



Department of Energy

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

October 26, 2023

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

PPPO-02-10025935-24B

Mr. Victor Weeks
Federal Facility Agreement Manager
U.S. Environmental Protection Agency, Region 4
61 Forsyth Street
Atlanta, Georgia 30303

Dear Ms. Webb and Mr. Weeks:

**U.S. DEPARTMENT OF ENERGY PADUCAH GASEOUS DIFFUSION PLANT
FEDERAL FACILITY AGREEMENT SEMIANNUAL PROGRESS REPORT FOR THE
SECOND HALF OF FISCAL YEAR 2023 PADUCAH, KENTUCKY
(DOE/LX/07-2493/V2)**

Enclosed is the *U.S. Department of Energy Paducah Gaseous Diffusion Plant Federal Facility Agreement Semiannual Progress Report for the Second Half of Fiscal Year 2023 Paducah, Kentucky*, DOE/LX/07-2493/V2, and the associated certification page. This report is required by Sections XXIII and XXXII.F of the Federal Facility Agreement and Part IV (Corrective Action) of the Hazardous Waste Management Facility Permit.

In accordance with Section XX of the Paducah Federal Facility Agreement, the U.S. Environmental Protection Agency and the Kentucky Department for Environmental Protection have a 90-day review period. If the FFA parties have no substantive comments, then DOE requests a letter of concurrence.

If you have any questions or require additional information, please contact me at (270) 217-2029.

Sincerely,

APRIL LADD Digitally signed by APRIL LADD
Date: 2023.10.26 16:13:05
-05'00'

April Ladd
Federal Facility Agreement Manager
Portsmouth/Paducah Project Office

Enclosures:

1. Certification Page
2. FFA Semiannual Progress Report for the Second Half of Fiscal Year 2023

General Reference Compendium

cc w/ enclosures:

abigail.parish@pppo.gov, PPPO
april.ladd@pppo.gov, PPPO
april.webb@ky.gov, KDEP
arcorrespondence@pad.pppo.gov
bruce.ford@pad.pppo.gov, FRNP
bwhatton@tva.gov, TVA
dcnorman0@tva.gov, TVA
eric@pgdpcab.org, PGDP CAB
frnpcorrespondence@pad.pppo.gov
hjlawrence@tva.gov, TVA
joel.bradburne@pppo.gov, PPPO
kentuckyES@fws.gov, FWS
kristan.avedikian@TechLawInc.com
leanne.garner@pad.pppo.gov, FRNP
mac.mcrae@TechLawInc.com, EPA

megan.mulry@pad.pppo.gov, FRNP
myrna.redfield@pad.pppo.gov, FRNP
nathan.garner@ky.gov, KYRHB
nrepcdep-dwm-hwb-pgdp@ky.gov
pad.rmc@pad.pppo.gov
rebecca.goodman@ky.gov, KEEC
reinhard.knerr@pppo.gov, PPPO
robert.smith@pppo.gov, PPPO
sebenton@tva.gov, TVA
stephaniec.brock@ky.gov, KYRHB
testher@tva.gov, TVA
thhenry@tva.gov, TVA
timothy.kreher@ky.gov, KDFWR
todd.powers@pad.pppo.gov, FRNP
weeks.victor@epa.gov, EPA


CERTIFICATION

Document Identification: *U.S. Department of Energy Paducah Gaseous Diffusion Plant Federal Facility Agreement Semiannual Progress Report for the Second Half of Fiscal Year 2023 Paducah, Kentucky, DOE/LX/07-2493/V2, October 2023*

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

Four Rivers Nuclear Partnership, LLC

MYRNA REDFIELD
(Affiliate)

 Digitally signed by MYRNA REDFIELD
(Affiliate)
Date: 2023.10.26 16:39:49 -05'00'


Myrna E. Redfield, Program Manager
Four Rivers Nuclear Partnership, LLC

Date Signed

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

U.S. Department of Energy

APRIL LADD

 Digitally signed by APRIL LADD
Date: 2023.10.26 16:13:46 -05'00'

April Ladd, Paducah Site Lead
Portsmouth/Paducah Project Office
U.S. Department of Energy

Date Signed

**DOE/LX/07-2493/V2
Secondary Document**

**U.S. Department of Energy
Paducah Gaseous Diffusion Plant
Federal Facility Agreement
Semiannual Progress Report for the
Second Half of Fiscal Year 2023
Paducah, Kentucky**



CLEARED FOR PUBLIC RELEASE

**DOE/LX/07-2493/V2
Secondary Document**

**U.S. Department of Energy
Paducah Gaseous Diffusion Plant
Federal Facility Agreement
Semiannual Progress Report for the
Second Half of Fiscal Year 2023
Paducah, Kentucky**

Date Issued—October 2023

U.S. DEPARTMENT OF ENERGY
Office of Environmental Management

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

CLEARED FOR PUBLIC RELEASE

THIS PAGE INTENTIONALLY LEFT BLANK

CONTENTS

TABLES	v
ACRONYMS.....	vii
INTRODUCTION	1
C-400 COMPLEX OPERABLE UNIT	5
GROUNDWATER OPERABLE UNIT	11
BURIAL GROUNDS OPERABLE UNIT	29
SURFACE WATER OPERABLE UNIT	33
WATER POLICY	37
ADDITIONAL REPORTING	43
APPENDIX A: NORTHEAST AND NORTHWEST PLUME WATER WITHDRAWAL REPORTS.....	A-1
APPENDIX B: NORTHEAST PLUME AND NORTHWEST PLUME GRAPHS, DATA, AND MAPS (FIGURES B.1 THROUGH B.30).....	B-1
APPENDIX C: C-746-K LANDFILL (SWMU 8) DATA	C-1
APPENDIX D: ADMINISTRATIVE RECORD, POST-DECISION RECORD, AND ADMINISTRATIVE RECORD REFERENCE INDICES	D-1
APPENDIX E: C-749 URANIUM BURIAL GROUND (SWMU 2) GROUNDWATER MONITORING WELL DATA	E-1

•

THIS PAGE INTENTIONALLY LEFT BLANK

TABLES

1.	Operable Units and Corresponding Report Topics	2
2.	Cumulative TCE Removed at Paducah.....	11
3.	TCE Concentrations for Northeast Plume	22
4.	TCE and Tc-99 Concentrations at the C-612 Treatment Facility for Northwest Plume (January 1, 2023, through June 30, 2023).....	26
5.	TCE and Tc-99 Concentrations for Northwest Plume Extraction Wells (January 1, 2023, through June 30, 2023)	26

THIS PAGE INTENTIONALLY LEFT BLANK

ACRONYMS

AR	Administrative Record
BGOU	Burial Grounds Operable Unit
CAB	Citizens Advisory Board
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CRP	community relations plan
D&D	decontamination and decommissioning
DOE	U.S. Department of Energy
EIC	Environmental Information Center
EMP	environmental monitoring plan
EPA	U.S. Environmental Protection Agency
EW	extraction well
FFA	Federal Facility Agreement
FRNP	Four Rivers Nuclear Partnership, LLC
GRC	general reference compendium
GWOU	Groundwater Operable Unit
IRA	interim remedial action
KDEP	Kentucky Department for Environmental Protection
LUCIP	land use control implementation plan
MCL	maximum contaminant level
MW	monitoring well
MWG	modeling working group
NEPCS	Northeast Plume Containment System
NTCRA	non-time-critical removal action
NTU	nephelometric turbidity unit
NWPGS	Northwest Plume Groundwater System
O&M	operation and maintenance
OU	operable unit
PD	post-decision
PEGASIS	PPPO Environmental Geographic Analytical Spatial Information System
PPPO	Portsmouth/Paducah Project Office
PVA	property valuation administrator
RMD	risk methods document
ROD	Record of Decision
SMP	site management plan
SST	Swift & Staley Team
SWMU	solid waste management unit
SWOU	Surface Water Operable Unit
VOC	volatile organic compound
WAG	waste area grouping

THIS PAGE INTENTIONALLY LEFT BLANK

FEDERAL FACILITY AGREEMENT SEMIANNUAL PROGRESS REPORT SECOND HALF OF FISCAL YEAR 2023

**Facility: Paducah Gaseous Diffusion Plant
Plant EPA I.D. No.: KY8-890-008-982
Reporting Period: 4/1/2023–9/30/2023**

INTRODUCTION

The Paducah Gaseous Diffusion Plant was placed on the National Priorities List on May 31, 1994. In accordance with Section 120 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the U.S. Department of Energy (DOE) entered into a Federal Facility Agreement (FFA) with the U.S. Environmental Protection Agency (EPA) and Kentucky Department for Environmental Protection (KDEP) on February 13, 1998. The FFA established one set of consistent requirements for achieving comprehensive site remediation in accordance with the Resource Conservation and Recovery Act and CERCLA, including stakeholder involvement.

Site cleanup activities are integrated into the following operable units (OUs).

- C-400 Complex OU
- Groundwater OU (GWOU)
- Surface Water OU (SWOU)
- Soils OU
- Burial Grounds OU (BGOU)
- Facility Decontamination and Decommissioning (D&D) OU
- Lagoons OU
- Depleted Uranium Hexafluoride (DUF₆) Footprint Underlying Soils OU
- Soils and Slabs OU
- CERCLA Waste Disposal Alternatives OU
- Comprehensive Site OU

Section XXIII of the FFA requires that DOE prepare a regulatory semiannual progress report that describes the actions that DOE has taken during the previous six months to implement FFA requirements, as well as the schedules¹ of activities to be taken during the upcoming six months. Activities that have taken place after the reporting period end date are not included in this report, but will be included in the reporting period in which they occur. Projects and activities reported in this update are grouped by the OUs listed in Table 1.

¹ Schedules are included for information and planning purposes only; enforceable schedules are established in the site management plan (SMP).

Table 1. Operable Units and Corresponding Report Topics

Operable Unit	Project/Activities
C-400 Complex Operable Unit	<ul style="list-style-type: none"> • C-400 D&D • C-400 Final Remedial Action
Groundwater Operable Unit	<ul style="list-style-type: none"> • C-400 Interim Remedial Action (IRA) • Southwest Plume Sources Remedial Action • Dissolved-Phase Plumes Remedial Action • Northeast Plume IRA • Northwest Plume IRA
Burial Grounds Operable Unit	<ul style="list-style-type: none"> • C-749 Uranium Burial Ground Solid Waste Management Unit (SWMU) 2
Surface Water Operable Unit	<ul style="list-style-type: none"> • Remedial Action
Water Policy	<ul style="list-style-type: none"> • Removal Action
Additional Reporting	<ul style="list-style-type: none"> • Waste Area Groupings (WAGs) 1 and 7 • Community Relations Plan (CRP) • SMP • CERCLA Five-Year Review • Plant Industrial Area Vapor Intrusion Assessment

Each section of this update has been divided into nine sections as follows.

- I. Work performed during the reporting period (including summaries of findings and any deviations from the work plan)
- II. Schedules of activities to be performed during the next reporting period (including projected work/crucial phases of construction)
- III. Identity and assigned tasks of DOE contractors for work to be performed for this project
- IV. Statement of the manner and extent to which the requirements and time schedules are being met
- V. Primary/Secondary Document Tracking System
 - A) Documents under review and/or preparation for this reporting period
 - B) Due dates for completion of review/modification tasks
- VI. Anticipated problems/delays (provide summary of problems, schedule, reason for delay, and actions taken to prevent or mitigate delay)
- VII. Summary of all contacts with local community, public interest groups, or state government
- VIII. Changes in relevant personnel
- IX. Actual cost for operation and maintenance (O&M), if appropriate

Each section satisfies a reporting requirement for the FFA Semiannual Progress Report or the Hazardous Waste Management Facility Permit and has been formatted in accordance with the template found in Appendix D of the FFA.

This report includes five appendices as follows.

- Appendix A contains Northeast and Northwest Plumes Water Withdrawal Reports for the January 1, 2023, through June 30, 2023, reporting period.
- Appendix B contains Figures B.1 through B.30, as referenced in the Northeast and Northwest Plumes updates. All groundwater data are available in the Portsmouth/Paducah Project Office (PPPO) Environmental Geographic Analytical Spatial Information System (PEGASIS) and, therefore, have not been summarized in this semiannual report.
- Appendix C contains a map depicting monitoring well (MW) locations for the C-746-K Landfill and graphical presentations of trichloroethene (TCE) concentrations in these wells over time. These data are currently collected semiannually. All groundwater data are available in PEGASIS and, therefore, have not been summarized in this semiannual report.
- Appendix D contains updates to the Administrative Record (AR) index since the last progress report. This is required by the Paducah FFA (Section XXXII.F). In October 2018, DOE began a comprehensive review of the Paducah Environmental Information Center (EIC) to ensure that the project document files were complete. As part of this effort, DOE reorganized the Paducah EIC to include the original three categories: 1) AR File, 2) Post-Decision (PD) File, and 3) General Reference Compendium (GRC); and added 4) AR Reference File and 5) AR Archive File. The AR Reference File contains programmatic documents that support the AR [e.g., SMP, Risk Methods Document (RMD)]. As a result of this reorganization of the EIC, Appendix D has been expanded to include updates to the AR index that include the AR File, PD File, and AR Reference File.

The AR Archive File contains documents for projects that originally were expected to have a decision document [i.e., Record of Decision (ROD) or Action Memorandum], but had been resequenced prior to a final decision. These documents have been archived within the AR Archive File to establish future AR files for projects and, as a result, are not included in Appendix D. The AR Archive File can be viewed on the EIC website.

The GRC, which supplements the Paducah AR, contains technical documents associated with the Paducah Site that do not meet the CERCLA criteria of an AR File or a PD File (e.g., CRP, CERCLA Five-Year Review, Annual Site Environmental Report); but are deemed important in understanding the Paducah Site environmental remedial efforts. Because the GRC is not part of the AR, it is not included as part of the update to Appendix D. The GRC can be viewed on the EIC website.

- Appendix E contains figures depicting the C-749 Uranium Burial Ground (SWMU 2) groundwater MW network and a summary of the SWMU 2 trends for TCE and technetium-99 (Tc-99) for a period of five years. All groundwater data are available in PEGASIS and, therefore, have not been summarized in this semiannual report.

THIS PAGE INTENTIONALLY LEFT BLANK

**FEDERAL FACILITY AGREEMENT
SEMIANNUAL PROGRESS REPORT
SECOND HALF OF FISCAL YEAR 2023**

**Facility: Paducah Gaseous Diffusion Plant
Plant EPA I.D. No.: KY8-890-008-982
Reporting Period: 4/1/2023–9/30/2023**

C-400 COMPLEX OPERABLE UNIT

The C-400 Complex OU was established in a *Memorandum of Agreement on the C-400 Complex under the Federal Facility Agreement for the Paducah Gaseous Diffusion Plant, Paducah, Kentucky* (C-400 Complex OU MOA), signed August 8, 2017; the agreement then was incorporated into the SMP. The following two projects are included in the C-400 Complex OU.

- C-400 D&D
- C-400 Final Remedial Action

On September 16, 2022, the FFA parties executed an FFA milestone modification, which incorporated the C-400 D&D into the C-400 Final Remedial Action. Because the demolition of the C-400 Cleaning Building will be incorporated into the C-400 Final Remedial Action, milestones associated with the C-400 D&D, which was intended to be a non-time-critical removal action (NTCRA), will not be necessary. Per the Memorandum, *Suspension of D1 and D2 Comprehensive Environmental Response, Compensation, and Liability Act Documents Associated with the C-400 Cleaning Building Non-Time-Critical Removal Action at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky* (C-400 Building D&D MOA), dated October 2, 2019, the original NTCRA documents were not approved, and the NTCRA was suspended. With the FFA parties' execution of the FFA milestone modification, the C-400 Building D&D MOA is superseded, and the planning documents associated with the NTCRA and their associated milestones are no longer required because the C-400 Cleaning Building will be demolished as part of the remedial action. Additionally, under the FFA parties' FFA milestone modification, the milestone dates in the C-400 Complex OU MOA, which provided for enforceable milestones and planning dates and was later extended due to the force majeure related to COVID-19, are also superseded.

THIS PAGE INTENTIONALLY LEFT BLANK

**FEDERAL FACILITY AGREEMENT
SEMIANNUAL PROGRESS REPORT
SECOND HALF OF FISCAL YEAR 2023**

**Facility: Paducah Gaseous Diffusion Plant
Plant EPA I.D. No.: KY8-890-008-982
Reporting Period: 4/1/2023–9/30/2023**

C-400 COMPLEX OPERABLE UNIT: C-400 Final Remedial Action

The C-400 Final Remedial Action will investigate the C-400 Complex OU and associated SWMUs, evaluate potential remedial alternatives, develop decision documents selecting an alternative(s), and design and implement the remedial alternative(s).

I. Work performed during the reporting period (including summaries of findings and any deviations from the work plan):

- Received extension notification of 30 days for the *Remedial Investigation/Feasibility Study Report for the C-400 Complex Operable Unit at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, DOE/LX/07-2474&D1, from KDEP on April 6, 2023; extension resulted in a new deadline of May 5, 2023, for receipt of EPA and KDEP comments on the document.
- Received EPA and KDEP comments on the *Remedial Investigation/Feasibility Study Report for the C-400 Complex Operable Unit at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, DOE/LX/07-2474&D1, on May 4, 2023, and May 5, 2023, respectively.
- Initiated development of the *Remedial Investigation/Feasibility Study Report for the C-400 Complex Operable Unit at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, DOE/LX/07-2474&D2.
- Held comment resolution meetings with EPA and KDEP on June 8, 2023, July 7, 2023, and September 25, 2023; follow-up comment resolution meetings to be scheduled into next reporting period.
- Submitted a 30-day extension notification to EPA and KDEP for submittal of the *Remedial Investigation/Feasibility Study Report for the C-400 Complex Operable Unit at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, DOE/LX/07-2474&D2, to August 3, 2023.
- Submitted a 60-day extension notification to EPA and KDEP for submittal of the *Remedial Investigation/Feasibility Study Report for the C-400 Complex Operable Unit at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, DOE/LX/07-2474&D2, to October 2, 2023.
- Submitted a 30-day extension notification to EPA and KDEP for submittal of the *Remedial Investigation/Feasibility Study Report for the C-400 Complex Operable Unit at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, DOE/LX/07-2474&D2, to November 1, 2023.
- Submitted a 30-day extension notification to EPA and KDEP for submittal of the *Remedial Investigation/Feasibility Study Report for the C-400 Complex Operable Unit at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, DOE/LX/07-2474&D2, to December 1, 2023.

- Continued development of the *Proposed Plan for the C-400 Complex Operable Unit at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, DOE/LX/07-2487&D1.

II. Schedules of activities to be performed during the next reporting period (including projected work/crucial phases of construction):

- Finalize and submit the *Remedial Investigation/Feasibility Study Report for the C-400 Complex Operable Unit at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, DOE/LX/07-2474&D2.
- Finalize and submit the *Proposed Plan for the C-400 Complex Operable Unit at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, DOE/LX/07-2487&D1.

III. Identity and assigned tasks of DOE contractors for work to be performed for this project:

- Reporting responsibility for the work to be performed in support of the C-400 Complex OU belongs to Four Rivers Nuclear Partnership, LLC (FRNP). FRNP also provides programmatic and technical support, analytical services, and business management services. Swift & Staley Team (SST) manages the AR and the EIC for DOE.

IV. Statement of the manner and extent to which the requirements and time schedules are being met:

Requirements for the C-400 Complex Remedial Action are being met consistent with the following documents:

- *Memorandum of Agreement on the C-400 Complex under the Federal Facility Agreement for the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, signed August 8, 2017;
- *Memorandum of Agreement for Resolution of Formal Dispute Regarding the Non-Concurrence by EPA and KDEP on the DOE Milestone Modification Request for Submittal of the Revised Proposed Plan for the Volatile Organic Compound Contamination at the C-400 Cleaning Building at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky (DOE/LX/07-2407&D1)*, signed September 28, 2017;
- *Memorandum of Agreement for Resolution of Formal Disputes on EPA Conditional Concurrence on the Removal Notification for Demolition of the C-400 Cleaning Building in the C-400 Complex Operable Unit at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, DOE/LX/07-2420&D2 and the Engineering Evaluation/Cost Analysis for Demolition of the C-400 Cleaning Building in the C-400 Complex Operable Unit at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, DOE/LX/07-2425&D2*, signed August 1, 2019; and
- *Site Management Plan, Paducah Gaseous Diffusion Plant, Paducah, Kentucky, Annual Revision—FY 2023*, DOE/LX/07-2482&D2.

V. Primary/Secondary Document Tracking System:

A) Documents under review and/or preparation for this reporting period:

- *Remedial Investigation/Feasibility Study Report for the C-400 Complex Operable Unit at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, DOE/LX/07-2474&D2*, was under development during this reporting period.
- *Proposed Plan for the C-400 Complex Operable Unit at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, DOE/LX/07-2487&D1*, was under development during this reporting period.

B) Due dates for completion of review/modification tasks:

- *The Remedial Investigation/Feasibility Study Report for the C-400 Complex Operable Unit at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, DOE/LX/07-2474&D2*, is due to EPA and KDEP no later than December 1, 2023.
- *Proposed Plan for the C-400 Complex Operable Unit at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, DOE/LX/07-2487&D1*, is due within 45 days of EPA and KDEP approval of the *Remedial Investigation/Feasibility Study Report for the C-400 Complex Operable Unit at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, DOE/LX/07-2474&D2*.

VI. Anticipated problems/delays (provide summary of problems, schedule, reason for delay, and actions taken to prevent or mitigate delay):

- None.

VII. Summary of all contacts with local community, public interest groups, or state government:

- DOE provided routine updates on the subproject to the Paducah Site Citizens Advisory Board (CAB), FFA project managers, FFA senior managers, local elected officials, and/or Congressional staff.

VIII. Changes in relevant personnel:

- DOE appointed April Ladd to serve as the Paducah Site Lead, effective May 22, 2023. April Ladd had been acting in that role.
- KDEP designated April Webb to the position of Interim FFA Manager for the Paducah Site, effective August 1, 2023.

IX. Actual cost for O&M, if appropriate:

- None.

THIS PAGE INTENTIONALLY LEFT BLANK

**FEDERAL FACILITY AGREEMENT
SEMIANNUAL PROGRESS REPORT
SECOND HALF OF FISCAL YEAR 2023**

**Facility: Paducah Gaseous Diffusion Plant
Plant EPA I.D. No.: KY8-890-008-982
Reporting Period: 4/1/2023–9/30/2023**

GROUNDWATER OPERABLE UNIT

The scope of the GWOU includes performing investigations, conducting baseline risk assessments, evaluating removal/remedial alternatives, and selecting and implementing actions necessary to achieve protection of human health and the environment from exposure to groundwater contamination that could result in an unacceptable risk.

Within the GWOU are these projects: C-400 IRA, Southwest Plume Sources Remediation, Dissolved-Phase Plumes, Northeast Plume IRA, and Northwest Plume IRA.

The overall objective of the GWOU is to remove/mitigate ongoing sources and to remediate the groundwater to target contaminant concentrations. The predominant contaminant of concern in the groundwater plumes is TCE. Table 2 provides an overall picture of the TCE mass removed [TCE values may contain other volatile organic compounds (VOCs)] by various actions.

Table 2. Cumulative TCE* Removed at Paducah

Source Area	Cumulative TCE Removed (gal)*
Northwest Plume Pump-and-Treat	4,018**
Northeast Plume Pump-and-Treat	377**
C-400 Six-Phase Treatability Study	1,900
C-400 Phase I	535
C-400 Phase IIa	1,137
Southwest Plume (SWMU 1)	24***
Other sources (i.e., SWMU 91–LASAGNA™)	246
Total	8,237

*TCE values may contain other VOCs.

**Cumulative through June 30, 2023.

***Removed during deep soil mixing operations.

THIS PAGE INTENTIONALLY LEFT BLANK

**FEDERAL FACILITY AGREEMENT
SEMIANNUAL PROGRESS REPORT
SECOND HALF OF FISCAL YEAR 2023**

**Facility: Paducah Gaseous Diffusion Plant
Plant EPA I.D. No.: KY8-890-008-982
Reporting Period: 4/1/2023–9/30/2023**

GROUNDWATER OPERABLE UNIT PROJECT: C-400 IRA

I. Work performed during the reporting period (including summaries of findings and any deviations from the work plan):

- Continued long-term monitoring of the C-400 IRA groundwater monitoring network as required by the *Record of Decision for Interim Remedial Action for the Groundwater Operable Unit for the Volatile Organic Compound Contamination at the C-400 Cleaning Building at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, DOE/OR/07-2150&D2/R2.
- Conducted annual inspections in accordance with the *Land Use Control Implementation Plan: Interim Remedial Action for the Groundwater Operable Unit for the Volatile Organic Compound Contamination at the C-400 Cleaning Building at the Paducah Gaseous Diffusion Plant, Paducah Kentucky*, DOE/OR/07-2151&D2/R2.

II. Schedules of activities to be performed during the next reporting period (including projected work/crucial phases of construction):

- Continue long-term monitoring for the C-400 IRA. Data from long-term monitoring for the C-400 IRA are available in PEGASIS.

III. Identity and assigned tasks of DOE contractors for work to be performed for this project:

- Reporting responsibility for the work to be performed in support of the C-400 IRA belongs to FRNP. FRNP also provides programmatic and technical support, analytical services, and business management services. SST manages the AR and the EIC for DOE.

IV. Statement of the manner and extent to which the requirements and time schedules are being met:

The requirements for the C-400 IRA are being met consistent with the following documents:

- *Memorandum of Agreement on the C-400 Complex under the Federal Facility Agreement for the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, signed August 8, 2017;
- *Memorandum of Agreement for Resolution of Formal Dispute Regarding the Non-Concurrence by EPA and KDEP on the DOE Milestone Modification Request for Submittal of the Revised Proposed Plan for the Volatile Organic Compound Contamination at the C-400 Cleaning Building at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky (DOE/LX/07-2407&D1)*, signed September 28, 2017;

- *Record of Decision for Interim Remedial Action for the Groundwater Operable Unit for the Volatile Organic Compound Contamination at the C-400 Cleaning Building at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, DOE/OR/07-2150&D2/R2; and*
- *Land Use Control Implementation Plan: Interim Remedial Action for the Groundwater Operable Unit for the Volatile Organic Compound Contamination at the C-400 Cleaning Building at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, DOE/OR/07-2151&D2/R2.*

V. Primary/Secondary Document Tracking System:

A) Documents under review and/or preparation for this reporting period:

- None.

B) Due dates for completion of review/modification tasks:

- None.

VI. Anticipated problems/delays (provide summary of problems, schedule, reason for delay, and actions taken to prevent or mitigate delay):

- None.

VII. Summary of all contacts with local community, public interest groups, or state government:

- None.

VIII. Changes in relevant personnel:

- DOE appointed April Ladd to serve as the Paducah Site Lead, effective May 22, 2023. April Ladd had been acting in that role.
- KDEP designated April Webb to the position of Interim FFA Manager for the Paducah Site, effective August 1, 2023.

IX. Actual cost for O&M, if appropriate:

- Sampling of the C-400 IRA wells has been incorporated into the Environmental Monitoring Program. O&M cost for sampling for the C-400 IRA Project is not tracked separately.

**FEDERAL FACILITY AGREEMENT
SEMIANNUAL PROGRESS REPORT
SECOND HALF OF FISCAL YEAR 2023**

**Facility: Paducah Gaseous Diffusion Plant
Plant EPA I.D. No.: KY8-890-008-982
Reporting Period: 4/1/2023–9/30/2023**

GROUNDWATER OPERABLE UNIT PROJECT: Southwest Plume Sources

I. Work performed during the reporting period (including summaries of findings and any deviations from the work plan):

SWMU 1

- Continued long-term monitoring of the SWMU 1 MW network as required by the *Remedial Action Work Plan for In Situ Source Treatment by Deep Soil Mixing of the Southwest Groundwater Plume Volatile Organic Source at the C-747-C Oil Landfarm (Solid Waste Management Unit 1) at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, DOE/LX/07-1287&D2/A1/R1.
- Conducted inspections of land use control implementation plan (LUCIP) warning signs at SWMU 1 and verified the Excavation/Penetration Permit program for the Southwest Plume area as required by the *Record of Decision for Solid Waste Management Units 1, 211-A, 211-B, and Part of 102 Volatile Organic Compound Sources for the Southwest Groundwater Plume at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, DOE/LX/07-0365&D2/R1.

SWMUs 211-A and 211-B

- Received KDEP and EPA approval of the *Interim Remedial Action Completion Report with Postconstruction Report Elements for SWMU 211-A for Volatile Organic Compound Sources to the Southwest Groundwater Plume at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, DOE/LX/07-2483&D1, on May 9, 2023, and May 23, 2023, respectively.
- Performed sample collection of the performance MW network at SWMU 211-A for Dehalococcoides on May 31, 2023, and June 12, 2023, as prescribed in the *Certified for Construction Remedial Design Report for SWMU 211-A for Volatile Organic Compound Sources to the Southwest Groundwater Plume at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, DOE/LX/07-2435&D2.²
- Performed sample collection of the performance and long-term MW networks at SWMU 211-A on June 27–29, 2023 (third round) as prescribed in the *Certified for Construction Remedial Design Report for SWMU 211-A for Volatile Organic Compound Sources to the Southwest Groundwater Plume at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, DOE/LX/07-2435&D2.

² Sampling for Dehalococcoides bacteria in the performance wells was not performed in the first and second rounds (December 2022 and March 2023) due to constraints with the contracted commercial laboratory. This laboratory was installing equipment to perform the needed analysis. Special sampling events for Dehalococcoides were performed to supplement the first and second rounds of performance well data.

- Performed sample collection of the performance and long-term MW networks at SWMU 211-A in September 2023 (fourth round) as prescribed in the *Certified for Construction Remedial Design Report for SWMU 211-A for Volatile Organic Compound Sources to the Southwest Groundwater Plume at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, DOE/LX/07-2435&D2*.
- Conducted inspections of LUCIP warning signs at SWMU 211-A and SWMU 211-B and verified the Excavation/Penetration Permit Program for the Southwest Plume areas as required by the *Record of Decision for Solid Waste Management Units 1, 211-A, 211-B, and Part of 102 Volatile Organic Compound Sources for the Southwest Groundwater Plume at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, DOE/LX/07-0365&D2/R1*.

II. Schedules of activities to be performed during the next reporting period (including projected work/crucial phases of construction):

SWMU 1

- Continue long-term monitoring of the SWMU 1 MW network as required by the *Remedial Action Work Plan for In Situ Source Treatment by Deep Soil Mixing of the Southwest Groundwater Plume Volatile Organic Source at the C-747-C Oil Landfarm (Solid Waste Management Unit 1) at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, DOE/LX/07-1287&D2/A1/R1*.
- Conduct inspections of LUCIP warning signs at SWMU 1 and verify the Excavation/Penetration Permit Program for the Southwest Plume area as required by the *Record of Decision for Solid Waste Management Units 1, 211-A, 211-B, and Part of 102 Volatile Organic Compound Sources for the Southwest Groundwater Plume at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, DOE/LX/07-0365&D2/R1*.

SWMUs 211-A and 211-B

- Continue performance and long-term MW network sample collection at SWMU 211-A, as prescribed in the *Certified for Construction Remedial Design Report for SWMU 211-A for Volatile Organic Compound Sources to the Southwest Groundwater Plume at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, DOE/LX/07-2435&D2*.
- Conduct inspections of LUCIP warning signs at SWMU 211-A and SWMU 211-B and verify the Excavation/Penetration Permit Program for the Southwest Plume areas as required by the *Record of Decision for Solid Waste Management Units 1, 211-A, 211-B, and Part of 102 Volatile Organic Compound Sources for the Southwest Groundwater Plume at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, DOE/LX/07-0365&D2/R1*.

III. Identity and assigned tasks of DOE contractors for work to be performed for this project:

- Reporting responsibility for the work to be performed in support of the Southwest Plume Sources belongs to FRNP. FRNP also provides programmatic and technical support, analytical services, and business management services. SST manages the AR and the EIC for DOE.

IV. Statement of the manner and extent to which the requirements and time schedules are being met:

- The requirements for the SWMU 1 portion of the Southwest Plume sources remedial action subproject are being met consistent with the SMP, the FFA, and as agreed to by the FFA parties.
- The requirements for the SWMU 211-A portion of the Southwest Plume subproject are being met consistent with the SMP, the FFA, and as agreed to by the FFA parties.

V. Primary/Secondary Document Tracking System:

A) Documents under review and/or preparation for this reporting period:

- *Interim Remedial Action Completion Report with Postconstruction Report Elements for SWMU 211-A Enhanced In Situ Bioremediation for Volatile Organic Compound Sources to the Southwest Plume at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, DOE/LX/07-2483&D1*, was under review and approval by EPA and KDEP during this reporting period.

B) Due dates for completion of review/modification tasks:

- None.

VI. Anticipated problems/delays (provide summary of problems, schedule, reason for delay, and actions taken to prevent or mitigate delay):

- None.

