 2014 Data Collected in October 2014

Well Number	LN(Result)	Result >TL?
MW370	-0.201	NO
MW373	-0.868	NO
MW385	-0.667	NO
MW388	-1.011	NO
MW392	-0.726	NO

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)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis LRGA
Sulfate UNITS: mg/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of elevated concentration in that well.

Background Data from Upgradient Wells

Well Number:	MW395
Date Collected	Result
10/17/2012	9.800
1/15/2013	10.000
4/22/2013	9.800
7/11/2013	9.700
10/3/2013	20.000
1/22/2014	9.800
4/9/2014	9.770
7/17/2014	10.100

Well Number:	MW397
Date Collected	Result
10/16/2012	12.000
1/15/2013	12.000
4/18/2013	11.000
7/8/2013	11.000
10/2/2013	22.000
1/22/2014	12.000
4/8/2014	11.700
7/16/2014	11.700

Statistics on Background Data

X= 12.023
S= 3.638
CV= 0.303
K factor = 2.523**
TL= 21.203

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL
MW370	19.100	Downgradient	NO
MW373	181.000	Downgradient	**YES**
MW385	18.800	Sidegradient	NO
MW388	21.500	Downgradient	**YES**
MW392	6.820	Downgradient	NO

Conclusion of Statistical Analysis on Current Data

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

MW373

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)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

C-746-S and C-746-T Fourth Quarter 2014 Statistical Analysis LRGA
Technetium-99 UNITS: pCi/L

The CV is calculated to determine if background data are normally distributed. If so, the current test well results are compared to the TL. If not, a transformation is performed on the background and test well results, then each transformed test well result is compared to the transformed TL. If the test well result exceeds the TL, that is evidence of an exceedance of elevated concentration in that well.

Background Data from Upgradient Wells

Well Number:	MW395
Date Collected	Result
10/17/2012	-4.870
1/15/2013	-4.100
4/22/2013	3.110
7/11/2013	10.700
10/3/2013	10.600
1/22/2014	20.000
4/9/2014	11.200
7/17/2014	8.050

Well Number:	MW397
Date Collected	Result
10/16/2012	2.800
1/15/2013	6.960
4/18/2013	16.600
7/8/2013	14.600
10/2/2013	19.100
1/22/2014	33.700
4/8/2014	16.500
7/16/2014	10.600

Statistics on Background Data

X= 10.972
S= 9.561
CV= 0.871
K factor = 2.523**
TL= 35.095

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

Fourth Quarter 2014 Data Collected in October 2014

Well No.	Result	Gradient	Result > TL
MW370	22.500	Downgradient	NO
MW373	38.000	Downgradient	**YES**
MW385	106.000	Sidegradient	**YES**
MW388	79.000	Downgradient	**YES**
MW392	4.390	Downgradient	NO

Conclusion of Statistical Analysis on Current Data

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

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)
X Mean, X = (sum of background results)/(count of background results)
** Read from Table 5, Appendix B of *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities,* Interim Guidance, EPA, 1989, based on total number of background results

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ATTACHMENT D3

STATISTICIAN QUALIFICATION STATEMENT

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756 Park Meadow Road
Westerville, Ohio 43081

January 15th, 2015

Mr. Craig Jones
LATA Environmental Services of Kentucky, LLC
761 Veterans Avenue
Kevil, Kentucky 42053

Dear Mr. Jones:

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 a Chemist, with a Bachelor of Science degree in chemistry and a minor in mathematics, I have over two 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 LATA.

For this project, the statistical analyses conducted on the fourth quarter 2014 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). For pH, an additional lower tolerance interval was established. For pH only, the test well data was compared to both the upper and lower tolerance intervals to determine if statistically significant deviations in concentration with respect to upgradient well exist.

Sincerely,

Cory Tackett
LATA Project Chemist

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APPENDIX E

GROUNDWATER FLOW RATE AND DIRECTION

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GROUNDWATER FLOW RATE AND DIRECTION

Whenever monitoring wells (MWs) are sampled, 401 *KAR* 48:300, Section 11, requires determination of groundwater flow rate and direction of flow in the uppermost aquifer. The uppermost aquifer below the C-746-S&T Landfills is the Regional Gravel Aquifer (RGA). Water level measurements currently are recorded in several wells at the landfill on a quarterly basis. These measurements were used to plot the potentiometric surface of the RGA for the fourth quarter 2014 and to determine the groundwater flow rate and direction.

