Savannah River NUCLEAR SOLUTIONS℠

Scoping Summary for the General Separations Area Western Groundwater Operable Unit (U)

SEMS Number: 85

ERD-EN-2005-0127

Final

June 2024

DISCLAIMER

This document was prepared in conjunction with work accomplished under Contract No. DE-AC09-08SR22470 with the U.S. Department of Energy.

This work was prepared under an agreement with and funded by the U.S. Government. Neither the U.S. Government or its employees, nor any of its contractors, subcontractors or their employees, makes any express or implied: 1. warranty or assumes any legal liability for the accuracy, completeness, or for the use or results of such use of any information, product, or process disclosed; or 2. representation that such use or results of such use would not infringe privately owned rights; or 3. endorsement or recommendation of any specifically identified commercial product, process, or service. Any views and opinions of authors expressed in this work do not necessarily state or reflect those of the United States Government, or its contractors, or subcontractors.

Printed in the United States of America

Prepared for
U.S. Department of Energy
and
Savannah River Nuclear Solutions, LLC
Aiken, South Carolina

TABLE OF CONTENTS

Section Page

LIST OF FIGURES iii
LIST OF TABLES iv
LIST OF APPENDICES iv
KEY CHANGES TO THE SCOPING SUMMARY iv
RECORD OF CORE TEAM AGREEMENTS v
1.0 PROJECT PHASE AND STATUS 1
2.0 BACKGROUND 1
3.0 LAND USE 2
4.0 SUBUNITS 3
4.1 Groundwater Subunit 3
4.1.1 Problem Warranting Action 18
4.1.2 Remedial Action Objectives 18
4.1.3 Scope of Problem 19
4.1.4 Likely Response Actions 19
4.1.5 Uncertainties 19
4.2 Surface Water 19
4.2.1 Problem Warranting Action 20
4.2.2 Remedial Action Objectives 20
4.2.3 Surface Water Scope of Problem Warranting Action 20
4.2.4 Surface Water Likely Response Actions 20
4.2.5 Uncertainties 20
5.0 OPERABLE UNIT STRATEGY 21

LIST OF FIGURES

Figure Page

Figure 1. Groundwater Operable Units at the General Separations Area 17
Figure 2. GSA Western Groundwater OU Sample Locations and Well Map 18
Figure 3. Trichloroethylene Results (Max 2022) Upper Three Runs Aquifer 19
Figure 4. Trichloroethylene Results (Max 2023) Upper Three Runs Aquifer 20
Figure 5. Tritium Concentration in the North Plume 21
Figure 6. TCE Concentration Near the Source in the West Plume 22
Figure 7. TCE Concentrations in the Distal Part of the West Plume 23
Figure 8. Nonvolatile Beta and Beta Constituent Concentrations at FGW 005C 24
Figure 9. F-Area Wells around 221-F Canyon 25
Figure 10. Nonvolatile Beta Results (Max 2022) Upper Three Runs Aquifer 26
Figure 11. Nonvolatile Beta Results (Max 2023) Upper Three Runs Aquifer 27
Figure 12. Tritium Results (Max 2022) Upper Three Runs Aquifer 28
Figure 13. Tritium Results (Max 2023) Upper Three Runs Aquifer 28

LIST OF TABLES

Table Page
Table 1. Monitoring Network 29

LIST OF APPENDICES

Appendix Page
A Isotopic Speciation Results for FGW 005C, FGW 022C and FBP 043C A-1
B 2022 and 2023 Monitoring Well Results Data Matrix Table and Field Conditions Key Codes B-1

KEY CHANGES TO THE SCOPING SUMMARY

Section	Description of Change	Rationale for Change
4.1 and 4.2	Revised sections to include results from 2022 and 2023 GW sampling.	These changes update the Scoping Summary to include results from sampling in 2022 and 2023.
Figures	Figures were updated based on the results of 2022 and 2023 GW sampling.	These changes update the Scoping Summary with sampling results from 2022 and 2023.
Appendix B	Data table was updated with the results of 2022 and 2023 GW sampling.	These changes update the Scoping Summary with sampling results from 2022 and 2023.

RECORD OF CORE TEAM AGREEMENTS

Agreement	Meeting
Core Team agreed to increase sample frequency from annual to quarterly for wells FGW005C, FGW022C and FBP 43C. Wells will be sampled for gross alpha and nonvolatile beta. If trigger levels are exceeded (15 pCi/L gross alpha and 50 pCi/L nonvolatile beta), then the appropriate alpha, beta and/or gamma spectroscopy will be performed.	June 2024
Core Team agreed to add a surface water monitoring location on Waterfall Creek to be sampled annually for nitrates, gross alpha, and nonvolatile beta.	June 2024
Core Team agreed to verify the status of sixteen (16) legacy wells near F-Canyon. Due to questionable integrity, the wells that have not been previously abandoned will be abandoned.	June 2024
Core Team agreed to transition to annual sampling for locations FGW-023 and FGW-024.	October 2017
Locations FGW-023 and FGW-024 will be sampled at least 2 more times and results will be discussed in the 2016 Scoping Summary. Continued monitoring of these locations will be evaluated.	September 2015
Technetium-99 will be added to the analyte list for the South plume.	September 2014
Sampling data (one event) for new locations, FGW-023 and FGW-024, will be included in the final Scoping Summary for 2014.	September 2014
At the South plume, the Core Team agreed to move forward with installation of one surface water sample station and one shallow seepline piezometer on a tributary to the west of the Biomass Facility. The need for additional monitoring points will be evaluated based on monitoring results.	August 2013
Sampling of established wells will be performed annually. New monitoring locations added to the OU will be sampled semi-annually until a baseline is established.	August 2013
As documented in the GSA Eastern and Western GW OUs GW Monitoring Optimization White Paper, SRNS-RP-2012-00783, Rev. 1, January 2014, the Core Team agreed to discontinue monitoring at wells FNB-3, FNB-12, FBP-13D, FBP-44D, FBP-46D, FBP-47D, BRR-5D and UTR-7.	August 2013
As documented in the GSA Eastern and Western GW OUs GW Monitoring Optimization White Paper, SRNS-RP-2012-00783, Rev. 1, January 2014, the Core Team agreed to add alpha and beta/gamma speciation to analyte list for well FGW005C.	August 2013
The Core Team recognized the difficulty of installing a new well down gradient of UTR-18R and agreed that a new well is not needed at this time as long as SRS continues to monitor water at the seep in well UTR-18R.	August 2013
Add one monitoring well in the lower aquifer zone down gradient of FGW-012C, if possible.	August 2012
Add one seepline and one surface water monitoring location down gradient of FGW-012C along unnamed tributary, if surface water is present.	August 2012
Data are being collected and reported for future evaluation of VOC degradation as a remedial alternative.	August 2011
The Core Team agreed to include information on wells FBP 44D, 46D, and 47D in the August 2011 Scoping Summary instead of submitting the February 2011 white paper that was agreed to during the June 2010 meeting.	August 2011

RECORD OF CORE TEAM AGREEMENTS (CONTINUED)

Agreement	Meeting
FBP 44D, FBP 46D, and FBP 47D can be dry during periods of lower water table. This could represent a data gap if the UTR 18R seepline piezometer is also dry (monitors the same aquifer zone). UTR 18R typically contains water. Historical data associated with the dry wells will be evaluated with respect to contaminants to determine if modifications to the well network are necessary to define plume extent. The evaluation will be reported in February 2011 as a white paper.	June 2010

1.0 PROJECT PHASE AND STATUS

The *Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI)/Remedial Investigation (RI) Phase 1 Work Plan for the General Separations Area (GSA) Western Groundwater Operable Unit (OU)*, Revision 1.1, was approved by the United States Environmental Protection Agency (USEPA) and by the South Carolina Department of Health and Environmental Control (SCDHEC) on September 9, 2004. A Field Start was achieved for the OU on September 20, 2004.

In 2007, SRS completed establishment of the groundwater (GW) monitoring network. The GSA Western GW OU is currently in a GW monitoring program. The purpose of this Scoping Summary is to present the analytical data obtained in 2022 and 2023 from GW monitoring to the Core Team (i.e., representatives from the United States Department of Energy [USDOE], USEPA, and SCDHEC) to determine if the monitoring network and analytical suite remain appropriate for continued monitoring. In 2022 and 2023, concentrations have remained consistent with results from prior sampling except for nonvolatile beta at FGW 005C. Continued sampling of the GW monitoring is recommended, with an increase in sampling frequency at three wells (FGW 005C, FGW 022C and FBP 43C) to monitor plume movement downgradient and to better understand the trend of nonvolatile beta concentrations at FGW 005C. Overall, except for nonvolatile beta in the western plume, the GW plumes remain stable with respect to concentrations and extent, and surface waters are not above maximum contaminant limits (MCLs).

2.0 BACKGROUND

The GSA is located on a topographic ridge near the center of the SRS. The GSA Western GW OU is in the northwest portion of the GSA on a GW divide. It encompasses the GW beneath approximately (~) 485.6 hectares (ha [1,200 acres {ac}]) in F Area. This OU is bordered to the south by the F-Area Hazardous Waste Management Facility and to the east by the Mixed Waste Management Facility (see Figure 1). Because the OU is located on a GW divide, shallow GW flows toward both Fourmile Branch and Upper Three Runs Creek (UTRC) (see Figure 2).

The GSA Western GW OU underlies many operating facilities and waste units in and around F Area that are potential sources of contamination. Some of these facilities and units have been investigated during previous RCRA RFI/RI characterization work. From these investigations and from review of the existing monitoring well networks, three distinct GW plumes have been identified in the Upper Three Runs Aquifer (UTRA). The plumes are identified by geographic reference as the North plume, the West plume, and the South plume.

Some of the operating facilities in the area are undergoing decontamination and decommissioning and will be brought to closure in the near term. Because other facilities will remain active into the future, in September 2005, the Core Team determined:

- It is not appropriate to achieve a Record of Decision (ROD) on the GSA Western GW OU until all sources of potential contamination are brought to closure (including closure of the F-Area High Level Waste Tanks).

- The most appropriate action at this time is continued GW monitoring to ensure that surface water resources are adequately protected.

- If contamination in the GW is thought to represent a threat to surface water resources, the Core Team will reconvene to determine if early response actions are required.

SRS characterized the nature and extent of GW contamination. The primary GW contaminants are volatile organic compounds (VOCs), radionuclides, and nitrate. Tritium, iodine-129, and trichloroethylene (TCE) are sporadically above MCLs in GW at points of discharge at the seeplines. However, concentrations in adjacent surface water are consistently below MCLs.

3.0 LAND USE

The area encompassed by the GSA Western GW OU is heavily developed with many active industrial facilities. No future residential use of this area is anticipated. Land use of the entire GSA Western GW OU area will be controlled to prevent use of the GW that exceeds

MCLs. The UTRA and Gordon Aquifer (GA) are not used as a drinking water source at SRS.

4.0 SUBUNITS

The GSA Western GW OU includes the following two subunits:

- GW (i.e., North Plume, West Plume, South Plume), including shallow GW discharging to surface at the seeplines, and
- Surface Water.

In September 2005, the Core Team determined that soil contamination from the potential source units will be addressed during closure of the individual waste units and operating facilities.

4.1 GW Subunit

The UTRA is the shallow-most aquifer beneath the GSA Western GW OU and consists of two aquifer zones; the Upper Aquifer Zone (UAZ) and the Lower Aquifer Zone (LAZ). The GA underlies the UTRA and is separated from the UTRA by the Gordon Confining Unit (GCU). Contamination is present only in the UTRA. Previous investigations have demonstrated that within the GSA Western GW OU, the GA is protected by a competent confinement unit (e.g., GCU) and contamination is not migrating into the aquifer.

In 2022 and 2023, the GSA Western GW OU was under a GW monitoring program that consisted of sampling 33 monitoring wells, four shallow sampling points at the seeplines (i.e., seepline piezometers), and four surface water sampling stations (Table 1 and Figure 2). Starting in 2014, sampling of the monitoring network is performed annually for established wells except for the wells associated with the F-Area Retention Basin (281-3F). Wells FRB1, FRB2, FRB3, and FRB4 are sampled semi-annually according to the F-Area Retention Basin ROD. New wells for the GSA Western GW OU are sampled semi-annually until a baseline is established in accordance with Table 1. The results from the

2022 and 2023 monitoring of the well network are discussed below for the North, West, and South plumes. The analytical data for 2022 and 2023 are presented in Appendix B.

Beginning in 2011, all locations in the North and West plumes have been sampled for TCE and degradation products. This is necessary to ensure that sufficient data are available to evaluate natural attenuation as a future remedial action. Cis-1,2-dichloroethylene has been detected in the GW in the West plume in the past; however, concentrations were very low and below the laboratory analytical quantitation limit (i.e., 1 microgram per liter [µg/L]). In 2022, Cis-1,2-dichloroethylene was non-detect (less than detection limit 0.3 µg/L) in all but one well (FBP 43DL [0.34 J µg/L]) in 2022 and two wells (FBP 43DL [0.36 µg/L] and FBP 2A [0.41 µg/L]) in 2023. Vinyl chloride was non-detect in every well in the North and West plumes during 2022 and 2023.

GW contaminants in the UTRA include VOCs, radionuclides, and nitrate. Tritium, TCE, and nonvolatile beta are recognized as the most widespread contaminants in the GW at the OU and thus are mapped each year. Other constituents are co-mingled with these primary contaminants. For example, TCE is the primary chlorinated solvent present, yet the plume typically also contains limited quantities of tetrachloroethylene (PCE) and trichlorofluoromethane (TCFM) co-located with the TCE. Tritium and nonvolatile beta are the most widespread radioactive contaminants; however, other radionuclides, such as iodine-129, strontium-90, and uranium-238, are also co-located within these plumes. Thus, mapping of the primary contaminants is useful to evaluate the distribution and nature of the plumes from year to year.

North Plume 2022

The North plume covers an area of ~20.2 ha (50 ac) on the north side of the F-Area industrial facilities. Within this portion of the OU, the water table and the plume are located completely within the LAZ of the UTRA. GW flow in this aquifer is north toward UTRC and its tributaries. During 2022, GW samples were collected from four wells, two seepline piezometers, and two surface water locations. All locations yielded samples in 2022.

Previous investigations have shown that elevated concentrations of TCE, gross alpha, and nonvolatile beta are present to the east and north-east of the Old F-Area Seepage Basin (OFASB). In 2002, depth discrete samples measured TCE concentrations up to 85 µg/L. Elevated concentrations of gross alpha and nonvolatile beta were also detected. Sample locations from this investigation were shown in the November 2005 Scoping Summary. This area of the plume is likely from sources within the F-Area fence line such as facilities associated with the now decommissioned Naval Fuels and the F Canyon outside facilities located on the east and north sides of the canyon building (221-F).

During the 2022 monitoring period, TCE concentrations were similar to 2021 concentrations and ranged between non-detect and 9.3 µg/L. The maximum concentration in the North plume was detected at well FNB 15 (9.3 µg/L) (Figure 3). At adjacent well FNB 13, TCE was 8.43 µg/L. TCE was only detected at one other location (0.54 J µg/L at UTR-016) in the North plume. Both PCE and TCFM were below the MCL in the North plume.

In addition to VOCs, gross alpha, nonvolatile beta, nitrate, iodine-129, strontium-90, and tritium have been present in the UTRA at levels greater than MCLs. In 2022, concentrations were similar to levels measured in 2021 and only slightly greater than respective MCLs at most locations. The maximum concentration of iodine-129 was measured near the OFASB at well FNB 2, the concentration of iodine-129 was 26.7 picocuries per liter (pCi/L) which was slightly elevated compared to the result in 2021. Iodine-129 was also above the MCL at wells FNB 5, FNB 13 and FNB 15. Tritium concentrations down gradient of the OFASB have been decreasing over the past 18 years and are currently below the MCL as shown in Figure 5. The downward concentration trend since monitoring began in 2000 is indicative of a plume that is shrinking and a tritium source term that is depleted. The maximum concentration of nitrate was similar to last year at 27.1 milligrams per liter (mg/L) (FNB 15). Nitrate was also above the MCL (10 mg/L) at well FNB 13 (15.4 mg/L) and was below the MCL at all other North plume locations in 2022. Nonvolatile beta also exceeded its MCL (50 pCi/L) at FNB 15 (52.2 pCi/L), and FNB 13 (53.3 pCi/L) and strontium-90 exceeded its MCL (8 pCi/L) at FNB 2 (21.5 pCi/L)

and FNB 13 (10.4 pCi/L), downgradient of the OFASB. Gross alpha also exceeded its MCL (15 pCi/L) at one well, FNB 2 (27.7 pCi/L).

In 2022, shallow GW discharging at the seepline was monitored by two seepline piezometers (UTR 6 and UTR 16). Historically, tritium has been detected near or slightly above the MCL at location UTR 16, and iodine-129 has also been sporadically measured above the MCL in the past. During the 2022 sampling at UTR 6 and UTR 16, tritium (1.65 pCi/mL and 0.792 J pCi/mL, respectively) was below the MCL and iodine-129 was non-detect at UTR 6 and detected at UTR 16 at an estimated concentration (1.5 J pCi/L). Levels of tritium and iodine-129 were both similar to what was measured in 2021.

In accordance with the monitoring strategy, surface water samples are also collected near the points of GW discharge in 2022. Samples from surface water stations UTR-003-FOU and UTR-004-FOU had very low results for tritium, with the highest being 1.67 picocuries per milliliter (pCi/mL). Iodine-129 was non-detect at both of the surface water locations.

Overall, the 2022 results were similar to 2021 results. The data continue to indicate that the plume remains stable to decreasing with respect to extent and concentrations. Surface water is not being impacted above MCLs. Continued monitoring is recommended for the North plume. Monitoring results for 2022 are provided in Appendix B.

North Plume 2023

During 2023, GW samples were collected from four wells, two seepline piezometers, and two surface water locations. All locations yielded samples in 2023.

During the 2023 monitoring period, TCE concentrations were similar to 2022 concentrations and ranged between non-detect and 8.98 µg/L. The maximum concentration in the North plume was detected at well FNB 15 (8.98 µg/L) (Figure 4). At adjacent well FNB 13, TCE was 8.61 µg/L. TCE was only detected at one other location (0.78 J µg/L at UTR-016) in the North plume. Both PCE and TCFM were below the MCL in the North plume.

In addition to VOCs, gross alpha, nonvolatile beta, nitrate, iodine-129, strontium-90, and tritium have been present in the UTRA at levels greater than MCLs. In 2023, concentrations were similar to levels measured in 2022 and only slightly greater than respective MCLs at most locations. The maximum concentration of iodine-129 was measured near the OFASB at well FNB 2, where the concentration of iodine-129 was 19.5 pCi/L, which was slightly less compared to the result in 2022. Iodine-129 was also above the MCL at wells FNB 13 and FNB 15. Tritium concentrations down gradient of the OFASB have been decreasing over the past 18 years and are currently below the MCL as shown in Figure 5. The downward concentration trend since monitoring began in 2000 is indicative of a plume that is shrinking and a tritium source term that is depleted. The maximum concentration of nitrate was similar to the previous year at 20.6 mg/L (FNB 15). Nitrate was also above the MCL (10 mg/L) at well FNB 13 (15.3 mg/L) and was below the MCL at all other North plume locations in 2023. Nonvolatile beta also exceeded its MCL (50 pCi/L) at FNB 15 (52.4 pCi/L), FNB 13 (72.5 pCi/L), and FNB 2 (52.2 pCi/L), and strontium-90 exceeded its MCL (8 pCi/L) at FNB 13 (12.3 pi/L) and FNB 2 (22.1 pCi/L), downgradient of the OFASB. Gross alpha also exceeded its MCL (15 pCi/L) at one well, FNB 2 (20.7 pCi/L).