VII. Summary of all contacts with local community, public interest groups, or state government:

- DOE provided routine updates on the subproject to the Paducah Site CAB, FFA project managers, FFA senior managers, local elected officials, and/or Congressional staff, as applicable.

VIII. Changes in relevant personnel:

- DOE appointed April Ladd to serve as the Paducah Site Lead, effective May 22, 2023. April Ladd had been acting in that role.
- KDEP designated April Webb to the position of Interim FFA Manager for the Paducah Site, effective August 1, 2023.

IX. Actual cost for O&M, if appropriate:

- None.

THIS PAGE INTENTIONALLY LEFT BLANK

**FEDERAL FACILITY AGREEMENT
SEMIANNUAL PROGRESS REPORT
SECOND HALF OF FISCAL YEAR 2023**

**Facility: Paducah Gaseous Diffusion Plant
Plant EPA I.D. No.: KY8-890-008-982
Reporting Period: 4/1/2023–9/30/2023**

GROUNDWATER OPERABLE UNIT PROJECT: Dissolved-Phase Plumes

I. Work performed during the reporting period (including summaries of findings and any deviations from the work plan):

- Met quarterly with the Modeling Working Group (MWG) during this reporting period on April 5, 2023, and July 19, 2023.
- Finalized and issued the white paper, *Degradation of Trichloroethene at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, FRNP-RPT-0282, to the MWG on May 2, 2023.
- Continued updates to the sitewide groundwater model.
- Continued development of the *2023 Update of the Paducah Gaseous Diffusion Plant Sitewide Groundwater Flow Model*, DOE/LX/07-2488&D1.

II. Schedule of activities to be performed during the next reporting period (including projected work/crucial phases of construction):

- Conduct quarterly meetings with the MWG, which are currently planned for October 4, 2023, and January 24, 2024.
- Finalize development of the *2023 Update of the Paducah Gaseous Diffusion Plant Sitewide Groundwater Flow Model*, DOE/LX/07-2488&D1.

III. Identity and assigned tasks of DOE contractors for work to be performed for this project:

- Reporting responsibility for the work to be performed in support of the Dissolved-Phase Plume belongs to FRNP. FRNP also provides programmatic and technical support, analytical services, and business management services. SST manages the AR and the EIC for DOE.

IV. Statement of the manner and extent to which the requirements and time schedules are being met:

- The requirements and time schedules are being met. The MWG will continue to support Paducah Site projects.

V. Primary/Secondary Document Tracking System:

A) Documents under review and/or preparation for this reporting period:

- *2023 Update of the Paducah Gaseous Diffusion Plant Sitewide Groundwater Flow Model*, DOE/LX/07-2488&D1, was under development during this reporting period.
- *Degradation of Trichloroethene at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, FRNP-RPT-0282, was under development and was under review by EPA and KDEP during this reporting period.

B) Due dates for completion of review/modification tasks:

- None.

VI. Anticipated problems/delays (provide summary of problems, schedule, reason for delay, and actions taken to prevent or mitigate delay):

- None.

VII. Summary of all contacts with local community, public interest groups, or state government:

- DOE provided routine updates on the subproject to the Paducah Site CAB, FFA project managers, FFA senior managers, local elected officials, and/or Congressional staff, as applicable.

VIII. Changes in relevant personnel:

- DOE appointed April Ladd to serve as the Paducah Site Lead, effective May 22, 2023. April Ladd had been acting in that role.
- KDEP designated April Webb to the position of Interim FFA Manager for the Paducah Site, effective August 1, 2023.

IX. Actual cost for O&M, if appropriate:

- None.

**FEDERAL FACILITY AGREEMENT
SEMIANNUAL PROGRESS REPORT
SECOND HALF OF FISCAL YEAR 2023**

**Facility: Paducah Gaseous Diffusion Plant
Plant EPA I.D. No.: KY8-890-008-982
Reporting Period: 4/1/2023–9/30/2023**

GROUNDWATER OPERABLE UNIT PROJECT: Northeast Plume IRA

I. Work performed during the reporting period (including summaries of findings and any deviations from the work plan):

- Treated 45,171,017 gal of contaminated groundwater, with an average system treatment rate of 173 gal per minute during this reporting period. The system is designed so that continuous operation of the Northeast Plume Containment System (NEPCS) is possible when only one of the two extraction wells (EWs) is functional. The NEPCS achieved an average operational efficiency, as a whole, of 99.1%. Operational online efficiencies for the reporting period for C-765 were as follows: January 2023, 99.9%; February 2023, 99.7%; March 2023, 100%; April 2023, 100%; May 2023, 99.2%; and June 2023, 98.9%. The C-765-A operational online efficiencies for the reporting period were as follows: January 2023, 100%; February 2023, 99.8%; March 2023, 99.7%; April 2023, 99.3%; May 2023, 92.9%; and June 2023, 99.4%.

A) Process Operations:

The NEPCS consists of two EWs (EW234 and EW235), transfer piping, two treatment units for air stripping and suspended solids removal, and MW network. The old EWs, EW331 and EW332, equalization tank, and old transfer piping have been placed in standby mode.

B) Process Testing:

Operation of the NEPCS began February 28, 1997. As of June 30, 2023, the NEPCS has processed a total of approximately 2,220,555,694 gal of water. The monthly withdrawal volumes for this reporting period are presented in Appendix A, Table A.1, of this report. This table includes a summary of the withdrawn water volumes and average daily rates.

C) NEPCS Influent, Effluent, and Extraction Well Testing:

Due to sample analysis time and the data assessment process, there is a three-month lag in the analytical data and operational data. Graphs in this report present analytical data through June 30, 2023. Data are available in PEGASIS.

Influent TCE analytical data from 2018 through the end of June 2023 are presented in Appendix B. Environmental samples were collected monthly from the treatment system influent and weekly from the treatment system effluent for the period of January 1, 2023, through June 30, 2023. High, low, and average influent and effluent TCE concentrations for these months are presented in Table 3.

Table 3. TCE Concentrations for Northeast Plume

	TCE (µg/L)		
	High	Low	Average
Influent C-765 (EW234)	319	86.4	209
Influent C-765-A (EW235)	118	71.5	93.4
Effluent from C-765	< 1	< 1	< 1
Effluent from C-765-A	< 1	< 1*	< 1*
Effluent (CERCLA Outfall C001)	< 1	< 1	< 1

NOTE: Data rejected by validation or assessment are not included on the table.

*The values denoted are below the detection limit.

As presented in Table 3, the NEPCS continued to remove TCE effectively. The systems operated with an average removal efficiency of 99.5% for EW234 and 98.9% for EW235 for TCE.

The EWs were sampled monthly during this reporting period. For the period of January 1, 2023, through June 30, 2023, EW234 had an average TCE concentration of 209 µg/L, while EW235 had an average concentration of 93.4 µg/L.

Treated groundwater for the Northeast Plume is discharged to a CERCLA outfall, and data associated with the CERCLA outfall are included as part of Appendix B of this report.

D) Maintenance Activities:

Routine Maintenance Activities:

Daily, monthly, quarterly, and annual routine maintenance activities were conducted in accordance with the *Northwest/Northeast Plume Daily Operational Data Collection and Maintenance*, CP4-ER-0017.

- C-765 system was shut down for 3.75 hours for planned maintenance during this reporting period.
- C-765-A system was shut down for 13.75 hours for planned maintenance during this reporting period.

Non-routine Maintenance Activities:

- C-765 system was shut down for a total of 13 hours during this reporting period due to unexpected repairs and power disruptions.
- C-765-A system was shut down for a total of 52 hours during this reporting period due to unexpected repairs and power disruptions.

E) Effectiveness Monitoring—Monitoring Well Results:

Figure B.1, included in Appendix B, shows locations of the MWs and EWs. Figure B.2 shows system influent TCE concentrations, and Figure B.3 includes a summary of the Tc-99 activities in the Northeast Plume EWs. Figure B.4 shows the estimated cumulative amount of TCE removed since the NEPCS began operations in 1997. Figures B.5 through B.14, presented in Appendix B, show TCE concentrations and Tc-99 activities in upgradient transect wells, MWs near the EWs, downgradient wells, distal downgradient wells, and wells near the C-400 Complex. The EWs are working well to increase TCE mass removal and to enhance control of the plume. This is shown in Figure B.4 in Appendix B with an increase in mass removal beginning in October 2017, with initiation of pumping from the optimized EWs.

During this reporting period, the FFA parties reviewed and assessed the Northeast Plume TCE and Tc-99 transect well results on a quarterly basis. The analytical results can be found in Appendix B, along with analytical results for other NEPCS MWs. This information is used by the FFA parties when considering if additional adjustments are needed to minimize undesirable expansion of high concentrations of Tc-99 and TCE within the Northeast Plume. As agreed to by the FFA parties, 100 gal per minute and 75 gal per minute are the target flowrates for EW234 and EW235, respectively. The NEPCS continues to operate under Condition #3 of the *Memorandum of Agreement for Resolution of Formal Dispute of the Explanation of Significant Differences to the Record of Decision for the Interim Remedial Action of the Northeast Plume at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky (DOE/LX/07-1291&D2)*, and *Remedial Action Work Plan for Optimization of the Northeast Plume Interim Remedial Action at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky (DOE/LX/07-1280&D2)*.

F) Modification of the NEPCS Operations or Configuration:

- None.

G) See Section V for work related to document preparation and review.

II. Schedule of activities to be performed during the next reporting period (including projected work/crucial phases of construction):

- Continue to conduct and document the necessary tasks required for equipment maintenance, calibration, and operation as specified in the *Operation and Maintenance Plan for the Northeast Plume Containment System Interim Remedial Action at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, DOE/LX/07-2470&D1*.
- Provide TCE and Tc-99 transect MW sampling results to EPA and KDEP on a quarterly basis.

III. Identity and assigned tasks of DOE contractors for work to be performed for this project:

- Reporting responsibility for the work to be performed in support of the Northeast Plume IRA belongs to FRNP. FRNP also provides programmatic and technical support, analytical services, and business management services. SST manages the AR and the EIC for DOE.

IV. Statement of the manner and extent to which the requirements and time schedules are being met:

- The effluent concentration goal of 30 µg/L for TCE was met during the reporting period. The NEPCS remained operational 99.1% of the time during this reporting period.

V. Primary/Secondary Document Tracking System:

A) Documents under review and/or preparation for this reporting period:

- None.

B) Due dates for completion of review/modification tasks:

- None.

VI. Anticipated problems/delays (provide summary of problems, schedule, reason for delay, and actions taken to prevent or mitigate delay):

- None.

VII. Summary of all contacts with local community, public interest groups, or state government:

- DOE provided routine updates on the subproject to the Paducah Site CAB, FFA project managers, FFA senior managers, local elected officials, and/or Congressional staff.

VIII. Changes in relevant personnel:

- DOE appointed April Ladd to serve as the Paducah Site Lead, effective May 22, 2023. April Ladd had been acting in that role.
- KDEP designated April Webb to the position of Interim FFA Manager for the Paducah Site, effective August 1, 2023.

IX. Actual cost for O&M, if appropriate:

- Actual costs for O&M of the Northwest and Northeast Plume facilities are tracked jointly. The total operating cost for the reporting period was approximately \$794,000.

**FEDERAL FACILITY AGREEMENT
SEMIANNUAL PROGRESS REPORT
SECOND HALF OF FISCAL YEAR 2023**

**Facility: Paducah Gaseous Diffusion Plant
Plant EPA I.D. No.: KY8-890-008-982
Reporting Period: 4/1/2023–9/30/2023**

GROUNDWATER OPERABLE UNIT PROJECT: Northwest Plume IRA

I. Work performed during the reporting period (including summaries of findings and any deviations from the work plan):

- Treated 50,673,793 gal of contaminated groundwater, with an average monthly operational efficiency of 99.3% during this reporting period. The average system treatment rate for the reporting period was approximately 194 gal per minute. Operational efficiencies for the reporting period were as follows: January 2023, 99.8%; February 2023, 99.8%; March 2023, 97.9%; April 2023, 100%; May 2023, 98.5%; and June 2023, 99.8%.

A) Process Operations:

The Northwest Plume Groundwater System (NWPGS) consists of two EWs (EW232 and EW233), located just north of the Paducah Site, and underground transfer pipeline for moving comingled groundwater from the EWs to the C-612 treatment facility. The treatment facility has an operational capacity of 220 gal per minute and utilizes air stripping for removal of TCE in groundwater, ion exchange for removal of Tc-99 in groundwater, and vapor phase carbon for capturing TCE from the exhaust of the air stripper. Treated groundwater is released to a tributary that flows to Kentucky Pollutant Discharge Elimination System Outfall 001. A MW network is used to evaluate performance and effectiveness of the optimized EWs.

B) Process Testing:

Operation of the NWPGS began on August 28, 1995. As of June 30, 2023, the NWPGS has processed a total of approximately 2,779,042,051 gal of water. The monthly withdrawal volumes for the reporting period are presented in Appendix A, Table A.2, of this report. This table includes a summary of the withdrawn water volumes and average daily rates.

C) NWPGS Influent, Effluent, and Extraction Well Testing:

Due to sample analysis time and the data assessment process, there is a three-month lag in the analytical data and operational data. Graphs in this report present data through June 2023. Data are available in PEGASIS.

Figure B.15, included in Appendix B, shows locations of the Northwest Plume MWs. Influent TCE and Tc-99 analytical data are presented in Appendix B on Figures B.16 and B.17. Figures B.18 and B.19 include a summary of the TCE and Tc-99 concentrations of the effluent versus time at the NWPGS. Figure B.20 shows the cumulative estimated amount of TCE removed since the NWPGS began operations in 1995. The influent sample results, compared to the NWPGS effluent results, indicated that the NWPGS continues to remove TCE and Tc-99 effectively.

For radionuclides, all reported values, including negative values, are used to derive averages. Negative Tc-99 results may be reported due to a statistical determination of the counts seen by a detector, minus a background count. High, low, and average treatment facility influent and effluent TCE and Tc-99 concentrations from January 1, 2023, through June 30, 2023, are presented in Table 4.

Table 4. TCE and Tc-99 Concentrations at the C-612 Treatment Facility for Northwest Plume (January 1, 2023, through June 30, 2023)

	TCE (µg/L)			Tc-99 (pCi/L)		
	High	Low	Average	High	Low	Average
Influent from EW232 and EW233 (combined)	958	593	781	331	163	251
Effluent from C-612 NW Plume treatment facility	1.06	< 1*	< 1*	29.4	3.11*	15.3

*The values denoted are below the detection limit.

The treatment system influent was sampled monthly. The effluent was sampled weekly. These sampling frequencies were conducted in accordance with the *Operation and Maintenance Plan for the Northwest Plume Groundwater System Interim Remedial Action at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, DOE/LX/07-2469&D2. As presented in Table 4, the NWPGS continued to remove TCE and Tc-99 effectively. The system operated with an average removal efficiency of 99.9% for TCE and 93.9% for Tc-99.

The average TCE effluent concentration for this reporting period was less than 1 µg/L, which is less than the treatment goal of 5 µg/L. The average Tc-99 effluent value was 15.3 pCi/L, which is less than the operational goal of 900 pCi/L, during the reporting period.

High, low, and average sample results for this reporting period at the EWs are shown in Table 5. EW232 and EW233 were sampled quarterly in accordance with the *Operation and Maintenance Plan for the Northwest Plume Groundwater System Interim Remedial Action at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, DOE/LX/07-2469&D2.

Table 5. TCE and Tc-99 Concentrations for Northwest Plume Extraction Wells (January 1, 2023, through June 30, 2023)

	TCE (µg/L)			Tc-99 (pCi/L)		
	High	Low	Average	High	Low	Average
EW232	502	298	400	142	82.1	112
EW233	1,540	931	1,138	519	309	385

D) Treatment Media:

Ion Exchange Resins:

The NWPGS is equipped with four ion exchange columns used for Tc-99 removal. Purolite® A520E resin is used in the columns, which are arranged in a lead/lag configuration in a trailer.

Activated Carbon Media:

The NWPGS is equipped with two carbon columns that contain granular activated carbon for absorption of VOCs from the vapor-phase effluent of the air stripper unit. The *Operation and Maintenance Plan for the Northwest Plume Groundwater System Interim Remedial Action at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, DOE/LX/07-2469&D2, requires that spent carbon be replaced every 6 months. The last carbon changeout was completed on September 11, 2023. The next carbon changeout is projected for March 2024.

E) Maintenance Activities:

Routine Maintenance Activities:

Daily, monthly, quarterly, and annual routine maintenance activities were conducted in accordance with the *Northwest/Northeast Plume Daily Operational Data Collection and Maintenance*, CP4-ER-0017, and *Monthly, Quarterly, and Annual Maintenance at the C-612 Northwest Plume Groundwater System*, CP4-ER-0016.

- The NWPGS was shut down for a total of 16.25 hours for planned maintenance activities.

Non-routine Maintenance Activities:

- The NWPGS was shut down for a total of 15.25 hours for the repair of failed components and unexpected power disruptions.

Effectiveness Monitoring—Monitoring Well Results:

Figures B.21 through B.30 presented in Appendix B, show TCE and Tc-99 concentrations in EWs and nearby MWs from 2018 through June 2023.

G) Modification of the NWPGS Operations or Configuration:

- None.

H) See Section V for work related to document preparation and review.

II. Schedules of activities to be performed during the next reporting period (including projected work/crucial phases of construction):

- Continue to conduct and document the necessary tasks required for equipment maintenance, calibration, and operation, as specified in the *Operation and Maintenance Plan for the*

Northwest Plume Groundwater System Interim Remedial Action at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, DOE/LX/07-2469&D2.

III. Identity and assigned tasks of DOE contractors for work to be performed for this project:

- Reporting responsibility for the work to be performed in support of the Northwest Plume IRA belongs to FRNP. FRNP also provides programmatic and technical support, analytical services, and business management services. SST manages the AR and the EIC for DOE.

IV. Statement of the manner and extent to which the requirements and time schedules are being met:

- The average NWPGS water effluent concentrations met the operational goals of 5 µg/L for TCE and 900 pCi/L for Tc-99 during the reporting period. The NWPGS has maintained an average monthly operational efficiency of 99.3% during this reporting period.

V. Primary/Secondary Document Tracking System:

A) Documents under review and/or preparation for this reporting period:

- None.

B) Due dates for completion of review/modification tasks:

- None.

VI. Anticipated problems/delays (provide summary of problems, schedule, and reason for delay, and actions taken to prevent or mitigate delay):

- None.

VII. Summary of all contacts with local community, public interest groups, or state government:

- DOE provided routine updates on the subproject to the Paducah Site CAB, FFA project managers, FFA senior managers, local elected officials, and/or Congressional staff.

VIII. Changes in relevant personnel:

- DOE appointed April Ladd to serve as the Paducah Site Lead, effective May 22, 2023. April Ladd had been acting in that role.
- KDEP designated April Webb to the position of Interim FFA Manager for the Paducah Site, effective August 1, 2023.

IX. Actual cost for O&M, if appropriate:

- Actual costs for O&M of the Northwest and Northeast Plume facilities are tracked jointly. The total operating cost for the reporting period was approximately \$794,000.

**FEDERAL FACILITY AGREEMENT
SEMIANNUAL PROGRESS REPORT
SECOND HALF OF FISCAL YEAR 2023**

**Facility: Paducah Gaseous Diffusion Plant
Plant EPA I.D. No.: KY8-890-008-982
Reporting Period: 4/1/2023–9/30/2023**

BURIAL GROUNDS OPERABLE UNIT

The scope of the BGOU includes an RI, baseline human health risk assessment, evaluation of remedial alternatives, remedy selection, and implementation of actions, as necessary, for protection of human health and the environment for the following burial grounds: C-749 (SWMU 2); C-404 (SWMU 3); C-747/C-748-B (SWMU 4); C-746-F (SWMU 5); C-747-B (SWMU 6); C-747-A (SWMUs 7 and 30), which includes the area beneath C-747-A (SWMU 12); the residential/inert borrow area (SWMU 145); and the C-746-S&T Landfills (SWMUs 9 and 10, respectively).

This section also includes information on the sampling activities being conducted at the C-749 Uranium Burial Ground, as required in the *Record of Decision for Interim Remedial Action at Solid Waste Management Units 2 and 3 of Waste Area Group 22 at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, DOE/OR/06-1351&D1, signed in 1995.

THIS PAGE INTENTIONALLY LEFT BLANK

**FEDERAL FACILITY AGREEMENT
SEMIANNUAL PROGRESS REPORT
SECOND HALF OF FISCAL YEAR 2023**

**Facility: Paducah Gaseous Diffusion Plant
Plant EPA I.D. No.: KY8-890-008-982
Reporting Period: 4/1/2023–9/30/2023**

BURIAL GROUNDS OPERABLE UNIT PROJECT: C-749 Uranium Burial Ground (SWMU 2)

I. Work performed during the reporting period (including summaries of findings and any deviations from the work plan):

- Continued groundwater monitoring at the C-749 Uranium Burial Ground, as required by the *Record of Decision for Interim Remedial Action at Solid Waste Management Unit 2 and 3 of Waste Area Group 22 at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, DOE/OR/06-1351&D1. Appendix E contains figures depicting the C-749 Uranium Burial Ground (SWMU 2) groundwater MW locations and a summary of the SWMU 2 trends for TCE and Tc-99 for a period of five years. All groundwater data are available in PEGASIS and, therefore, have not been summarized in this report.

II. Schedules of activities to be performed during the next reporting period (including projected work/crucial phases of construction):

- Continue groundwater monitoring at the C-749 Uranium Burial Ground, as required by the *Record of Decision for Interim Remedial Action at Solid Waste Management Unit 2 and 3 of Waste Area Group 22 at the Paducah Gaseous Diffusion Plant Paducah, Kentucky*, DOE/OR/06-1351&D1.

III. Identity and assigned tasks of DOE contractors for work to be performed for this project:

- Reporting responsibility for the work to be performed in support of the C-749 Uranium Burial Ground belongs to FRNP. FRNP also provides programmatic and technical support, analytical services, and business management services. SST manages the AR and the EIC for DOE and maintains existing burial ground cover.

IV. Statement of the manner and extent to which the requirements and time schedules are being met:

- The requirements and time schedules are being met.

V. Primary/Secondary Document Tracking System:

A) Documents under review and/or preparation during this reporting period:

- None.

B) Due dates for completion of review/modification tasks:

- None.

VI. Anticipated problems/delays (provide summary of problems, schedule, reason for delay, and actions taken to prevent or mitigate delay):

- None.

VII. Summary of all contacts with local community, public interest groups, or state government:

- None.

VIII. Changes in relevant personnel:

- DOE appointed April Ladd to serve as the Paducah Site Lead, effective May 22, 2023. April Ladd had been acting in that role.
- KDEP designated April Webb to the position of Interim FFA Manager for the Paducah Site, effective August 1, 2023.

IX. Actual cost for O&M, if appropriate:

- Sampling of the C-749 Uranium Burial Ground has been incorporated into the Environmental Monitoring Program. O&M cost for this project is not tracked separately.

**FEDERAL FACILITY AGREEMENT
SEMIANNUAL PROGRESS REPORT
SECOND HALF OF FISCAL YEAR 2023**

**Facility: Paducah Gaseous Diffusion Plant
Plant EPA I.D. No.: KY8-890-008-982
Reporting Period: 4/1/2023–9/30/2023**

SURFACE WATER OPERABLE UNIT

The SWOU includes the Surface Water Removal Action and Surface Water Remedial Action projects. O&M is performed on North-South Diversion Ditch Sections 1 and 2 and institutional controls, as required by the *Operation and Maintenance Plan for Sections 1 and 2 of the North-South Diversion Ditch at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, DOE/OR/07-2057&D2*, and *Operation and Maintenance Plan for the Surface Water Operable Unit at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, DOE/OR/07-1904&D1/R2*; and O&M activities for the C-613 Sedimentation Basin are maintained in accordance with the *Operation and Maintenance Plan for the Northwest Storm Water Control Facility at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, DOE/OR/07-2044&D1/R4*, respectively.

Per the *Operation and Maintenance Plan for the Northwest Storm Water Control Facility at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, DOE/OR/07-2044&D1/R4*, the relationship of turbidity to total suspended solids is compared on a quarterly basis. An update to the existing linear regression model was performed in September 2023, and the current maximum discharge limit for turbidity is 96 nephelometric turbidity units (NTUs), with a 30-day average not to exceed 46 NTUs.

THIS PAGE INTENTIONALLY LEFT BLANK

**FEDERAL FACILITY AGREEMENT
SEMIANNUAL PROGRESS REPORT
SECOND HALF OF FISCAL YEAR 2023**

**Facility: Paducah Gaseous Diffusion Plant
Plant EPA I.D. No.: KY8-890-008-982
Reporting Period: 4/1/2023–9/30/2023**

SURFACE WATER OPERABLE UNIT PROJECT: Remedial Action

I. Work performed during the reporting period (including summaries of findings and any deviations from the work plan):

- Conducted inspections in accordance with the *Land Use Control Implementation Plan for the North-South Diversion Ditch at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, DOE/OR/07-1949&D2/R2.
- Conducted inspections for Environmental Indicator signs in April 2023 and Institutional Control measures in May 2023 in accordance with the *Operation and Maintenance Plan for the Surface Water Operable Unit at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, DOE/OR/07-1904&D1/R2.

II. Schedules of activities to be performed during the next reporting period (including projected work/crucial phases of construction):

- Conduct inspections in accordance with the *Land Use Control Implementation Plan for the North-South Diversion Ditch at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, DOE/OR/07-1949&D2/R2.
- Conduct inspections for Environmental Indicator signs and Institutional Control measures in accordance with the *Operation and Maintenance Plan for the Surface Water Operable Unit at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, DOE/OR/07-1904&D1/R2.

III. Identity and assigned tasks of DOE contractors for work to be performed for this project:

- Reporting responsibility for the work to be performed in support of the SWOU Remedial Action belongs to FRNP. FRNP also provides programmatic and technical support, analytical services, and business management services. SST manages the AR and the EIC for DOE.

IV. Statement of the manner and extent to which the requirements and time schedules are being met:

- The requirements and time schedules are being met for the SWOU consistent with the SMP and as agreed to by the FFA parties.

V. Primary/Secondary Document Tracking System:

A) Documents under review and/or preparation for this reporting period:

- None.

B) Due dates for completion of review/modification tasks:

- None.

VI. Anticipated problems/delays (provide summary of problems, schedule, reason for delay, and actions taken to prevent or mitigate delay):

- None.

VII. Summary of all contacts with local community, public interest groups, or state government:

- DOE provided routine updates on the subproject to the Paducah Site CAB, FFA project managers, FFA senior managers, local elected officials, and/or Congressional staff.

VIII. Changes in relevant personnel:

- DOE appointed April Ladd to serve as the Paducah Site Lead, effective May 22, 2023. April Ladd had been acting in that role.
- KDEP designated April Webb to the position of Interim FFA Manager for the Paducah Site, effective August 1, 2023.

IX. Actual cost for O&M, if appropriate:

- O&M activities have been incorporated into the Environmental Monitoring Program. O&M cost for this project is not tracked separately.

**FEDERAL FACILITY AGREEMENT
SEMIANNUAL PROGRESS REPORT
SECOND HALF OF FISCAL YEAR 2023**

**Facility: Paducah Gaseous Diffusion Plant
Plant EPA I.D. No.: KY8-890-008-982
Reporting Period: 4/1/2023–9/30/2023**

WATER POLICY

Pursuant to the June 1994 *Action Memorandum for the Water Policy at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, DOE/OR/06-1201&D2, that was approved by EPA in August 1994, municipal water service was offered at no cost to all existing private residences and businesses within the Water Policy affected area. The affected area is defined as follows:

The affected area is generally bounded by the Ohio River to the north, DOE property boundary to the south, Metropolis Lake Road to the east, and Bethel Church Road to the west. Specifically, on the west side, the boundary follows the DOE property boundary northwest to the intersection with Big Bayou Creek. At that point, it moves west to the intersection of Bethel Church Road and the centerline of a powerline easement just south of Bobo Lane. Property fronting the north end of Bethel Church Road is included in the affected area north of the intersection with the powerline easement to the Ohio River. Specifically, on the east side, the boundary follows the DOE property boundary northwest to the southern point of private property that fronts Ogden Landing Road (identified in McCracken County Property Valuation Office records as #20-27-1A). At that point, it moves east along the southern edge of properties that front the south side of Ogden Landing Road to the intersection of Ogden Landing Road with Metropolis Lake Road. Property fronting on both sides of Metropolis Lake Road is included in the affected area north of this intersection of the roads to the Ohio River.

There are 680.5 acres within the Water Policy affected area (i.e., excluding DOE property) that lie over the 2020 TCE groundwater plume above the 5 µg/L maximum contaminant level (MCL); 522.5 acres are owned by either West Kentucky Wildlife Management Area or the Tennessee Valley Authority, and 158 acres are owned by private residents or businesses. DOE has implemented various water policy activities that ensure proper management of the Water Policy and assist in DOE's long-term protectiveness of residents and businesses located within the Water Policy affected area. These activities include the following: (1) update water policy area information by maintaining an annual subscription to the online McCracken County Property Valuation Administrator (PVA) office and verifying land ownership with the PVA office; (2) review the monthly billing register, ensuring water bill payments and assessing trends; (3) manage license agreements; (4) provide sampling results; (5) provide an annual water policy educational fact sheet to all residents and businesses within the affected area; (6) perform annual cap and lock inspections; and (7) demonstrate, on an annual basis, that residents and businesses located over the groundwater plume are not utilizing the groundwater.

THIS PAGE INTENTIONALLY LEFT BLANK

**FEDERAL FACILITY AGREEMENT
SEMIANNUAL PROGRESS REPORT
SECOND HALF OF FISCAL YEAR 2023**

**Facility: Paducah Gaseous Diffusion Plant
Plant EPA I.D. No.: KY8-890-008-982
Reporting Period: 4/1/2023–9/30/2023**

PROJECT: Water Policy

I. Work performed during this reporting period (including summaries of findings and any deviations from the work plan):

License Agreements:

- Offered 7 new license agreements and 28 license agreement renewals during this reporting period. Four new license agreements and 23 renewals are pending landowner signature. One license agreement that was sent during the previous reporting period was signed by the landowner during this reporting period. Three license agreements offered during this period have been signed. Five renewal agreements, expiring in September and December, were signed by the landowner during this reporting period. As of September 30, 2023, 112 of 124 parcels within the Water Policy affected area are inhabitable (i.e., house or mobile/manufactured home with active municipal water). A total of 89.5% of the inhabitable parcels are covered by a license agreement. There are 10 parcels that overlie the groundwater plumes. Ninety percent of these parcels are under a license agreement, and the one unlicensed parcel is vacant.
- All parcel owners have been offered license agreements.

Water Bills:

- Reviewed all water bills for properties that DOE pays and noted no significant trends during this reporting period.

Demonstration that Residents in the Water Policy Affected Area Are Protected:

- Continued work on annual demonstration that residents, including parcels located over the contaminated groundwater plume, are not accessing groundwater from any residential well located within the Water Policy area. This demonstration included the following:
 - Continued monthly review of the Water Policy affected area water bills and ensure no downward trends in usage that could indicate that property owners are using groundwater instead of municipal water. This review includes the 10 parcels that lie over the 5 µg/L or greater portion of the TCE groundwater plumes. No issues were identified during this review.
 - Received and reviewed the Kentucky Division of Water report, which includes scans for newly submitted drilling logs for any water wells drilled within the Water Policy area. No issues were identified during this review.

- Conducted visual assessments (i.e., drive-bys, Google Earth images) of parcels overlying or immediately adjacent to the 5 µg/L or greater portion of the TCE groundwater plumes, as delineated for 2022. No issues were identified during these assessments.
- Verified land ownership by reviewing the PVA website. Semiannual verification of all properties completed in July 2023. No issues were identified during this assessment. Updated ownership list emailed to KDEP.

Monitoring:

- Routine monitoring was conducted in accordance with the following documents:
 - *Operation and Maintenance Plan for the Northeast Plume Containment System Interim Remedial Action at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, DOE/LX/07-2470&D1*; and
 - *Operation and Maintenance Plan for the Northwest Plume Groundwater System Interim Remedial Action at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, DOE/LX/07-2469&D2*.
- Data collected in support of water policy monitoring will be made available in PEGASIS once data have been reported to the landowners.

Northeast:

- Nine MWs and seven residential wells are monitored routinely in accordance with the *Operation and Maintenance Plan for the Northeast Plume Containment System Interim Remedial Action at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, DOE/LX/07-2470&D1*.
- Sampled six MWs during this reporting period. Five were sampled in May 2023, one in June 2023, and two in September 2023. None of the MWs sampled in March 2023, during the previous reporting period, nor in May 2023 or June 2023 exhibited detections greater than the MCL for TCE (5 µg/L). Analytical data are pending for the samples collected in September 2023.