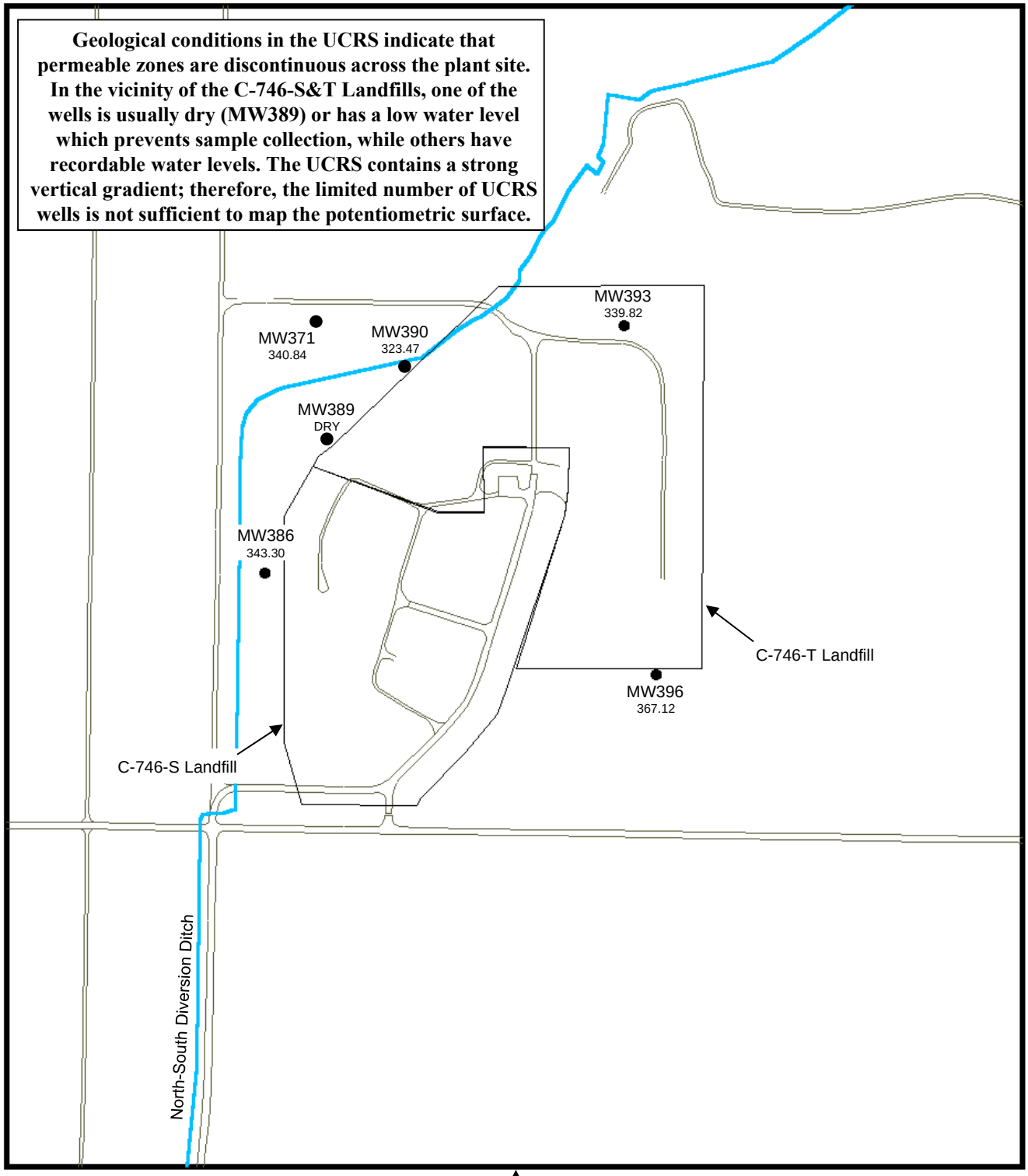
Water levels during this reporting period were measured on October 28 and 29, 2014. As shown on Figure E.1, MW389, screened in the Upper Continental Recharge System (UCRS), is usually dry, while other UCRS wells have recordable water levels. During this reporting period, MW389 had insufficient water for a 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 is 5.29×10^{-4} ft/ft. Additional water level measurements in October (Figure E.3) document the vicinity groundwater hydraulic gradient for the RGA to be 4.06×10^{-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 October 2014, the groundwater flow direction in the immediate area of the landfill conforms to the typical regional flow direction.

[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.



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

Figure E.1. Potentiometric Surface of the Upper Continental Recharge System at the C-746 S&T Landfills
Permit Numbers 073-00014 & 073-00015
October 28, 2014

