RECEIVED
By Terri.Drake at 3:30 pm, May 21, 2026

Department of Energy

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

May 21, 2026

Ms. Cammie Paul
Division of Waste Management
Kentucky Department for Environmental Protection
625 Hospital Drive
Madisonville, Kentucky 42431

PPPO-02-10037122-26

Ms. April Webb
Hazardous Waste Branch Manager
Division of Waste Management
Kentucky Department for Environmental Protection
300 Sower Boulevard, 2nd Floor
Frankfort, Kentucky 40601

Dear Ms. Paul and Ms. Webb:

C-404 HAZARDOUS WASTE LANDFILL MAY 2026 SEMIANNUAL GROUNDWATER REPORT (OCTOBER 2025–MARCH 2026), PADUCAH GASEOUS DIFFUSION PLANT, PADUCAH, KENTUCKY, FRNP-RPT-0411/V1, HAZARDOUS WASTE MANAGEMENT FACILITY PERMIT NO. KY8-890-008-982, AGENCY INTEREST ID NO. 3059

Enclosed is the subject report for the first reporting period, fiscal year 2026. This report is required in accordance with Part II, Specific Condition II.J.6.d, of Hazardous Waste Management Facility Permit No. KY8-890-008-982 (Permit).

Results of the statistical analyses indicate that arsenic (As), technetium-99 (Tc-99), and trichloroethene (TCE) were observed in compliance well MW84A at statistically significant concentrations above concentrations observed in the background wells. Tc-99 was also observed at statistically significant concentrations in MW84A and MW90A.

TCE and As concentrations in westernmost compliance well MW84A are trending similarly. The 2007 *C-404 Landfill Source Demonstration, Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, PRS-ENM-0031/R2, determined that the TCE plume (and As, by comparison of trends) is derived from an upgradient source. Trends in the westernmost compliance well monitor the plume of the upgradient source zone. This demonstration for As and TCE in MW84A fulfills Section II.J.8 of the Hazardous Waste Management Facility Permit, which allows for demonstrating that the exceedances are consistent with the findings of the 2007 alternate source determination (ASD) and allows for the demonstration to be submitted within the semiannual report.

The observed statistically significant exceedances of Tc-99 in MW84A and MW90A do not show similar trends that would permit application of the 2007 ASD; therefore, the concentrations of Tc-99 in MW84A and MW90A are confirmed exceedances. Special compliance samples of all C-404 monitoring wells for radionuclide constituents will continue per Part E, Section 6(4) of the Permit.

If you have any questions or require additional information, please contact Scott McIntyre at (270) 556-6025.

Sincerely,

APRIL LADD Digitally signed by APRIL LADD
Date: 2026.05.21 13:16:23 -05'00'

April Ladd
Acting Deputy Manager
Portsmouth/Paducah Project Office

Enclosures:
1. Certification Page
2. *C-404 Hazardous Waste Landfill May 2026 Semiannual Groundwater Report (October 2025–March 2026), Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, FRNP-RPT-0411/V1

cc w/enclosures:
abigail.parish@pppo.gov, PPPO
april.ladd@pppo.gov, PPPO
april.webb@ky.gov, KDEP
begley.brian@epa.gov, EPA
bruce.ford@pad.pppo.gov, FRNP
bryan.smith@pad.pppo.gov, FRNP
cammie.paul@ky.gov, KDEP
erik.olds@orem.doe.gov, PPPO
frnpcorrespondence@pad.pppo.gov
jaime.morrow@pad.pppo.gov, FRNP
katrina.hall@pad.pppo.gov, FRNP
ken.davis@pad.pppo.gov, FRNP
leo.williamson@ky.gov, KDEP
myrna.redfield@pad.pppo.gov, FRNP
pad.rmc@pad.pppo.gov
ryan.callihan@pppo.gov, PPPO
scott.mcintyre@pppo.gov, PPPO
stephaniec.brock@ky.gov, KYRHB

FRNP-RPT-0382/V2

C-404 Hazardous Waste Landfill November 2025 Semiannual Groundwater Report (April–September 2025), Paducah Gaseous Diffusion Plant, Paducah, Kentucky

FOUR RIVERS NUCLEAR PARTNERSHIP, LLC

CLEARED FOR PUBLIC RELEASE

FRNP-RPT-0382/V2

C-404 Hazardous Waste Landfill November 2025 Semiannual Groundwater Report (April–September 2025), Paducah Gaseous Diffusion Plant, Paducah, Kentucky

Date Issued—November 2025

U.S. DEPARTMENT OF ENERGY
Office of Environmental Management

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

CLEARED FOR PUBLIC RELEASE

THIS PAGE INTENTIONALLY LEFT BLANK

CONTENTS

TABLES iv

FIGURE iv

ACRONYMS v

EXECUTIVE SUMMARY vii

1. INTRODUCTION 1
   1.1 BACKGROUND 1
   1.2 MONITORING PERIOD ACTIVITIES 2
      1.2.1 Groundwater Monitoring 2
      1.2.2 Landfill Leachate 5

2. STATISTICAL SYNOPSIS 6

3. DATA VALIDATION AND QUALITY ASSURANCE/QUALITY CONTROL SUMMARY 7

4. PROFESSIONAL GEOLOGIST AUTHORIZATION 8

5. REFERENCES 9

APPENDIX A: C-404 HAZARDOUS WASTE LANDFILL GROUNDWATER ANALYTICAL RESULTS A-1

APPENDIX B: C-404 HAZARDOUS WASTE LANDFILL STATISTICAL ANALYSES B-1

APPENDIX C: 2025 ANNUAL REPORT OF THE C-404 LANDFILL HYDRAULIC FLOW RATE AND DIRECTION C-1

APPENDIX D: C-404 LEACHATE SUMP SAMPLING ANALYSIS RESULTS D-1

TABLES

1. Monitoring Well Locations 3
2. Assembled Kentucky Groundwater Numbers 5

FIGURE

1. Monitoring Wells 4

ACRONYMS

AKGWA	Assembled Kentucky Groundwater
ASD	alternate source demonstration
MW	monitoring well
RCRA	Resource Conservation and Recovery Act
RGA	Regional Gravel Aquifer
UCRS	upper continental recharge system
URGA	Upper Regional Gravel Aquifer

THIS PAGE INTENTIONALLY LEFT BLANK

EXECUTIVE SUMMARY

This report, *C-404 Hazardous Waste Landfill November 2025 Semiannual Groundwater Report (April–September 2025), Paducah Gaseous Diffusion Plant, Paducah, Kentucky,* FRNP-RPT-0382/V2, is being submitted by the U.S. Department of Energy in accordance with requirements in Kentucky Division of Waste Management Hazardous Waste Management Facility Permit, KY8-890-008-982 (Permit). The period covered by this report is April 2025 through September 2025; and the report includes analytical data from the resampling for radionuclides in May 2025 and the July 2025 semiannual sampling for all parameters of monitoring wells (MWs) located in the vicinity of the closed C-404 Hazardous Waste Landfill (C-404 Landfill).

The groundwater monitoring analytical data were subjected to statistical analyses. The statistical analyses were conducted in accordance with the Hazardous Waste Management Facility Permit. With the exception of arsenic (As) and trichloroethene (TCE) in compliance well MW84A, and technetium-99 (Tc-99) observed in compliance wells MW84A, MW87A, and MW90A, the statistical tests on all other parameters showed no statistically significant differences above concentrations observed in background wells.

TCE and As concentrations in westernmost compliance wells MW84A are trending similarly. The 2007 *C-404 Landfill Source Demonstration, Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, PRS-ENM-0031/R2, determined that the TCE plume (and As, by comparison of trends) is derived from an upgradient source (PRS 2007a). Trends in the westernmost compliance and background wells monitor the depletion of the upgradient source zone; however, the observed statistically significant exceedances of Tc-99 in MW84A, MW87A, and MW90A do not show similar trends that would permit application of the 2007 alternate source demonstration.

The leachate in the C-404 Landfill leachate collection system is monitored at least monthly and, at a minimum, is removed and sampled when the level exceeds 36 inches in depth. During this reporting period of April 2025 through September 2025, the depth of the leachate did not exceed 36 inches. The maximum leachate depth in this reporting period was 28 inches, which was recorded on April 1, 2025. Due to a prediction of significant precipitation, 900 gal of leachate were removed from the sump on April 7, 2025, and subsequently sampled.

THIS PAGE INTENTIONALLY LEFT BLANK

1. INTRODUCTION

This report contains the statistical evaluation of data from groundwater sampling and analysis for the closed C-404 Hazardous Waste Landfill (C-404 Landfill) at the U.S. Department of Energy Paducah Site (Paducah Site), Paducah, Kentucky. This semiannual report is required by the Kentucky Division of Waste Management Hazardous Waste Management Facility Permit, KY8-890-008-982 (Permit), Specific Condition II.J.6.d—Recordkeeping, Reporting and Response (KDWM 2025). The period covered by this report is April 2025 through September 2025.

Groundwater analytical results for the semiannual and special compliance groundwater sampling are provided in Appendix A, A1 and A2, respectively. The statistical analyses and qualification statement are provided in Appendix B. The annual groundwater flow rate and direction determination are provided in Appendix C. Leachate sump sampling results are provided in Appendix D.

1.1 BACKGROUND

The closed C-404 Landfill is located in the west-central portion of the Paducah Site secured area. The 1.2-acre facility operated as a surface impoundment from approximately 1952 until early 1957. During this time, influents to the impoundment originated from the C-400 Cleaning Building. In 1957, the impoundment was converted to a solid waste disposal facility for uranium-contaminated solid waste. When the impoundment was converted into a disposal facility, a sump was installed at the former impoundment weir to collect the leachate from the facility. Leachate is pumped from the sump, as needed, into a mobile tank. The leachate then is transferred to a permitted hazardous waste storage facility on-site prior to characterization; once characterized, the leachate is transferred off-site for treatment.

In 1986, the disposal of waste at the C-404 Landfill was halted, and a portion of the disposed-of waste was found to be Resource Conservation and Recovery Act (RCRA)-hazardous. The landfill was covered with a RCRA multilayered cap and certified closed in 1987. It currently is regulated under RCRA as a land disposal unit and compliance is monitored under the current Hazardous Waste Management Facility Permit (KDWM 2025).

Previous groundwater monitoring documented that concentrations of trichloroethene (TCE) found in compliance wells were statistically different from those found in background wells. The *C-404 Landfill Source Demonstration, Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, PRS-ENM-0031/R2, demonstrated that the source of TCE in compliance wells is not from the C-404 Landfill, but rather, the source is located upgradient/crossgradient of the C-404 Landfill (PRS 2007a).

Regional Gravel Aquifer (RGA) compliance monitoring well (MW) MW90 was abandoned and replaced by MW90A in 2001. RGA compliance well MW420 was installed in 2007 to better assess groundwater quality at the C-404 Landfill (PRS 2007b).

Previous groundwater monitoring of RGA compliance well MW87 documented that concentrations in the compliance well were statistically different from background wells for lead and uranium (FRNP 2018). The *C-404 Hazardous Waste Landfill Alternate Source Demonstration—Source of Lead and Uranium in MW87 at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, concluded that the statistical differences were a result of infiltration of upper continental recharge system (UCRS) groundwater into the RGA well due to compromised integrity of the well (FRNP 2019). The integrity of the well had deteriorated to a point that it no longer was suitable for its intended purpose. RGA compliance wells MW84, MW87, and background well MW93 were abandoned and replaced with MW84A, MW87A, and MW93A in 2019. RGA wells MW84 and MW93 were abandoned and replaced because they were the same age (installed in 1988) as

MW87. MW84A and MW87A were placed 10 ft north of MW84 and MW87, respectively, and screened at the same depth intervals. MW93A was placed 6 ft west of MW93 and screened at the same depth interval.

In the first semiannual reporting period for 2021 (October 2020–March 2021), statistical analysis of technetium-99 (Tc-99) detections in downgradient compliance well MW84A indicated a statistically significant exceedance over background concentrations. Notification of the statistically significant difference for Tc-99 in MW84A was submitted, pursuant to Part II, Specific Condition II.K.6.a, to the Kentucky Department of Waste Management.

An alternate source demonstration investigation for Tc-99 in MW84A was performed in June 2021. The *C-404 Hazardous Waste Landfill Alternate Source Demonstration—Source of Technetium-99 in MW84A at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, FRNP-RPT-0206, consisted of redevelopment and over pumping of MW84A, and review of the lines of evidence relating redevelopment of MW84A and the associated Tc-99 levels (FRNP 2021). The lines of evidence concluded that the observed trend of increasing Tc-99 in MW84A is not a result of contamination introduced into the well boring during drilling and well installation, but it is indicative of dissolved Tc-99 contamination in the RGA. Quarterly compliance monitoring for Tc-99 and other radionuclides was conducted at the C-404 Landfill through November 2022.

In accordance with Permit Specific Condition II.K.6.j, development and submittal of an engineering feasibility plan for a corrective action program is not required when a statistically significant exceedance has been confirmed for radionuclides (i.e., Tc-99).

A statistically significant exceedance of Tc-99 was again observed and reported in the May 2025 semiannual groundwater report, in MW84A. Resampling of all C-404 monitoring wells for radionuclides was performed in May 2025 in response to the Tc-99 exceedance in MW84A. Analytical results from the resampling are presented in Appendix A2.

TCE and As concentrations in westernmost compliance wells MW84A are trending similarly. The 2007 *C-404 Landfill Source Demonstration, Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, PRS-ENM-0031/R2, determined that the TCE plume (and As, by comparison of trends) is derived from an upgradient source (PRS 2007a). Trends in the westernmost compliance and background wells monitor the depletion of the upgradient source zone. This demonstration for As and TCE in MW84A fulfills Section II.K.8 of the Hazardous Waste Management Facility Permit, which allows for demonstrating that the exceedance is consistent with the findings of the 2007 alternate source demonstration (ASD) and allows for the demonstration to be submitted within the semiannual report.

The observed statistically significant exceedances of Tc-99 in MW84A, MW87A, and MW90A do not show similar trends that would permit application of the 2007 ASD.

1.2 MONITORING PERIOD ACTIVITIES

1.2.1 Groundwater Monitoring

There are nine MWs sampled under the Permit for the C-404 Landfill: four UCRS wells and five Upper Regional Gravel Aquifer (URGA) wells. A map of the MW locations is provided in Figure 1.

Table 1 presents the well number for URGA wells located upgradient and downgradient of the C-404 Landfill. Table 1 also presents the well numbers for the UCRS wells located in proximity to the URGA wells. This table refers to the UCRS wells as being adjacent to an upgradient or downgradient URGA

well location and are identified relative to URGA groundwater flow direction. The conceptual model for the C-404 Landfill indicates that groundwater in the UCRS wells flows primarily vertically downward until it reaches the URGA; therefore, UCRS wells are not considered "upgradient" or "downgradient" of other UCRS wells in the area.

Table 1. Monitoring Well Locations

UCRS	
Located south of C-404 Landfill, adjacent to upgradient URGA background well MW93A	MW94
Located north of C-404 Landfill, adjacent to downgradient URGA compliance wells	MW85, MW88, MW91A*
URGA	
Upgradient background wells	MW93A*, MW420
Downgradient compliance wells	MW84A*, MW87A*, MW90A*

*MW90 was abandoned in 2001 and replaced with MW90A. MW91 was abandoned in 2017 and replaced with MW91A. MW84, MW87, and MW93 were abandoned in 2019 and replaced with MW84A, MW87A, and MW93A.

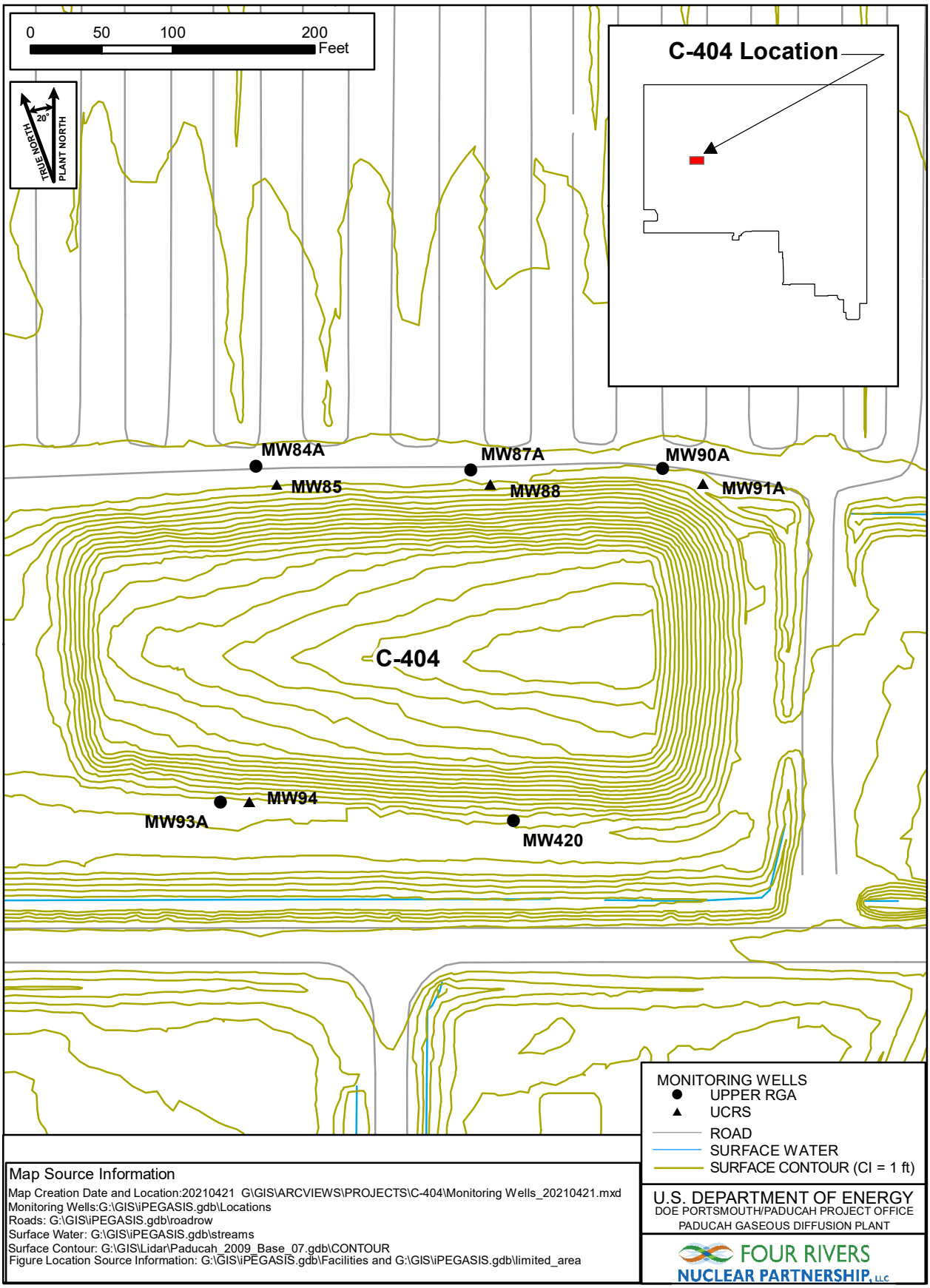


Figure 1. Monitoring Wells

Table 2 presents the Assembled Kentucky Groundwater (AKGWA) numbers for each MW.

Table 2. AKGWA Numbers

Paducah Site Well Number	AKGWA Number
MW84A	8007-4849
MW85	8000-5234
MW87A	8007-4850
MW88	8000-5237
MW90A	8004-0357
MW91A	8007-2917
MW93A	8007-4851
MW94	8000-5103
MW420	8005-3263

All nine MWs were sampled in May 2025 and July 2025 during this reporting period. Samples collected in May 2025 were analyzed for radionuclides only, while the samples collected in July 2025 were analyzed for all parameters that are required by Part VIII.E of the Permit. Groundwater sampling was conducted using procedure CP4-ES-2101, *Groundwater Sampling*. The appropriate sample containers and preservatives were used. The laboratory that performed the analyses used U.S. Environmental Protection Agency-approved methods, as applicable. Appendix A, A1 and A2, of this report contain the analytical results. Appendix B of this report contains the statistical analyses.

1.2.2 Landfill Leachate

In accordance with Appendix I2, C-404 Landfill Closure Plan (Section 1.2 of the Permit), the quantity of liquid in the leachate collection system is monitored (at least monthly) and, at a minimum, will be "removed when the quantity exceeds 36 inches in depth." Once the leachate depth reaches 36 inches, the leachate is pumped into a mobile tank. The leachate then is transferred to a permitted hazardous waste storage facility on-site prior to characterization; once characterized, the leachate is transferred off-site for treatment. During this reporting period of April 2025 through September 2025, the depth of the leachate did not exceed 36 inches. The maximum leachate depth in this reporting period was 28 inches, which was recorded on April 1, 2025. Due to a prediction of significant precipitation, 900 gal of leachate were removed from the sump on April 7, 2025, and subsequently sampled. Leachate sample results are presented in Appendix D.

The annual leachate sump integrity test, as required by Section 1.2 of Appendix I2 of the Permit, was conducted between August 4, 2025, and September 4, 2025. Data was collected at a known depth at one-hour increments to determine the change in leachate levels over time. Results of the integrity test were within normal limits.

2. STATISTICAL SYNOPSIS

The statistical analyses conducted on the data collected from the C-404 Landfill were performed in accordance with procedures in the Permit, Part VIII.E, reissued in November 2025. Appendix B of this report contains the statistical analyses performed for this reporting period. Statistical analyses utilized data from the URGA background wells, MW93A and MW420, and URGA compliance wells, MW84A, MW87A, and MW90A. For this reporting period, the data set includes data from January 2015 through July 2025.

Appendix B provides a summary of the statistical analyses performed. The statistical analysis approach in the newly reissued Hazardous Waste Management Facility Permit is prediction limits, without a retesting strategy, as found in Section 18 of the U.S. Environmental Protection Agency (EPA) guidance document, *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance*, now referred to as Unified Guidance (EPA 2009). With the exception of As and TCE in compliance well MW84A, and Tc-99 observed in compliance wells MW84A, MW87A, and MW90A, the statistical tests on all other parameters showed no statistically significant differences above concentrations observed in background wells.

3. DATA VALIDATION AND QUALITY ASSURANCE/QUALITY CONTROL SUMMARY

The data and the data validation codes for the July 2025 data set are provided in Appendix A, A1. All data for these data sets were considered useable as reported. Data validation was performed on the analytical data by an independent, third-party validator.

Field quality control samples are collected during each semiannual sampling event. Equipment rinseate blanks, field blanks, field duplicates, and trip blanks are obtained to ensure quality control and are reported in the analytical results in Appendix A, A1 and A2. Laboratory quality control samples, such as matrix spikes, matrix spike duplicates, and method blanks, are performed by the laboratory and reported in the laboratory report. Both field and laboratory quality control sample results are reviewed as part of the data assessment review and data validation process.

4. PROFESSIONAL GEOLOGIST AUTHORIZATION

DOCUMENT IDENTIFICATION: *C-404 Hazardous Waste Landfill*
November 2025 Semiannual Groundwater Report
(April–September 2025),
Paducah Gaseous Diffusion Plant, Paducah, Kentucky
(FRNP-RPT-0382/V2)

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



PG113927
KD 11-18-2025

Kenneth R. Davis
Kenneth R. Davis

PG113927

November 18, 2025
Date

5. REFERENCES

FRNP (Four Rivers Nuclear Partnership, LLC) 2018. *C-404 Hazardous Waste Landfill November 2018 Semiannual Groundwater Report (April 2018—September 2018), Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, FRNP-RPT-0026/V2, U.S. Department of Energy, Paducah, KY, November.

FRNP 2019. *C-404 Hazardous Waste Landfill Alternate Source Demonstration—Source of Lead and Uranium in MW87 at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, FRNP-RPT-0078, Four Rivers Nuclear Partnership, LLC, Paducah, KY, February.

FRNP 2021. *C-404 Hazardous Waste Landfill Alternate Source Demonstration—Source of Technetium-99 in MW84A at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, FRNP-RPT-0206, Four Rivers Nuclear Partnership, LLC, Paducah, KY, August.

KDWM (Kentucky Division of Waste Management) 2025. Hazardous Waste Management Facility Permit for the U.S. Department of Energy, Paducah Gaseous Diffusion Plant, KY8-890-008-982, effective December 12.

PRS (Paducah Remediation Services, LLC) 2007a. *C-404 Landfill Source Demonstration Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, PRS-ENM-0031/R2, Paducah Remediation Services, LLC, Kevil, KY, August.

PRS 2007b. *Well Plan for Addition of Wells for C-404 Monitoring Well Network, Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, PRS/PROJ/0028, Paducah Remediation Services, LLC, Kevil, KY, July.

EPA (U.S. Environmental Protection Agency) 2009, *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance*, EPA 530-R-09-007, U.S. Environmental Protection Agency, Washington DC, March.

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX A

C-404 HAZARDOUS WASTE LANDFILL GROUNDWATER ANALYTICAL RESULTS

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX A1

SEMIANNUAL GROUNDWATER SAMPLING

THIS PAGE INTENTIONALLY LEFT BLANK

Paducah OREIS
GROUNDWATER MONITORING REPORT

Facility: C-404 Landfill **County:** McCracken **Permit #:** KY8-890-008-982

Sampling Point: MW84A REG Downgradient URGA **Period:** Semiannual Report

AKGWA Well Tag #: 8007-4849

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Arsenic		0.0343	mg/L	0.005	7/9/2025			SW846-6020B	=
Arsenic, Dissolved		0.0227	mg/L	0.005	7/9/2025			SW846-6020B	J
Barometric Pressure Reading		30.05	Inches/Hg		7/9/2025			FS	X
Cadmium	U	0.001	mg/L	0.001	7/9/2025			SW846-6020B	=
Cadmium, Dissolved	U	0.001	mg/L	0.001	7/9/2025			SW846-6020B	UJ
Chromium	U	0.01	mg/L	0.01	7/9/2025			SW846-6020B	=
Chromium, Dissolved	U	0.01	mg/L	0.01	7/9/2025			SW846-6020B	UJ
Conductivity		509	µmhos/cm		7/9/2025			FS	X
Depth to Water		46.61	ft		7/9/2025			FS	X
Dissolved Oxygen		3.87	mg/L		7/9/2025			FS	X
Eh (approx)		564	mV		7/9/2025			FS	X
Lead	J	0.000593	mg/L	0.002	7/9/2025			SW846-6020B	=
Lead, Dissolved	U	0.002	mg/L	0.002	7/9/2025			SW846-6020B	UJ
Mercury	U	0.0002	mg/L	0.0002	7/9/2025			SW846-7470A	=
Mercury, Dissolved	U	0.0002	mg/L	0.0002	7/9/2025			SW846-7470A	UJ
pH		5.7	Std Unit		7/9/2025			FS	X
Selenium	U	0.005	mg/L	0.005	7/9/2025			SW846-6020B	=
Selenium, Dissolved	J	0.00151	mg/L	0.005	7/9/2025			SW846-6020B	J
Sulfate		7.71	mg/L	0.4	7/9/2025			SW846-9056A	=
Technetium-99		78.4	pCi/L	20.2	7/9/2025	15.2	17.6	HASL 300, Tc-02-RC M	=
Temperature		66	deg F		7/9/2025			FS	X
Trichloroethene		3760	ug/L	100	7/9/2025			SW846-8260D	=
Turbidity		1.13	NTU		7/9/2025			FS	X
Uranium	J	0.000069	mg/L	0.0002	7/9/2025			SW846-6020B	=
Uranium-234	U	0.0706	pCi/L	1.37	7/9/2025	0.651	0.652	HASL 300, U-02-RC M	=
Uranium-235	U	0	pCi/L	0.685	7/9/2025	0.46	0.461	HASL 300, U-02-RC M	=
Uranium-238	U	0.192	pCi/L	1.22	7/9/2025	0.657	0.657	HASL 300, U-02-RC M	=

Paducah OREIS
GROUNDWATER MONITORING REPORT

Facility: C-404 Landfill **County:** McCracken **Permit #:** KY8-890-008-982

Sampling Point: MW84A FR Downgradient URGA **Period:** Semiannual Report

AKGWA Well Tag #: 8007-4849

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Arsenic		0.0338	mg/L	0.005	7/9/2025			SW846-6020B	=
Arsenic, Dissolved		0.0212	mg/L	0.005	7/9/2025			SW846-6020B	J
Cadmium	U	0.001	mg/L	0.001	7/9/2025			SW846-6020B	=
Cadmium, Dissolved	U	0.001	mg/L	0.001	7/9/2025			SW846-6020B	UJ
Chromium	U	0.01	mg/L	0.01	7/9/2025			SW846-6020B	=
Chromium, Dissolved	U	0.01	mg/L	0.01	7/9/2025			SW846-6020B	UJ
Lead	J	0.000552	mg/L	0.002	7/9/2025			SW846-6020B	=
Lead, Dissolved	U	0.002	mg/L	0.002	7/9/2025			SW846-6020B	UJ
Mercury	U	0.0002	mg/L	0.0002	7/9/2025			SW846-7470A	=
Mercury, Dissolved	U	0.0002	mg/L	0.0002	7/9/2025			SW846-7470A	UJ
Selenium	U	0.005	mg/L	0.005	7/9/2025			SW846-6020B	=
Selenium, Dissolved	U	0.005	mg/L	0.005	7/9/2025			SW846-6020B	UJ
Sulfate		7.53	mg/L	0.4	7/9/2025			SW846-9056A	=
Technetium-99		93.7	pCi/L	20.2	7/9/2025	15.8	19.1	HASL 300, Tc-02-RC M	=
Trichloroethene		4020	ug/L	100	7/9/2025			SW846-8260D	=
Uranium	U	0.0002	mg/L	0.0002	7/9/2025			SW846-6020B	=
Uranium-234	U	-0.539	pCi/L	1.55	7/9/2025	0.482	0.482	HASL 300, U-02-RC M	UJ
Uranium-235	U	-0.121	pCi/L	1.38	7/9/2025	0.547	0.547	HASL 300, U-02-RC M	=
Uranium-238	U	-0.449	pCi/L	1.36	7/9/2025	0.379	0.379	HASL 300, U-02-RC M	UJ

Paducah OREIS
GROUNDWATER MONITORING REPORT

Facility: C-404 Landfill **County:** McCracken **Permit #:** KY8-890-008-982

Sampling Point: MW85 REG Downgradient UCRS **Period:** Semiannual Report

AKGWA Well Tag #: 8000-5234

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Arsenic	J	0.00348	mg/L	0.005	7/14/2025			SW846-6020B	=
Arsenic, Dissolved	J	0.00283	mg/L	0.005	7/14/2025			SW846-6020B	J
Barometric Pressure Reading		30.06	Inches/Hg		7/14/2025			FS	X
Cadmium	U	0.001	mg/L	0.001	7/14/2025			SW846-6020B	=
Cadmium, Dissolved	U	0.001	mg/L	0.001	7/14/2025			SW846-6020B	UJ
Chromium	J	0.00377	mg/L	0.01	7/14/2025			SW846-6020B	=
Chromium, Dissolved	J	0.00485	mg/L	0.01	7/14/2025			SW846-6020B	J
Conductivity		330	µmhos/cm		7/14/2025			FS	X
Depth to Water		7.4	ft		7/14/2025			FS	X
Dissolved Oxygen		2.79	mg/L		7/14/2025			FS	X
Eh (approx)		454.6	mV		7/14/2025			FS	X
Lead	U	0.002	mg/L	0.002	7/14/2025			SW846-6020B	=
Lead, Dissolved	U	0.002	mg/L	0.002	7/14/2025			SW846-6020B	UJ
Mercury	J	0.000085	mg/L	0.0002	7/14/2025			SW846-7470A	=
Mercury, Dissolved	U	0.0002	mg/L	0.0002	7/14/2025			SW846-7470A	UJ
pH		6.01	Std Unit		7/14/2025			FS	X
Selenium	U	0.005	mg/L	0.005	7/14/2025			SW846-6020B	=
Selenium, Dissolved	U	0.005	mg/L	0.005	7/14/2025			SW846-6020B	UJ
Sulfate		12	mg/L	4	7/14/2025			SW846-9056A	=
Technetium-99		43.7	pCi/L	12.4	7/14/2025	9.78	11	HASL 300, Tc-02-RC M	=
Temperature		68.4	deg F		7/14/2025			FS	X
Trichloroethene		1.32	ug/L	1	7/14/2025			SW846-8260D	=
Turbidity		4.19	NTU		7/14/2025			FS	X
Uranium		0.000726	mg/L	0.0002	7/14/2025			SW846-6020B	=
Uranium-234	U	-0.0241	pCi/L	0.585	7/14/2025	0.296	0.296	HASL 300, U-02-RC M	=
Uranium-235	U	0.088	pCi/L	0.337	7/14/2025	0.211	0.211	HASL 300, U-02-RC M	=
Uranium-238	U	0.249	pCi/L	0.394	7/14/2025	0.27	0.271	HASL 300, U-02-RC M	=