Northwest:

- Thirteen MWs and five residential wells are monitored routinely in accordance with the *Operation and Maintenance Plan for the Northwest Plume Groundwater System Interim Remedial Action at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, DOE/LX/07-2469&D2*. (Note: Tc-99 was added as a result of the *Memorandum of Agreement for Resolution of Informal Dispute Concerning U.S. Environmental Protection Agency and Kentucky Department for Environmental Protection Requirements for Additional Actions or Modifications Regarding the CY 2018 Five-Year Review for Remedial Actions at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, DOE/LX/07-2426&D2*, dated June 22, 2020.)
- Sampled MWs and residential wells in April 2023, May 2023, August 2023, and September 2023, during this reporting period, in accordance with the Water Policy Boundary Monitoring Program per the Environmental Monitoring Plan (EMP). Analytical data for MWs and residential wells sampled in February 2023 were not available for reporting in the previous

reporting period; the analytical data have been included in this report. All MWs and residential wells sampled in February 2023, during the previous reporting period, and in April 2023 and May 2023 were below the MCL for TCE except for R2, which was reported at 5.03 µg/L. In addition, MW435 was sampled as part of the EMP biannual sampling and was reported at 9.46 µg/L in one sample taken subsequent to the Water Policy Boundary Monitoring. TCE has been detected at these wells in the past; however, the detection at MW435 is inconsistent with previous detections and will continue to be evaluated. None of the MWs or residential wells sampled exhibited detections of Tc-99. Analytical data are pending for samples collected in August 2023 and September 2023.

- Sampled residential well R40 in May 2023 and August 2023. Analytical data for R40 sampled in February 2023 were not available for reporting in the previous reporting period; the analytical data are summarized in this report. The samples collected in February 2023 and May 2023 had results less than the MCL for vinyl chloride and TCE. Analytical data are pending for the samples collected in August 2023.

II. Schedules of activities to be performed during the next reporting period (including projected work/crucial phases of construction):

- Complete the annual inspection of the caps and locks installed on the residential wells located on properties with current license agreements.
- Continue monthly review of the Water Policy-affected area water bills and ensure no downward trends in usage that could indicate that property owners are using groundwater instead of municipal water. This review includes the 10 parcels that lie over the 5 µg/L or greater portion of the TCE groundwater plumes. No issues have been identified during this review.
- Review the Kentucky Geological Survey water well database and ensure that no additional groundwater wells have been installed in the Water Policy-affected area, which includes the area over the 5 µg/L or greater portion of the TCE groundwater plumes, as delineated for 2022. No issues have been identified during this review.
- Conduct visual assessments (i.e., drive-bys, Google Earth images) of properties overlying or immediately adjacent to the 5 µg/L or greater TCE groundwater plumes, as delineated for 2022.
- Develop *Water Policy Educational Fact Sheet Mailer* and submit to EPA and KDEP for review and approval.
- Issue *Water Policy Educational Fact Sheet Mailer* to area residents; and publish the fact sheet to the public on the Paducah EIC website.
- Continue routine monitoring and reporting in accordance with the *Operation and Maintenance Plan for the Northeast Plume Containment System Interim Remedial Action at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, DOE/LX/07-2470&D1; and the *Operation and Maintenance Plan for the Northwest Plume Groundwater System Interim Remedial Action at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, DOE/LX/07-2469&D2.

III. Identity and assigned tasks of DOE contractors for work to be performed for this project:

- Reporting responsibility for the work to be performed in support of the Water Policy belongs to FRNP. FRNP also provides programmatic and technical support, analytical services, and business management services. SST manages the AR and the EIC for DOE.

IV. Statement of the manner and extent to which the requirements and time schedules are being met:

- The requirements and time schedules are being met.

V. Primary/Secondary Document Tracking System:

A) Documents under review and/or preparation for this reporting period:

- None.

B) Due dates for completion of review/modification tasks:

- None.

VI. Anticipated problems/delays (provide summary of problems, schedule, reason for delay, and actions taken to prevent or mitigate delay):

- None.

VII. Summary of all contacts with local community, public interest groups, or state government:

- DOE provided routine updates on the subproject to the Paducah Site CAB, FFA project managers, FFA senior managers, local elected officials, and/or Congressional staff.

VIII. Changes in relevant personnel:

- DOE appointed April Ladd to serve as the Paducah Site Lead, effective May 22, 2023. April Ladd had been acting in that role.
- KDEP designated April Webb to the position of Interim FFA Manager for the Paducah Site, effective August 1, 2023.

IX. Actual cost for O&M, if appropriate:

- Water bill payments are included in DOE's annual operating budget for the Paducah Site.

**FEDERAL FACILITY AGREEMENT
SEMIANNUAL PROGRESS REPORT
SECOND HALF OF FISCAL YEAR 2023**

**Facility: Paducah Gaseous Diffusion Plant
Plant EPA I.D. No.: KY8-890-008-982
Reporting Period: 4/1/2023–9/30/2023**

ADDITIONAL REPORTING

Presented in this Additional Reporting section are updates for the following:

- WAGs 1 and 7 (C-746-K Landfill, TCE Spill Sites, Underground Storage Tanks, and Kentucky Ordnance Works sites);
- CRP;
- SMP;
- CERCLA Five-Year Review; and
- Plant Industrial Area Vapor Intrusion Assessment.

THIS PAGE INTENTIONALLY LEFT BLANK

**FEDERAL FACILITY AGREEMENT
SEMIANNUAL PROGRESS REPORT
SECOND HALF OF FISCAL YEAR 2023**

**Facility: Paducah Gaseous Diffusion Plant
Plant EPA I.D. No.: KY8-890-008-982
Reporting Period: 4/1/2023–9/30/2023**

**PROJECT: WAGs 1 and 7 (C-746-K Landfill, TCE Spill Sites,
Underground Storage Tanks, and Kentucky Ordnance Works Sites)**

I. Work performed during this reporting period (including summaries of findings and any deviations from the work plan):

- Continued monitoring around the C-746-K Landfill, as required by the *Record of Decision for Waste Area Groups 1 and 7 at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, DOE/OR/06-1470&D3. WAGs 1 and 7 ROD requires these data to be submitted semiannually. The results of the groundwater monitoring data for the previous five years are presented graphically in Appendix C.
- Conducted inspections of warning signs, riprap, and deed notice/restrictions at the C-746-K Landfill, as required by the *Record of Decision for Waste Area Groups 1 and 7 at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, DOE/OR/06-1470&D3.

II. Schedules of activities to be performed during the next reporting period (including projected work/crucial phases of construction):

- Monitoring will continue around C-746-K Landfill, as required by the ROD. This monitoring is conducted and reported in accordance with other site programs, such as the Environmental Monitoring Program.

III. Identity and assigned tasks of DOE contractors for work to be performed for this project:

- Reporting responsibility for the work to be performed in support of WAGs 1 and 7 belongs to FRNP. FRNP also provides programmatic and technical support, analytical services, and business management services. SST manages the AR and the EIC for DOE.

IV. Statement of the manner and extent to which the requirements and time schedules are being met:

- The requirements and time schedules are being met.

V. Primary/Secondary Document Tracking System:

A) Documents under review and/or preparation for this reporting period:

- None.

B) Due dates for completion of review/modification tasks:

- None.

VI. Anticipated problems/delays (provide summary of problems, schedule, reason for delay, and actions taken to prevent or mitigate delay):

- None.

VII. Summary of all contacts with local community, public interest groups, or state government:

- None.

VIII. Changes in relevant personnel:

- DOE appointed April Ladd to serve as the Paducah Site Lead, effective May 22, 2023. April Ladd had been acting in that role.
- KDEP designated April Webb to the position of Interim FFA Manager for the Paducah Site, effective August 1, 2023.

IX. Actual cost for O&M, if appropriate:

- Sampling activities for the C-746-K Landfill have been incorporated into the Environmental Monitoring Program. O&M cost for this project is not tracked separately.

**FEDERAL FACILITY AGREEMENT
SEMIANNUAL PROGRESS REPORT
SECOND HALF OF FISCAL YEAR 2023**

**Facility: Paducah Gaseous Diffusion Plant
Plant EPA I.D. No.: KY8-890-008-982
Reporting Period: 4/1/2023–9/30/2023**

PROJECT: Community Relations Plan

- I. Work performed during this reporting period (including summaries of findings and any deviations from the work plan):**
- No activities were performed for this project during this reporting period.
- II. Schedules of activities to be performed during the next reporting period (including projected work/crucial phases of construction):**
- No activities are scheduled for this project during the upcoming reporting period.
- III. Identity and assigned tasks of DOE contractors for work to be performed for this project:**
- Reporting responsibility for the work to be performed in support of the CRP belongs to FRNP. FRNP also provides programmatic and technical support, analytical services, and business management services. SST manages the AR and the EIC for DOE.
- IV. Statement of the manner and extent to which the requirements and time schedules are being met:**
- The requirements and time schedules are being met.
- V. Primary/Secondary Document Tracking System:**
- A) Documents under review and/or preparation for this reporting period:**
- None.
- B) Due dates for completion of review/modification tasks:**
- None.
- VI. Anticipated problems/delays (provide summary of problems, schedule, reason for delay, and actions taken to prevent or mitigate delay):**
- None.
- VII. Summary of all contacts with local community, public interest groups, or state government:**
- DOE provided routine updates on the subproject to the Paducah Site CAB, FFA project managers, local elected officials, and/or Congressional staff.

VIII. Changes in relevant personnel:

- DOE appointed April Ladd to serve as the Paducah Site Lead, effective May 22, 2023. April Ladd had been acting in that role.
- KDEP designated April Webb to the position of Interim FFA Manager for the Paducah Site, effective August 1, 2023.

IX. Actual cost for O&M, if appropriate:

- None.

**FEDERAL FACILITY AGREEMENT
SEMIANNUAL PROGRESS REPORT
SECOND HALF OF FISCAL YEAR 2023**

**Facility: Paducah Gaseous Diffusion Plant
Plant EPA I.D. No.: KY8-890-008-982
Reporting Period: 4/1/2023–9/30/2023**

PROJECT: Site Management Plan

I. Work performed during this reporting period (including summaries of findings and any deviations from the work plan):

- Consulted with EPA and KDEP regarding the C-633 Pumphouse and Cooling Tower on April 3, 2023.
- Consulted with EPA and KDEP regarding the C-637 Pumphouse and Cooling Tower on June 22, 2023.
- Held scoping meetings with EPA and KDEP for the *Site Management Plan, Paducah Gaseous Diffusion Plant, Paducah, Kentucky, Annual Revision—FY 2024*, DOE/LX/07-2495&D1, in July 2023, August 2023, and September 2023.

II. Schedules of activities to be performed during the next reporting period (including projected work/crucial phases of construction):

- Finalize and submit the *Site Management Plan, Paducah Gaseous Diffusion Plant, Paducah, Kentucky, Annual Revision—FY 2024*, DOE/LX/07-2495&D1, by November 15, 2023.

III. Identity and assigned tasks of DOE contractors for work to be performed for this project:

- Reporting responsibility for the work to be performed in support of the SMP belongs to FRNP. FRNP also provides programmatic and technical support, analytical services, and business management services. SST manages the AR and the EIC for DOE.

IV. Statement of the manner and extent to which the requirements and time schedules are being met:

- The requirements and time schedules are being met.

V. Primary/Secondary Document Tracking System:

A) Documents under review and/or preparation for this reporting period:

- *Site Management Plan, Paducah Gaseous Diffusion Plant, Paducah, Kentucky, Annual Revision—FY 2024*, DOE/LX/07-2495&D1, was under development during this reporting period.

B) Due dates for completion of review/modification tasks:

- The *Site Management Plan, Paducah Gaseous Diffusion Plant, Paducah, Kentucky, Annual Revision—FY 2024*, DOE/LX/07-2495&D1, is due to EPA and KDEP no later than November 15, 2023.
- Comments on the *Site Management Plan, Paducah Gaseous Diffusion Plant, Paducah, Kentucky, Annual Revision—FY 2024*, DOE/LX/07-2495&D1, are due within 30 days of document issuance or December 15, 2023.

VI. Anticipated problems/delays (provide summary of problems, schedule, reason for delay, and actions taken to prevent or mitigate delay):

- None.

VII. Summary of all contacts with local community, public interest groups, or state government:

- DOE provided routine updates on the subproject to the Paducah Site CAB, FFA project managers, FFA senior managers, local elected officials, and/or Congressional staff.

VIII. Changes in relevant personnel:

- DOE appointed April Ladd to serve as the Paducah Site Lead, effective May 22, 2023. April Ladd had been acting in that role.
- KDEP designated April Webb to the position of Interim FFA Manager for the Paducah Site, effective August 1, 2023.

IX. Actual cost for O&M, if appropriate:

- None.

**FEDERAL FACILITY AGREEMENT
SEMIANNUAL PROGRESS REPORT
SECOND HALF OF FISCAL YEAR 2023**

**Facility: Paducah Gaseous Diffusion Plant
Plant EPA I.D. No.: KY8-890-008-982
Reporting Period: 4/1/2023–9/30/2023**

PROJECT: CERCLA Five-Year Review

I. Work performed during this reporting period (including summaries of findings and any deviations from the work plan):

- Completed discussions with EPA and KDEP regarding the *CY 2023 Five-Year Review for Remedial Actions at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, DOE/LX/07-2492&D1*.
- Finalized and submitted to EPA and KDEP the *CY 2023 Five-Year Review for Remedial Actions at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, DOE/LX/07-2492&D1*, on July 11, 2023.

II. Schedules of activities to be performed during the next reporting period (including projected work/crucial phases of construction):

- Initiate development of the *CY 2023 Five-Year Review for Remedial Actions at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, DOE/LX/07-2492&D2*.

III. Identity and assigned tasks of DOE contractors for work to be performed for this project:

- Reporting responsibility for the work to be performed in support of the Five-Year Review belongs to FRNP. FRNP also provides programmatic and technical support, analytical services, and business management services. SST manages the AR and the EIC for DOE.

IV. Statement of the manner and extent to which the requirements and time schedules are being met:

- The requirements and time schedules are being met.

V. Primary/Secondary Document Tracking System:

A) Documents under review and/or preparation for this reporting period:

- *CY 2023 CERCLA Five-Year Review for Remedial Actions at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, DOE/LX/07-2492&D1*, was under review by EPA and KDEP during this reporting period.

B) Due dates for completion of review/modification tasks:

- Comments on the *CY 2023 CERCLA Five-Year Review for Remedial Actions at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, DOE/LX/07-2492&D1, are due within 90 days of issuance or October 9, 2023.

VI. Anticipated problems/delays (provide summary of problems, schedule, reason for delay, and actions taken to prevent or mitigate delay):

- None.

VII. Summary of all contacts with local community, public interest groups, or state government:

- DOE provided routine updates on the subproject to the Paducah Site CAB, FFA project managers, FFA senior managers, local elected officials, and/or Congressional staff.

VIII. Changes in relevant personnel:

- DOE appointed April Ladd to serve as the Paducah Site Lead, effective May 22, 2023. April Ladd had been acting in that role.
- KDEP designated April Webb to the position of Interim FFA Manager for the Paducah Site, effective August 1, 2023.

IX. Actual cost for O&M, if appropriate:

- None.

**FEDERAL FACILITY AGREEMENT
SEMIANNUAL PROGRESS REPORT
SECOND HALF OF FISCAL YEAR 2023**

**Facility: Paducah Gaseous Diffusion Plant
Plant EPA I.D. No.: KY8-890-008-982
Reporting Period: 4/1/2023–9/30/2023**

PROJECT: Plant Industrial Area Vapor Intrusion Assessment

I. Work performed during this reporting period (including summaries of findings and any deviations from the work plan):

- Evaluated the results of the second round of sampling.
- Finalized and submitted the *Addendum to the Plant Industrial Area Vapor Intrusion Preliminary Risk Assessment Report, Paducah Gaseous Diffusion Plant, Paducah, Kentucky, DOE/LX/07-2471&D2/A1*, to EPA and KDEP on July 17, 2023.
- Received EPA comment on the *Addendum to the Plant Industrial Area Vapor Intrusion Preliminary Risk Assessment Report, Paducah Gaseous Diffusion Plant, Paducah, Kentucky, DOE/LX/07-2471&D2/A1*, on July 25, 2023.
- Received KDEP approval of the *Addendum to the Plant Industrial Area Vapor Intrusion Preliminary Risk Assessment Report, Paducah Gaseous Diffusion Plant, Paducah, Kentucky, DOE/LX/07-2471&D2/A1*, on September 6, 2023.

II. Schedules of activities to be performed during the next reporting period (including projected work/crucial phases of construction):

- Develop and submit the *Addendum to the Plant Industrial Area Vapor Intrusion Preliminary Risk Assessment Report, Paducah Gaseous Diffusion Plant, Paducah, Kentucky, DOE/LX/07-2471&D2/A1/R1*.
- Evaluate the vapor intrusion pathway to a building or proposed building if or when the use of an occupiable building at the Paducah Site changes, a new building is constructed, or a parcel of land is transferred for a different use, consistent with the requirements in the RMD.

III. Identity and assigned tasks of DOE contractors for work to be performed for this project:

- Reporting responsibility for the work to be performed in support of the Plant Industrial Area Vapor Intrusion Assessment subproject belongs to FRNP. FRNP also provides programmatic and technical support, analytical services, and business management services. SST manages the AR and the EIC for DOE.

IV. Statement of the manner and extent to which the requirements and time schedules are being met:

- The requirements and time schedules related to the Plant Industrial Area Vapor Intrusion subproject are being met.

V. Primary/Secondary Document Tracking System:

A) Documents under review and/or preparation for this reporting period:

- *Addendum to the Plant Industrial Area Vapor Intrusion Preliminary Risk Assessment Report, Paducah Gaseous Diffusion Plant, Paducah, Kentucky, DOE/LX/07-2471&D2/A1*, was under development and was under review by EPA and KDEP during this reporting period.
- *Addendum to the Plant Industrial Area Vapor Intrusion Preliminary Risk Assessment Report, Paducah Gaseous Diffusion Plant, Paducah, Kentucky, DOE/LX/07-2471&D2/A1/R1*, was under development during this reporting period.

B) Due dates for completion of review/modification tasks:

- The *Addendum to the Plant Industrial Area Vapor Intrusion Preliminary Risk Assessment Report, Paducah Gaseous Diffusion Plant, Paducah, Kentucky, DOE/LX/07-2471&D2/A1/R1*, is due to EPA and KDEP no later than October 21, 2023.

VI. Anticipated problems/delays (provide summary of problems, schedule, reason for delay, and actions taken to prevent or mitigate delay):

- None.

VII. Summary of all contacts with local community, public interest groups, or state government:

- DOE provided routine updates on the subproject to the Paducah Site CAB, FFA project managers, FFA senior managers, local elected officials, and/or Congressional staff.

VIII. Changes in relevant personnel:

- DOE appointed April Ladd to serve as the Paducah Site Lead, effective May 22, 2023. April Ladd had been acting in that role.
- KDEP designated April Webb to the position of Interim FFA Manager for the Paducah Site, effective August 1, 2023.

IX. Actual cost for O&M, if appropriate:

- None.

APPENDIX A

**NORTHEAST AND NORTHWEST PLUME
WATER WITHDRAWAL REPORTS**

THIS PAGE INTENTIONALLY LEFT BLANK

**Table A.1. Northeast Plume Containment System Water Withdrawal Reporting Form
(Gal of Water Pumped)**

Day	January 2023	February 2023	March 2023	April 2023	May 2023	June 2023
1	252,137	247,963	251,931	251,830	252,490	248,570
2	252,137	253,144	247,714	251,830	247,685	253,198
3	252,138	251,214	250,987	251,828	251,342	253,198
4	248,592	251,214	250,987	232,314	254,088	253,198
5	254,735	251,214	250,987	255,053	253,404	253,197
6	251,323	251,212	250,988	255,571	253,404	249,029
7	251,323	249,536	242,453	255,571	253,404	252,307
8	251,323	252,404	253,004	255,571	253,402	260,986
9	251,319	250,880	253,651	255,571	184,232	250,989
10	249,482	253,007	249,358	255,574	248,944	250,989
11	250,708	253,007	249,358	275,655	251,156	250,989
12	252,308	253,007	249,358	222,668	252,267	250,987
13	252,369	253,006	249,357	253,468	252,267	251,819
14	252,369	248,811	253,900	251,798	252,267	250,870
15	252,369	211,145	252,087	251,798	252,269	240,410
16	252,369	247,401	266,884	251,798	222,100	244,353
17	252,370	255,721	251,063	251,796	288,844	244,353
18	248,834	255,721	251,063	248,846	246,196	244,353
19	252,091	255,721	251,063	254,796	252,409	244,353
20	251,745	255,717	251,062	254,493	252,409	244,352
21	251,745	237,210	251,620	252,575	252,409	238,333
22	251,745	250,485	252,336	252,575	252,410	253,238
23	251,744	253,469	250,173	252,575	250,195	252,240
24	253,282	251,356	254,491	252,574	249,383	252,240
25	251,783	251,356	254,491	244,020	256,840	252,240
26	253,561	251,356	254,491	228,952	217,119	252,237
27	250,586	251,353	254,489	254,311	217,119	251,543
28	250,586	246,363	243,968	252,488	217,119	252,105
29	250,586		250,017	252,488	217,119	253,545
30	250,585		255,395	252,488	217,119	251,791
31	256,041		251,830		215,885	
Monthly Total	7,804,285	6,993,993	7,800,556	7,532,875	7,537,296	7,502,012
Daily Average	251,751	249,785	251,631	251,096	243,139	250,067

Total (January 2023–June 2023) = 45,171,017 gal
Average (January 2023–June 2023) = 249,564 gal
 per day (gpd)

**Table A.2. Northwest Plume Groundwater System Water Withdrawal Reporting Form
(Gal of Water Pumped)**

Day	January 2023	February 2023	March 2023	April 2023	May 2023	June 2023
1	150,862	278,900	284,200	282,759	283,506	281,846
2	150,862	283,570	284,980	282,759	281,426	283,936
3	202,216	282,588	282,493	282,757	284,546	283,936
4	279,350	282,588	282,493	280,726	284,316	283,936
5	285,960	282,588	282,493	284,556	282,961	283,936
6	284,205	282,586	282,491	282,804	282,961	282,286
7	284,205	280,130	279,710	282,804	282,961	283,066
8	284,205	283,930	288,230	282,804	282,961	287,806
9	284,205	283,270	266,080	282,804	289,716	282,811
10	283,150	283,998	277,405	282,804	280,926	282,811
11	282,410	283,998	277,405	293,326	287,290	282,811
12	284,930	283,998	277,405	271,646	287,011	282,811
13	284,104	283,996	277,405	283,286	287,011	283,646
14	284,104	283,850	280,980	283,051	287,011	283,116
15	284,104	283,240	272,940	283,051	287,007	269,996
16	284,104	281,330	284,650	283,051	284,890	283,854
17	284,104	284,828	283,221	283,051	295,010	283,854
18	282,600	284,828	283,221	281,786	276,740	283,854
19	284,040	284,828	283,221	284,866	288,668	283,854
20	283,900	284,826	283,217	280,726	288,668	283,854
21	283,900	278,520	285,590	282,814	288,668	284,846
22	283,900	285,660	285,290	282,814	288,666	277,566
23	283,900	283,610	244,620	282,814	220,560	283,721
24	285,460	283,738	287,008	282,812	283,780	283,721
25	284,730	283,738	287,008	277,736	286,960	283,721
26	279,420	283,738	287,008	283,606	276,390	283,721
27	283,565	283,736	287,006	282,726	276,390	282,486
28	283,565	285,220	281,850	283,506	276,390	168,866
29	283,565		284,580	283,506	276,390	276,336
30	283,565		277,836	283,506	276,390	283,411
31	291,180		282,759		278,956	
Monthly Total	8,454,370	7,931,830	8,704,795	8,481,257	8,735,126	8,366,415
Daily Average	272,722	283,280	280,800	282,709	281,778	278,881

Total (January 2023–June 2023) = 50,673,793 gal
Average (January 2023–June 2023) = 279,966 gpd

APPENDIX B

NORTHEAST PLUME AND NORTHWEST PLUME GRAPHS, DATA, AND MAPS (FIGURES B.1 THROUGH B.30)

THIS PAGE INTENTIONALLY LEFT BLANK

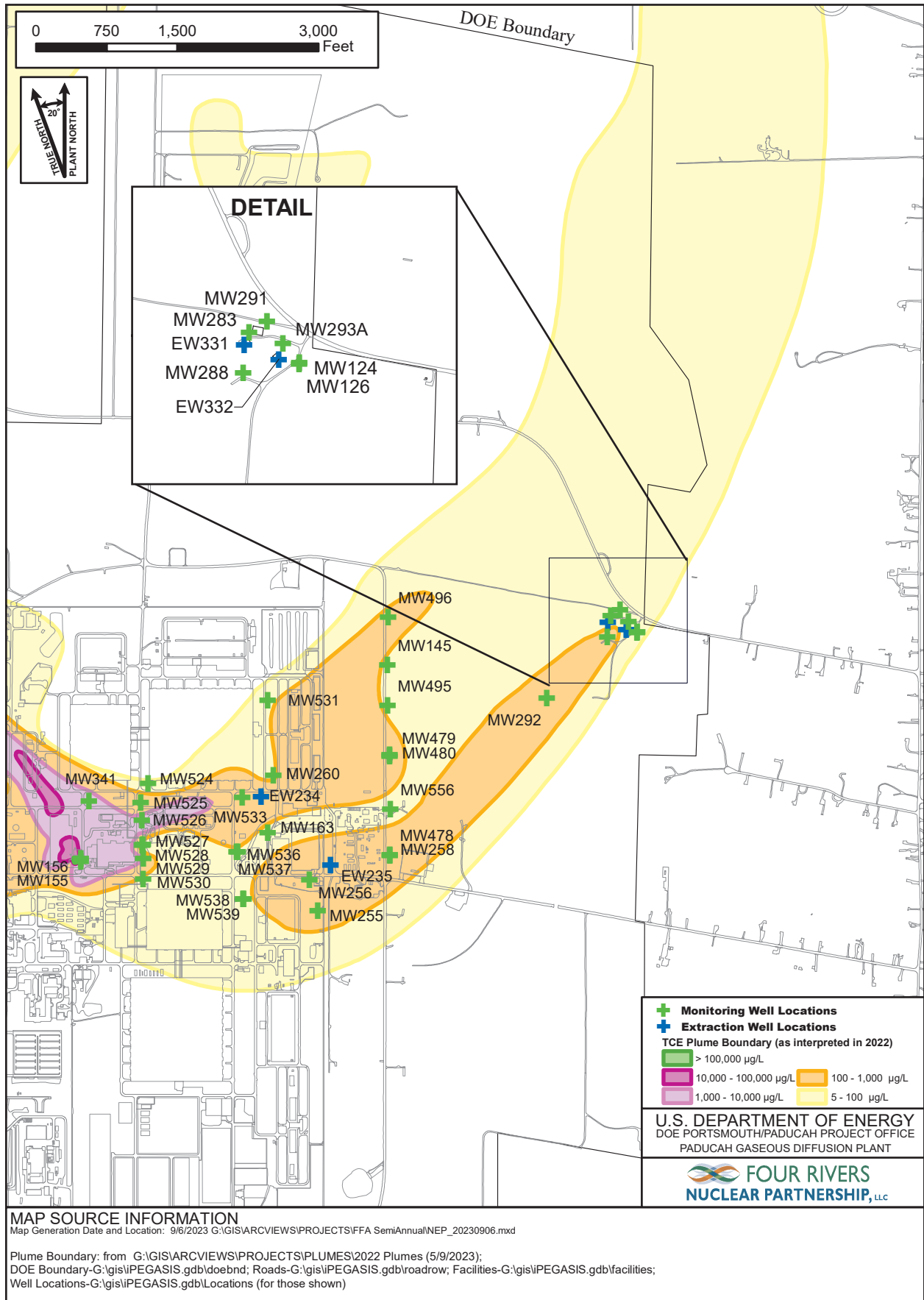
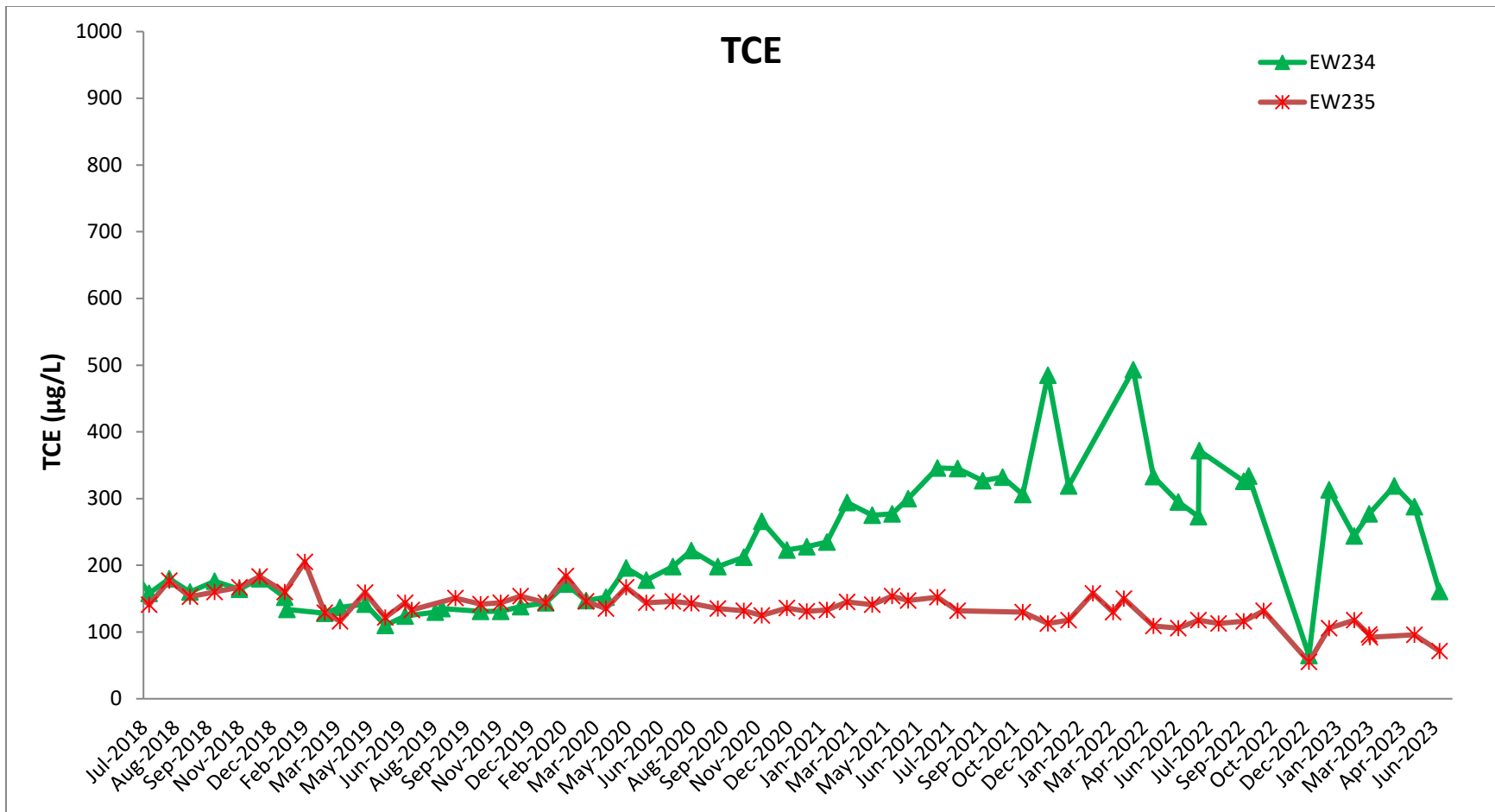


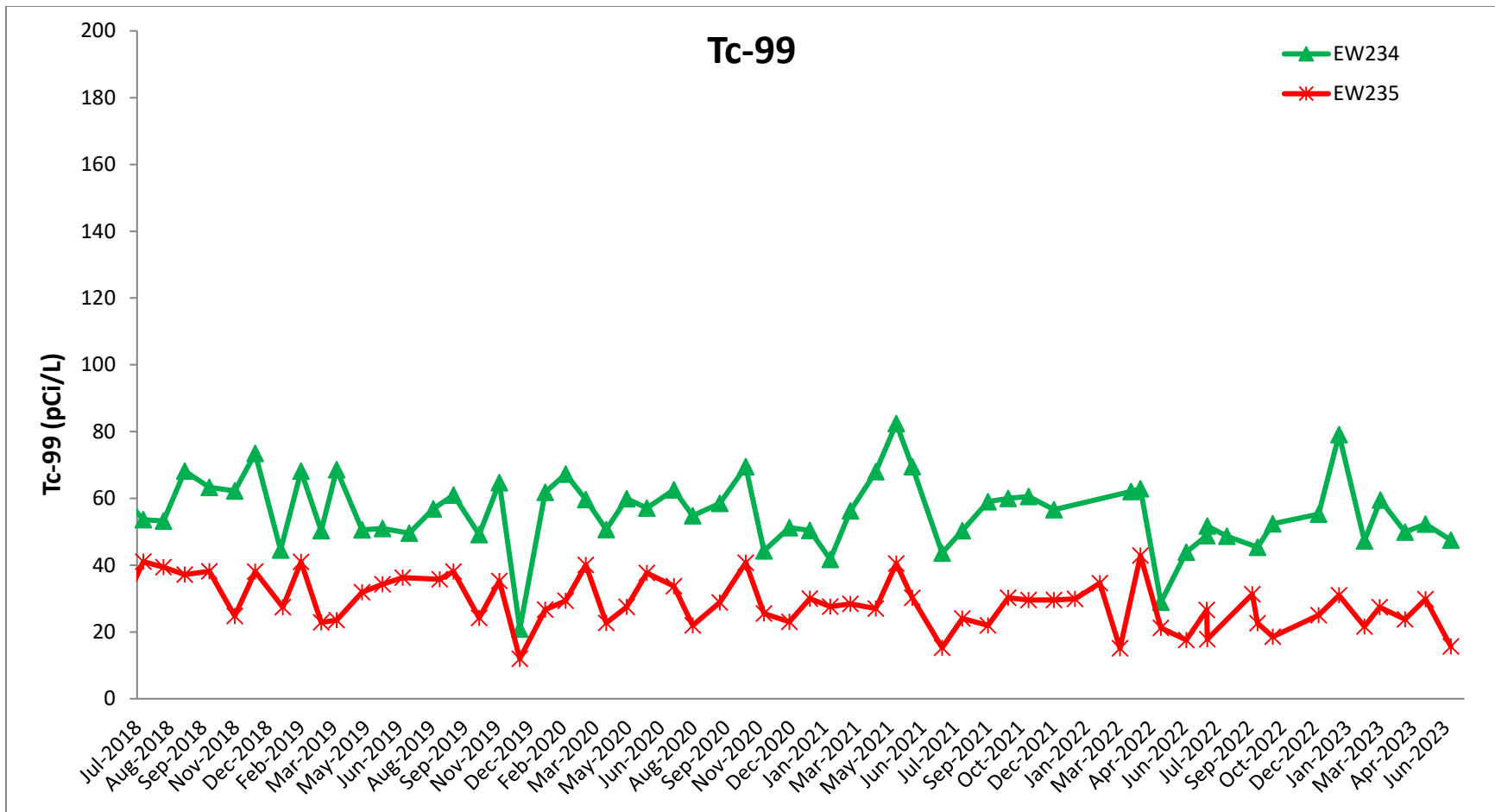
Figure B.1. Northeast Plume Groundwater Wells and Extraction Wells



NOTE: Data rejected by validation or assessment have not been graphed.