LATA Environmental Services of Kentucky, LLC

Table E.1. C-746-S&T Landfills Fourth Quarter 2014 (October) Water Levels

C-746-S&T Landfills (October 2014) Water Levels										
							Raw Data		*Corrected Data	
Date	Time	Well	Formation	Datum Elev (ft amsl)	BP (in Hg)	Delta BP (ft H20)	DTW (ft)	Elev (ft amsl)	DTW (ft)	Elev (ft amsl)
10/28/2014	13:45	MW220	URGA	381.44	30.05	-0.02	57.59	323.85	57.57	323.87
10/28/2014	13:24	MW221	URGA	390.83	30.05	-0.02	67.30	323.53	67.28	323.55
10/28/2014	13:29	MW222	URGA	394.87	30.05	-0.02	71.29	323.58	71.27	323.60
10/28/2014	13:26	MW223	URGA	394.03	30.05	-0.02	70.48	323.55	70.46	323.57
10/28/2014	13:31	MW224	URGA	395.41	30.05	-0.02	71.78	323.63	71.76	323.65
10/28/2014	13:47	MW225	URGA	385.55	30.05	-0.02	61.80	323.75	61.78	323.77
10/28/2014	14:34	MW353	LRGA	374.86	30.05	-0.02	50.61	324.25	50.59	324.27
10/28/2014	10:00	MW369	URGA	364.48	30.02	0.01	40.97	323.51	40.98	323.50
10/28/2014	10:03	MW370	LRGA	365.35	30.02	0.01	41.85	323.50	41.86	323.49
10/28/2014	10:02	MW371	UCRS	364.88	30.02	0.01	24.03	340.85	24.04	340.84
10/28/2014	10:06	MW372	URGA	359.66	30.02	0.01	36.17	323.49	36.18	323.48
10/28/2014	10:08	MW373	LRGA	359.95	30.02	0.01	36.48	323.47	36.49	323.46
10/28/2014	13:40	MW384	URGA	365.06	30.05	-0.02	41.54	323.52	41.52	323.54
10/28/2014	13:42	MW385	LRGA	365.54	30.05	-0.02	42.02	323.52	42.00	323.54
10/28/2014	13:41	MW386	UCRS	365.21	30.05	-0.02	21.93	343.28	21.91	343.30
10/28/2014	13:37	MW387	URGA	363.27	30.05	-0.02	39.76	323.51	39.74	323.53
10/28/2014	13:38	MW388	LRGA	363.25	30.05	-0.02	39.74	323.51	39.72	323.53
10/28/2014	13:36	MW389	UCRS	363.82	--	--	DRY	--	DRY	--
10/28/2014	13:35	MW390	UCRS	360.36	30.05	-0.02	36.91	323.45	36.89	323.47
10/28/2014	13:56	MW391	URGA	366.54	30.05	-0.02	43.07	323.47	43.05	323.49
10/28/2014	13:59	MW392	LRGA	365.67	30.05	-0.02	42.21	323.46	42.19	323.48
10/28/2014	13:58	MW393	UCRS	366.59	30.05	-0.02	26.79	339.80	26.77	339.82
10/29/2014	10:06	MW394	URGA	378.32	30.17	-0.16	54.68	323.64	54.52	323.80
10/29/2014	10:08	MW395	LRGA	379.01	30.17	-0.16	55.32	323.69	55.16	323.85
10/28/2014	13:54	MW396	UCRS	378.64	30.05	-0.02	11.54	367.10	11.52	367.12
10/28/2014	13:50	MW397	LRGA	386.90	30.05	-0.02	63.09	323.81	63.07	323.83
10/28/2014	14:17	MW418	URGA	366.78	30.05	-0.02	43.24	323.54	43.22	323.56
10/28/2014	14:18	MW419	LRGA	366.68	30.05	-0.02	43.16	323.52	43.14	323.54

Initial Barometric Pressure **30.03**

Elev = elevation

amsl = above mean sea level

BP = barometric pressure

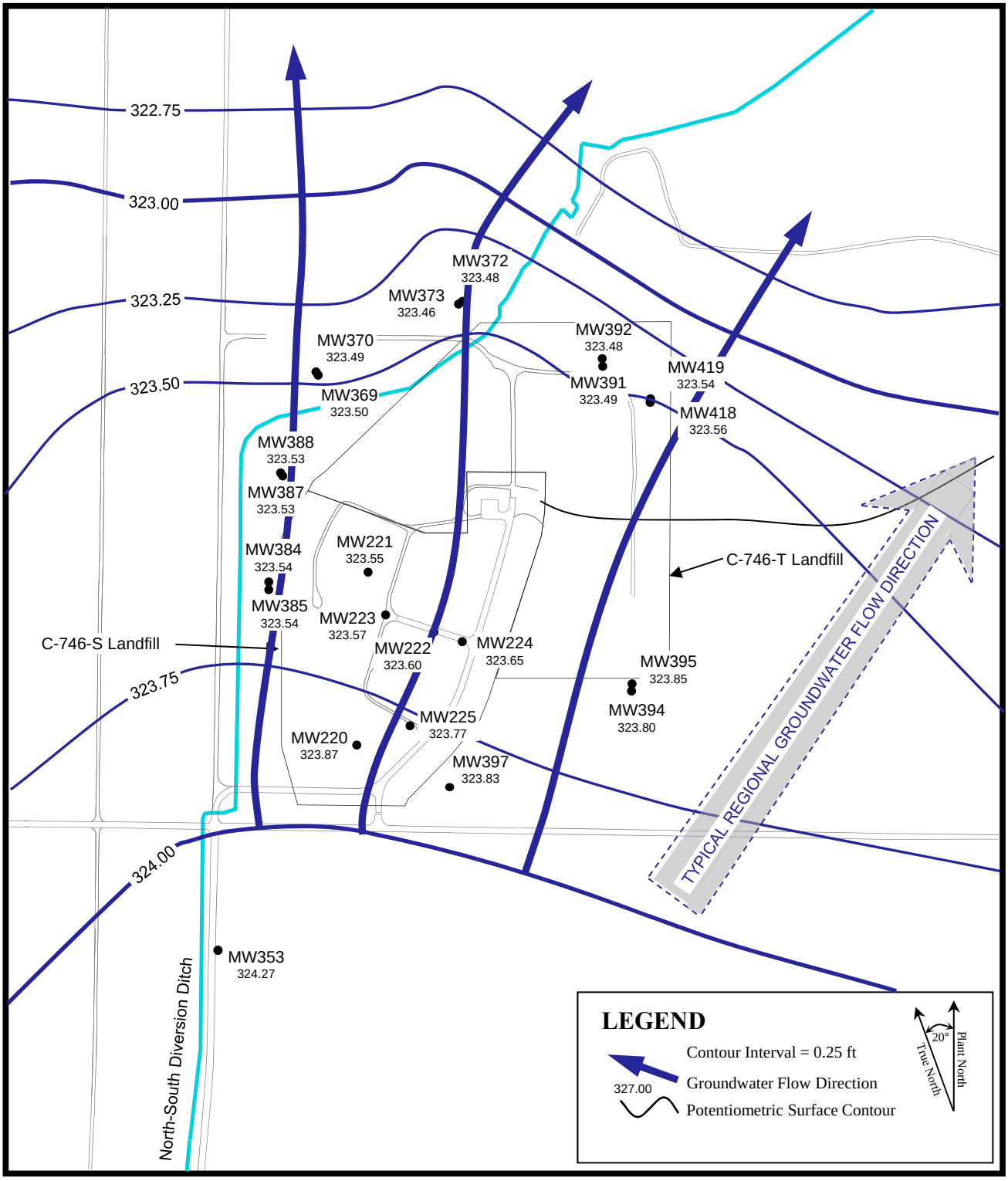
DTW = depth to water in feet below datum