Paducah OREIS
GROUNDWATER MONITORING REPORT

Facility: C-404 Landfill **County:** McCracken **Permit #:** KY8-890-008-982

Sampling Point: MW87A REG Downgradient URGA **Period:** Semiannual Report

AKGWA Well Tag #: 8007-4850

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Arsenic		0.00684	mg/L	0.005	7/9/2025			SW846-6020B	=
Arsenic, Dissolved	J	0.00428	mg/L	0.005	7/9/2025			SW846-6020B	J
Barometric Pressure Reading		30.07	Inches/Hg		7/9/2025			FS	X
Cadmium	J	0.000805	mg/L	0.001	7/9/2025			SW846-6020B	=
Cadmium, Dissolved	U	0.001	mg/L	0.001	7/9/2025			SW846-6020B	UJ
Chromium	U	0.01	mg/L	0.01	7/9/2025			SW846-6020B	=
Chromium, Dissolved	U	0.01	mg/L	0.01	7/9/2025			SW846-6020B	UJ
Conductivity		366	µmhos/cm		7/9/2025			FS	X
Depth to Water		46.69	ft		7/9/2025			FS	X
Dissolved Oxygen		3.14	mg/L		7/9/2025			FS	X
Eh (approx)		515	mV		7/9/2025			FS	X
Lead	U	0.002	mg/L	0.002	7/9/2025			SW846-6020B	=
Lead, Dissolved	U	0.002	mg/L	0.002	7/9/2025			SW846-6020B	UJ
Mercury	U	0.0002	mg/L	0.0002	7/9/2025			SW846-7470A	=
Mercury, Dissolved	U	0.0002	mg/L	0.0002	7/9/2025			SW846-7470A	UJ
pH		5.8	Std Unit		7/9/2025			FS	X
Selenium	U	0.005	mg/L	0.005	7/9/2025			SW846-6020B	=
Selenium, Dissolved	U	0.005	mg/L	0.005	7/9/2025			SW846-6020B	UJ
Sulfate		6.69	mg/L	0.4	7/9/2025			SW846-9056A	=
Technetium-99		47.7	pCi/L	21.8	7/9/2025	14.8	15.7	HASL 300, Tc-02-RC M	=
Temperature		64.9	deg F		7/9/2025			FS	X
Trichloroethene		97.1	ug/L	1	7/9/2025			SW846-8260D	=
Turbidity		0	NTU		7/9/2025			FS	X
Uranium	U	0.0002	mg/L	0.0002	7/9/2025			SW846-6020B	=
Uranium-234	U	-0.287	pCi/L	1.27	7/9/2025	0.491	0.491	HASL 300, U-02-RC M	=
Uranium-235	U	-0.0993	pCi/L	0.842	7/9/2025	0.3	0.3	HASL 300, U-02-RC M	=
Uranium-238	U	0.178	pCi/L	0.968	7/9/2025	0.519	0.519	HASL 300, U-02-RC M	=

Paducah OREIS
GROUNDWATER MONITORING REPORT

Facility: C-404 Landfill **County:** McCracken **Permit #:** KY8-890-008-982

Sampling Point: MW88 REG Downgradient UCRS **Period:** Semiannual Report

AKGWA Well Tag #: 8000-5237

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Arsenic		0.0069	mg/L	0.005	7/14/2025			SW846-6020B	=
Arsenic, Dissolved		0.00608	mg/L	0.005	7/14/2025			SW846-6020B	J
Barometric Pressure Reading		30.07	Inches/Hg		7/14/2025			FS	X
Cadmium	U	0.001	mg/L	0.001	7/14/2025			SW846-6020B	=
Cadmium, Dissolved	U	0.001	mg/L	0.001	7/14/2025			SW846-6020B	UJ
Chromium	U	0.01	mg/L	0.01	7/14/2025			SW846-6020B	=
Chromium, Dissolved	U	0.01	mg/L	0.01	7/14/2025			SW846-6020B	UJ
Conductivity		593	µmhos/cm		7/14/2025			FS	X
Depth to Water		6.9	ft		7/14/2025			FS	X
Dissolved Oxygen		1.43	mg/L		7/14/2025			FS	X
Eh (approx)		427.6	mV		7/14/2025			FS	X
Lead	U	0.002	mg/L	0.002	7/14/2025			SW846-6020B	=
Lead, Dissolved	U	0.002	mg/L	0.002	7/14/2025			SW846-6020B	UJ
Mercury	J	0.000086	mg/L	0.0002	7/14/2025			SW846-7470A	=
Mercury, Dissolved	U	0.0002	mg/L	0.0002	7/14/2025			SW846-7470A	UJ
pH		5.76	Std Unit		7/14/2025			FS	X
Selenium	U	0.005	mg/L	0.005	7/14/2025			SW846-6020B	=
Selenium, Dissolved	U	0.005	mg/L	0.005	7/14/2025			SW846-6020B	UJ
Sulfate		99.4	mg/L	4	7/14/2025			SW846-9056A	=
Technetium-99	U	12.8	pCi/L	14.1	7/14/2025	8.78	8.9	HASL 300, Tc-02-RC M	=
Temperature		71.4	deg F		7/14/2025			FS	X
Trichloroethene		1.93	ug/L	1	7/14/2025			SW846-8260D	=
Turbidity		4.82	NTU		7/14/2025			FS	X
Uranium	J	0.000119	mg/L	0.0002	7/14/2025			SW846-6020B	=
Uranium-234	U	-0.134	pCi/L	0.585	7/14/2025	0.275	0.275	HASL 300, U-02-RC M	=
Uranium-235	U	0.0797	pCi/L	0.441	7/14/2025	0.247	0.247	HASL 300, U-02-RC M	=
Uranium-238	U	0.0322	pCi/L	0.521	7/14/2025	0.275	0.275	HASL 300, U-02-RC M	=

Paducah OREIS
GROUNDWATER MONITORING REPORT

Facility: C-404 Landfill **County:** McCracken **Permit #:** KY8-890-008-982

Sampling Point: MW90A REG Downgradient URGA **Period:** Semiannual Report

AKGWA Well Tag #: 8004-0357

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Arsenic	J	0.0041	mg/L	0.005	7/9/2025			SW846-6020B	=
Arsenic, Dissolved	J	0.00287	mg/L	0.005	7/9/2025			SW846-6020B	J
Barometric Pressure Reading		30.07	Inches/Hg		7/9/2025			FS	X
Cadmium	U	0.001	mg/L	0.001	7/9/2025			SW846-6020B	=
Cadmium, Dissolved	U	0.001	mg/L	0.001	7/9/2025			SW846-6020B	UJ
Chromium	U	0.01	mg/L	0.01	7/9/2025			SW846-6020B	=
Chromium, Dissolved	U	0.01	mg/L	0.01	7/9/2025			SW846-6020B	UJ
Conductivity		250	µmhos/cm		7/9/2025			FS	X
Depth to Water		45.58	ft		7/9/2025			FS	X
Dissolved Oxygen		5.08	mg/L		7/9/2025			FS	X
Eh (approx)		515	mV		7/9/2025			FS	X
Lead	U	0.002	mg/L	0.002	7/9/2025			SW846-6020B	=
Lead, Dissolved	U	0.002	mg/L	0.002	7/9/2025			SW846-6020B	UJ
Mercury	U	0.0002	mg/L	0.0002	7/9/2025			SW846-7470A	=
Mercury, Dissolved	U	0.0002	mg/L	0.0002	7/9/2025			SW846-7470A	UJ
pH		5.76	Std Unit		7/9/2025			FS	X
Selenium	U	0.005	mg/L	0.005	7/9/2025			SW846-6020B	=
Selenium, Dissolved	U	0.005	mg/L	0.005	7/9/2025			SW846-6020B	UJ
Sulfate		4.19	mg/L	0.4	7/9/2025			SW846-9056A	=
Technetium-99		72.7	pCi/L	20.9	7/9/2025	15.3	17.4	HASL 300, Tc-02-RC M	=
Temperature		65.3	deg F		7/9/2025			FS	X
Trichloroethene		13.4	ug/L	1	7/9/2025			SW846-8260D	=
Turbidity		0	NTU		7/9/2025			FS	X
Uranium	U	0.0002	mg/L	0.0002	7/9/2025			SW846-6020B	=
Uranium-234	U	-0.543	pCi/L	1.39	7/9/2025	0.42	0.421	HASL 300, U-02-RC M	UJ
Uranium-235	U	0.0426	pCi/L	0.929	7/9/2025	0.445	0.446	HASL 300, U-02-RC M	=
Uranium-238	U	-0.0492	pCi/L	1.07	7/9/2025	0.46	0.46	HASL 300, U-02-RC M	=

Paducah OREIS
GROUNDWATER MONITORING REPORT

Facility: C-404 Landfill **County:** McCracken **Permit #:** KY8-890-008-982

Sampling Point: MW91A REG Downgradient UCRS **Period:** Semiannual Report

AKGWA Well Tag #: 8007-2917

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Arsenic	J	0.00429	mg/L	0.005	7/14/2025			SW846-6020B	=
Arsenic, Dissolved	J	0.00247	mg/L	0.005	7/14/2025			SW846-6020B	J
Barometric Pressure Reading		30.07	Inches/Hg		7/14/2025			FS	X
Cadmium	U	0.001	mg/L	0.001	7/14/2025			SW846-6020B	=
Cadmium, Dissolved	U	0.001	mg/L	0.001	7/14/2025			SW846-6020B	UJ
Chromium	U	0.01	mg/L	0.01	7/14/2025			SW846-6020B	=
Chromium, Dissolved	U	0.01	mg/L	0.01	7/14/2025			SW846-6020B	UJ
Conductivity		761	µmhos/cm		7/14/2025			FS	X
Depth to Water		11.72	ft		7/14/2025			FS	X
Dissolved Oxygen		0.47	mg/L		7/14/2025			FS	X
Eh (approx)		272.5	mV		7/14/2025			FS	X
Lead	U	0.002	mg/L	0.002	7/14/2025			SW846-6020B	=
Lead, Dissolved	U	0.002	mg/L	0.002	7/14/2025			SW846-6020B	UJ
Mercury	U	0.0002	mg/L	0.0002	7/14/2025			SW846-7470A	=
Mercury, Dissolved	U	0.0002	mg/L	0.0002	7/14/2025			SW846-7470A	UJ
pH		5.9	Std Unit		7/14/2025			FS	X
Selenium	U	0.005	mg/L	0.005	7/14/2025			SW846-6020B	=
Selenium, Dissolved	U	0.005	mg/L	0.005	7/14/2025			SW846-6020B	UJ
Sulfate		76.4	mg/L	4	7/14/2025			SW846-9056A	=
Technetium-99		167	pCi/L	12.4	7/14/2025	15.4	24.4	HASL 300, Tc-02-RC M	=
Temperature		66.9	deg F		7/14/2025			FS	X
Trichloroethene		18.2	ug/L	1	7/14/2025			SW846-8260D	=
Turbidity		8.63	NTU		7/14/2025			FS	X
Uranium	U	0.0002	mg/L	0.0002	7/14/2025			SW846-6020B	=
Uranium-234	U	0.179	pCi/L	0.626	7/14/2025	0.361	0.363	HASL 300, U-02-RC M	=
Uranium-235	U	0.0475	pCi/L	0.364	7/14/2025	0.208	0.208	HASL 300, U-02-RC M	=
Uranium-238	U	0.192	pCi/L	0.294	7/14/2025	0.226	0.227	HASL 300, U-02-RC M	=

Paducah OREIS
GROUNDWATER MONITORING REPORT

Facility: C-404 Landfill **County:** McCracken **Permit #:** KY8-890-008-982

Sampling Point: MW93A REG Upgradient URGA **Period:** Semiannual Report

AKGWA Well Tag #: 8007-4851

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Arsenic		0.0156	mg/L	0.005	7/9/2025			SW846-6020B	=
Arsenic, Dissolved		0.00966	mg/L	0.005	7/9/2025			SW846-6020B	J
Barometric Pressure Reading		30.07	Inches/Hg		7/9/2025			FS	X
Cadmium	U	0.001	mg/L	0.001	7/9/2025			SW846-6020B	=
Cadmium, Dissolved	U	0.001	mg/L	0.001	7/9/2025			SW846-6020B	UJ
Chromium	U	0.01	mg/L	0.01	7/9/2025			SW846-6020B	=
Chromium, Dissolved	U	0.01	mg/L	0.01	7/9/2025			SW846-6020B	UJ
Conductivity		395	µmhos/cm		7/9/2025			FS	X
Depth to Water		49.71	ft		7/9/2025			FS	X
Dissolved Oxygen		2.55	mg/L		7/9/2025			FS	X
Eh (approx)		519	mV		7/9/2025			FS	X
Lead	U	0.002	mg/L	0.002	7/9/2025			SW846-6020B	=
Lead, Dissolved	U	0.002	mg/L	0.002	7/9/2025			SW846-6020B	UJ
Mercury	U	0.0002	mg/L	0.0002	7/9/2025			SW846-7470A	=
Mercury, Dissolved	U	0.0002	mg/L	0.0002	7/9/2025			SW846-7470A	UJ
pH		5.88	Std Unit		7/9/2025			FS	X
Selenium	U	0.005	mg/L	0.005	7/9/2025			SW846-6020B	=
Selenium, Dissolved	U	0.005	mg/L	0.005	7/9/2025			SW846-6020B	UJ
Sulfate		7.49	mg/L	0.4	7/9/2025			SW846-9056A	=
Technetium-99	U	10.2	pCi/L	20	7/9/2025	11.9	12	HASL 300, Tc-02-RC M	=
Temperature		64	deg F		7/9/2025			FS	X
Trichloroethene		458	ug/L	10	7/9/2025			SW846-8260D	=
Turbidity		1.33	NTU		7/9/2025			FS	X
Uranium	U	0.0002	mg/L	0.0002	7/9/2025			SW846-6020B	=
Uranium-234	U	-0.185	pCi/L	1.28	7/9/2025	0.499	0.499	HASL 300, U-02-RC M	=
Uranium-235	U	-0.12	pCi/L	1.02	7/9/2025	0.362	0.362	HASL 300, U-02-RC M	=
Uranium-238	U	0.07	pCi/L	0.745	7/9/2025	0.389	0.389	HASL 300, U-02-RC M	=

Paducah OREIS
GROUNDWATER MONITORING REPORT

Facility: C-404 Landfill **County:** McCracken **Permit #:** KY8-890-008-982

Sampling Point: MW94 REG Upgradient UCRS **Period:** Semiannual Report

AKGWA Well Tag #: 8000-5103

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Arsenic	U	0.005	mg/L	0.005	7/14/2025			SW846-6020B	=
Arsenic, Dissolved	U	0.005	mg/L	0.005	7/14/2025			SW846-6020B	UJ
Barometric Pressure Reading		30.07	Inches/Hg		7/14/2025			FS	X
Cadmium	U	0.001	mg/L	0.001	7/14/2025			SW846-6020B	=
Cadmium, Dissolved	U	0.001	mg/L	0.001	7/14/2025			SW846-6020B	UJ
Chromium	J	0.00468	mg/L	0.01	7/14/2025			SW846-6020B	=
Chromium, Dissolved	U	0.01	mg/L	0.01	7/14/2025			SW846-6020B	UJ
Conductivity		775	µmhos/cm		7/14/2025			FS	X
Depth to Water		12.41	ft		7/14/2025			FS	X
Dissolved Oxygen		0.87	mg/L		7/14/2025			FS	X
Eh (approx)		359.1	mV		7/14/2025			FS	X
Lead	J	0.000513	mg/L	0.002	7/14/2025			SW846-6020B	=
Lead, Dissolved	U	0.002	mg/L	0.002	7/14/2025			SW846-6020B	UJ
Mercury	U	0.0002	mg/L	0.0002	7/14/2025			SW846-7470A	=
Mercury, Dissolved	U	0.0002	mg/L	0.0002	7/14/2025			SW846-7470A	UJ
pH		6.29	Std Unit		7/14/2025			FS	X
Selenium	U	0.005	mg/L	0.005	7/14/2025			SW846-6020B	=
Selenium, Dissolved	U	0.005	mg/L	0.005	7/14/2025			SW846-6020B	UJ
Sulfate		64.8	mg/L	4	7/14/2025			SW846-9056A	=
Technetium-99		1210	pCi/L	13.7	7/14/2025	38.8	143	HASL 300, Tc-02-RC M	=
Temperature		69.9	deg F		7/14/2025			FS	X
Trichloroethene		1.52	ug/L	1	7/14/2025			SW846-8260D	=
Turbidity		11.56	NTU		7/14/2025			FS	X
Uranium		0.00115	mg/L	0.0002	7/14/2025			SW846-6020B	=
Uranium-234	U	0.855	pCi/L	1.42	7/14/2025	0.975	0.985	HASL 300, U-02-RC M	=
Uranium-235	U	-0.144	pCi/L	1.22	7/14/2025	0.434	0.435	HASL 300, U-02-RC M	=
Uranium-238	U	0.899	pCi/L	1.2	7/14/2025	0.919	0.927	HASL 300, U-02-RC M	=

Paducah OREIS
GROUNDWATER MONITORING REPORT

Facility: C-404 Landfill **County:** McCracken **Permit #:** KY8-890-008-982

Sampling Point: MW420 REG Upgradient URGA **Period:** Semiannual Report

AKGWA Well Tag #: 8005-3263

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Arsenic		0.0162	mg/L	0.005	7/9/2025			SW846-6020B	=
Arsenic, Dissolved		0.00957	mg/L	0.005	7/9/2025			SW846-6020B	J
Barometric Pressure Reading		30.07	Inches/Hg		7/9/2025			FS	X
Cadmium	U	0.001	mg/L	0.001	7/9/2025			SW846-6020B	=
Cadmium, Dissolved	U	0.001	mg/L	0.001	7/9/2025			SW846-6020B	UJ
Chromium	U	0.01	mg/L	0.01	7/9/2025			SW846-6020B	=
Chromium, Dissolved	U	0.01	mg/L	0.01	7/9/2025			SW846-6020B	UJ
Conductivity		384	µmhos/cm		7/9/2025			FS	X
Depth to Water		48.67	ft		7/9/2025			FS	X
Dissolved Oxygen		1.57	mg/L		7/9/2025			FS	X
Eh (approx)		541	mV		7/9/2025			FS	X
Lead	U	0.002	mg/L	0.002	7/9/2025			SW846-6020B	=
Lead, Dissolved	U	0.002	mg/L	0.002	7/9/2025			SW846-6020B	UJ
Mercury	U	0.0002	mg/L	0.0002	7/9/2025			SW846-7470A	=
Mercury, Dissolved	U	0.0002	mg/L	0.0002	7/9/2025			SW846-7470A	UJ
pH		5.74	Std Unit		7/9/2025			FS	X
Selenium	U	0.005	mg/L	0.005	7/9/2025			SW846-6020B	=
Selenium, Dissolved	U	0.005	mg/L	0.005	7/9/2025			SW846-6020B	UJ
Sulfate		6.19	mg/L	0.4	7/9/2025			SW846-9056A	=
Technetium-99	U	5.06	pCi/L	20.1	7/9/2025	11.7	11.7	HASL 300, Tc-02-RC M	=
Temperature		65.7	deg F		7/9/2025			FS	X
Trichloroethene		2070	ug/L	50	7/9/2025			SW846-8260D	=
Turbidity		0	NTU		7/9/2025			FS	X
Uranium	U	0.0002	mg/L	0.0002	7/9/2025			SW846-6020B	=
Uranium-234	U	-0.202	pCi/L	1.4	7/9/2025	0.514	0.515	HASL 300, U-02-RC M	=
Uranium-235	U	-0.0508	pCi/L	1.01	7/9/2025	0.438	0.439	HASL 300, U-02-RC M	=
Uranium-238	U	-0.0411	pCi/L	0.821	7/9/2025	0.354	0.355	HASL 300, U-02-RC M	=

Paducah OREIS
GROUNDWATER MONITORING REPORT

Facility: C-404 Landfill **County:** McCracken **Permit #:** KY8-890-008-982

Type of Sample: FB **Period:** Semiannual Report QC Samples

AKGWA Well Tag #: 0000-0000

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Arsenic	U	0.005	mg/L	0.005	7/9/2025			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	7/9/2025			SW846-6020B	=
Chromium	U	0.01	mg/L	0.01	7/9/2025			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	7/9/2025			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	7/9/2025			SW846-7470A	=
Selenium	U	0.005	mg/L	0.005	7/9/2025			SW846-6020B	=
Technetium-99	U	6.1	pCi/L	19.9	7/9/2025	11.6	11.6	HASL 300, Tc-02-RC M	=
Trichloroethene	U	1	ug/L	1	7/9/2025			SW846-8260D	=
Uranium	U	0.0002	mg/L	0.0002	7/9/2025			SW846-6020B	=
Uranium-234	U	-0.349	pCi/L	1.76	7/9/2025	0.615	0.615	HASL 300, U-02-RC M	=
Uranium-235	U	-0.117	pCi/L	1.35	7/9/2025	0.518	0.52	HASL 300, U-02-RC M	=
Uranium-238	U	0.103	pCi/L	1.09	7/9/2025	0.571	0.572	HASL 300, U-02-RC M	=

Paducah OREIS
GROUNDWATER MONITORING REPORT

Facility: C-404 Landfill **County:** McCracken **Permit #:** KY8-890-008-982

Type of Sample: RI **Period:** Semiannual Report QC Samples

AKGWA Well Tag #: 0000-0000

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Arsenic	U	0.005	mg/L	0.005	7/9/2025			SW846-6020B	=
Cadmium	U	0.001	mg/L	0.001	7/9/2025			SW846-6020B	=
Chromium	U	0.01	mg/L	0.01	7/9/2025			SW846-6020B	=
Lead	U	0.002	mg/L	0.002	7/9/2025			SW846-6020B	=
Mercury	U	0.0002	mg/L	0.0002	7/9/2025			SW846-7470A	=
Selenium	U	0.005	mg/L	0.005	7/9/2025			SW846-6020B	=
Technetium-99	U	2.67	pCi/L	19.7	7/9/2025	11.3	11.3	HASL 300, Tc-02-RC M	=
Trichloroethene	U	1	ug/L	1	7/9/2025			SW846-8260D	=
Uranium	U	0.0002	mg/L	0.0002	7/9/2025			SW846-6020B	=
Uranium-234	U	0.0147	pCi/L	1.37	7/9/2025	0.623	0.623	HASL 300, U-02-RC M	=
Uranium-235	U	0.433	pCi/L	0.65	7/9/2025	0.742	0.745	HASL 300, U-02-RC M	=
Uranium-238	U	0.659	pCi/L	0.84	7/9/2025	0.777	0.782	HASL 300, U-02-RC M	=

Paducah OREIS
GROUNDWATER MONITORING REPORT

Facility: C-404 Landfill **County:** McCracken **Permit #:** KY8-890-008-982

Type of Sample: TB **Period:** Semiannual Report QC Samples

AKGWA Well Tag #: 0000-0000

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Trichloroethene	U	1	ug/L	1	7/9/2025			SW846-8260D	=
	U	1	ug/L	1	7/14/2025			SW846-8260D	=

QUALIFIER Codes

U Not detected. (RADS: Value reported is < MDA.)
J Estimated value.

SAMPLING POINT Codes

UCRS Upper Continental Recharge System
URGA Upper Regional Gravel Aquifer

SAMPLE TYPE Codes

FB Field Blank
FR Field Duplicate as defined in sampling procedure.
REG Regular
RI Equipment Rinsate Blank
TB Trip Blank

VALIDATION Codes

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

APPENDIX A2

SPECIAL COMPLIANCE GROUNDWATER SAMPLING

THIS PAGE INTENTIONALLY LEFT BLANK

Paducah OREIS
GROUNDWATER MONITORING REPORT

Facility: C-404 Landfill **County:** McCracken **Permit #:** KY8-890-008-982

Sampling Point: MW84A REG Downgradient URGA **Period:** Semiannual Report

AKGWA Well Tag #: 8007-4849

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Barometric Pressure Reading		30.06	Inches/Hg		5/29/2025			FS	X
Conductivity		460	µmhos/cm		5/29/2025			FS	X
Depth to Water		46.93	ft		5/29/2025			FS	X
Dissolved Oxygen		3.25	mg/L		5/29/2025			FS	X
Eh (approx)		421.3	mV		5/29/2025			FS	X
pH		5.66	Std Unit		5/29/2025			FS	X
Technetium-99		79.2	pCi/L	23.7	5/29/2025	15.9	18.2	HASL 300, Tc-02-RC M	X
Temperature		63.3	deg F		5/29/2025			FS	X
Turbidity		4.83	NTU		5/29/2025			FS	X
Uranium-234	U	-0.317	pCi/L	1.88	5/29/2025	0.677	0.678	HASL 300, U-02-RC M	X
Uranium-235	U	-0.131	pCi/L	1.51	5/29/2025	0.578	0.579	HASL 300, U-02-RC M	X
Uranium-238	U	-0.264	pCi/L	1.54	5/29/2025	0.501	0.502	HASL 300, U-02-RC M	X

Paducah OREIS
GROUNDWATER MONITORING REPORT

Facility: C-404 Landfill **County:** McCracken **Permit #:** KY8-890-008-982

Sampling Point: MW84A FR Downgradient URGA **Period:** Semiannual Report

AKGWA Well Tag #: 8007-4849

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Technetium-99		74.8	pCi/L	23	5/29/2025	15.4	17.6	HASL 300, Tc-02-RC M	X
Uranium-234	U	-0.121	pCi/L	1.33	5/29/2025	0.546	0.547	HASL 300, U-02-RC M	X
Uranium-235	U	0.185	pCi/L	0.556	5/29/2025	0.521	0.521	HASL 300, U-02-RC M	X
Uranium-238	U	0.342	pCi/L	0.915	5/29/2025	0.604	0.606	HASL 300, U-02-RC M	X

Paducah OREIS
GROUNDWATER MONITORING REPORT

Facility: C-404 Landfill **County:** McCracken **Permit #:** KY8-890-008-982

Sampling Point: MW85 REG Downgradient UCRS **Period:** Semiannual Report

AKGWA Well Tag #: 8000-5234

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Barometric Pressure Reading		30.06	Inches/Hg		5/29/2025			FS	X
Conductivity		365	µmhos/cm		5/29/2025			FS	X
Depth to Water		7.99	ft		5/29/2025			FS	X
Dissolved Oxygen		3.02	mg/L		5/29/2025			FS	X
Eh (approx)		431.7	mV		5/29/2025			FS	X
pH		5.99	Std Unit		5/29/2025			FS	X
Technetium-99		49.5	pCi/L	23.5	5/29/2025	15	16	HASL 300, Tc-02-RC M	X
Temperature		63.3	deg F		5/29/2025			FS	X
Turbidity		8.09	NTU		5/29/2025			FS	X
Uranium-234	U	0.463	pCi/L	1.46	5/29/2025	0.914	0.919	HASL 300, U-02-RC M	X
Uranium-235	U	-0.0682	pCi/L	1.36	5/29/2025	0.588	0.59	HASL 300, U-02-RC M	X
Uranium-238	U	0.239	pCi/L	1.51	5/29/2025	0.817	0.818	HASL 300, U-02-RC M	X

Paducah OREIS
GROUNDWATER MONITORING REPORT

Facility: C-404 Landfill **County:** McCracken **Permit #:** KY8-890-008-982

Sampling Point: MW87A REG Downgradient URGA **Period:** Semiannual Report

AKGWA Well Tag #: 8007-4850

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Barometric Pressure Reading		30.07	Inches/Hg		5/29/2025			FS	X
Conductivity		399	µmhos/cm		5/29/2025			FS	X
Depth to Water		47.07	ft		5/29/2025			FS	X
Dissolved Oxygen		3.12	mg/L		5/29/2025			FS	X
Eh (approx)		419.5	mV		5/29/2025			FS	X
pH		5.68	Std Unit		5/29/2025			FS	X
Technetium-99	U	20.3	pCi/L	23.1	5/29/2025	14	14.2	HASL 300, Tc-02-RC M	X
Temperature		63.7	deg F		5/29/2025			FS	X
Turbidity		3.72	NTU		5/29/2025			FS	X
Uranium-234	U	-0.156	pCi/L	1.63	5/29/2025	0.637	0.638	HASL 300, U-02-RC M	X
Uranium-235	U	0.266	pCi/L	0.797	5/29/2025	0.747	0.748	HASL 300, U-02-RC M	X
Uranium-238	U	0.378	pCi/L	1.03	5/29/2025	0.743	0.745	HASL 300, U-02-RC M	X

Paducah OREIS
GROUNDWATER MONITORING REPORT

Facility: C-404 Landfill **County:** McCracken **Permit #:** KY8-890-008-982

Sampling Point: MW88 REG Downgradient UCRS **Period:** Semiannual Report

AKGWA Well Tag #: 8000-5237

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Barometric Pressure Reading		30.07	Inches/Hg		5/29/2025			FS	X
Conductivity		601	µmhos/cm		5/29/2025			FS	X
Depth to Water		7.43	ft		5/29/2025			FS	X
Dissolved Oxygen		1.19	mg/L		5/29/2025			FS	X
Eh (approx)		412.7	mV		5/29/2025			FS	X
pH		5.7	Std Unit		5/29/2025			FS	X
Technetium-99	U	12.1	pCi/L	24.5	5/29/2025	14.6	14.6	HASL 300, Tc-02-RC M	X
Temperature		65.8	deg F		5/29/2025			FS	X
Turbidity		31.24	NTU		5/29/2025			FS	X
Uranium-234	U	-0.304	pCi/L	1.86	5/29/2025	0.6	0.602	HASL 300, U-02-RC M	X
Uranium-235	U	-0.0838	pCi/L	1.67	5/29/2025	0.723	0.725	HASL 300, U-02-RC M	X
Uranium-238	U	0.0113	pCi/L	1.86	5/29/2025	0.837	0.839	HASL 300, U-02-RC M	X

Paducah OREIS
GROUNDWATER MONITORING REPORT

Facility: C-404 Landfill **County:** McCracken **Permit #:** KY8-890-008-982

Sampling Point: MW90A REG Downgradient URGA **Period:** Semiannual Report

AKGWA Well Tag #: 8004-0357

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Barometric Pressure Reading		30.05	Inches/Hg		5/29/2025			FS	X
Conductivity		242	µmhos/cm		5/29/2025			FS	X
Depth to Water		45.92	ft		5/29/2025			FS	X
Dissolved Oxygen		4.99	mg/L		5/29/2025			FS	X
Eh (approx)		419.2	mV		5/29/2025			FS	X
pH		5.69	Std Unit		5/29/2025			FS	X
Technetium-99		77.8	pCi/L	24.3	5/29/2025	16.2	18.5	HASL 300, Tc-02-RC M	X
Temperature		66.5	deg F		5/29/2025			FS	X
Turbidity		8.32	NTU		5/29/2025			FS	X
Uranium-234	U	-1.11	pCi/L	2.43	5/29/2025	0.783	0.784	HASL 300, U-02-RC M	X
Uranium-235	U	0	pCi/L	0.677	5/29/2025	0.455	0.456	HASL 300, U-02-RC M	X
Uranium-238	U	0.329	pCi/L	1.28	5/29/2025	0.746	0.748	HASL 300, U-02-RC M	X

Paducah OREIS
GROUNDWATER MONITORING REPORT

Facility: C-404 Landfill **County:** McCracken **Permit #:** KY8-890-008-982

Sampling Point: MW91A REG Downgradient UCRS **Period:** Semiannual Report

AKGWA Well Tag #: 8007-2917

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Barometric Pressure Reading		30.05	Inches/Hg		5/29/2025			FS	X
Conductivity		754	µmhos/cm		5/29/2025			FS	X
Depth to Water		11.95	ft		5/29/2025			FS	X
Dissolved Oxygen		1.47	mg/L		5/29/2025			FS	X
Eh (approx)		394.8	mV		5/29/2025			FS	X
pH		6.1	Std Unit		5/29/2025			FS	X
Technetium-99		201	pCi/L	23.6	5/29/2025	18.8	29.4	HASL 300, Tc-02-RC M	X
Temperature		66.4	deg F		5/29/2025			FS	X
Turbidity		10.53	NTU		5/29/2025			FS	X
Uranium-234	U	0.00451	pCi/L	1.62	5/29/2025	0.729	0.73	HASL 300, U-02-RC M	X
Uranium-235	U	0.191	pCi/L	1.21	5/29/2025	0.717	0.718	HASL 300, U-02-RC M	X
Uranium-238	U	0.26	pCi/L	1.24	5/29/2025	0.716	0.718	HASL 300, U-02-RC M	X

Paducah OREIS
GROUNDWATER MONITORING REPORT

Facility: C-404 Landfill **County:** McCracken **Permit #:** KY8-890-008-982

Sampling Point: MW93A REG Upgradient URGA **Period:** Semiannual Report

AKGWA Well Tag #: 8007-4851

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Barometric Pressure Reading		30.04	Inches/Hg		5/29/2025			FS	X
Conductivity		370	µmhos/cm		5/29/2025			FS	X
Depth to Water		50	ft		5/29/2025			FS	X
Dissolved Oxygen		2.37	mg/L		5/29/2025			FS	X
Eh (approx)		432.8	mV		5/29/2025			FS	X
pH		5.76	Std Unit		5/29/2025			FS	X
Technetium-99	U	16.9	pCi/L	23.2	5/29/2025	13.9	14.1	HASL 300, Tc-02-RC M	X
Temperature		66.4	deg F		5/29/2025			FS	X
Turbidity		6.11	NTU		5/29/2025			FS	X
Uranium-234	U	-0.2	pCi/L	1.46	5/29/2025	0.54	0.54	HASL 300, U-02-RC M	X
Uranium-235	U	0	pCi/L	0.667	5/29/2025	0.448	0.449	HASL 300, U-02-RC M	X
Uranium-238	U	0	pCi/L	0.539	5/29/2025	0.362	0.363	HASL 300, U-02-RC M	X

Paducah OREIS
GROUNDWATER MONITORING REPORT

Facility: C-404 Landfill **County:** McCracken **Permit #:** KY8-890-008-982

Sampling Point: MW94 REG Upgradient UCRS **Period:** Semiannual Report

AKGWA Well Tag #: 8000-5103

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Barometric Pressure Reading		30.03	Inches/Hg		5/29/2025			FS	X
Conductivity		765	µmhos/cm		5/29/2025			FS	X
Depth to Water		12.6	ft		5/29/2025			FS	X
Dissolved Oxygen		1.07	mg/L		5/29/2025			FS	X
Eh (approx)		405.9	mV		5/29/2025			FS	X
pH		6.29	Std Unit		5/29/2025			FS	X
Technetium-99		890	pCi/L	24.7	5/29/2025	31	105	HASL 300, Tc-02-RC M	X
Temperature		65.9	deg F		5/29/2025			FS	X
Turbidity		12.09	NTU		5/29/2025			FS	X
Uranium-234	U	1.35	pCi/L	1.79	5/29/2025	1.29	1.31	HASL 300, U-02-RC M	X
Uranium-235	U	0.24	pCi/L	0.719	5/29/2025	0.674	0.675	HASL 300, U-02-RC M	X
Uranium-238	U	1.17	pCi/L	1.28	5/29/2025	1.09	1.11	HASL 300, U-02-RC M	X

Paducah OREIS
GROUNDWATER MONITORING REPORT

Facility: C-404 Landfill **County:** McCracken **Permit #:** KY8-890-008-982

Sampling Point: MW420 REG Upgradient URGA **Period:** Semiannual Report

AKGWA Well Tag #: 8005-3263

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Barometric Pressure Reading		30.04	Inches/Hg		5/29/2025			FS	X
Conductivity		402	µmhos/cm		5/29/2025			FS	X
Depth to Water		49.04	ft		5/29/2025			FS	X
Dissolved Oxygen		1.31	mg/L		5/29/2025			FS	X
Eh (approx)		450.8	mV		5/29/2025			FS	X
pH		5.73	Std Unit		5/29/2025			FS	X
Technetium-99	U	3.05	pCi/L	22.6	5/29/2025	13.2	13.2	HASL 300, Tc-02-RC M	X
Temperature		67.9	deg F		5/29/2025			FS	X
Turbidity		4.78	NTU		5/29/2025			FS	X
Uranium-234	U	-0.108	pCi/L	1.65	5/29/2025	0.692	0.693	HASL 300, U-02-RC M	X
Uranium-235	U	0.235	pCi/L	0.704	5/29/2025	0.66	0.661	HASL 300, U-02-RC M	X
Uranium-238	U	-0.129	pCi/L	1.47	5/29/2025	0.584	0.584	HASL 300, U-02-RC M	X

Paducah OREIS
GROUNDWATER MONITORING REPORT

Facility: C-404 Landfill **County:** McCracken **Permit #:** KY8-890-008-982

Type of Sample: FB **Period:** Semiannual Report QC Samples

AKGWA Well Tag #: 0000-0000

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Technetium-99	U	5.89	pCi/L	23.7	5/29/2025	13.9	13.9	HASL 300, Tc-02-RC M	X
Uranium-234	U	-0.424	pCi/L	2.87	5/29/2025	1.13	1.13	HASL 300, U-02-RC M	X
Uranium-235	U	-0.528	pCi/L	2.71	5/29/2025	0.851	0.854	HASL 300, U-02-RC M	X
Uranium-238	U	-0.142	pCi/L	1.64	5/29/2025	0.63	0.632	HASL 300, U-02-RC M	X

Paducah OREIS
GROUNDWATER MONITORING REPORT

Facility: C-404 Landfill **County:** McCracken **Permit #:** KY8-890-008-982

Type of Sample: RI **Period:** Semiannual Report QC Samples

AKGWA Well Tag #: 0000-0000

Parameter	Qualifier	Result	Units	Reporting Limit	Date Collected	Counting Error (+/-)	TPU	Method	Validation
Technetium-99	U	1.87	pCi/L	23.7	5/29/2025	13.8	13.8	HASL 300, Tc-02-RC M	X
Uranium-234	U	0.152	pCi/L	1.76	5/29/2025	0.874	0.875	HASL 300, U-02-RC M	X
Uranium-235	U	-0.147	pCi/L	1.7	5/29/2025	0.651	0.652	HASL 300, U-02-RC M	X
Uranium-238	U	0.0694	pCi/L	1.51	5/29/2025	0.726	0.727	HASL 300, U-02-RC M	X

QUALIFIER Codes

U Not detected. (RADS: Value reported is < MDA.)
J Estimated value.