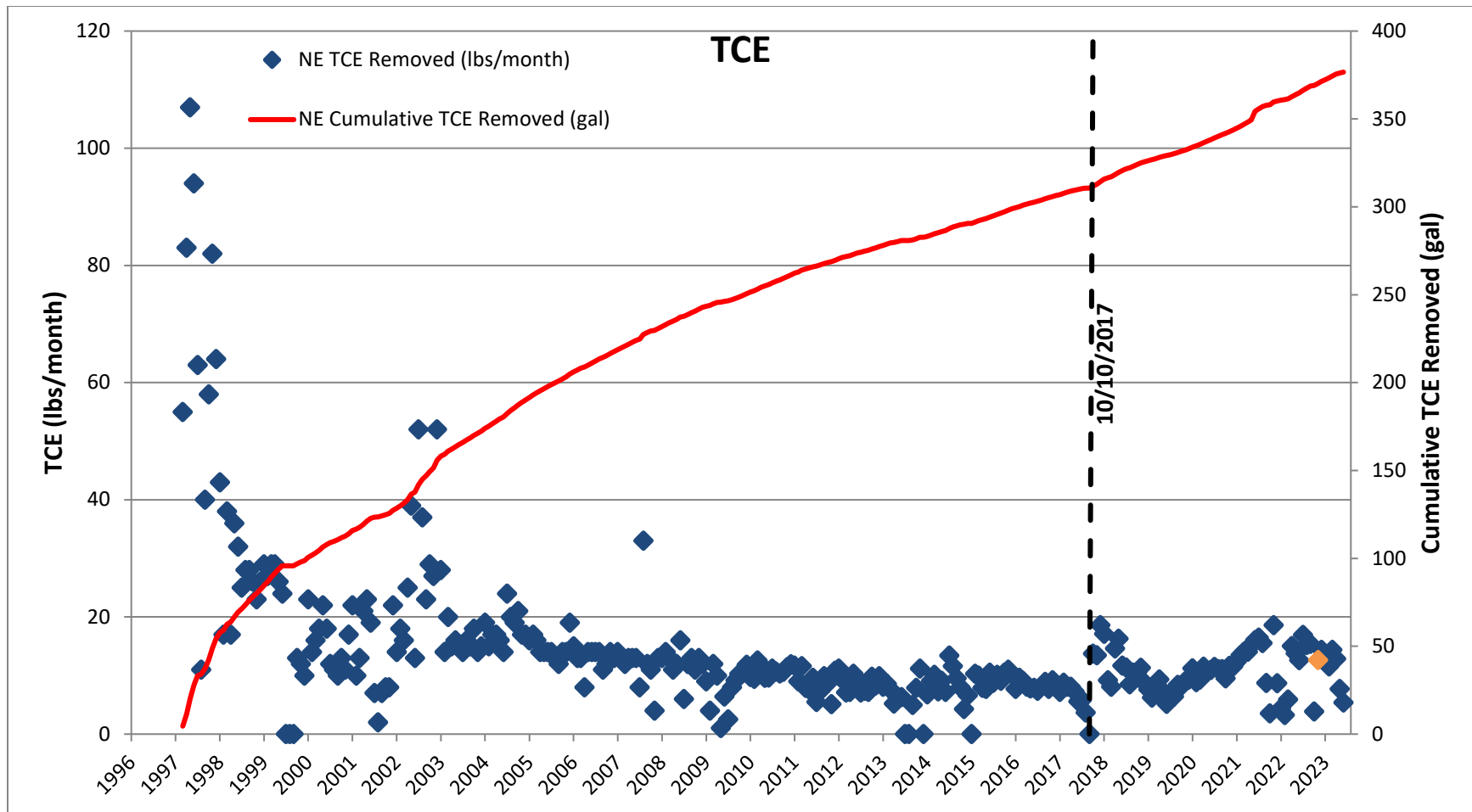
*TCE influent data was not collected from EW234 and EW235 for November 2022.

Figure B.2. Northeast Plume Containment System Influent TCE Concentrations



NOTE: Data rejected by validation or assessment have not been graphed.

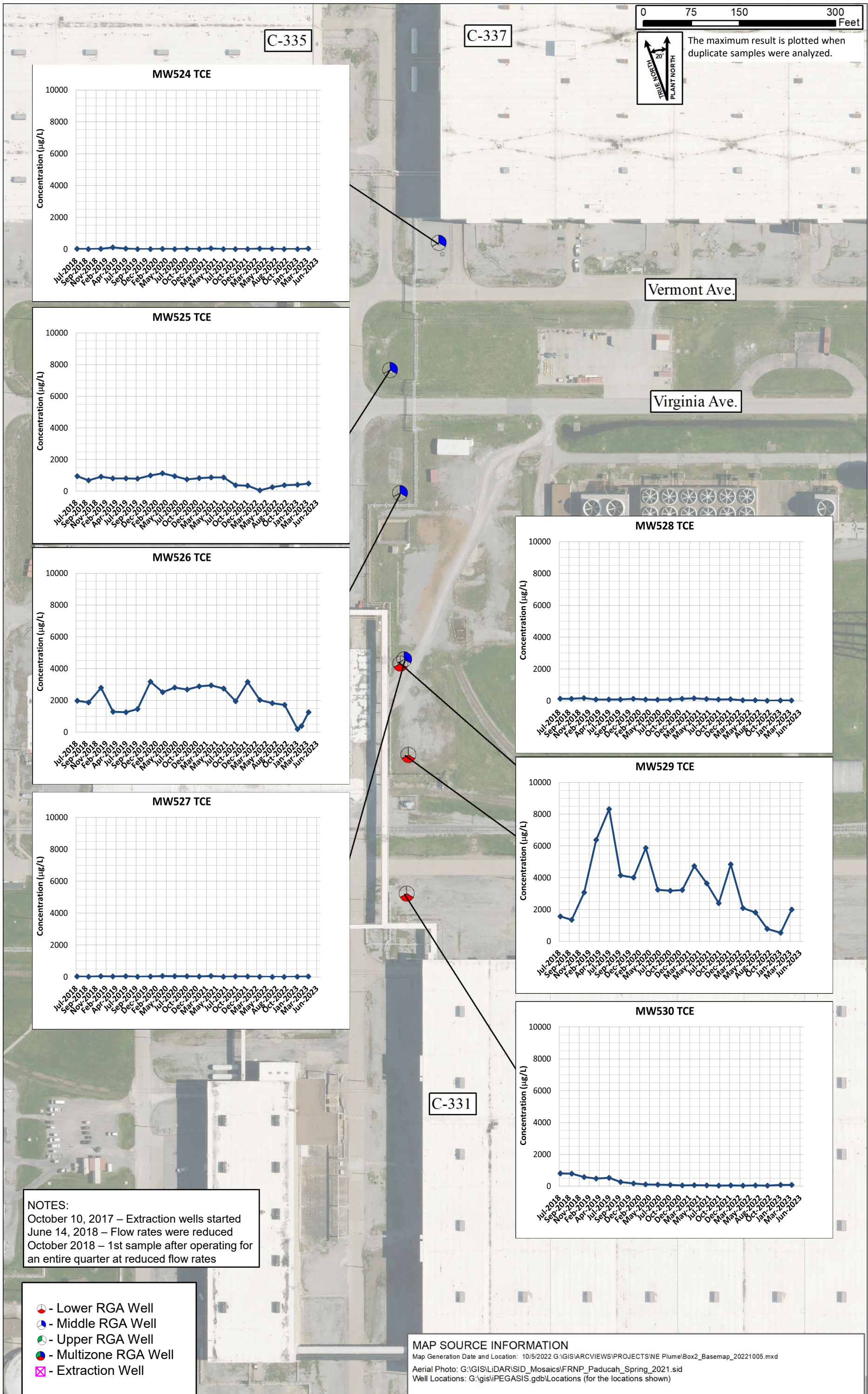
Figure B.3. Northeast Plume—Tc-99 Activities in Extraction Wells



NOTE: Data rejected by validation or assessment are not included on the graph.

◆ TCE influent data was not collected from EW234 and EW235 for November 2022. The average useable data for the rest of the reporting period [July 2022 – December 2022 (282 µg/L)] was used to calculate lbs of TCE removed.

Figure B.4. Northeast Plume Containment System TCE Removed

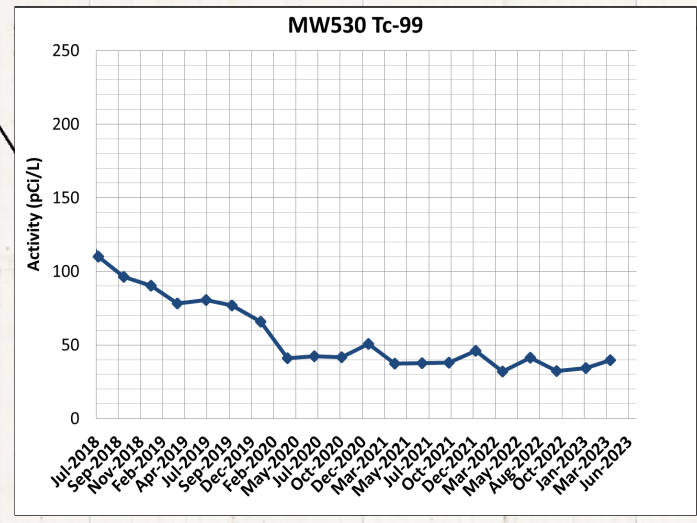
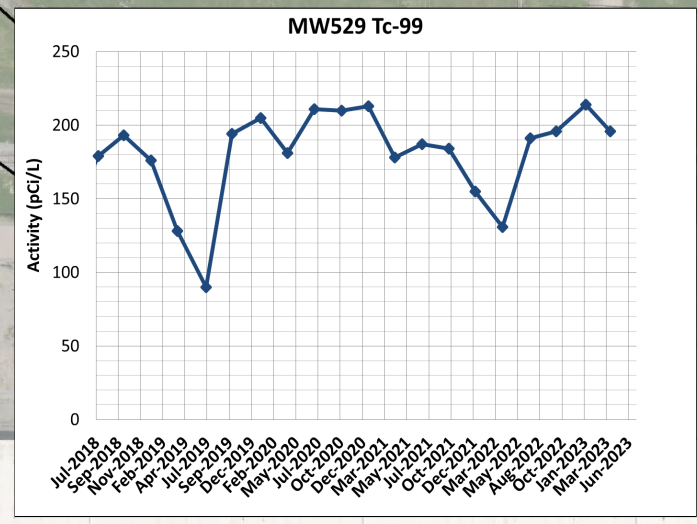
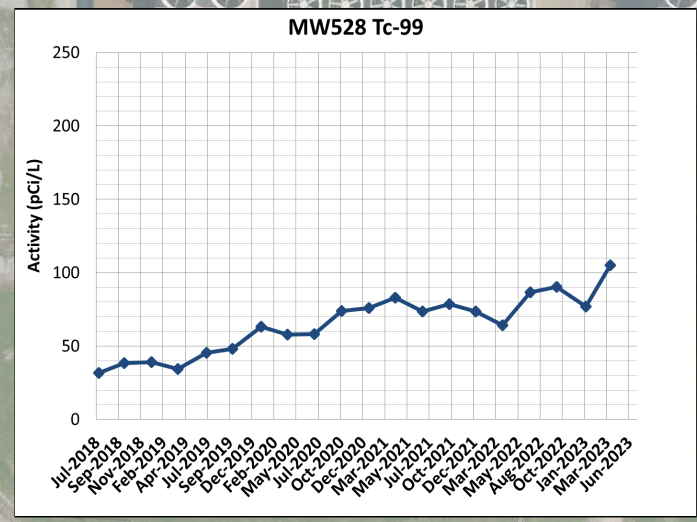
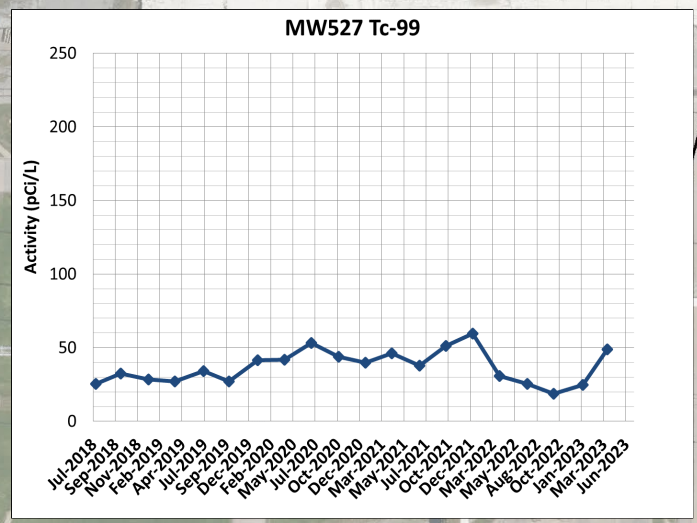
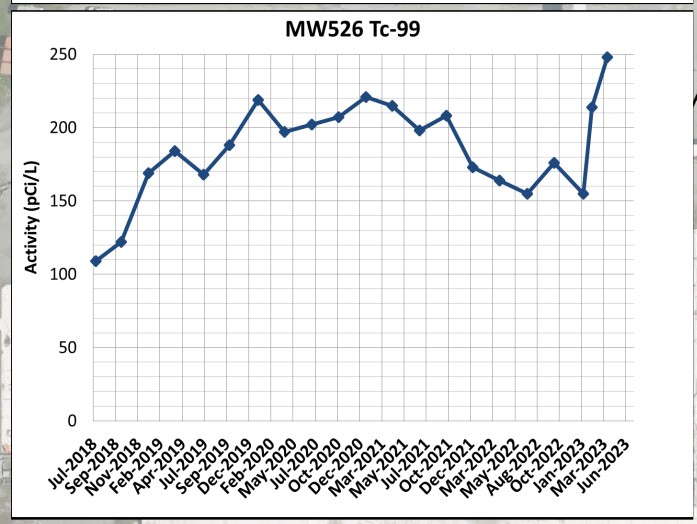
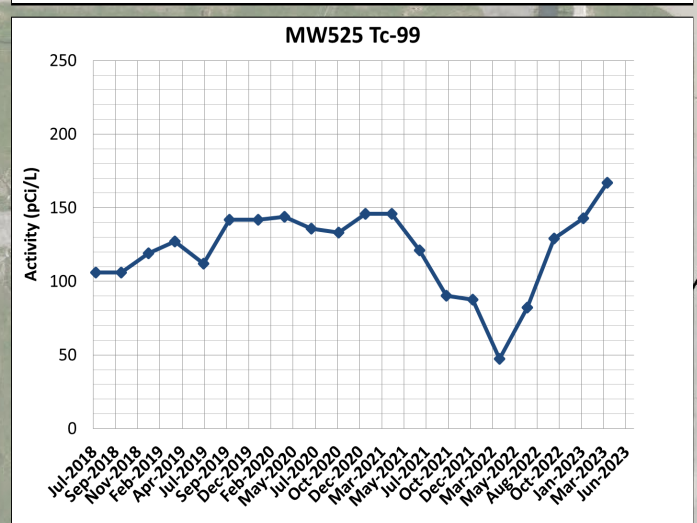
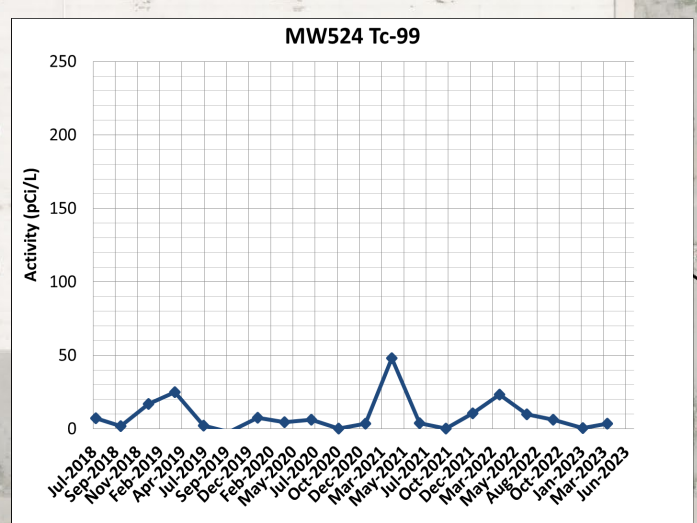
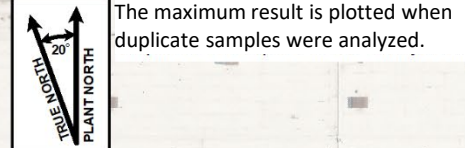
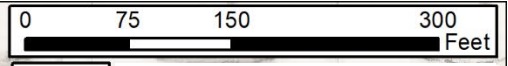


B-7

Figure B.5. Northeast Plume—Upgradient Transect Wells - TCE Trends

C-335

C-337



NOTES:
 October 10, 2017 – Extraction wells started
 June 14, 2018 – Flow rates were reduced
 October 2018 – 1st sample after operating for an entire quarter at reduced flow rates

- ⊖ - Lower RGA Well
- ⊕ - Middle RGA Well
- ⊗ - Upper RGA Well
- ⊙ - Multizone RGA Well
- ⊠ - Extraction Well

MAP SOURCE INFORMATION
 Map Generation Date and Location: 10/5/2022 G:\GIS\ARCVIEWS\PROJECTS\NE Plume\Box2_Basemap_20221005.mxd
 Aerial Photo: G:\GIS\LIDAR\SID_Mosaics\FRNP_Paducah_Spring_2021.sid
 Well Locations: G:\gis\PEGASIS.gdb\Locations (for the locations shown)

Figure B.6. Northeast Plume—Upgradient Transect Wells – Tc-99 Trends

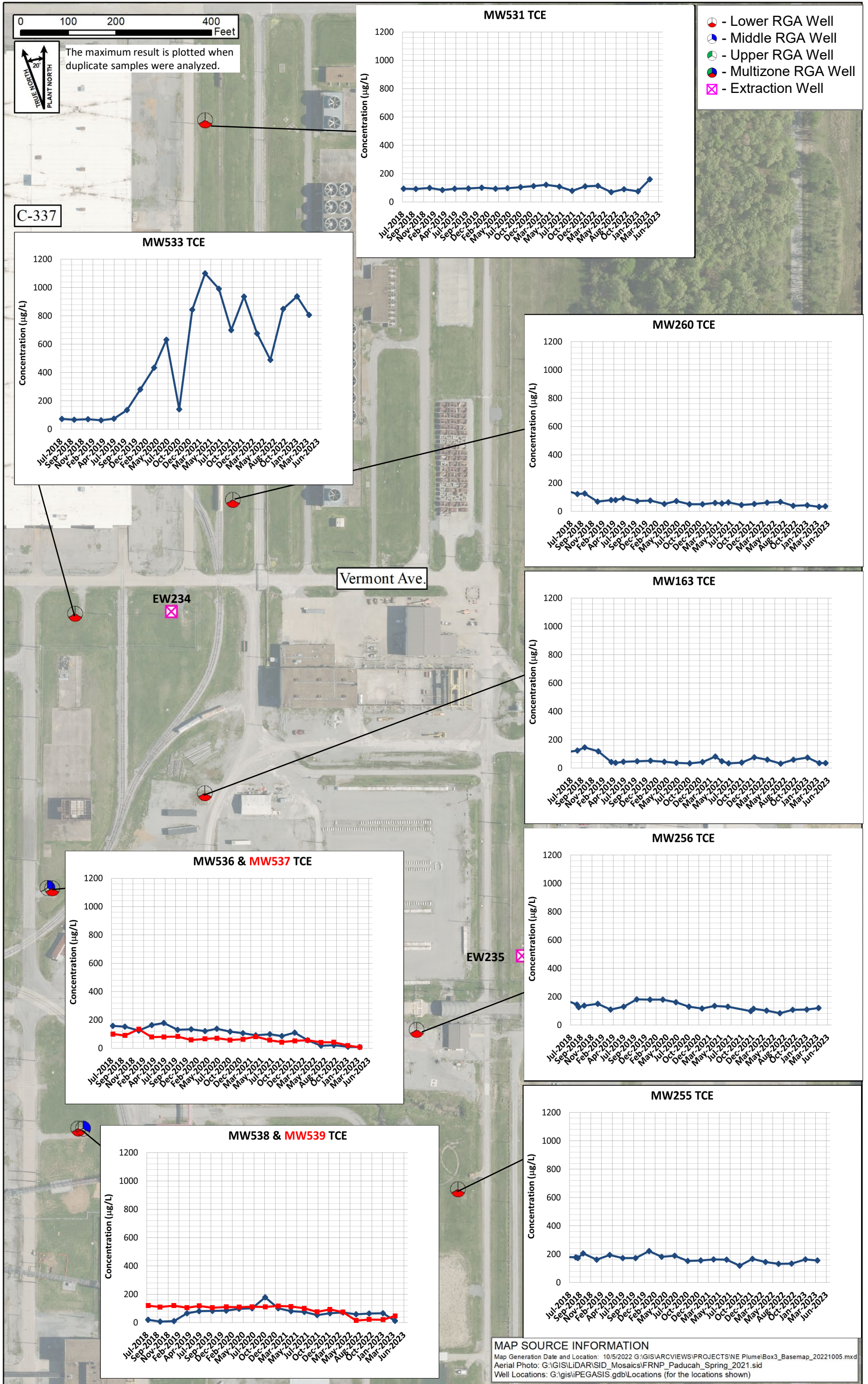


Figure B.7. Northeast Plume—Monitoring Wells near Extraction Wells—TCE Trends

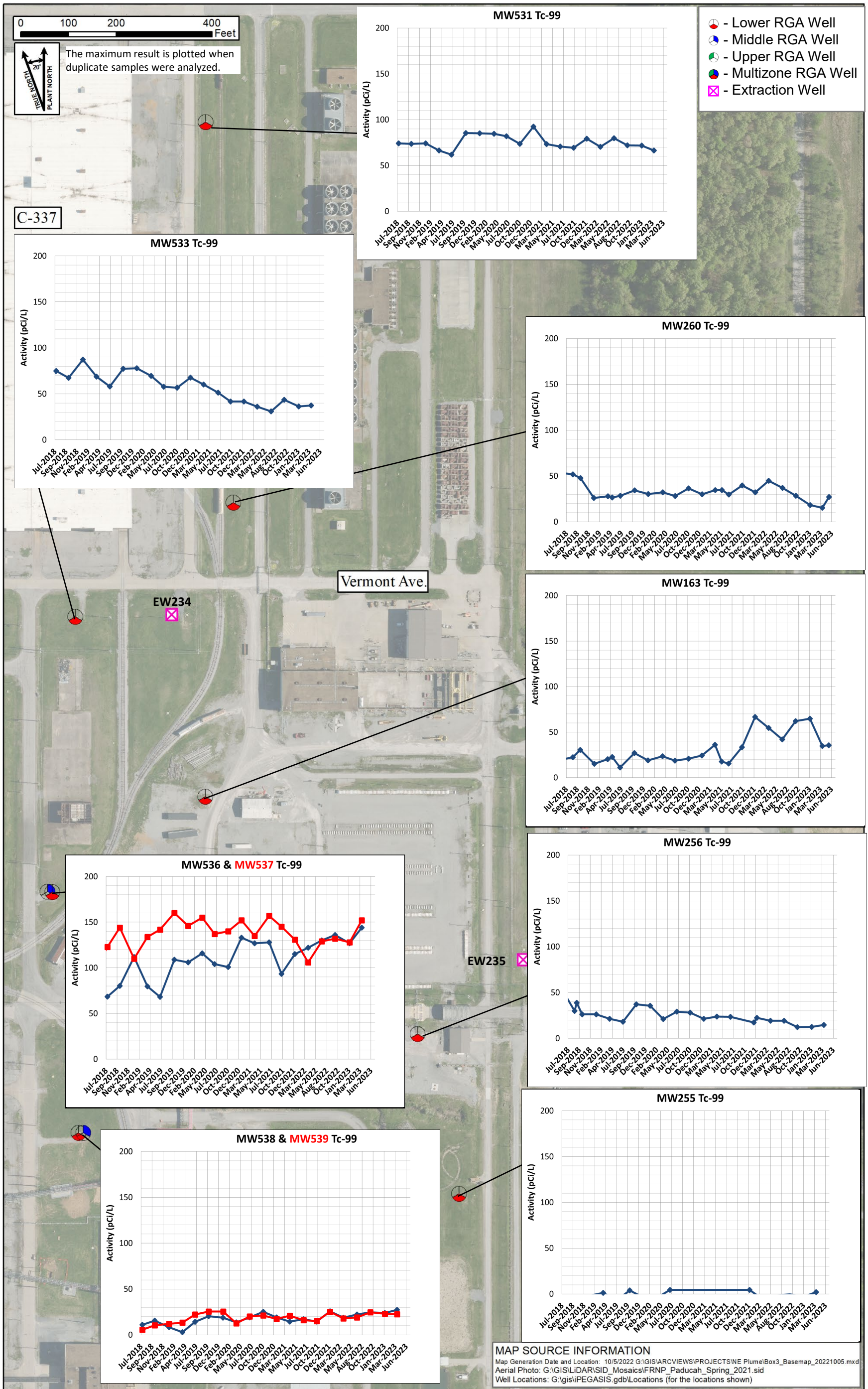
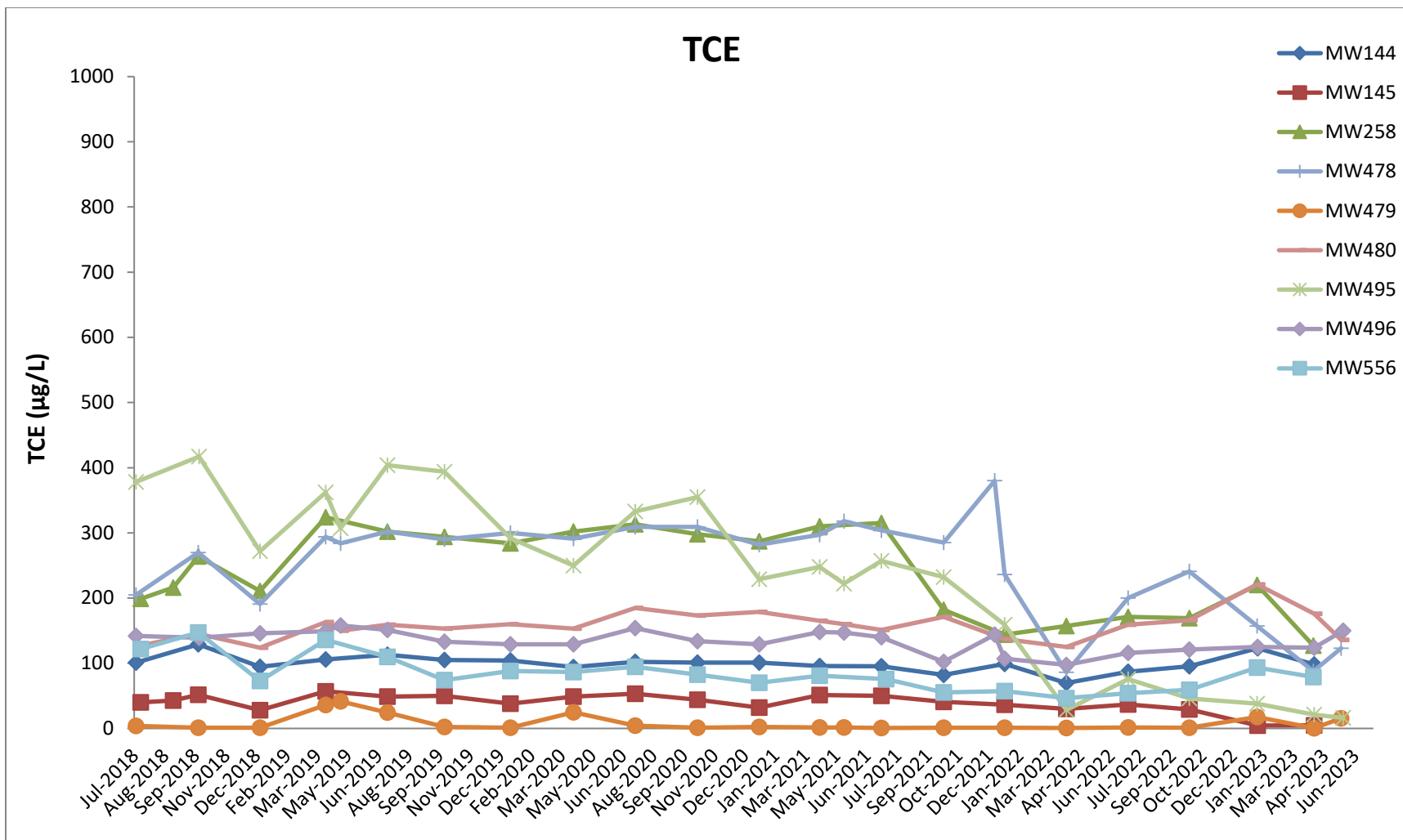
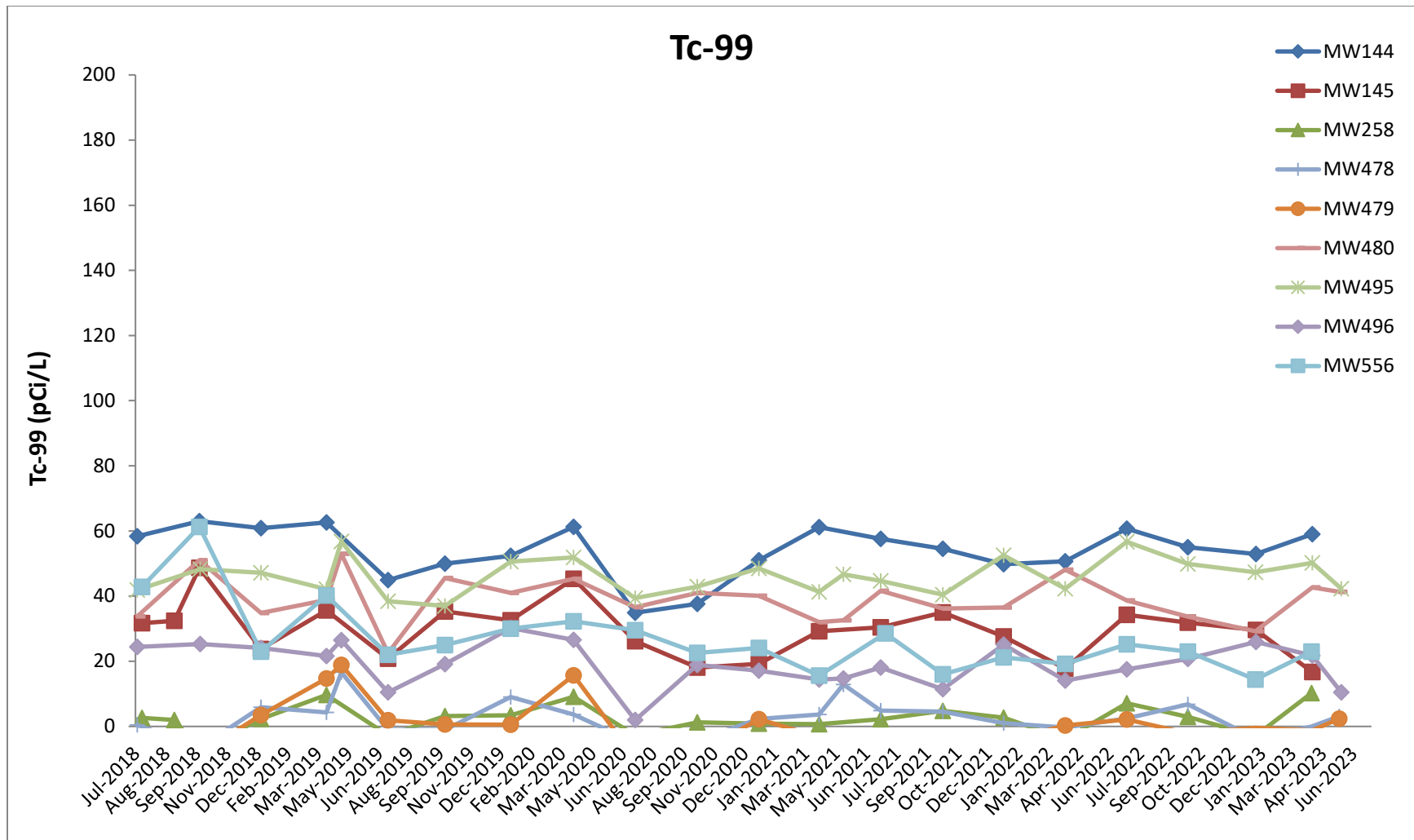