In 2023, shallow GW discharging at the seepline was monitored by two seepline piezometers (UTR 6 and UTR 16). Historically, tritium has been detected near or slightly above the MCL at location UTR 16, and iodine-129 has also been sporadically measured above the MCL in the past. During the 2023 sampling at UTR 6 and UTR 16, tritium (1.4 pCi/mL and 2.74 pCi/mL, respectively) was below the MCL and iodine-129 was non-detect at UTR 16. The result for iodine-129 at UTR 6 (2.59 J pCi/L) was flagged with EPA qualifier code “1” and was rejected due to “compound identification criteria not being met”. Levels of tritium and iodine-129 were both similar to what was measured in 2022.

In accordance with the monitoring strategy, surface water samples were also collected near the points of GW discharge in 2023. Samples from surface water stations UTR 003 and UTR 004 were both non-detect for iodine-129 and had very low results for tritium, with the highest being 1.59 picocuries per milliliter (pCi/mL).

Overall, the 2023 results were similar to 2022 results. The data continue to indicate that the North plume remains stable to decreasing with respect to extent and concentrations. Surface water is not being impacted above MCLs. Continued monitoring is recommended for the North plume. Monitoring results for 2023 are provided in Appendix B.

West Plume 2022

The West plume occupies ~26.3 ha (65 ac) on the western side of F Area. The plume is located within both the UAZ and LAZ of the UTRA. GW flow in this area is generally west toward UTRC. During 2022, GW samples were obtained from all 12 wells. At the seepline, a sample was collected from piezometer UTR 18R, but surface water station UTR 005 was dry and unable to be sampled. Sampling results from the monitoring network are included in Appendix B.

Overall, the West plume is comprised primarily of VOCs (PCE, TCE, and TCFM), nitrates, and gross alpha/nonvolatile beta constituents. In 2022, the data show MCL exceedances for the following: TCE, TCFM, nitrates, gross alpha, nonvolatile beta, iodine-129, radium-226, radium-228, strontium-90, tritium, uranium-233/234, and uranium-238. VOCs and nitrates are the most widespread contaminants for the West plume. VOCs are present beneath the F-Area Burning/Rubble Pits (FBRP) (231-R, 231-1F, and 231-2F) and up gradient of the FBRP toward the F-Area facilities. The most prevalent VOCs are TCE and TCFM. The highest concentrations of TCE are located at the northwest edge of the F-Area facilities at wells FGW 003C, FGW 005C, FGW 022C, and FBP 43DL. In 2022, the maximum concentrations of TCE and TCFM were located at well FBP 43DL (17.9 µg/L and 19.9 µg/L, respectively). TCE concentrations in this part of the plume (wells FGW 003C, FGW 005C, FGW 022C, and FBP 43DL) have been stable to decreasing over time (Figure 6), with the exception of FGW 003C, which increased from 2015 to 2018. Since 2018, FGW 003C has shown variable TCE concentrations between samples while still showing an overall decreasing trend up to 2022.

In 2022, TCE concentrations remained steady at 6.12 µg/L in the distal part of the plume (Figure 7). PCE concentrations were slightly less than the previous year's results (2021

maximum result of 6.55 µg/L). In 2022, TCFM exceeded the MCL at well FBP 10D (12.2 µg/L) but was below the MCL at downgradient wells FBP 2A (3.2 µg/L) and FBP 6D (3.94 µg/L).

The maximum concentrations of nitrates, gross alpha, and nonvolatile beta are also present adjacent to the F-Area facilities and the F-Area Inactive Process Sewer Line (FIPSL) at LAZ wells FGW 005C and FGW 022C. In 2022, the maximum concentration of nitrates (59 mg/L), gross alpha (1,390 pCi/L) and nonvolatile beta (970,000 pCi/L) all occurred at well FGW 005C. The nitrate and gross alpha concentrations are both within the historical range of concentrations at FGW 005C, but the nonvolatile beta concentration has increased since 2020 as shown in Figure 8. Additional discussion of nonvolatile beta in the LAZ is provided below in the section *Supplemental Information for the West Plume*.

With respect to gross alpha detected in groundwater samples from FGW 005C, the specific isotopes associated with the elevated gross alpha were uranium-233/234 (378 pCi/L) and uranium-238 (1,400 pCi/L) in 2022. The beta emitting isotopes present at FGW005C, in addition to strontium-90 (571,000 pCi/L), are primarily radium-228 (25.5 pCi/L), radium-226 (16.6 pCi/L) and technetium-99 (694 pCi/L). The results of isotopic speciation for FGW 005C, FGW 022C and FBP 043C are included in Appendix A.

Nonvolatile beta at FGW 022C decreased from 2021 (437 pCi/L) to 2022 (170 pCi/L) indicating nonvolatile beta at FGW 005C has not impacted GW downgradient at FGW 022C. Historically at the West plume, the concentrations of gross alpha and nonvolatile beta attenuate rapidly with distance away from the F-Area facilities. As shown in Figure 10, the nonvolatile beta plume terminates approximately half-way between the F-Area fence line and the wetlands of UTRC. SRS will continue to monitor nonvolatile beta at FGW 005C and downgradient monitoring locations to ensure migration of contaminants poses no threat to surface water.

Since 2006, PCE, TCE, and TCFM have been detected in GW near the seepline at piezometer UTR 18R; however, surface water samples collected at UTR-005-FOU have historically been non-detect for VOCs. In 2022, all VOCs were non-detect in GW near the

seepline at UTR 018R. UTR 018R is located at the base of a slope in an area of localized GW seeps. At this area, the rate of GW discharge is so low that standing water is not present year-round. Also, the seepline sample point (UTR 18R) is ~182.9 meters (600 feet) from UTRC, and GW discharged to the surface typically seeps back into the ground or evaporates before reaching the creek. Downgradient of the seep piezometer, the concentration of all constituents has historically been below the MCL at surface water location UTR 005. In 2022, a sample was unable to be collected at UTR 005 because it was dry.

Overall, 2022 data continue to indicate that the plumes remain stable with respect to extent and concentrations with the exception of nonvolatile beta at FGW 005C. Both the VOC and nonvolatile beta plumes terminate prior to discharging at seeps to UTRC. When surface water is present at UTR 005-FOU it is not expected to be impacted above MCLs in that concentrations at seepline piezometer UTR 18R upgradient of UTR 005-FOU are below MCLs. Continued monitoring is recommended for the West plume. Monitoring results for 2022 are provided in Appendix B.

West Plume 2023

During 2023, GW samples were obtained from all 12 wells. Surface water station UTR-005-FOU and seepline piezometer UTR 18R were both dry during 2023. The primary constituents of the West plume in 2023 were VOCs (PCE, TCE, and TCFM), nitrates, and gross alpha/nonvolatile beta constituents. In 2023, the data show MCL exceedances for the following: PCE, TCE, TCFM, nitrates, gross alpha, nonvolatile beta, iodine-129, radium-226, radium-228, strontium-90, tritium, uranium-233/234, and uranium-238. VOCs and nitrates are the most widespread contaminants for the West plume. Nonvolatile beta and strontium-90 continued to be elevated at FGW 005C but did decrease from 2022. Results will be discussed in more detail below.

The highest concentrations of TCE are located at the northwest edge of the F-Area facilities at wells FGW 003C, FGW 005C, FGW 022C, FBP 43DL and FBP 43C. In 2023, the maximum concentrations of TCE and TCFM were located at well FBP 43DL (17.9 µg/L

and 19.1 µg/L, respectively). TCE concentrations in this part of the plume (wells FGW 003C, FGW 005C, FGW 022C, and FBP 43DL) have been stable to decreasing over time (Figure 6), with the exception of FGW 003C which increased from 2016 to 2018 and since then has shown variable concentrations between samples, while still showing an overall decreasing trend through 2023.

In 2023, TCE concentrations increased slightly to 9.69 µg/L in the distal part of the plume (Figure 7). PCE concentrations were slightly less than last year's results (2022 maximum result of 5.94 µg/L). In 2023, TCFM exceeded the MCL at well FBP 10D (8.52 µg/L) but was below the MCL at FBP 2A (2.99 µg/L) and FBP 6D (4.7 µg/L).

The maximum concentrations of nitrates, gross alpha, and nonvolatile beta are also present adjacent to the F-Area facilities and the FIPSL at LAZ wells FGW 005C and FGW 022C. In 2023, the maximum concentration of nitrates (53.8 mg/L), gross alpha (1,530 pCi/L) and nonvolatile beta (665,000 pCi/L) all occurred at well FGW 005C. The nitrate and gross alpha concentrations are similar to results from 2022. While still elevated, nonvolatile beta was lower than concentrations measured in 2022 (938,000 pCi/L). Additional discussion of nonvolatile beta in the LAZ is provided below in the section *Supplemental Information for the West Plume*.

With respect to gross alpha detected in groundwater samples from FGW 005C, the specific isotopes associated with the elevated gross alpha were uranium-233/234 (359 pCi/L) and uranium-238 (1,240 pCi/L) in 2023. The beta emitting isotopes present at FGW005C, in addition to strontium-90 (522,000 pCi/L), are primarily radium-228 (130 pCi/L), radium-226 (1,210 pCi/L) and technetium-99 (592 pCi/L). The results of isotopic speciation for FGW 005C, FGW 022C and FBP 043C are included in Appendix A.

Nonvolatile beta at FGW 022C increased from 2022 (170 pCi/L) to 2023 (558 pCi/L); the 2023 result is within the range of historical concentrations over the past 15 years indicating nonvolatile beta at upgradient FGW 005C has not impacted groundwater at FGW 022C. At the West plume, historically the concentrations of gross alpha and nonvolatile beta attenuate rapidly with distance away from the F-Area facilities. As shown in Figure 11,

the nonvolatile beta plume terminates approximately half-way between the F-Area fence line and the wetlands of UTRC. SRS will continue to monitor nonvolatile beta at FGW 005C and downgradient monitoring locations to ensure migration of contaminants poses no threat to surface water.

Since 2006, PCE, TCE, and TCFM have been detected in GW near the seepline at piezometer UTR 18R; however, surface water samples collected at UTR-005-FOU have historically been non-detect for VOCs. In 2023, surface water station UTR-005-FOU and seepline piezometer UTR 18R were both dry.

Overall, 2023 data continue to indicate that the plumes remain stable with respect to extent and concentrations with the exception of nonvolatile beta at FGW 005C. Both the VOC and nonvolatile beta plumes terminate prior to discharging at seeps to UTRC. When surface water is present at UTR-005-FOU it is not expected to be impacted above MCLs in that concentrations at seepline piezometer UTR 18R upgradient of UTR-005-FOU have historically been below MCLs. Continued monitoring is recommended for the West plume. Monitoring results for 2023 are provided in Appendix B.

Supplemental Information for the West Plume

This supplemental section provides additional discussion on the increased levels of nonvolatile beta observed in the LAZ at the West Plume and a proposed management plan.

Nonvolatile beta and gross alpha were known to exist in the LAZ since at least 1996 when detected during characterization work upgradient of the FBRP. Nonvolatile beta has been present at FGW 005C since it was first sampled in 2006 (Figure 8). The concentrations from 2006 to 2013 were variable, ranging from 62.5 pCi/L to 2,540 pCi/L. Starting in 2013, the concentration of nonvolatile beta started to slowly increase at FGW 005C until 2021 when the concentration increased to 7,766 pCi/L. With this increase in nonvolatile beta, procedural changes were required to collect the next sample in 2022. The well was sampled in October 2022 and the concentrations of nonvolatile beta and strontium-90 were 938,000 pCi/L and 571,000 pCi/L, respectively. In 2023, levels of nonvolatile beta and

strontium-90 had decreased to 665,000 pCi/L and 522,000 pCi/L, respectively. Strontium-90 is the primary contributor to nonvolatile beta at FGW 005C.

The source of the increase in nonvolatile beta and strontium-90 in the groundwater at FGW 005C is currently unknown. There are few wells built to current standards inside the F-Area Facilities (Figure 9), making it difficult to assess groundwater conditions inside the facility boundary. Potential sources include the nearby process sewer lines (i.e., FIPSL and Active F-Area Process Sewer Line), the 772-F Laboratory underground waste tanks, and the 221-F Canyon and ancillary facilities. From process knowledge, all of these facilities are known to contain or have contained radioactive material or waste that included strontium-90. While all of these facilities are potential sources, considering groundwater flow direction from the potential sources and the depth of the contamination (detected in the deeper LAZ at well FGW 005C), it is more likely that the 221-F Canyon and ancillary facilities are the source rather than the other potential sources. The F Area Operable Unit (SEMS Number 88) which contains combined spills from 221-F and associated ancillary facilities is scheduled for a characterization field start in year 2035.

In late 1979, a series of wells were installed around the perimeter of the 221-F Canyon Building. All of the wells except for FCA 19D were installed prior to the establishment of standardized specifications for well construction and installation. FCA 19D was installed in 1988 in accordance with well construction standards at that time. The older wells were installed with either 4-inch or 2-inch diameter galvanized steel casing and screen. Some of the wells are screened on top of the base mat which extends out beyond the perimeter of the Canyon Building. These wells provided samples of perched water if present. Two wells slope toward the Canyon at 30 to 45 degrees from vertical. The remaining wells are located outside the Canyon building base mat and extend vertically into the water table.

In 1990, the wells around the 221-F Canyon were evaluated for effectiveness as monitoring points. Several issues were cited regarding the integrity of the wells to provide representative samples. Because of insufficient information in the construction records, it is not known how the borehole annular space was sealed around the well casing. Consequently, the wells could provide a conduit for water movement from the surface to

the subsurface along the outside of the well casing. This would be a concern particularly in areas where past or future releases occur outside of the Canyon Building. All of the wells also have issues with turbidity. It is not known if filter pack sand was placed along the screen interval to reduce turbidity levels. The water table wells are screened in a low permeability zone that yields little water. The base of the well screens penetrates less than 5 feet into the top of the water table. Elevated turbidity and lack of flow into the wells during purging hinders the collection of representative samples. Finally, it is not known if any sumps were installed below the screen zone. If sumps are not present, the short portion of the screen set into the water table may be clogged with sediment. In view of the multiple issues associated with the 1970s era wells around the Canyon Building, it is recommended that these wells be abandoned. Newer well FCA 19D may provide useful samples and should remain in place.

SRS does not believe the increase in strontium-90 at FGW 005C poses an immediate threat to surface water at this time. Groundwater velocity in the LAZ is approximately 40 feet/year. The distance between FGW 005C and the Upper Three Runs seepline is approximately 3,600 feet. Assuming no retardation of strontium-90, it should take approximately 90 years for the plume at FGW 005C to reach the seepline of Upper Three Runs at UTR 018R and UTR 005 FOU. This leaves a lot of time and distance for the contamination to be attenuated naturally. The mobility of strontium-90 in groundwater increases as pH decreases below a pH of 5.5. The mobility of strontium-90 in the groundwater from the source area to well FGW 005C is enhanced by the acidic nature (pH around 3.5) of the plume. However, the Santee formation present in the LAZ contains calcareous sediments that naturally increases aquifer pH downgradient of FGW005C (pH over 7 at FBP 43C) providing ideal conditions for the natural attenuation of dissolved strontium-90. Natural attenuation of the alpha and beta constituents in the West Plume has been monitored for over 15 years and natural geochemical conditions favorable for attenuation are expected to maintain into the future.

Work Plan characterization performed in 2004 - 2005 demonstrated that the West Plume was not discharging contamination to the tributary of UTR located north of the plume

(informally named Waterfall Creek [Figure 11]) as no constituents associated with the plume were detected in surface water. The flow path of the West Plume is to the west-southwest as shown in Figure 11. However, due to the increased levels of nonvolatile beta and strontium-90 in the LAZ, SRS proposes to evaluate Waterfall Creek for a suitable surface water monitoring location and establish a station for quarterly sample collection. The sample station would be located on an area of Waterfall Creek at a low enough elevation to receive discharge from the LAZ to ensure there is no impact from the West plume to surface water. This is consistent with the OU strategy.

SRS also recommends increasing the sampling frequency from annually to quarterly at FGW 005C and two wells downgradient (FGW 022C and FBP 43C). These three LAZ wells will be sampled for gross alpha, nonvolatile beta and speciated for alpha and beta constituents to monitor plume movement downgradient and better understand the trend of nonvolatile beta and strontium-90 concentrations at FGW 005C.

South Plume 2022

The South plume covers an area of ~22.3 ha (55 ac) on the southwest corner of F Area. The plume is located within the UAZ and LAZ of the UTRA. GW flow in this portion of the OU is generally southwest toward UTRC. During 2022, GW samples were collected from 13 wells. Analytical results are presented in Appendix B.

The South plume consists primarily of tritium and nonvolatile beta constituents. VOCs are not present at the South plume. Specific radionuclides that have been present above MCLs include iodine-129, strontium-90, radium-226, radium-228, technetium-99, and tritium. SRS believes these constituents are sourced from the FIPSL, which is included in the F-Area Hazardous Waste Management Post Closure RCRA Permit Renewal Application. Potential sources of contamination include historic releases along sections of the FIPSL. A collapsed section of the vitrified clay FIPSL is known to exist down gradient of the Tank Farm. The collapsed section is shown in Figure 2. Potential sampling locations near the collapsed section of the FIPSL are not accessible at this time due to interferences with power lines and active steam lines.

In 2022, nonvolatile beta was the most widespread contaminant detected. It was present at levels exceeding 50 pCi/L in 6 of the 13 wells with concentrations ranging from 74.4 pCi/L (BRR 6C) to 469 pCi/L (FTF 28). Historically, the elevated concentrations have been detected in the area of wells FTF 28 and FSL 5D near the FIPSL collapsed section, and also at down gradient well FGW 12C.

In addition to nonvolatile beta activity, a few wells near the FIPSL have exceeded the MCL for iodine-129, gross alpha, nitrate, strontium-90, radium-226, radium-228, technetium-99, and tritium. In 2022, all of these analytes except for gross alpha and radium-228 exceeded the MCL in at least one well with maximum concentrations as follows: iodine-129 (89.5 pCi/L), nitrate (20.1 mg/L), radium-226 (14.1 pCi/L), strontium-90 (44.3 pCi/L), technetium-99 (1110 pCi/L), and tritium (118 pCi/mL). The maximum concentrations occurred in wells along or near the FIPSL, except for nitrate and tritium which was highest at well FGW 12C.

Overall, the 2022 data was similar to results from 2021. Monitoring results from 2022 are provided in Appendix B.

During the August 2012 Core Team meeting, uncertainties associated with the extent of the South plume in the LAZ and the possibility of the South plume discharging to surface water were discussed. The Core Team recommended investigating a tributary to UTRC that is located down gradient of well FGW 012C for potential sampling locations. The potential locations investigated included one surface water sample station, one seepline piezometer location, and a location for one new GW monitoring well, if needed. A field walk-down was held on April 16, 2013, with representatives from USEPA, SCDHEC, and SRS. Based on the walk-down, GW discharge to the tributary was determined to begin approximately half-way down its length with the tributary being discharged to the floodplain swamp of UTRC. The upper reaches of the tributary were dry.

In September 2014, SRS installed a surface water sample station (FGW 024) near the discharge point to the swamp and in August 2014, a shallow piezometer (FGW 023) to sample GW discharging to the surface. Nitrate-nitrite, gross alpha, radium-226, radium-

228, nonvolatile beta, technetium-99, and tritium have all been detected, but all concentrations were very low and below MCLs. The 2022 sampling results continue to indicate the South plume is not impacting this tributary to UTRC. The results are presented in Appendix B.