SAMPLING POINT Codes

UCRS Upper Continental Recharge System
URGA Upper Regional Gravel Aquifer

SAMPLE TYPE Codes

FB Field Blank
FR Field Duplicate as defined in sampling procedure.
REG Regular
RI Equipment Rinsate Blank
TB Trip Blank

VALIDATION Codes

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

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX B

C-404 HAZARDOUS WASTE LANDFILL STATISTICAL ANALYSES

THIS PAGE INTENTIONALLY LEFT BLANK

GROUNDWATER STATISTICAL SUMMARY

INTRODUCTION

The statistical analyses conducted on the data collected from the C-404 Hazardous Waste Landfill (C-404 Landfill) were performed in accordance with procedures provided in Appendix E of the Hazardous Waste Management Facility Permit, reissued by the Kentucky Division of Waste Management in November 2025. Prediction limits (PLs) are the statistical analysis method for C-404 groundwater data, without a retesting strategy, as found in Section 18 of the Unified Guidance. The method utilizes the current data set and groundwater samples collected from the most recent C-404 groundwater sampling events.

For this semiannual report (April 2025–September 2025), the data set includes data from January 2015 through July 2025.

STATISTICAL ANALYSIS PROCESS

PLs are the statistical analysis method for C-404 groundwater data, without a retesting strategy, as found in Section 18 of the U.S. Environmental Protection Agency (EPA) guidance document, Unified Guidance. The method utilizes the current data set and groundwater samples collected over the previous 20 C-404 most recent groundwater sampling events.

Elements of the PL statistical analysis include determination of the percentage of censored data, testing for statistical outliers, construction of PLs based on background data, and comparison of the current downgradient (compliance) monitoring well data to the calculated PL. Based on the result of the PL comparison, the results were evaluated for applicability of the alternate source demonstration (ASD). The statistical analysis method is summarized below.

CENSORING PERCENTAGE AND STATISTICAL ANALYSIS

The percentage of nondetects (censored data) of the data set determines how censored data were treated in determining PLs.

- If < 15% of the background observations were nondetects, then these were replaced with one-half of the method reporting limit prior to running the analysis.

- If >15% but less than 50% of the background data were less than the detection limit, then the data's sample mean and sample standard deviation were adjusted according to the method of Cohen, Aitchison, or Kaplan-Meier.

- If > 50% of the background data were less than the detection limit, then a nonparametric PL was computed. Poisson-based PLs were available as an alternative method when > 90% of the background data were less than the detection limit.

DATA HANDLING CONVENTIONS

The following statements describe conventions on how data were considered and how qualifier codes applied to the data set.

- When a data point has been rejected following data validation or data assessment, this result is not used, and the next available data point is used.
- A result is considered nondetect if it has a "U" laboratory, validation, or assessment code.
- If more than one sample is collected for a constituent from a well on a given day and includes detects, the maximum of the detected sample results is used.
- If more than one sample is collected for a constituent from a well on a given day and all samples are nondetects, then the highest detection limit is used.
- If a well is sampled multiple times during the reporting period for a constituent, the most recent sample result is used.
- Nonparametric PLs were assigned a PL equal to the highest background value.
- In evaluating the data, the nondetect values are replaced by the detection limit.

TESTING FOR STATISTICAL OUTLIERS AND NORMALITY

The data were tested for statistical outliers using Dixon's and Rosner's outlier evaluation methods. Potential outliers were evaluated for potential sources of error or evidence that the data point was not representative. Nonrepresentative data points were not excluded from the statistical analysis based on professional judgment.

After testing for and exclusion of statistical outliers, the data set was evaluated for normality distribution using the Shapiro-Wilk or Shapiro-Francia testing methods. If less than 50% of the background data are nondetects and the normality of the data set was confirmed, or could be confirmed by transforming the data, parametric PLs were performed. If less than 50% of the background data are nondetects and normality of the raw or transformed data set could not be confirmed, nonparametric PLs were computed.

PREDICTION LIMIT DETERMINATION

Groundwater data collected from background MWs were used to construct a concentration limit PL, which was then compared to one or more observations from a compliance well. The acceptable range of concentrations included all values no greater than the PL. The appropriate prediction interval generally had the form [0, PL], with the upper limit PL as the comparison of importance (EPA 2009).

COMPARISON OF COMPLIANCE WELL RESULTS TO PL

If the PL indicated no statistically significant difference between concentrations in downgradient wells and concentrations in background wells, then there was no indication of statistically significant impacts to the groundwater from the C-404 Landfill.

ALTERNATIVE SOURCE DEMONSTRATION

If the PLs method identified a statistically significant difference between concentrations in downgradient wells and concentrations in background wells, then the data was evaluated further to determine if the concentrations in downgradient and vicinity wells were consistent with the findings of the 2007 ASD (*Revised C-404 Landfill Statistically Significant Increase Source Demonstration,* PRS-ENM-0031/R2, transmitted via DOE correspondence, PPPO-02-506-07, August 1, 2007).

DATA ANALYSIS

Data from the upgradient background wells in the Upper Regional Gravel Aquifer (URGA) were included for comparison with three downgradient URGA wells. Figure 1 of this C-404 Landfill Groundwater Report provides a map of the well locations associated with the C-404 Landfill. Upper continental recharge system (UCRS) wells in Figure 1 are provided for reference only. Data from wells that are in the UCRS are not included in the statistical analyses.

Table B.1 presents the C-404 Landfill upgradient or background wells and downgradient or compliance wells from the URGA. Data from the URGA compliance wells were compared with data from the URGA background wells.

Table B.1. Monitoring Well Locations

URGA	
Upgradient background wells	MW93A*, MW420
Downgradient compliance wells	MW84A*, MW87A*, MW90A*

*MW90 was abandoned in 2001 and replaced with MW90A. MW84, MW87, and MW93 were abandoned in 2019 and replaced with MW84A, MW87A, and MW93A, respectively.

For this reporting period, the background data set included groundwater data for the 20 most recent groundwater sampling events as compared to the July 2025 semiannual groundwater sampling. Because the date range of the data set spans sampling of the originally installed monitoring wells (MW84, MW87, MW90A, MW93, and MW420) and the more recent replacement wells (MW84A, MW87A, and MW93A), The well naming convention used in this report combines both the original and the replacement monitoring names (i.e., MW84-84A, MW87-87A, MW93-93A).

STATISTICAL OUTLIER SCREENING

Dixon’s outlier test was performed for each constituent on each well. Although statistical outliers were identified in the outlier screening, these identified outliers will not be excluded from the data set.

The Regional Gravel Aquifer groundwater flow system is in the vicinity of the C-404 Landfill and is subject to dynamic influences (e.g., upgradient and crossgradient source areas), potential impacts from the

C-404 Landfill that includes source area remediation, varying current and historical groundwater recovery efforts, hydraulic interaction with river stage, and monitoring well replacement. Confidence in identified statistical outliers was not sufficient to justify exclusion of that data.

NORMALITY TESTING

Normality testing was performed on 12 constituents. The data sets for arsenic, technetium-99, trichloroethene, uranium-234, uranium-235, and uranium-238 were determined to be normally distributed. The data sets for all other constituents were not normally distributed.

PREDICTION LIMIT TESTING

Results of the PL determination and comparison to the most recent data point are summarized in Table B.2. and presented in Attachment B.

Table B.2. Summary of Prediction Limit Statistical Analysis

Constituent Name	Well	PL	Observation 7/9/2025	Exceeds PL	% nondetects	nondetect Adjustment	Method
Arsenic (mg/L)	**MW84-84A**	**1.52E-02**	**0.0343**	**Yes**	**11.9**	**½ DL**	**parametric**
Arsenic (mg/L)	MW87-87A	1.52E-02	0.00684	No	11.9	½ DL	parametric
Arsenic (mg/L)	MW90A	1.52E-02	0.0041J	No	11.9	½ DL	parametric
Cadmium (mg/L)	MW84-84A	1.00E-03	0.001ND	No	95.24	N/A	nonparametric
Cadmium (mg/L)	MW87-87A	1.00E-03	0.000805J	No	95.24	N/A	nonparametric
Cadmium (mg/L)	MW90A	1.00E-03	0.001ND	No	95.24	N/A	nonparametric
Chromium (mg/L)	MW84-84A	4.28E-01	0.01ND	No	69.05	N/A	nonparametric
Chromium (mg/L)	MW87-87A	4.28E-01	0.01ND	No	69.05	N/A	nonparametric
Chromium (mg/L)	MW90A	4.28E-01	0.01ND	No	69.05	N/A	nonparametric
Lead (mg/L)	MW84-84A	2.13E-03	0.000593J	No	83.33	N/A	nonparametric
Lead (mg/L)	MW87-87A	2.13E-03	0.002ND	No	83.33	N/A	nonparametric
Lead (mg/L)	MW90A	2.13E-03	0.002ND	No	83.33	N/A	nonparametric
Mercury (mg/L)	MW84-84A	2.00E-04	0.0002ND	No	100	N/A	nonparametric
Mercury (mg/L)	MW87-87A	2.00E-04	0.0002ND	No	100	N/A	nonparametric
Mercury (mg/L)	MW90A	2.00E-04	0.0002ND	No	100	N/A	nonparametric
Selenium (mg/L)	MW84-84A	5.00E-03	0.005ND	No	97.62	N/A	nonparametric
Selenium (mg/L)	MW87-87A	5.00E-03	0.005ND	No	97.62	N/A	nonparametric
Selenium (mg/L)	MW90A	5.00E-03	0.005ND	No	97.62	N/A	nonparametric
Technetium-99 (pCi/L)	**MW84-84A**	**2.69E+01**	**93.7**	**Yes**	**92.86**	**N/A**	**nonparametric**
Technetium-99 (pCi/L)	**MW87-87A**	**2.69E+01**	**47.7**	**Yes**	**92.86**	**N/A**	**nonparametric**
Technetium-99 (pCi/L)	**MW90A**	**2.69E+01**	**72.7**	**Yes**	**92.86**	**N/A**	**nonparametric**

Table B.2. Summary of Prediction Limit Statistical Analysis (Continued)

Constituent Name	Well	Prediction Limit	Observation 7/9/2025	Exceeds PL	% nondetects	nondetect Adjustment	Method
Trichloroethene (µg/L)	**MW84-84A**	**2.96E+01**	**4,020**	**Yes**	**0**	**None**	**parametric**
Trichloroethene (µg/L)	MW87-87A	2.96E+01	97.1	No	0	None	parametric
Trichloroethene (µg/L)	MW90A	2.96E+01	13.4	No	0	None	parametric
Uranium (mg/L)	MW84-84A	5.60E-04	0.000069J	No	73.81	N/A	nonparametric
Uranium (mg/L)	MW87-87A	5.60E-04	0.0002ND	No	73.81	N/A	nonparametric
Uranium (mg/L)	MW90A	5.60E-04	0.0002ND	No	73.81	N/A	nonparametric
Uranium-234 (pCi/L)	MW84-84A	3.20E+00	1.37ND	No	97.62	N/A	nonparametric
Uranium-234 (pCi/L)	MW87-87A	3.20E+00	1.27ND	No	97.62	N/A	nonparametric
Uranium-234 (pCi/L)	MW90A	3.20E+00	1.39ND	No	97.62	N/A	nonparametric
Uranium-235 (pCi/L)	MW84-84A	2.73E+00	0.685ND	No	100	N/A	nonparametric
Uranium-235 (pCi/L)	MW87-87A	2.73E+00	0.842ND	No	100	N/A	nonparametric
Uranium-235 (pCi/L)	MW90A	2.73E+00	0.929ND	No	100	N/A	nonparametric
Uranium-238 (pCi/L)	MW84-84A	3.15E+00	1.22ND	No	100	N/A	nonparametric
Uranium-238 (pCi/L)	MW87-87A	3.15E+00	0.968ND	No	100	N/A	nonparametric
Uranium-238 (pCi/L)	MW90A	3.15E+00	1.07ND	No	100	N/A	nonparametric

Bold type indicates exceedance of the Prediction Limit (PL).
Background wells for the Prediction Limit comparison are MW420 and MW93-93A
Notes:
J: Estimated value
ND: Not detected
PL: Prediction Limit
mg/L: milligrams per liter
µg/L: micrograms per liter
pCi/L: picocuries per liter
½ DL: Calculated PL using one-half of the detection limit
% nondetects: Percentage of censored observations based on a total of 42 background observations for each constituent

SUMMARY OF CONCLUSIONS

The statistical analyses were conducted in accordance with the Hazardous Waste Management Facility Permit. With the exception of As and TCE in compliance well MW84A, and technetium-99 (Tc-99) observed in compliance wells MW84A, MW87A, and MW90A, the statistical tests on all other parameters showed no statistically significant differences above concentrations observed in background wells.

THIS PAGE INTENTIONALLY LEFT BLANK

ATTACHMENT B1

PREDICTION LIMIT TESTING RESULTS

THIS PAGE INTENTIONALLY LEFT BLANK

1.0 ARSENIC DATASET

Table 1 shows the dataset information, number of background samples, number of background nondetects, percentage of background nondetects, and includes decimal places not shown when rounding. Nondetect results shown in Table 1 have been changed to less than the detection limit value.

Table 1. Arsenic dataset information

Arsenic (mg/L)		Compliance	Compliance	Compliance	Background	Background
Number	Date	MW84-84A x_i	MW87-87A x_i	MW90A x_i	MW93-93A x_i	MW420 x_i
1	7/15/2015	0.00922	0.00447	<0.005	0.00702	<0.005
2	1/25/2016		0.00481	<0.005	0.00743	<0.005
3	1/27/2016	0.0103				
4	7/12/2016	0.0137	0.00698			
5	7/13/2016			<0.005	0.00709	<0.005
6	1/23/2017		0.00692	<0.005	0.00842	<0.005
7	1/24/2017	0.017				
8	7/12/2017	0.0191	0.00907	<0.005	0.00755	0.00207
9	1/9/2018		0.0087	<0.005	0.00807	<0.005
10	1/10/2018	0.0185				
11	8/20/2018	0.0289	0.0105	<0.005	0.00619	0.00304
12	1/15/2019		0.0116			0.00414
13	1/16/2019	0.0275		<0.005	0.00462	
14	7/22/2019	0.0168	0.00723	<0.005	0.00602	0.00359
15	1/14/2020	0.0202	0.00928	0.00211	0.00817	0.00518
16	7/14/2020	0.0222	0.00895	<0.005	0.0109	0.00534
17	1/12/2021	0.0212	0.00939	0.00211	0.0154	0.00832
18	7/14/2021	0.0284	0.00793	<0.005	0.00806	0.00859
19	1/6/2022	0.0348	0.00838	0.00213	0.0134	0.0106
20	7/11/2022	0.036	0.00827	<0.005	0.0111	0.0103
21	1/4/2023	0.0343	0.00857	0.00278	0.0111	0.011
22	7/11/2023	0.0351	0.00863		0.00863	0.0114
23	7/12/2023			0.0026		
24	1/3/2024	0.0376	0.0082	0.00272	0.00819	0.0128
25	7/9/2024	0.0379	0.0078	0.00327	0.00739	0.0135
26	1/7/2025	0.0432	0.00799	0.00334	0.00902	0.0173
27	7/9/2025	0.0343	0.00684	0.0041	0.0156	0.0162
n = Number of background samples =					42	
Background nondetects =					5	
Percentage of background nondetects =					11.9	

Table 1 shows the percentage of background nondetects is 11.9%. Because less than 15% of the background observations are nondetects, per the Hazardous Waste Permit, nondetect values were replaced with ½ the detection limit Dixon's outlier and Shapiro-Wilk test of normality for Tables 2 and 3. These tables include decimal places not shown when rounding.

Notes for Table 2 are:

1. Number of observations = n = 21
2. Significance level = $\alpha = 0.05$
3. Critical point = C = 0.440 from Unified Guidance Appendix D, Table 12-1
4. low outlier = $C_{low} = (x_{(3)} - x_{(1)}) / (x_{(n-2)} - x_{(1)})$ from Unified Guidance equation 12.5
5. high outlier = $C_{high} = (x_{(n)} - x_{(n-2)}) / (x_{(n)} - x_{(3)})$ from Unified Guidance equation 12-6
6. If C_{low} or C_{high} is **not less than** C, which is the critical point, then this indicates there is a potential outlier in the dataset.

Table 2. Arsenic Dixon's outlier test using ½ detection limit

Rank	MW84-84A x_i	MW87-87A x_i	MW90A x_i	MW93-93A x_i	MW420 x_i
1	0.00922	0.00447	0.00211	0.00462	0.00207
2	0.0103	0.00481	0.00211	0.00602	0.0025
3	0.0137	0.00684	0.00213	0.00619	0.0025
4	0.0168	0.00692	0.0025	0.00702	0.0025
5	0.017	0.00698	0.0025	0.00709	0.0025
6	0.0185	0.00723	0.0025	0.00739	0.0025
7	0.0191	0.0078	0.0025	0.00743	0.00304
8	0.0202	0.00793	0.0025	0.00755	0.00359
9	0.0212	0.00799	0.0025	0.00806	0.00414
10	0.0222	0.0082	0.0025	0.00807	0.00518
11	0.0275	0.00827	0.0025	0.00817	0.00534
12	0.0284	0.00838	0.0025	0.00819	0.00832
13	0.0289	0.00857	0.0025	0.00842	0.00859
14	0.0343	0.00863	0.0025	0.00863	0.0103
15	0.0343	0.0087	0.0025	0.00902	0.0106
16	0.0348	0.00895	0.0026	0.0109	0.011
17	0.0351	0.00907	0.00272	0.0111	0.0114
18	0.036	0.00928	0.00278	0.0111	0.0128
19	0.0376	0.00939	0.00327	0.0134	0.0135
20	0.0379	0.0105	0.00334	0.0154	0.0162
21	0.0432	0.0116	0.0041	0.0156	0.0173
low outlier = C_{low} =	0.1579	0.4817	0.0172	0.1788	0.0376
Results less than C?	Yes	No	Yes	Yes	Yes
high outlier = C_{high} =	0.1898	0.4643	0.4213	0.2338	0.2568
Results less than C?	Yes	No	Yes	Yes	Yes

Dixon's test identified observations in MW87-87A as statistical outliers. The Unified Guidance states that the measurements should not be treated as such until a specific physical reason for the abnormal values can be determined. Since a specific physical reason for the abnormal values has not been determined, no outliers were excluded from the dataset.

Table 3 shows the Shapiro-Wilk test of normality of the background data.

Notes for Table 3 are:

1. Number of observations = n = 42
2. Significance level = $\alpha = 0.01$
3. Shapiro-Wilk coefficients = i and are from Unified Guidance Appendix D, Table 10-2
4. Concentration = x and is ranked from lowest to highest
5. Difference = x42 - x1, x41 - x2, ……x22 - x21
6. Sum of the i * Differences column = b
7. Sum of the squares of the concentrations = SS
8. Calculated Shapiro-Wilk = W
9. Critical Shapiro-Wilk = $W_{critical}$ and is from Unified Guidance Appendix D, Table 10-3
10. If the calculated $W > W_{critical}$ then distribution is normal.

Table 3. Arsenic Shapiro-Wilk test of normality using ½ detection limit

Rank	Concentration
1	0.00207
2	0.0025
3	0.0025
4	0.0025
5	0.0025
6	0.0025
7	0.00304
8	0.00359
9	0.00414
10	0.00462
11	0.00518
12	0.00534
13	0.00602
14	0.00619
15	0.00702
16	0.00709
17	0.00739
18	0.00743
19	0.00755
20	0.00806
21	0.00807
22	0.00817
23	0.00819
24	0.00832
25	0.00842
26	0.00859
27	0.00863
28	0.00902
29	0.0103
30	0.0106
31	0.0109
32	0.011
33	0.0111
34	0.0111
35	0.0114
36	0.0128
37	0.0134
38	0.0135
39	0.0154
40	0.0156
41	0.0162
42	0.0173
mean =	0.008220
standard deviation =	0.004105

Shapiro-Wilk Coefficients	
i1	0.3917
i2	0.2701
i3	0.2345
i4	0.2085
i5	0.1874
i6	0.1694
i7	0.1535
i8	0.1392
i9	0.1259
i10	0.1136
i11	0.1020
i12	0.0909
i13	0.0804
i14	0.0701
i15	0.0602
i16	0.0506
i17	0.0411
i18	0.0318
i19	0.0227
i20	0.0136
i21	0.0045

	Difference	i*Differences
x42 - x1	0.01523	0.00596559
x41 - x2	0.01370	0.00370037
x40 - x3	0.01310	0.00307195
x39 - x4	0.01290	0.00268965
x38 - x5	0.01100	0.0020614
x37 - x6	0.01090	0.00184646
x36 - x7	0.00976	0.00149816
x35 - x8	0.00781	0.00108715
x34 - x9	0.00696	0.00087626
x33 - x10	0.00648	0.00073613
x32 - x11	0.00582	0.00059364
x31 - x12	0.00556	0.0005054
x30 - x13	0.00458	0.00036823
x29 - x14	0.00411	0.00028811
x28 - x15	0.00200	0.0001204
x27 - x16	0.00154	7.7924E-05
x26 - x17	0.00120	0.00004932
x25 - x18	0.00099	3.1482E-05
x24 - x19	0.00077	1.7479E-05
x23 - x20	0.00013	1.768E-06
x22 - x21	0.00010	4.5E-07
	b =	0.02558734

SS =	0.00069075	sum of the squares of the concentrations
b =	0.02558734	sum of the i * differences column
$W = b^2 / SS =$	0.9478	Normal Distribution
$W_{critical} =$	0.922	Unified Guidance Appendix D Table 10-3

The Shapiro-Wilk test of normality value shown in Table 3 is 0.9478. Because 0.9478 is greater than the critical value of 0.922, normality is confirmed and a parametric PL is determined.

The parametric PL is determined using Unified Guidance Equation 18.3, which is shown below.

PL = mean + standard deviation * sqrt(1/m + 1/n) * t-quantile

where:

mean = average of background values = 0.00822
standard deviation = standard deviation of background values = 0.004105
m = 1
n = observations = 42
degrees of freedom = n – 1 = 41
t-quantile is from Unified Guidance Appendix D, Table 16 -1. The t-quantile for 41 degrees of freedom at a 95% confidence level = 1.683

PL = 0.00822 + 0.004105 * square root (1/1 + 1/42) * 1.683 = 0.0152

Table 4 shows the data used to plot the comparison of the compliance wells to the PL. Nondetects shown in Table 1 have been changed to the detection limit value of 0.005.

Table 4. Arsenic compliance well sample dataset comparison to PL

Date	MW84-84A	MW87-87A	MW90A	Prediction Limit
7/15/2015	0.00922	0.00447	0.005	0.0152
1/25/2016		0.00481	0.005	0.0152
1/27/2016	0.0103			0.0152
7/12/2016	0.0137	0.00698		0.0152
7/13/2016			0.005	0.0152
1/23/2017		0.00692	0.005	0.0152
1/24/2017	0.017			0.0152
7/12/2017	0.0191	0.00907	0.005	0.0152
1/9/2018		0.0087	0.005	0.0152
1/10/2018	0.0185			0.0152
8/20/2018	0.0289	0.0105	0.005	0.0152
1/15/2019		0.0116		0.0152
1/16/2019	0.0275		0.005	0.0152
7/22/2019	0.0168	0.00723	0.005	0.0152
1/14/2020	0.0202	0.00928	0.00211	0.0152
7/14/2020	0.0222	0.00895	0.005	0.0152
1/12/2021	0.0212	0.00939	0.00211	0.0152
7/14/2021	0.0284	0.00793	0.005	0.0152
1/6/2022	0.0348	0.00838	0.00213	0.0152
7/11/2022	0.036	0.00827	0.005	0.0152
1/4/2023	0.0343	0.00857	0.00278	0.0152
7/11/2023	0.0351	0.00863		0.0152
7/12/2023			0.0026	0.0152
1/3/2024	0.0376	0.0082	0.00272	0.0152
7/9/2024	0.0379	0.0078	0.00327	0.0152
1/7/2025	0.0432	0.00799	0.00334	0.0152
7/9/2025	0.0343	0.00684	0.0041	0.0152

Figure 1 shows the chart for Table 4 which indicates that MW84-84A exceeds the PL.

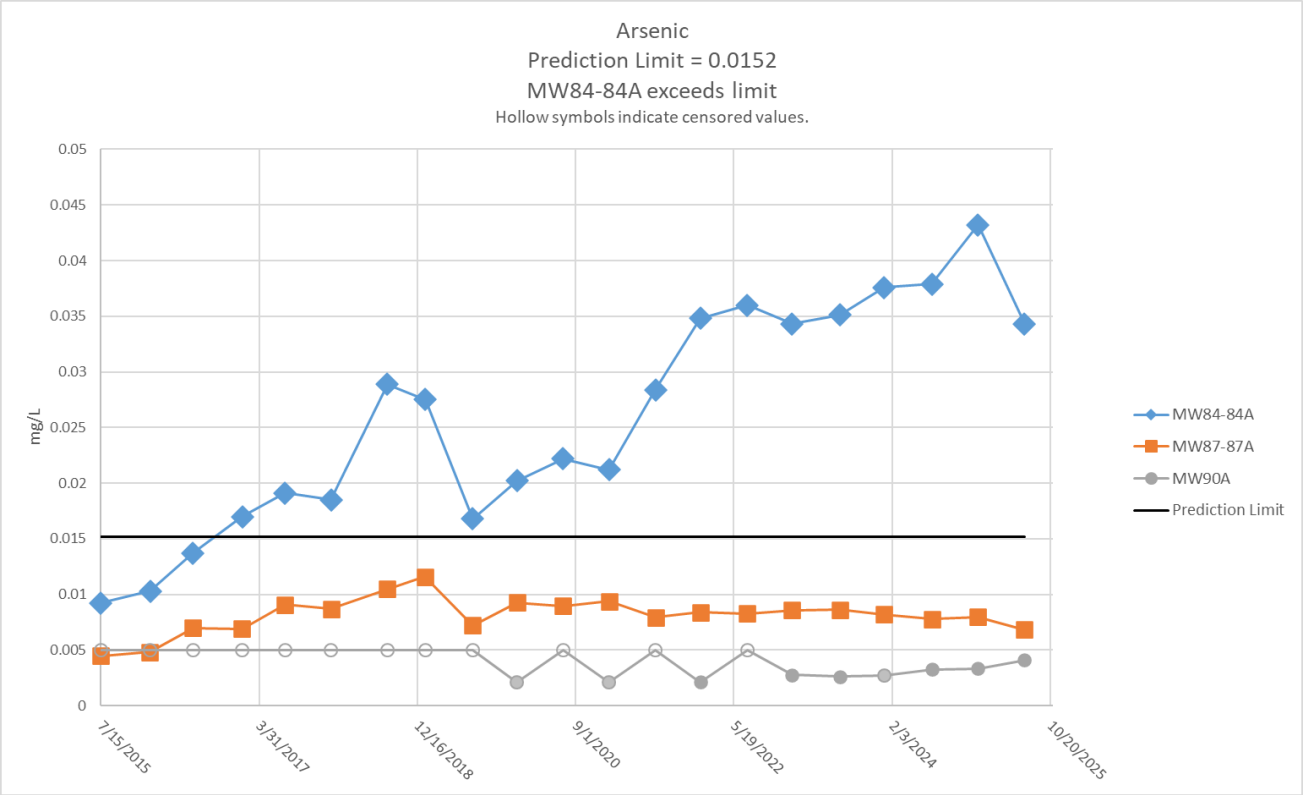


Figure 1. Arsenic PL chart

2.0 CADMIUM DATASET

Table 5 shows the dataset information, number of background samples, number of background nondetects, percentage of background nondetects, and includes decimal places not shown when rounding. Nondetect results shown in Table 5 have been changed to less than the detection limit value.

Table 5. Cadmium dataset information

Cadmium (mg/L)		Compliance	Compliance	Compliance	Background	Background
Number	Date	MW84-84A x_i	MW87-87A x_i	MW90A x_i	MW93-93A x_i	MW420 x_i
1	7/15/2015	0.00012	<0.001	<0.001	<0.001	<0.001
2	1/25/2016		0.000121	<0.001	0.000152	<0.001
3	1/27/2016	0.000179				
4	7/12/2016	0.000292	0.000451			
5	7/13/2016			<0.001	0.000199	<0.001
6	1/23/2017		<0.001	<0.001	<0.001	<0.001
7	1/24/2017	0.000619				
8	7/12/2017	0.000396	0.000304	<0.001	<0.001	<0.001
9	1/9/2018		0.000375	<0.001	<0.001	<0.001
10	1/10/2018	<0.001				
11	8/20/2018	0.000323	0.000372	<0.001	<0.001	<0.001
12	1/15/2019		0.000481			<0.001
13	1/16/2019	0.000415		<0.001	<0.001	
14	7/22/2019	<0.001	<0.001	<0.001	<0.001	<0.001
15	1/14/2020	0.000385	0.000503	<0.001	<0.001	<0.001
16	7/14/2020	<0.001	<0.001	<0.001	<0.001	<0.001
17	1/12/2021	<0.001	<0.001	<0.001	<0.001	<0.001
18	7/14/2021	0.000317	<0.001	<0.001	<0.001	<0.001
19	1/6/2022	<0.001	<0.001	<0.001	<0.001	<0.001
20	7/11/2022	<0.001	<0.001	<0.001	<0.001	<0.001
21	1/4/2023	<0.001	<0.001	<0.001	<0.001	<0.001
22	7/11/2023	<0.001	<0.001		<0.001	<0.001
23	7/12/2023			<0.001		
24	1/3/2024	<0.001	<0.001	<0.001	<0.001	<0.001
25	7/9/2024	<0.001	<0.001	<0.001	<0.001	<0.001
26	1/7/2025	<0.001	<0.001	<0.001	<0.001	<0.001
27	7/9/2025	<0.001	0.000805	<0.001	<0.001	<0.001
n = Number of background samples =					42	
Background nondetects =					40	
Percentage of background nondetects =					95.24	

Dixon's outlier and Shapiro-Wilk test of normality are shown in Tables 6 and 7 and includes decimal places not shown when rounding.