Figure B.8. Northeast Plume—Monitoring Wells near Extraction Wells—Tc-99 Trends



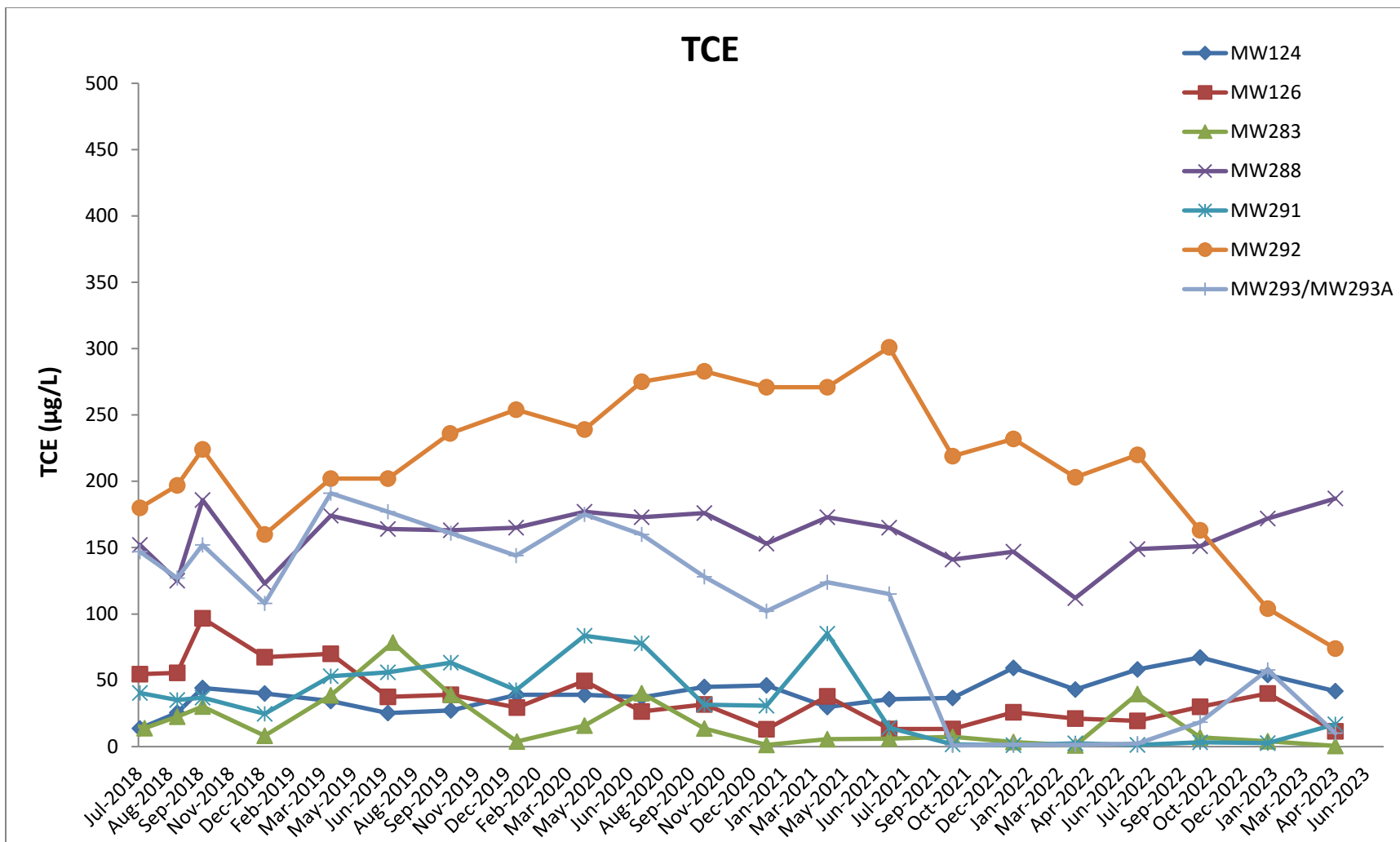
NOTE: Data rejected by validation or assessment have not been graphed.

Figure B.9. Northeast Plume—TCE Concentrations in Downgradient Wells



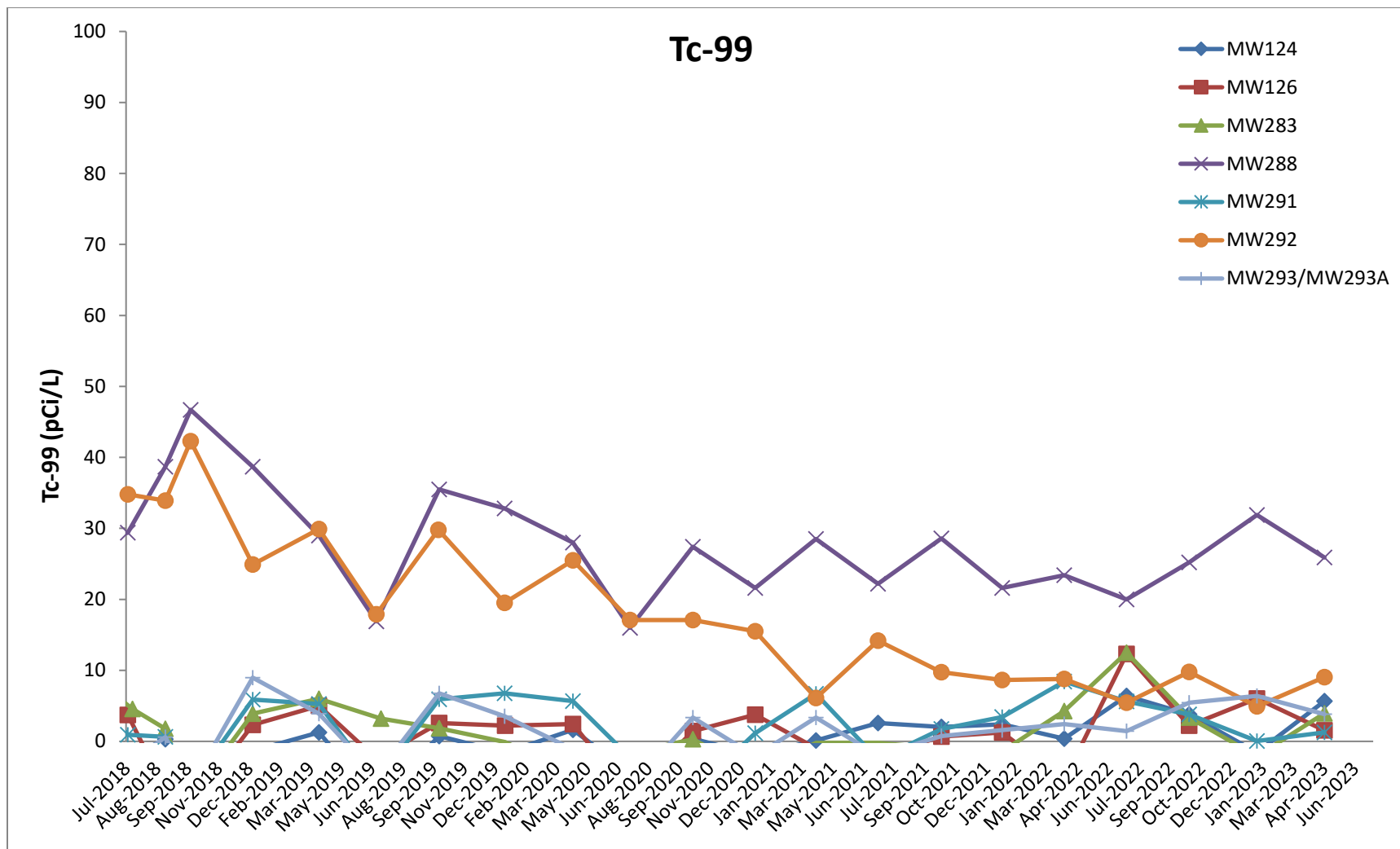
NOTE: Data rejected by validation or assessment have not been graphed.

Figure B.10. Northeast Plume—Tc-99 Activities in Downgradient Wells



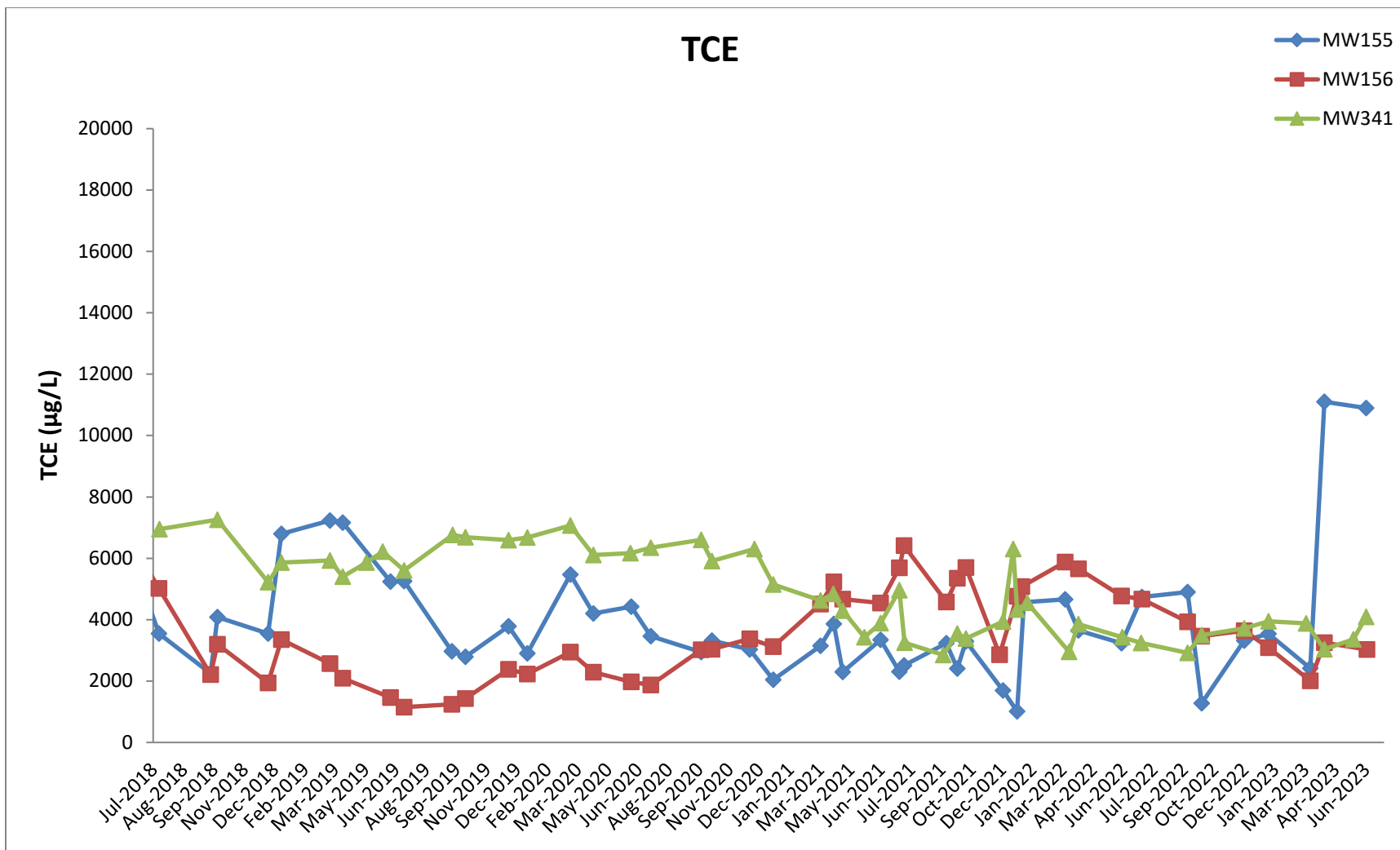
NOTE: Data rejected by validation or assessment have not been graphed.

Figure B.11. Northeast Plume—TCE Concentrations in Distal Downgradient Wells



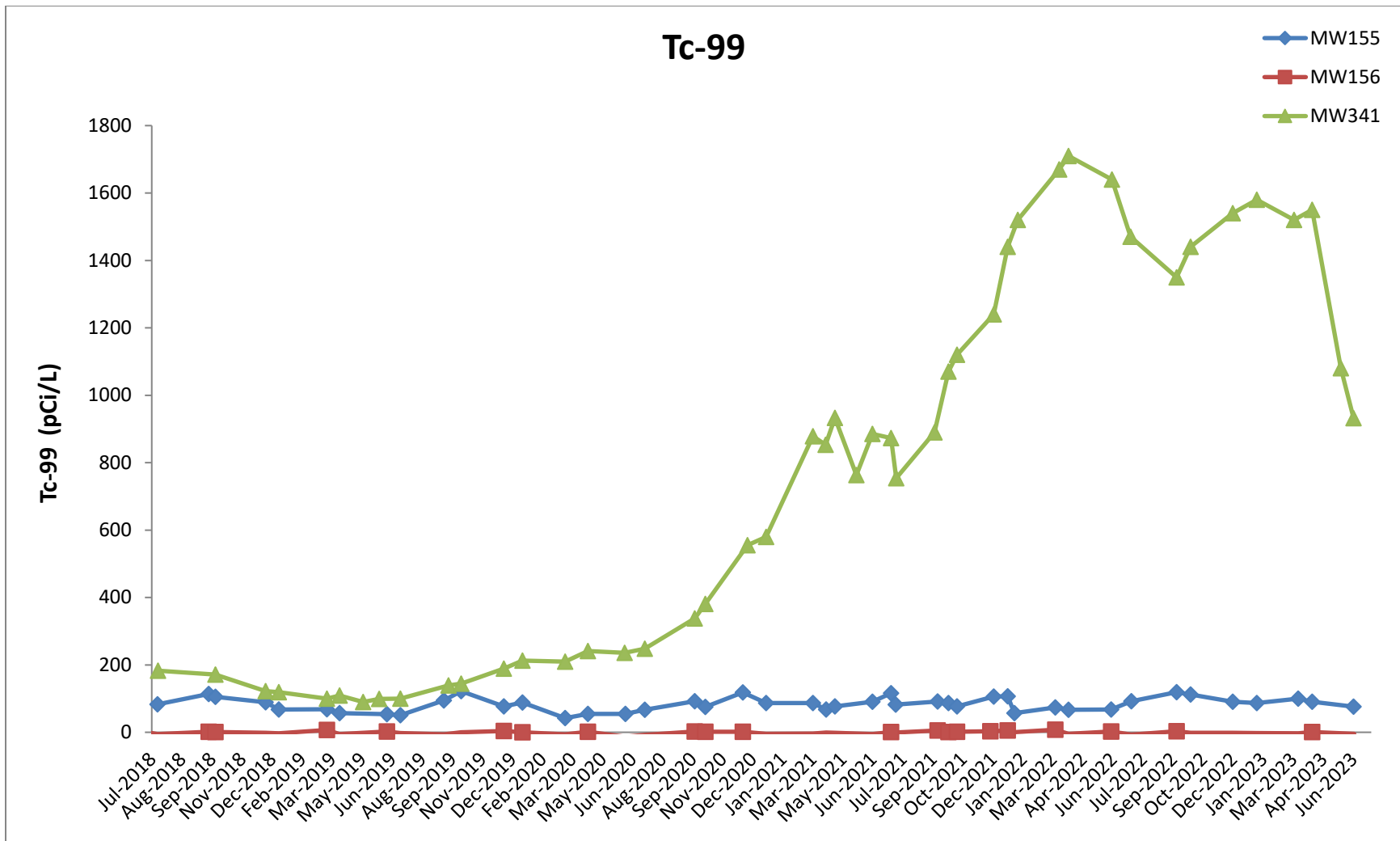
NOTE: Data rejected by validation or assessment have not been graphed.

Figure B.12. Northeast Plume—Tc-99 Activities in Distal Downgradient Wells



NOTE: Data rejected by validation or assessment have not been graphed.

Figure B.13. Northeast Plume—TCE Activities in Wells near C-400 Complex



NOTE: Data rejected by validation or assessment have not been graphed.

Figure B.14. Northeast Plume—Tc-99 Activities in Wells near C-400 Complex

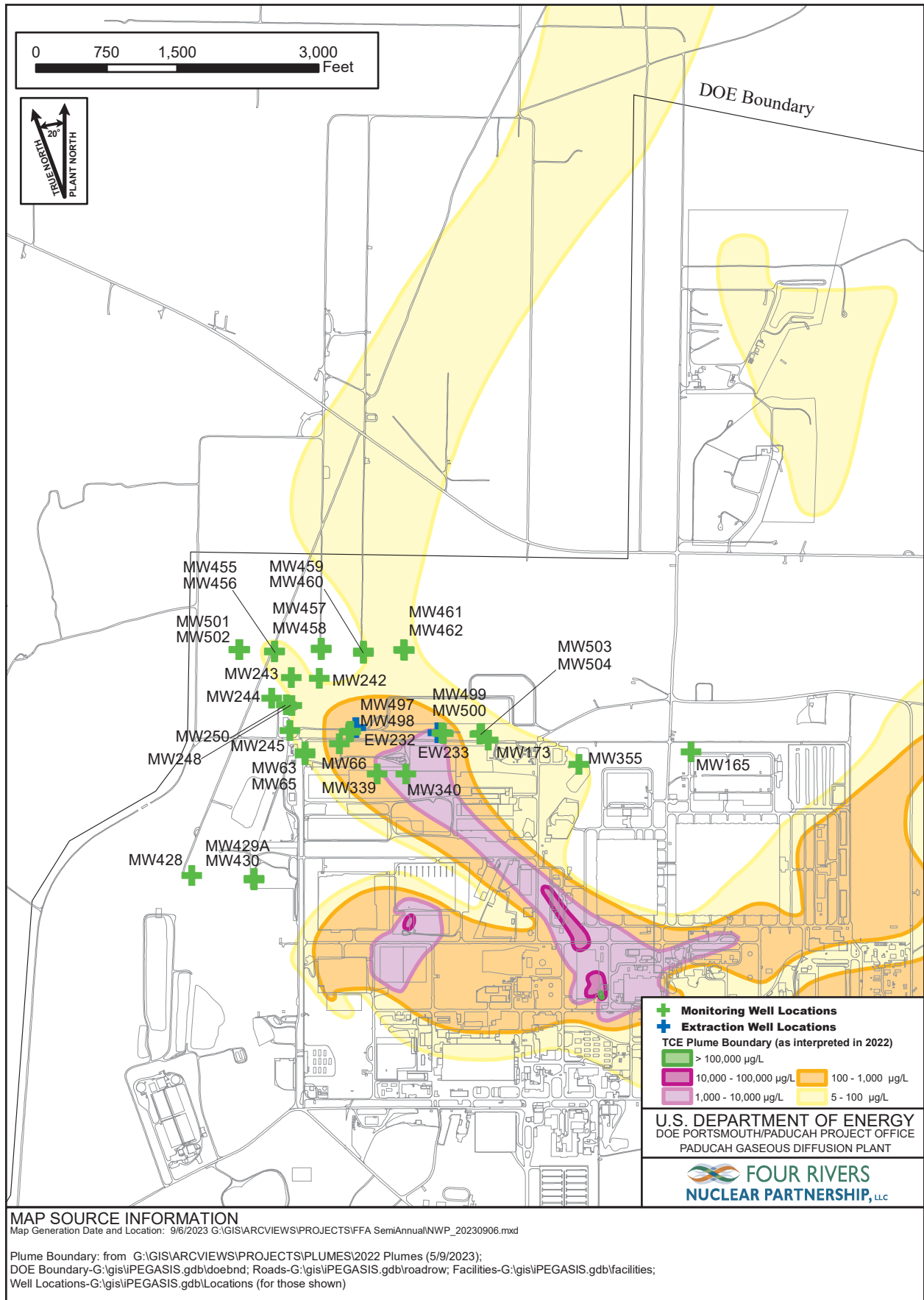
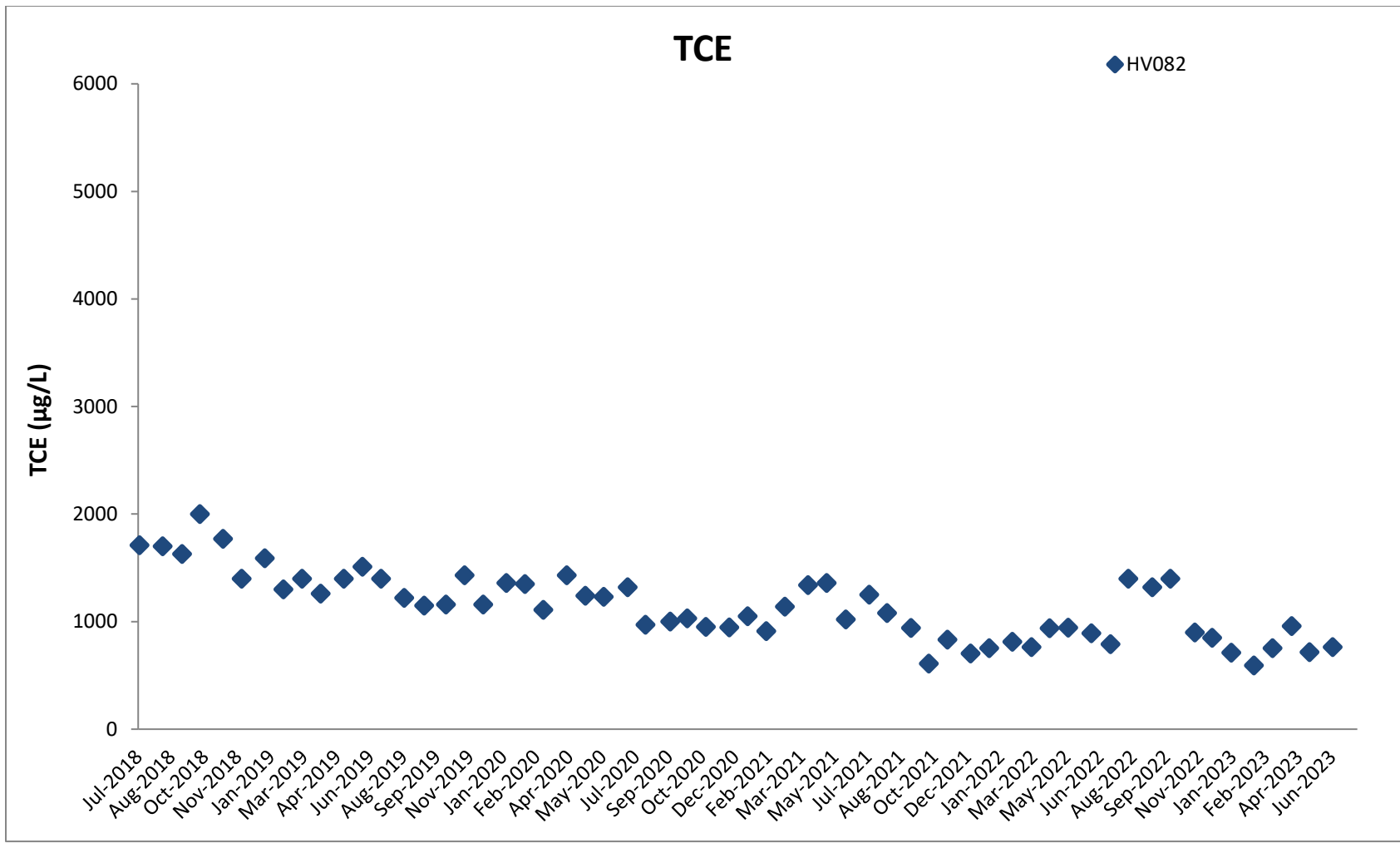
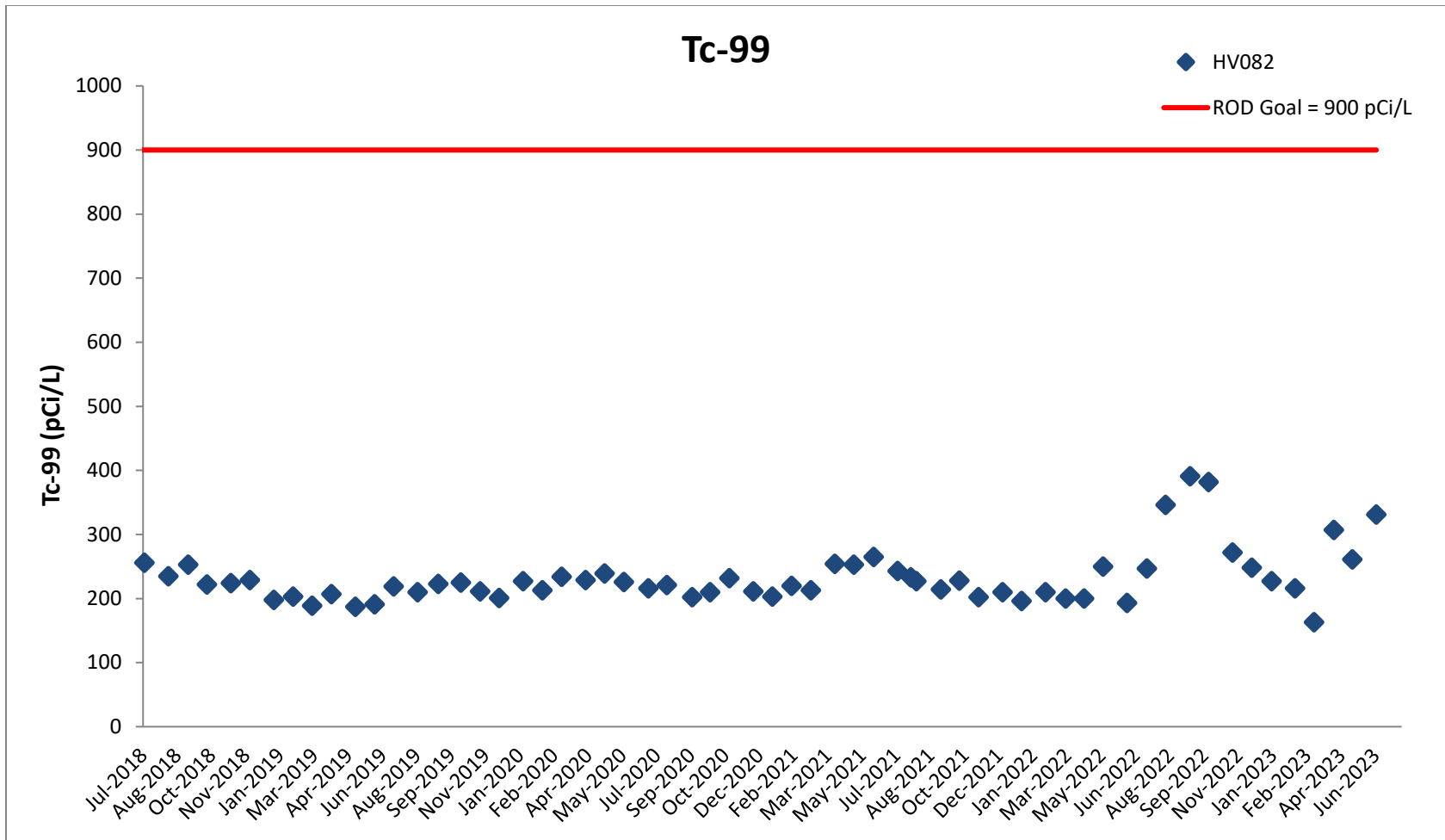


Figure B.15. Northwest Plume Groundwater Wells



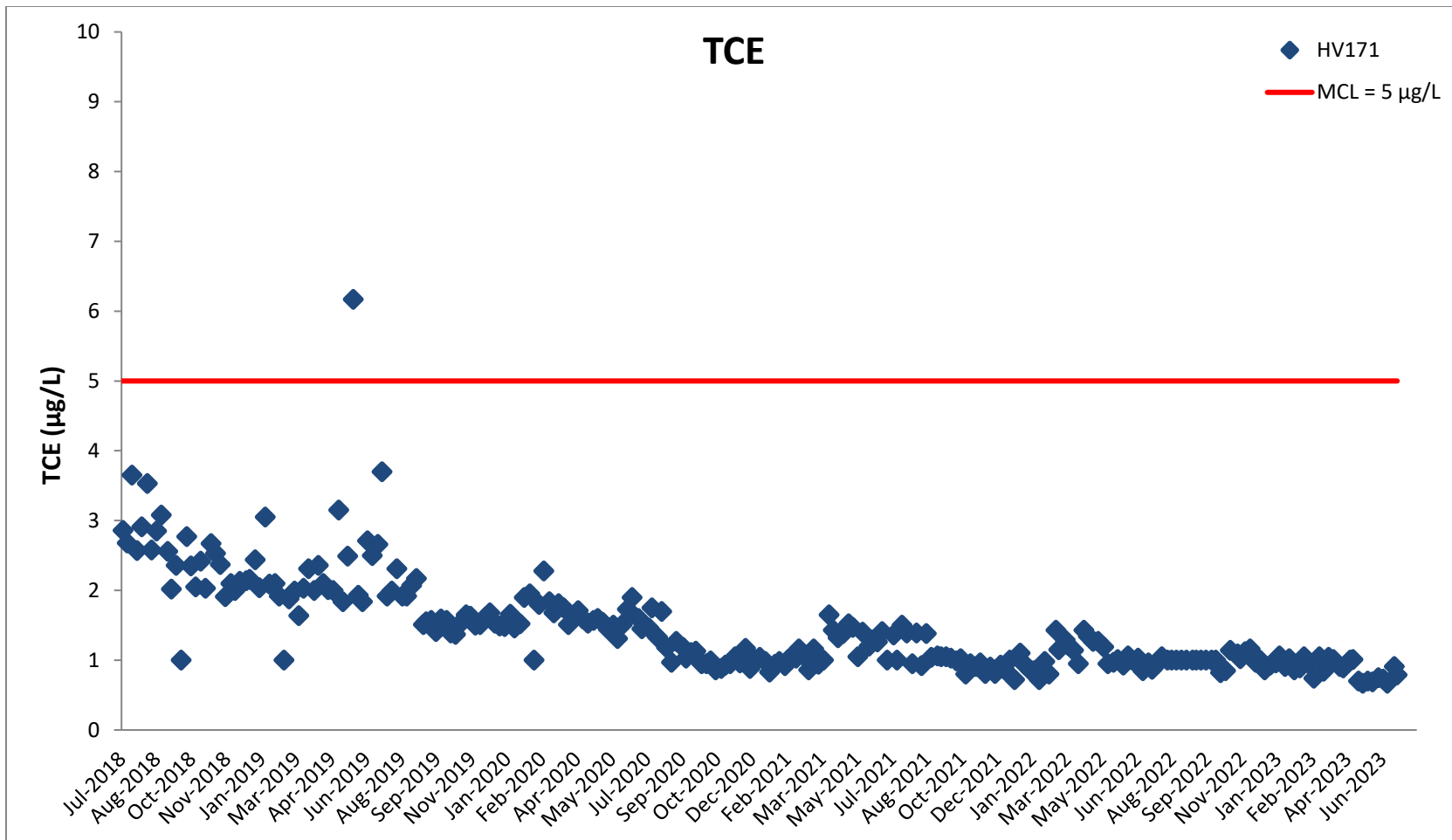
NOTE: Data rejected by validation or assessment have not been graphed.

