Chapter 7: Groundwater Management Program

The purpose of the Savannah River Site's (SRS's) groundwater management program is to protect, monitor, remediate, and use groundwater. With this focus, the program accomplishes the following:

- Ensures future groundwater contamination does not occur
- Monitors groundwater to identify areas of contamination
- Remediates groundwater contamination as needed
- Conserves groundwater

2021 Highlights

Drinking Water Standards—The data show no exceedances of drinking water standards (measured by maximum contaminant limit [MCLs] or regional screening levels [RSLs]) in SRS boundary wells near A/M Area.

Groundwater Contaminant Removal—SRS removed 18,544 pounds (lbs) of volatile organic compounds (VOCs) from groundwater and the vadose zone, preventing 51.7 curies (Ci) of tritium from reaching SRS streams.

Offsite Groundwater Monitoring (Georgia)—For the last three years, tritium has not been detected in Georgia groundwater monitoring wells. This data supports the conclusions drawn from a U.S. Geological Survey that indicate there is no mechanism by which groundwater could flow under the Savannah River and contaminate Georgia wells (Cherry 2006).

7.1 INTRODUCTION

Some of SRS's past operations have released chemicals and radionuclides into the soil and contaminated the groundwater around hazardous waste management facilities and waste disposal sites. Because of these past releases, SRS operates extensive groundwater monitoring and groundwater remediation programs.

The SRS groundwater monitoring program requires regular well sampling to monitor for groundwater contaminants. The well monitoring meets sampling requirements in the Federal Facility Agreement (FFA) for the Savannah River Site (FFA 1993) and in Resource Conservation and Recovery Act (RCRA) permits, and ensures the Site is meeting South Carolina Department of Health and Environmental Control (SCDHEC) and U.S. Environmental Protection Agency (EPA) drinking water quality standards. SRS uses SCDHEC-certified laboratories to analyze groundwater samples.

The monitoring data show that most of the contaminated groundwater is in the central area of SRS, and none extends beyond the SRS boundary. Groundwater contamination at SRS is limited primarily to the Upper Three Runs/Steed Pond Aquifers and the Gordon/Lost Lake Aquifers (Figure 7-1). SRS submits summaries of groundwater data to regulatory agencies and, if necessary, remediates or removes the contamination. *Appendix E: Groundwater Management Program Supplemental Information* lists the documents reporting groundwater monitoring data that SRS submits to the regulatory agencies.

SRS uses several technologies to remediate groundwater that exceeds the MCLs or the RSLs. Remediation includes closing waste units to reduce the potential for contaminants to reach groundwater, actively treating contaminated water, and employing passive and natural (attenuation) remedies.

Groundwater remediation at SRS focuses on VOCs and tritium. VOCs in groundwater, mainly trichloroethylene (TCE) and tetrachloroethylene (PCE), originate from their use as degreasing agents in industrial work at SRS. Tritium in groundwater is a byproduct of nuclear materials production at SRS. Corrective measures at SRS range from active treatment, such as using oxidants to destroy the VOCs in place, to passive measures, such as monitored natural attenuation and phytoremediation (using trees and plants to remove or break down contaminants). These practices are removing VOCs from the groundwater and effectively reducing tritium releases into SRS streams and the Savannah River.

7.2 GROUNDWATER AT SRS

The groundwater flow system at SRS consists of the following four major aquifers separated by confining units:

- Upper Three Runs/Steed Pond
- Gordon/Lost Lake
- Crouch Branch
- McQueen Branch

Chapter 7—Key Terms

Aquifer *is an underground water supply found in porous rock, sand, gravel, and other materials.*

Attenuation *is a reduction of groundwater contaminants over time due to naturally occurring physical, chemical, and biological processes.*

Confining unit *is the opposite of an aquifer. It is a layer of rock or sand that limits groundwater movement in and out of an aquifer.*

Contaminants of concern *are contaminants identified in the risk assessment that are found at a waste unit and pose an unacceptable risk to human health and the environment.*

Groundwater *is water found underground in cracks and spaces in soil, sand, and rocks.*

Maximum contaminant level (MCL) *is the highest level of a contaminant allowed in drinking water.*

Plume *is a volume of contaminated water originating at a waste source (for example, a hazardous waste disposal site). It extends downward and outward from the waste source.*

Recharge *occurs when water from the surface travels down into the subsurface, replenishing the groundwater.*

Regional screening level (RSL) *is the risk-based concentration derived from standardized equations, combining exposure assumptions with toxicity data.*

Remediation *cleans up sites contaminated with waste from historical activities.*

Surface water *is water found above ground (for example, streams, lakes, wetlands, reservoirs, and oceans).*

Vadose zone *is the subsurface layer below the land surface and above the water table. The vadose zone has a low water-compared-to-saturated zone; therefore, it is also referred to as being unsaturated.*