Notes for Table 6 are:

1. Number of observations = n = 21
2. Significance level = $\alpha = 0.05$
3. Critical point = C = 0.440 from Unified Guidance Appendix D, Table 12-1
4. low outlier = $C_{low} = (x_{(3)} - x_{(1)}) / (x_{(n-2)} - x_{(1)})$ from Unified Guidance equation 12.5
5. high outlier = $C_{high} = (x_{(n)} - x_{(n-2)}) / (x_{(n)} - x_{(3)})$ from Unified Guidance equation 12-6
6. If C_{low} or C_{high} is **not less than** C, which is the critical point, then this indicates there is a potential outlier in the dataset.

Table 6. Cadmium Dixon's outlier test

Rank	MW84-84A x_i	MW87-87A x_i	MW90A x_i	MW93-93A x_i	MW420 x_i
1	0.00012	0.000121	0.001	0.000152	0.001
2	0.000179	0.000304	0.001	0.000199	0.001
3	0.000292	0.000372	0.001	0.001	0.001
4	0.000317	0.000375	0.001	0.001	0.001
5	0.000323	0.000451	0.001	0.001	0.001
6	0.000385	0.000481	0.001	0.001	0.001
7	0.000396	0.000503	0.001	0.001	0.001
8	0.000415	0.000805	0.001	0.001	0.001
9	0.000619	0.001	0.001	0.001	0.001
10	0.001	0.001	0.001	0.001	0.001
11	0.001	0.001	0.001	0.001	0.001
12	0.001	0.001	0.001	0.001	0.001
13	0.001	0.001	0.001	0.001	0.001
14	0.001	0.001	0.001	0.001	0.001
15	0.001	0.001	0.001	0.001	0.001
16	0.001	0.001	0.001	0.001	0.001
17	0.001	0.001	0.001	0.001	0.001
18	0.001	0.001	0.001	0.001	0.001
19	0.001	0.001	0.001	0.001	0.001
20	0.001	0.001	0.001	0.001	0.001
21	0.001	0.001	0.001	0.001	0.001
low outlier = C_{low} =	0.1955	0.2856	#DIV/0!	1.0000	#DIV/0!
Results less than C?	Yes	Yes	#DIV/0!	No	#DIV/0!
high outlier = C_{high} =	0.0000	0.0000	#DIV/0!	#DIV/0!	#DIV/0!
Results less than C?	Yes	Yes	#DIV/0!	#DIV/0!	#DIV/0!

Dixon's test identified observations in MW93-93A as statistical outliers. The Unified Guidance states that the measurements should not be treated as such until a specific physical reason for the abnormal values can be determined. Since a specific physical reason for the abnormal values has not been determined, no outliers were excluded from the dataset.

Table 7 shows the Shapiro-Wilk test of normality of the background data.

Notes for Table 7 are:

1. Number of observations = n = 42
2. Significance level = $\alpha = 0.01$
3. Shapiro-Wilk coefficients = i and are from Unified Guidance Appendix D, Table 10-2
4. Concentration = x and is ranked from lowest to highest
5. Difference = x42 - x1, x41 - x2, ……x22 - x21
6. Sum of the i * Differences column = b
7. Sum of the squares of the concentrations = SS
8. Calculated Shapiro-Wilk = W
9. Critical Shapiro-Wilk = $W_{critical}$ and is from Unified Guidance Appendix D, Table 10-3
10. If the calculated $W > W_{critical}$ then distribution is normal.

Table 7. Cadmium Shapiro-Wilk test of normality

Rank	Concentration
1	0.000152
2	0.000199
3	0.001
4	0.001
5	0.001
6	0.001
7	0.001
8	0.001
9	0.001
10	0.001
11	0.001
12	0.001
13	0.001
14	0.001
15	0.001
16	0.001
17	0.001
18	0.001
19	0.001
20	0.001
21	0.001
22	0.001
23	0.001
24	0.001
25	0.001
26	0.001
27	0.001
28	0.001
29	0.001
30	0.001
31	0.001
32	0.001
33	0.001
34	0.001
35	0.001
36	0.001
37	0.001
38	0.001
39	0.001
40	0.001
41	0.001
42	0.001
mean =	0.000961
standard deviation =	0.000178

Shapiro-Wilk Coefficients	
i1	0.3917
i2	0.2701
i3	0.2345
i4	0.2085
i5	0.1874
i6	0.1694
i7	0.1535
i8	0.1392
i9	0.1259
i10	0.1136
i11	0.1020
i12	0.0909
i13	0.0804
i14	0.0701
i15	0.0602
i16	0.0506
i17	0.0411
i18	0.0318
i19	0.0227
i20	0.0136
i21	0.0045

	Difference	i*Differences
x42 - x1	0.000848	0.00033216
x41 - x2	0.000801	0.00021635
x40 - x3	0	0
x39 - x4	0	0
x38 - x5	0	0
x37 - x6	0	0
x36 - x7	0	0
x35 - x8	0	0
x34 - x9	0	0
x33 - x10	0	0
x32 - x11	0	0
x31 - x12	0	0
x30 - x13	0	0
x29 - x14	0	0
x28 - x15	0	0
x27 - x16	0	0
x26 - x17	0	0
x25 - x18	0	0
x24 - x19	0	0
x23 - x20	0	0
x22 - x21	0	0
	b =	0.00054851

SS =	1.296E-06	sum of the squares of the concentrations
b =	0.0005485	sum of the i * differences column
$W = b^2 / SS =$	0.2322	Distribution not normal.
$W_{critical} =$	0.922	Unified Guidance Appendix D Table 10-3

The Shapiro-Wilk test of normality value shown in Table 7 is 0.2322. Because 0.2322 is less than the critical value of 0.922, normality cannot be confirmed. Because the percentage of background nondetects is >50%, the permit states a nonparametric test is conducted and the PL is equal to the highest background value which is 0.001.

Table 8 shows the data used to plot the comparison of the compliance wells to the PL. All <0.001 values shown in Table 5 have been changed to 0.001 in Table 8.

Table 8. Cadmium compliance well sample dataset comparison to PL

Date	MW84-84A	MW87-87A	MW90A	Prediction Limit
7/15/2015	0.00012	0.001	0.001	0.001
1/25/2016		0.000121	0.001	0.001
1/27/2016	0.000179			0.001
7/12/2016	0.000292	0.000451		0.001
7/13/2016			0.001	0.001
1/23/2017		0.001	0.001	0.001
1/24/2017	0.000619			0.001
7/12/2017	0.000396	0.000304	0.001	0.001
1/9/2018		0.000375	0.001	0.001
1/10/2018	0.001			0.001
8/20/2018	0.000323	0.000372	0.001	0.001
1/15/2019		0.000481		0.001
1/16/2019	0.000415		0.001	0.001
7/22/2019	0.001	0.001	0.001	0.001
1/14/2020	0.000385	0.000503	0.001	0.001
7/14/2020	0.001	0.001	0.001	0.001
1/12/2021	0.001	0.001	0.001	0.001
7/14/2021	0.000317	0.001	0.001	0.001
1/6/2022	0.001	0.001	0.001	0.001
7/11/2022	0.001	0.001	0.001	0.001
¼/2023	0.001	0.001	0.001	0.001
7/11/2023	0.001	0.001		0.001
7/12/2023			0.001	0.001
1/3/2024	0.001	0.001	0.001	0.001
7/9/2024	0.001	0.001	0.001	0.001
1/7/2025	0.001	0.001	0.001	0.001
7/9/2025	0.001	0.000805	0.001	0.001

Figure 2 shows the chart for Table 8 and indicates MW84-84A, MW87-87A, and MW90A are within the PL.

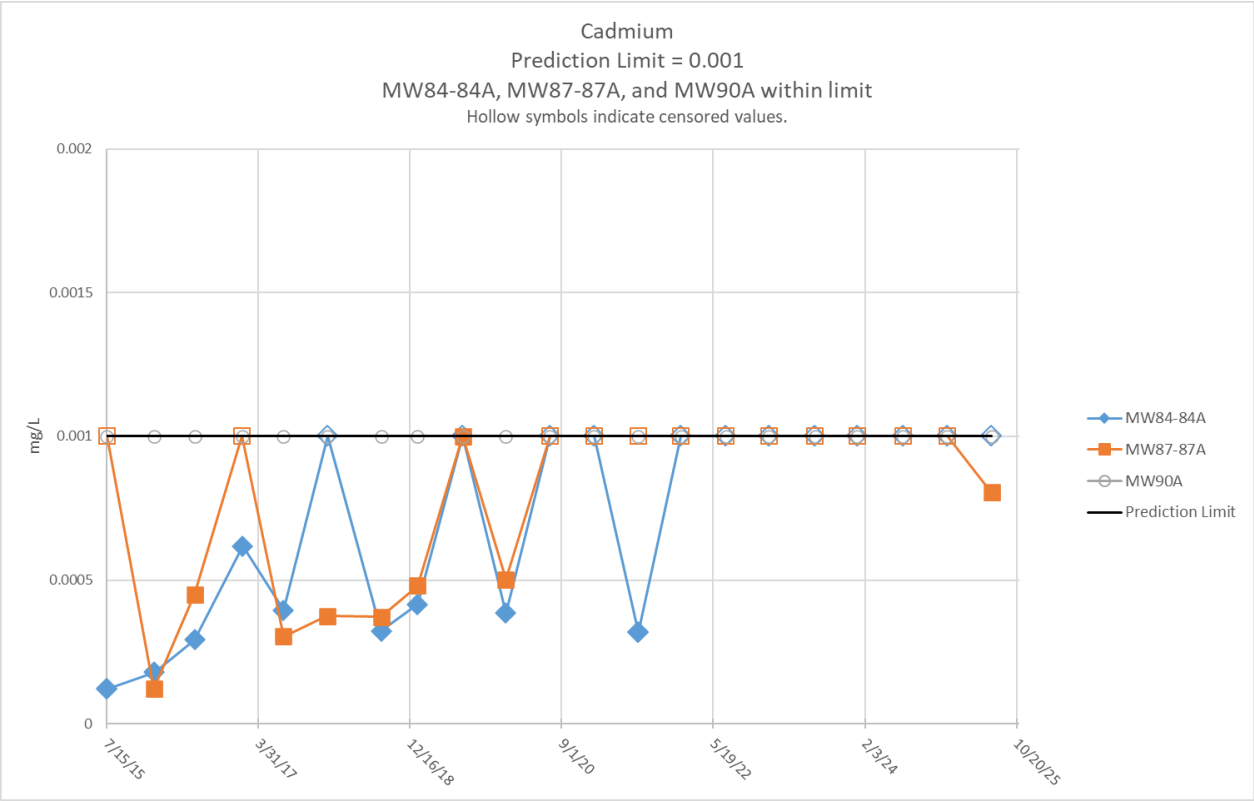


Figure 2. Cadmium PL chart

3.0 CHROMIUM DATASET AND STATISTICAL ANALYSIS

Table 9 shows the dataset information, number of background samples, number of background nondetects, percentage of background nondetects, and includes decimal places not shown when rounding. Nondetect results shown in Table 9 have been changed to less than the detection limit value.

Table 9. Chromium dataset information

Chromium (mg/L)		Compliance	Compliance	Compliance	Background	Background
Number	Date	MW84-84A x_i	MW87-87A x_i	MW90A x_i	MW93-93A x_i	MW420 x_i
1	7/15/2015	0.0347	0.00809	<0.01	0.00473	<0.01
2	1/25/2016		0.0266	<0.01	0.0401	<0.01
3	1/27/2016	0.0393				
4	7/12/2016	0.0206	0.165			
5	7/13/2016			<0.01	0.207	<0.01
6	1/23/2017		0.262	<0.01	0.428	<0.01
7	1/24/2017	0.0309				
8	7/12/2017	0.103	0.0557	<0.01	0.261	<0.01
9	1/9/2018		1.18	0.00381	0.151	<0.01
10	1/10/2018	0.143				
11	8/20/2018	0.0752	0.275	<0.01	0.11	<0.01
12	1/15/2019		0.0424			<0.01
13	1/16/2019	0.0251		<0.01	0.0561	
14	7/22/2019	<0.01	<0.01	<0.01	<0.01	<0.01
15	1/14/2020	<0.01	<0.01	<0.01	<0.01	<0.01
16	7/14/2020	<0.01	<0.01	<0.01	<0.01	<0.01
17	1/12/2021	<0.01	<0.01	<0.01	0.00338	<0.01
18	7/14/2021	<0.01	<0.01	<0.01	<0.01	<0.01
19	1/6/2022	<0.01	<0.01	<0.01	0.00777	<0.01
20	7/11/2022	<0.01	<0.01	<0.01	0.00527	<0.01
21	¼/2023	<0.01	<0.01	<0.01	<0.01	<0.01
22	7/11/2023	<0.01	<0.01		<0.01	<0.01
23	7/12/2023			<0.01		
24	1/3/2024	<0.01	0.00416	<0.01	0.00382	<0.01
25	7/9/2024	<0.01	<0.01	<0.01	<0.01	<0.01
26	1/7/2025	<0.01	0.00531	<0.01	0.0159	<0.01
27	7/9/2025	<0.01	<0.01	<0.01	<0.01	<0.01
n = number of background samples =					42	
Background nondetects =					29	
Percentage of background nondetects =					69.05	

Dixon's outlier and Shapiro-Wilk test of normality are shown in for Tables 10 and 11 and includes decimal places not shown when rounding.

Notes for Table 10 are:

1. Number of observations = n = 21
2. Significance level = $\alpha = 0.05$
3. Critical point = C = 0.440 from Unified Guidance Appendix D, Table 12-1
4. low outlier = $C_{low} = (x_{(3)} - x_{(1)}) / (x_{(n-2)} - x_{(1)})$ from Unified Guidance equation 12.5
5. high outlier = $C_{high} = (x_{(n)} - x_{(n-2)}) / (x_{(n)} - x_{(3)})$ from Unified Guidance equation 12-6
6. If C_{low} or C_{high} is **not less than** C, which is the critical point, then this indicates there is a potential outlier in the dataset.

Table 10. Chromium Dixon's outlier test

Rank	MW84-84A x_i	MW87-87A x_i	MW90A x_i	MW93-93A x_i	MW420 x_i
1	0.01	0.00416	0.00381	0.00338	0.01
2	0.01	0.00531	0.01	0.00382	0.01
3	0.01	0.00809	0.01	0.00473	0.01
4	0.01	0.01	0.01	0.00527	0.01
5	0.01	0.01	0.01	0.00777	0.01
6	0.01	0.01	0.01	0.01	0.01
7	0.01	0.01	0.01	0.01	0.01
8	0.01	0.01	0.01	0.01	0.01
9	0.01	0.01	0.01	0.01	0.01
10	0.01	0.01	0.01	0.01	0.01
11	0.01	0.01	0.01	0.01	0.01
12	0.01	0.01	0.01	0.01	0.01
13	0.01	0.01	0.01	0.01	0.01
14	0.0206	0.01	0.01	0.0159	0.01
15	0.0251	0.0266	0.01	0.0401	0.01
16	0.0309	0.0424	0.01	0.0561	0.01
17	0.0347	0.0557	0.01	0.11	0.01
18	0.0393	0.165	0.01	0.151	0.01
19	0.0752	0.262	0.01	0.207	0.01
20	0.103	0.275	0.01	0.261	0.01
21	0.143	1.18	0.01	0.428	0.01
low outlier = C_{low} =	0.0000	0.0152	1.0000	0.0066	#DIV/0!
Results less than C?	Yes	Yes	No	Yes	#DIV/0!
High outlier = C_{high} =	0.5098	0.7833	#DIV/0!	0.5221	#DIV/0!
Results less than C?	No	No	#DIV/0!	No	#DIV/0!

Dixon's test identified observations in MW84-84A, MW87-87A, MW90A, and MW93-93A as statistical outliers. The Unified Guidance states that the measurements should not be treated as such until a specific physical reason for the abnormal values can be determined. Since a specific physical reason for the abnormal values has not been determined, no outliers were excluded from the dataset.

Table 11 shows the Shapiro-Wilk test of normality of the background data.

Notes for Table 11 are:

1. Number of observations = n = 42
2. Significance level = $\alpha = 0.01$
3. Shapiro-Wilk coefficients = I and are from Unified Guidance Appendix D, Table 10-2
4. Concentration = x and is ranked from lowest to highest
5. Difference = x42 – x1, x41 – x2, ……x22 – x21
6. Sum of the I * Differences column = b
7. Sum of the squares of the concentrations = SS
8. Calculated Shapiro-Wilk = W
9. Critical Shapiro-Wilk = $W_{critical}$ and is from Unified Guidance Appendix D, Table 10-3
10. If the calculated $W > W_{critical}$ then distribution is normal.

Table 11. Chromium Shapiro-Wilk test of normality

Rank	Concentration
1	0.00338
2	0.00382
3	0.00473
4	0.00527
5	0.00777
6	0.01
7	0.01
8	0.01
9	0.01
10	0.01
11	0.01
12	0.01
13	0.01
14	0.01
15	0.01
16	0.01
17	0.01
18	0.01
19	0.01
20	0.01
21	0.01
22	0.01
23	0.01
24	0.01
25	0.01
26	0.01
27	0.01
28	0.01
29	0.01
30	0.01
31	0.01
32	0.01
33	0.01
34	0.01
35	0.0159
36	0.0401
37	0.0561
38	0.11
39	0.151
40	0.207
41	0.261
42	0.428

mean =	0.037716
standard deviation =	0.082248

Shapiro-Wilk Coefficients	
i1	0.3917
i2	0.2701
i3	0.2345
i4	0.2085
i5	0.1874
i6	0.1694
i7	0.1535
i8	0.1392
i9	0.1259
i10	0.1136
i11	0.1020
i12	0.0909
i13	0.0804
i14	0.0701
i15	0.0602
i16	0.0506
i17	0.0411
i18	0.0318
i19	0.0227
i20	0.0136
i21	0.0045

	Difference	i*Differences
x42 – x1	0.42462	0.166323654
x41 – x2	0.25718	0.069464318
x40 – x3	0.20227	0.047432315
x39 – x4	0.14573	0.030384705
x38 – x5	0.10223	0.019157902
x37 – x6	0.04610	0.00780934
x36 – x7	0.03010	0.00462035
x35 – x8	0.00590	0.00082128
x34 – x9	0	0
x33 – x10	0	0
x32 – x11	0	0
x31 – x12	0	0
x30 – x13	0	0
x29 – x14	0	0
x28 – x15	0	0
x27 – x16	0	0
x26 – x17	0	0
x25 – x18	0	0
x24 – x19	0	0
x23 – x20	0	0
x22 – x21	0	0
	b =	0.346013864

SS =	0.2773549	sum of the squares of the concentrations
b =	0.3460139	sum of the I * differences column
$W = b^2 / SS =$	0.4317	Distribution not normal.
$W_{critical} =$	0.922	Unified Guidance Appendix D Table 10-3

The Shapiro-Wilk test of normality value shown in Table 11 is 0.4317. Because 0.4317 is less than the critical value of 0.922, normality cannot be confirmed. Because the percentage of background nondetects is >50%, the permit states a nonparametric test is conducted and the PL is equal to the highest background value which is 0.428.

Table 12 shows the data used to plot the comparison of the compliance wells to the PL. All values <0.01 shown in Table 9 have been changed to 0.01 in Table 12.

Table 12. Chromium compliance well sample dataset comparison to PL

Date	MW84-84A	MW87-87A	MW90A	Prediction Limit
7/15/2015	0.0347	0.00809	0.01	0.428
1/25/2016		0.0266	0.01	0.428
1/27/2016	0.0393			0.428
7/12/2016	0.0206	0.165		0.428
7/13/2016			0.01	0.428
1/23/2017		0.262	0.01	0.428
1/24/2017	0.0309			0.428
7/12/2017	0.103	0.0557	0.01	0.428
1/9/2018		1.18	0.00381	0.428
1/10/2018	0.143			0.428
8/20/2018	0.0752	0.275	0.01	0.428
1/15/2019		0.0424		0.428
1/16/2019	0.0251		0.01	0.428
7/22/2019	0.01	0.01	0.01	0.428
1/14/2020	0.01	0.01	0.01	0.428
7/14/2020	0.01	0.01	0.01	0.428
1/12/2021	0.01	0.01	0.01	0.428
7/14/2021	0.01	0.01	0.01	0.428
1/6/2022	0.01	0.01	0.01	0.428
7/11/2022	0.01	0.01	0.01	0.428
¼/2023	0.01	0.01	0.01	0.428
7/11/2023	0.01	0.01		0.428
7/12/2023			0.01	0.428
1/3/2024	0.01	0.00416	0.01	0.428
7/9/2024	0.01	0.01	0.01	0.428
1/7/2025	0.01	0.00531	0.01	0.428
7/9/2025	0.01	0.01	0.01	0.428

Figure 3 shows the chart for Table 12 and indicates MW-84-84A, MW87-87A, and MW90A are within the PL.

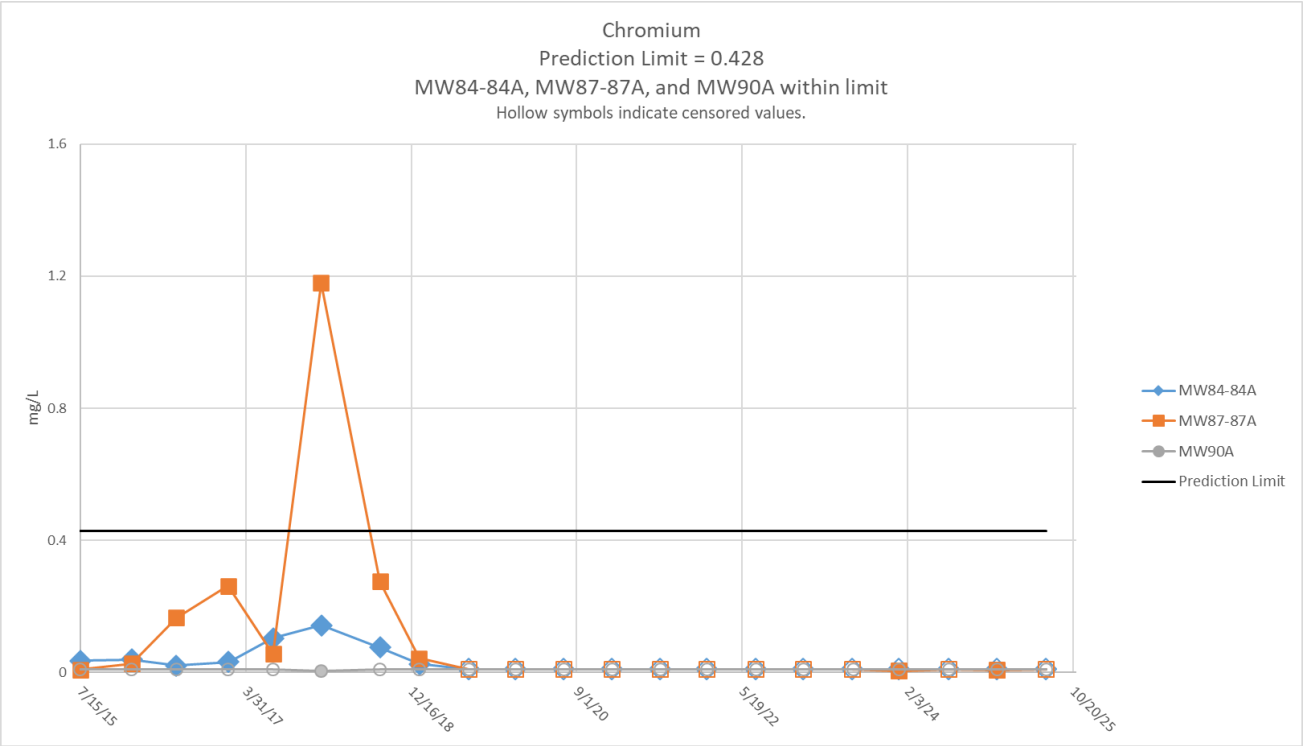


Figure 3. Chromium PL chart

4.0 LEAD DATASET

Table 13 shows the dataset information, number of background samples, number of background nondetects, percentage of background nondetects, and includes decimal places not shown when rounding. Nondetect results shown in Table 13 have been changed to less than the detection limit value.

Table 13. Lead dataset information

Lead (mg/L)		Compliance	Compliance	Compliance	Background	Background
Number	Date	MW84-84A x_i	MW87-87A x_i	MW90A x_i	MW93-93A x_i	MW420 x_i
1	7/15/2015	0.00088	<0.002	<0.002	<0.002	<0.002
2	1/25/2016		0.00107	<0.002	0.00144	<0.002
3	1/27/2016	0.00108				
4	7/12/2016	0.00239	0.0056			
5	7/13/2016			<0.002	0.00181	<0.002
6	1/23/2017		0.00439	<0.002	0.00155	<0.002
7	1/24/2017	0.00475				
8	7/12/2017	0.00267	0.00533	<0.002	0.00213	<0.002
9	1/9/2018		0.00579	0.000634	0.00186	<0.002
10	1/10/2018	0.00191				
11	8/20/2018	0.00319	0.00682	<0.002	0.000802	<0.002
12	1/15/2019		0.00502			<0.002
13	1/16/2019	0.00204		<0.002	<0.002	
14	7/22/2019	<0.002	<0.002	<0.002	0.00051	<0.002
15	1/14/2020	<0.002	<0.002	<0.002	<0.002	<0.002
16	7/14/2020	<0.002	<0.002	<0.002	<0.002	<0.002
17	1/12/2021	<0.002	<0.002	<0.002	<0.002	<0.002
18	7/14/2021	0.000874	<0.002	<0.002	<0.002	<0.002
19	1/6/2022	<0.002	<0.002	<0.002	<0.002	<0.002
20	7/11/2022	<0.002	<0.002	<0.002	<0.002	<0.002
21	¼/2023	<0.002	<0.002	<0.002	<0.002	<0.002
22	7/11/2023	<0.002	<0.002		<0.002	<0.002
23	7/12/2023			<0.002		
24	1/3/2024	<0.002	<0.002	<0.002	<0.002	<0.002
25	7/9/2024	<0.002	<0.002	<0.002	<0.002	<0.002
26	1/7/2025	<0.002	<0.002	<0.002	<0.002	<0.002
27	7/9/2025	0.000593	<0.002	<0.002	<0.002	<0.002
n = number of background samples =					42	
Background nondetects =					35	
Percentage of background nondetects =					83.33	

Dixon's outlier and Shapiro-Wilk test of normality are shown in for Tables 14 and 15 and includes decimal places not shown when rounding.

Notes for Table 14 are:

1. Number of observations = n = 21
2. Significance level = $\alpha = 0.05$
3. Critical point = C = 0.440 from Unified Guidance Appendix D, Table 12-1
4. low outlier = $C_{low} = (x_{(3)} - x_{(1)}) / (x_{(n-2)} - x_{(1)})$ from Unified Guidance equation 12.5
5. high outlier = $C_{high} = (x_{(n)} - x_{(n-2)}) / (x_{(n)} - x_{(3)})$ from Unified Guidance equation 12-6
6. If C_{low} or C_{high} is **not less than** C, which is the critical point, then this indicates there is a potential outlier in the dataset.

Table 14. Lead Dixon's outlier test

Rank	MW84-84A x_i	MW87-87A x_i	MW90A x_i	MW93-93A x_i	MW420 x_i
1	0.000593	0.00107	0.000634	0.00051	0.002
2	0.000874	0.002	0.002	0.000802	0.002
3	0.00088	0.002	0.002	0.00144	0.002
4	0.00108	0.002	0.002	0.00155	0.002
5	0.00191	0.002	0.002	0.00181	0.002
6	0.002	0.002	0.002	0.00186	0.002
7	0.002	0.002	0.002	0.002	0.002
8	0.002	0.002	0.002	0.002	0.002
9	0.002	0.002	0.002	0.002	0.002
10	0.002	0.002	0.002	0.002	0.002
11	0.002	0.002	0.002	0.002	0.002
12	0.002	0.002	0.002	0.002	0.002
13	0.002	0.002	0.002	0.002	0.002
14	0.002	0.002	0.002	0.002	0.002
15	0.002	0.002	0.002	0.002	0.002
16	0.002	0.00439	0.002	0.002	0.002
17	0.00204	0.00502	0.002	0.002	0.002
18	0.00239	0.00533	0.002	0.002	0.002
19	0.00267	0.0056	0.002	0.002	0.002
20	0.00319	0.00579	0.002	0.002	0.002
21	0.00475	0.00682	0.002	0.00213	0.002
low outlier = C_{low} =	0.1382	0.2053	1.0000	0.6242	#DIV/0!
Results less than C?	Yes	Yes	No	No	#DIV/0!
High outlier = C_{high} =	0.5375	0.2531	#DIV/0!	0.1884	#DIV/0!
Results less than C?	No	Yes	#DIV/0!	Yes	#DIV/0!

Dixon's test identified observations in MW84-84A, MW90A, and MW93-93A as statistical outliers. The Unified Guidance states that the measurements should not be treated as such until a specific physical reason for the abnormal values can be determined. Since a specific physical reason for the abnormal values has not been determined, no outliers were excluded from the dataset.

Table 15 shows the Shapiro-Wilk test of normality of the background data.

Notes for Table 15 are:

1. Number of observations = n = 42
2. Significance level = $\alpha = 0.01$
3. Shapiro-Wilk coefficients = I and are from Unified Guidance Appendix D, Table 10-2
4. Concentration = x and is ranked from lowest to highest
5. Difference = x42 – x1, x41 – x2, ……x22 – x21
6. Sum of the I * Differences column = b
7. Sum of the squares of the concentrations = SS
8. Calculated Shapiro-Wilk = W
9. Critical Shapiro-Wilk = $W_{critical}$ and is from Unified Guidance Appendix D, Table 10-3
10. If the calculated $W > W_{critical}$ then distribution is normal.

Table 15. Lead Shapiro-Wilk test of normality

Rank	Concentration
1	0.00051
2	0.000802
3	0.00144
4	0.00155
5	0.00181
6	0.00186
7	0.002
8	0.002
9	0.002
10	0.002
11	0.002
12	0.002
13	0.002
14	0.002
15	0.002
16	0.002
17	0.002
18	0.002
19	0.002
20	0.002
21	0.002
22	0.002
23	0.002
24	0.002
25	0.002
26	0.002
27	0.002
28	0.002
29	0.002
30	0.002
31	0.002
32	0.002
33	0.002
34	0.002
35	0.002
36	0.002
37	0.002
38	0.002
39	0.002
40	0.002
41	0.002
42	0.00213

mean =	0.001907
standard deviation =	0.000308

Shapiro-Wilk Coefficients	
i1	0.3917
i2	0.2701
i3	0.2345
i4	0.2085
i5	0.1874
i6	0.1694
i7	0.1535
i8	0.1392
i9	0.1259
i10	0.1136
i11	0.1020
i12	0.0909
i13	0.0804
i14	0.0701
i15	0.0602
i16	0.0506
i17	0.0411
i18	0.0318
i19	0.0227
i20	0.0136
i21	0.0045

	Difference	i*Differences
x42 – x1	0.001620	0.000634554
x41 – x2	0.001198	0.00032358
x40 – x3	0.000560	0.00013132
x39 – x4	0.000450	0.000093825
x38 – x5	0.000190	0.000035606
x37 – x6	0.000140	0.000023716
x36 – x7	0	0
x35 – x8	0	0
x34 – x9	0	0
x33 – x10	0	0
x32 – x11	0	0
x31 – x12	0	0
x30 – x13	0	0
x29 – x14	0	0
x28 – x15	0	0
x27 – x16	0	0
x26 – x17	0	0
x25 – x18	0	0
x24 – x19	0	0
x23 – x20	0	0
x22 – x21	0	0
b =		0.001242601

SS =	3.882E-06	sum of the squares of the concentrations
b =	0.0012426	sum of the I * differences column
$W = b^2 / SS =$	0.3977	Distribution not normal.
$W_{critical} =$	0.922	Unified Guidance Appendix D Table 10-3

The Shapiro-Wilk test of normality value shown in Table 15 is 0.3977. Because 0.3977 is less than the critical value of 0.922, normality cannot be confirmed. Because the percentage of background nondetects is >50%, the permit states a nonparametric test is conducted and the PL is equal to the highest background value which is 0.00213.

Table 16 shows the data used to plot the comparison of the compliance wells to the PL. All <0.002 values shown in Table 13 have been changed to 0.002 in Table 16.

Table 16. Lead compliance well sample dataset comparison to PL

Date	MW84-84A	MW87-87A	MW90A	Prediction Limit
7/15/2015	0.00088	0.002	0.002	0.00213
1/25/2016		0.00107	0.002	0.00213
1/27/2016	0.00108			0.00213
7/12/2016	0.00239	0.0056		0.00213
7/13/2016			0.002	0.00213
1/23/2017		0.00439	0.002	0.00213
1/24/2017	0.00475			0.00213
7/12/2017	0.00267	0.00533	0.002	0.00213
1/9/2018		0.00579	0.000634	0.00213
1/10/2018	0.00191			0.00213
8/20/2018	0.00319	0.00682	0.002	0.00213
1/15/2019		0.00502		0.00213
1/16/2019	0.00204		0.002	0.00213
7/22/2019	0.002	0.002	0.002	0.00213
1/14/2020	0.002	0.002	0.002	0.00213
7/14/2020	0.002	0.002	0.002	0.00213
1/12/2021	0.002	0.002	0.002	0.00213
7/14/2021	0.000874	0.002	0.002	0.00213
1/6/2022	0.002	0.002	0.002	0.00213
7/11/2022	0.002	0.002	0.002	0.00213
1/4/2023	0.002	0.002	0.002	0.00213
7/11/2023	0.002	0.002		0.00213
7/12/2023			0.002	0.00213
1/3/2024	0.002	0.002	0.002	0.00213
7/9/2024	0.002	0.002	0.002	0.00213
1/7/2025	0.002	0.002	0.002	0.00213
7/9/2025	0.000593	0.002	0.002	0.00213

Figure 4 shows the chart for Table 16 and indicates MW-84-84A, MW87-87A, and MW90A are within the PL.