Figure B.16. Northwest Plume Groundwater System Influent TCE Concentrations



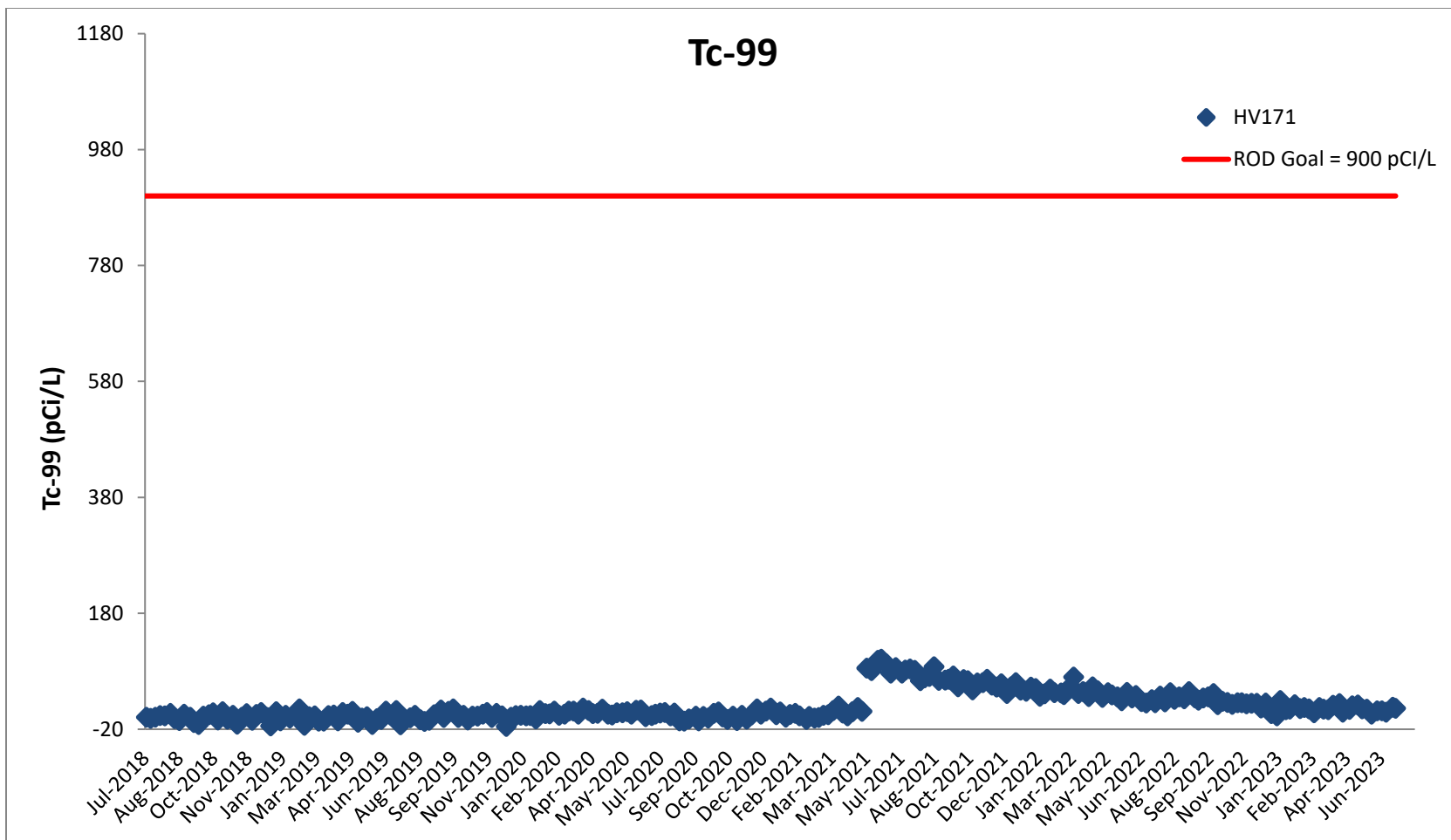
NOTE: Data rejected by validation or assessment have not been graphed.

Figure B.17. Northwest Plume Groundwater System Influent Tc-99 Activities



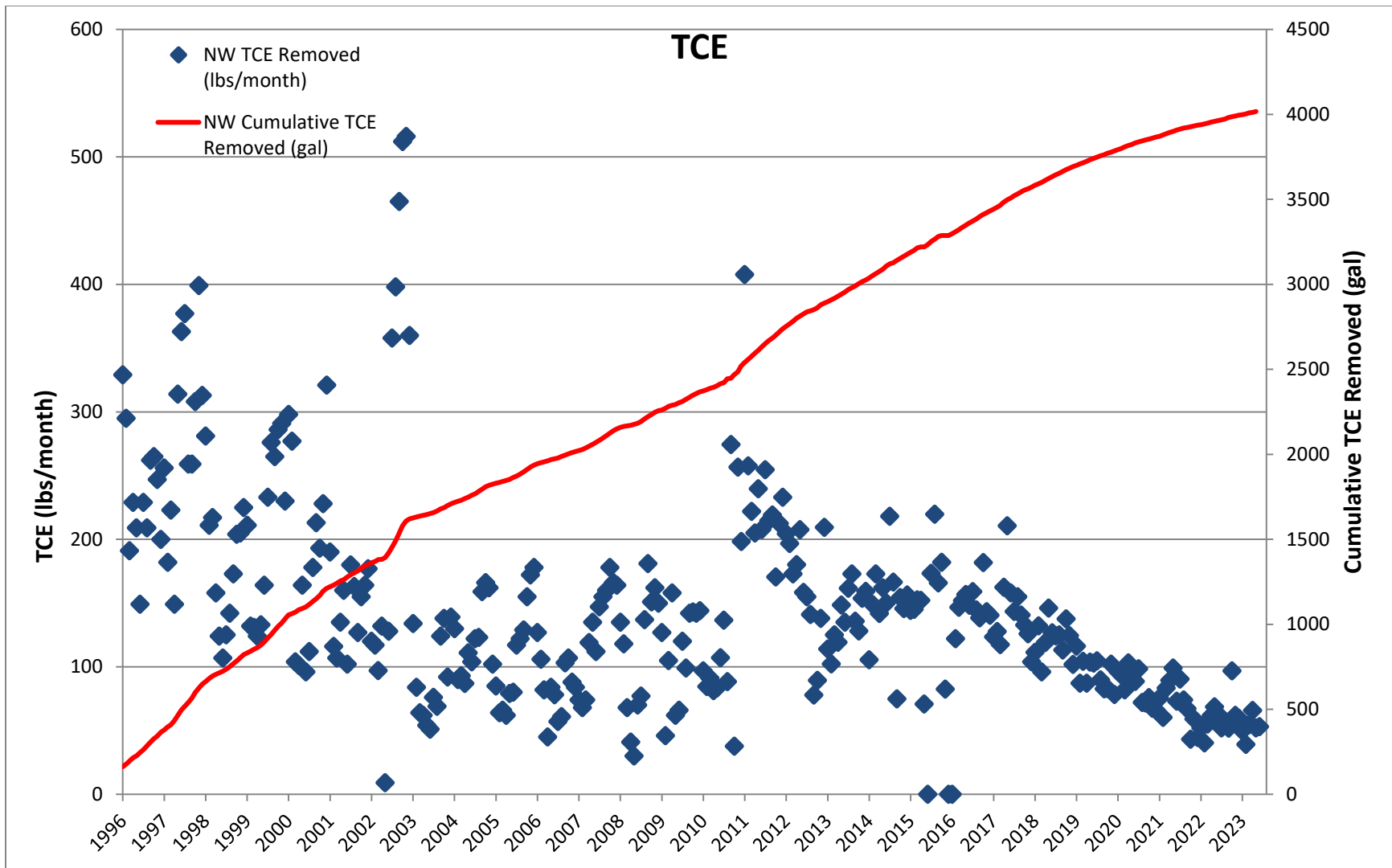
NOTE: Data rejected by validation or assessment have not been graphed.

Figure B.18. Northwest Plume Groundwater System Effluent TCE Concentrations



NOTE: Data rejected by validation or assessment have not been graphed.

Figure B.19. Northwest Plume Groundwater System Effluent Tc-99 Activities



NOTE: Data rejected by validation or assessment are not included on the graph.