South Plume 2023

During 2023, GW samples were collected from 13 wells, one seepline piezometer and one surface water location. Analytical results are presented in Appendix B.

In 2023, nonvolatile beta was the most widespread contaminant detected. It was present at levels exceeding 50 pCi/L in six of the 13 wells with concentrations ranging from 50.5 pCi/L (FSL 11C) to 406 pCi/L (FTF 28). Historically, the elevated concentrations have been detected in the area of wells FTF 28 and FSL 5D near the FIPSL collapsed section, and also at down gradient well FGW 12C.

In addition to nonvolatile beta activity, a few wells near the FIPSL have exceeded the MCL for iodine-129, gross alpha, nitrate, strontium-90, radium-226, radium-228, technetium-99, and tritium. In 2023, all of these analytes except gross alpha and radium-228 exceeded the MCL in at least one well with maximum concentrations as follows: iodine-129 (41.1 pCi/L), nitrate (20.7 mg/L), radium-226 (10.3 pCi/L), strontium-90 (21.1 pCi/L), technetium-99 (1090 pCi/L), and tritium (124 pCi/mL). The maximum concentrations occurred in wells along or near the FIPSL, except for nitrate and tritium which was highest at well FGW 12C.

Overall, the 2023 data was similar to results from 2022. Monitoring results from 2023 are provided in Appendix B.

In 2023, shallow GW discharging at the surface was monitored by one seepline piezometer (FGW 023). Historically, nitrate-nitrite, gross alpha, radium-226, radium-228, nonvolatile beta, technetium-99, and tritium have all been detected, but all concentrations were very low and below MCLs. The 2023 sampling results continue to show low concentrations below MCLs in the shallow groundwater at seepline piezometer FGW 023.

Surface water samples were also collected near the point of GW discharge at FGW 024 in 2023. Nitrate-nitrite, gross alpha, nonvolatile beta, radium-228, technetium-99, tritium, uranium-233/234 and uranium 238 were all detected but at very low concentrations below the MCL. The 2023 sampling results continue to indicate the South plume is not impacting this tributary to UTRC. The results are presented in Appendix B.

F-Area Retention Basin

Previously, the Core Team decided to incorporate the monitoring and reporting for the F-Area Retention Basin (FRB) (281-3F) in this report. The GSA Western GW OU monitoring network includes sampling at four wells for the FRB (FRB 1 through FRB 4). The monitoring network is shown on Figure 2 and details are provided in Table 1. The wells are sampled semi-annually according to the FRB OU ROD. Samples were collected from all wells during the second and fourth quarter in 2022 and 2023. All results during 2022 and 2023 were below MCLs at the FRB except for radium-226 (12.4 pCi/L) at FRB 3 during the second quarter in 2022. The following sample during the fourth quarter of 2022 resulted in a concentration of 2.95 pCi/L radium-226. Both results from sampling performed in 2023 were non-detect for radium-226 at FRB 3. The analytical data are presented in Appendix B.

4.1.1 Problem Warranting Action

- VOCs, nitrate, and radionuclides in the UTRA are present at levels that exceed the respective MCLs.
- VOCs and radionuclides have been present in GW at the seepline at levels above the MCLs.

4.1.2 Remedial Action Objectives

- Ensure that contaminants in GW do not impact surface water at levels that exceed MCLs.
- Prevent human exposure to contaminants in GW at levels that exceed MCLs.

4.1.3 Scope of Problem

- GW contaminants in the UTRA include VOCs, radionuclides, and nitrate. Tritium, TCE, and nonvolatile beta are recognized as the most widespread contaminants in the GW at the OU. Figures 3, 10, and 12 show the distribution of these contaminants in the UTRA during 2022. Figures 4, 11 and 13 show the distribution of these contaminants in the UTRA during 2023.

4.1.4 Likely Response Actions

- Continue monitoring the GW in the UTRA and at the seepline on an annual frequency.

4.1.5 Uncertainties

- There is some uncertainty regarding the potential sources of shallow GW contamination due to the number of operating facilities and waste units within the boundaries of the GSA Western GW OU. Individually and collectively, these facilities and waste sites have contaminated the shallow aquifer that underlies this GW OU. The closure of the F-Area facilities will manage the uncertainties associated with residual sources. The uncertainty regarding source areas will ultimately be addressed by the F-Area OU remedial investigation (prior to Area Closure). Until then, the impact of the combined sources on GW will be tracked by continued GW monitoring in the GSA Western GW OU. The well network for each plume area, sampling frequency, and specific analyte lists are summarized in Table 1.

4.2 Surface Water

Shallow GW within the OU discharges to surface water at the seeplines of UTRC and Fourmile Branch. The Phase 1 Work Plan specified that if GW contamination was detected at the seeplines above the MCLs, then surface water quality in the stream(s) would be evaluated. Four surface water sample locations are used to monitor water quality in the GW monitoring plan (see Figure 2). In June 2010, the Core Team agreed to sample the surface water at the same frequency as the GW.

Characterization and monitoring well data show that GW contamination exists above MCLs beneath the seepline at a few locations within the OU. At the North and West plumes, GW at the seepline has exceeded MCLs for tritium, strontium-90, iodine-129, and VOCs in the past. However, 2022 and 2023 sample results for surface water in the streams have demonstrated that contaminant levels are below MCLs in the tributaries to UTRC.

4.2.1 Problem Warranting Action

- No problems warranting action have been identified for surface water at the OU.

4.2.2 Remedial Action Objectives

- To date there were no MCL exceedances in surface water; therefore, remedial action objectives are not applicable at this time.

4.2.3 Surface Water Scope of Problem Warranting Action

The GSA Western GW OU contains three distinct areas of GW contamination. Since routine monitoring started in 2005, two of these plumes, the North plume and the West plume, have been above MCLs in GW near the discharge zone to the seeplines. However, GW at the seepline in the North plume and the West plume was below the MCLs for all constituents in 2022 and 2023. Historically, confirmation sampling of the surface water has demonstrated that contaminant levels have been and continue to be below MCLs in the tributaries to UTRC.

4.2.4 Surface Water Likely Response Actions

- Monitoring of surface water per the schedule in Table 1.

4.2.5 Uncertainties

- It is uncertain if surface water of tributaries to UTRC will be impacted by GW discharging from the North and West plumes. Historically, at some of the seepline locations contaminants have been detected above the MCL in GW. However, the associated streams continue to remain below MCLs for all contaminants. As more data is obtained, trends will be developed as necessary. This uncertainty is managed by

monitoring surface water in the tributaries to UTRC. Sample locations and analytes are summarized in Table 1.

5.0 Operable Unit Strategy

- SRS will sample the monitoring network annually for contaminants of concern until there is a decision to modify the frequency. New monitoring locations (GW and surface water) added to the GSA Western Groundwater OU will be sampled semi-annually until a baseline is established. Evaluation will be based on data trends. This information is reported in an annual update to this Scoping Summary.
- SRS will convene the Core Team annually (or as necessary) to review data; re-evaluate the well network, sampling frequency, and analyte list; assess the effectiveness of the OU logic; and decide if the monitoring strategy is still appropriate or if changes are required (including the need for immediate action).
- SRS will notify the Core Team promptly if monitoring data indicate a problem that requires immediate attention.