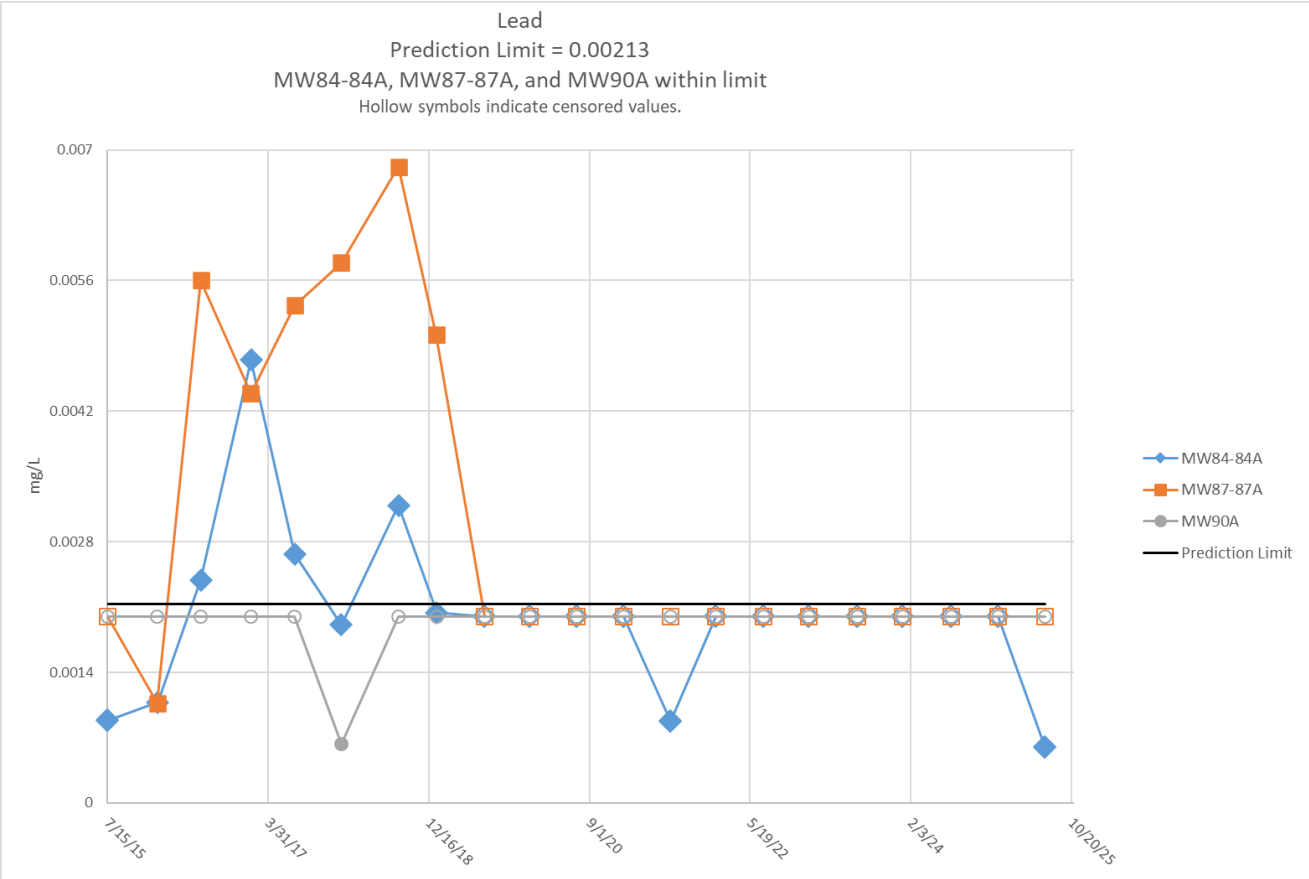


Figure 4. Lead PL chart

5.0 MERCURY DATASET

Table 17 shows the dataset information, number of background samples, number of background nondetects, percentage of background nondetects, and includes decimal places not shown when rounding. Nondetect results shown in Table 17 have been changed to less than the detection limit value.

Table 17. Mercury dataset information

Mercury (mg/L)		Compliance	Compliance	Compliance	Background	Background
Number	Date	MW84-84A x_i	MW87-87A x_i	MW90A x_i	MW93-93A x_i	MW420 x_i
1	7/15/2015	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
2	1/25/2016		<0.0002	<0.0002	<0.0002	<0.0002
3	1/27/2016	<0.0002				
4	7/12/2016	<0.0002	<0.0002			
5	7/13/2016			<0.0002	<0.0002	<0.0002
6	1/23/2017		<0.0002	<0.0002	<0.0002	<0.0002
7	1/24/2017	<0.0002				
8	7/12/2017	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
9	1/9/2018		<0.0002	<0.0002	<0.0002	<0.0002
10	1/10/2018	<0.0002				
11	8/20/2018	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
12	1/15/2019		<0.0002			<0.0002
13	1/16/2019	<0.0002		<0.0002	<0.0002	
14	7/22/2019	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
15	1/14/2020	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
16	7/14/2020	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
17	1/12/2021	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
18	7/14/2021	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
19	1/6/2022	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
20	7/11/2022	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
21	1/4/2023	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
22	7/11/2023	<0.0002	<0.0002		<0.0002	<0.0002
23	7/12/2023			<0.0002		
24	1/3/2024	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
25	7/9/2024	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
26	1/7/2025	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
27	7/9/2025	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
n = number of background samples =					42	
Background nondetects =					42	
Percentage of background nondetects =					100	

Dixon's outlier and Shapiro-Wilk test of normality are shown in for Tables 18 and 19 and includes decimal places not shown when rounding.

Notes for Table 18 are:

1. Number of observations = n = 21
2. Significance level = $\alpha = 0.05$
3. Critical point = C = 0.440 from Unified Guidance Appendix D, Table 12-1
4. low outlier = $C_{low} = (x_{(3)} - x_{(1)}) / (x_{(n-2)} - x_{(1)})$ from Unified Guidance equation 12.5
5. high outlier = $C_{high} = (x_{(n)} - x_{(n-2)}) / (x_{(n)} - x_{(3)})$ from Unified Guidance equation 12-6
6. If C_{low} or C_{high} is **not less than** C, which is the critical point, then this indicates there is a potential outlier in the dataset.

Table 18. Mercury Dixon's outlier test

Rank	MW84-84A x_i	MW87-87A x_i	MW90A x_i	MW93-93A x_i	MW420 x_i
1	0.0002	0.0002	0.0002	0.0002	0.0002
2	0.0002	0.0002	0.0002	0.0002	0.0002
3	0.0002	0.0002	0.0002	0.0002	0.0002
4	0.0002	0.0002	0.0002	0.0002	0.0002
5	0.0002	0.0002	0.0002	0.0002	0.0002
6	0.0002	0.0002	0.0002	0.0002	0.0002
7	0.0002	0.0002	0.0002	0.0002	0.0002
8	0.0002	0.0002	0.0002	0.0002	0.0002
9	0.0002	0.0002	0.0002	0.0002	0.0002
10	0.0002	0.0002	0.0002	0.0002	0.0002
11	0.0002	0.0002	0.0002	0.0002	0.0002
12	0.0002	0.0002	0.0002	0.0002	0.0002
13	0.0002	0.0002	0.0002	0.0002	0.0002
14	0.0002	0.0002	0.0002	0.0002	0.0002
15	0.0002	0.0002	0.0002	0.0002	0.0002
16	0.0002	0.0002	0.0002	0.0002	0.0002
17	0.0002	0.0002	0.0002	0.0002	0.0002
18	0.0002	0.0002	0.0002	0.0002	0.0002
19	0.0002	0.0002	0.0002	0.0002	0.0002
20	0.0002	0.0002	0.0002	0.0002	0.0002
21	0.0002	0.0002	0.0002	0.0002	0.0002
low outlier = C_{low} =	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Results less than C?	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
high outlier = C_{high} =	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Results less than C?	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

Dixon's test identified no observations as statistical outliers.

Table 19 shows the Shapiro-Wilk test of normality of the background data.

Notes for Table 19 are:

1. Number of observations = n = 42
2. Significance level = $\alpha = 0.01$
3. Shapiro-Wilk coefficients = i and are from Unified Guidance Appendix D, Table 10-2
4. Concentration = x and is ranked from lowest to highest
5. Difference = x42 - x1, x41 - x2, ……x22 - x21
6. Sum of the i * Differences column = b
7. Sum of the squares of the concentrations = SS
8. Calculated Shapiro-Wilk = W
9. Critical Shapiro-Wilk = $W_{critical}$ and is from Unified Guidance Appendix D, Table 10-3
10. If the calculated $W > W_{critical}$ then distribution is normal.

Table 19. Mercury Shapiro-Wilk test of normality

Rank	Concentration
1	0.0002
2	0.0002
3	0.0002
4	0.0002
5	0.0002
6	0.0002
7	0.0002
8	0.0002
9	0.0002
10	0.0002
11	0.0002
12	0.0002
13	0.0002
14	0.0002
15	0.0002
16	0.0002
17	0.0002
18	0.0002
19	0.0002
20	0.0002
21	0.0002
22	0.0002
23	0.0002
24	0.0002
25	0.0002
26	0.0002
27	0.0002
28	0.0002
29	0.0002
30	0.0002
31	0.0002
32	0.0002
33	0.0002
34	0.0002
35	0.0002
36	0.0002
37	0.0002
38	0.0002
39	0.0002
40	0.0002
41	0.0002
42	0.0002
mean =	0.0002
standard deviation =	0

Shapiro-Wilk Coefficients	
i1	0.3917
i2	0.2701
i3	0.2345
i4	0.2085
i5	0.1874
i6	0.1694
i7	0.1535
i8	0.1392
i9	0.1259
i10	0.1136
i11	0.1020
i12	0.0909
i13	0.0804
i14	0.0701
i15	0.0602
i16	0.0506
i17	0.0411
i18	0.0318
i19	0.0227
i20	0.0136
i21	0.0045

	Difference	i*Differences
x42 - x1	0	0
x41 - x2	0	0
x40 - x3	0	0
x39 - x4	0	0
x38 - x5	0	0
x37 - x6	0	0
x36 - x7	0	0
x35 - x8	0	0
x34 - x9	0	0
x33 - x10	0	0
x32 - x11	0	0
x31 - x12	0	0
x30 - x13	0	0
x29 - x14	0	0
x28 - x15	0	0
x27 - x16	0	0
x26 - x17	0	0
x25 - x18	0	0
x24 - x19	0	0
x23 - x20	0	0
x22 - x21	0	0
	b =	0

SS =	4.937E-37	sum of the squares of the concentrations
b =	0	sum of the i * differences column
$W = b^2 / SS =$	0	Distribution not normal.
$W_{critical} =$	0.922	Unified Guidance Appendix D Table 10-3

The Shapiro-Wilk test of normality value shown in Table 19 is 0. Because 0 is less than the critical value of 0.922, normality cannot be confirmed. Because the percentage of background nondetects is >50%, the permit states a nonparametric test is conducted and the PL is equal to the highest background value which is 0.0002.

Table 20 shows the data used to plot the comparison of the compliance wells to the PL. All <0.0002 values shown in Table 17 have been changed to 0.0002 in Table 20.

Table 20. Mercury compliance well sample dataset comparison to PL

Date	MW84-84A	MW87-87A	MW90A	Prediction Limit
7/15/2015	0.0002	0.0002	0.0002	0.0002
1/25/2016		0.0002	0.0002	0.0002
1/27/2016	0.0002			0.0002
7/12/2016	0.0002	0.0002		0.0002
7/13/2016			0.0002	0.0002
1/23/2017		0.0002	0.0002	0.0002
1/24/2017	0.0002			0.0002
7/12/2017	0.0002	0.0002	0.0002	0.0002
1/9/2018		0.0002	0.0002	0.0002
1/10/2018	0.0002			0.0002
8/20/2018	0.0002	0.0002	0.0002	0.0002
1/15/2019		0.0002		0.0002
1/16/2019	0.0002		0.0002	0.0002
7/22/2019	0.0002	0.0002	0.0002	0.0002
1/14/2020	0.0002	0.0002	0.0002	0.0002
7/14/2020	0.0002	0.0002	0.0002	0.0002
1/12/2021	0.0002	0.0002	0.0002	0.0002
7/14/2021	0.0002	0.0002	0.0002	0.0002
1/6/2022	0.0002	0.0002	0.0002	0.0002
7/11/2022	0.0002	0.0002	0.0002	0.0002
1/4/2023	0.0002	0.0002	0.0002	0.0002
7/11/2023	0.0002	0.0002		0.0002
7/12/2023			0.0002	0.0002
1/3/2024	0.0002	0.0002	0.0002	0.0002
7/9/2024	0.0002	0.0002	0.0002	0.0002
1/7/2025	0.0002	0.0002	0.0002	0.0002
7/9/2025	0.0002	0.0002	0.0002	0.0002

Figure 5 shows the chart for Table 20 and indicates MW-84-84A, MW87-87A, and MW90A are within the PL.

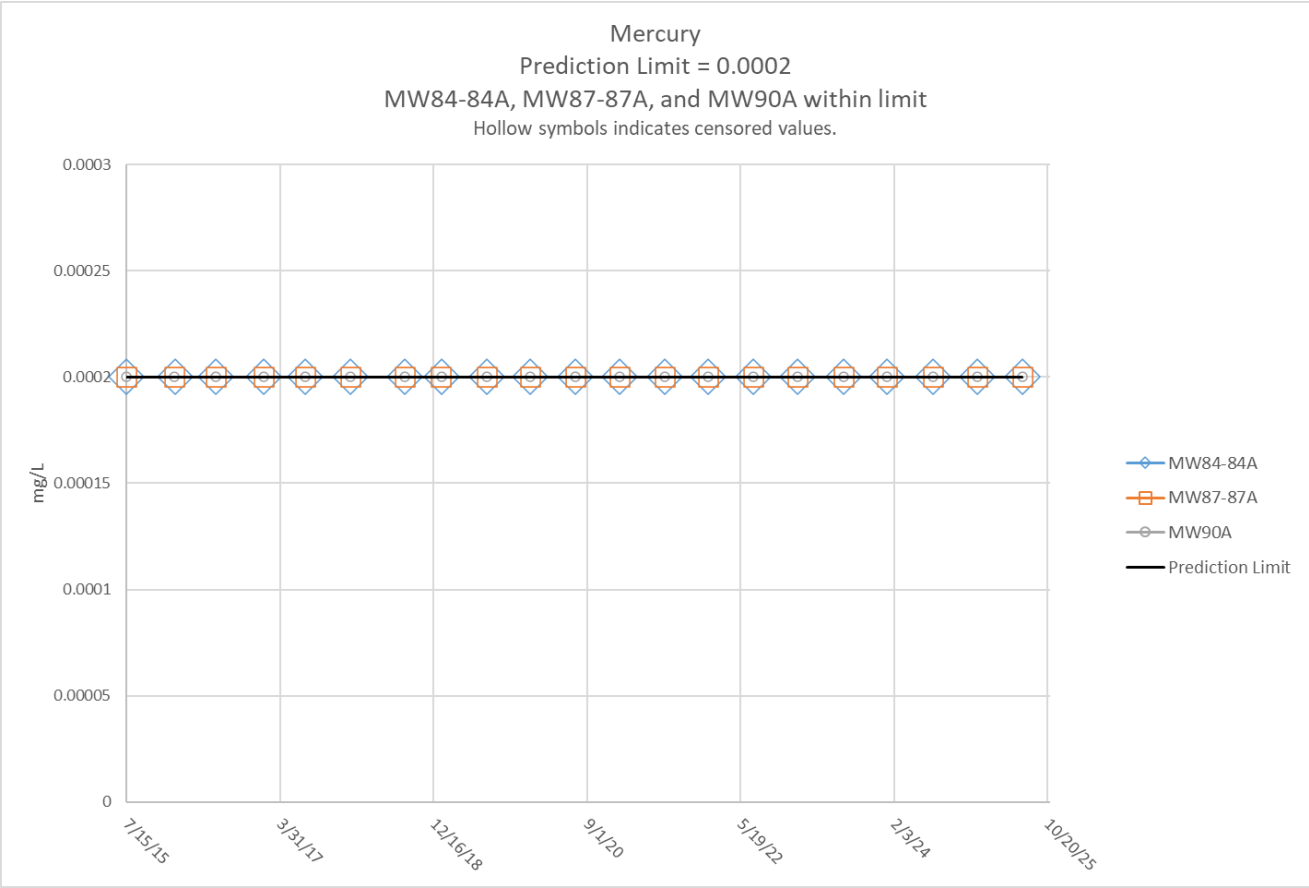


Figure 5. Mercury PL chart

6.0 SELENIUM DATASET

Table 21 shows the dataset information, number of background samples, number of background nondetects, percentage of background nondetects, and includes decimal places not shown when rounding. Nondetect results shown in Table 21 have been changed to less than the detection limit value.

Table 21. Selenium dataset information

Selenium (mg/L)		Compliance	Compliance	Compliance	Background	Background
Number	Date	MW84-84A x_i	MW87-87A x_i	MW90A x_i	MW93-93A x_i	MW420 x_i
1	7/15/2015	<0.005	<0.005	<0.005	<0.005	<0.005
2	1/25/2016		<0.005	0.00231	0.00165	<0.005
3	1/27/2016	<0.005				
4	7/12/2016	<0.005	0.00159			
5	7/13/2016			0.0017	<0.005	<0.005
6	1/23/2017		<0.005	<0.005	<0.005	<0.005
7	1/24/2017	0.00294				
8	7/12/2017	<0.005	<0.005	<0.005	<0.005	<0.005
9	1/9/2018		0.00219	<0.005	<0.005	<0.005
10	1/10/2018	<0.005				
11	8/20/2018	<0.005	<0.005	<0.005	<0.005	<0.005
12	1/15/2019		<0.005			<0.005
13	1/16/2019	<0.005		<0.005	<0.005	
14	7/22/2019	<0.005	<0.005	<0.005	<0.005	<0.005
15	1/14/2020	<0.005	<0.005	<0.005	<0.005	<0.005
16	7/14/2020	<0.005	<0.005	<0.005	<0.005	<0.005
17	1/12/2021	<0.005	<0.005	<0.005	<0.005	<0.005
18	7/14/2021	<0.005	<0.005	<0.005	<0.005	<0.005
19	1/6/2022	<0.005	<0.005	<0.005	<0.005	<0.005
20	7/11/2022	<0.005	<0.005	<0.005	<0.005	<0.005
21	1/4/2023	<0.005	<0.005	<0.005	<0.005	<0.005
22	7/11/2023	<0.005	<0.005		<0.005	<0.005
23	7/12/2023			<0.005		
24	1/3/2024	<0.005	<0.005	<0.005	<0.005	<0.005
25	7/9/2024	<0.005	<0.005	<0.005	<0.005	<0.005
26	1/7/2025	<0.005	<0.005	<0.005	<0.005	<0.005
27	7/9/2025	<0.005	<0.005	<0.005	<0.005	<0.005
n = number of background samples =					42	
Background nondetects =					41	
Percentage of background nondetects =					97.62	

Dixon's outlier and Shapiro-Wilk test of normality are shown in for Tables 22 and 23 and includes decimal places not shown when rounding.

Notes for Table 22 are:

1. Number of observations = n = 21
2. Significance level = $\alpha = 0.05$
3. Critical point = C = 0.440 from Unified Guidance Appendix D, Table 12-1
4. low outlier = $C_{low} = (x_{(3)} - x_{(1)}) / (x_{(n-2)} - x_{(1)})$ from Unified Guidance equation 12.5
5. high outlier = $C_{high} = (x_{(n)} - x_{(n-2)}) / (x_{(n)} - x_{(3)})$ from Unified Guidance equation 12-6
6. If C_{low} or C_{high} is **not less than** C, which is the critical point, then this indicates there is a potential outlier in the dataset.

Table 22. Selenium Dixon's outlier test

Rank	MW84-84A x_i	MW87-87A x_i	MW90A x_i	MW93-93A x_i	MW420 x_i
1	0.00294	0.00159	0.0017	0.00165	0.005
2	0.005	0.00219	0.00231	0.005	0.005
3	0.005	0.005	0.005	0.005	0.005
4	0.005	0.005	0.005	0.005	0.005
5	0.005	0.005	0.005	0.005	0.005
6	0.005	0.005	0.005	0.005	0.005
7	0.005	0.005	0.005	0.005	0.005
8	0.005	0.005	0.005	0.005	0.005
9	0.005	0.005	0.005	0.005	0.005
10	0.005	0.005	0.005	0.005	0.005
11	0.005	0.005	0.005	0.005	0.005
12	0.005	0.005	0.005	0.005	0.005
13	0.005	0.005	0.005	0.005	0.005
14	0.005	0.005	0.005	0.005	0.005
15	0.005	0.005	0.005	0.005	0.005
16	0.005	0.005	0.005	0.005	0.005
17	0.005	0.005	0.005	0.005	0.005
18	0.005	0.005	0.005	0.005	0.005
19	0.005	0.005	0.005	0.005	0.005
20	0.005	0.005	0.005	0.005	0.005
21	0.005	0.005	0.005	0.005	0.005
low outlier = C_{low} =	1.0000	1.0000	1.0000	1.0000	#DIV/0!
Results less than C?	No	No	No	No	#DIV/0!
high outlier = C_{high} =	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Results less than C?	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

Dixon's test identified observations in MW84-84A, MW87-87A, MW90A, and MW93-93A as statistical outliers. The Unified Guidance states that the measurements should not be treated as such until a specific physical reason for the abnormal values can be determined. Since a specific physical reason for the abnormal values has not been determined, no outliers were excluded from the dataset.

Table 23 shows the Shapiro-Wilk test of normality of the background data.

Notes for Table 23 are:

1. Number of observations = n = 42
2. Significance level = $\alpha = 0.01$
3. Shapiro-Wilk coefficients = i and are from Unified Guidance Appendix D, Table 10-2
4. Concentration = x and is ranked from lowest to highest
5. Difference = x42 - x1, x41 - x2, ……x22 - x21
6. Sum of the i * Differences column = b
7. Sum of the squares of the concentrations = SS
8. Calculated Shapiro-Wilk = W
9. Critical Shapiro-Wilk = $W_{critical}$ and is from Unified Guidance Appendix D, Table 10-3
10. If the calculated $W > W_{critical}$ then distribution is normal.

Table 23. Selenium Shapiro-Wilk test of normality

Rank	Concentration
1	0.00165
2	0.005
3	0.005
4	0.005
5	0.005
6	0.005
7	0.005
8	0.005
9	0.005
10	0.005
11	0.005
12	0.005
13	0.005
14	0.005
15	0.005
16	0.005
17	0.005
18	0.005
19	0.005
20	0.005
21	0.005
22	0.005
23	0.005
24	0.005
25	0.005
26	0.005
27	0.005
28	0.005
29	0.005
30	0.005
31	0.005
32	0.005
33	0.005
34	0.005
35	0.005
36	0.005
37	0.005
38	0.005
39	0.005
40	0.005
41	0.005
42	0.005
mean =	0.005
standard deviation =	0.000517

Shapiro-Wilk Coefficients	
i1	0.3917
i2	0.2701
i3	0.2345
i4	0.2085
i5	0.1874
i6	0.1694
i7	0.1535
i8	0.1392
i9	0.1259
i10	0.1136
i11	0.1020
i12	0.0909
i13	0.0804
i14	0.0701
i15	0.0602
i16	0.0506
i17	0.0411
i18	0.0318
i19	0.0227
i20	0.0136
i21	0.0045

	Difference	i*Differences
x42 - x1	0.003350	0.001312195
x41 - x2	0	0
x40 - x3	0	0
x39 - x4	0	0
x38 - x5	0	0
x37 - x6	0	0
x36 - x7	0	0
x35 - x8	0	0
x34 - x9	0	0
x33 - x10	0	0
x32 - x11	0	0
x31 - x12	0	0
x30 - x13	0	0
x29 - x14	0	0
x28 - x15	0	0
x27 - x16	0	0
x26 - x17	0	0
x25 - x18	0	0
x24 - x19	0	0
x23 - x20	0	0
x22 - x21	0	0
b =		0.001312195

SS =	1.096E-05	sum of the squares of the concentrations
b =	0.0013122	sum of the i * differences column
$W = b^2 / SS =$	0.1572	Distribution not normal.
$W_{critical} =$	0.922	Unified Guidance Appendix D Table 10-3

The Shapiro-Wilk test of normality value shown in Table 23 is 0.1572. Because 0.1572 is less than the critical value of 0.922, normality cannot be confirmed. Because the percentage of background nondetects is >50%, the permit states a nonparametric test is conducted and the PL is equal to the highest background value which is 0.005.

Table 24 shows the data used to plot the comparison of the compliance wells to the PL. All <0.005 values shown in Table 21 have been changed to 0.005 in Table 24.

Table 24. Selenium compliance well sample dataset comparison to PL

Date	MW84-84A	MW87-87A	MW90A	Prediction Limit
7/15/2015	0.005	0.005	0.005	0.005
1/25/2016		0.005	0.00231	0.005
1/27/2016	0.005			0.005
7/12/2016	0.005			0.005
7/13/2016			0.0017	0.005
1/23/2017		0.005	0.005	0.005
1/24/2017	0.00294			0.005
7/12/2017	0.005	0.005	0.005	0.005
1/9/2018			0.005	0.005
1/10/2018	0.005			0.005
8/20/2018	0.005	0.005	0.005	0.005
1/15/2019		0.005		0.005
1/16/2019	0.005		0.005	0.005
7/22/2019	0.005	0.005	0.005	0.005
1/14/2020	0.005	0.005	0.005	0.005
7/14/2020	0.005	0.005	0.005	0.005
1/12/2021	0.005	0.005	0.005	0.005
7/14/2021	0.005	0.005	0.005	0.005
1/6/2022	0.005	0.005	0.005	0.005
7/11/2022	0.005	0.005	0.005	0.005
1/4/2023	0.005	0.005	0.005	0.005
7/11/2023	0.005	0.005		0.005
7/12/2023			0.005	0.005
1/3/2024	0.005	0.005	0.005	0.005
7/9/2024	0.005	0.005	0.005	0.005
1/7/2025	0.005	0.005	0.005	0.005
7/9/2025	0.005	0.005	0.005	0.005

Figure 6 shows the chart for Table 24 and indicates MW-84-84A, MW87-87A, and MW90A are within the PL.

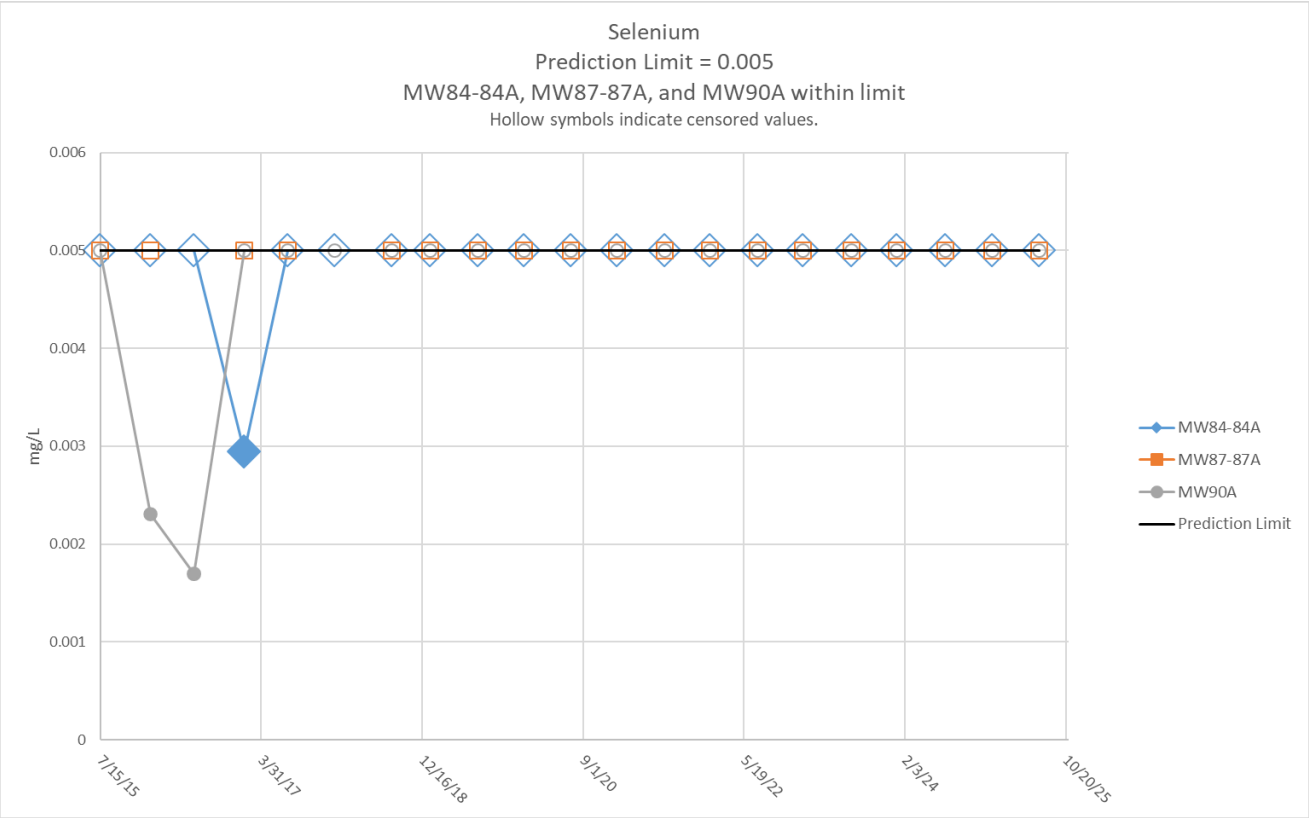


Figure 6. Selenium PL chart

7.0 TECHNETIUM-99 DATASET

Table 25 shows the dataset information, number of background samples, number of background nondetects, percentage of background nondetects, and includes decimal places not shown when rounding. Nondetect results shown in Table 25 have been changed to less than the detection limit value.

Table 25. Technetium-99 dataset information

Technetium-99 (pCi/L)		Compliance	Compliance	Compliance	Background	Background
Number	Date	MW84-84A x_i	MW87-87A x_i	MW90A x_i	MW93-93A x_i	MW420 x_i
1	1/9/2018		<18.9	<18.4	<18.8	21.5
2	1/10/2018	34.4				
3	8/20/2018	<13.5	<15	<14.6	<14.7	<18.4
4	1/15/2019		<19			<19
5	1/16/2019	28.8		<15.8	<22.1	
6	7/22/2019	126	<19.9	<19.4	<20.2	<20.5
7	1/14/2020	297	<21	<23.4	<20.5	<21.2
8	7/14/2020	332	<19.7	<20.5	<20.7	<21.4
9	1/12/2021	353	<19.1	<17.6	<18.3	<17.6
10	4/29/2021	294	<18	26.2	26.9	<18.3
11	7/14/2021	229	<11.5	24.3	20.5	<10.6
12	11/29/2021	258	<18.2	<18.1	<18.5	<18.8
13	1/6/2022	225	<20	<19.1	<20.9	<19.3
14	5/11/2022	47.9	<12	34.4	<15.9	<15.9
15	7/11/2022	47.2				
16	8/15/2022		<13.4	25.7	<15.7	<14.5
17	11/7/2022	64	<16.8	22.3	<17.3	<16.6
18	1/4/2023	202	24.4	<23.7	<18.3	<17.7
19	7/11/2023	64.2	33.3		<18.7	<19.5
20	7/12/2023			24.7		
21	1/3/2024	86	19.2	43.5	<16.6	<16.3
22	7/9/2024	93.5	<19.6	45.3	<19.9	<19.6
23	1/7/2025	104	25.7	55.8	<23.4	<21.9
24	5/29/2025	79.2	<23.1	77.8	<23.2	<22.6
25	7/9/2025	93.7	47.7	72.7	<20	<20.1
n = number of background samples =					42	
Background nondetects =					39	
Percentage of background nondetects =					92.86	

Dixon's outlier and Shapiro-Wilk test of normality are shown in for Tables 26 and 27 and includes decimal places not shown when rounding.

Notes for Table 26 are:

1. Number of observations = n = 21
2. Significance level = $\alpha = 0.05$
3. Critical point = C = 0.440 from Unified Guidance Appendix D, Table 12-1
4. low outlier = $C_{low} = (x_{(3)} - x_{(1)}) / (x_{(n-2)} - x_{(1)})$ from Unified Guidance equation 12.5
5. high outlier = $C_{high} = (x_{(n)} - x_{(n-2)}) / (x_{(n)} - x_{(3)})$ from Unified Guidance equation 12-6
6. If C_{low} or C_{high} is **not less than** C, which is the critical point, then this indicates there is a potential outlier in the dataset.