Figure B.20. Northwest Plume Groundwater System TCE Removed

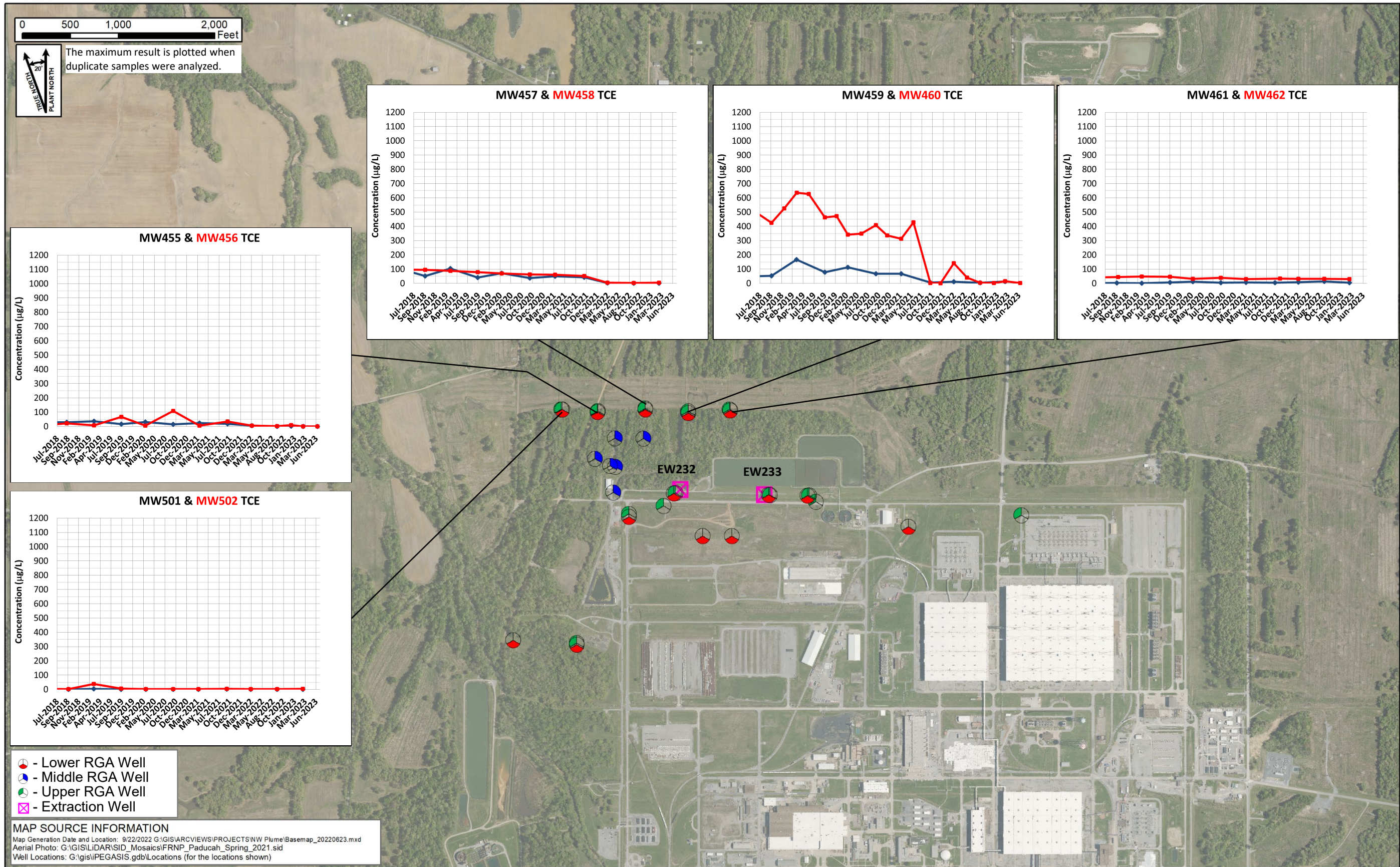


Figure B.21. Northwest Plume—Downgradient of New Well Field—TCE Trends

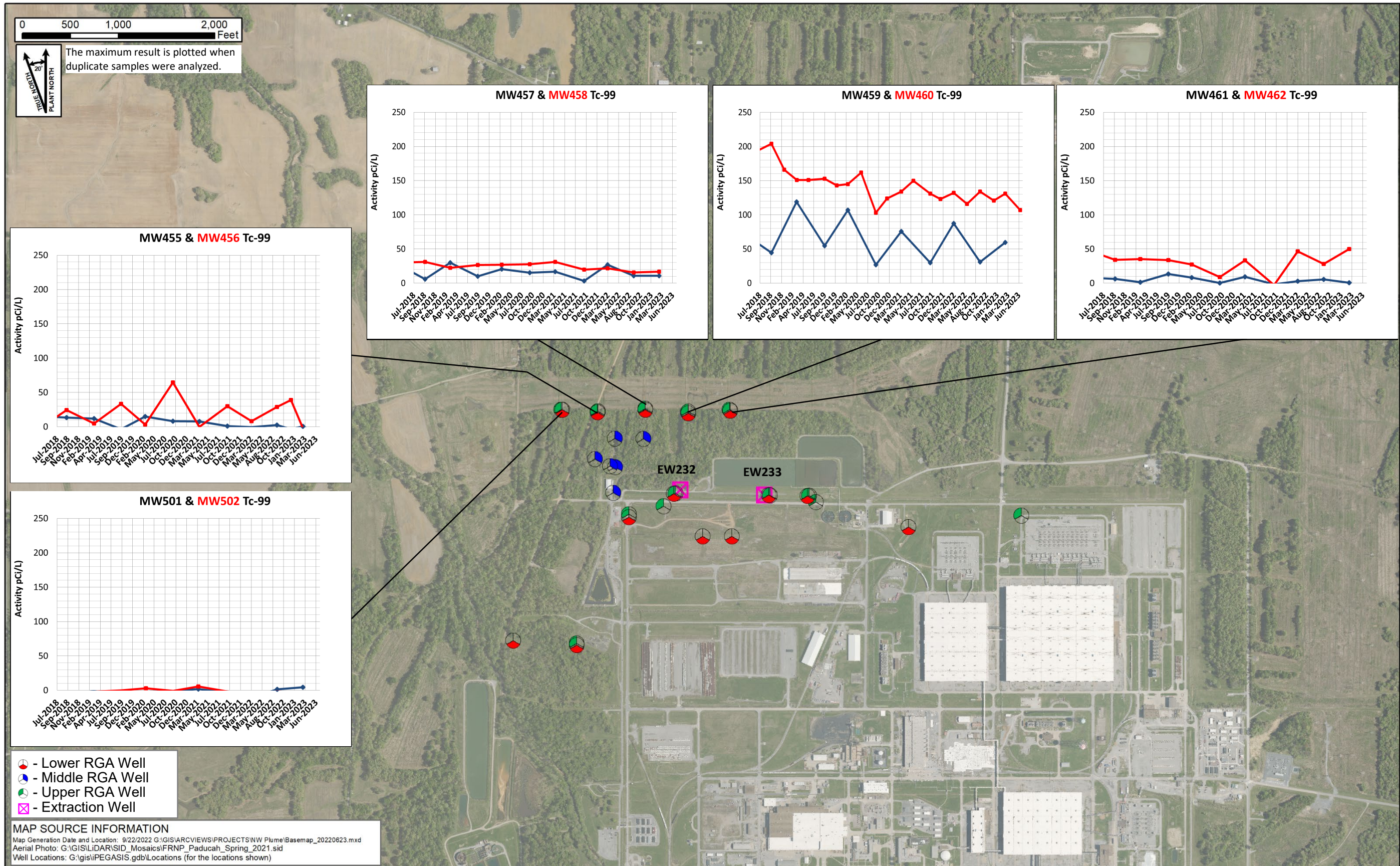


Figure B.22. Northwest Plume—Downgradient of New Well Field—Tc-99 Trends

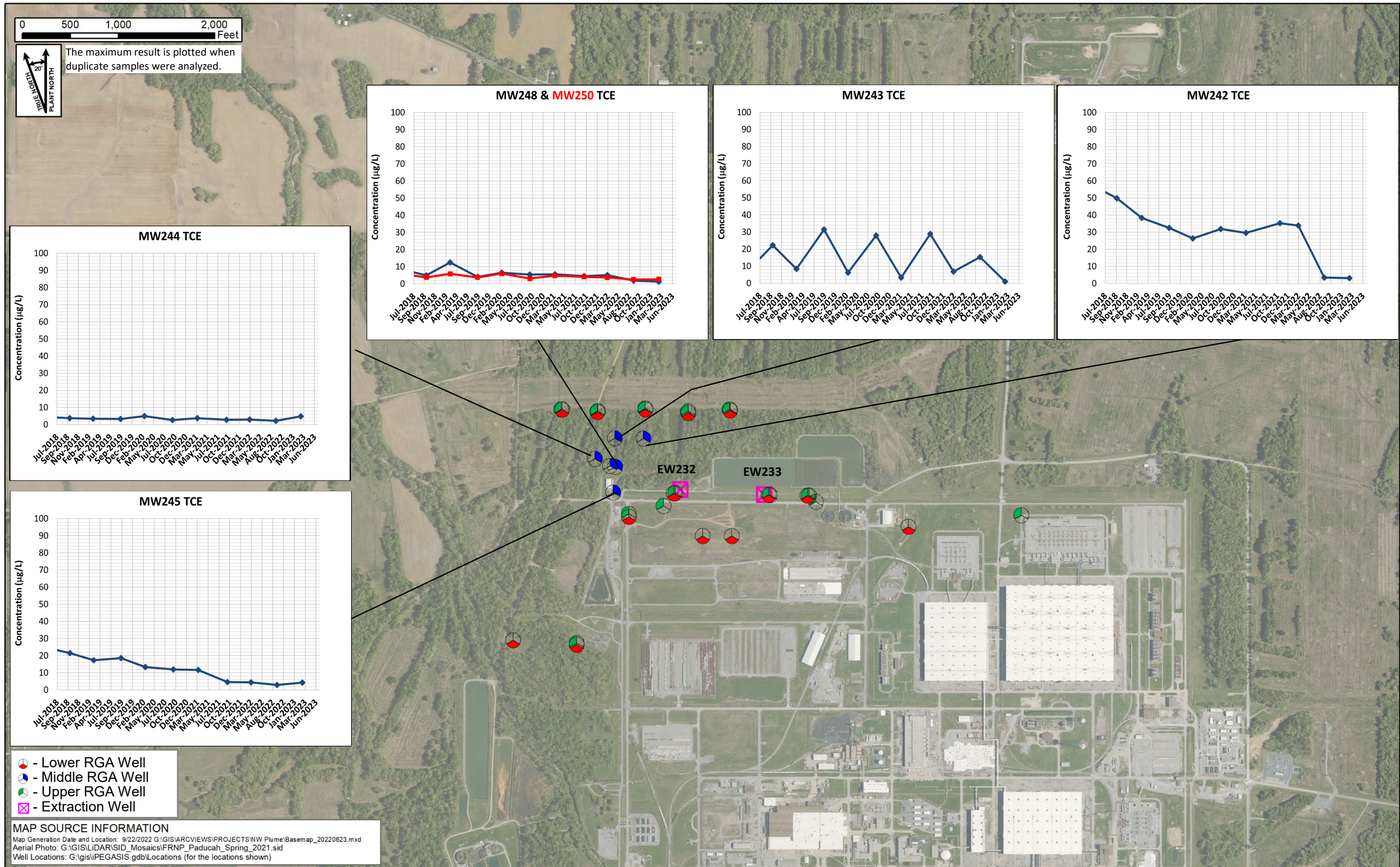


Figure B.23. Northwest Plume—South Well Field TCE Trends

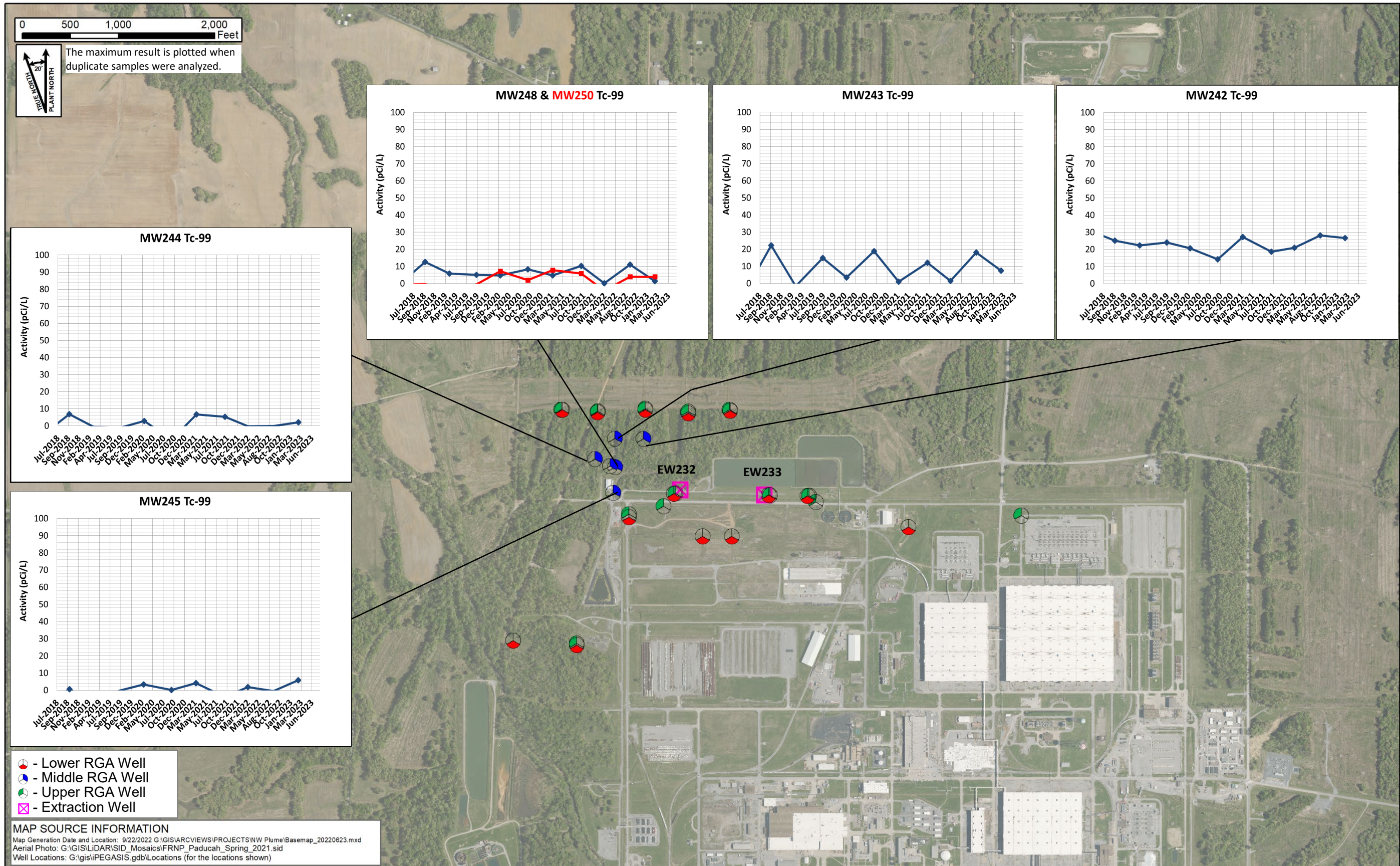


Figure B.24. Northwest Plume—South Well Field—Tc-99 Trends

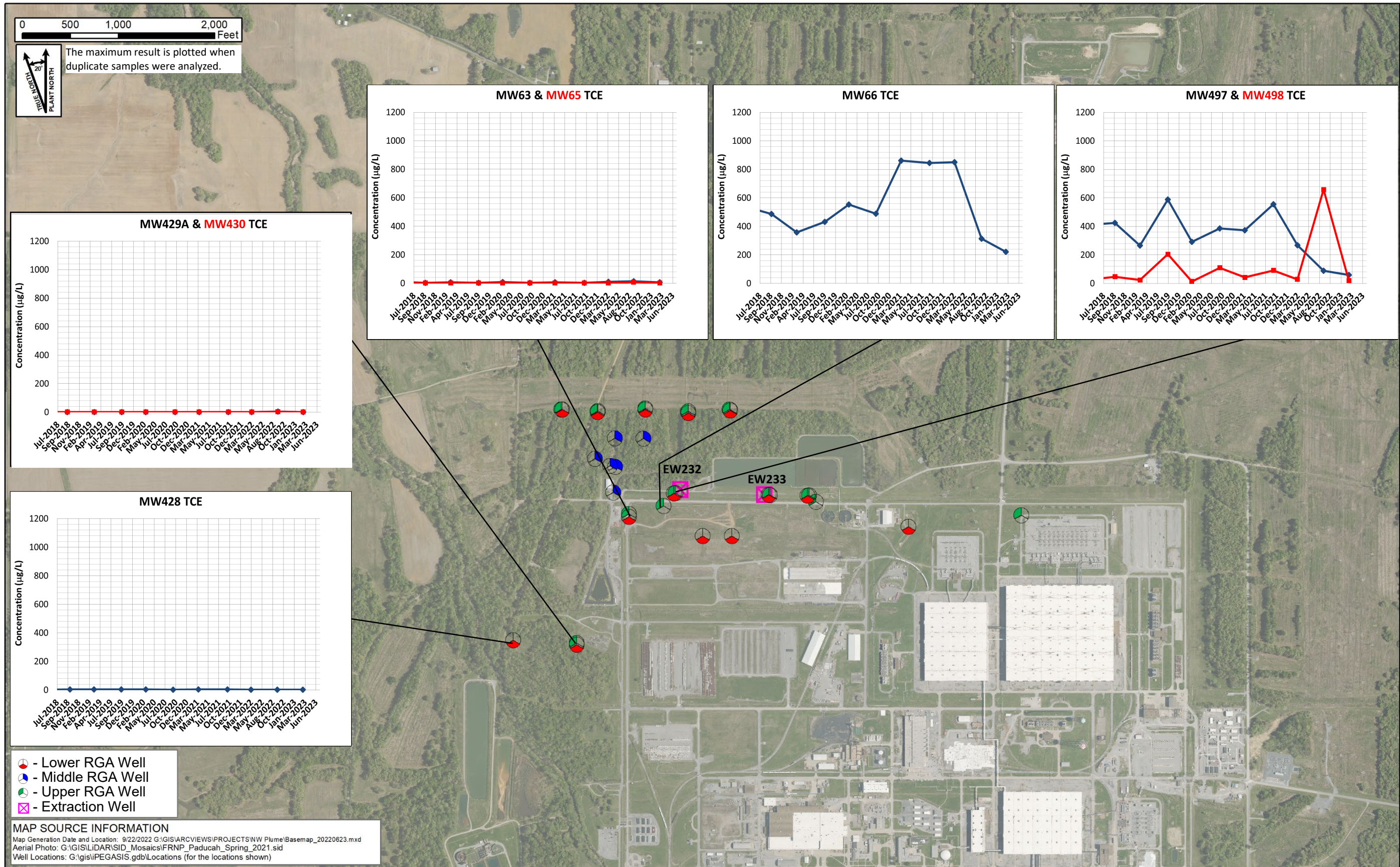


Figure B.25. Northwest Plume—New Well Field—TCE Trends

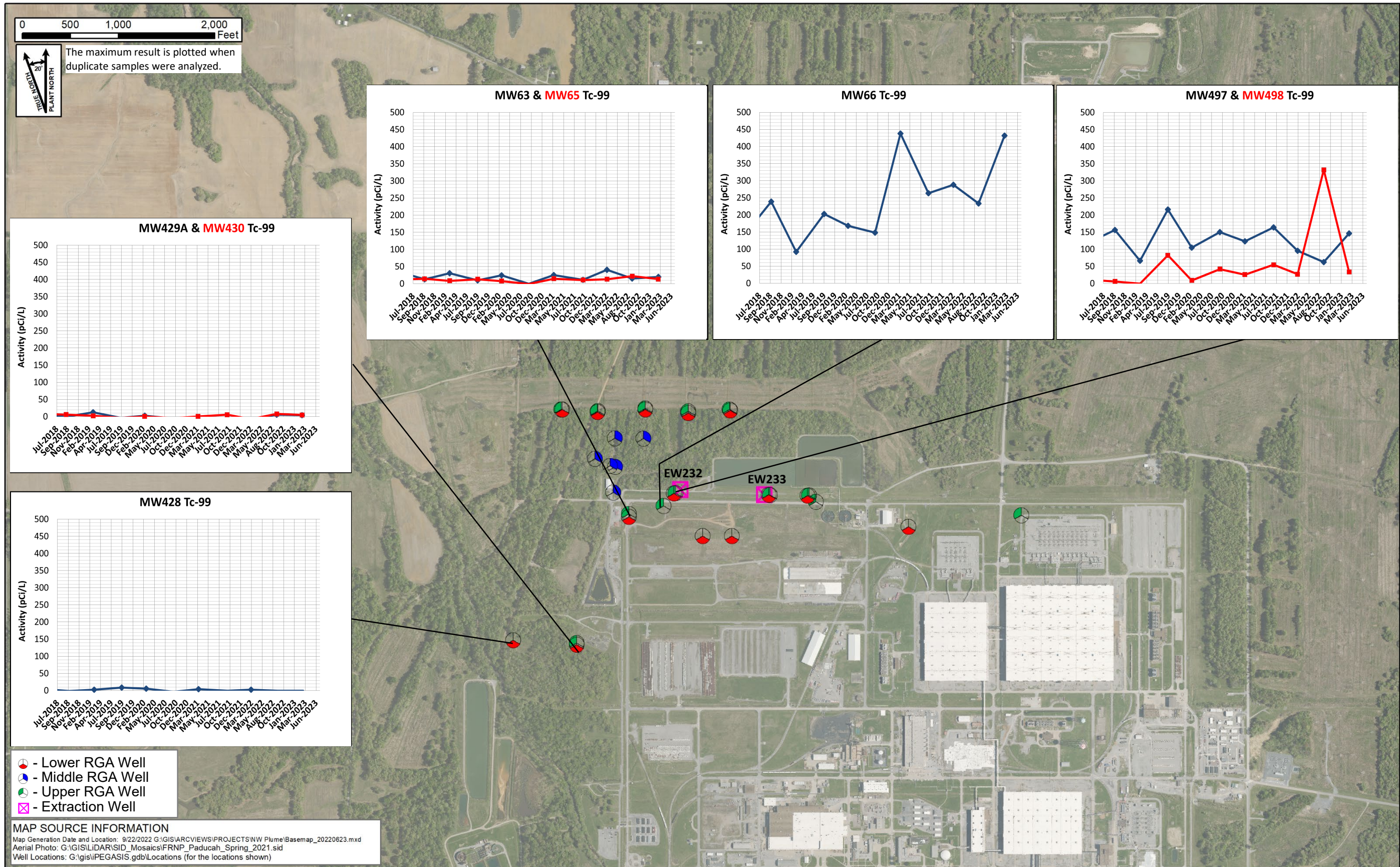


Figure B.26. Northeast Plume—New Well Field—Tc-99 Trends

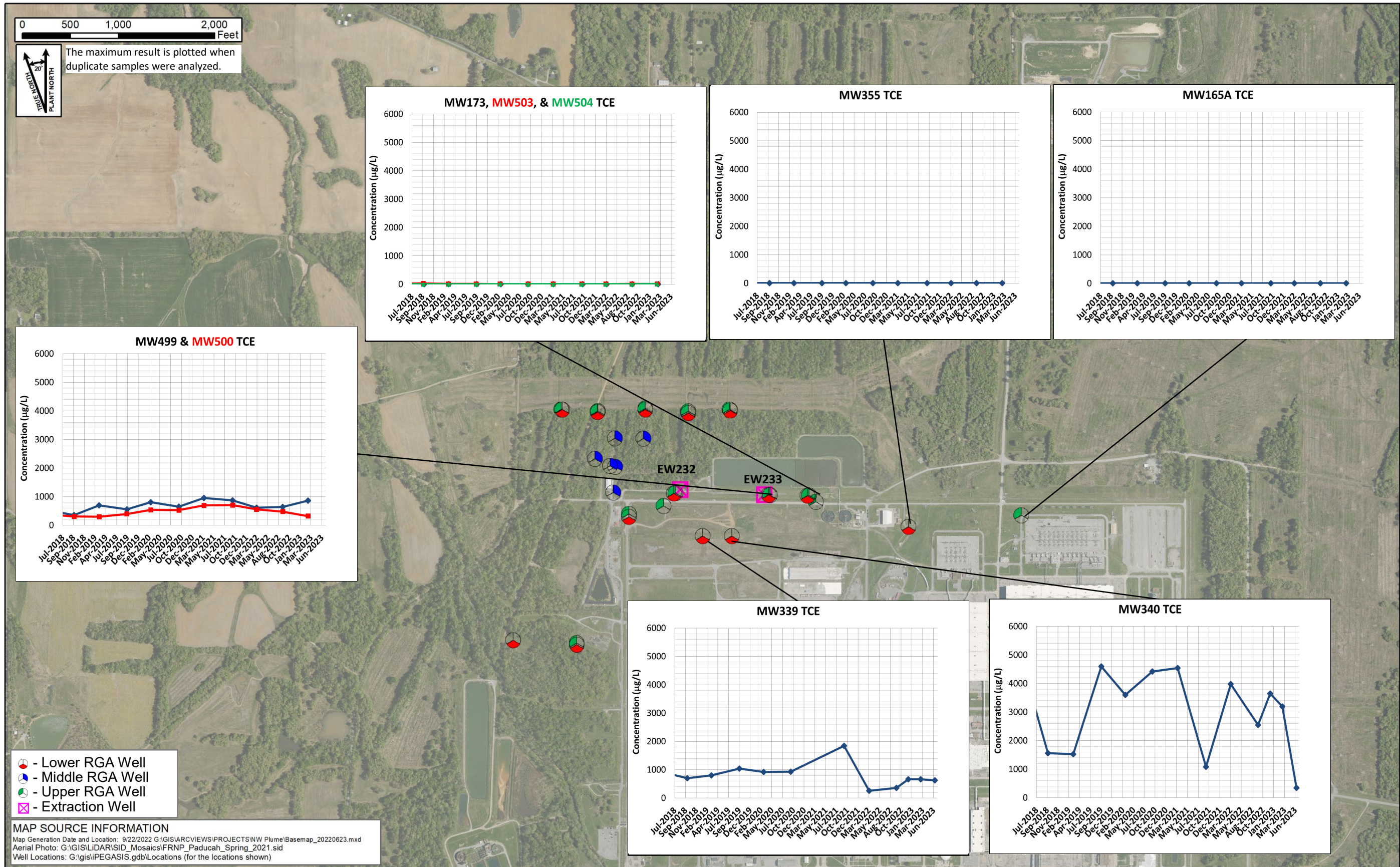


Figure B.27. Northwest Plume—Upgradient of Extraction Wells—TCE Trends

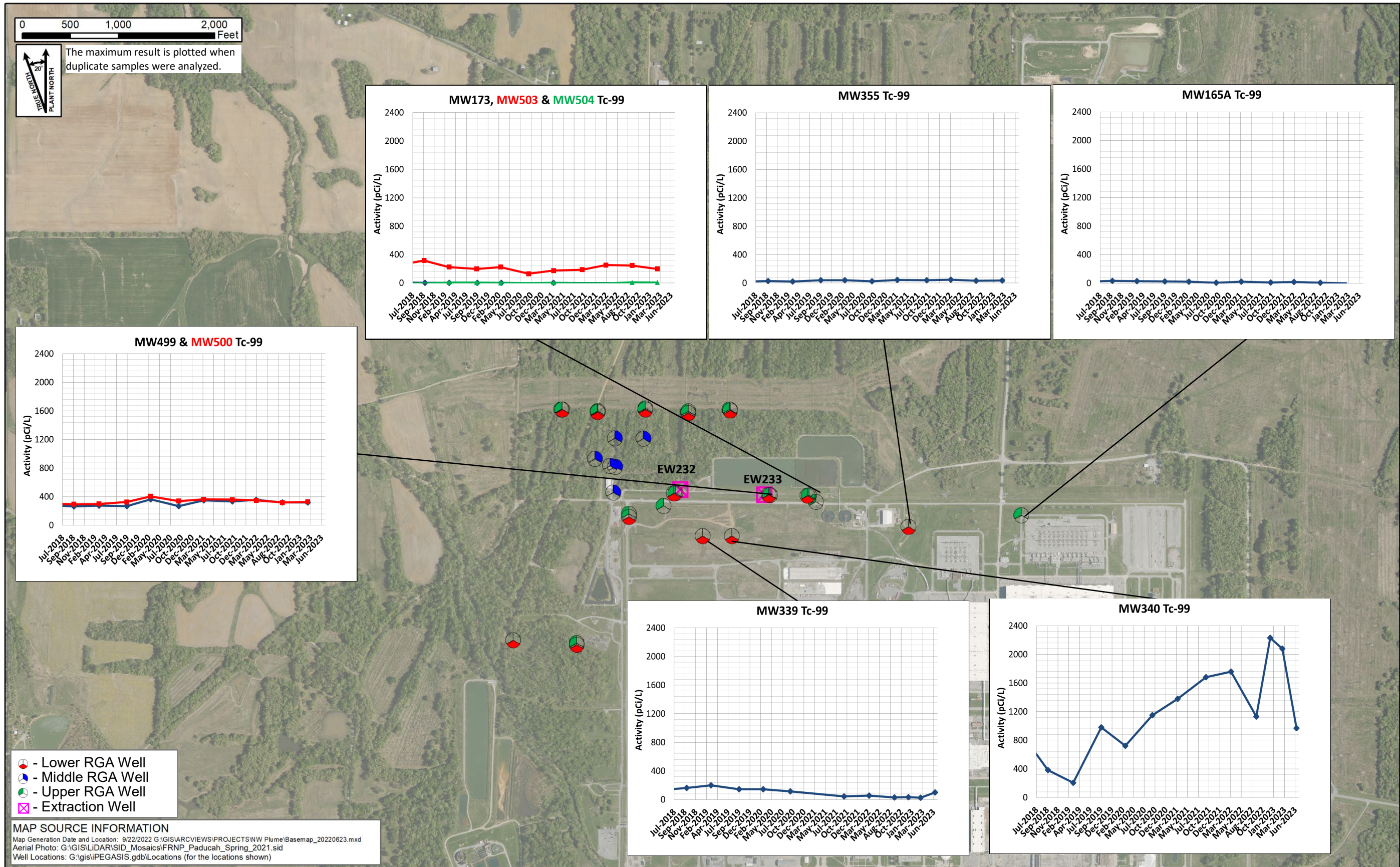
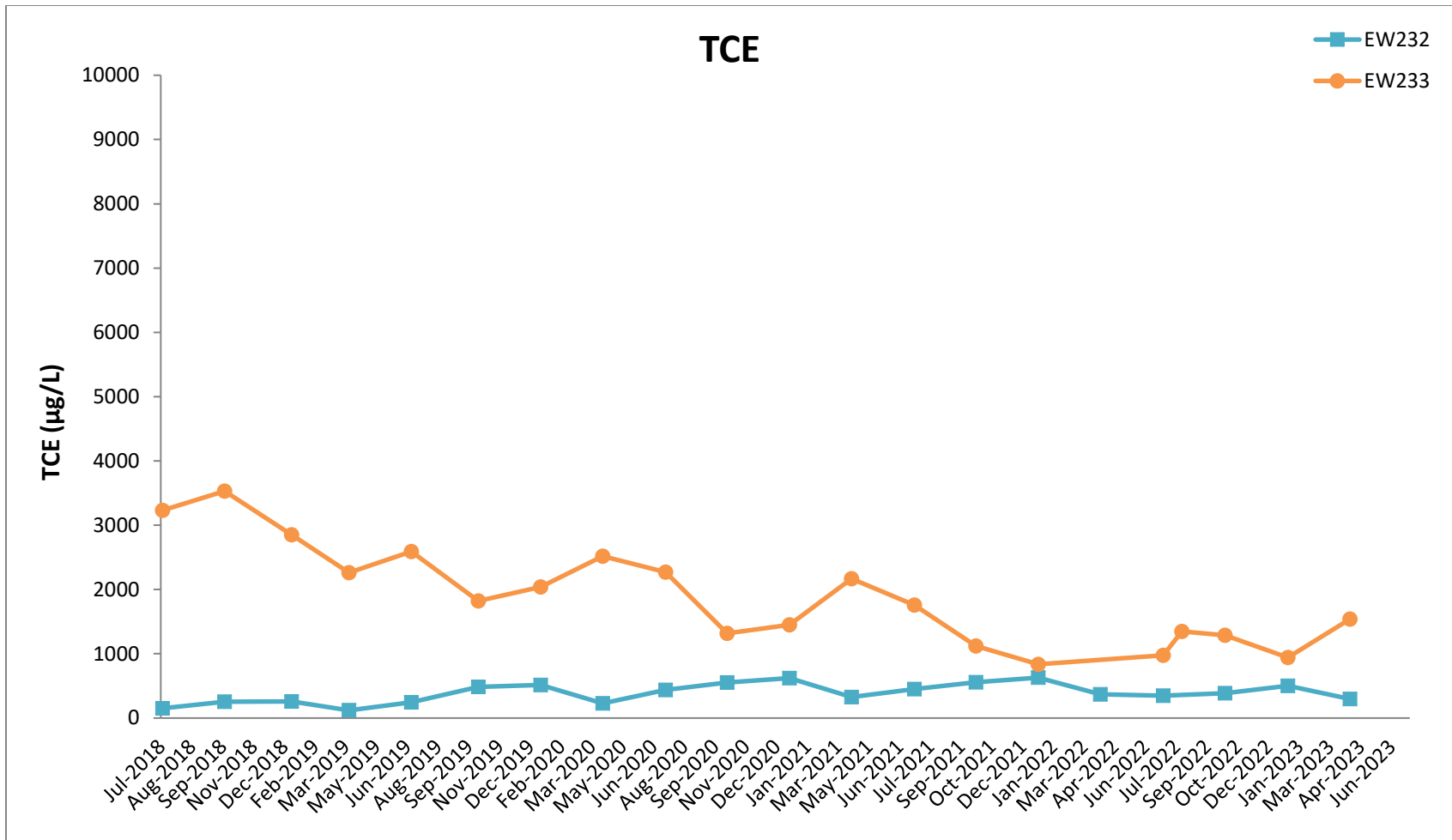
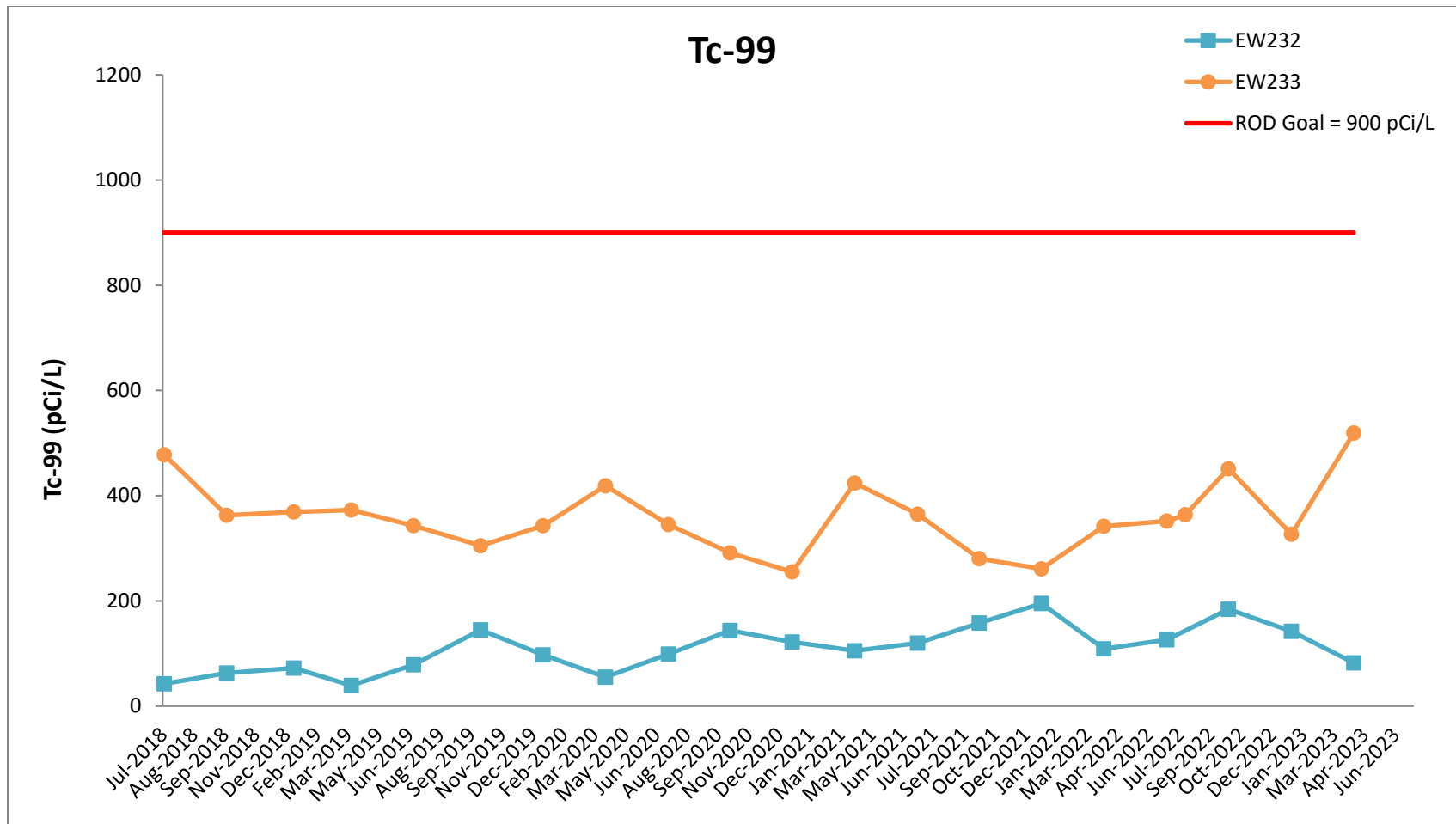


Figure B.28. Northwest Plume—Upgradient of Extraction Wells—Tc-99 Trends



NOTE: Data rejected by validation or assessment have not been graphed.

Figure B.29. Northwest Plume—TCE Concentrations in Extraction Wells



NOTE: Data rejected by validation or assessment have not been graphed.

Figure B.30. Northwest Plume—Tc-99 Activities in Extraction Wells

APPENDIX C

C-746-K LANDFILL (SWMU 8) DATA

THIS PAGE INTENTIONALLY LEFT BLANK

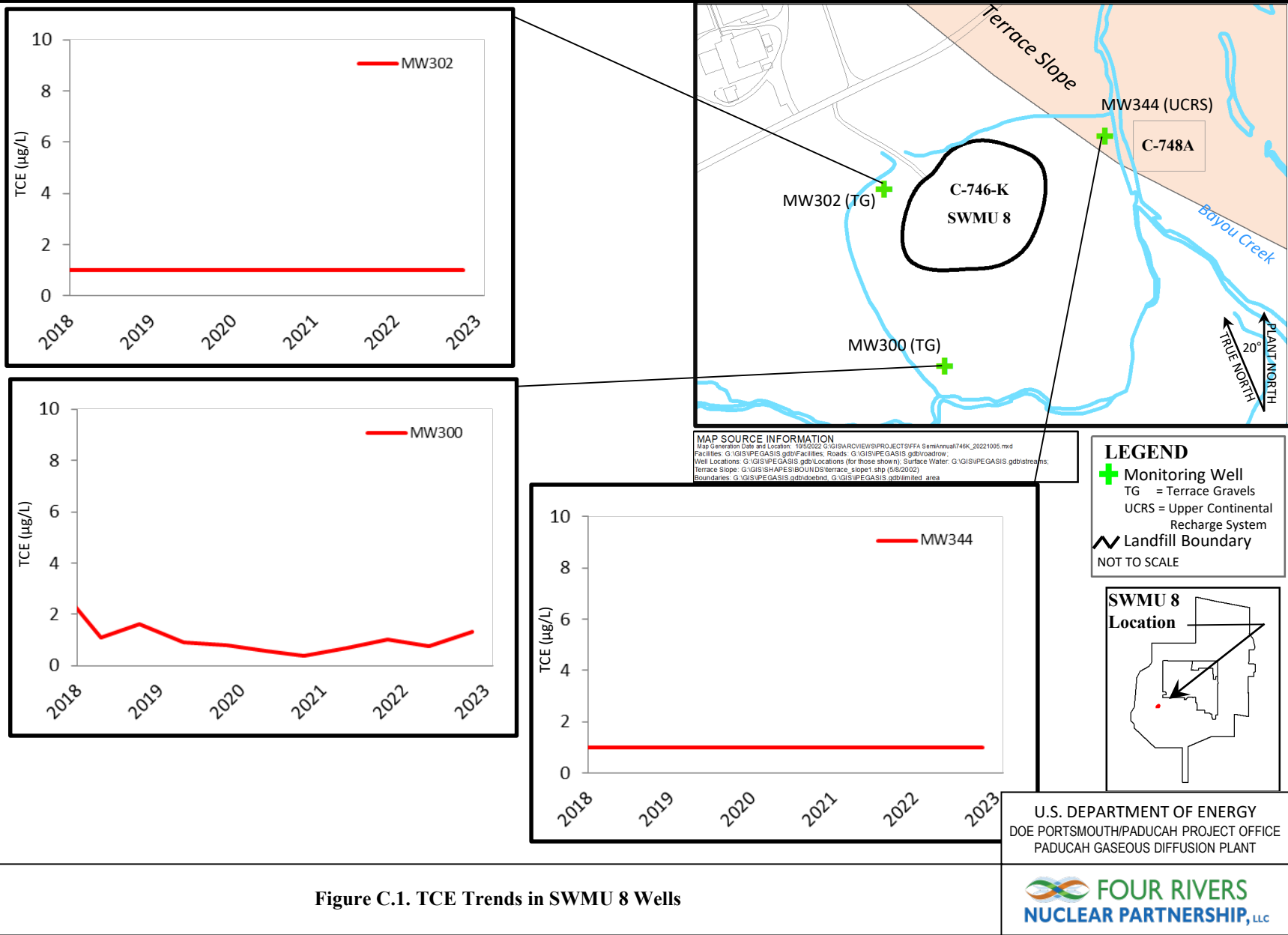


Figure C.1. TCE Trends in SWMU 8 Wells

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX D

**ADMINISTRATIVE RECORD,
POST-DECISION RECORD, AND ADMINISTRATIVE RECORD
REFERENCE INDICES**

THIS PAGE INTENTIONALLY LEFT BLANK

Paducah Documents Added to the Administrative Record Files-Second Quarter CY2023

Document Status	Document Date	Document ID	Title	Author Affiliation	To Affiliation	Name	Date Added
ARF 400OUREMEDIAL	03/22/23	FR-23-0826, DOE/LX/07-2474&D1	UNITED STATES ENVIRONMENTAL PROTECTION AGENCY REGION 4 REQUEST FOR A 30-DAY EXTENSION FOR THE REVIEW PERIOD FOR THE C-400 COMPLEX OPERABLE UNIT (OU) REMEDIAL INVESTIGATION/ FEASIBILITY STUDY (RI/FS) REPORT	USEPA-4	DOE	INF-RECMGMT-FR-23-0826-USEPA4 30 DAY EXTENSION RIFS 2023-03-22	4/19/2023
ARF 400OUREMEDIAL	04/06/23	FR-23-0832, DOE/LX/07-2474&D1	ADDITIONAL 30-DAYS REVIEW NOTIFICATION FOR SUBMITTAL OF COMMENTS TO THE REMEDIAL INVESTIGATION/FEASIBILITY STUDY REPORT FOR THE C-400 COMPLEX OPERABLE UNIT (DOE/LX/07-2474&D1) PADUCAH SITE PADUCAH, MCCRACKEN COUNTY, KENTUCKY KY8-890-008-982	KDEP	DOE	INF-RECMGMT-FR-23-0832-KDWM 30 DAY REVIEW RIFS-2023-04-06	4/19/2023
ARF 400OUREMEDIAL	03/20/23	PPPO-02-10024011-23	PADUCAH FEDERAL FACILITY AGREEMENT-MILESTONE MODIFICATION FOR THE C-400 COMPLEX OPERABLE UNIT DOCUMENTS	DOE	KDEP, USEPA-4	INF-RECMGMT-PPPO-02-10024011-23-MILESTONE MOD C400 OU DOC-2023-03-20	4/19/2023
ARF 400OUREMEDIAL	03/24/23	PPPO-02-10024055-23	PADUCAH FEDERAL FACILITY AGREEMENT-SIGNED MILESTONE MODIFICATION FOR THE C-400 COMPLEX OPERABLE UNIT DOCUMENTS	DOE	KDEP, USEPA-4	INF-RECMGMT-PPPO-02-10024055-23-MILESTONE MOD C400 OU DOC-2023-03-24	4/19/2023
ARF 400OUREMEDIAL	04/03/23	PPPO-02-10024134-23	PADUCAH FEDERAL FACILITY AGREEMENT-SIGNED MILESTONE MODIFICATION FOR THE C-400 COMPLEX OPERABLE UNIT DOCUMENTS	DOE	KDEP, USEPA-4	INF-RECMGMT-PPPO-02-10024134-23-MILESTONE MOD C400 OU DOC-2023-04-03	4/19/2023
ARF 400OUREMEDIAL	04/13/23	PPPO-02-10024244-23	PADUCAH FEDERAL FACILITY AGREEMENT-SIGNED MILESTONE MODIFICATION FOR THE C-400 COMPLEX OPERABLE UNIT DOCUMENTS	DOE	KDEP, USEPA-4	INF-RECMGMT-PPPO-02-10024244-23-FFA MILESTONE MOD C 400-2023-04-13	4/19/2023
ARF 400OUREMEDIAL	05/04/23	FR-23-0851, DOE/LX/07-2474&D1	UNITED STATES ENVIRONMENTAL PROTECTION AGENCY REGION 4 ACKNOWLEDGEMENT OF RECEIPT AND REVIEW FOR THE DEPARTMENT OF ENERGY'S REMEDIAL INVESTIGATION/FEASIBILITY STUDY REPORT FOR THE C-400 COMPLEX OPERABLE UNIT AT THE PADUCAH GASEOUS DIFFUSION PLANT, PADUCAH, KENTUCKY, DOE/LX/07-2474&D1, TRANSMITTAL DATE OF JANUARY 5, 2023	USEPA-4	DOE	INF-RECMGMT-FR-23-0851-EPA STUDY REPORT-2023-05-04	5/17/2023
ARF 400OUREMEDIAL	05/05/23	FR-23-0852, DOE/LX/07-2474&D1	KENTUCKY DEPARTMENT OF WASTE MANAGEMENT (KDWM) SUBMITTAL OF COMMENTS TO THE REMEDIAL INVESTIGATION/FEASIBILITY STUDY REPORT FOR THE C-400 COMPLEX OPERABLE UNIT (DOE/LX/07-2474&D1) PADUCAH SITE PADUCAH, MCCRACKEN COUNTY, KENTUCKY KY8-890-008-982	KDEP	DOE	INF-RECMGMT-FR-23-0852-REMEDIAL INVESTIGATION-2023-05-05	5/17/2023
ARF 400OUREMEDIAL	06/08/23	PPPO-02-10024684-23, DOE/LX/07-2474&D2	"NOTIFICATION OF SCHEDULE EXTENSION AND MILESTONE MODIFICATION FOR SUBMITTAL OF THE D2 REMEDIAL INVESTIGATION/FEASIBILITY STUDY REPORT FOR THE C-400 COMPLEX OPERABLE UNIT AT THE PADUCAH GASEOUS DIFFUSION PLANT, PADUCAH, KENTUCKY (DOE/LX/07-2474&D2) AND SUBSEQUENT C-400 COMPLEX OPERABLE UNIT DOCUMENTS"	DOE	KDEP, USEPA-4	INF-RECMGMT-PPPO-02-10024684-23-EXTENSION D2 RIFS-2023-06-08	6/20/2023

D-3

Paducah Documents Added to the Post-Decision Files-Second Quarter CY2023

Document Status	Document Date	Document ID	Title	Author Affiliation	To Affiliation	Name	Date Added
NSDD-PD	03/30/23	CP4-ES-0041-F03	CP4-ES-0041-F03-WALKTHROUGH CHECKLIST-NORTH-SOUTH DIVERSION DITCH (WEEKLY)-MARCH 2023	FRNP	DOE	INF-RECMGMT-CP4-ES-0041-F03-WLK THRU CHK LIST NS DITCH-2023-03-30	4/19/2023
NSDD-PD	3/27/2023	CP4-ES-0041-F07	CP4-ES-0041-F07-WALKTHROUGH CHECKLIST-NORTH-SOUTH DIVERSION DITCH (STORM EVENT)-MARCH 2023	FRNP	DOE	INF-RECMGMT-CP4-ES-0041-F07-WLK THRU CHK LIST NS DITCH-2023-03-27	4/19/2023
NSDD-PD	3/22/2023	CP4-ES-0041-F20	CP4-ES-0041-F20-WINTERIZATION CHECKLIST-NORTH-SOUTH DIVERSION DITCH (WEEKLY)-MARCH 2023	FRNP	DOE	INF-RECMGMT-CP4-ES-0041-F20-WINTERIZATION CHK LST NS DITCH-2023-03-22	4/19/2023
NSDD-PD	4/27/2023	CP4-ES-0041-F03	CP4-ES-0041-F03 WALKTHROUGH CHECKLIST-NORTH-SOUTH DIVERSION DITCH (WEEKLY)-APRIL 2023	FRNP	DOE	INF-RECMGMT-CP4-ES-0041-F03-WALKTHROUGH CHECKLIST-2023-04-27	5/17/2023
NSDD-PD	4/24/2023	CP4-ES-0041-F07	CP4 ES-0041-F07-WALKTHROUGH CHECKLIST-NORTH-SOUTH DIVERSION DITCH (STORM) EVENT)-APRIL 2023	FRNP	DOE	INF-RECMGMT-CP4-ES-0041-F07-WALKTHROUGH CHECKLIST-2023-04-24	5/17/2023
NSDD-PD	05/24/23	CP4-ES-0041-F03	WALKTHROUGH CHECKLIST- NORTH-SOUTH DIVERSION DITCH (WEEKLY) - MAY 2023	FRNP	DOE	INF-RECMGMT-CP4-ES-0041-F03-N-S CHECKLIST MAY-2023-05-24	6/20/2023
NSDD-PD	5/22/2023	CP4-ES-0041-F07	WALKTHROUGH CHECKLIST- NORTH-SOUTH DIVERSION DITCH (STORM EVENT) - MAY 2023	FRNP	DOE	INF-RECMGMT-CP4-ES-0041-F07-N-S CHECKLIST MAY-2023-05-22	6/20/2023
SWP-PD	5/9/2023	FR-23-0853, DOE/LX/07-2483&D1	APPROVAL OF THE INTERIM REMEDIAL ACTION COMPLETION REPORT WITH POST CONSTRUCTION REPORT ELEMENTS FOR SOLID WASTE MANAGEMENT UNIT (SWMU) 211-A FOR VOLATILE ORGANIC COMPOUND (VOC) SOURCES TO THE SOUTHWEST GROUNDWATER PLUME (DOE/LX/07-2483&D1) PADUCAH SITE PADUCAH, MCCracken COUNTY, KENTUCKY KY8-890-008-982	KDEP	DOE	INF-RECMGMT-FR-23-0853-SWMU 211 VOC SW PLUME-2023-05-09	5/17/2023

D-4

Paducah Documents Added to the Post-Decision Files-Second Quarter CY2023

Document Status	Document Date	Document ID	Title	Author Affiliation	To Affiliation	Name	Date Added
SWP-PD	02/14/23	DOE/LX/07-2483&D1, PPPO-02-10023078-23C	EMAIL RESPONSE PPPO-02-10023078-23C TRANSMITTAL INTERIM REMEDIAL ACTION COMPLETION REPORT (RACR) WITH POST CONSTRUCTION REPORT ELEMENTS FOR SOLID WASTE MANAGEMENT UNIT (SWMU) 211-A FOR VOLATILE ORGANIC COMPOUNDS (VOC) TO SOUTHWEST GROUNDWATER PLUME DOE-LX-07-2483&D1	USEPA-4	DOE	INF-RECMGMT-VOC SW GROUNDWATER PLUME-2023-02-14	5/17/2023
SWP-PD	5/31/2023	CP4-ES-0041-F17	QUARTERLY SOUTHWEST PLUME SOLID WASTE MANAGEMENT UNIT (SWMU) INSPECTIONS - MAY 2023	FRNP	DOE	INF-RECMGMT-CP4-ES-0041-F17-QUARTERLY SW PLUME INSP-2023-05-31	6/20/2023
SWP-PD	5/23/2023	FR-23-0866, DOE/LX/07-2483&D1	UNITED STATES ENVIRONMENTAL PROTECTION AGENCY REVIEW AND APPROVAL OF INTERIM REMEDIAL ACTION COMPLETION REPORT WITH POSTCONSTRUCTION REPORT ELEMENTS FOR SOLID WASTE MANAGEMENT UNIT (SWMU) 211-A FOR VOLATILE ORGANIC COMPOUND SOURCES TO THE SOUTHWEST GROUNDWATER PLUME (DOE/LX/07-2483&D1)	USEPA-4	DOE	INF-RECMGMT-FR-23-0866-EPA REVIEW AND APPROVAL IRA-2023-05-23	6/20/2023

D-5

Paducah Documents Added to the Administrative Record Reference Files-Second Quarter CY2023

Document Status	Document Date	Document ID	Title	Author Affiliation	To Affiliation	Name	Date Added
ARF ARR	3/15/2023	PPPO-02-10023517-23	PADUCAH FEDERAL FACILITY AGREEMENT FISCAL YEAR 2024 PRESIDENT'S BUDGET	DOE	KDEP, USEPA-4	INF-RECMGMT-PPPO-02-10023517-23-FY 2023 PRESIDENTS BUDGET-2023-03-15	4/19/2023
ARF ARR	3/30/2023	PPPO-02-10023841-23	FEDERAL FACILITY AGREEMENT BUDGET REPORTING-PRELIMINARY ASSESSMENT OF FISCAL YEAR 2025 BUDGET FORMULATION GUIDANCE AND UPDATE OF THE FISCAL YEAR 2025 BUDGET TARGETS ON SITE PRIORITIES (INTEGRATED PRIORITY LIST)	DOE	KDEP, USEPA-4	INF-RECMGMT-PPPO-02-10023841-23-INTEGRATED PRIORITY LIST-2023-03-30	4/19/2023
ARF ARR	3/20/2023	PPPO-02-10024011-23	PADUCAH FEDERAL FACILITY AGREEMENT-MILESTONE MODIFICATION FOR THE C-400 COMPLEX OPERABLE UNIT DOCUMENTS	DOE	KDEP, USEPA-4	INF-RECMGMT-PPPO-02-10024011-23-MILESTONE MOD C400 OU DOC-2023-03-20	4/19/2023
ARF ARR	3/24/2023	PPPO-02-10024055-23	PADUCAH FEDERAL FACILITY AGREEMENT-SIGNED MILESTONE MODIFICATION FOR THE C-400 COMPLEX OPERABLE UNIT DOCUMENTS	DOE	KDEP, USEPA-4	INF-RECMGMT-PPPO-02-10024055-23-MILESTONE MOD C400 OU DOC-2023-03-24	4/19/2023
ARF ARR	4/3/2023	PPPO-02-10024134-23	PADUCAH FEDERAL FACILITY AGREEMENT-SIGNED MILESTONE MODIFICATION FOR THE C-400 COMPLEX OPERABLE UNIT DOCUMENTS	DOE	KDEP, USEPA-4	INF-RECMGMT-PPPO-02-10024134-23-MILESTONE MOD C400 OU DOC-2023-04-03	4/19/2023
ARF ARR	4/13/2023	PPPO-02-10024244-23	PADUCAH FEDERAL FACILITY AGREEMENT-SIGNED MILESTONE MODIFICATION FOR THE C-400 COMPLEX OPERABLE UNIT DOCUMENTS	DOE	KDEP, USEPA-4	INF-RECMGMT-PPPO-02-10024244-23-FFA MILESTONE MOD C 400-2023-04-13	4/19/2023
ARF ARR	4/28/2023	FR-23-0849, DOE/LX/07-2491&D1	APPROVAL OF THE REVISED SOLID WASTE MANAGEMENT UNIT (SWMU) SOLID WASTE MANAGEMENT UNIT ASSESSMENT REPORT (SAR) FOR SWMU 86 (DOE/LX/07-2491&D1) PADUCAH SITE PADUCAH, MCCRACKEN COUNTY, KENTUCKY KY8-890-008-982	KDEP	DOE	INF-RECMGMT-FR-23-0849-SWMU ASSESSMENT REPORT-2023-04-28	5/17/2023
ARF ARR	4/17/2023	PPPO-02-10024071-23, DOE/LX/07-2491&D1	C-631 PUMPHOUSE AND COOLING TOWER SLABS AND ASSOCIATED SOILS, SOLID WASTE MANAGEMENT UNIT (SWMU) ASSESSMENT REPORT FOR AREA OF CONCERN 86-HAZARDOUS WASTE MANAGEMENT FACILITY PERMIT NUMBER KY8-890-008-982, AGENCY INTEREST NUMBER. 3059	DOE	KDEP, USEPA-4	INF-RECMGMT-PPPO-02-10024071-23-HAZARDOUS WASTE MGMT RPT-2023-04-17	5/17/2023