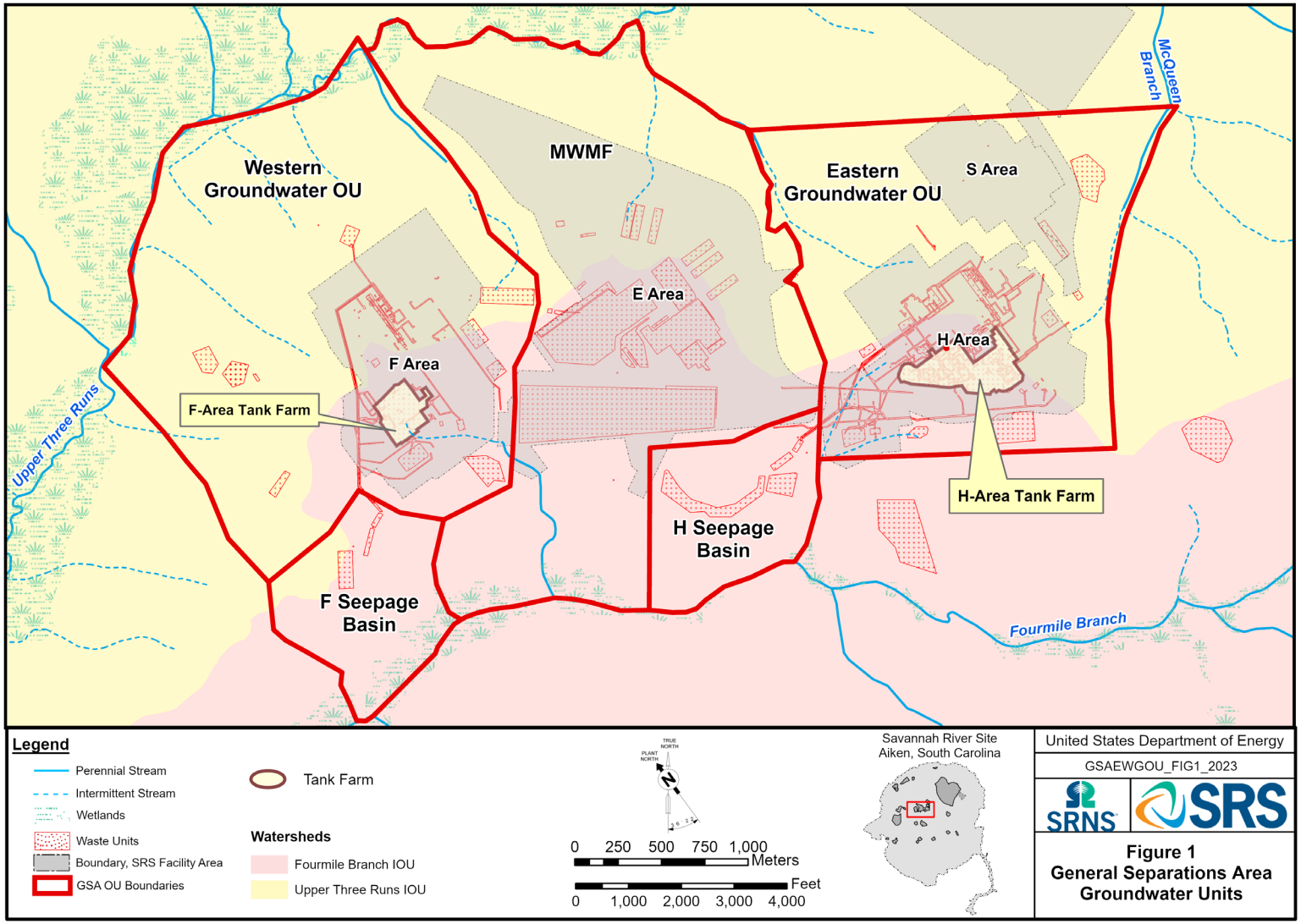


Figure 1. Groundwater Operable Units at the General Separations Area

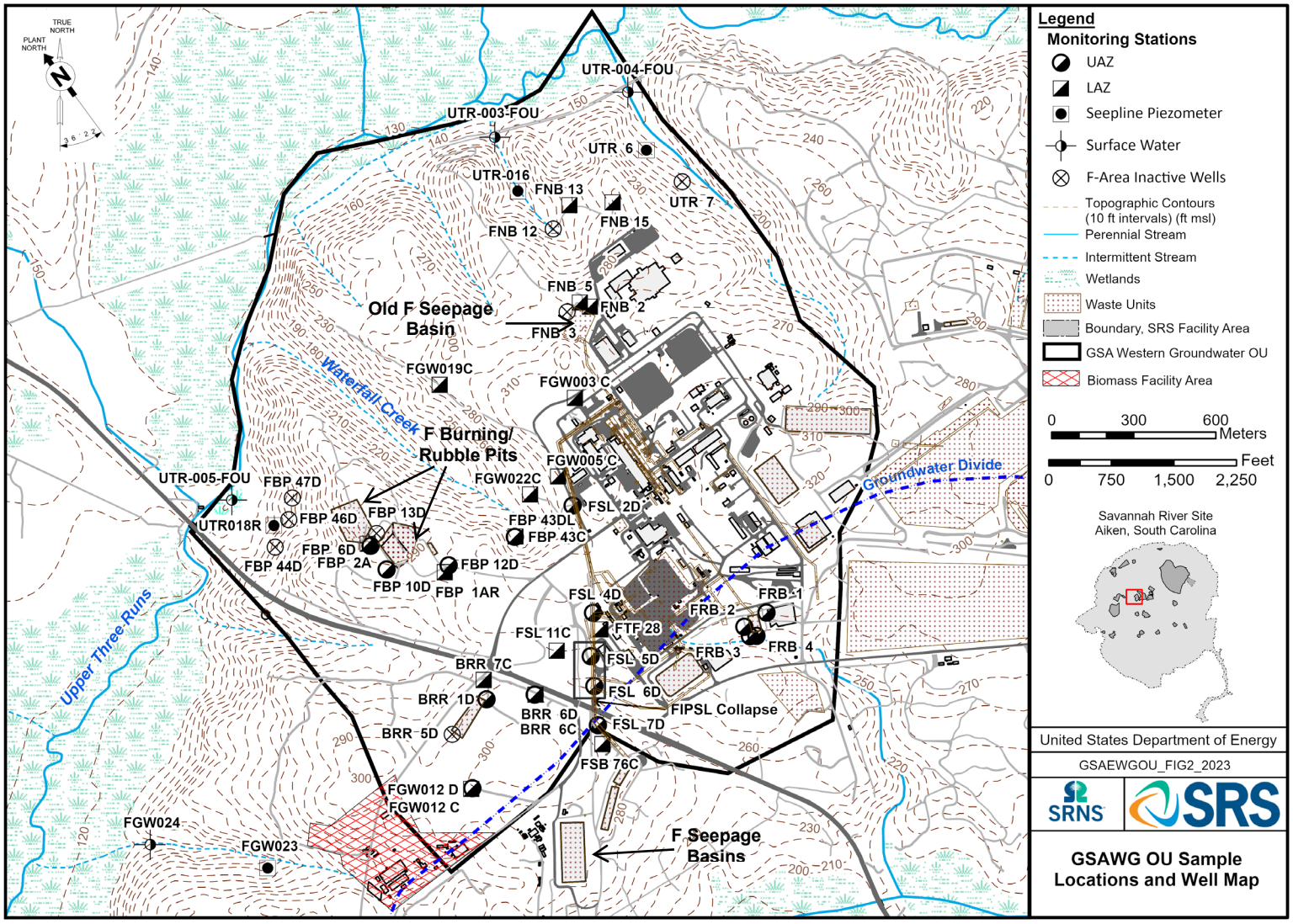


Figure 2. GSA Western Groundwater OU Sample Locations and Well Map

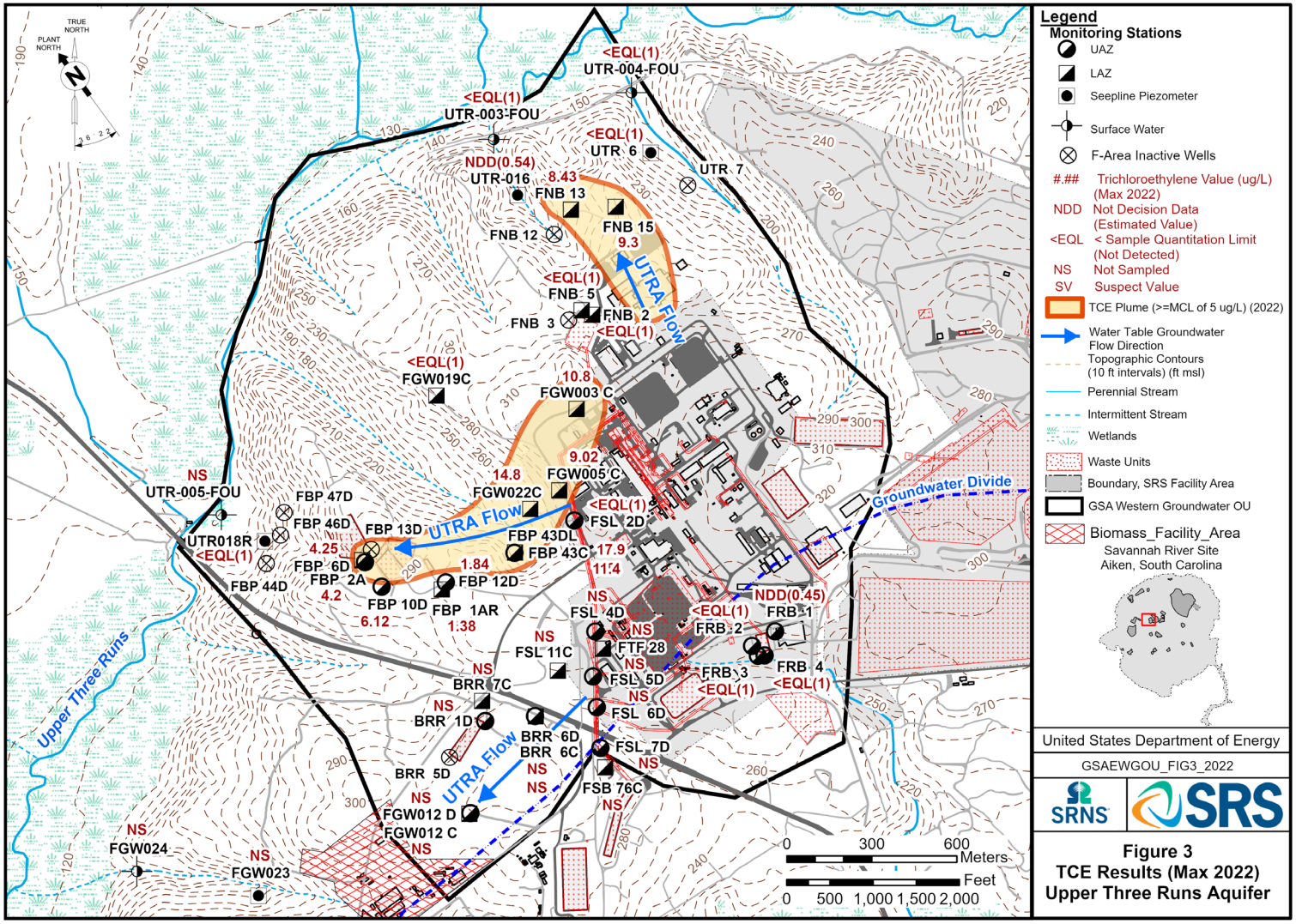


Figure 3. Trichloroethylene Results (Max 2022) Upper Three Runs Aquifer

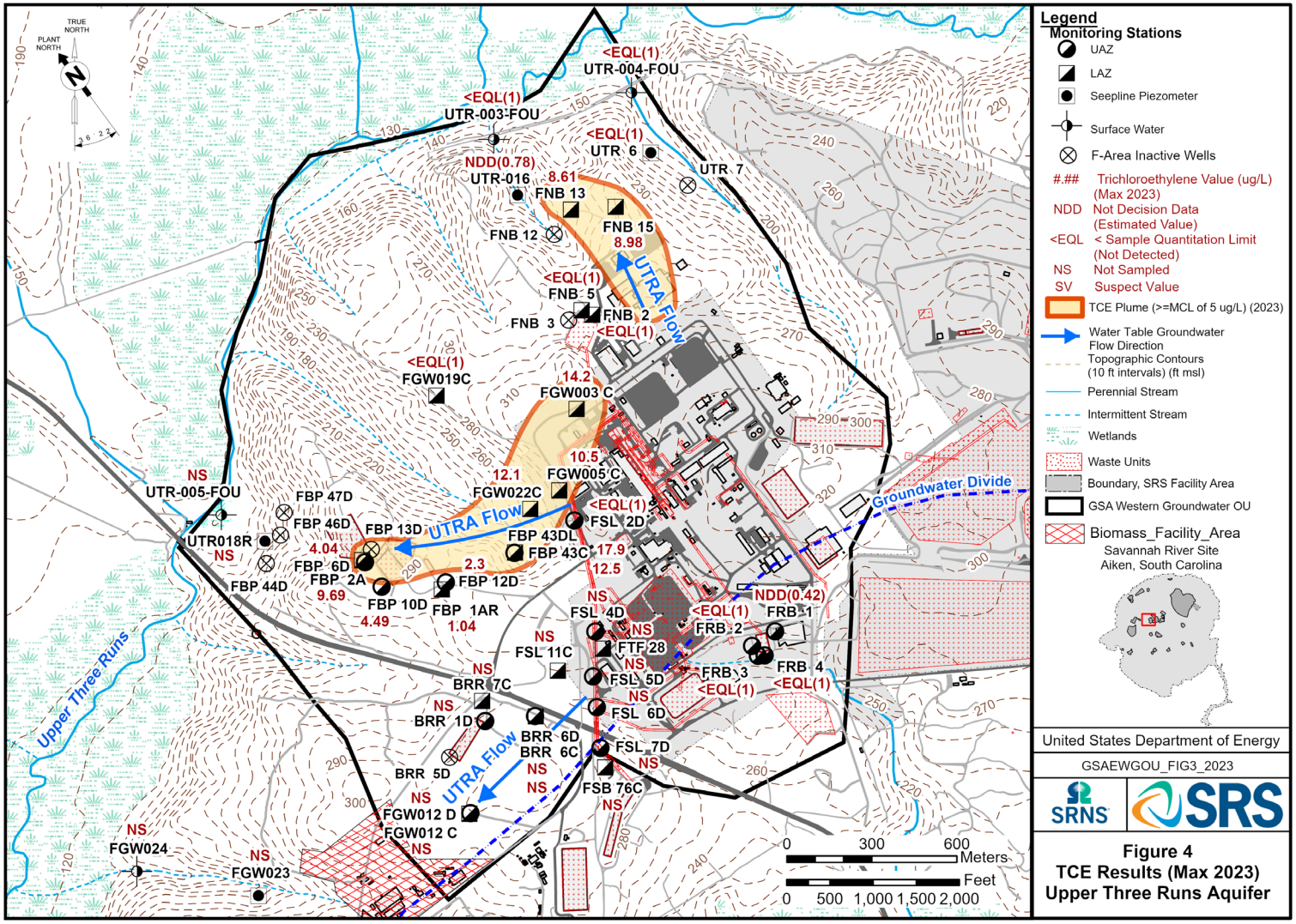


Figure 4. Trichloroethylene Results (Max 2023) Upper Three Runs Aquifer

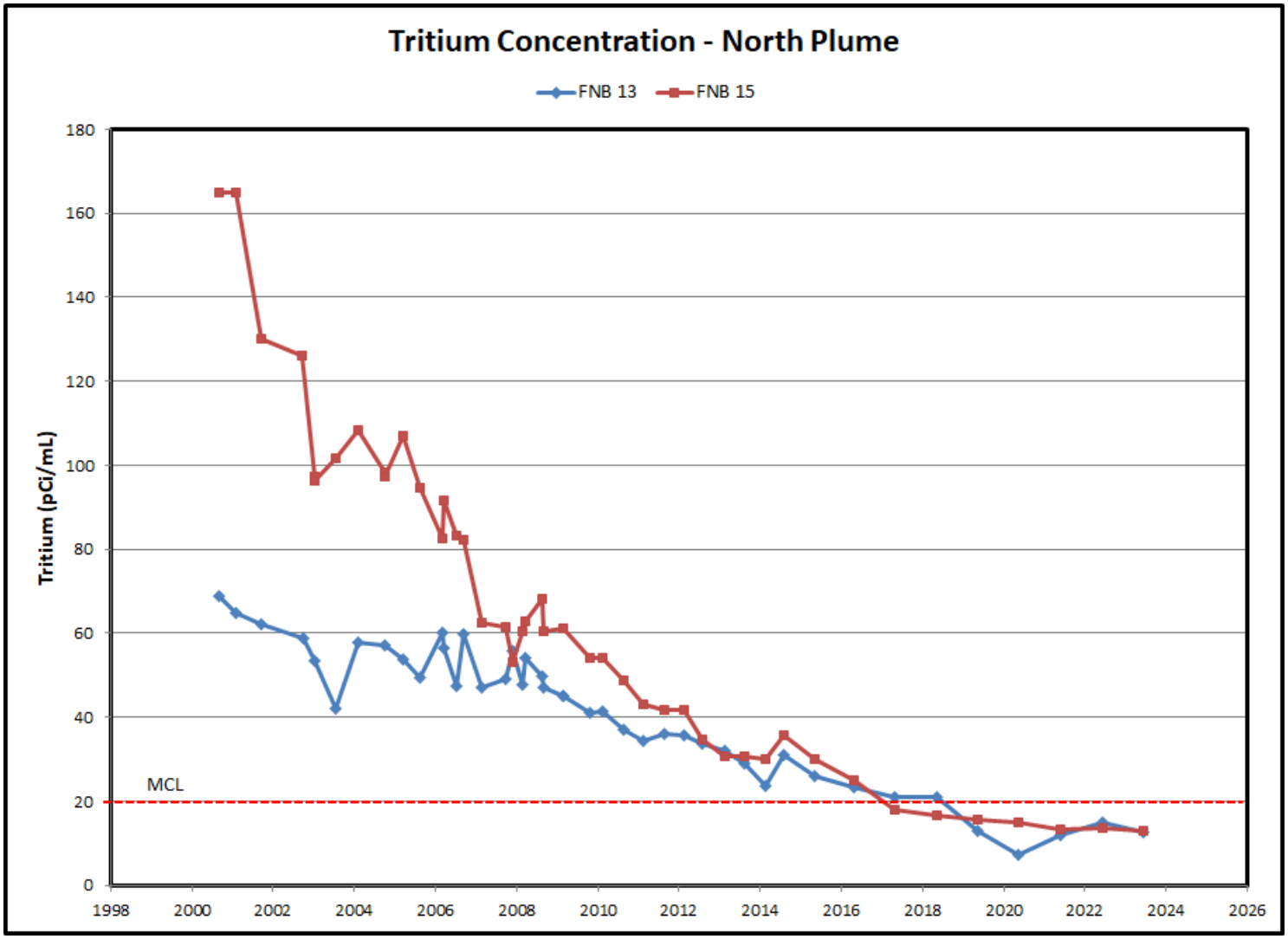


Figure 5. Tritium Concentration in the North Plume

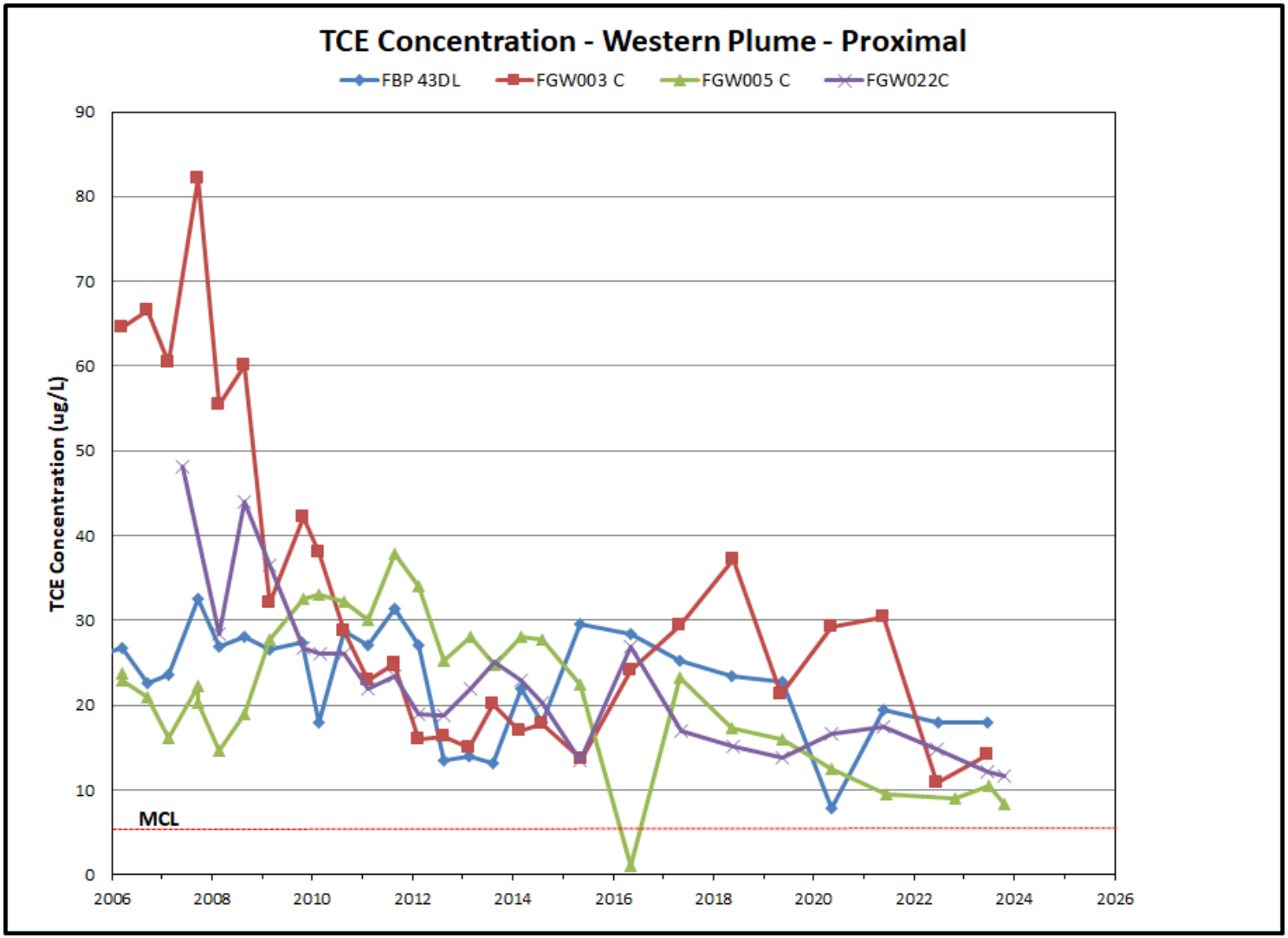


Figure 6. TCE Concentration Near the Source in the West Plume

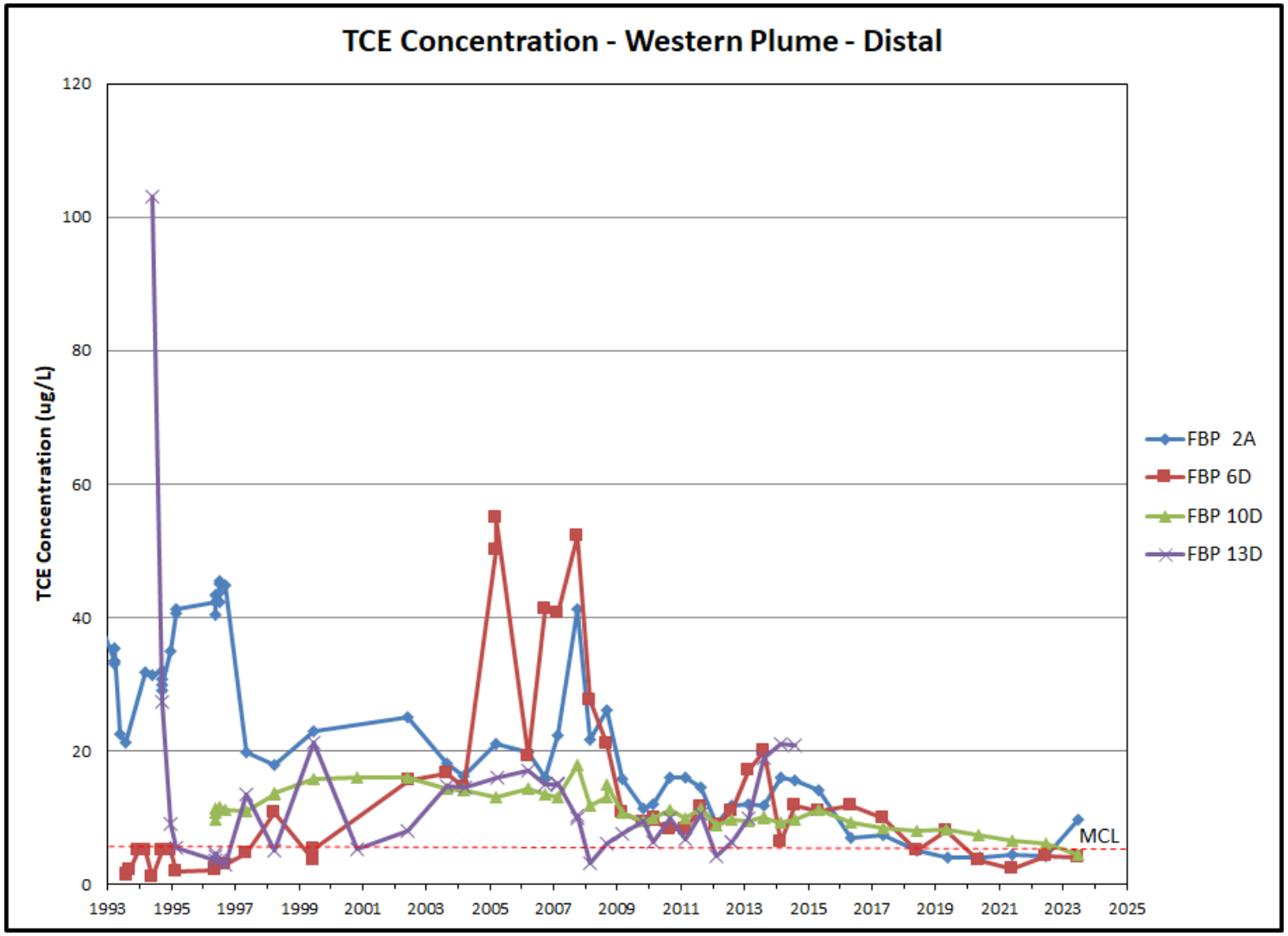


Figure 7. TCE Concentrations in the Distal Part of the West Plume

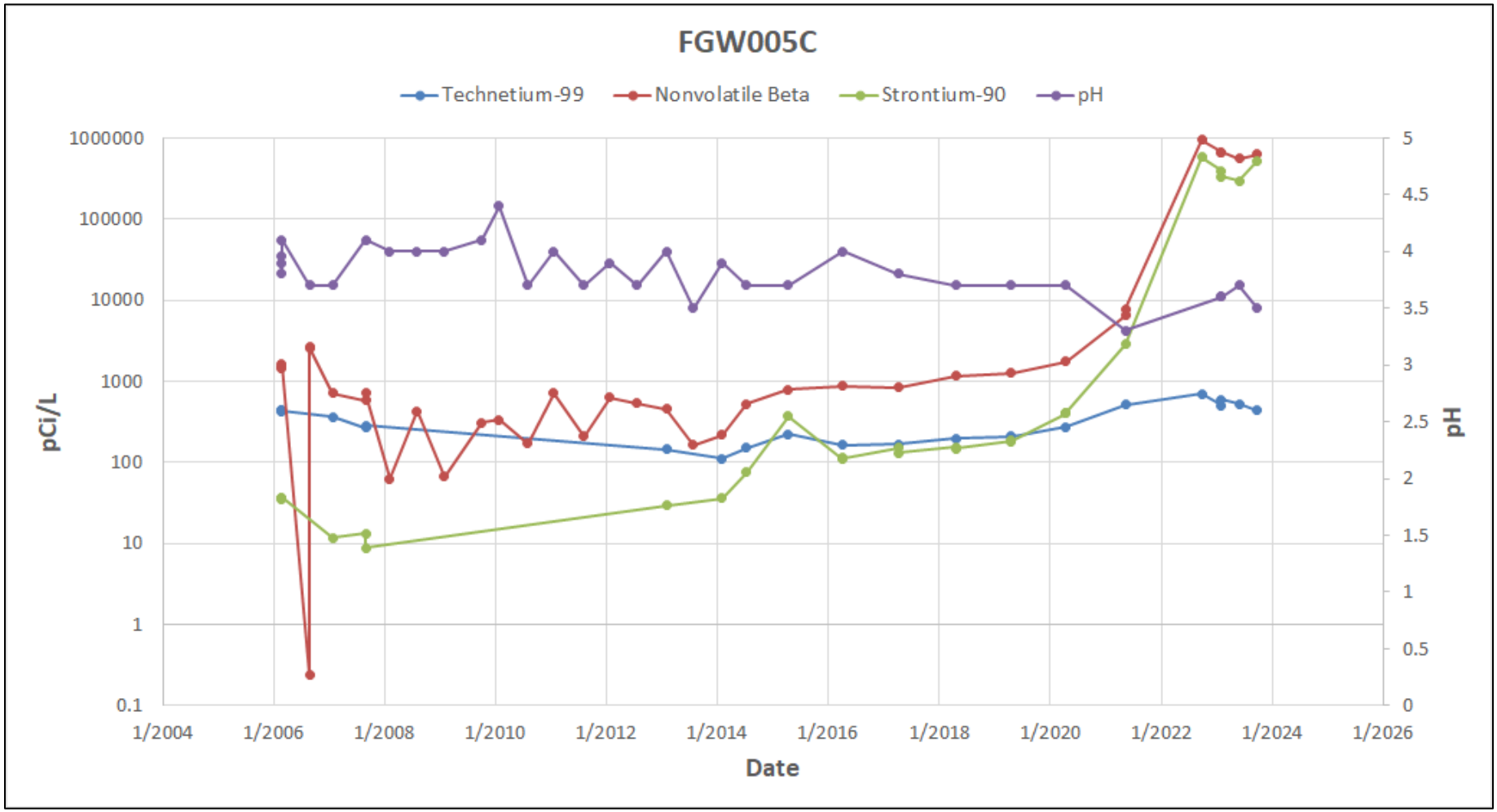


Figure 8. Nonvolatile Beta and Beta Constituent Concentrations at FGW 005C

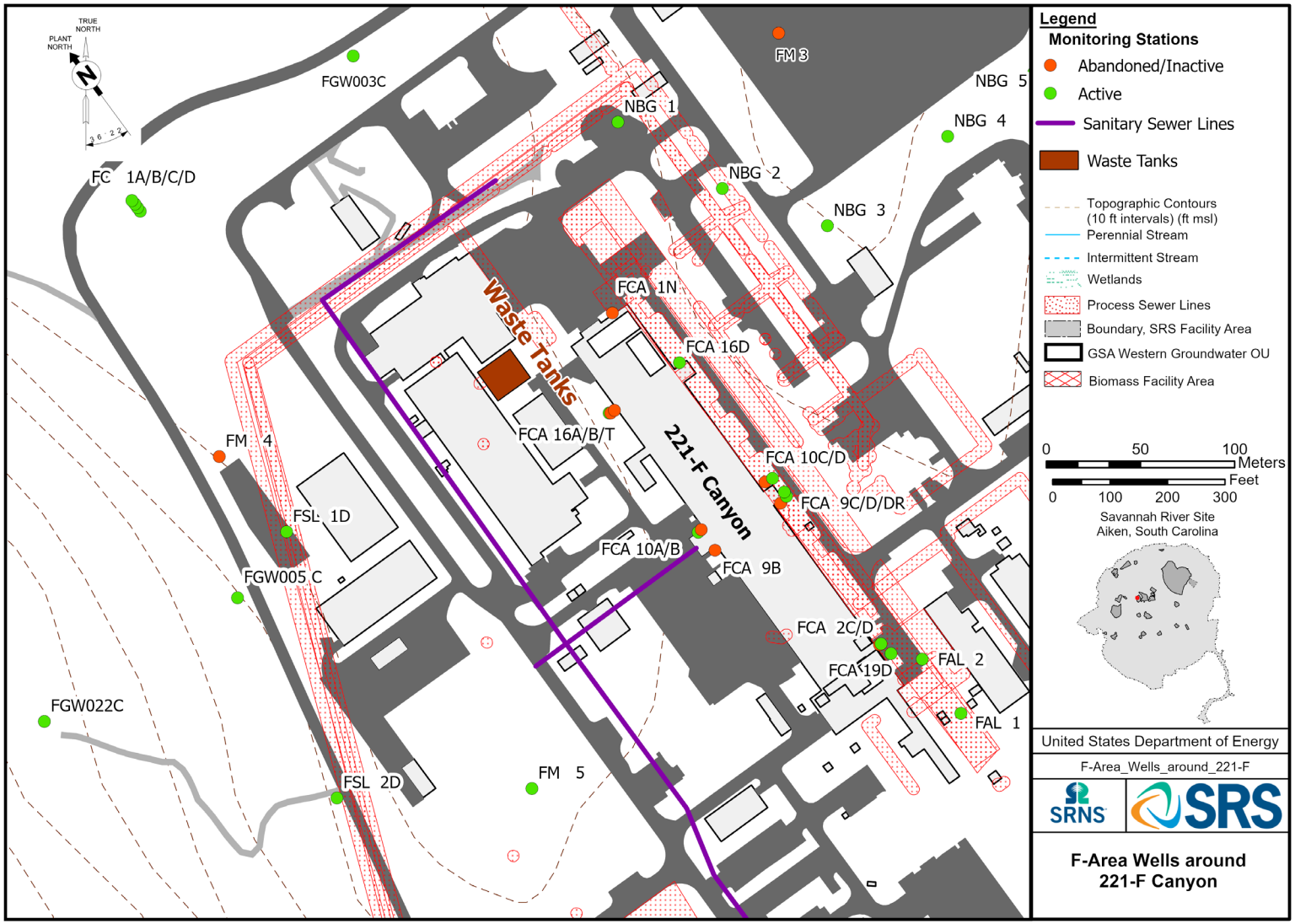


Figure 9. F-Area Wells around 221-F Canyon

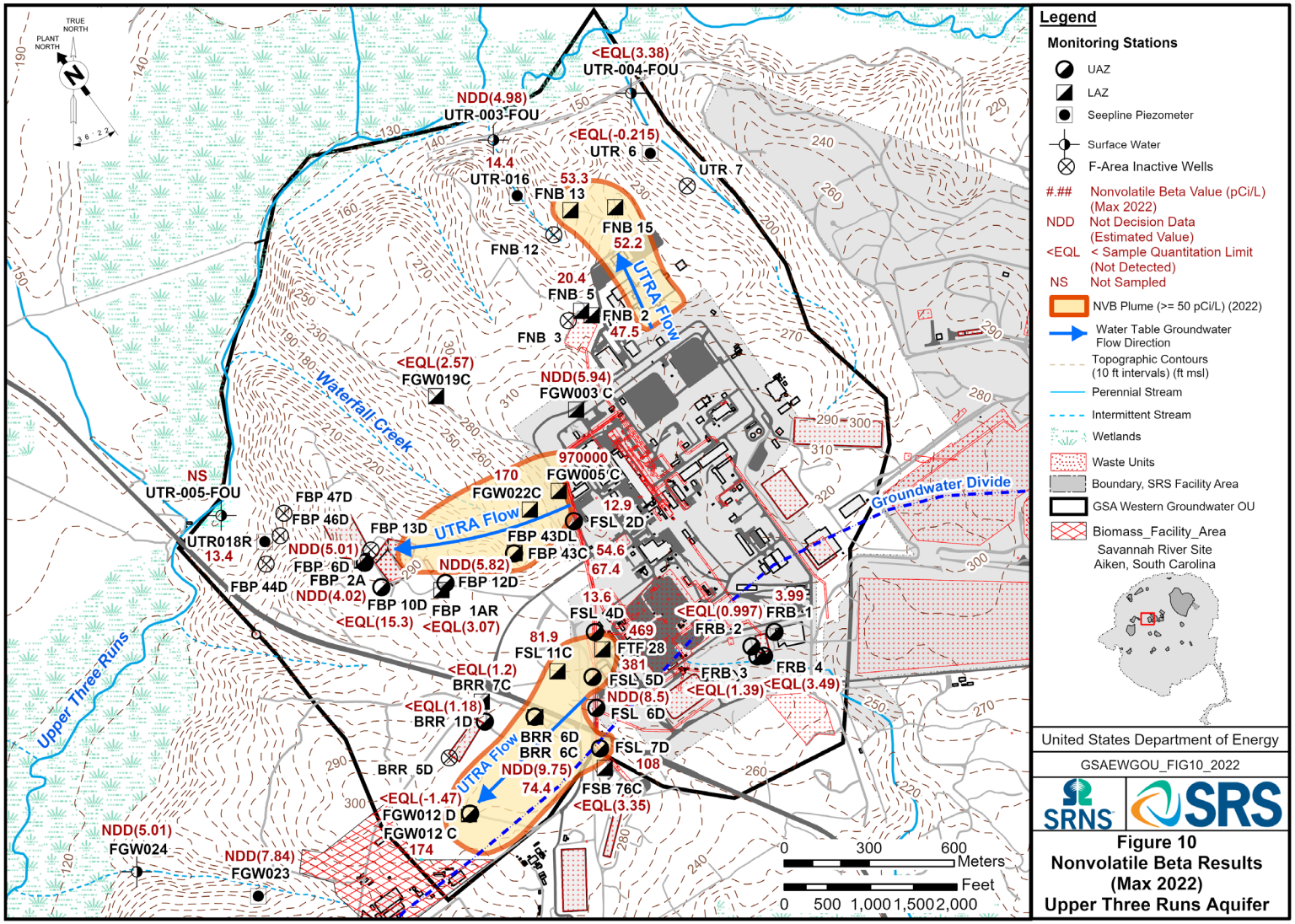


Figure 10. Nonvolatile Beta Results (Max 2022) Upper Three Runs Aquifer

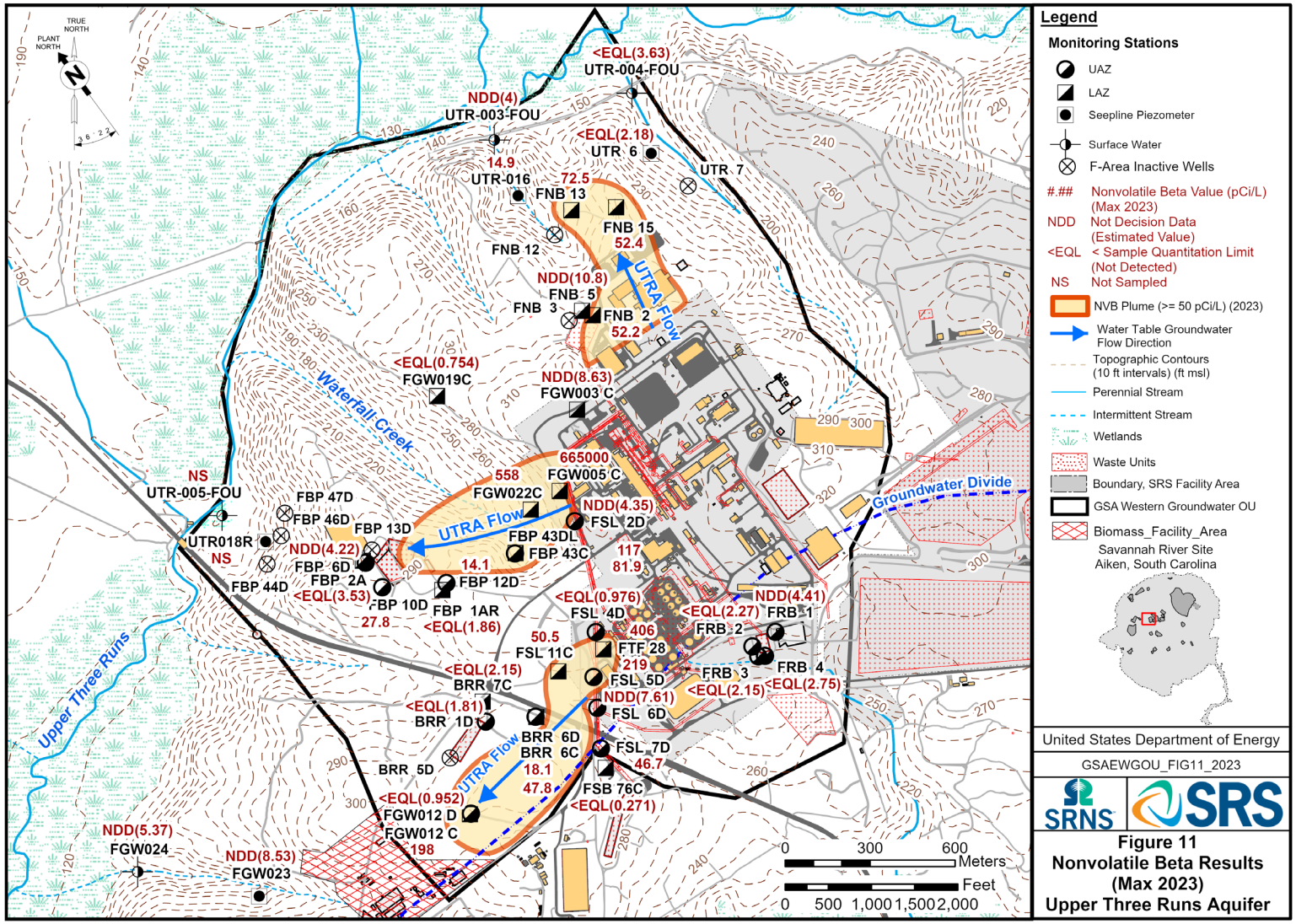


Figure 11. Nonvolatile Beta Results (Max 2023) Upper Three Runs Aquifer

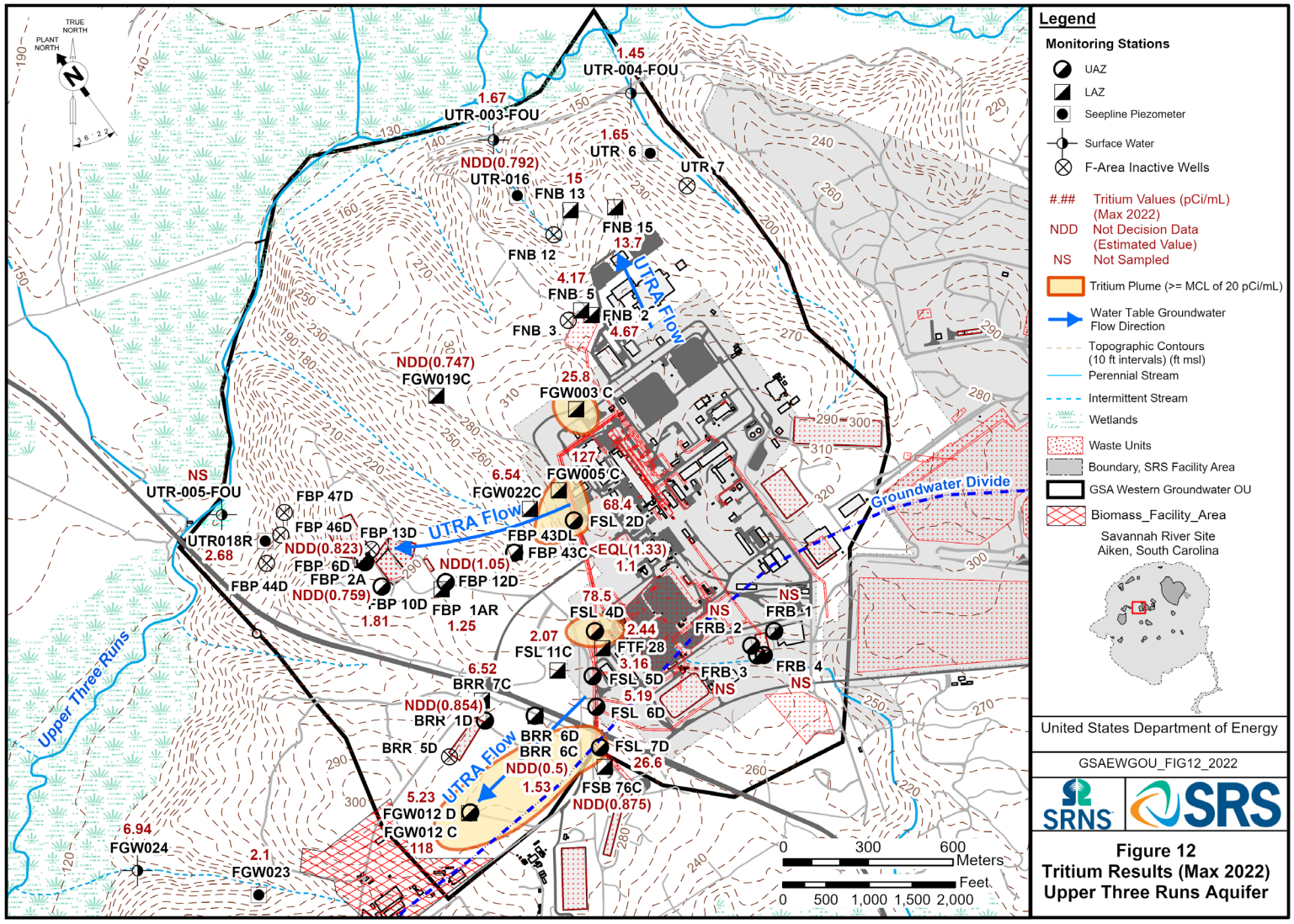


Figure 12. Tritium Results (Max 2022) Upper Three Runs Aquifer

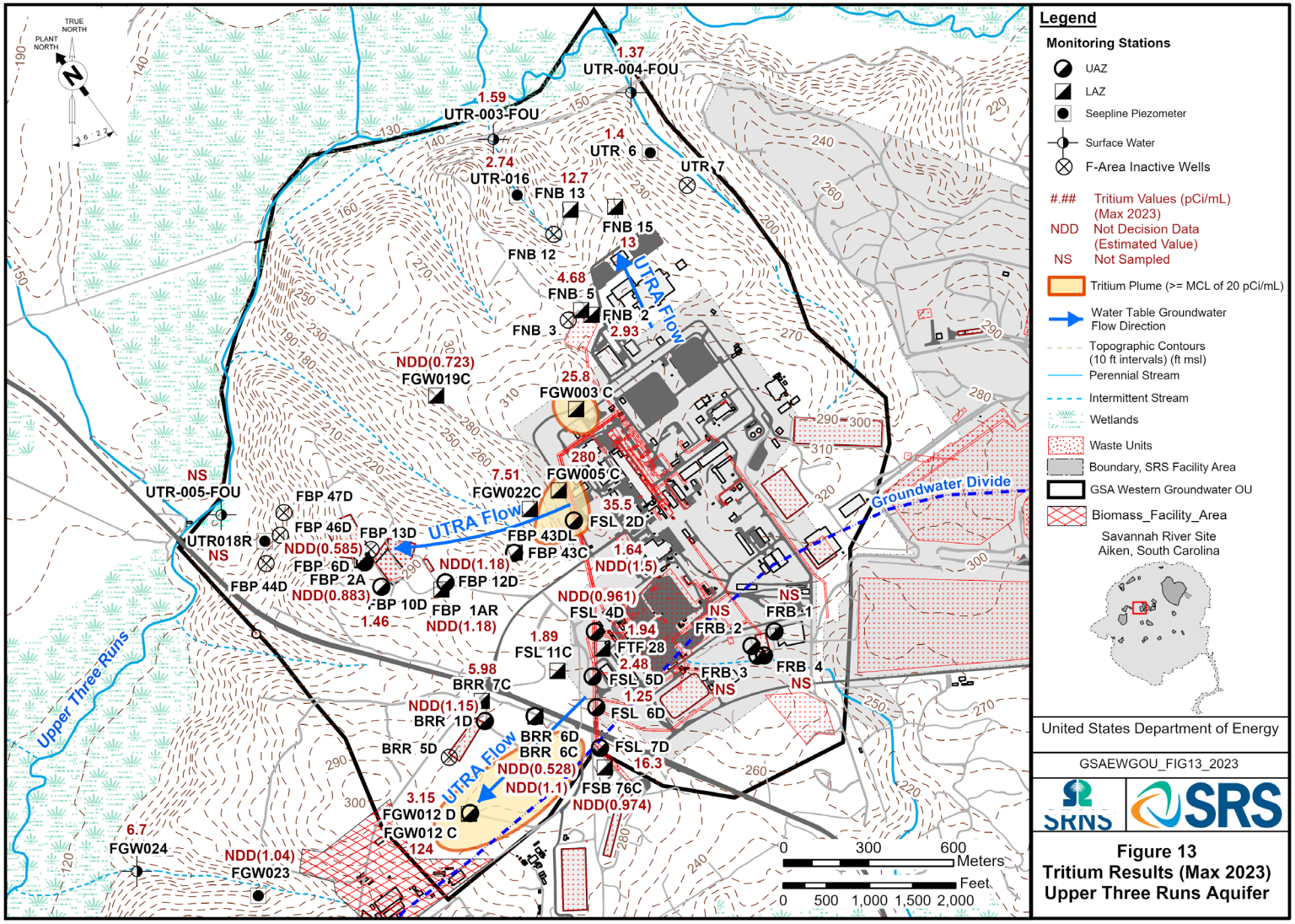