Table 26. Technetium-99 Dixon's outlier test

Rank	MW84-84A x_i	MW87-87A x_i	MW90A x_i	MW93-93A x_i	MW420 x_i
1	13.5	11.5	14.6	14.7	10.6
2	28.8	12	15.8	15.7	14.5
3	34.4	13.4	17.6	15.9	15.9
4	47.2	15	18.1	16.6	16.3
5	47.9	16.8	18.4	17.3	16.6
6	64	18	19.1	18.3	17.6
7	64.2	18.2	19.4	18.3	17.7
8	79.2	18.9	20.5	18.5	18.3
9	86	19	22.3	18.7	18.4
10	93.5	19.1	23.4	18.8	18.8
11	93.7	19.2	23.7	19.9	19
12	104	19.6	24.3	20	19.3
13	126	19.7	24.7	20.2	19.5
14	202	19.9	25.7	20.5	19.6
15	225	20	26.2	20.5	20.1
16	229	21	34.4	20.7	20.5
17	258	23.1	43.5	20.9	21.2
18	294	24.4	45.3	22.1	21.4
19	297	25.7	55.8	23.2	21.5
20	332	33.3	72.7	23.4	21.9
21	353	47.7	77.8	26.9	22.6
low outlier = C_{low} =	0.0737	0.1338	0.0728	0.1412	0.4862
Results less than C?	Yes	Yes	Yes	Yes	No
high outlier = C_{high} =	0.1758	0.6414	0.3654	0.3364	0.1642
Results less than C?	Yes	No	Yes	Yes	Yes

Dixon's test identified observations in MW87-87A and MW420 as statistical outliers. The Unified Guidance states that the measurements should not be treated as such until a specific physical reason for the abnormal values can be determined. Since a specific physical reason for the abnormal values has not been determined, no outliers were excluded from the dataset.

Table 27 shows the Shapiro-Wilk test of normality of the background data.

Notes for Table 27 are:

1. Number of observations = n = 42
2. Significance level = $\alpha = 0.01$
3. Shapiro-Wilk coefficients = i and are from Unified Guidance Appendix D, Table 10-2
4. Concentration = x and is ranked from lowest to highest
5. Difference = x42 - x1, x41 - x2, ……x22 - x21
6. Sum of the i * Differences column = b
7. Sum of the squares of the concentrations = SS
8. Calculated Shapiro-Wilk = W
9. Critical Shapiro-Wilk = $W_{critical}$ and is from Unified Guidance Appendix D, Table 10-3
10. If the calculated $W > W_{critical}$ then distribution is normal.

Table 27. Technetium-99 Shapiro-Wilk test of normality

Rank	Concentration
1	10.6
2	14.5
3	14.7
4	15.7
5	15.9
6	15.9
7	16.3
8	16.6
9	16.6
10	17.3
11	17.6
12	17.7
13	18.3
14	18.3
15	18.3
16	18.4
17	18.5
18	18.7
19	18.8
20	18.8
21	19
22	19.3
23	19.5
24	19.6
25	19.9
26	20
27	20.1
28	20.2
29	20.5
30	20.5
31	20.5
32	20.7
33	20.9
34	21.2
35	21.4
36	21.5
37	21.9
38	22.1
39	22.6
40	23.2
41	23.4
42	26.9
mean =	19.105
standard deviation =	2.846

Shapiro-Wilk Coefficients	
i1	0.3917
i2	0.2701
i3	0.2345
i4	0.2085
i5	0.1874
i6	0.1694
i7	0.1535
i8	0.1392
i9	0.1259
i10	0.1136
i11	0.1020
i12	0.0909
i13	0.0804
i14	0.0701
i15	0.0602
i16	0.0506
i17	0.0411
i18	0.0318
i19	0.0227
i20	0.0136
i21	0.0045

	Difference	i*Differences
x42 - x1	16.3	6.38471
x41 - x2	8.9	2.40389
x40 - x3	8.5	1.99325
x39 - x4	6.9	1.43865
x38 - x5	6.2	1.16188
x37 - x6	6.0	1.0164
x36 - x7	5.2	0.7982
x35 - x8	4.8	0.66816
x34 - x9	4.6	0.57914
x33 - x10	3.6	0.40896
x32 - x11	3.1	0.3162
x31 - x12	2.8	0.25452
x30 - x13	2.2	0.17688
x29 - x14	2.2	0.15422
x28 - x15	1.9	0.11438
x27 - x16	1.7	0.08602
x26 - x17	1.5	0.06165
x25 - x18	1.2	0.03816
x24 - x19	0.8	0.01816
x23 - x20	0.7	0.00952
x22 - x21	0.3	0.00135
	b =	18.0843

SS =	332.19905	sum of the squares of the concentrations
b =	18.0843	sum of the i * differences column
$W = b^2 / SS =$	0.9845	Normal Distribution
$W_{critical} =$	0.922	Unified Guidance Appendix D Table 10-3

The Shapiro-Wilk test of normality value shown in Table 27 is 0.9845. Because 0.9845 is greater than the critical value of 0.922, normality is confirmed. Because the percentage of background nondetects is >50%, the permit states a nonparametric test is conducted and the PL is equal to the highest background value which is 26.9.

Table 28 shows the data used to plot the comparison of the compliance wells to the PL. All less than values shown in Table 25 have been changed to the value without the less than symbol in Table 28.

Table 28. Technetium-99 compliance well sample dataset comparison to PL

Date	MW84-84A	MW87-87A	MW90A	Prediction Limit
1/9/2018		18.9	18.4	26.9
1/10/2018	34.4			26.9
8/20/2018	13.5	15	14.6	26.9
1/15/2019		19		26.9
1/16/2019	28.8		15.8	26.9
7/22/2019	126	19.9	19.4	26.9
1/14/2020	297	21	23.4	26.9
7/14/2020	332	19.7	20.5	26.9
1/12/2021	353	19.1	17.6	26.9
4/29/2021	294	18	26.2	26.9
7/14/2021	229	11.5	24.3	26.9
11/29/2021	258	18.2	18.1	26.9
1/6/2022	225	20	19.1	26.9
5/11/2022	47.9	12	34.4	26.9
7/11/2022	47.2			26.9
8/15/2022		13.4	25.7	26.9
11/7/2022	64	16.8	22.3	26.9
1/4/2023	202	24.4	23.7	26.9
7/11/2023	64.2	33.3		26.9
7/12/2023			24.7	26.9
1/3/2024	86	19.2	43.5	26.9
7/9/2024	93.5	19.6	45.3	26.9
1/7/2025	104	25.7	55.8	26.9
5/29/2025	79.2	23.1	77.8	26.9
7/9/2025	93.7	47.7	72.7	26.9

Figure 7 shows the chart for Table 28 and indicates MW-84-84A, MW87-87A, and MW90A exceeds the PL.

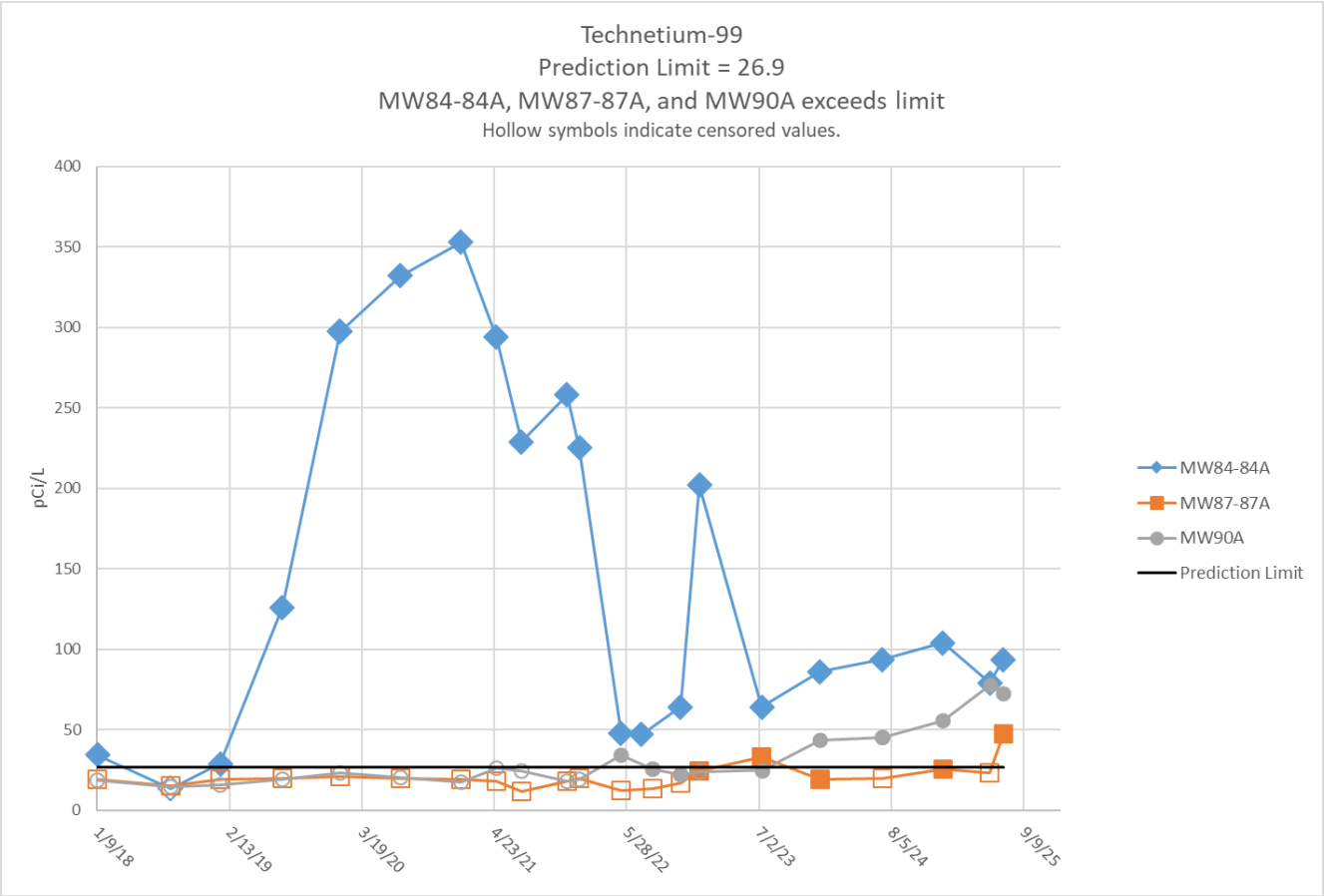


Figure 7. Technetium-99 PL chart

8.0 TRICHLOROETHENE DATASET

Table 29 shows the dataset information, number of background samples, number of background nondetects, percentage of background nondetects, and includes decimal places not shown when rounding.

Table 29. Trichloroethene dataset information

Trichloroethene (µg/L)		Compliance	Compliance	Compliance	Background	Background
Number	Date	MW84-84A x_i	MW87-87A x_i	MW90A x_i	MW93-93A x_i	MW420 x_i
1	7/15/2015	1530	1250	37.9	2520	191
2	1/25/2016		1230	39.8	2490	222
3	1/27/2016	1350				
4	7/12/2016	1820	1090			
5	7/13/2016			35.3	2020	169
6	1/23/2017		2240	49.5	2450	274
7	1/24/2017	2620				
8	7/12/2017	2910	1620	46.1	1400	264
9	1/9/2018		1400	40.6	994	232
10	1/10/2018	3160				
11	8/20/2018	5260	1690	53.3	1000	476
12	1/15/2019		2380			601
13	1/16/2019	5580		69.9	1000	
14	7/22/2019	2000	1850	55.7	789	600
15	1/14/2020	2930	2580	92.9	1360	1090
16	7/14/2020	3230	3090	52	2220	1340
17	1/12/2021	2630	2570	99.6	3120	1690
18	7/14/2021	5290	2410	148	3170	1790
19	1/6/2022	6560	1890	146	2550	2100
20	7/11/2022	6570				
21	8/15/2022		1400	222	1630	1620
22	1/4/2023	7000	2140	296	1960	2110
23	7/11/2023	5870	2160		1880	2090
24	7/12/2023			267		
25	1/3/2024	6090	1690	313	1320	2600
26	7/9/2024	5110	1000	177	554	1790
27	1/7/2025	5340	172	121	658	2670
28	7/9/2025	4020	97.1	13.4	458	2070
n = number of background samples =					42	
Background nondetects =					0	
Percentage of background nondetects =					0	

Table 29 shows the percentage of background nondetects is 0%. The background values were used in the Dixon's outlier and Shapiro-Wilk test of normality tests for Tables 30 and 31. These tables include decimal places not shown when rounding.

Notes for Table 30 are:

1. Number of observations = n = 21
2. Significance level = $\alpha = 0.05$
3. Critical point = C = 0.440 from Unified Guidance Appendix D, Table 12-1
4. low outlier = Clow = (x(3) -x(1)) / (x(n-2) - x(1)) from Unified Guidance equation 12.5
5. high outlier = Chigh = (x(n) -x(n-2)) / (x(n) - x(3)) from Unified Guidance equation 12-6
6. If Clow or Chigh is not less than C, which is the critical point, then this indicates there is a potential outlier in the dataset.

Table 30. TCE Dixon's outlier test

Rank	MW84-84A x_i	MW87-87A x_i	MW90A x_i	MW93-93A x_i	MW420 x_i
1	1350	97.1	13.4	458	169
2	1530	172	35.3	554	191
3	1820	1000	37.9	658	222
4	2000	1090	39.8	789	232
5	2620	1230	40.6	994	264
6	2630	1250	46.1	1000	274
7	2910	1400	49.5	1000	476
8	2930	1400	52	1320	600
9	3160	1620	53.3	1360	601
10	3230	1690	55.7	1400	1090
11	4020	1690	69.9	1630	1340
12	5110	1850	92.9	1880	1620
13	5260	1890	99.6	1960	1690
14	5290	2140	121	2020	1790
15	5340	2160	146	2220	1790
16	5580	2240	148	2450	2070
17	5870	2380	177	2490	2090
18	6090	2410	222	2520	2100
19	6560	2570	267	2550	2110
20	6570	2580	296	3120	2600
21	7000	3090	313	3170	2670
low outlier = C_{low} =	0.0902	0.3651	0.0966	0.0956	0.0273
Results less than C?	Yes	Yes	Yes	Yes	Yes
high outlier = C_{high} =	0.0849	0.2488	0.1672	0.2468	0.2288
Results less than C?	Yes	Yes	Yes	Yes	Yes

Dixon's test identified no observations as statistical outliers.

Notes for Table 31 are:

1. Number of observations = n = 42
2. Significance level = α = 0.01
3. Shapiro-Wilk coefficients = i and are from Unified Guidance Appendix D, Table 10-2
4. Concentration = x and is ranked from lowest to highest
5. Difference = x42 - x1, x41 - x2, ……x22 - x21
6. Sum of the i * Differences column = b
7. Sum of the squares of the concentrations = SS
8. Calculated Shapiro-Wilk = W
9. Critical Shapiro-Wilk = $W_{critical}$ and is from Unified Guidance Appendix D, Table 10-3
10. If the calculated W > $W_{critical}$ then distribution is normal.

Table 31. TCE Shapiro-Wilk test of normality

Rank	Concentration
1	169
2	191
3	222
4	232
5	264
6	274
7	458
8	476
9	554
10	600
11	601
12	658
13	789
14	994
15	1000
16	1000
17	1090
18	1320
19	1340
20	1360
21	1400
22	1620
23	1630
24	1690
25	1790
26	1790
27	1880
28	1960
29	2020
30	2070
31	2090
32	2100
33	2110
34	2220
35	2450
36	2490
37	2520
38	2550
39	2600
40	2670
41	3120
42	3170
mean =	1465
standard deviation =	874.9

Shapiro-Wilk Coefficients	
i1	0.3917
i2	0.2701
i3	0.2345
i4	0.2085
i5	0.1874
i6	0.1694
i7	0.1535
i8	0.1392
i9	0.1259
i10	0.1136
i11	0.1020
i12	0.0909
i13	0.0804
i14	0.0701
i15	0.0602
i16	0.0506
i17	0.0411
i18	0.0318
i19	0.0227
i20	0.0136
i21	0.0045

	Difference	i*Differences
x42 - x1	3001	1175.4917
x41 - x2	2929	791.1229
x40 - x3	2448	574.056
x39 - x4	2368	493.728
x38 - x5	2286	428.3964
x37 - x6	2246	380.4724
x36 - x7	2032	311.912
x35 - x8	1974	274.7808
x34 - x9	1666	209.7494
x33 - x10	1510	171.536
x32 - x11	1499	152.898
x31 - x12	1432	130.1688
x30 - x13	1281	102.9924
x29 - x14	1026	71.9226
x28 - x15	960	57.792
x27 - x16	880	44.528
x26 - x17	700	28.77
x25 - x18	470	14.946
x24 - x19	350	7.945
x23 - x20	270	3.672
x22 - x21	220	0.99
	b =	5427.8704

SS =	31382489.9	sum of the squares of the concentrations
b =	5427.8704	sum of the i * differences column
$W = b^2 / SS =$	0.9388	Normal Distribution
$W_{critical} =$	0.922	Unified Guidance Appendix D Table 10-3

The Shapiro-Wilk test of normality value shown in Table 31 is 0.9388. Because 0.9388 is greater than the critical value of 0.922, normality is confirmed and a parametric PL is determined.

The parametric PL is determined using Unified Guidance Equation 18.3, which is shown below.

PL = mean + standard deviation * sqrt(1/m + 1/n) * t-quantile

where:
mean = average of background values = 1465
standard deviation = standard deviation of background values = 874.9
m = 1
n = observations = 42
degrees of freedom = n – 1 = 41
t-quantile is from Unified Guidance Appendix D, Table 16 -1. The t-quantile for 41 degrees of freedom at a 95% confidence level = 1.683

PL = 1465 + 874.9 * square root (1/1 + 1/42) * 1.683 = 2955

Table 32 shows the data used to plot the comparison of the compliance wells to the PL.

Table 32. TCE compliance well sample dataset comparison to PL

Date	MW84-84A	MW87-87A	MW90A	Prediction Limit
7/15/2015	1530	1250	37.9	2955
1/25/2016		1230	39.8	2955
1/27/2016	1350			2955
7/12/2016	1820	1090		2955
7/13/2016			35.3	2955
1/23/2017		2240	49.5	2955
1/24/2017	2620			2955
7/12/2017	2910	1620	46.1	2955
1/9/2018		1400	40.6	2955
1/10/2018	3160			2955
8/20/2018	5260	1690	53.3	2955
1/15/2019		2380		2955
1/16/2019	5580		69.9	2955
7/22/2019	2000	1850	55.7	2955
1/14/2020	2930	2580	92.9	2955
7/14/2020	3230	3090	52	2955
1/12/2021	2630	2570	99.6	2955
7/14/2021	5290	2410	148	2955
1/6/2022	6560	1890	146	2955
7/11/2022	6570			2955
8/15/2022		1400	222	2955
1/4/2023	7000	2140	296	2955
7/11/2023	5870	2160		2955
7/12/2023			267	2955
1/3/2024	6090	1690	313	2955
7/9/2024	5110	1000	177	2955
1/7/2025	5340	172	121	2955
7/9/2025	4020	97.1	13.4	2955

Figure 8 shows the chart for Table 32 and indicates MW-84-84A exceeds the PL.

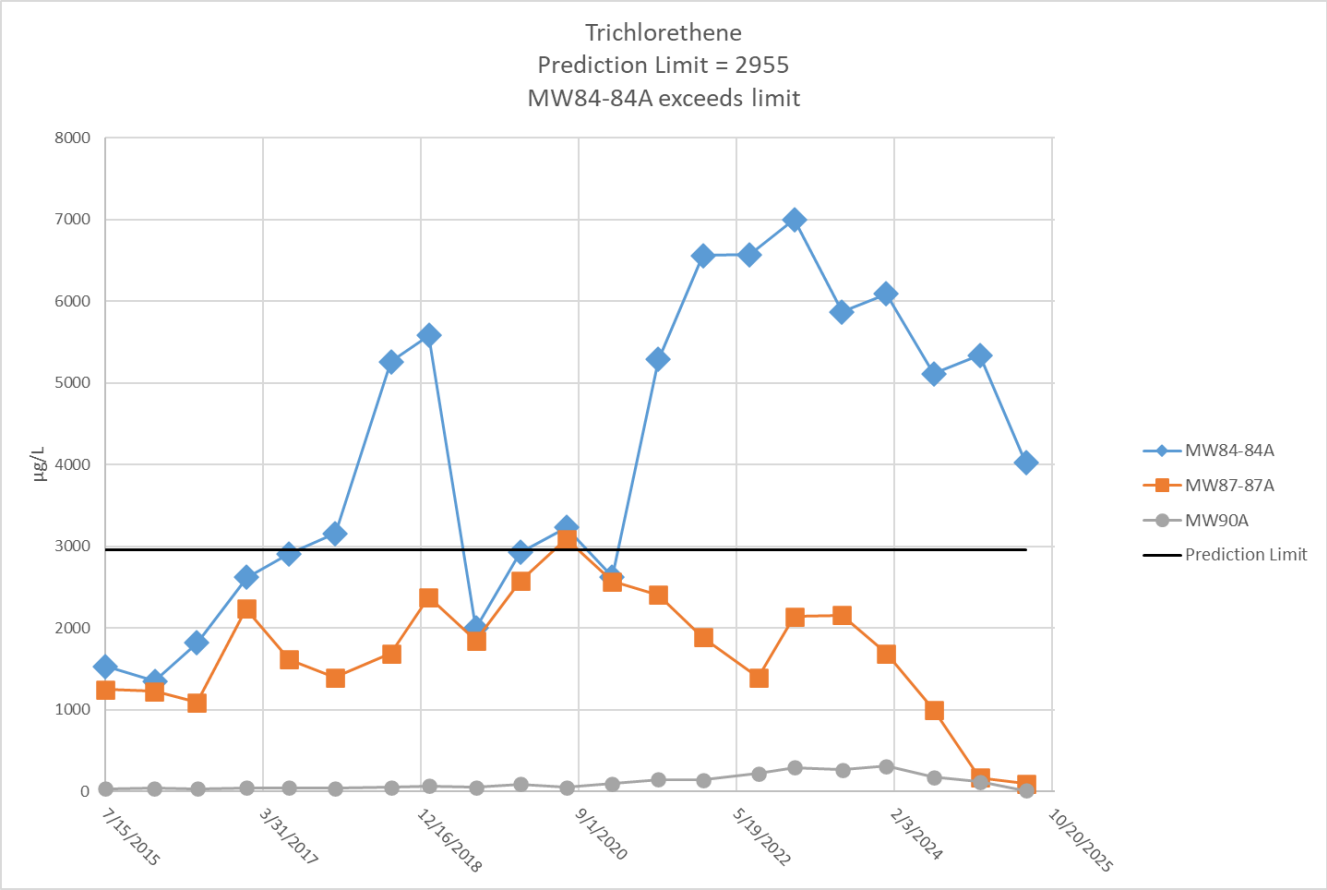


Figure 8. Trichloroethene PL chart

9.0 URANIUM DATASET

Table 33 shows the dataset information, number of background samples, number of background nondetects, percentage of background nondetects, and includes decimal places not shown when rounding. Nondetect results shown in Table 33 have been changed to less than the detection limit value.

Table 33. Uranium dataset information

Uranium (mg/L)		Compliance	Compliance	Compliance	Background	Background
Number	Date	MW84-84A x_i	MW87-87A x_i	MW90A x_i	MW93-93A x_i	MW420 x_i
1	7/15/2015	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
2	1/25/2016		<0.0002	<0.0002	<0.0002	<0.0002
3	1/27/2016	<0.0002				
4	7/12/2016	0.000345	0.000559			
5	7/13/2016			<0.0002	0.000165	<0.0002
6	1/23/2017		0.000522	<0.0002	0.000223	<0.0002
7	1/24/2017	0.000618				
8	7/12/2017	0.000355	0.000571	<0.0002	0.000224	<0.0002
9	1/9/2018		0.000681	<0.0002	<0.0002	<0.0002
10	1/10/2018	0.0002				
11	8/20/2018	0.000302	0.000722	<0.0002	0.000113	<0.0002
12	1/15/2019		0.00042			<0.0002
13	1/16/2019	0.000193		<0.0002	<0.0002	
14	7/22/2019	0.00089	<0.0002	<0.0002	0.00056	<0.0002
15	1/14/2020	0.000305	<0.0002	<0.0002	<0.0002	<0.0002
16	7/14/2020	0.000219	<0.0002	<0.0002	0.000089	<0.0002
17	1/12/2021	0.000156	<0.0002	<0.0002	0.0001	<0.0002
18	7/14/2021	<0.0002	<0.0002	<0.0002	0.000079	<0.0002
19	1/6/2022	<0.0002	<0.0002	<0.0002	0.000126	<0.0002
20	7/11/2022	0.000068	<0.0002	<0.0002	0.000076	<0.0002
21	1/4/2023	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
22	7/11/2023	<0.0002	<0.0002		<0.0002	<0.0002
23	7/12/2023			<0.0002		
24	1/3/2024	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
25	7/9/2024	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
26	1/7/2025	<0.0002	<0.0002	<0.0002	0.000068	<0.0002
27	7/9/2025	0.000069	<0.0002	<0.0002	<0.0002	<0.0002
n = number of background samples =					42	
Background nondetects =					31	
Percentage of background nondetects =					73.81	

Dixon's outlier and Shapiro-Wilk test of normality are shown in Tables 34 and 35 and includes decimal places not shown when rounding.

Notes for Table 34 are:

1. Number of observations = n = 21
2. Significance level = $\alpha = 0.05$
3. Critical point = C = 0.440 from Unified Guidance Appendix D, Table 12-1
4. low outlier = $C_{low} = (x_{(3)} - x_{(1)}) / (x_{(n-2)} - x_{(1)})$ from Unified Guidance equation 12.5
5. high outlier = $C_{high} = (x_{(n)} - x_{(n-2)}) / (x_{(n)} - x_{(3)})$ from Unified Guidance equation 12-6
6. If C_{low} or C_{high} is **not less than** C, which is the critical point, then this indicates there is a potential outlier in the dataset.

Table 34. Uranium Dixon's outlier test

Rank	MW84-84A x_i	MW87-87A x_i	MW90A x_i	MW93-93A x_i	MW420 x_i
1	0.000068	0.0002	0.0002	0.000068	0.0002
2	0.000069	0.0002	0.0002	0.000076	0.0002
3	0.000156	0.0002	0.0002	0.000079	0.0002
4	0.000193	0.0002	0.0002	0.000089	0.0002
5	0.0002	0.0002	0.0002	0.0001	0.0002
6	0.0002	0.0002	0.0002	0.000113	0.0002
7	0.0002	0.0002	0.0002	0.000126	0.0002
8	0.0002	0.0002	0.0002	0.000165	0.0002
9	0.0002	0.0002	0.0002	0.0002	0.0002
10	0.0002	0.0002	0.0002	0.0002	0.0002
11	0.0002	0.0002	0.0002	0.0002	0.0002
12	0.0002	0.0002	0.0002	0.0002	0.0002
13	0.0002	0.0002	0.0002	0.0002	0.0002
14	0.0002	0.0002	0.0002	0.0002	0.0002
15	0.000219	0.0002	0.0002	0.0002	0.0002
16	0.000302	0.00042	0.0002	0.0002	0.0002
17	0.000305	0.000522	0.0002	0.0002	0.0002
18	0.000345	0.000559	0.0002	0.0002	0.0002
19	0.000355	0.000571	0.0002	0.000223	0.0002
20	0.000618	0.000681	0.0002	0.000224	0.0002
21	0.00089	0.000722	0.0002	0.00056	0.0002
low outlier = C_{low} =	0.3066	0.0000	#DIV/0!	0.0710	#DIV/0!
Results less than C?	Yes	Yes	#DIV/0!	Yes	#DIV/0!
high outlier = C_{high} =	0.7289	0.2893	#DIV/0!	0.7006	#DIV/0!
Results less than C?	No	Yes	#DIV/0!	No	#DIV/0!

Dixon's test identified observations in MW84-84A and MW93-93A as statistical outliers. The Unified Guidance states that the measurements should not be treated as such until a specific physical reason for the abnormal values can be determined. Since a specific physical reason for the abnormal values has not been determined, no outliers were excluded from the dataset.

Table 35 shows the Shapiro-Wilk test of normality of the background data.

Notes for Table 35 are:

1. Number of observations = n = 42
2. Significance level = $\alpha = 0.01$
3. Shapiro-Wilk coefficients = i and are from Unified Guidance Appendix D, Table 10-2
4. Concentration = x and is ranked from lowest to highest
5. Difference = x42 - x1, x41 - x2, ……x22 - x21
6. Sum of the i * Differences column = b
7. Sum of the squares of the concentrations = SS
8. Calculated Shapiro-Wilk = W
9. Critical Shapiro-Wilk = $W_{critical}$ and is from Unified Guidance Appendix D, Table 10-3
10. If the calculated $W > W_{critical}$ then distribution is normal.

Table 35. Uranium Shapiro-Wilk test of normality

Rank	Concentration
1	0.000068
2	0.000076
3	0.000079
4	0.000089
5	0.0001
6	0.000113
7	0.000126
8	0.000165
9	0.0002
10	0.0002
11	0.0002
12	0.0002
13	0.0002
14	0.0002
15	0.0002
16	0.0002
17	0.0002
18	0.0002
19	0.0002
20	0.0002
21	0.0002
22	0.0002
23	0.0002
24	0.0002
25	0.0002
26	0.0002
27	0.0002
28	0.0002
29	0.0002
30	0.0002
31	0.0002
32	0.0002
33	0.0002
34	0.0002
35	0.0002
36	0.0002
37	0.0002
38	0.0002
39	0.0002
40	0.000223
41	0.000224
42	0.00056

mean =	0.0002
standard deviation =	0.000072

Shapiro-Wilk Coefficients	
i1	0.3917
i2	0.2701
i3	0.2345
i4	0.2085
i5	0.1874
i6	0.1694
i7	0.1535
i8	0.1392
i9	0.1259
i10	0.1136
i11	0.1020
i12	0.0909
i13	0.0804
i14	0.0701
i15	0.0602
i16	0.0506
i17	0.0411
i18	0.0318
i19	0.0227
i20	0.0136
i21	0.0045

	Difference	i*Differences
x42 - x1	0.000492	0.000192716
x41 - x2	0.000148	3.99748E-05
x40 - x3	0.000144	0.000033768
x39 - x4	0.000111	2.31435E-05
x38 - x5	0.000100	0.00001874
x37 - x6	0.000087	1.47378E-05
x36 - x7	0.000074	0.000011359
x35 - x8	0.000035	0.000004872
x34 - x9	0	0
x33 - x10	0	0
x32 - x11	0	0
x31 - x12	0	0
x30 - x13	0	0
x29 - x14	0	0
x28 - x15	0	0
x27 - x16	0	0
x26 - x17	0	0
x25 - x18	0	0
x24 - x19	0	0
x23 - x20	0	0
x22 - x21	0	0
	b =	0.000339312

SS =	2.114E-07	sum of the squares of the concentrations
b =	0.0003393	sum of the i * differences column
$W = b^2 / SS =$	0.5447	Distribution not normal.
$W_{critical} =$	0.922	Unified Guidance Appendix D Table 10-3

The Shapiro-Wilk test of normality value shown in Table 35 is 0.5477. Because 0.5477 is less than the critical value of 0.922, normality cannot be confirmed. Because the percentage of background nondetects is >50%, the permit states a nonparametric test is conducted and the PL is equal to the highest background value which is 0.00056.

Table 36 shows the data used to plot the comparison of the compliance wells to the PL. All values <0.0002 shown in Table 33 have been changed to the value of 0.0002 in Table 36.

Table 36. Uranium compliance well sample dataset comparison to PL

Date	MW84-84A	MW87-87A	MW90A	Prediction Limit
7/15/2015	0.0002	0.0002	0.0002	0.00056
1/25/2016		0.0002	0.0002	0.00056
1/27/2016	0.0002			0.00056
7/12/2016	0.000345	0.000559		0.00056
7/13/2016			0.0002	0.00056
1/23/2017		0.000522	0.0002	0.00056
1/24/2017	0.000618			0.00056
7/12/2017	0.000355	0.000571	0.0002	0.00056
1/9/2018		0.000681	0.0002	0.00056
1/10/2018	0.0002			0.00056
8/20/2018	0.000302	0.000722	0.0002	0.00056
1/15/2019		0.00042		0.00056
1/16/2019	0.000193		0.0002	0.00056
7/22/2019	0.00089	0.0002	0.0002	0.00056
1/14/2020	0.000305	0.0002	0.0002	0.00056
7/14/2020	0.000219	0.0002	0.0002	0.00056
1/12/2021	0.000156	0.0002	0.0002	0.00056
7/14/2021	0.0002	0.0002	0.0002	0.00056
1/6/2022	0.0002	0.0002	0.0002	0.00056
7/11/2022	0.000068	0.0002	0.0002	0.00056
1/4/2023	0.0002	0.0002	0.0002	0.00056
7/11/2023	0.0002	0.0002		0.00056
7/12/2023			0.0002	0.00056
1/3/2024	0.0002	0.0002	0.0002	0.00056
7/9/2024	0.0002	0.0002	0.0002	0.00056
1/7/2025	0.0002	0.0002	0.0002	0.00056
7/9/2025	0.000069	0.0002	0.0002	0.00056
7/15/2015	0.0002	0.0002	0.0002	0.00056
1/25/2016		0.0002	0.0002	0.00056
1/27/2016	0.0002			0.00056

Figure 9 shows the chart for Table 36 and indicates MW-84-84A, MW87-87A, and MW90A are within the PL.