D-6

Paducah Documents Added to the Administrative Record Files-Third Quarter CY2023

Document Status	Document Date	Document ID	Title	Author Affiliation	To Affiliation	Name	Date Added
ARF 400OUREME DIAL	7/25/2023	PPPO-02-10025130-23, DOE/LX/07-2474&D2	PADUCAH FEDERAL FACILITY AGREEMENT - SIGNED MILESTONE MODIFICATION FOR THE C-400 COMPLEX OPERABLE UNIT DOCUMENTS	DOE	KDEP, USEPA-4	INF-RECMGMT-PPPO-02-10025130-23-FFA MOD C400 DOCS-2023-07-25	8/17/2023
ARF 400OUREME DIAL	7/14/2023	PPPO-02-10025031-23, DOE/LX/07-2474&D2	EXTENSION REQUEST FOR SUBMITTAL OF THE D2 REMEDIAL INVESTIGATION/FEASIBILITY STUDY REPORT FOR THE C-400 COMPLEX OPERABLE UNIT AT THE PADUCAH GASEOUS DIFFUSION PLANT, PADUCAH, KENTUCKY DOE/LX/07-2474&D2, AND MILESTONE	DOE	KDEP, USEPA-4	INF-RECMGMT-PPPO-02-10025031-23-EXT REQ RIFS C400-2023-07-14	8/17/2023
ARF 400OUREME DIAL	7/14/2023	FR-23-0890, DOE/LX/07-2474&D2	U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA) REGION 4 ACKNOWLEDGES RECEIPT OF, AND CONCURS WITH THE DEPARTMENT OF ENERGY'S (DOE'S) REQUEST TO EXTEND THE SUBMITTAL DATE FOR	USEPA-4	DOE	INF-RECMGMT-FR-23-0890-EPA CONCUR EXTEND RIFS-2023-07-14	8/17/2023
ARF 400OUREME DIAL	6/20/2023	PPPO-02-10024773-23, DOE/LX/07-2474&D2	PADUCAH FEDERAL FACILITY AGREEMENT-SIGNED MILESTONE MODIFICATION FOR THE C-400 COMPLEX OPERABLE UNIT DOCUMENTS	DOE	KDEP, USEPA-4	INF-RECMGMT-PPPO-02-10024773-23-FFA MOD C-400 COM OP UNIT-2023-06-20	7/17/2023

D-7

Paducah Documents Added to the Post-Decision Files-Third Quarter CY2023

Document Status	Document Date	Document ID	Title	Author Affiliation	To Affiliation	Name	Date Added
SWP-PD	08/29/23	CP4-ES-0041-F17	CP4-ES-0041-F17 - QUARTERLY SOUTHWEST (SW) PLUME SOLID WASTE MANAGEMENT UNIT (SWMU) INSPECTIONS - AUGUST 2023	FRNP	DOE	INF-RECMGMT-CP4-ES-0041-F17-QTR SW PLUME INSP-2023-08-29	9/18/2023
NSDD-PD	8/28/2023	CP4-ES-0041-F07	CP4-ES-0041-F07-WALKTHROUGH CHECKLIST-NORTH-SOUTH DIVERSION DITCH (STORM EVENT) - AUGUST 2023	FRNP	DOE	INF-RECMGMT-CP4-ES-0041-F07-N-S STORM EVENT-2023-08-28	9/18/2023
NSDD-PD	8/16/2023	CP4-ES-0041-F05	CP4-ES-0041-F05 - WALKTHROUGH CHECKLIST-NORTH-SOUTH DIVERSION DITCH SURGE BASIN/CONCRETE DITCH (SEMI-ANNUAL) - AUGUST 2023	FRNP	DOE	INF-RECMGMT-CP4-ES-0041-F05-SURGE-CONCRETE-2023-08-16	9/18/2023
NSDD-PD	8/28/2023	CP4-ES-0041-F04	CP4-ES-0041-F04-WALKTHROUGH CHECKLIST- NORTH-SOUTH DIVERSION DITCH (QUARTERLY) - AUGUST 2023	FRNP	DOE	INF-RECMGMT-CP4-ES-0041-F04-N-S QUARTERLY-2023-09-18	9/18/2023
NSDD-PD	8/30/2023	CP4-ES-0041-F03	CP4-ES-0041-F03-WALKTHROUGH CHECKLIST- NORTH-SOUTH DIVERSION DITCH (WEEKLY) - AUGUST 2023	FRNP	DOE	INF-RECMGMT-CP4-ES-0041-F03-N-S WEEKLY CHECKLIST-2023-08-30	9/18/2023
1/7-PD	08/01/23	N/A	REOPENING OF POST-DECISION FILE AT THE PADUCAH GASEOUS DIFFUSION PLANT, PADUCAH, KENTUCKY	DOE	EIC	INF-RECMGMT-REOPENING PD FILE-2023-08-01	8/17/2023
NSDD-PD	7/31/2023	CP4-ES-0041-F07	WALKTHROUGH CHECKLIST- NORTH-SOUTH DIVERSION DITCH (STORM EVENT) - JULY 2023	FRNP	DOE	INF-RECMGMT-CP4-ES-0041-F07-C400 N S CHKLST-2023-07-31	8/17/2023
NSDD-PD	7/27/2023	CP4-ES-0041-F03	WALKTHROUGH CHECKLIST- NORTH-SOUTH DIVERSION DITCH (WEEKLY) - JULY 2023	FRNP	DOE	INF-RECMGMT-CP4-ES-0041-F03-N S WEEKLY CKLIST-2023-07-27	8/17/2023
WP-PD	03/01/23	N/A	INFORMATIONAL BROCHURE PADUCAH GASEOUS DIFFUSION PLANT DEPARTMENT OF ENERGY WATER POLICY RESIDENTS AND BUSINESSES - MARCH 2023	DOE	RESIDENTS	INF-RECMGMT-INF BROCH WATER POLICY-2023-03-01	7/18/2023
NSDD-PD	6/12/2023	CP4-ES-0041-F07	CP4-ES-0041-F07 -WALKTHROUGH CHECKLIST- NORTH-SOUTH DIVERSION DITCH (STORM EVENT) - JUNE 2023	FRNP	DOE	INF-RECMGMT-CP4-ES-0041-F07-N-S CHECKLIST STORM EVENT-2023-06-12	7/17/2023
NSDD-PD	6/29/2023	CP4-ES-0041-F03	CP4-ES-0041-F03 -WALKTHROUGH CHECKLIST- NORTH-SOUTH DIVERSION DITCH (WEEKLY) - JUNE 2023	FRNP	DOE	INF-RECMGMT-CP4-ES-0041-F03-N-S WEEKLY CHECKLIST JUNE-2023-06-29	7/17/2023

D-8

Paducah Documents Added to the Administrative Record Reference Files-Third Quarter CY2023

Document Status	Document Date	Document ID	Title	Author Affiliation	To Affiliation	Name	Date Added
ARF ARR	8/29/2023	PPPO-02-10024130-23E; FRNP-RPT-0273 ERRATA	TRANSMITTAL OF ERRATA PAGES AND COMPLETE CORRECTED DOCUMENT FOR THE TRICHLOROETHENE AND TECHNETIUM-99 GROUNDWATER CONTAMINATION IN THE REGIONAL GRAVEL AQUIFER FOR CALENDAR YEAR 2022 AT THE PADUCAH GASEOUS DIFFUSION PLANT, PADUCAH, KENTUCKY, FRNP-RPT-0273	DOE	KDEP, USEPA-4	INF-RECMGMT-PPPO-02-10024130-23E-TRANS ERRATA AQUIFER-2023-08-29	9/18/2023
ARF ARR	9/6/2023	FR-23-0907; DOE/LX/07-2471&D2/A1	KENTUCKY DEPARTMENT OF WASTE MANAGEMENT APPROVAL OF THE ADDENDUM TO THE PLANT INDUSTRIAL AREA VAPOR INTRUSION PRELIMINARY RISK ASSESSMENT REPORT (DOE/LX/07-2471&D2/A1) PADUCAH SITE PADUCAH, MCCRACKEN COUNTY, KENTUCKY KY8-890-008-982	KDEP	DOE	INF-RECMGMT-FR-23-0907-KDEP APPROVAL VAPOR INT-2023-09-06	9/18/2023
ARF ARR	8/8/2023	FR-23-0903	KENTUCKY DEPARTMENT OF WASTE MANAGEMENT SUBMITTAL OF COMMENTS TO THE 2022 TRICHLOROETHENE AND TECHNETIUM-99 GROUNDWATER CONTAMINATION IN THE REGIONAL GRAVEL AQUIFER REPORT (FRNP-RPT-0273) PADUCAH SITE PADUCAH, MCCRACKEN COUNTY, KENTUCKY KY8-890-008-982	KDEP	DOE	INF-REGMENT-FR-23-0903-KY COMMENTS GRAV AQUIFER-2023-08-08	8/17/2023
ARF ARR	7/25/2023	PPPO-02-10025130-23; DOE/LX/07-2474&D2	PADUCAH FEDERAL FACILITY AGREEMENT - SIGNED MILESTONE MODIFICATION FOR THE C-400 COMPLEX OPERABLE UNIT DOCUMENTS	DOE	KDEP, USEPA-4	INF-RECMGMT-PPPO-02-10025130-23-FFA MOD C400 DOCS-2023-07-25	8/17/2023
ARF ARR	7/24/2023	PPPO-02-10025088-23; DOE/OR/07-1799&D2	APPENDIX B INFORMATION ASSOCIATED WITH THE LAND USE CONTROL ASSURANCE PLAN FOR THE PADUCAH GASEOUS DIFFUSION PLANT, PADUCAH, KENTUCKY, DOE/OR/07-1799&D2	DOE	KDEP, USEPA-4	INF-RECMGMT-PPPO-02-10025088-23-APP B LUCIP-2023-07-24	8/17/2023
ARF ARR	8/1/2023	PPPO-02-10025039-23	PADUCAH FEDERAL FACILITY AGREEMENT FISCAL YEAR 2023 FUNDING ALLOCATION EVALUATION	DOE	KDEP, USEPA-4	INF-RECMGMT-PPPO-02-10025039-23-FFA FY23 FUNDING-2023-08-01	8/17/2023
ARF ARR	7/17/2023	PPPO-02-10024655-23C; DOE/LX/07-2471&D2/A1	TRANSMITTAL OF THE ADDENDUM TO THE PLANT INDUSTRIAL AREA VAPOR INTRUSION PRELIMINARY RISK ASSESSMENT REPORT, PADUCAH GASEOUS DIFFUSION PLANT, PADUCAH, KENTUCKY, DOE/LX/07-2471&D2/A1	DOE	KDEP, USEPA-4	INF-RECMGMT-PPPO-02-10024655-23C-TRANS VAPOR INT-2023-07-17	8/17/2023
ARF ARR	7/25/2023	FR-23-0896; DOE/LX/07-2471&D2/A1	U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA) REGION 4 ACKNOWLEDGES RECEIPT OF, AND PROVIDES A COMMENT FOR THE DEPARTMENT OF ENERGY'S (DOE'S) ADDENDUM TO THE PLANT INDUSTRIAL AREA VAPOR INTRUSION PRELIMINARY RISK ASSESSMENT REPORT, PADUCAH GASEOUS DIFFUSION PLANT, PADUCAH, KENTUCKY, DOE/LX/07-2471&D2/A1, TRANSMITTAL DATE OF JULY 17, 2023	USEPA-4	DOE	INF-RECMGMT-FR-23-0896-EPA ACK VAPOR INT-2023-07-25	8/17/2023
ARF ARR	7/18/2023	FR-23-0894	DESIGNATION OF INTERIM FEDERAL FACILITIES AGREEMENT MANAGER PADUCAH SITE PADUCAH, MCCRACKEN COUNTY, KENTUCKY KY8-890-008-982	KDEP	DOE	INF-RECMGMT-FR-23-0894-INTERIM FFA MANAGER-2023-07-18	8/17/2023

D-9

Paducah Documents Added to the Administrative Record Reference Files-Third Quarter CY2023

Document Status	Document Date	Document ID	Title	Author Affiliation	To Affiliation	Name	Date Added
ARF ARR	7/17/2023	FR-23-0891, DOE/LX/07-0107&D2/R14/V1	U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA) REGION 4 ACKNOWLEDGES RECEIPT OF, AND ACCEPTS THE DEPARTMENT OF ENERGY'S (DOE'S) METHODS FOR CONDUCTING RISK ASSESSMENTS AND RISK EVALUATIONS AT THE PADUCAH GASEOUS DIFFUSION PLANT PADUCAH, KENTUCKY, VOLUME 1., HUMAN HEALTH, DOE/LX/07-0107&D2/R14/V1, TRANSMITTAL DATE OF JULY 11, 2023	USEPA-4	DOE	INF-RECMGMT-FR-23-0891-EPA ACCEPT RISK ASSESS-2023-07-17	8/17/2023
ARF ARR	7/14/2023	FR-23-0889, DOE/LX/07-2494&D1	APPROVAL OF THE REVISED SOLID WASTE MANAGEMENT UNIT (SWMU) ASSESSMENT REPORT (SAR) FOR SWMU 87 (DOE/LX/07-2494&D1) PADUCAH SITE PADUCAH, MCCRACKEN COUNTY, KENTUCKY KY8-890-008-982	KDEP	DOE	INF-RECMGMT-FR-23-0889-KY APPROVE SAR SWMU 87-2023-07-14	8/17/2023
ARF ARR	7/11/2023	PPPO-02-10024209-23, DOE/LX/07-0107&D2/R14/V1	TRANSMITTAL OF THE METHODS FOR CONDUCTING RISK ASSESSMENTS AND RISK EVALUATIONS AT THE PADUCAH GASEOUS DIFFUSION PLANT PADUCAH, KENTUCKY VOLUME 1. HUMAN HEALTH, DOE/LX/07-0107&D2/R14/V1	DOE	KDEP, USEPA-4	INF-RECMGMT-PPPO-02-10024209-23-TRANS RISK ASSESS EVAL-2023-07-11	7/18/2023
ARF ARR	7/11/2023	PPPO-02-10024130-23C, FRNP-RPT-0273	TRANSMITTAL OF THE TRICHLOROETHENE AND TECHNETIUM-99 GROUNDWATER CONTAMINATION IN THE REGIONAL GRAVEL AQUIFER FOR CALENDAR YEAR 2022 AT THE PADUCAH GASEOUS DIFFUSION PLANT, PADUCAH, KENTUCKY, FRNP-RPT-0273	DOE	KDEP, USEPA-4	INF-RECMGMT-PPPO-02-10024130-23C-CONT GRAVEL AQU CY 2022-2023-07-11	7/18/2023
ARF ARR	7/7/2023	PPPO-02-10024775-23B; DOE/LX/07-2494&D1	C-633 PUMPHOUSE AND COOLING TOWER SLABS AND ASSOCIATED SOILS, SOLID WASTE MANAGEMENT UNIT ASSESSMENT REPORT FOR AREA OF CONCERN 87-HAZARDOUS WASTE MANAGEMENT FACILITY PERMIT NUMBER KY8-890-008-982, AGENCY INTEREST NO. 3059	DOE	KDEP, USEPA-4	INF-RECMGMT-PPPO-02-10024775-23B C-633 PUMPHOUSE SAR AOC 87-2023-07-07	7/17/2023
ARF ARR	6/20/2023	PPPO-02-10024773-23, DOE/LX/07-2474&D2	PADUCAH FEDERAL FACILITY AGREEMENT-SIGNED MILESTONE MODIFICATION FOR THE C-400 COMPLEX OPERABLE UNIT DOCUMENTS	DOE	KDEP, USEPA-4	INF-RECMGMT-PPPO-02-10024773-23-FFA MOD C-400 COM OP UNIT-2023-06-20	7/17/2023

D-10

APPENDIX E

**C-749 URANIUM BURIAL GROUND (SWMU 2)
GROUNDWATER MONITORING WELL DATA**

THIS PAGE INTENTIONALLY LEFT BLANK

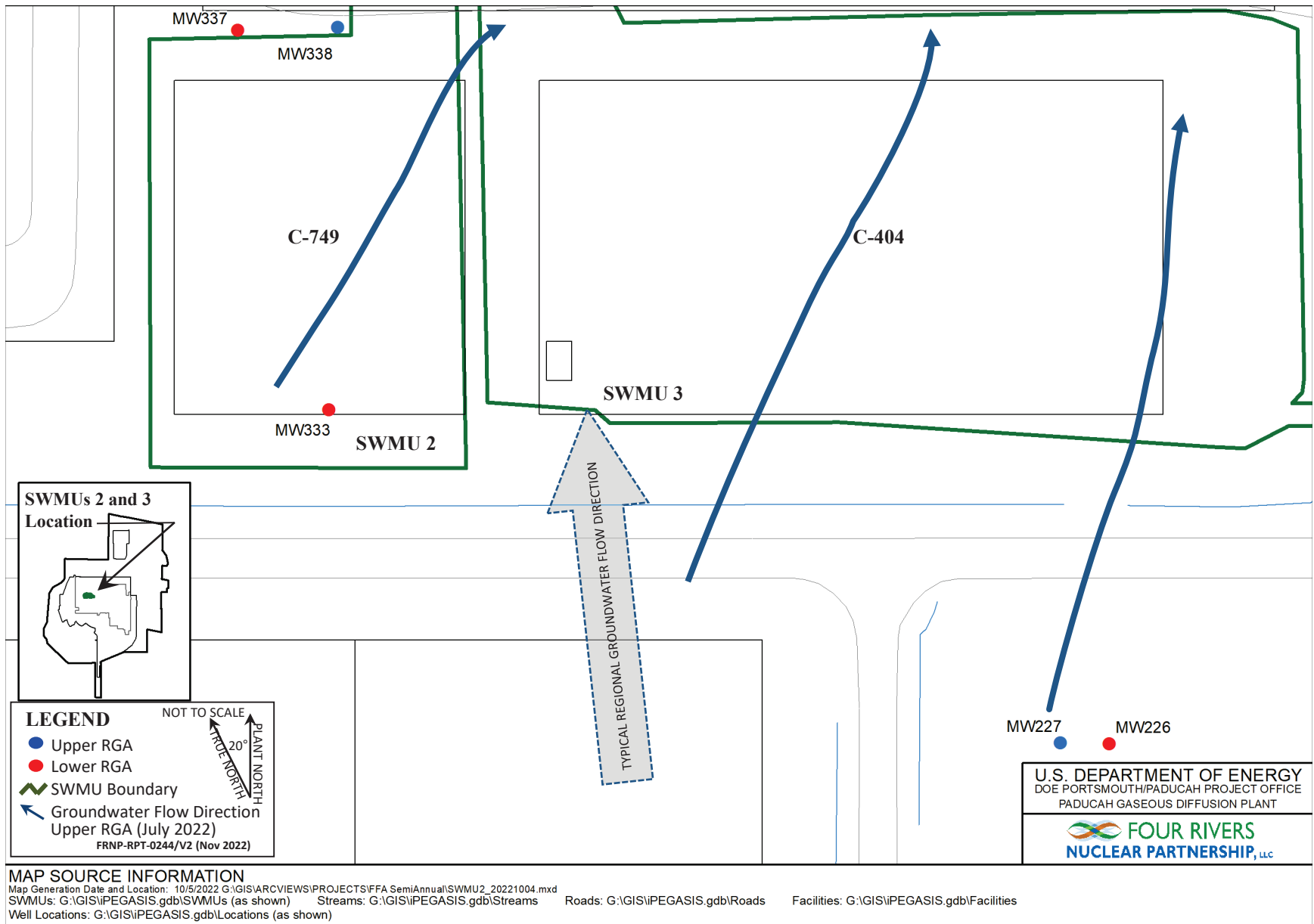
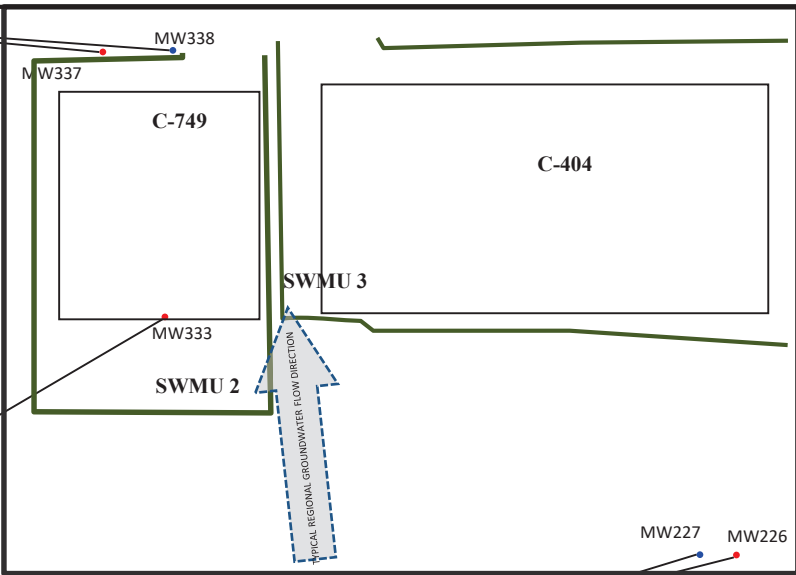
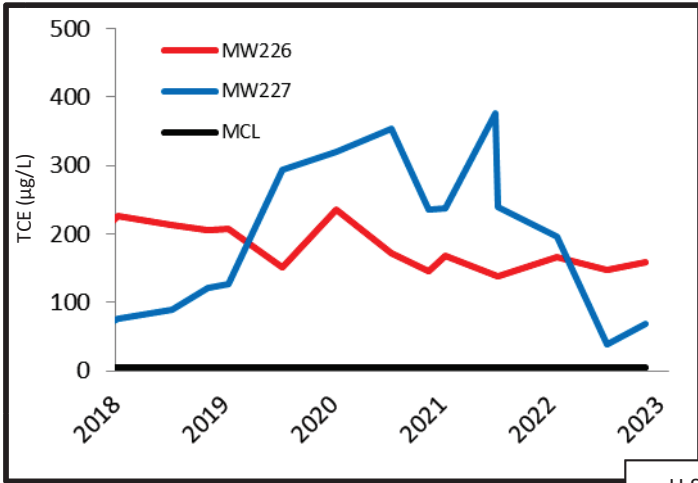
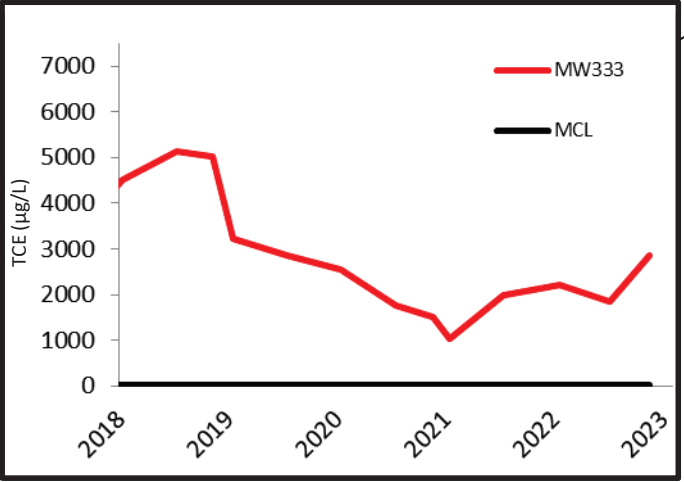
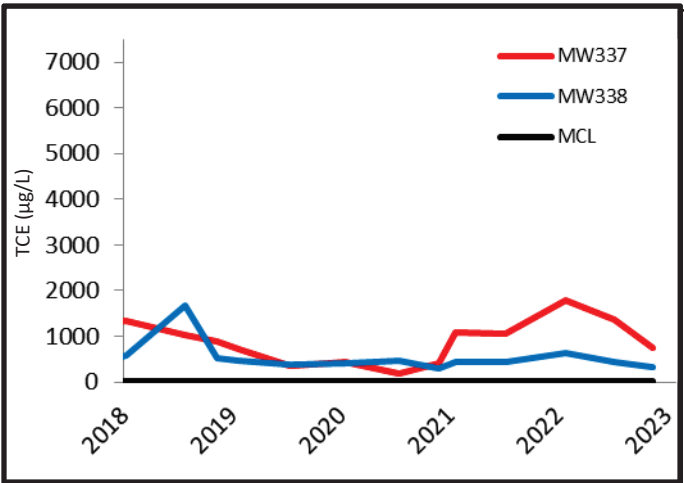
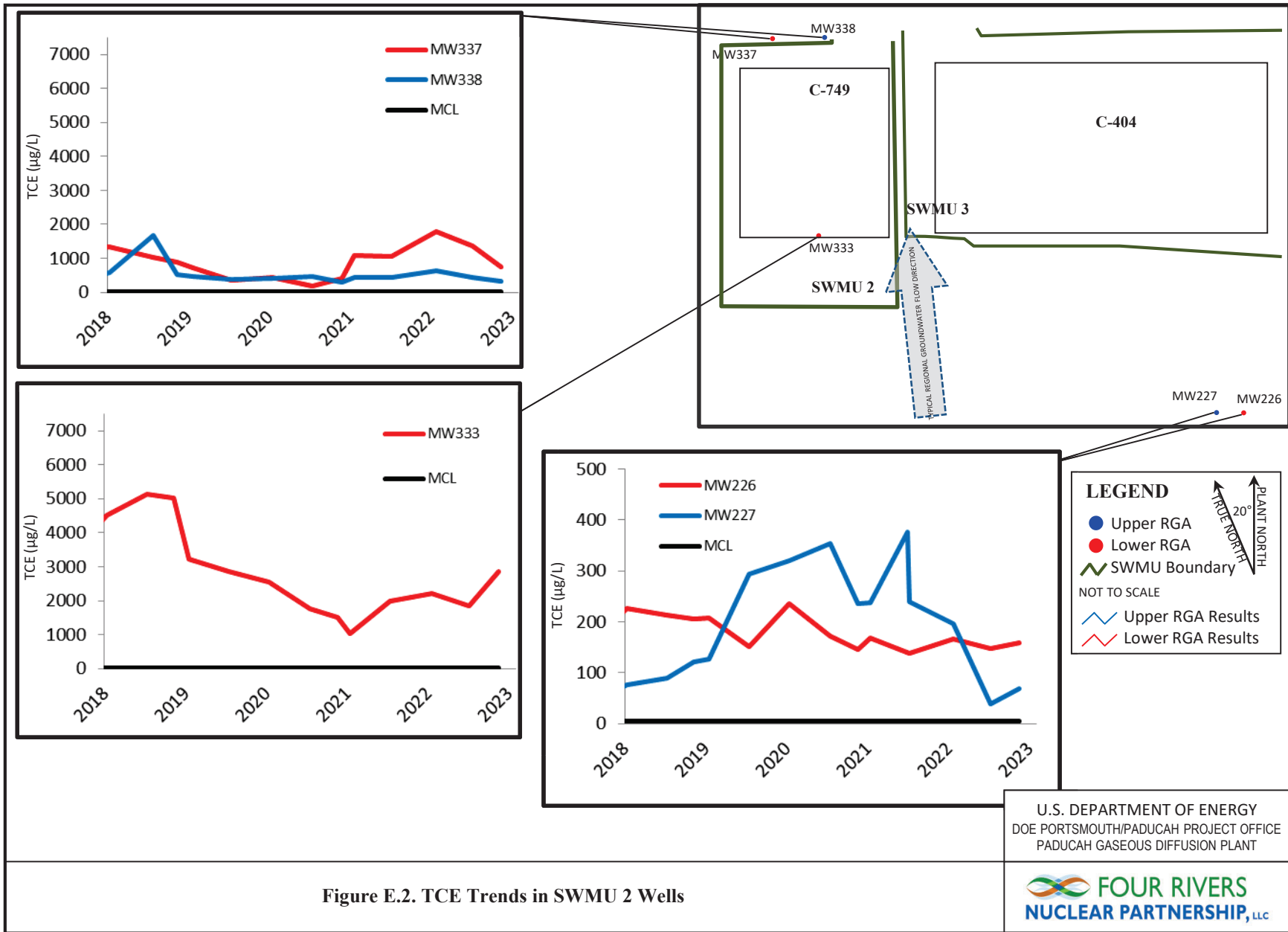


Figure E.1. SWMU 2 Wells Location



LEGEND

- Upper RGA
- Lower RGA
- SWMU Boundary

NOT TO SCALE

- Upper RGA Results
- Lower RGA Results

PLANT NORTH
20°
TRUE NORTH

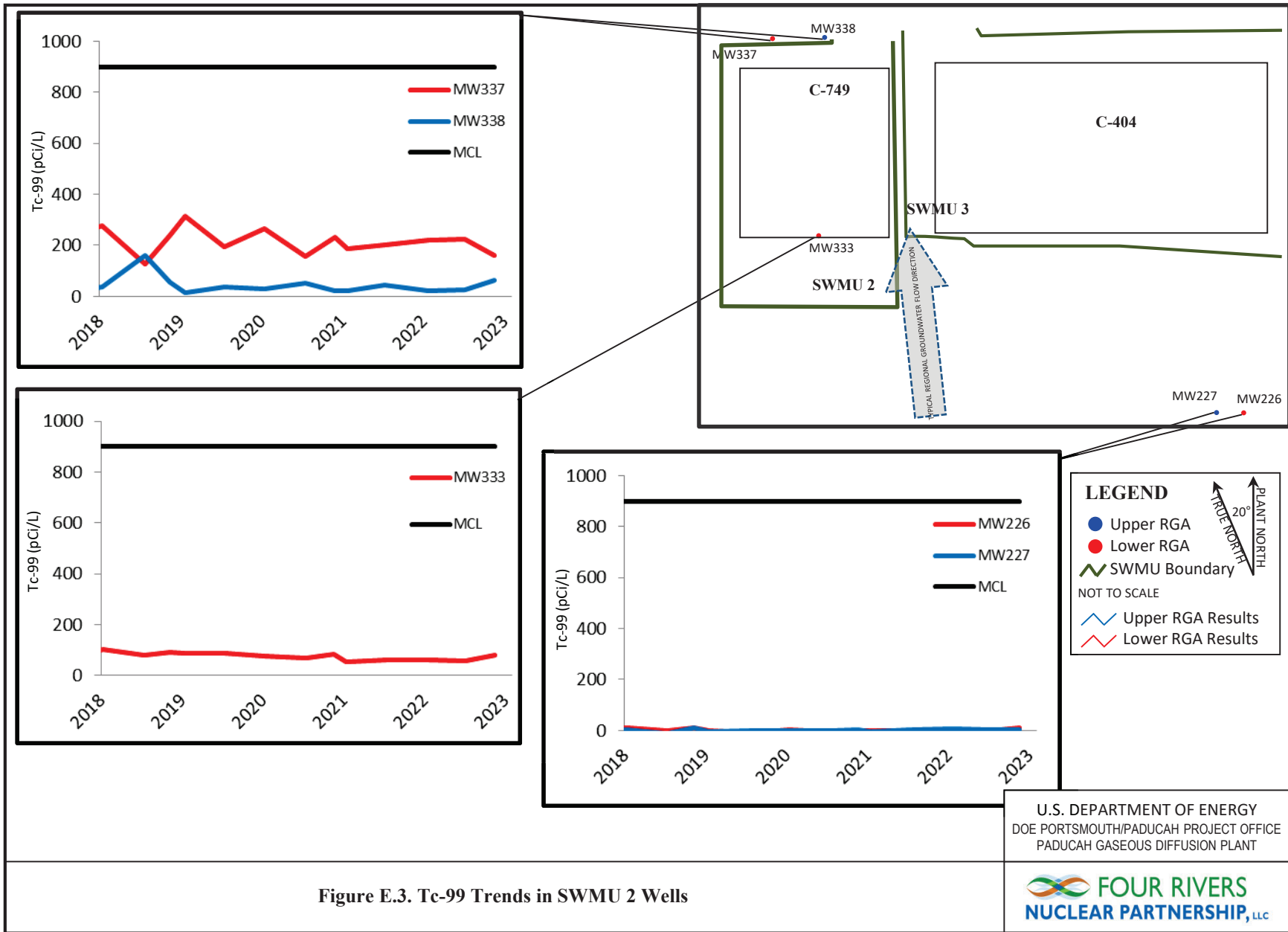


Figure E.3. Tc-99 Trends in SWMU 2 Wells

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



THIS PAGE INTENTIONALLY LEFT BLANK