Figure 13. Tritium Results (Max 2023) Upper Three Runs Aquifer

Table 1. Monitoring Network

Plume Description	Aquifer Zone	Well ID	Analyte List
West Plume	UAZ of UTRA	FBP10D, FBP6D, FBP12D, FBP43DL, FSL2D	Nitrate, gross alpha, nonvolatile beta, tritium, and TCL VOCs, water quality parameters*
	LAZ of UTRA	FBP 1AR, FBP2A, FBP43C, FGW003C, FGW005C, FGW019C, FGW022C	Alpha and beta/gamma speciation for FGW005C, FGW022C, and FBP43C (sampled quarterly)
	Seepline/ Surface Water	UTR18R, UTR005	At surface water locations: field parameters for VOC degradation and degradation products
North Plume	LAZ of UTRA	FNB2, FNB5, FNB13, FNB15	Nitrate, gross alpha, nonvolatile beta, tritium, iodine-129, strontium-90, and TCL VOCs, water quality parameters*
	Seepline/ Surface Water	UTR16, UTR6, UTR003, UTR004	
South Plume	UAZ of UTRA	BRR1D, BRR6D, FSL4D, FSL5D, FSL6D, FSL7D, FSB76C, FGW012D	Nitrate, gross alpha, nonvolatile beta, tritium, iodine-129, radium-226, 228, strontium-90, technetium-99, uranium-233/234, 238, water quality parameters*
	LAZ of UTRA	BRR6C, BRR7C, FTF28, FSL11C, FGW012C	
	Seepline/ Surface Water	FGW024, FGW023	
F Area Retention Basin	UAZ of UTRA	FRB1, FRB2, FRB3, FRB4	Gross alpha, nonvolatile beta, cesium-137, strontium-90, radium-226, TCE, water quality parameters*

*Water quality parameters include pH, conductivity, alkalinity, and turbidity.