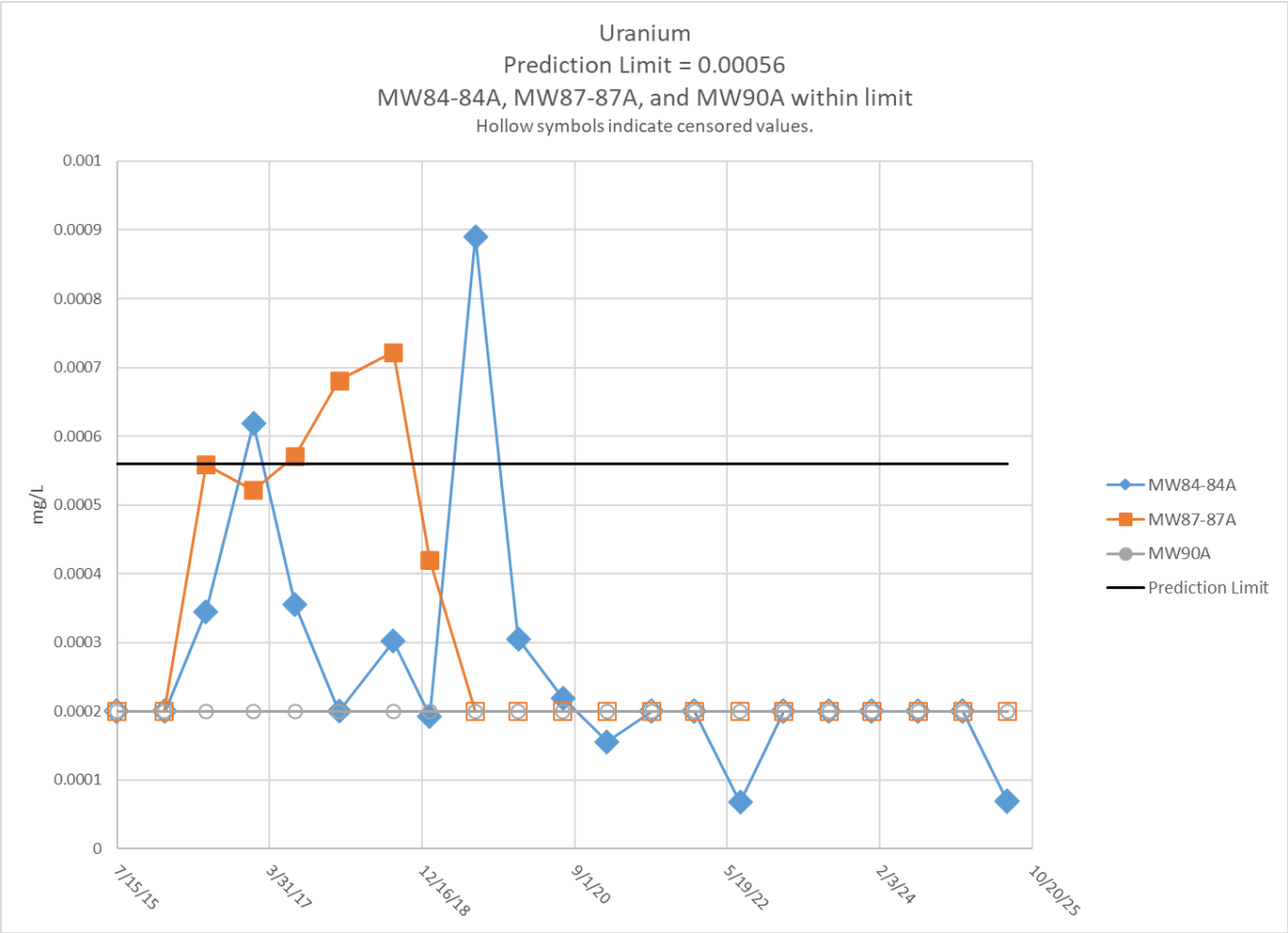


Figure 9. Uranium PL chart

10.0 URANIUM-234 DATASET

Table 37 shows the dataset information, number of background samples, number of background nondetects, percentage of background nondetects, and includes decimal places not shown when rounding. Nondetect results shown in Table 37 have been changed to less than the detection limit value.

Table 37. Uranium-234 dataset information

Uranium-234 (pCi/L)		Compliance	Compliance	Compliance	Background	Background
Number	Date	MW84-84A x_i	MW87-87A x_i	MW90A x_i	MW93-93A x_i	MW420 x_i
1	1/9/2018		<1.91	<2.07	<2.2	<1.46
2	1/10/2018	<1.16				
3	8/20/2018	<1.05	<1.73	<2.61	<1.56	<1.56
4	1/15/2019		<2.38			<2.23
5	1/16/2019	<1.43		1.89	<1.37	
6	7/22/2019	1.77	<2.02	1.67	2.38	<1.42
7	1/14/2020	<1.39	<1.35	<1.31	<1.51	<1.12
8	7/14/2020	<1.88	<1.65	<1.84	<1.66	<1.91
9	1/12/2021	<1.28	<1.26	<1.4	<1.19	<1.14
10	4/29/2021	<1.37	<1.42	<1.67	<1.99	<2.16
11	7/14/2021	<2.45	<1.75	<1.79	<2.36	<1.76
12	11/29/2021	<1.96	<1.43	<1.19	<2.01	<1.49
13	1/6/2022	<1.08	<1.09	<0.91	<2.71	<0.936
14	5/11/2022	<0.6	<0.605	<0.539	<0.552	<0.723
15	7/11/2022	<2.37	<1.64	<1.83	<1.78	<2.39
16	11/7/2022	<1.05	<1.34	<1.52	<1.28	<1.17
17	1/4/2023	<1.42	<1.4	<1.56	<1.05	<1.56
18	7/11/2023	<1.18	<1.33		<1.37	<1.03
19	7/12/2023			<1.61		
20	1/3/2024	<2.26	<2.35	<2.5	<3.2	<2.32
21	7/9/2024	<1.11	<1.26	<1.42	<2.14	<2.28
22	1/7/2025	<1.29	<1.11	<1.89	<2.14	<1.18
23	5/29/2025	<1.33	<1.63	<2.43	<1.46	<1.65
24	7/9/2025	<1.37	<1.27	<1.39	<1.28	<1.4
n = number of background samples =					42	
Background nondetects =					41	
Percentage of background nondetects =					97.62	

Table 37 shows the percentage of background nondetects is 0%. The background values were used in the Dixon's outlier and Shapiro-Wilk test of normality for Tables 38 and 39. These tables include decimal places not shown when rounding.

Notes for Table 38 are:

1. Number of observations = n = 21
2. Significance level = $\alpha = 0.05$
3. Critical point = C = 0.440 from Unified Guidance Appendix D, Table 12-1
4. low outlier = $C_{low} = (x_{(3)} - x_{(1)}) / (x_{(n-2)} - x_{(1)})$ from Unified Guidance equation 12.5
5. high outlier = $C_{high} = (x_{(n)} - x_{(n-2)}) / (x_{(n)} - x_{(3)})$ from Unified Guidance equation 12-6
6. If C_{low} or C_{high} is **not less than** C, which is the critical point, then this indicates there is a potential outlier in the dataset.

Table 38. Uranium-234 Dixon's outlier test

Rank	MW84-84A x_i	MW87-87A x_i	MW90A x_i	MW93-93A x_i	MW420 x_i
1	0.6	0.605	0.539	0.552	0.723
2	1.05	1.09	0.91	1.05	0.936
3	1.05	1.11	1.19	1.19	1.03
4	1.08	1.26	1.31	1.28	1.12
5	1.11	1.26	1.39	1.28	1.14
6	1.16	1.27	1.4	1.37	1.17
7	1.18	1.33	1.42	1.37	1.18
8	1.28	1.34	1.52	1.46	1.4
9	1.29	1.35	1.56	1.51	1.42
10	1.33	1.4	1.61	1.56	1.46
11	1.37	1.42	1.67	1.66	1.49
12	1.37	1.43	1.67	1.78	1.56
13	1.39	1.63	1.79	1.99	1.56
14	1.42	1.64	1.83	2.01	1.65
15	1.43	1.65	1.84	2.14	1.76
16	1.77	1.73	1.89	2.14	1.91
17	1.88	1.75	1.89	2.2	2.16
18	1.96	1.91	2.07	2.36	2.23
19	2.26	2.02	2.43	2.38	2.28
20	2.37	2.35	2.5	2.71	2.32
21	2.45	2.38	2.61	3.2	2.39
low outlier = C_{low} =	0.2711	0.3569	0.3443	0.3490	0.1972
Results less than C?	Yes	Yes	Yes	Yes	Yes
high outlier = C_{high} =	0.1357	0.2835	0.1268	0.4080	0.0809
Results less than C?	Yes	Yes	Yes	Yes	Yes

Dixon's test identified no observations as statistical outliers.

Notes for Table 39 are:

1. Number of observations = n = 42
2. Significance level = $\alpha = 0.01$
3. Shapiro-Wilk coefficients = i and are from Unified Guidance Appendix D, Table 10-2
4. Concentration = x and is ranked from lowest to highest
5. Difference = x42 - x1, x41 - x2, ……x22 - x21
6. Sum of the i * Differences column = b
7. Sum of the squares of the concentrations = SS
8. Calculated Shapiro-Wilk = W
9. Critical Shapiro-Wilk = $W_{critical}$ and is from Unified Guidance Appendix D, Table 10-3
10. If the calculated $W > W_{critical}$ then distribution is normal.

Table 39. Uranium-234 Shapiro-Wilk test of normality

Rank	Concentration
1	0.552
2	0.723
3	0.936
4	1.03
5	1.05
6	1.12
7	1.14
8	1.17
9	1.18
10	1.19
11	1.28
12	1.28
13	1.37
14	1.37
15	1.4
16	1.42
17	1.46
18	1.46
19	1.49
20	1.51
21	1.56
22	1.56
23	1.56
24	1.65
25	1.66
26	1.76
27	1.78
28	1.91
29	1.99
30	2.01
31	2.14
32	2.14
33	2.16
34	2.2
35	2.23
36	2.28
37	2.32
38	2.36
39	2.38
40	2.39
41	2.71
42	3.2
mean =	1.669
standard deviation =	0.560

Shapiro-Wilk Coefficients	
i1	0.3917
i2	0.2701
i3	0.2345
i4	0.2085
i5	0.1874
i6	0.1694
i7	0.1535
i8	0.1392
i9	0.1259
i10	0.1136
i11	0.1020
i12	0.0909
i13	0.0804
i14	0.0701
i15	0.0602
i16	0.0506
i17	0.0411
i18	0.0318
i19	0.0227
i20	0.0136
i21	0.0045

	Difference	i*Differences
x42 - x1	2.648	1.0372216
x41 - x2	1.987	0.5366887
x40 - x3	1.454	0.340963
x39 - x4	1.350	0.281475
x38 - x5	1.310	0.245494
x37 - x6	1.200	0.20328
x36 - x7	1.140	0.17499
x35 - x8	1.060	0.147552
x34 - x9	1.020	0.128418
x33 - x10	0.970	0.110192
x32 - x11	0.860	0.08772
x31 - x12	0.860	0.078174
x30 - x13	0.640	0.051456
x29 - x14	0.620	0.043462
x28 - x15	0.510	0.030702
x27 - x16	0.360	0.018216
x26 - x17	0.300	0.01233
x25 - x18	0.200	0.00636
x24 - x19	0.160	0.003632
x23 - x20	0.050	0.00068
x22 - x21	0	0
	b =	3.5390063

SS =	12.873806	sum of the squares of the concentrations
b =	3.5390063	sum of the i * differences column
$W = b^2 / SS =$	0.9729	Normal Distribution
$W_{critical} =$	0.922	Unified Guidance Appendix D Table 10-3

The Shapiro-Wilk test of normality value shown in Table 39 is 0.9729. Because 0.9729 is greater than the critical value of 0.922, normality is confirmed. Because the percentage of background nondetects is >50%, the permit states a nonparametric test is conducted and the PL is equal to the highest background value which is 3.2.

Table 40 shows the data used to plot the comparison of the compliance wells to the PL. All less than values shown in Table 37 have been changed to the value without the less than symbol in Table 40.

Table 40. Uranium-234 compliance well sample dataset comparison to PL

Date	MW84-84A	MW87-87A	MW90A	Prediction Limit
1/9/2018		1.91	2.07	3.2
1/10/2018	1.16			3.2
8/20/2018	1.05	1.73	2.61	3.2
1/15/2019		2.38		3.2
1/16/2019	1.43		1.89	3.2
7/22/2019	1.77	2.02	1.67	3.2
1/14/2020	1.39	1.35	1.31	3.2
7/14/2020	1.88	1.65	1.84	3.2
1/12/2021	1.28	1.26	1.4	3.2
4/29/2021	1.37	1.42	1.67	3.2
7/14/2021	2.45	1.75	1.79	3.2
11/29/2021	1.96	1.43	1.19	3.2
1/6/2022	1.08	1.09	0.91	3.2
5/11/2022	0.6	0.605	0.539	3.2
7/11/2022	2.37	1.64	1.83	3.2
11/7/2022	1.05	1.34	1.52	3.2
1/4/2023	1.42	1.4	1.56	3.2
7/11/2023	1.18	1.33		3.2
7/12/2023			1.61	3.2
1/3/2024	2.26	2.35	2.5	3.2
7/9/2024	1.11	1.26	1.42	3.2
1/7/2025	1.29	1.11	1.89	3.2
5/29/2025	1.33	1.63	2.43	3.2
7/9/2025	1.37	1.27	1.39	3.2

Figure 10 shows the chart for Table 40 and indicates MW-84-84A, MW87-87A, and MW90A are within the PL.

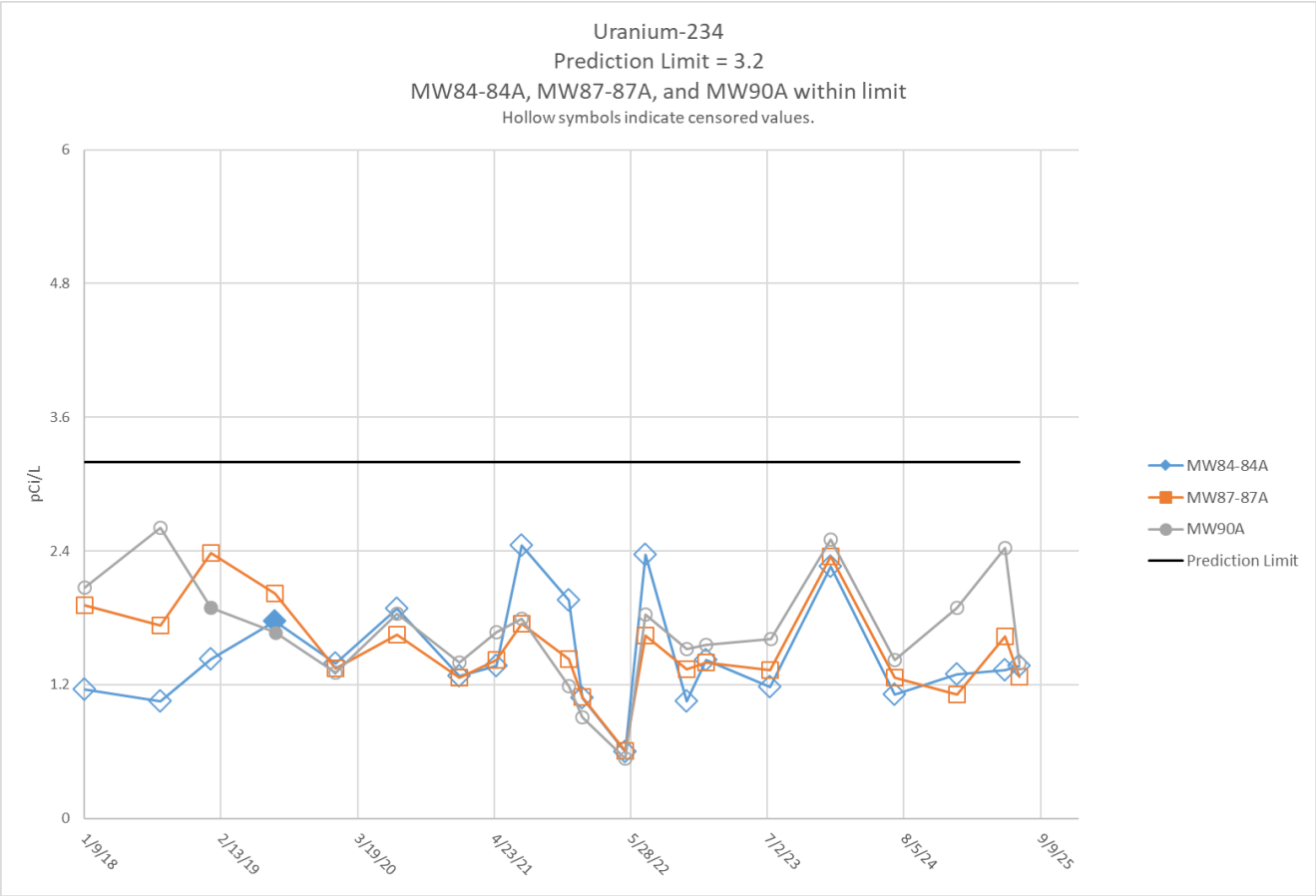


Figure 10. Uranium-234 PL chart

11.0 URANIUM-235 DATASET

Table 41 shows the dataset information, number of background samples, number of background nondetects, percentage of background nondetects, and includes decimal places not shown when rounding. Nondetect results shown in Table 41 have been changed to less than the detection limit value.

Table 41. Uranium-235 dataset information

Uranium-235 (pCi/L)		Compliance	Compliance	Compliance	Background	Background
Number	Date	MW84-84A x_i	MW87-87A x_i	MW90A x_i	MW93-93A x_i	MW420 x_i
1	1/9/2018		<2.21	<2.03	<1.55	<1.14
2	1/10/2018	<0.953				
3	8/20/2018	<0.501	<1.37	<1.5	<0.756	<1.69
4	1/15/2019		<1.63			<1.63
5	1/16/2019	<1.26		<1.28	<0.597	
6	7/22/2019	<0.978	<1.52	<1.45	<1.42	<1.14
7	1/14/2020	<1.05	<0.61	<1.28	<1.23	<0.995
8	7/14/2020	<1.28	<0.708	<1.42	<1.44	<1.32
9	1/12/2021	<1.01	<0.99	<1.12	<1.06	<0.833
10	4/29/2021	<0.648	<1.08	<1.43	<1.31	<1.37
11	7/14/2021	<1.7	<1.55	<0.702	<0.719	<1.13
12	11/29/2021	<1.45	<1.07	<0.981	<1.7	<1.04
13	1/6/2022	<0.436	<0.52	<0.442	<2.06	<0.435
14	5/11/2022	<0.369	<0.409	<0.25	<0.224	<0.43
15	7/11/2022	<1.36	<1.34	<1.74	<0.833	<1.98
16	11/7/2022	<0.561	<1.31	<0.771	<1.07	<0.998
17	1/4/2023	<1.14	<0.702	<0.752	<0.527	<0.756
18	7/11/2023	<0.914	<1.13		<1.09	<1.05
19	7/12/2023			<0.824		
20	1/3/2024	<2.03	<1.36	<3.11	<2.73	<2.07
21	7/9/2024	<1.29	<0.998	<0.993	<2.27	<1.97
22	1/7/2025	<1.17	<0.896	<1.28	<1.35	<0.865
23	5/29/2025	<0.556	<0.797	<0.677	<0.667	<0.704
24	7/9/2025	<0.685	<0.842	<0.929	<1.02	<1.01
n = number of background samples =					42	
Background nondetects =					42	
Percentage of background nondetects =					100	

Dixon's outlier and Shapiro-Wilk test of normality tests are shown in Tables 42 and 43. These tables include decimal places not shown when rounding.

Notes for Table 42 are:

1. Number of observations = n = 21
2. Significance level = $\alpha = 0.05$
3. Critical point = C = 0.440 from Unified Guidance Appendix D, Table 12-1
4. low outlier = $C_{low} = (x_{(3)} - x_{(1)}) / (x_{(n-2)} - x_{(1)})$ from Unified Guidance equation 12.5
5. high outlier = $C_{high} = (x_{(n)} - x_{(n-2)}) / (x_{(n)} - x_{(3)})$ from Unified Guidance equation 12-6
6. If C_{low} or C_{high} is **not less than** C, which is the critical point, then this indicates there is a potential outlier in the dataset.

Table 42. Uranium-235 Dixon's outlier test

Rank	MW84-84A x_i	MW87-87A x_i	MW90A x_i	MW93-93A x_i	MW420 x_i
1	0.369	0.409	0.25	0.224	0.43
2	0.436	0.52	0.442	0.527	0.435
3	0.501	0.61	0.677	0.597	0.704
4	0.556	0.702	0.702	0.667	0.756
5	0.561	0.708	0.752	0.719	0.833
6	0.648	0.797	0.771	0.756	0.865
7	0.685	0.842	0.824	0.833	0.995
8	0.914	0.896	0.929	1.02	0.998
9	0.953	0.99	0.981	1.06	1.01
10	0.978	0.998	0.993	1.07	1.04
11	1.01	1.07	1.12	1.09	1.05
12	1.05	1.08	1.28	1.23	1.13
13	1.14	1.13	1.28	1.31	1.14
14	1.17	1.31	1.28	1.35	1.14
15	1.26	1.34	1.42	1.42	1.32
16	1.28	1.36	1.43	1.44	1.37
17	1.29	1.37	1.45	1.55	1.63
18	1.36	1.52	1.5	1.7	1.69
19	1.45	1.55	1.74	2.06	1.97
20	1.7	1.63	2.03	2.27	1.98
21	2.03	2.21	3.11	2.73	2.07
low outlier = C_{low} =	0.1221	0.1762	0.2866	0.2032	0.1779
Results less than C?	Yes	Yes	Yes	Yes	Yes
high outlier = C_{high} =	0.3793	0.4125	0.5631	0.3141	0.0732
Results less than C?	Yes	Yes	No	Yes	Yes

Dixon's test identified observations in MW90A as statistical outliers. The Unified Guidance states that the measurements should not be treated as such until a specific physical reason for the abnormal values can be determined. Since a specific physical reason for the abnormal values has not been determined, no outliers were excluded from the dataset.

Notes for Table 43 are:

1. Number of observations = n = 42
2. Significance level = $\alpha = 0.01$
3. Shapiro-Wilk coefficients = i and are from Unified Guidance Appendix D, Table 10-2
4. Concentration = x and is ranked from lowest to highest
5. Difference = x42 - x1, x41 - x2, ……x22 - x21
6. Sum of the i * Differences column = b
7. Sum of the squares of the concentrations = SS
8. Calculated Shapiro-Wilk = W
9. Critical Shapiro-Wilk = $W_{critical}$ and is from Unified Guidance Appendix D, Table 10-3
10. If the calculated $W > W_{critical}$ then distribution is normal.

Table 43. Uranium-235 Shapiro-Wilk test of normality

Rank	Concentration
1	0.224
2	0.43
3	0.435
4	0.527
5	0.597
6	0.667
7	0.704
8	0.719
9	0.756
10	0.756
11	0.833
12	0.833
13	0.865
14	0.995
15	0.998
16	1.01
17	1.02
18	1.04
19	1.05
20	1.06
21	1.07
22	1.09
23	1.13
24	1.14
25	1.14
26	1.23
27	1.31
28	1.32
29	1.35
30	1.37
31	1.42
32	1.44
33	1.55
34	1.63
35	1.69
36	1.7
37	1.97
38	1.98
39	2.06
40	2.07
41	2.27
42	2.73
mean =	1.195
standard deviation =	0.539

Shapiro-Wilk Coefficients	
i1	0.3917
i2	0.2701
i3	0.2345
i4	0.2085
i5	0.1874
i6	0.1694
i7	0.1535
i8	0.1392
i9	0.1259
i10	0.1136
i11	0.1020
i12	0.0909
i13	0.0804
i14	0.0701
i15	0.0602
i16	0.0506
i17	0.0411
i18	0.0318
i19	0.0227
i20	0.0136
i21	0.0045

	Difference	i*Differences
x42 - x1	2.506	0.9816002
x41 - x2	1.840	0.496984
x40 - x3	1.635	0.3834075
x39 - x4	1.533	0.3196305
x38 - x5	1.383	0.2591742
x37 - x6	1.303	0.2207282
x36 - x7	0.996	0.152886
x35 - x8	0.971	0.1351632
x34 - x9	0.874	0.1100366
x33 - x10	0.794	0.0901984
x32 - x11	0.607	0.061914
x31 - x12	0.587	0.0533583
x30 - x13	0.505	0.040602
x29 - x14	0.355	0.0248855
x28 - x15	0.322	0.0193844
x27 - x16	0.300	0.01518
x26 - x17	0.210	0.008631
x25 - x18	0.100	0.00318
x24 - x19	0.090	0.002043
x23 - x20	0.070	0.000952
x22 - x21	0.020	9E-05
	b =	3.380029

SS =	11.909446	sum of the squares of the concentrations
b =	3.380029	sum of the i * differences column
$W = b^2 / SS =$	0.9593	Normal Distribution
$W_{critical} =$	0.922	Unified Guidance Appendix D Table 10-3

The Shapiro-Wilk test of normality value shown in Table 43 is 0.9593. Because 0.9593 is greater than the critical value of 0.922, normality is confirmed. Because the percentage of background nondetects is >50%, the permit states a nonparametric test is conducted and the PL is equal to the highest background value which is 2.73.

Table 44 shows the data used to plot the comparison of the compliance wells to the PL. All less than values shown in Table 42 have been changed to the value without the less than symbol in Table 44.

Table 44. Uranium-235 compliance well sample dataset comparison to PL

Date	MW84-84A	MW87-87A	MW90A	Prediction Limit
1/9/2018		2.21	2.03	2.73
1/10/2018	0.953			2.73
8/20/2018	0.501	1.37	1.5	2.73
1/15/2019		1.63		2.73
1/16/2019	1.26		1.28	2.73
7/22/2019	0.978	1.52	1.45	2.73
1/14/2020	1.05	0.61	1.28	2.73
7/14/2020	1.28	0.708	1.42	2.73
1/12/2021	1.01	0.99	1.12	2.73
4/29/2021	0.648	1.08	1.43	2.73
7/14/2021	1.7	1.55	0.702	2.73
11/29/2021	1.45	1.07	0.981	2.73
1/6/2022	0.436	0.52	0.442	2.73
5/11/2022	0.369	0.409	0.25	2.73
7/11/2022	1.36	1.34	1.74	2.73
11/7/2022	0.561	1.31	0.771	2.73
1/4/2023	1.14	0.702	0.752	2.73
7/11/2023	0.914	1.13		2.73
7/12/2023			0.824	2.73
1/3/2024	2.03	1.36	3.11	2.73
7/9/2024	1.29	0.998	0.993	2.73
1/7/2025	1.17	0.896	1.28	2.73
5/29/2025	0.556	0.797	0.677	2.73
7/9/2025	0.685	0.842	0.929	2.73

Figure 11 shows the chart for Table 44 and indicates MW-84-84A, MW87-87A, and MW90A are within the PL.

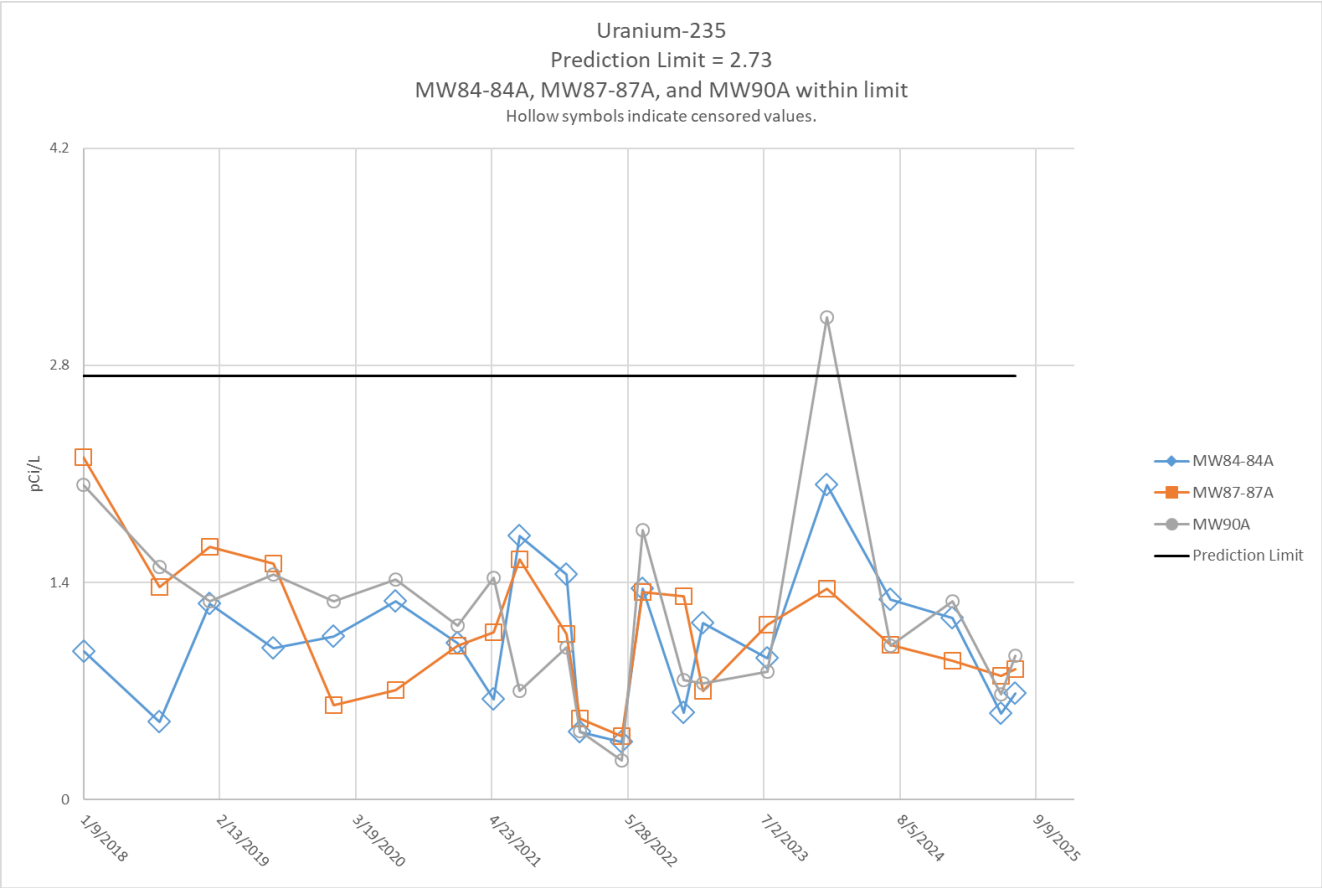


Figure 11. Uranium-235 PL chart

12.0 URANIUM-238 DATASET

Table 45 shows the dataset information, number of background samples, number of background nondetects, percentage of background nondetects, and includes decimal places not shown when rounding. Nondetect results shown in Table 45 have been changed to less than the detection limit value.

Table 45. Uranium-238 dataset information

Uranium-238 (pCi/L)		Compliance	Compliance	Compliance	Background	Background
Number	Date	MW84-84A x_i	MW87-87A x_i	MW90A x_i	MW93-93A x_i	MW420 x_i
1	1/9/2018		<2	<1.81	<0.783	<1.17
2	1/10/2018	<0.89				
3	8/20/2018	<0.647	<1.32	<1.72	<1.51	<1.44
4	1/15/2019		<2.3			<1.68
5	1/16/2019	<1.78		<1.52	<1.06	
6	7/22/2019	1.12	<1.64	2.31	<1.04	<1.35
7	1/14/2020	<1.17	<1.15	<0.894	<1.27	<1.02
8	7/14/2020	<1.47	<1.34	<1.54	<1.41	<1.17
9	1/12/2021	<1.6	<0.801	<1.15	<0.988	<0.858
10	4/29/2021	<1.07	<0.873	<1.16	<1.85	<1.32
11	7/14/2021	<2.17	<1.65	<1.16	<1.5	<1.33
12	11/29/2021	<1.02	<1.24	<1.05	<1.68	<0.658
13	1/6/2022	<0.774	<0.421	<0.66	<2.02	<0.716
14	5/11/2022	<0.38	<0.463	<0.544	<0.368	<0.563
15	7/11/2022	<1.52	<0.588	<1.73	<0.779	<1.26
16	11/7/2022	<.453	<0.915	<1.27	<1.11	<0.808
17	1/4/2023	<0.579	<0.908	<0.973	<0.426	<0.977
18	7/11/2023	<0.854	<1.05		<0.885	<0.851
19	7/12/2023			<1.23		
20	1/3/2024	<1.6	<1.57	<1.76	<3.15	<1.68
21	7/9/2024	<0.875	<1.02	<1.1	<1.59	<1.25
22	1/7/2025	<0.749	<0.393	<1.44	<1.91	<0.886
23	5/29/2025	<0.915	<1.03	<1.28	<0.539	<1.47
24	7/9/2025	<1.22	<0.968	<1.07	<0.745	<0.821
n = number of background samples =					42	
Background nondetects =					42	
Percentage of background nondetects =					100	

Dixon's outlier and Shapiro-Wilk test of normality are shown in Tables 46 and 47. These tables include decimal places not shown when rounding.

Notes for Table 46 are:

1. Number of observations = n = 21
2. Significance level = $\alpha = 0.05$
3. Critical point = C = 0.440 from Unified Guidance Appendix D, Table 12-1
4. low outlier = $C_{low} = (x_{(3)} - x_{(1)}) / (x_{(n-2)} - x_{(1)})$ from Unified Guidance equation 12.5
5. high outlier = $C_{high} = (x_{(n)} - x_{(n-2)}) / (x_{(n)} - x_{(3)})$ from Unified Guidance equation 12-6
6. If C_{low} or C_{high} is **not less than** C, which is the critical point, then this indicates there is a potential outlier in the dataset.