URGA = Upper Regional Gravel Aquifer

LRGA = Lower Regional Gravel Aquifer

UCRS = Upper Continental Recharge System

*Assumes a barometric efficiency of 1.0



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

Figure E.2. Composite Potentiometric Surface of the Regional Gravel Aquifer at the C-746-S&T Landfills Permit Numbers 073-00014 & 073-00015 October 28 and 29, 2014

LATA Environmental Services of Kentucky, LLC

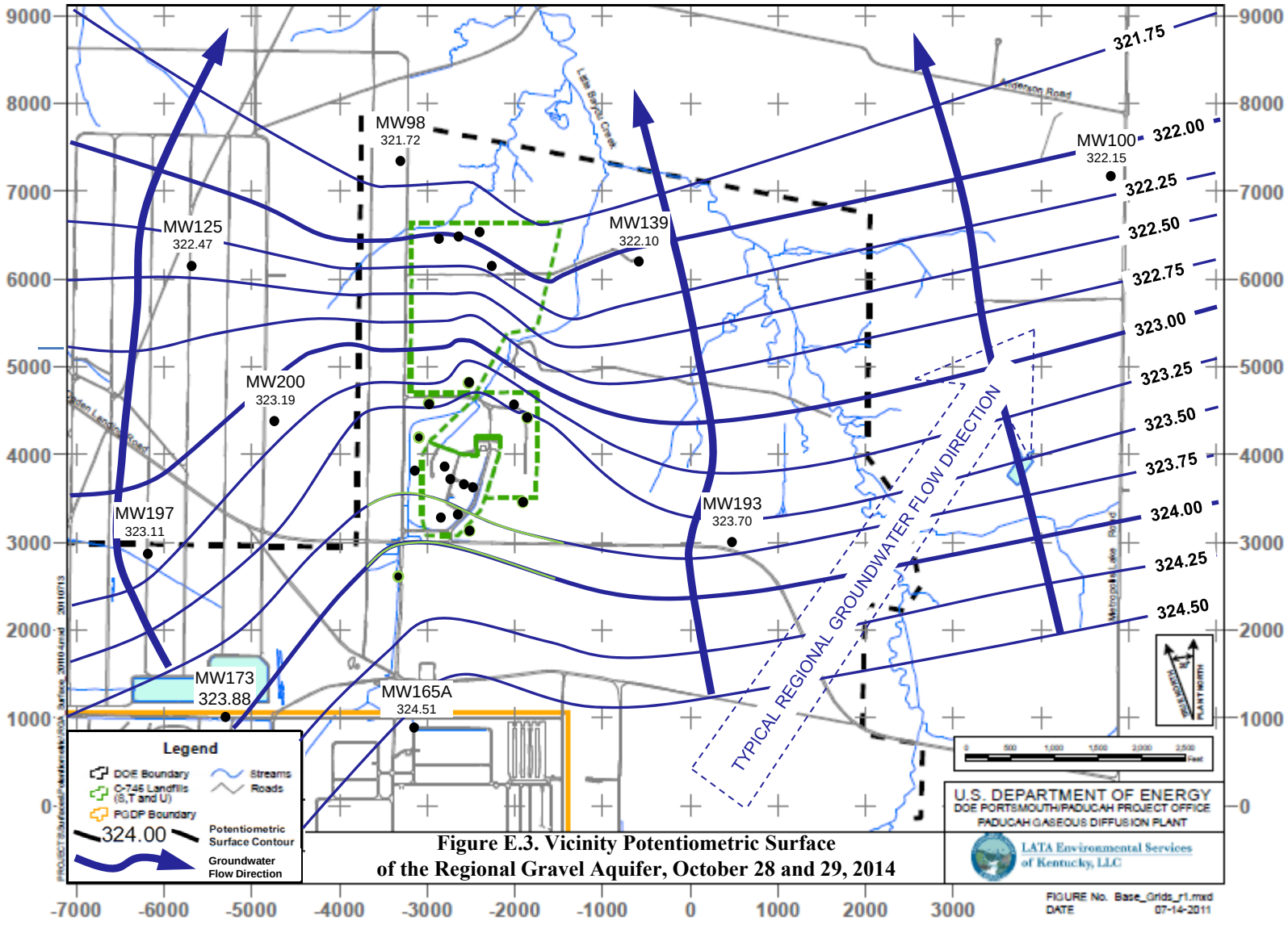


Figure E.3. Vicinity Potentiometric Surface of the Regional Gravel Aquifer, October 28 and 29, 2014

Table E.2. C-746-S&T Landfills Hydraulic Gradients

	ft/ft
Beneath Landfill Mound	5.29×10^{-4}
Vicinity	4.06×10^{-4}

Table E.3. C-746-S&T Landfills Groundwater Flow Rate

Hydraulic Conductivity (K)		Specific Discharge (q)		Average Linear Velocity (v)	
ft/day	cm/s	ft/day	cm/s	ft/day	cm/s
Beneath Landfill Mound					
725	0.256	0.38	1.35×10^{-4}	1.53	5.42×10^{-4}
425	0.150	0.22	7.93×10^{-5}	0.90	3.17×10^{-4}
Vicinity					
725	0.256	0.29	1.04×10^{-4}	1.18	4.16×10^{-4}
425	0.150	0.17	6.09×10^{-5}	0.69	2.44×10^{-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 had statistically significant increased concentrations relative to historical background concentrations is provided below.