- Sampling of the monitoring network is performed annually for existing wells starting in 2014 except for the F-Area Retention Basin. The FRB wells are sampled semi-annually according to the ROD. New monitoring locations added to the OU will be sampled semi-annually until a baseline is established. The monitoring network was revised during the August 2013 scoping meeting based on the Monitoring Optimization White Paper, SRNS-RP-2012-00783, Rev. 1, January 2014.
- Sample locations are shown on Figure 2. FBP-45D was abandoned in 2009.

This page was intentionally left blank.

APPENDIX A

Isotopic Speciation Results for FGW 005C, FGW 022C, and FBP 043C

Well ID	Date	Analyte	Detection Limit	Quantitation Limit	Lab Qualifier	Review Qualifier	Result	Units
FBP 43C	2/27/2023	ACTINIUM-228	36.3	74.3	U	U	20.6	pCi/L
FBP 43C	6/19/2023	ACTINIUM-228	15.4	34.3	U	U	0.658	pCi/L
FBP 43C	2/27/2023	ACTINIUM-228	37.6	78.4	U	U	-2.43	pCi/L
FBP 43C	10/23/2023	ACTINIUM-228	36.1	77.9	U	U	-10.6	pCi/L
FBP 43C	2/27/2023	AMERICIUM-241	0.29	0.52	U	U	-0.0406	pCi/L
FBP 43C	2/27/2023	AMERICIUM-241	0.305	0.5028	U	U	-0.0522	pCi/L
FBP 43C	6/19/2023	AMERICIUM-241		0.196	U	U	0.0286	pCi/L
FBP 43C	10/23/2023	AMERICIUM-241	0.123	0.209	U	U	-0.0276	pCi/L
FBP 43C	2/27/2023	ANTIMONY-124	17.7	33.9	U	U	1.14	pCi/L
FBP 43C	2/27/2023	ANTIMONY-124	16.8	32.4	U	U	-0.748	pCi/L
FBP 43C	10/23/2023	ANTIMONY-125	19.1	40.3	U	U	-4.11	pCi/L
FBP 43C	6/19/2023	ANTIMONY-125	7.66	18.5	U	U	-3.88	pCi/L
FBP 43C	2/27/2023	ANTIMONY-125	21.3	43.1	U	U	2.52	pCi/L
FBP 43C	2/27/2023	ANTIMONY-125	20.4	41.4	U	U	3.28	pCi/L
FBP 43C	2/27/2023	BARIUM-133	8.61	17.83	U	U	2.92	pCi/L
FBP 43C	2/27/2023	BARIUM-133	8.96	19.88	U	U	-1.4	pCi/L
FBP 43C	6/19/2023	BARIUM-133	4.18	9.32	U	U	0.566	pCi/L
FBP 43C	10/23/2023	BARIUM-133	9.21	20.9	U	U	-2.8	pCi/L
FBP 43C	2/27/2023	BISMUTH-212	107	218.4	U	U	3.61	pCi/L
FBP 43C	2/27/2023	BISMUTH-212	102	197.4	U	U	33.6	pCi/L
FBP 43C	2/27/2023	BISMUTH-214	13.4	49	J	J	35	pCi/L
FBP 43C	6/19/2023	BISMUTH-214	6.40	22.3	J	J	17.2	pCi/L
FBP 43C	10/23/2023	BISMUTH-214	12.1	45.5	J	J	42.5	pCi/L
FBP 43C	2/27/2023	CALIFORNIUM-249	8.08	16.24	U	U	0.729	pCi/L
FBP 43C	2/27/2023	CALIFORNIUM-249	8.07	17.61	U	U	-4.5	pCi/L
FBP 43C	2/27/2023	CALIFORNIUM-251	30	65.4	U	U	-3.32	pCi/L
FBP 43C	2/27/2023	CALIFORNIUM-251	25.1	56.7	U	U	-12.7	pCi/L
FBP 43C	6/19/2023	CARBON-14		22.3	U	U	-5.84	pCi/L
FBP 43C	10/23/2023	CARBON-14	89.3	192	U	U	-20.8	pCi/L
FBP 43C	2/27/2023	CARBON-14	68.5	146.7	U	U	-13.9	pCi/L
FBP 43C	2/27/2023	CARBON-14	67.4	143.2	U	U	-30	pCi/L
FBP 43C	2/27/2023	CERIUM-141	10.9	24.4	U	U	-4.46	pCi/L
FBP 43C	2/27/2023	CERIUM-141	10.7	24.52	U	U	-2.83	pCi/L
FBP 43C	2/27/2023	CERIUM-144	43.9	93.3	U	U	6.03	pCi/L
FBP 43C	2/27/2023	CERIUM-144	45.5	95.5	U	U	9.89	pCi/L
FBP 43C	2/27/2023	CESIUM-134	7.95	16.59	U	U	-0.87	pCi/L
FBP 43C	6/19/2023	CESIUM-134	3.59	7.13	U	U	1.07	pCi/L
FBP 43C	10/23/2023	CESIUM-134	9.22	19.3	U	U	-0.278	pCi/L
FBP 43C	2/27/2023	CESIUM-134	7.66	15.4	U	U	0.804	pCi/L
FBP 43C	10/23/2023	CESIUM-137	9.47	20.5	U	U	-2.95	pCi/L
FBP 43C	6/19/2023	CESIUM-137	3.33	7.71	U	U	0.0091	pCi/L
FBP 43C	2/27/2023	CESIUM-137	8.05	17.17	U	U	-1.77	pCi/L
FBP 43C	2/27/2023	CESIUM-137	8.73	17.95	U	U	2.09	pCi/L
FBP 43C	2/27/2023	COBALT-57	5.8	12.58	U	U	-0.823	pCi/L
FBP 43C	2/27/2023	COBALT-57	5.49	11.83	U	U	-0.364	pCi/L
FBP 43C	2/27/2023	COBALT-58	7.57	14.61	U	U	2.26	pCi/L
FBP 43C	2/27/2023	COBALT-58	7.01	14.05	U	U	0.914	pCi/L
FBP 43C	10/23/2023	COBALT-60	5.71	12.4	U	U	-2.47	pCi/L
FBP 43C	6/19/2023	COBALT-60	3.64	7.20	U	U	0.455	pCi/L
FBP 43C	2/27/2023	COBALT-60	8.15	15.81	U	U	-0.0393	pCi/L
FBP 43C	2/27/2023	COBALT-60	8.51	15.95	U	U	1.87	pCi/L
FBP 43C	10/23/2023	CURIUM-242	0.0932	0.156	U	U	-0.0136	pCi/L
FBP 43C	2/27/2023	CURIUM-242	0.151	0.355	U	U	0	pCi/L
FBP 43C	2/27/2023	CURIUM-242	0.104	0.2436	U	U	0	pCi/L

Well ID	Date	Analyte	Detection Limit	Quantitation Limit	Lab Qualifier	Review Qualifier	Result	Units
FBP 43C	2/27/2023	CURIUM-243/244	0.256	0.404	U	U	-0.0709	pCi/L
FBP 43C	10/23/2023	CURIUM-243/244	0.112	0.176	U	U	-0.0309	pCi/L
FBP 43C	6/19/2023	CURIUM-243/244		0.0688	U	U	-0.00255	pCi/L
FBP 43C	2/27/2023	CURIUM-243/244	0.361	0.631	U	U	-0.0499	pCi/L
FBP 43C	2/27/2023	CURIUM-245/246	0.149	0.349	U	U	0	pCi/L
FBP 43C	10/23/2023	CURIUM-245/246	0.0910	0.196	U	U	0.0191	pCi/L
FBP 43C	2/27/2023	CURIUM-245/246	0.102	0.2396	U	U	0	pCi/L
FBP 43C	10/23/2023	EUROPIUM-152	20.8	42.4	U	U	2.71	pCi/L
FBP 43C	2/27/2023	EUROPIUM-152	24.3	48.1	U	U	8.88	pCi/L
FBP 43C	6/19/2023	EUROPIUM-152	9.70	20.4	U	U	0.923	pCi/L
FBP 43C	2/27/2023	EUROPIUM-152	21.6	44.4	U	U	1.4	pCi/L
FBP 43C	2/27/2023	EUROPIUM-154	28.6	54.4	U	U	8.45	pCi/L
FBP 43C	6/19/2023	EUROPIUM-154	8.73	23.4	U	U	-3.59	pCi/L
FBP 43C	2/27/2023	EUROPIUM-154	22.2	44.6	U	U	-1.37	pCi/L
FBP 43C	10/23/2023	EUROPIUM-154	16.8	39.0	U	U	-5.82	pCi/L
FBP 43C	10/23/2023	EUROPIUM-155	23.0	49.0	U	U	1.21	pCi/L
FBP 43C	2/27/2023	EUROPIUM-155	24.9	52.1	U	U	4.5	pCi/L
FBP 43C	6/19/2023	EUROPIUM-155	11.9	26.1	U	U	-0.851	pCi/L
FBP 43C	2/27/2023	EUROPIUM-155	23.7	48.1	U	U	13.4	pCi/L
FBP 43C	6/19/2023	GROSS ALPHA		4.41	U	U	-0.745	pCi/L
FBP 43C	10/23/2023	GROSS ALPHA	0.996	2.43	J	J	1.05	pCi/L
FBP 43C	6/20/2022	GROSS ALPHA		4.88	U	J	0.581	pCi/L
FBP 43C	2/27/2023	GROSS ALPHA	0.952	1.93	U	U	0.0521	pCi/L
FBP 43C	2/27/2023	GROSS ALPHA	0.965	2.431	U	U	0.835	pCi/L
FBP 43C	10/23/2023	IODINE-129	0.477	0.949	U	U	-0.0199	pCi/L
FBP 43C	2/27/2023	IODINE-129	0.759	1.357	U	U	0.16	pCi/L
FBP 43C	2/27/2023	IODINE-129	0.367	0.803	U	U	-0.213	pCi/L
FBP 43C	6/19/2023	IODINE-129		0.00498	U	U	1.14	pCi/L
FBP 43C	10/23/2023	LEAD-212	17.1	42.7	U	U	12.9	pCi/L
FBP 43C	6/19/2023	LEAD-212	5.64	17.4	U	U	3.01	pCi/L
FBP 43C	2/27/2023	LEAD-212	17.7	51.1	U	U	6.46	pCi/L
FBP 43C	2/27/2023	LEAD-212	12.8	49.2	U	U	7.22	pCi/L
FBP 43C	2/27/2023	LEAD-214	16.9	48.1	U	U	16.3	pCi/L
FBP 43C	6/19/2023	LEAD-214	7.60	23.2	J	J	9.53	pCi/L
FBP 43C	10/23/2023	LEAD-214	23.8	59.2	U	UJ	10.6	pCi/L
FBP 43C	2/27/2023	MANGANESE-54	7.91	15.05	U	U	3.65	pCi/L
FBP 43C	2/27/2023	MANGANESE-54	9.15	18.15	U	U	2.3	pCi/L
FBP 43C	2/27/2023	NEPTUNIUM-237	0.95	1.798	U	U	0.00593	pCi/L
FBP 43C	2/27/2023	NEPTUNIUM-237	0.869	1.829	U	U	0.109	pCi/L
FBP 43C	6/19/2023	NEPTUNIUM-237		0.0881	U	U	0.019	pCi/L
FBP 43C	10/23/2023	NEPTUNIUM-237	0.299	0.585	U	U	0.0137	pCi/L
FBP 43C	2/27/2023	NEPTUNIUM-239	59.9	134.1	U	U	-29.6	pCi/L
FBP 43C	2/27/2023	NEPTUNIUM-239	59.5	127.9	U	U	-2.13	pCi/L
FBP 43C	2/27/2023	NIOBIUM-94	6.93	14.87	U	U	-1.73	pCi/L
FBP 43C	2/27/2023	NIOBIUM-94	8.4	20.96	U	U	2.78	pCi/L
FBP 43C	2/27/2023	NONVOLATILE BETA	0.838	6.698			81.9	pCi/L
FBP 43C	2/27/2023	NONVOLATILE BETA	0.632	5.492			75.2	pCi/L
FBP 43C	6/20/2022	NONVOLATILE BETA		20.3	U	U	67.4	pCi/L
FBP 43C	10/23/2023	NONVOLATILE BETA	0.908	4.79		J	34.3	pCi/L
FBP 43C	6/19/2023	NONVOLATILE BETA		19.0			56.9	pCi/L
FBP 43C	10/23/2023	PLUTONIUM-238	0.0460	0.108	U	U	0	pCi/L
FBP 43C	6/19/2023	PLUTONIUM-238		0.135	U	U	0.0109	pCi/L
FBP 43C	2/27/2023	PLUTONIUM-238	0.207	0.3988	U	U	-0.017	pCi/L
FBP 43C	2/27/2023	PLUTONIUM-238	0.0461	0.1365	U	U	0.0154	pCi/L

Well ID	Date	Analyte	Detection Limit	Quantitation Limit	Lab Qualifier	Review Qualifier	Result	Units
FBP 43C	6/19/2023	PLUTONIUM-239/240		0.122	U	U	0.011	pCi/L
FBP 43C	10/23/2023	PLUTONIUM-239/240	0.0849	0.150	U	U	-0.00736	pCi/L
FBP 43C	2/27/2023	PLUTONIUM-239/240	0.151	0.3114	U	U	0.0236	pCi/L
FBP 43C	2/27/2023	PLUTONIUM-239/240	0.122	0.2568	U	U	0.0228	pCi/L
FBP 43C	2/27/2023	POTASSIUM-40	74.5	222.1	U	U	30.4	pCi/L
FBP 43C	10/23/2023	POTASSIUM-40	123	246	U	U	-45.9	pCi/L
FBP 43C	6/19/2023	POTASSIUM-40	49.3	103	U	U	-0.635	pCi/L
FBP 43C	2/27/2023	POTASSIUM-40	137	268	U	U	-15.7	pCi/L
FBP 43C	2/27/2023	PROMETHIUM-144	8.49	18.35	U	U	-2.18	pCi/L
FBP 43C	2/27/2023	PROMETHIUM-144	7.33	16.67	U	U	-1.2	pCi/L
FBP 43C	2/27/2023	PROMETHIUM-146	9.26	18.74	U	U	1.61	pCi/L
FBP 43C	10/23/2023	PROMETHIUM-146	8.18	18.7	U	U	0.0241	pCi/L
FBP 43C	2/27/2023	PROMETHIUM-146	9.66	20.5	U	U	-2.3	pCi/L
FBP 43C	6/19/2023	PROMETHIUM-146	4.17	8.67	U	U	1.08	pCi/L
FBP 43C	2/27/2023	PROTACTINIUM-233	13	28.1	U	U	-3.34	pCi/L
FBP 43C	2/27/2023	PROTACTINIUM-233	15.4	31.58	U	U	0.521	pCi/L
FBP 43C	10/23/2023	RADIUM-226	139	453	U	U	72.3	pCi/L
FBP 43C	2/27/2023	RADIUM-226	148	558	U	U	9.21	pCi/L
FBP 43C	6/19/2023	RADIUM-226	65.7	236	U	U	33.7	pCi/L
FBP 43C	2/27/2023	RADIUM-226	124	440	U	U	42.3	pCi/L
FBP 43C	2/27/2023	RADIUM-228	36.3	74.3	U	U	20.6	pCi/L
FBP 43C	2/27/2023	RADIUM-228	37.6	78.4	U	U	-2.43	pCi/L
FBP 43C	6/19/2023	RADIUM-228	15.4	34.3	U	U	0.658	pCi/L
FBP 43C	10/23/2023	RADIUM-228	36.1	77.9	U	U	-10.6	pCi/L
FBP 43C	2/27/2023	RUTHENIUM-103	7.18	14.98	U	U	-0.531	pCi/L
FBP 43C	2/27/2023	RUTHENIUM-103	6.99	19.17	J	J	8.68	pCi/L
FBP 43C	2/27/2023	RUTHENIUM-106	68.9	137.3	U	U	18.1	pCi/L
FBP 43C	2/27/2023	RUTHENIUM-106	80.1	166.9	U	U	-2.14	pCi/L
FBP 43C	2/27/2023	SODIUM-22	7.79	15.63	U	U	-0.481	pCi/L
FBP 43C	6/19/2023	SODIUM-22	3.04	8.26	U	U	-1.64	pCi/L
FBP 43C	10/23/2023	SODIUM-22	6.03	13.9	U	U	-1.95	pCi/L
FBP 43C	2/27/2023	SODIUM-22	10.1	19.2	U	U	3.03	pCi/L
FBP 43C	6/19/2023	STRONTIUM-90		4.27	U	U	0.626	pCi/L
FBP 43C	10/23/2023	STRONTIUM-90	5.48	11.9	U	U	2.62	pCi/L
FBP 43C	2/27/2023	STRONTIUM-90	6.53	12.73	U	U	-2.74	pCi/L
FBP 43C	2/27/2023	STRONTIUM-90	6.17	12.41	U	U	-1.44	pCi/L
FBP 43C	10/23/2023	TECHNETIUM-99	20.8	52.2			134	pCi/L
FBP 43C	6/19/2023	TECHNETIUM-99		15.0			127	pCi/L
FBP 43C	2/27/2023	TECHNETIUM-99	14.7	37.1			125	pCi/L
FBP 43C	2/27/2023	TECHNETIUM-99	14.6	37.2			138	pCi/L
FBP 43C	2/27/2023	THALLIUM-208	9.35	19.85	U	U	0.368	pCi/L
FBP 43C	2/27/2023	THALLIUM-208	10.8	21.34	U	U	2.62	pCi/L
FBP 43C	6/19/2023	THALLIUM-208	4.12	9.26	U	U	0.721	pCi/L
FBP 43C	10/23/2023	THORIUM-228	0.309	0.490	U	U	-0.0799	pCi/L
FBP 43C	2/27/2023	THORIUM-228	0.43	0.822	U	U	-0.0135	pCi/L
FBP 43C	2/27/2023	THORIUM-228	0.293	0.4824	U	U	-0.0505	pCi/L
FBP 43C	2/27/2023	THORIUM-230	0.304	0.806	U	U	0.287	pCi/L
FBP 43C	2/27/2023	THORIUM-230	0.323	1.029	U	U	0.687	pCi/L
FBP 43C	10/23/2023	THORIUM-230	0.334	0.794	U	U	0.228	pCi/L
FBP 43C	10/23/2023	THORIUM-232	0.170	0.432	U	U	0.0868	pCi/L
FBP 43C	2/27/2023	THORIUM-232	0.199	0.421	U	U	0.0252	pCi/L
FBP 43C	2/27/2023	THORIUM-232	0.204	0.3698	U	U	-0.014	pCi/L
FBP 43C	2/27/2023	TIN-113	10.1	19.8	U	U	3.96	pCi/L
FBP 43C	2/27/2023	TIN-113	10.4	20.36	U	U	6.15	pCi/L