Table 46. Uranium-238 Dixon's outlier test

Rank	MW84-84A x_i	MW87-87A x_i	MW90A x_i	MW93-93A x_i	MW420 x_i
1	0.38	0.393	0.544	0.368	0.563
2	0.453	0.421	0.66	0.426	0.658
3	0.579	0.463	0.894	0.539	0.716
4	0.647	0.588	0.973	0.745	0.808
5	0.749	0.801	1.05	0.779	0.821
6	0.774	0.873	1.07	0.783	0.851
7	0.854	0.908	1.1	0.885	0.858
8	0.875	0.915	1.15	0.988	0.886
9	0.89	0.968	1.16	1.04	0.977
10	0.915	1.02	1.16	1.06	1.02
11	1.02	1.03	1.23	1.11	1.17
12	1.07	1.05	1.27	1.27	1.17
13	1.12	1.15	1.28	1.41	1.25
14	1.17	1.24	1.44	1.5	1.26
15	1.22	1.32	1.52	1.51	1.32
16	1.47	1.34	1.54	1.59	1.33
17	1.52	1.57	1.72	1.68	1.35
18	1.6	1.64	1.73	1.85	1.44
19	1.6	1.65	1.76	1.91	1.47
20	1.78	2	1.81	2.02	1.68
21	2.17	2.3	2.31	3.15	1.68
low outlier = C_{low} =	0.1631	0.0557	0.2878	0.1109	0.1687
Results less than C?	Yes	Yes	Yes	Yes	Yes
high outlier = C_{high} =	0.3583	0.3538	0.3884	0.4749	0.2178
Results less than C?	Yes	Yes	Yes	No	Yes

Dixon's test identified observations in MW93-93A as statistical outliers. The Unified Guidance states that the measurements should not be treated as such until a specific physical reason for the abnormal values can be determined. Since a specific physical reason for the abnormal values has not been determined, no outliers were excluded from the dataset.

Notes for Table 47 are:

1. Number of observations = n = 42
2. Significance level = $\alpha = 0.01$
3. Shapiro-Wilk coefficients = i and are from Unified Guidance Appendix D, Table 10-2
4. Concentration = x and is ranked from lowest to highest
5. Difference = x42 - x1, x41 - x2, ……x22 - x21
6. Sum of the i * Differences column = b
7. Sum of the squares of the concentrations = SS
8. Calculated Shapiro-Wilk = W
9. Critical Shapiro-Wilk = $W_{critical}$ and is from Unified Guidance Appendix D, Table 10-3
10. If the calculated $W > W_{critical}$ then distribution is normal.

Table 47. Uranium-238 Shapiro-Wilk test of normality

Rank	Concentration
1	0.368
2	0.426
3	0.539
4	0.563
5	0.658
6	0.716
7	0.745
8	0.779
9	0.783
10	0.808
11	0.821
12	0.851
13	0.858
14	0.885
15	0.886
16	0.977
17	0.988
18	1.02
19	1.04
20	1.06
21	1.11
22	1.17
23	1.17
24	1.25
25	1.26
26	1.27
27	1.32
28	1.33
29	1.35
30	1.41
31	1.44
32	1.47
33	1.5
34	1.51
35	1.59
36	1.68
37	1.68
38	1.68
39	1.85
40	1.91
41	2.02
42	3.15
mean =	1.188
standard deviation =	0.513

Shapiro-Wilk Coefficients	
i1	0.3917
i2	0.2701
i3	0.2345
i4	0.2085
i5	0.1874
i6	0.1694
i7	0.1535
i8	0.1392
i9	0.1259
i10	0.1136
i11	0.1020
i12	0.0909
i13	0.0804
i14	0.0701
i15	0.0602
i16	0.0506
i17	0.0411
i18	0.0318
i19	0.0227
i20	0.0136
i21	0.0045

	Difference	i*Differences
x42 - x1	2.782	1.0897094
x41 - x2	1.594	0.4305394
x40 - x3	1.371	0.3214995
x39 - x4	1.287	0.2683395
x38 - x5	1.022	0.1915228
x37 - x6	0.964	0.1633016
x36 - x7	0.935	0.1435225
x35 - x8	0.811	0.1128912
x34 - x9	0.727	0.0915293
x33 - x10	0.692	0.0786112
x32 - x11	0.649	0.066198
x31 - x12	0.589	0.0535401
x30 - x13	0.552	0.0443808
x29 - x14	0.465	0.0325965
x28 - x15	0.444	0.0267288
x27 - x16	0.343	0.0173558
x26 - x17	0.282	0.0115902
x25 - x18	0.240	0.007632
x24 - x19	0.210	0.004767
x23 - x20	0.110	0.001496
x22 - x21	0.060	0.00027
	b =	3.1580216

SS =	10.80036	sum of the squares of the concentrations
b =	3.1580216	sum of the i * differences column
$W = b^2 / SS =$	0.9234	Normal Distribution
$W_{critical} =$	0.922	Unified Guidance Appendix D Table 10-3

The Shapiro-Wilk test of normality value shown in Table 47 is 0.9234. Because 0.9234 is greater than the critical value of 0.922, normality is confirmed. Because the percentage of background nondetects is >50%, the permit states a nonparametric test is conducted and the PL is equal to the highest background value which is 3.15.

Table 48 shows the data used to plot the comparison of the compliance wells to the PL. All less than values shown in Table 45 have been changed to the value without the less than symbol in Table 48.

Table 48. Uranium-238 compliance well sample dataset comparison to PL

Date	MW84-84A	MW87-87A	MW90A	Prediction Limit
1/9/2018		2	1.81	3.15
1/10/2018	0.89			3.15
8/20/2018	0.647	1.32	1.72	3.15
1/15/2019		2.3		3.15
1/16/2019	1.78		1.52	3.15
7/22/2019	1.12	1.64	2.31	3.15
1/14/2020	1.17	1.15	0.894	3.15
7/14/2020	1.47	1.34	1.54	3.15
1/12/2021	1.6	0.801	1.15	3.15
4/29/2021	1.07	0.873	1.16	3.15
7/14/2021	2.17	1.65	1.16	3.15
11/29/2021	1.02	1.24	1.05	3.15
1/6/2022	0.774	0.421	0.66	3.15
5/11/2022	0.38	0.463	0.544	3.15
7/11/2022	1.52	0.588	1.73	3.15
11/7/2022	0.453	0.915	1.27	3.15
1/4/2023	0.579	0.908	0.973	3.15
7/11/2023	0.854	1.05		3.15
7/12/2023			1.23	3.15
1/3/2024	1.6	1.57	1.76	3.15
7/9/2024	0.875	1.02	1.1	3.15
1/7/2025	0.749	0.393	1.44	3.15
5/29/2025	0.915	1.03	1.28	3.15
7/9/2025	1.22	0.968	1.07	3.15

Figure 12 shows the chart for Table 48 and indicates MW-84-84A, MW87-87A, and MW90A are within the PL.

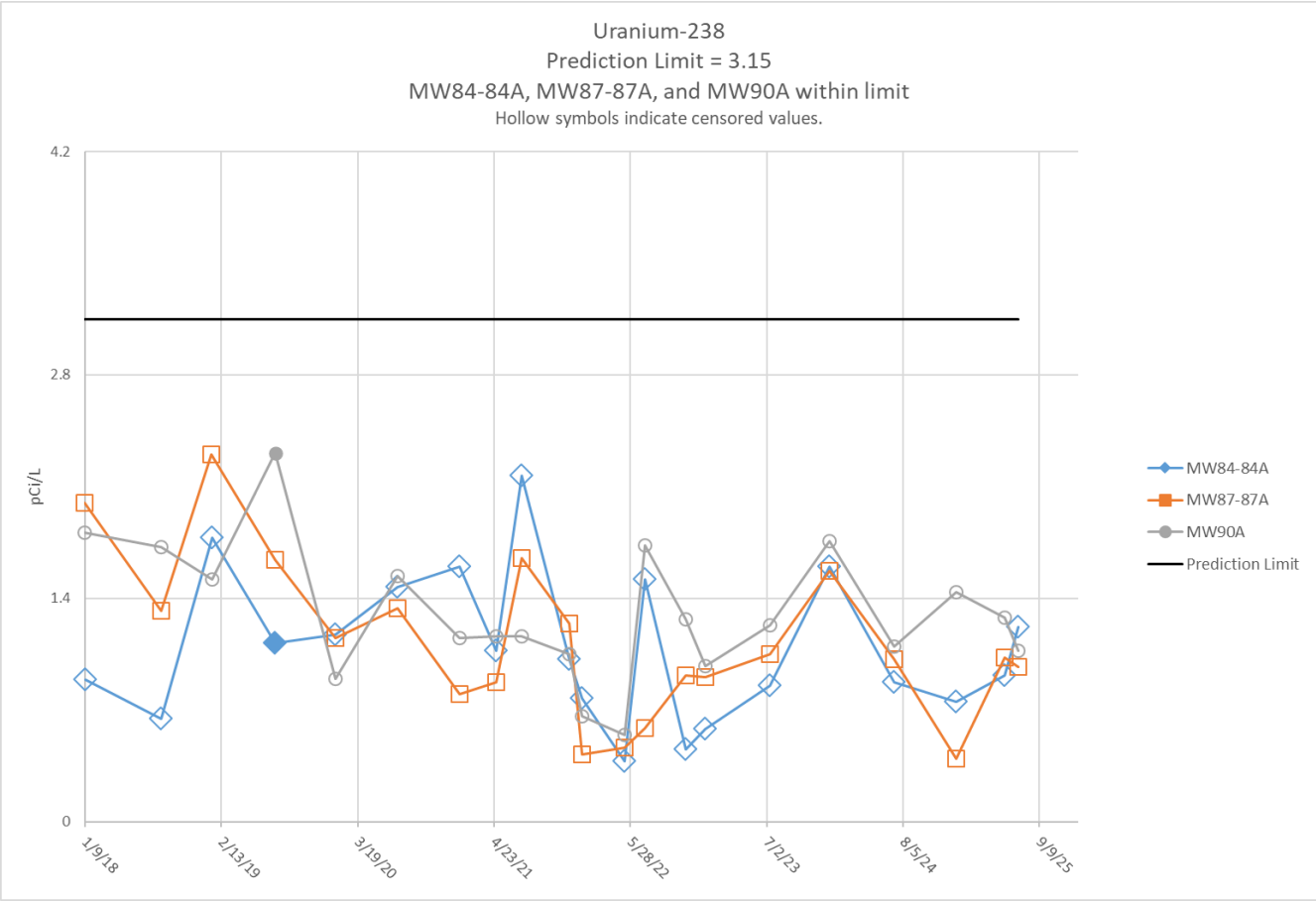


Figure 12. Uranium-238 PL chart

13.0 SUMMARY OF RESULTS

Table 49 shows a summary of results for the of the percentage of background nondetects, the PL and compliance well comparison to the PL for each constituent and includes decimal places not shown when rounding.

Table 49. Summary

Constituent	Percentage of background nondetects	Prediction Limit	Compliance Well comparison to Prediction Limit
Arsenic	11.9	1.52E-02	MW84-84A exceeded PL
Cadmium	95.24	1.00E-03	Within PL
Chromium	69.05	4.28E-01	Within PL
Lead	83.33	2.13E-03	Within PL
Mercury	100	2.00E-04	Within PL
Selenium	97.62	5.00E-03	Within PL
Technetium-99	92.86	2.69E+01	MW84-84A, MW87-87A and MW90A exceeded PL
Trichloroethene	0	2.96E+03	MW84-84A exceeded PL
Uranium	73.81	5.60E-04	Within PL
Uranium-234	97.62	3.20E+00	Within PL
Uranium-235	100	2.73E+00	Within PL
Urnium-238	100	3.15E+00	Within PL

THIS PAGE INTENTIONALLY LEFT BLANK

FOUR RIVERS
NUCLEAR PARTNERSHIP, LLC

Four Rivers Nuclear Partnership, LLC
5511 Hobbs Road
Kevil, KY 42053
www.fourriversnuclearpartnership.com

November 19, 2025

Mr. Dennis Greene
Four Rivers Nuclear Partnership, LLC
5511 Hobbs Road
Kevil, KY 42053

Dear Mr. Greene:

I am submitting this statement as a supplementary document to the completed statistical analysis I performed on the groundwater data for the C-404 Hazardous Waste Landfill at the Paducah Site.

As an Environmental Scientist, with a bachelor's degree in Earth Sciences/Geology, I have over 30 years of experience in reviewing and assessing laboratory analytical results associated with environmental sampling and investigation activities.

For this project, the statistical analyses on groundwater data from January 2015 through July 2025 were performed in accordance with the Appendix E of the *Hazardous Waste Management Facility Permit, reissued by the Kentucky Division of Waste Management in November 2025.* The Statistical approach was to determine Prediction Limits, without a retesting strategy.

The statistical analyses procedures were based on U.S. Environmental Protection Agency guidance document, *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance*, now referred to as Unified Guidance (EPA 2009).

Sincerely,

Bryan Smith

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX C

2025 ANNUAL REPORT OF THE C-404 LANDFILL HYDRAULIC FLOW RATE AND DIRECTION

THIS PAGE INTENTIONALLY LEFT BLANK

2025 ANNUAL REPORT OF THE C-404 LANDFILL HYDRAULIC FLOW RATE AND DIRECTION

The Hazardous Waste Management Facility Permit, KY8-890-008-982, (Permit) requires annual determination of average hydraulic flow rate and direction of flow in the uppermost aquifer at the C-404 Hazardous Waste Landfill (C-404 Landfill). The uppermost aquifer below C-404 Landfill is the Regional Gravel Aquifer (RGA). Water level measurements currently are taken from several wells at the perimeter of the C-404 Landfill on a semiannual basis. The water levels used for this analysis (taken on January 21–22, 2025, and July 22–23, 2025) were measured as closely as possible and within a 24-hour period to ensure the comparability of the data. Table C.1 documents the datums used for the water level measurements. These measurements were used to plot the potentiometric surface of the upper RGA for the January and July 2025 semiannual sampling events.

Table C.1. Measurement Control Datums Used for Upper Regional Gravel Aquifer C-404 Monitoring Wells During 2025

Well	Measurement Location	Datum Point Elevation (ft amsl)
MW84A	Top of Outside Casing	375.29
MW87A	Top of Outside Casing	375.30
MW90A	Top of Inside Casing	374.15
MW93A	Top of Outside Casing	378.67
MW420	Top of Inside Casing	377.55

Contours for each potentiometric surface were drawn after water level data were corrected for barometric pressure; groundwater hydraulic gradients then are calculated from the contours. The average of the gradients measured during this reporting period is the annual average groundwater hydraulic gradient for the upper RGA and is calculated at 1.23×10^{-3} ft/ft.

The hydraulic conductivity values reported in the *Resource Conservation and Recovery Act (RCRA) Part B Permit Modification for Inclusion of C-404 Low-Level Radioactive/Hazardous Waste Landfill* (June 1992) were determined by multi-well testing and range from 21 to 140 ft/day (7.41×10^{-3} to 4.94×10^{-2} cm/s).

Multiplication of the hydraulic gradient (i) and the hydraulic conductivity (K) yields the specific discharge (q) for a unit area of the RGA. Annual average linear-flow velocity (v) is calculated by multiplying the hydraulic conductivity by the gradient and dividing by the porosity (n). It is assumed that the porosity equals 25% in the RGA beneath the C-404 Landfill.

Table C.2 summarizes the annual average results of the calculations. Table C.3 presents the calculation information for the annual groundwater flow rate. The January and July 2025 potentiometric surface data of the upper RGA are presented in Tables C.4 and C.5, and potentiometric surface maps are presented in Figures C.1 and C.2.

The potentiometric contours depict the directions of hydraulic flow during each sampling event. Hydraulic flow direction beneath the C-404 Landfill generally trends northeastward, but commonly varies from northeast to north.

Table C.2. C-404 Landfill Annual Average Groundwater Flow Rate for 2025

Hydraulic Conductivity (K) Range	Annual Average Specific Discharge (q) ft/day (cm/s)	Annual Average Linear Flow Velocity (v) ft/day (cm/s)
cLow K	2.59×10^{-2} (9.13×10^{-6})	1.04×10^{-1} (3.66×10^{-5})
High K	1.73×10^{-1} (6.09×10^{-5})	6.9×10^{-1} (2.44×10^{-4})

Table C.3. Calculation Information for the C-404 Landfill Annual Groundwater Flow Rate 2025

Upper RGA K = 21 ft/d					
	i (ft/ft)	**q (ft/d)**	**q (cm/s)**	**v (ft/d)**	**v (cm/s)**
January 2025	-1.12×10^{-3}	2.36×10^{-2}	8.32×10^{-6}	9.40×10^{-2}	3.33×10^{-5}
July 2025	-1.34×10^{-3}	2.82×10^{-2}	9.94×10^{-6}	1.13×10^{-1}	3.98×10^{-5}
Annual Average	$\mathbf{-1.23 \times 10^{-3}}$	$\mathbf{2.59 \times 10^{-2}}$	$\mathbf{9.13 \times 10^{-6}}$	$\mathbf{1.04 \times 10^{-1}}$	$\mathbf{3.66 \times 10^{-5}}$
Upper RGA K = 140 ft/d					
	i (ft/ft)	**q (ft/d)**	**q (cm/s)**	**v (ft/d)**	**v (cm/s)**
January 2025	-1.12×10^{-3}	1.57×10^{-1}	5.54×10^{-5}	6.29×10^{-1}	2.22×10^{-4}
July 2025	-1.34×10^{-3}	1.88×10^{-1}	6.63×10^{-5}	7.51×10^{-1}	2.65×10^{-4}
Annual Average	$\mathbf{-1.23 \times 10^{-3}}$	$\mathbf{1.73 \times 10^{-1}}$	$\mathbf{6.09 \times 10^{-5}}$	$\mathbf{6.90 \times 10^{-1}}$	$\mathbf{2.44 \times 10^{-4}}$

$q = K*i$

where:
q = specific discharge
K = hydraulic conductivity
i = hydraulic gradient (from potentiometric map)

ft/ft = foot per foot
ft/d = foot per day
cm/s = centimeter/second

$v = q/n_e$

where:
v = average linear velocity
q = specific discharge
n_e = porosity (assumed to be 25%)

Table C.4. January 2025 RGA Potentiometric Surface Data

C-404 Landfill (January 2025) Water Levels									
Date	**Time**	**Well**	**Datum Elev (ft amsl)**	**BP (in Hg)**	**Delta BP (ft H_20)**	**Raw Data**		***Corrected Data**	
						DTW (ft)	**Elev (ft amsl)**	**DTW (ft)**	**Elev (ft amsl)**
1/21/2025	13:29	MW67	374.95	30.63	0.00	51.83	323.12	51.83	323.12
1/21/2025	13:49	MW76	376.56	30.63	0.00	53.44	323.12	53.44	323.12
1/21/2025	13:27	MW84A	375.29	30.63	0.00	52.34	322.95	52.34	322.95
1/21/2025	13:25	MW87A	375.30	30.63	0.00	52.43	322.87	52.43	322.87
1/21/2025	13:21	MW90A	374.15	30.63	0.00	51.27	322.88	51.27	322.88
1/21/2025	13:39	MW93A	378.67	30.63	0.00	55.41	323.26	55.41	323.26
1/21/2025	14:00	MW227	378.81	30.62	0.01	55.42	323.39	55.43	323.38
1/21/2025	13:47	MW333	377.20	30.63	0.00	53.84	323.36	53.84	323.36
1/22/2025	8:08	MW337	374.45	30.45	0.20	50.96	323.49	51.16	323.29
1/21/2025	13:04	MW338	374.76	30.63	0.00	51.57	323.19	51.57	323.19
1/21/2025	13:33	MW420	377.55	30.63	0.00	54.40	323.15	54.40	323.15
1/21/2025	13:48	MW548	377.62	30.63	0.00	54.26	323.36	54.26	323.36
Reference Barometric Pressure			**30.63**						

Elev = elevation
amsl = above mean sea level
BP = barometric pressure
DTW = depth to water in feet below datum
*Assumes a barometric efficiency of 1.0

Table C.5. July 2025 RGA Potentiometric Surface Data

C-404 Landfill (July 2025) Water Levels									
Date	**Time**	**Well**	**Datum Elev (ft amsl)**	**BP (in Hg)**	**Delta BP (ft H_20)**	**Raw Data**		***Corrected Data**	
						DTW (ft)	**Elev (ft amsl)**	**DTW (ft)**	**Elev (ft amsl)**
7/22/2025	7:39	MW67	374.95	29.99	0.01	46.14	328.81	46.15	328.80
7/22/2025	8:14	MW76	376.56	30.00	0.00	47.60	328.96	47.60	328.96
7/22/2025	7:40	MW84A	375.29	29.99	0.01	46.53	328.76	46.54	328.75
7/23/2025	7:01	MW87A	375.30	30.05	-0.06	46.65	328.65	46.59	328.71
7/22/2025	7:44	MW90A	374.15	29.99	0.01	45.43	328.72	45.44	328.71
7/22/2025	8:10	MW93A	378.67	30.00	0.00	49.55	329.12	49.55	329.12
7/22/2025	8:16	MW227	378.81	30.00	0.00	49.58	329.23	49.58	329.23
7/22/2025	8:12	MW333	377.20	30.00	0.00	47.96	329.24	47.96	329.24
7/22/2025	7:34	MW337	374.45	29.99	0.01	45.52	328.93	45.53	328.92
7/22/2025	7:35	MW338	374.76	29.99	0.01	45.79	328.97	45.80	328.96
7/22/2025	8:07	MW420	377.55	30.00	0.00	48.51	329.04	48.51	329.04
7/22/2025	8:13	MW548	377.62	30.00	0.00	48.40	329.22	48.40	329.22
Reference Barometric Pressure			**30.00**						

Elev = elevation
amsl = above mean sea level
BP = barometric pressure
DTW = depth to water in feet below datum
*Assumes a barometric efficiency of 1.0

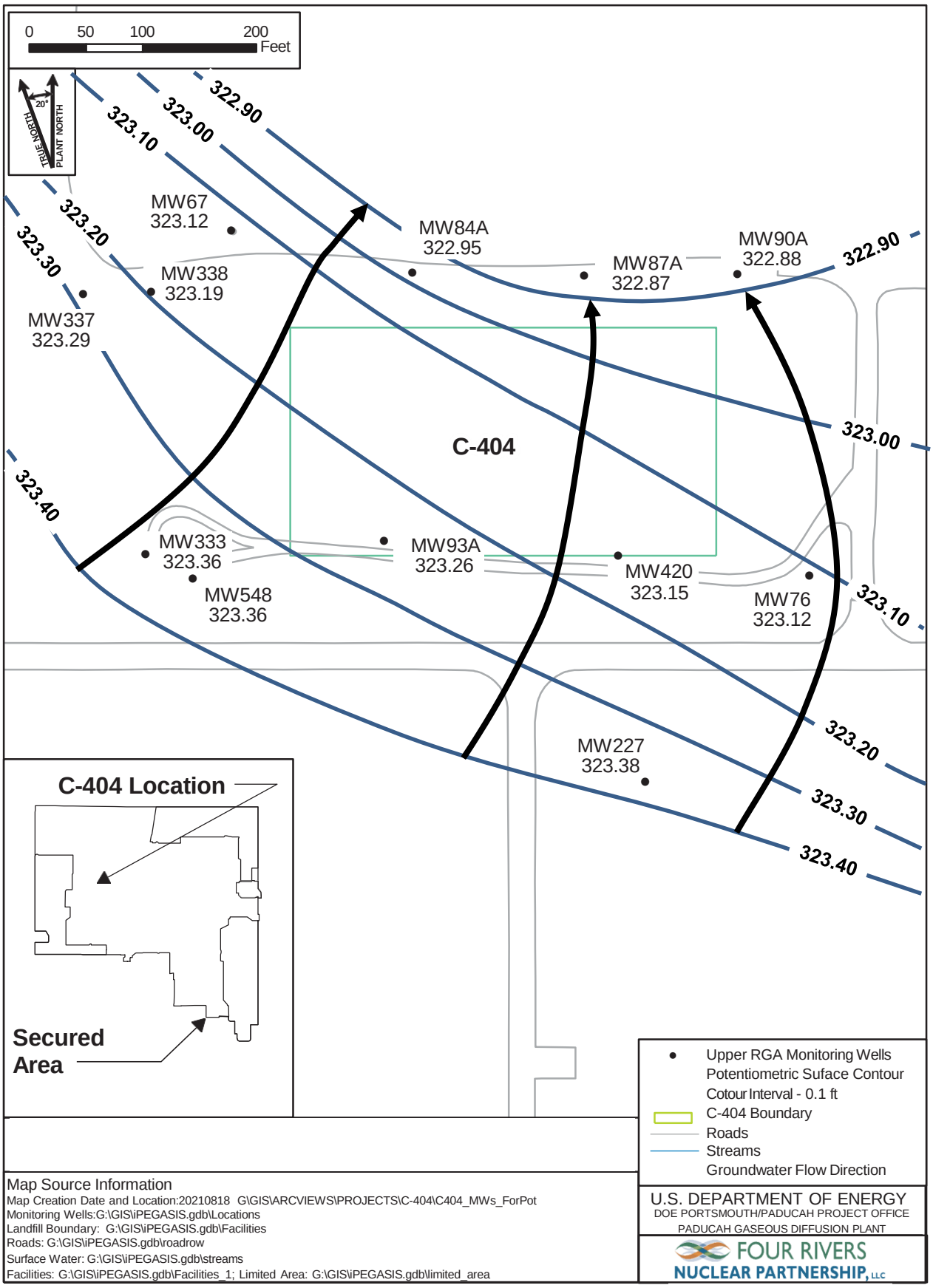


Figure C.1. Potentiometric Surface of the Upper Regional Gravel Aquifer at the C-404 Landfill January 21–22, 2025

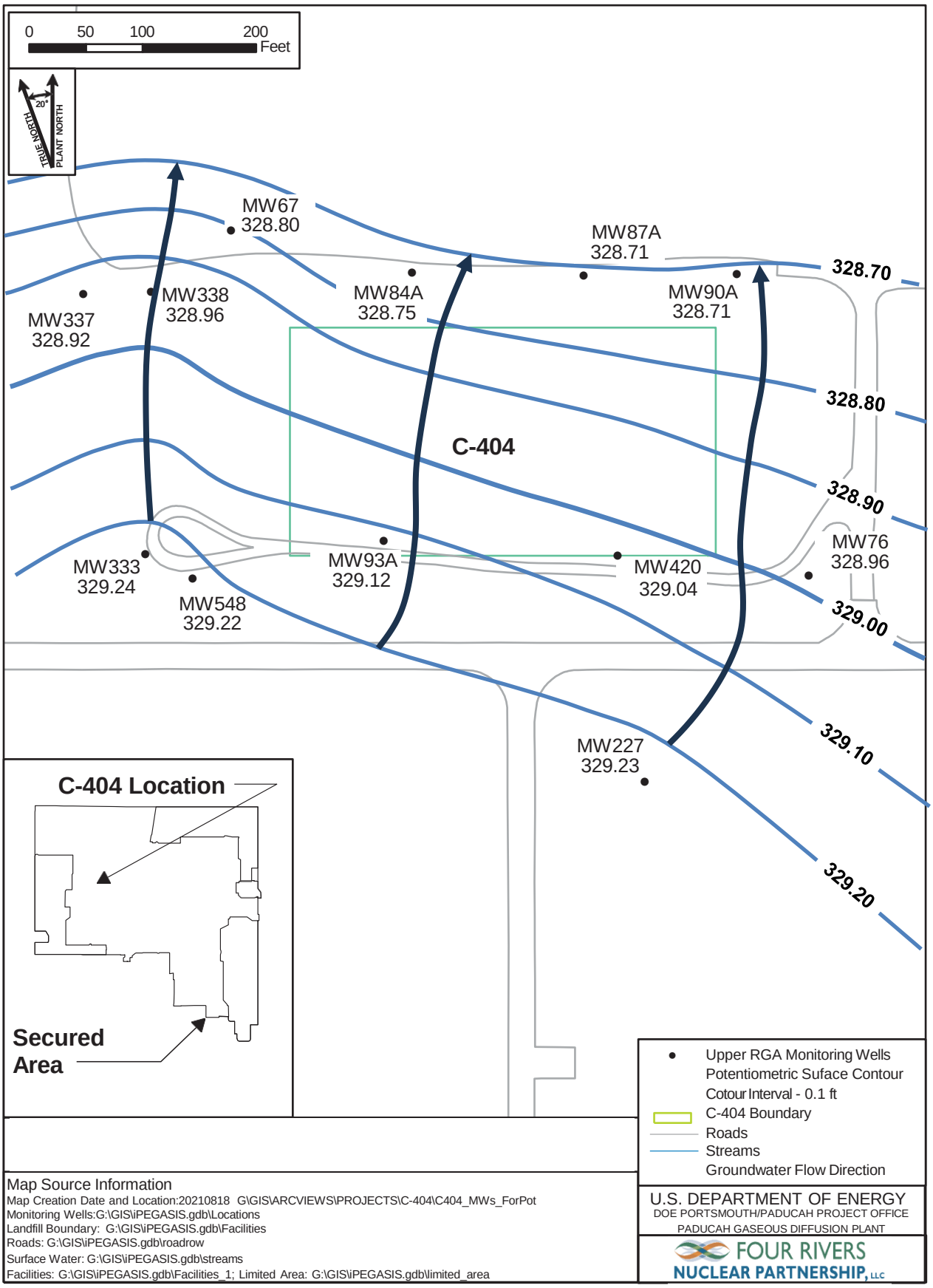


Figure C.2. Potentiometric Surface of the Upper Regional Gravel Aquifer at the C-404 Landfill July 22–23, 2025

APPENDIX D

C-404 LEACHATE SUMP SAMPLING ANALYSIS RESULTS

THIS PAGE INTENTIONALLY LEFT BLANK

Paducah OREIS Report for 404L25-02

Sample ID: **404L25-02-01** Station: C404L Date Collected: 4/7/2025 MedType: WW SmpMethod: GR

Comments: Water level is 5.05' from top of ground surface. AH 4-7-25

Analysis	Results	Units	Result Qual	Foot Note	Reporting Limit	Counting Error	TPU**	Method	LabCode	V/V/A*
ANION										
Fluoride	7.07	mg/L			4			SW846-9056A	GEL	I / X /
FS										
Conductivity	504	µmhos/cm						FS	FS	/ X /
Dissolved Oxygen	10.06	mg/L						FS	FS	/ X /
Eh (approx)	461.3	mV						FS	FS	/ X /
pH	7.88	Std Unit						FS	FS	/ X /
Temperature	55.5	deg F						FS	FS	/ X /
METAL										
Arsenic	0.005	mg/L	U		0.005			SW846-6020B	GEL	/ X /
Barium	0.0718	mg/L			0.004			SW846-6020B	GEL	/ X /
Cadmium	0.001	mg/L	U		0.001			SW846-6020B	GEL	/ X /
Chromium	0.01	mg/L	U		0.01			SW846-6020B	GEL	/ X /
Copper	0.00584	mg/L			0.002			SW846-6020B	GEL	/ X /
Iron	0.14	mg/L			0.1			SW846-6020B	GEL	/ X /
Lead	0.002	mg/L	U		0.002			SW846-6020B	GEL	/ X /
Mercury	0.0002	mg/L	U		0.0002			SW846-7470A	GEL	/ X /
Nickel	0.00255	mg/L			0.002			SW846-6020B	GEL	S / X /
Selenium	0.005	mg/L	U		0.005			SW846-6020B	GEL	/ X /
Silver	0.001	mg/L	U		0.001			SW846-6020B	GEL	/ X /
Uranium	72.6	mg/L			0.2			SW846-6020B	GEL	I / X /
Zinc	0.00364	mg/L	J		0.02			SW846-6020B	GEL	S / X /
PPCB										
PCB-1016	0.1	ug/L	U		0.1			SW846-8082A	GEL	/ X /
PCB-1221	0.1	ug/L	U		0.1			SW846-8082A	GEL	/ X /
PCB-1232	0.1	ug/L	U		0.1			SW846-8082A	GEL	/ X /
PCB-1242	0.1	ug/L	U		0.1			SW846-8082A	GEL	/ X /
PCB-1248	0.681	ug/L			0.1			SW846-8082A	GEL	/ X /
PCB-1254	0.243	ug/L			0.1			SW846-8082A	GEL	/ X /
PCB-1260	0.0578	ug/L	J		0.1			SW846-8082A	GEL	/ X /
Polychlorinated biphenyl	0.981	ug/L			0.1			SW846-8082A	GEL	I / X /
RADS										
Cesium-137	-0.588	pCi/L	U		11.3	6.97	6.98	EPA-901.1	GEL	/ X /
Neptunium-237	1.58	pCi/L	U		2.42	1.98	1.98	ASTM-1475-00M	GEL	/ X /
Plutonium-239/240	0.195	pCi/L	U		0.929	0.536	0.537	HASL 300, Pu-11-RC M	GEL	/ X /
Technetium-99	237	pCi/L			19.6	20.6	33.9	HASL 300, Tc-02-RC M	GEL	/ X /
Thorium-230	0.969	pCi/L	U		2.44	1.48	1.49	HASL 300, Th-01-RC M	GEL	/ X /
Uranium-234	1960	pCi/L			90.9	189	278	HASL 300, U-02-RC M	GEL	/ X /
Uranium-235	425	pCi/L			73.1	101	111	HASL 300, U-02-RC M	GEL	/ X /
Uranium-238	23200	pCi/L			67.5	628	2490	HASL 300, U-02-RC M	GEL	/ X /
VOA										
Trichloroethene	1	ug/L	U		1			SW846-8260D	GEL	/ X /
WETCHEM										
Ammonia as Nitrogen	0.02	mg/L	BJ		0.05			EPA-350.1	GEL	S / X / U

*Verification/Validation/Assessment ** TPU reported at 1.96 sigma Report Generated on 6/10/2025

Paducah OREIS Report for 404L25-02

Sample ID: **TB404L25-02** Station: QC Date Collected: 4/7/2025 MedType: WQ SmpMethod: GR

Comments:

Analysis	Results	Units	Result Qual	Foot Note	Reporting Limit	Counting Error	TPU**	Method	LabCode	V/V/A*
VOA										
Trichloroethene	1	ug/L	U		1			SW846-8260D	GEL	/ X /

*Verification/Validation/Assessment ** TPU reported at 1.96 sigma Report Generated on 6/10/2025