STATISTICAL ANALYSIS OF PARAMETERS NOTIFICATION

The statistical analyses conducted on the fourth quarter 2014 groundwater data collected from the C-746-S&T Landfills monitoring wells were performed in accordance with *Groundwater Monitoring Plan for the Solid Waste Permitted Landfills (C-746-S Residential Landfill, C-746-T Inert Landfill, and C-746-U Contained Landfill) at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky* (LATA Kentucky 2014).

The following are the permit required parameters in 40 *CFR* § 302.4, Appendix A, which had statistically significant increased concentrations relative to historical background concentrations.

Parameter	**Monitoring Well**
Upper Continental Recharge System	
Technetium-99	MW390
Upper Regional Gravel Aquifer	
Sodium	MW224, MW372, MW384
Technetium-99	MW369, MW372, MW384, MW387
Lower Regional Gravel Aquifer	
Technetium-99	MW373, MW385, MW388

NOTE: Although technetium-99 is not cited in 40 *CFR* § 302.4, Appendix A, these radionuclides are being reported along with the parameters of this regulation.

12/15/2014

LATA Environmental Services of Kentucky
PROJECT ENVIRONMENTAL MEASUREMENTS SYSTEM
C-746-S and -T LANDFILLS
PERMIT NUMBERS 073-00014 and 073-00015
MAXIMUM CONTAMINANT LIMIT (MCL) EXCEEDANCE REPORT
Quarterly Groundwater Sampling

AKGWA	Station	Analysis	Method	Results	Units	MCL
8004-4808	MW372	Beta activity	900.0	74	pCi/L	50
		Trichloroethene	8260B	7.79	ug/L	5
8004-4792	MW373	Trichloroethene	8260B	7.67	ug/L	5
8004-4809	MW384	Beta activity	900.0	110	pCi/L	50
8004-4810	MW385	Beta activity	900.0	78.2	pCi/L	50
8004-4815	MW387	Beta activity	900.0	147	pCi/L	50
		Beta activity	900.0	141	pCi/L	50
8004-4816	MW388	Beta activity	900.0	55.4	pCi/L	50
8004-4805	MW391	Trichloroethene	8260B	14.5	ug/L	5
8004-4806	MW392	Trichloroethene	8260B	18.2	ug/L	5
8004-4802	MW394	Trichloroethene	8260B	7.64	ug/L	5

NOTE 1: These limits are defined in 401 KAR 47:030.

NOTE 2: MW370, MW372, and MW373 are down-gradient wells for the C-746-S and C-746-T Landfills and upgradient for the 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 and T Landfills

Groundwater Flow System	UCRS					URGA											LRGA						
Gradient	S	D	D	D	U	S	S	S	S	S	D	D	D	D	U	U	S	D	D	D	D	U	U
Monitoring Well	386	389	390	393	396	221	222	223	224	384	369	372	387	391	220	394	385	370	373	388	392	395	397
1,2,3-TRICHLOROPROPANE																							
Quarter 2, 2009			✱																				
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			✱				✱					✱	✱	✱									
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							✱																
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Quarter 1, 2008							✱							✱									
Quarter 2, 2008											✱												
Quarter 4, 2008							✱																
Quarter 1, 2009			✱				✱				✱												
Quarter 1, 2010			✱				✱				✱												
Quarter 2, 2010			✱								✱												
Quarter 3, 2010			✱								✱			✱			✱			✱			
Quarter 1, 2011							✱				✱												
Quarter 2, 2011			✱								✱												
Quarter 2, 2012			✱																				
Quarter 3, 2012							✱																
Quarter 1, 2013							✱				✱												
Quarter 3, 2013			✱																				
Quarter 1, 2014							✱																
Quarter 2, 2014											✱												
Quarter 4, 2014			✱																				
BARIUM																							
Quarter 3, 2003							■	■															
Quarter 4, 2003							■	■															

Chart of MCL and Historical UTL Exceedances for the C-746-S and T Landfills

Groundwater Flow System	UCRS					URGA											LRGA						
Gradient	S	D	D	D	U	S	S	S	S	S	D	D	D	D	U	U	S	D	D	D	D	U	U
Monitoring Well	386	389	390	393	396	221	222	223	224	384	369	372	387	391	220	394	385	370	373	388	392	395	397
BETA ACTIVITY																							
Quarter 4, 2002													■										
Quarter 1, 2003													■				■						
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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			■							■			■				■			■			
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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										■		■	■				■			■			

Chart of MCL and Historical UTL Exceedances for the C-746-S and T Landfills

Groundwater Flow System	UCRS					URGA											LRGA						
Gradient	S	D	D	D	U	S	S	S	S	S	D	D	D	D	U	U	S	D	D	D	D	U	U
Monitoring Well	386	389	390	393	396	221	222	223	224	384	369	372	387	391	220	394	385	370	373	388	392	395	397
BROMIDE																							
Quarter 1, 2003			*																				
Quarter 4, 2003			*																				
Quarter 1, 2004			*																				
Quarter 2, 2004			*																				
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Quarter 4, 2004			*																				
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Quarter 3, 2006			*																				
CALCIUM																							
Quarter 1, 2003			*																				
Quarter 2, 2003			*									*											
Quarter 3, 2003			*																				
Quarter 4, 2003			*									*							*				
Quarter 1, 2004			*									*		*					*				
Quarter 2, 2004			*									*							*				
Quarter 3, 2004			*									*							*				
Quarter 4, 2004			*									*							*				
Quarter 1, 2005												*							*				
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Quarter 3, 2013												*							*				
Quarter 4, 2013												*							*				