Well ID	Date	Analyte	Detection Limit	Quantitation Limit	Lab Qualifier	Review Qualifier	Result	Units
FBP 43C	2/27/2023	TIN-126	19.1	50.3	U	U	9.6	pCi/L
FBP 43C	2/27/2023	TIN-126	16.5	47.3	U	U	3.1	pCi/L
FBP 43C	6/20/2022	TRITIUM		1.1	J		1.1	pCi/mL
FBP 43C	6/19/2023	TRITIUM		1.23	J	J	1.19	pCi/mL
FBP 43C	10/23/2023	TRITIUM	0.777	1.81	J	J	1.5	pCi/mL
FBP 43C	2/27/2023	TRITIUM	0.744	1.724	J	J	1.29	pCi/mL
FBP 43C	2/27/2023	TRITIUM	0.747	1.741	J	J	1.4	pCi/mL
FBP 43C	2/27/2023	URANIUM-233/234	0.464	0.772	U	U	-0.182	pCi/L
FBP 43C	6/19/2023	URANIUM-233/234		0.222	J	J	0.1	pCi/L
FBP 43C	10/23/2023	URANIUM-233/234	0.131	0.311	U	U	0.0853	pCi/L
FBP 43C	2/27/2023	URANIUM-233/234	0.255	0.497	U	U	0.00792	pCi/L
FBP 43C	6/19/2023	URANIUM-235		0.125	U	U	-0.00651	pCi/L
FBP 43C	2/27/2023	URANIUM-235/236	0.0964	0.277	U	U	0.0321	pCi/L
FBP 43C	10/23/2023	URANIUM-235/236	0.0920	0.208	U	U	0.0253	pCi/L
FBP 43C	2/27/2023	URANIUM-235/236	0.254	0.574	U	U	0.0698	pCi/L
FBP 43C	2/27/2023	URANIUM-238	0.171	0.405	U	U	0.079	pCi/L
FBP 43C	10/23/2023	URANIUM-238	0.109	0.233	U	U	0.028	pCi/L
FBP 43C	6/19/2023	URANIUM-238		0.238	U	U	0.0548	pCi/L
FBP 43C	2/27/2023	URANIUM-238	0.206	0.42	U	U	0.0193	pCi/L
FBP 43C	2/27/2023	YTTRIUM-88	9.98	18.78	U	U	0.986	pCi/L
FBP 43C	2/27/2023	YTTRIUM-88	10.5	19.72	U	U	2.48	pCi/L
FBP 43C	2/27/2023	ZINC-65	18.6	38.8	U	U	1.44	pCi/L
FBP 43C	2/27/2023	ZINC-65	17.9	37.78	U	U	0.0403	pCi/L
FBP 43C	2/27/2023	ZIRCONIUM-95	11.7	26.08	U	U	-5.59	pCi/L
FBP 43C	2/27/2023	ZIRCONIUM-95	12.2	26.88	U	U	-4.65	pCi/L
FGW005 C	10/24/2023	ACTINIUM-228	65.6	130	U	U	29.2	pCi/L
FGW005 C	10/25/2022	ACTINIUM-228	26.0	54.6	U	U	2.63	pCi/L
FGW005 C	6/27/2023	ACTINIUM-228	12.7	33.7	U	U	4.79	pCi/L
FGW005 C	2/28/2023	ACTINIUM-228	53.2	117.6	U	U	-21.1	pCi/L
FGW005 C	10/24/2023	AMERICIUM-241	0.137	0.277	U	U	0.0157	pCi/L
FGW005 C	10/25/2022	AMERICIUM-241	0.124	0.328	U	U	0.106	pCi/L
FGW005 C	6/27/2023	AMERICIUM-241	0.415	1.15	U	U	0.339	pCi/L
FGW005 C	2/28/2023	AMERICIUM-241	0.237	0.513	U	U	0.0522	pCi/L
FGW005 C	2/28/2023	AMERICIUM-243	0.776	1.398	U	U	-0.095	pCi/L
FGW005 C	2/28/2023	ANTIMONY-124	18.1	34.86	U	U	1.71	pCi/L
FGW005 C	6/27/2023	ANTIMONY-125	13.0	28.3	U	U	2.94	pCi/L
FGW005 C	2/28/2023	ANTIMONY-125	40.3	85.7	U	U	1.29	pCi/L
FGW005 C	10/25/2022	ANTIMONY-125	32.3	70.7	U	U	-10.7	pCi/L
FGW005 C	10/24/2023	ANTIMONY-125	45.3	96.9	U	U	-0.346	pCi/L
FGW005 C	10/24/2023	BARIUM-133	24.9	54.1	U	U	17.6	pCi/L
FGW005 C	10/25/2022	BARIUM-133	16.4	35.5	U	U	-2.06	pCi/L
FGW005 C	2/28/2023	BARIUM-133	19.2	43.2	U	U	0.702	pCi/L
FGW005 C	6/27/2023	BARIUM-133	6.90	16.0	U	U	0.652	pCi/L
FGW005 C	2/28/2023	BISMUTH-212	221	469	U	U	94.1	pCi/L
FGW005 C	10/24/2023	BISMUTH-214	27.7	96.3			106	pCi/L
FGW005 C	10/25/2022	BISMUTH-214	18.3	49.7	U	U	9.5	pCi/L
FGW005 C	6/27/2023	BISMUTH-214	7.29	24.2			51.6	pCi/L
FGW005 C	2/28/2023	BISMUTH-214	27.8	97.2	J	J	64.1	pCi/L
FGW005 C	2/28/2023	CALIFORNIUM-249	17.9	37.88	U	U	1.97	pCi/L
FGW005 C	2/28/2023	CALIFORNIUM-251	81.4	180.6	U	U	11.8	pCi/L
FGW005 C	2/28/2023	CARBON-14	13.2	28.02	U	U	-5.63	pCi/L
FGW005 C	6/27/2023	CARBON-14	65.6	141	U	U	2.68	pCi/L
FGW005 C	10/25/2022	CARBON-14	73.4	156	UJ	UJ	-32.5	pCi/L
FGW005 C	10/24/2023	CARBON-14	89.8	195	U	U	12.8	pCi/L

Well ID	Date	Analyte	Detection Limit	Quantitation Limit	Lab Qualifier	Review Qualifier	Result	Units
FGW005 C	2/28/2023	CERIUM-141	49.3	109.1	U	U	5.06	pCi/L
FGW005 C	2/28/2023	CERIUM-144	158	350.4	U	U	-10.3	pCi/L
FGW005 C	10/25/2022	CESIUM-134	8.82	18.4	U	U	1.75	pCi/L
FGW005 C	2/28/2023	CESIUM-134	16.3	34.84	U	U	1.21	pCi/L
FGW005 C	6/27/2023	CESIUM-134	3.49	7.59	U	U	0.618	pCi/L
FGW005 C	10/24/2023	CESIUM-134	14.4	30.7	U	U	-1.48	pCi/L
FGW005 C	6/27/2023	CESIUM-137	3.91	9.71	U	U	-1.94	pCi/L
FGW005 C	2/28/2023	CESIUM-137	15	32.66	U	U	-4.73	pCi/L
FGW005 C	10/24/2023	CESIUM-137	17.9	38.1	U	U	-8.1	pCi/L
FGW005 C	10/25/2022	CESIUM-137	8.48	20.8	U	U	4.52	pCi/L
FGW005 C	2/28/2023	COBALT-57	21.7	48.1	U	U	-4.77	pCi/L
FGW005 C	2/28/2023	COBALT-58	16.4	34.06	U	U	8.38	pCi/L
FGW005 C	2/28/2023	COBALT-60	13.4	32.5	U	U	4.35	pCi/L
FGW005 C	6/27/2023	COBALT-60	2.36	7.76	J	J	6.47	pCi/L
FGW005 C	10/24/2023	COBALT-60	14.2	27.4	U	U	2.69	pCi/L
FGW005 C	10/25/2022	COBALT-60	5.63	11.2	R	R	5.83	pCi/L
FGW005 C	2/28/2023	CURIUM-242	0.437	0.817	U	U	-0.0209	pCi/L
FGW005 C	6/27/2023	CURIUM-242	0.227	0.745	U	U	0.151	pCi/L
FGW005 C	10/25/2022	CURIUM-242	0.122	0.274	U	U	0.031	pCi/L
FGW005 C	10/24/2023	CURIUM-242	0.0635	0.149	U	U	0	pCi/L
FGW005 C	10/24/2023	CURIUM-243/244	0.136	0.224	U	U	-0.0232	pCi/L
FGW005 C	6/27/2023	CURIUM-243/244	0.487	0.925	U	U	0.00296	pCi/L
FGW005 C	2/28/2023	CURIUM-243/244	0.184	0.3444	U	U	-0.00879	pCi/L
FGW005 C	10/25/2022	CURIUM-243/244	0.152	0.293	U	U	-0.00035	pCi/L
FGW005 C	10/25/2022	CURIUM-245/246	0.118	0.266	U	U	0.0302	pCi/L
FGW005 C	2/28/2023	CURIUM-245/246	0.285	0.819	U	U	0.0951	pCi/L
FGW005 C	6/27/2023	CURIUM-245/246	0.257	0.603	U	U	0	pCi/L
FGW005 C	10/24/2023	CURIUM-245/246	0.0672	0.157	U	U	0	pCi/L
FGW005 C	2/28/2023	EUROPIUM-152	45.2	97	U	U	-17	pCi/L
FGW005 C	6/27/2023	EUROPIUM-152	16.2	35.5	U	U	-2.85	pCi/L
FGW005 C	10/25/2022	EUROPIUM-152	41.7	89.5	U	U	4.89	pCi/L
FGW005 C	10/24/2023	EUROPIUM-152	53.2	113	U	U	6.23	pCi/L
FGW005 C	10/24/2023	EUROPIUM-154	31.7	60.7	U	U	3.72	pCi/L
FGW005 C	10/25/2022	EUROPIUM-154	17.7	39.5	U	U	0.734	pCi/L
FGW005 C	6/27/2023	EUROPIUM-154	7.19	15.0	U	U	0.524	pCi/L
FGW005 C	2/28/2023	EUROPIUM-154	30.7	61.3	U	U	7.68	pCi/L
FGW005 C	2/28/2023	EUROPIUM-155	95.4	210.8	U	U	-10.9	pCi/L
FGW005 C	6/27/2023	EUROPIUM-155	49.2	106	U	U	6.61	pCi/L
FGW005 C	10/25/2022	EUROPIUM-155	111	245	U	U	38.2	pCi/L
FGW005 C	10/24/2023	EUROPIUM-155	143	307	U	U	-20.7	pCi/L
FGW005 C	10/25/2022	GROSS ALPHA	0.694	27.5			1390	pCi/L
FGW005 C	2/28/2023	GROSS ALPHA	12.8	286.8			1460	pCi/L
FGW005 C	6/27/2023	GROSS ALPHA	0.970	71.8			1530	pCi/L
FGW005 C	10/24/2023	GROSS ALPHA	0.783	36.8			688	pCi/L
FGW005 C	2/28/2023	IODINE-129	0.669	2.423			3.43	pCi/L
FGW005 C	6/27/2023	IODINE-129	0.532	2.57			3.76	pCi/L
FGW005 C	10/25/2022	IODINE-129	2.84	9.14	R	R	5.59	pCi/L
FGW005 C	10/24/2023	IODINE-129	1.10	2.90	U	U	0.916	pCi/L
FGW005 C	2/28/2023	LEAD-212	30.6	78.8	U	U	6.46	pCi/L
FGW005 C	6/27/2023	LEAD-212	12.6	33.0	U	U	6.64	pCi/L
FGW005 C	10/25/2022	LEAD-212	31.2	66.8	U	U	-8.66	pCi/L
FGW005 C	10/24/2023	LEAD-212	38.8	84.4	U	U	-14.7	pCi/L
FGW005 C	10/25/2022	LEAD-214	31.6	66.6	U	U	29	pCi/L
FGW005 C	6/27/2023	LEAD-214	14.9	40.9			52.1	pCi/L

Well ID	Date	Analyte	Detection Limit	Quantitation Limit	Lab Qualifier	Review Qualifier	Result	Units
FGW005 C	2/28/2023	LEAD-214	37.8	99	U	U	27.2	pCi/L
FGW005 C	2/28/2023	MANGANESE-54	14.1	30.1	U	U	1.18	pCi/L
FGW005 C	10/25/2022	NEPTUNIUM-237	0.974	2.59	J	J	1.03	pCi/L
FGW005 C	10/24/2023	NEPTUNIUM-237	0.881	2.41	U	U	0.63	pCi/L
FGW005 C	2/28/2023	NEPTUNIUM-237	0.509	1.451	J	J	0.699	pCi/L
FGW005 C	2/28/2023	NEPTUNIUM-239	230	508	U	U	-11.2	pCi/L
FGW005 C	2/28/2023	NICKEL-63	83.6	373.6		J	8090	pCi/L
FGW005 C	2/28/2023	NIOBIUM-94	14.3	29.76	U	U	8.65	pCi/L
FGW005 C	10/24/2023	NONVOLATILE BETA	0.806	505			626000	pCi/L
FGW005 C	6/27/2023	NONVOLATILE BETA	0.730	547			552000	pCi/L
FGW005 C	2/28/2023	NONVOLATILE BETA	7.16	2547.16		J	665000	pCi/L
FGW005 C	10/25/2022	NONVOLATILE BETA	0.706	305			938000	pCi/L
FGW005 C	10/25/2022	NONVOLATILE BETA		4300			970000	pCi/L
FGW005 C	10/25/2022	PLUTONIUM-238	0.120	0.245	U	U	0.0112	pCi/L
FGW005 C	6/27/2023	PLUTONIUM-238	0.277	0.527	U	U	0.00168	pCi/L
FGW005 C	2/28/2023	PLUTONIUM-238	0.136	0.3194	U	U	0.0536	pCi/L
FGW005 C	10/24/2023	PLUTONIUM-238	0.0804	0.150	U	U	-0.00402	pCi/L
FGW005 C	10/25/2022	PLUTONIUM-239/240	0.120	0.293	U	U	0.0544	pCi/L
FGW005 C	2/28/2023	PLUTONIUM-239/240	0.136	0.2336	U	U	-0.0149	pCi/L
FGW005 C	6/27/2023	PLUTONIUM-239/240	0.257	0.503	U	U	0.0118	pCi/L
FGW005 C	10/24/2023	PLUTONIUM-239/240	0.102	0.237	U	U	0.0382	pCi/L
FGW005 C	2/28/2023	PLUTONIUM-241	13.8	30.92	J	J	25.2	pCi/L
FGW005 C	2/28/2023	PLUTONIUM-242	0.163	0.2662	U	U	-0.0298	pCi/L
FGW005 C	10/24/2023	POTASSIUM-40	140	292	U	U	-77.8	pCi/L
FGW005 C	2/28/2023	POTASSIUM-40	83.2	237.6	U	U	2.22	pCi/L
FGW005 C	6/27/2023	POTASSIUM-40	28.3	73.9	U	U	-42.3	pCi/L
FGW005 C	10/25/2022	POTASSIUM-40	52.1	126	U	U	48.4	pCi/L
FGW005 C	2/28/2023	PROMETHIUM-144	13.7	31.42	U	U	-1.32	pCi/L
FGW005 C	10/24/2023	PROMETHIUM-146	19.5	42.7	U	U	-5.97	pCi/L
FGW005 C	2/28/2023	PROMETHIUM-146	18.6	39.8	U	U	-1.14	pCi/L
FGW005 C	6/27/2023	PROMETHIUM-146	5.82	12.6	U	U	1.68	pCi/L
FGW005 C	10/25/2022	PROMETHIUM-146	14.0	30.4	U	U	-0.883	pCi/L
FGW005 C	2/28/2023	PROTACTINIUM-233	30.2	64.2	U	U	-2.14	pCi/L
FGW005 C	2/28/2023	RADIUM-226	381	1187	J	J	495	pCi/L
FGW005 C	6/27/2023	RADIUM-226	180	504	J	J	393	pCi/L
FGW005 C	10/24/2023	RADIUM-226	567	1210	U	U	33.6	pCi/L
FGW005 C	10/25/2022	RADIUM-226		4.84			16.6	pCi/L
FGW005 C	10/24/2023	RADIUM-228	65.6	130	U	U	29.2	pCi/L
FGW005 C	10/25/2022	RADIUM-228		3.3			25.5	pCi/L
FGW005 C	2/28/2023	RADIUM-228	53.2	117.6	U	U	-21.1	pCi/L
FGW005 C	6/27/2023	RADIUM-228	12.7	33.7	U	U	4.79	pCi/L
FGW005 C	2/28/2023	RUTHENIUM-103	18.1	39.1	U	U	-6.28	pCi/L
FGW005 C	2/28/2023	RUTHENIUM-106	118	261.2	U	U	-81.3	pCi/L
FGW005 C	2/28/2023	SELENIUM-79	26	56	U	U	-7.69	pCi/L
FGW005 C	10/25/2022	SODIUM-22	6.20	13.9	U	U	0.107	pCi/L
FGW005 C	2/28/2023	SODIUM-22	10.7	21.4	U	U	2.35	pCi/L
FGW005 C	6/27/2023	SODIUM-22	2.53	5.29	U	U	0.136	pCi/L
FGW005 C	10/24/2023	SODIUM-22	10.8	21.8	U	U	-1.16	pCi/L
FGW005 C	10/24/2023	STRONTIUM-90	31.6	5670			522000	pCi/L
FGW005 C	6/27/2023	STRONTIUM-90	16.1	3240			294000	pCi/L
FGW005 C	2/28/2023	STRONTIUM-90	9.23	2429.23		J	388000	pCi/L
FGW005 C	10/25/2022	STRONTIUM-90	5230	48600			571000	pCi/L
FGW005 C	10/25/2022	STRONTIUM-90		11900			501000	pCi/L
FGW005 C	2/28/2023	TECHNETIUM-99	14.1	57.9			592	pCi/L