Chart of MCL and Historical UTL Exceedances for the C-746-S and T Landfills

Groundwater Flow System	UCRS					URGA											LRGA						
Gradient	S	D	D	D	U	S	S	S	S	S	D	D	D	D	U	U	S	D	D	D	D	U	U
Monitoring Well	386	389	390	393	396	221	222	223	224	384	369	372	387	391	220	394	385	370	373	388	392	395	397
CALCIUM																							
Quarter 1, 2014																		*	*				
Quarter 2, 2014												*							*				
Quarter 3, 2014												*						*	*				
Quarter 4, 2014												*							*				
CARBON DISULFIDE																							
Quarter 4, 2010											*												
Quarter 1, 2011												*									*		
CHEMICAL OXYGEN DEMAND																							
Quarter 1, 2003				*																			
Quarter 2, 2003				*																			
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Quarter 3, 2014	*								*				*					*					
Quarter 4, 2014							*																

Chart of MCL and Historical UTL Exceedances for the C-746-S and T Landfills

Groundwater Flow System	UCRS					URGA											LRGA						
Gradient	S	D	D	D	U	S	S	S	S	S	D	D	D	D	U	U	S	D	D	D	D	U	U
Monitoring Well	386	389	390	393	396	221	222	223	224	384	369	372	387	391	220	394	385	370	373	388	392	395	397
CHLORIDE																							
Quarter 1, 2003			*																				
Quarter 2, 2003			*																				
Quarter 3, 2003			*																				
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Quarter 4, 2013			*																				
Quarter 4, 2014			*																				
CHROMIUM																							
Quarter 4, 2002								■															
Quarter 1, 2003								■														■	
Quarter 2, 2003							■	■															
Quarter 3, 2009						■																	
COBALT																							
Quarter 3, 2003							*																

Chart of MCL and Historical UTL Exceedances for the C-746-S and T Landfills

Groundwater Flow System	UCRS					URGA											LRGA						
Gradient	S	D	D	D	U	S	S	S	S	S	D	D	D	D	U	U	S	D	D	D	D	U	U
Monitoring Well	386	389	390	393	396	221	222	223	224	384	369	372	387	391	220	394	385	370	373	388	392	395	397
CONDUCTIVITY																							
Quarter 4, 2002										*									*				
Quarter 1, 2003			*							*									*				
Quarter 2, 2003			*							*									*				
Quarter 3, 2003			*					*		*									*				
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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												*							*				

Chart of MCL and Historical UTL Exceedances for the C-746-S and T Landfills

Groundwater Flow System	UCRS					URGA											LRGA						
Gradient	S	D	D	D	U	S	S	S	S	S	D	D	D	D	U	U	S	D	D	D	D	U	U
Monitoring Well	386	389	390	393	396	221	222	223	224	384	369	372	387	391	220	394	385	370	373	388	392	395	397
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												*	*						*				
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												*	*						*				

Chart of MCL and Historical UTL Exceedances for the C-746-S and T Landfills

Groundwater Flow System	UCRS					URGA											LRGA						
Gradient	S	D	D	D	U	S	S	S	S	S	D	D	D	D	U	U	S	D	D	D	D	U	U
Monitoring Well	386	389	390	393	396	221	222	223	224	384	369	372	387	391	220	394	385	370	373	388	392	395	397
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										*													
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												*											

Chart of MCL and Historical UTL Exceedances for the C-746-S and T Landfills

Groundwater Flow System	UCRS					URGA											LRGA						
Gradient	S	D	D	D	U	S	S	S	S	S	D	D	D	D	U	U	S	D	D	D	D	U	U
Monitoring Well	386	389	390	393	396	221	222	223	224	384	369	372	387	391	220	394	385	370	373	388	392	395	397
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																		*	*				
Quarter 2, 2014												*	*						*				
Quarter 3, 2014												*							*				
Quarter 4, 2014												*	*						*				

Chart of MCL and Historical UTL Exceedances for the C-746-S and T Landfills

Groundwater Flow System	UCRS					URGA											LRGA						
Gradient	S	D	D	D	U	S	S	S	S	S	D	D	D	D	U	U	S	D	D	D	D	U	U
Monitoring Well	386	389	390	393	396	221	222	223	224	384	369	372	387	391	220	394	385	370	373	388	392	395	397
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	*		*	*		*											*	*	*	*			
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	*		*	*							*		*				*	*	*	*	*		

Chart of MCL and Historical UTL Exceedances for the C-746-S and T Landfills

Groundwater Flow System	UCRS					URGA											LRGA						
Gradient	S	D	D	D	U	S	S	S	S	S	D	D	D	D	U	U	S	D	D	D	D	U	U
Monitoring Well	386	389	390	393	396	221	222	223	224	384	369	372	387	391	220	394	385	370	373	388	392	395	397
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											*												
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																					*		

Chart of MCL and Historical UTL Exceedances for the C-746-S and T Landfills

Groundwater Flow System	UCRS					URGA											LRGA						
Gradient	S	D	D	D	U	S	S	S	S	S	D	D	D	D	U	U	S	D	D	D	D	U	U
Monitoring Well	386	389	390	393	396	221	222	223	224	384	369	372	387	391	220	394	385	370	373	388	392	395	397
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			✱								✱							✱					
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			■																				

Chart of MCL and Historical UTL Exceedances for the C-746-S and T Landfills

Groundwater Flow System	UCRS					URGA											LRGA						
Gradient	S	D	D	D	U	S	S	S	S	S	D	D	D	D	U	U	S	D	D	D	D	U	U
Monitoring Well	386	389	390	393	396	221	222	223	224	384	369	372	387	391	220	394	385	370	373	388	392	395	397
SODIUM																							
Quarter 4, 2002																			*		*		
Quarter 1, 2003				*					*	*	*												
Quarter 2, 2003				*						*	*		*										
Quarter 3, 2003							*	*		*													
Quarter 4, 2003							*		*	*													
Quarter 1, 2004									*	*				*									
Quarter 2, 2004										*													
Quarter 3, 2004										*													
Quarter 4, 2004									*	*													
Quarter 1, 2005										*									*				
Quarter 2, 2005										*									*				
Quarter 3, 2005									*	*									*				
Quarter 4, 2005									*	*													
Quarter 1, 2006									*	*													
Quarter 2, 2006									*														
Quarter 3, 2006									*	*		*							*				
Quarter 4, 2006									*	*							*						
Quarter 1, 2007									*			*											
Quarter 2, 2007									*	*													
Quarter 3, 2007									*														
Quarter 4, 2007									*														
Quarter 1, 2008									*														
Quarter 3, 2008												*											
Quarter 4, 2008									*	*													
Quarter 1, 2009									*			*							*				
Quarter 3, 2009												*											
Quarter 4, 2009									*			*											
Quarter 1, 2010												*											
Quarter 2, 2010										*		*											
Quarter 3, 2010										*													
Quarter 4, 2010									*	*													
Quarter 1, 2011										*													
Quarter 2, 2011									*														
Quarter 4, 2011																			*				
Quarter 1, 2012											*												
Quarter 3, 2012												*							*				
Quarter 4, 2012												*											
Quarter 1, 2013										*		*							*				
Quarter 2, 2013												*											
Quarter 3, 2013												*							*				
Quarter 4, 2013												*							*				
Quarter 1, 2014												*											
Quarter 2, 2014									*		*	*							*				
Quarter 3, 2014												*							*				
Quarter 4, 2014									*	*		*											

Chart of MCL and Historical UTL Exceedances for the C-746-S and T Landfills

Groundwater Flow System	UCRS					URGA											LRGA						
Gradient	S	D	D	D	U	S	S	S	S	S	D	D	D	D	U	U	S	D	D	D	D	U	U
Monitoring Well	386	389	390	393	396	221	222	223	224	384	369	372	387	391	220	394	385	370	373	388	392	395	397
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	✱								✱	✱		✱	✱				✱		✱				
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										✱		✱	✱				✱	✱	✱	✱			

Chart of MCL and Historical UTL Exceedances for the C-746-S and T Landfills

Groundwater Flow System	UCRS					URGA											LRGA						
Gradient	S	D	D	D	U	S	S	S	S	S	D	D	D	D	U	U	S	D	D	D	D	U	U
Monitoring Well	386	389	390	393	396	221	222	223	224	384	369	372	387	391	220	394	385	370	373	388	392	395	397
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			*							*			*				*		*	*			
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			*							*	*	*	*				*		*	*			
THORIUM-230																							
Quarter 1, 2012	*								*					*									
Quarter 4, 2014	*		*																				

Chart of MCL and Historical UTL Exceedances for the C-746-S and T Landfills

Groundwater Flow System	UCRS					URGA											LRGA						
Gradient	S	D	D	D	U	S	S	S	S	S	D	D	D	D	U	U	S	D	D	D	D	U	U
Monitoring Well	386	389	390	393	396	221	222	223	224	384	369	372	387	391	220	394	385	370	373	388	392	395	397
THORIUM-234																							
Quarter 2, 2003						*			*					*									
Quarter 4, 2007									*														
TOLUENE																							
Quarter 2, 2014										*	*		*										
TOTAL ORGANIC CARBON																							
Quarter 4, 2002																					*		
Quarter 1, 2003				*						*	*							*	*		*		
Quarter 2, 2003										*	*		*								*		
Quarter 3, 2003							*	*	*	*	*	*											
Quarter 4, 2003							*		*	*													
Quarter 1, 2004										*													
Quarter 2, 2004										*	*												
Quarter 3, 2004										*													
Quarter 4, 2004										*													
Quarter 1, 2005										*													
Quarter 2, 2005										*											*		
Quarter 3, 2005										*		*									*		
Quarter 4, 2005										*											*		
Quarter 1, 2006										*													
Quarter 2, 2006										*		*											
Quarter 4, 2006																	*						
Quarter 1, 2007	*									*													
Quarter 3, 2007	*					*	*	*	*	*			*	*			*						
Quarter 2, 2011											*												
Quarter 3, 2012	*																						
TOTAL ORGANIC HALIDES																							
Quarter 4, 2002																		*	*		*		
Quarter 1, 2003				*														*			*		
Quarter 3, 2003				*																	*		
Quarter 2, 2004																					*		
Quarter 3, 2004	*																						
Quarter 1, 2005	*																						
Quarter 2, 2005	*																						
Quarter 3, 2005	*																						
Quarter 4, 2005	*																						
Quarter 1, 2006	*																						
Quarter 2, 2006	*																						
Quarter 3, 2006	*																						
Quarter 4, 2006																	*						
Quarter 1, 2007	*																						
Quarter 2, 2007	*																						
Quarter 3, 2007	*																						
Quarter 4, 2007	*																				*		
Quarter 1, 2008	*																						
Quarter 4, 2008	*																						
Quarter 4, 2008	*																						
Quarter 1, 2009	*																						
Quarter 2, 2009	*																				*		
Quarter 3, 2009	*																						
Quarter 4, 2009	*																						
Quarter 1, 2010	*																						
Quarter 2, 2010	*																						
Quarter 3, 2010	*																						