Well ID	Date	Analyte	Detection Limit	Quantitation Limit	Lab Qualifier	Review Qualifier	Result	Units
FGW005 C	6/27/2023	TECHNETIUM-99	17.6	55.2			523	pCi/L
FGW005 C	10/25/2022	TECHNETIUM-99	19.7	74.1			694	pCi/L
FGW005 C	10/24/2023	TECHNETIUM-99	22.6	68.0			436	pCi/L
FGW005 C	10/24/2023	THALLIUM-208	16.5	36.0	U	U	-1.43	pCi/L
FGW005 C	10/25/2022	THALLIUM-208	10.1	22.1	U	U	-2.44	pCi/L
FGW005 C	2/28/2023	THALLIUM-208	16.6	35.2	U	U	2.86	pCi/L
FGW005 C	6/27/2023	THALLIUM-208	4.37	10.1	U	U	1.4	pCi/L
FGW005 C	2/28/2023	THORIUM-228	0.494	1.052	U	U	0.13	pCi/L
FGW005 C	10/24/2023	THORIUM-228	0.197	0.773	J	J	0.549	pCi/L
FGW005 C	10/25/2022	THORIUM-228	0.558	1.39	U	U	0.341	pCi/L
FGW005 C	10/25/2022	THORIUM-230	0.561	1.35	U	U	0.302	pCi/L
FGW005 C	10/24/2023	THORIUM-230	0.275	0.611	U	U	0.104	pCi/L
FGW005 C	2/28/2023	THORIUM-230	0.399	0.963	U	U	0.231	pCi/L
FGW005 C	2/28/2023	THORIUM-232	0.305	0.679	U	U	0.077	pCi/L
FGW005 C	10/25/2022	THORIUM-232	0.306	0.762	U	U	0.0768	pCi/L
FGW005 C	10/24/2023	THORIUM-232	0.164	0.345	U	U	0.0199	pCi/L
FGW005 C	2/28/2023	TIN-113	20.2	43.2	U	U	-3.02	pCi/L
FGW005 C	2/28/2023	TIN-126	63.2	139.2	U	U	-4.55	pCi/L
FGW005 C	10/24/2023	TRITIUM	0.788	8.29			280	pCi/mL
FGW005 C	6/27/2023	TRITIUM	0.622	4.14	R	R	46.4	pCi/mL
FGW005 C	2/28/2023	TRITIUM	0.508	5.428			83.5	pCi/mL
FGW005 C	10/25/2022	TRITIUM	0.632	6.71			127	pCi/mL
FGW005 C	2/28/2023	URANIUM-232	20.1	32.08	U	U	-4.04	pCi/L
FGW005 C	10/24/2023	URANIUM-233/234	9.91	69.9			305	pCi/L
FGW005 C	2/28/2023	URANIUM-233/234	65.5	323.5			359	pCi/L
FGW005 C	6/27/2023	URANIUM-233/234	10.4	99.0			318	pCi/L
FGW005 C	10/25/2022	URANIUM-233/234	18.1	139			378	pCi/L
FGW005 C	6/27/2023	URANIUM-235	5.90	41.3	J	J	39.3	pCi/L
FGW005 C	10/25/2022	URANIUM-235/236	9.13	46.9	J	J	27.4	pCi/L
FGW005 C	2/28/2023	URANIUM-235/236	48.5	168.3	J	J	67.8	pCi/L
FGW005 C	10/24/2023	URANIUM-235/236	7.09	26.3	J	J	22.2	pCi/L
FGW005 C	10/25/2022	URANIUM-238	13.6	244			1400	pCi/L
FGW005 C	6/27/2023	URANIUM-238	9.72	171			1060	pCi/L
FGW005 C	2/28/2023	URANIUM-238	58.5	528.5			1240	pCi/L
FGW005 C	10/24/2023	URANIUM-238	2.25	113			1060	pCi/L
FGW005 C	2/28/2023	YTTRIUM-88	7.39	14.65	U	U	-0.402	pCi/L
FGW005 C	2/28/2023	ZINC-65	22.5	50.9	U	U	-12.6	pCi/L
FGW005 C	2/28/2023	ZIRCONIUM-95	29.6	64.8	U	U	-10.1	pCi/L
FGW022C	6/21/2023	ACTINIUM-228	14.3	31.9	U	U	-0.672	pCi/L
FGW022C	3/16/2023	ACTINIUM-228	50	105.6	U	U	1.6	pCi/L
FGW022C	10/24/2023	ACTINIUM-228	27.6	71.0	U	U	1.91	pCi/L
FGW022C	6/21/2023	AMERICIUM-241		0.202	U	U	-0.0124	pCi/L
FGW022C	3/16/2023	AMERICIUM-241	0.169	0.3328	U	U	-0.0126	pCi/L
FGW022C	10/24/2023	AMERICIUM-241	0.120	0.188	U	U	-0.0354	pCi/L
FGW022C	3/16/2023	ANTIMONY-124	28.3	50.9	U	U	6.34	pCi/L
FGW022C	10/24/2023	ANTIMONY-125	18.9	40.1	U	U	-1.59	pCi/L
FGW022C	3/16/2023	ANTIMONY-125	25.9	53.5	U	U	5.91	pCi/L
FGW022C	6/21/2023	ANTIMONY-125	8.38	18.7	U	U	-6.75	pCi/L
FGW022C	6/21/2023	BARIUM-133	4.31	9.51	U	U	0.397	pCi/L
FGW022C	3/16/2023	BARIUM-133	12.1	26.74	U	U	-2.81	pCi/L
FGW022C	10/24/2023	BARIUM-133	9.70	21.8	U	U	-0.35	pCi/L
FGW022C	3/16/2023	BISMUTH-212	138	294.8	U	U	-36.4	pCi/L
FGW022C	6/21/2023	BISMUTH-214	6.90	30.5			112	pCi/L
FGW022C	3/16/2023	BISMUTH-214	22.2	93			224	pCi/L

Well ID	Date	Analyte	Detection Limit	Quantitation Limit	Lab Qualifier	Review Qualifier	Result	Units
FGW022C	10/24/2023	BISMUTH-214	14.5	62.5			123	pCi/L
FGW022C	3/16/2023	CALIFORNIUM-249	12.2	33	U	U	6.01	pCi/L
FGW022C	3/16/2023	CALIFORNIUM-251	41.1	84.5	U	U	16.2	pCi/L
FGW022C	6/21/2023	CARBON-14		22.0	U	U	-7.18	pCi/L
FGW022C	10/24/2023	CARBON-14	89.8	194	U	U	-1.4	pCi/L
FGW022C	3/16/2023	CARBON-14	81.2	173.4	U	U	-21	pCi/L
FGW022C	3/16/2023	CERIUM-141	16	35.14	U	U	-7.84	pCi/L
FGW022C	3/16/2023	CERIUM-144	64.7	137.7	U	U	-4.5	pCi/L
FGW022C	3/16/2023	CESIUM-134	10.8	22.34	U	U	-0.823	pCi/L
FGW022C	10/24/2023	CESIUM-134	7.82	15.4	U	U	0.623	pCi/L
FGW022C	6/21/2023	CESIUM-134	3.32	9.60	U	U	1.04	pCi/L
FGW022C	10/24/2023	CESIUM-137	8.44	17.7	U	U	-1.21	pCi/L
FGW022C	6/21/2023	CESIUM-137	2.96	6.40	U	U	-0.738	pCi/L
FGW022C	3/16/2023	CESIUM-137	12.6	23.62	U	U	7.62	pCi/L
FGW022C	3/16/2023	COBALT-57	7.44	16.48	U	U	-4.88	pCi/L
FGW022C	3/16/2023	COBALT-58	11.1	23.16	U	U	-0.916	pCi/L
FGW022C	10/24/2023	COBALT-60	11.7	21.9	U	U	5.31	pCi/L
FGW022C	6/21/2023	COBALT-60	3.77	7.59	U	U	0.517	pCi/L
FGW022C	3/16/2023	COBALT-60	10.1	21.24	U	U	-3.15	pCi/L
FGW022C	3/16/2023	CURIUM-242	0.126	0.262	U	U	0.0131	pCi/L
FGW022C	10/24/2023	CURIUM-242	0.102	0.168	U	U	-0.0174	pCi/L
FGW022C	3/16/2023	CURIUM-243/244	0.246	0.494	U	U	-0.0248	pCi/L
FGW022C	6/21/2023	CURIUM-243/244		0.0698	U	U	-0.00167	pCi/L
FGW022C	10/24/2023	CURIUM-243/244	0.129	0.200	U	U	-0.0444	pCi/L
FGW022C	10/24/2023	CURIUM-245/246	0.0936	0.217	U	U	0.035	pCi/L
FGW022C	3/16/2023	CURIUM-245/246	0.0432	0.123	U	U	0	pCi/L
FGW022C	10/24/2023	EUROPIUM-152	21.4	45.0	U	U	-0.31	pCi/L
FGW022C	3/16/2023	EUROPIUM-152	26.4	65.6	U	U	18.4	pCi/L
FGW022C	6/21/2023	EUROPIUM-152	9.83	20.3	U	U	2.54	pCi/L
FGW022C	6/21/2023	EUROPIUM-154	9.31	19.9	U	U	-1.65	pCi/L
FGW022C	3/16/2023	EUROPIUM-154	30.9	64.9	U	U	-9.37	pCi/L
FGW022C	10/24/2023	EUROPIUM-154	27.2	60.6	U	U	-14.2	pCi/L
FGW022C	10/24/2023	EUROPIUM-155	25.3	51.1	U	U	12.4	pCi/L
FGW022C	3/16/2023	EUROPIUM-155	33.3	70.1	U	U	-2.62	pCi/L
FGW022C	6/21/2023	EUROPIUM-155	14.1	29.6	U	U	10.1	pCi/L
FGW022C	10/24/2023	GROSS ALPHA	0.646	24.4			602	pCi/L
FGW022C	6/20/2022	GROSS ALPHA		59.6			468	pCi/L
FGW022C	3/16/2023	GROSS ALPHA	1.07	13.75			558	pCi/L
FGW022C	6/21/2023	GROSS ALPHA		61.2			458	pCi/L
FGW022C	10/24/2023	IODINE-129	0.977	2.02	U	U	0.584	pCi/L
FGW022C	6/21/2023	IODINE-129		0.00574	U	U	1.47	pCi/L
FGW022C	10/24/2023	LEAD-212	12.2	33.8	U	U	11.7	pCi/L
FGW022C	6/21/2023	LEAD-212	6.41	17.5	U	U	3.09	pCi/L
FGW022C	6/21/2023	LEAD-214	7.18	33.2			120	pCi/L
FGW022C	3/16/2023	LEAD-214	19.6	91.4			267	pCi/L
FGW022C	10/24/2023	LEAD-214	16.3	57.9			98.7	pCi/L
FGW022C	3/16/2023	MANGANESE-54	11.1	23.04	U	U	-0.397	pCi/L
FGW022C	3/16/2023	NEPTUNIUM-237	0.598	1.526	U	U	0.357	pCi/L
FGW022C	6/21/2023	NEPTUNIUM-237		0.264			0.38	pCi/L
FGW022C	10/24/2023	NEPTUNIUM-237	0.352	0.960	U	U	0.304	pCi/L
FGW022C	3/16/2023	NEPTUNIUM-239	87.5	185.9	U	U	-10.4	pCi/L
FGW022C	3/16/2023	NIOBIUM-94	11.6	24.98	U	U	1.3	pCi/L
FGW022C	6/21/2023	NONVOLATILE BETA		44.8			283	pCi/L
FGW022C	3/16/2023	NONVOLATILE BETA	0.883	6.763			321	pCi/L

Well ID	Date	Analyte	Detection Limit	Quantitation Limit	Lab Qualifier	Review Qualifier	Result	Units
FGW022C	6/20/2022	NONVOLATILE BETA		37.7			170	pCi/L
FGW022C	10/24/2023	NONVOLATILE BETA	0.810	15.8			558	pCi/L
FGW022C	6/21/2023	PLUTONIUM-238		0.192	U	U	0.0698	pCi/L
FGW022C	3/16/2023	PLUTONIUM-238	0.191	0.3426	U	U	-0.0168	pCi/L
FGW022C	10/24/2023	PLUTONIUM-238	0.103	0.170	U	U	-0.0177	pCi/L
FGW022C	3/16/2023	PLUTONIUM-239/240	0.162	0.3082	U	U	0.000986	pCi/L
FGW022C	6/21/2023	PLUTONIUM-239/240		0.135	U	U	-0.0118	pCi/L
FGW022C	10/24/2023	PLUTONIUM-239/240	0.0971	0.185	U	U	0.000589	pCi/L
FGW022C	6/21/2023	POTASSIUM-40	29.8	115	U	U	2.95	pCi/L
FGW022C	10/24/2023	POTASSIUM-40	114	245	U	U	-34.4	pCi/L
FGW022C	3/16/2023	POTASSIUM-40	133	345	U	U	25	pCi/L
FGW022C	3/16/2023	PROMETHIUM-144	9.87	20.79	U	U	-1.7	pCi/L
FGW022C	6/21/2023	PROMETHIUM-146	4.28	8.78	U	U	1.41	pCi/L
FGW022C	10/24/2023	PROMETHIUM-146	10.7	23.5	U	U	1.65	pCi/L
FGW022C	3/16/2023	PROMETHIUM-146	14.8	29.14	U	U	5.93	pCi/L
FGW022C	3/16/2023	PROTACTINIUM-233	18.6	41	U	U	-4.48	pCi/L
FGW022C	3/16/2023	RADIUM-226	184	610	U	U	65.2	pCi/L
FGW022C	6/21/2023	RADIUM-226	75.2	289	R	R	257	pCi/L
FGW022C	6/21/2023	RADIUM-228	14.3	31.9	U	U	-0.672	pCi/L
FGW022C	3/16/2023	RADIUM-228	50	105.6	U	U	1.6	pCi/L
FGW022C	10/24/2023	RADIUM-228	27.6	71.0	U	U	1.91	pCi/L
FGW022C	3/16/2023	RUTHENIUM-103	10.1	20.88	U	U	-1.2	pCi/L
FGW022C	3/16/2023	RUTHENIUM-106	89.4	181.4	U	U	2.48	pCi/L
FGW022C	3/16/2023	SODIUM-22	10.9	22.48	U	U	-2.57	pCi/L
FGW022C	10/24/2023	SODIUM-22	9.66	21.5	U	U	-4.9	pCi/L
FGW022C	6/21/2023	SODIUM-22	3.34	7.10	U	U	-0.46	pCi/L
FGW022C	6/21/2023	STRONTIUM-90		9.10			38.2	pCi/L
FGW022C	10/24/2023	STRONTIUM-90	6.30	34.9			151	pCi/L
FGW022C	3/16/2023	STRONTIUM-90	4.69	14.97			24.5	pCi/L
FGW022C	6/21/2023	TECHNETIUM-99		16.5			184	pCi/L
FGW022C	3/16/2023	TECHNETIUM-99	21	55.2			214	pCi/L
FGW022C	10/24/2023	TECHNETIUM-99	21.6	56.6			196	pCi/L
FGW022C	6/21/2023	THALLIUM-208	3.70	8.42	U	U	-1.05	pCi/L
FGW022C	3/16/2023	THALLIUM-208	12.4	26.34	U	U	-1.31	pCi/L
FGW022C	10/24/2023	THALLIUM-208	9.33	20.8	U	U	0.426	pCi/L
FGW022C	10/24/2023	THORIUM-228	0.243	0.541	U	U	0.0835	pCi/L
FGW022C	3/16/2023	THORIUM-228	0.17	0.376	U	U	0.0702	pCi/L
FGW022C	3/16/2023	THORIUM-230	0.154	0.3308	U	U	0.0397	pCi/L
FGW022C	10/24/2023	THORIUM-230	0.290	0.646	U	U	0.122	pCi/L
FGW022C	10/24/2023	THORIUM-232	0.187	0.315	U	U	-0.0255	pCi/L
FGW022C	3/16/2023	THORIUM-232	0.115	0.2168	U	U	-0.016	pCi/L
FGW022C	3/16/2023	TIN-113	12	25.82	U	U	-6.01	pCi/L
FGW022C	3/16/2023	TIN-126	28	71.4	U	U	24.5	pCi/L
FGW022C	6/21/2023	TRITIUM		1.58			5.73	pCi/mL
FGW022C	6/20/2022	TRITIUM		1.56			6.54	pCi/mL
FGW022C	10/24/2023	TRITIUM	0.771	2.12			5.46	pCi/mL
FGW022C	3/16/2023	TRITIUM	0.528	2.126			7.51	pCi/mL
FGW022C	6/21/2023	URANIUM-233/234		27.8	J		199	pCi/L
FGW022C	3/16/2023	URANIUM-233/234	14.7	71.5			140	pCi/L
FGW022C	10/24/2023	URANIUM-233/234	10.0	50.6			153	pCi/L
FGW022C	6/21/2023	URANIUM-235		4.97	J		17.5	pCi/L
FGW022C	10/24/2023	URANIUM-235/236	2.43	16.3	J	J	13.8	pCi/L
FGW022C	3/16/2023	URANIUM-235/236	10.7	33.7	J	J	16.2	pCi/L
FGW022C	10/24/2023	URANIUM-238	5.02	70.6			424	pCi/L

Well ID	Date	Analyte	Detection Limit	Quantitation Limit	Lab Qualifier	Review Qualifier	Result	Units
FGW022C	3/16/2023	URANIUM-238	11	107.6			425	pCi/L
FGW022C	6/21/2023	URANIUM-238		76.7	J		617	pCi/L
FGW022C	3/16/2023	YTTRIUM-88	15.6	29.46	U	U	2.84	pCi/L
FGW022C	3/16/2023	ZINC-65	28.4	59.4	U	U	3	pCi/L
FGW022C	3/16/2023	ZIRCONIUM-95	16.3	35.34	U	U	-0.734	pCi/L

This page was intentionally left blank.

APPENDIX B

2022 and 2023 Monitoring Well Results
Data Matrix Table and Field Conditions Key Codes

Field Code	Explanation
A	Pump is surging excessively; aerated
B	Blank sample was collected
C	Well is continuously pumping
D	Well is dry-no sample or field data collected
E	Equipment blank was collected
I	Well went dry during sampling; field data collected but insufficient water to collect all samples
L	Well went dry before sampling began; only depth to water can be determined
N	Well was not stabilized before sampling began
P	Inaccessibility or mechanical failure prevented sample collection and field analysis of the water
S	No water in standpipe; for water level events only
T	Samples were collected, but some samples were not sent to the laboratory due to high turbidity
W	Unable to sample well because of stabilization or sampling equipment failure; water-level measurements were obtained
X	Well went dry during purging; samples collected after well recovered measurements obtained
0	OK
1	Pump Dry
2	Sampled after recovery
3	Gallons purged through sample port
4	DI water obtained from 772-7B
5	High turbidity
6	Flow meter leaking
7	Pump failure
8	Flow meter not operating
9	# gallons added
10	Well is inaccessible, well cannot be Sampled
11	Well abandoned
12	No water to surface
13	Field measurements only
14	Not all samples were collected
15	Equipment failure
16	No water in standpipe
17	Bailed well
18	Water level tape not long enough
19	Well not sampled, maintenance required
20	Well sampled, maintenance required
21	Measurement Exceeded Criteria

This page was intentionally left blank.

Matrix Table GSAWOU 2022 - 2023

| Station | Well Use | Aquifer Zone | SAMPLE COLLECTION DATE | DEPTH TO WATER | PH | SAMPLING EVENT WATER ELEVATION | SPECIFIC CONDUCTANCE | TOTAL ALKALINITY (AS CACO3) | WATER TEMPERATURE | AquiferUnit | CWS Unit | FIELD CONDITIONS | NITRATE-NITRITE AS NITROGEN | CESIUM-137 | COMBINED RADIUM (226 AND 228) | GROSS ALPHA | IODINE-129 | NONVOLATILE BETA | RADIUM-226 | RADIUM-228 | STRONTIUM-90 | TECHNETIUM-99 | TRITIUM | URANIUM-233/234 | URANIUM-238 | 1,1,1-TRICHLOROETHANE | 1,1,2,2-TETRACHLOROETHANE | 1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE | 1,1,2-TRICHLOROETHANE | 1,1-DICHLOROETHANE | 1,1-DICHLOROETHYLENE | 1,2,3-TRICHLOROBENZENE | 1,2,4-TRICHLOROBENZENE | 1,2-DIBROMO-3-CHLOROPROPANE | 1,2-DIBROMOETHANE | 1,2-DICHLOROBENZENE | 1,2-DICHLOROETHANE (EDC) | 1,2-DICHLOROPROPANE | 1,3-DICHLOROBENZENE | 1,4-DICHLOROBENZENE | 1,4-DIOXANE | 2-HEXANONE | ACETONE | BENZENE | BROMODICHLOROMETHANE | BROMOFORM (TRIBROMOMETHANE) | BROMOMETHANE (METHYL BROMIDE) | CARBON DISULFIDE | CARBON TETRACHLORIDE | CHLOROBENZENE | CHLOROETHANE (ETHYL CHLORIDE) | CHLOROFORM | CHLOROMETHANE (METHYL CHLORIDE) | CIS-1,2-DICHLOROETHYLENE | CIS-1,3-DICHLOROPROPENE | ETHYLBENZENE | CYCLOHEXANE | CYCLOHEXYLAMINE | DIBROMOCHLOROMETHANE | DICHLORODIFLUOROMETHANE | DICHLOROMETHANE (METHYLENE CHLORIDE) | ETHYL ACETATE | ETHYL METHYL KETONE | METHYL ISOBUTYL KETONE | METHYL TERTIARY BUTYL ETHER (MTBE) | METHYLCYCLOHEXANE | STYRENE | TETRACHLOROETHYLENE (PCE) | TOLUENE | TRANS-1,2-DICHLOROETHYLENE | TRANS-1,3-DICHLOROPROPENE | TRICHLOROETHYLENE (TCE) | TRICHLOROFLUOROMETHANE |
|---|---|---