Chart of MCL and Historical UTL Exceedances for the C-746-S and T Landfills

Groundwater Flow System	UCRS					URGA											LRGA						
Gradient	S	D	D	D	U	S	S	S	S	S	D	D	D	D	U	U	S	D	D	D	D	U	U
Monitoring Well	386	389	390	393	396	221	222	223	224	384	369	372	387	391	220	394	385	370	373	388	392	395	397
TOTAL ORGANIC HALIDES																							
Quarter 4, 2010	✱																						
Quarter 1, 2011	✱																						
Quarter 3, 2013																					✱		
TRICHLOROETHENE																							
Quarter 4, 2002														■		■					■	■	
Quarter 1, 2003														■		■					■	■	
Quarter 2, 2003														■		■					■	■	
Quarter 3, 2003														■		■					■	■	
Quarter 4, 2003														■		■					■	■	
Quarter 1, 2004														■		■					■	■	
Quarter 2, 2004												■		■		■		■	■		■	■	
Quarter 3, 2004												■		■		■		■	■		■	■	
Quarter 4, 2004												■		■		■		■	■		■	■	
Quarter 1, 2005												■		■		■		■	■		■	■	
Quarter 2, 2005												■		■		■		■	■		■	■	
Quarter 3, 2005												■		■		■		■	■		■	■	
Quarter 4, 2005												■		■		■		■	■		■	■	
Quarter 1, 2006												■		■		■		■	■		■	■	
Quarter 2, 2006												■		■		■		■	■		■	■	
Quarter 2, 2007												■		■		■			■		■	■	
Quarter 3, 2007												■		■		■			■		■	■	
Quarter 4, 2007												■		■		■			■		■	■	
Quarter 1, 2008												■		■		■			■		■		
Quarter 2, 2008												■		■		■			■		■		
Quarter 3, 2008												■		■		■			■		■		
Quarter 4, 2008												■		■		■			■		■		
Quarter 1, 2009												■		■		■			■		■		
Quarter 2, 2009												■		■		■			■		■		
Quarter 3, 2009												■		■		■			■		■		
Quarter 4, 2009											■	■		■		■			■		■		
Quarter 1, 2010												■		■		■			■		■		
Quarter 2, 2010												■		■		■			■		■		
Quarter 3, 2010												■		■		■			■		■	■	
Quarter 4, 2010												■		■		■			■		■	■	
Quarter 1, 2011												■		■		■			■		■	■	
Quarter 2, 2011												■		■		■			■		■		
Quarter 3, 2011												■		■		■			■		■		
Quarter 4, 2011												■		■		■			■		■	■	
Quarter 1, 2012												■		■		■			■		■	■	
Quarter 2, 2012												■		■					■		■		
Quarter 3, 2012												■		■					■		■		
Quarter 4, 2012											■	■		■		■			■		■		
Quarter 1, 2013												■		■		■			■		■		
Quarter 2, 2013												■		■					■		■		
Quarter 3, 2013												■		■					■		■		
Quarter 4, 2013												■		■		■			■		■		
Quarter 1, 2014												■		■		■			■		■		
Quarter 2, 2014												■		■							■		
Quarter 3, 2014												■		■					■		■		
Quarter 4, 2014												■		■		■			■		■		

Chart of MCL and Historical UTL Exceedances for the C-746-S and T Landfills

Groundwater Flow System	UCRS					URGA											LRGA						
Gradient	S	D	D	D	U	S	S	S	S	S	D	D	D	D	U	U	S	D	D	D	D	U	U
Monitoring Well	386	389	390	393	396	221	222	223	224	384	369	372	387	391	220	394	385	370	373	388	392	395	397
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

UCRS Upper Continental Recharge System

URGA Upper Regional Gravel Aquifer

LRGA Lower Regional Gravel Aquifer

S Sidegradient; D Downgradient; U Upgradient

APPENDIX H

METHANE MONITORING DATA

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C-746-S & T LANDFILL METHANE MONITORING REPORT

Date:	1/16/2014	Time:	11:30	Monitor:	Tammy Smith

Weather Conditions:
Sunny at 58 degrees with calm winds out of the NW

Monitoring Equipment:
MSA Sirius A-3 12980

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	0
Cell 1 Gas Vent (17)	10 20 30 40 50 60 70 80 90 100 110 120 13.6 140 150 163 170	13- .6, 16-3
Cell 2 Gas Vent (3)	1.6 20 30	1- .6
Cell 3 Gas Vent (7)	10 20 30 40 50 60 70	0
Landfill Office	Checked at floor level	0
Suspect or Problem Areas	No areas noted	TS 1-16-15

Remarks:

ALL VENTS CHECKED 1" FROM THE MOUTH OF THE VENT OPENING

Performed by:

Tammy Smith — **Signature**

1/16/15 — **Date**

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