Waste unit *is an area that is, or may be, posing a threat to human health or the environment. It ranges in size from a few square feet to tens of acres and includes basins, pits, piles, burial grounds, landfills, tank farms, disposal facilities, process facilities, and contaminated groundwater.*

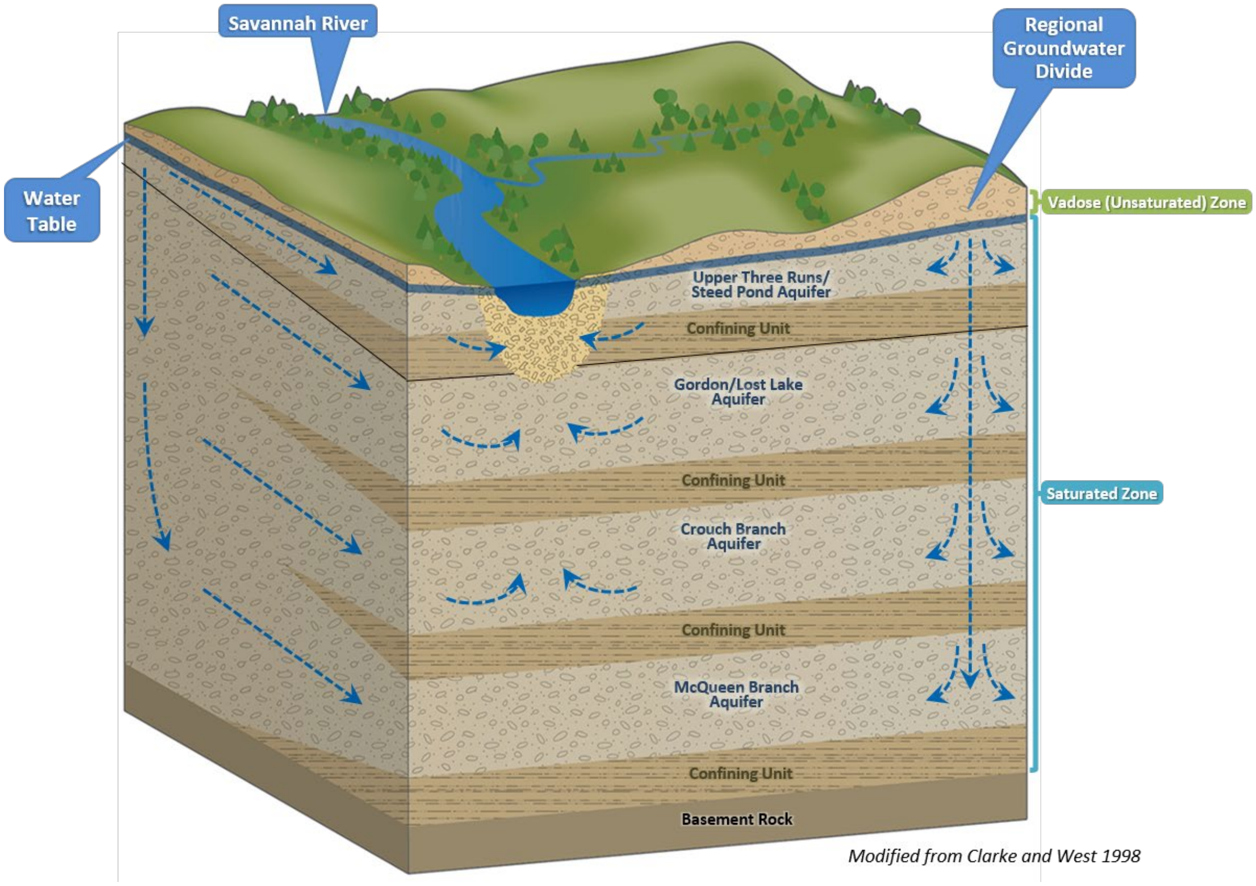


Figure 7-1 Groundwater at SRS

Groundwater flow in recharge areas generally migrates downward and laterally. It eventually flows into the Savannah River and its tributaries or migrates into the deeper regional flow system. Figure 7-1 presents a three-dimensional block diagram of these units at SRS and the generalized groundwater flow patterns within those units. Water moving from the ground's surface into the aquifers can carry contamination along with it, resulting in underground plumes of contaminated water (Figure 7-2).

7.3 GROUNDWATER PROTECTION PROGRAM AT SRS

SRS has designed and implemented a groundwater protection program to prevent new releases to groundwater and to remediate contaminated groundwater to meet federal and state laws and regulations, U.S. Department of Energy (DOE) Orders, and SRS policies and procedures. It accomplishes the following:

- Protects groundwater
- Monitors groundwater
- Remediates groundwater
- Conserves groundwater

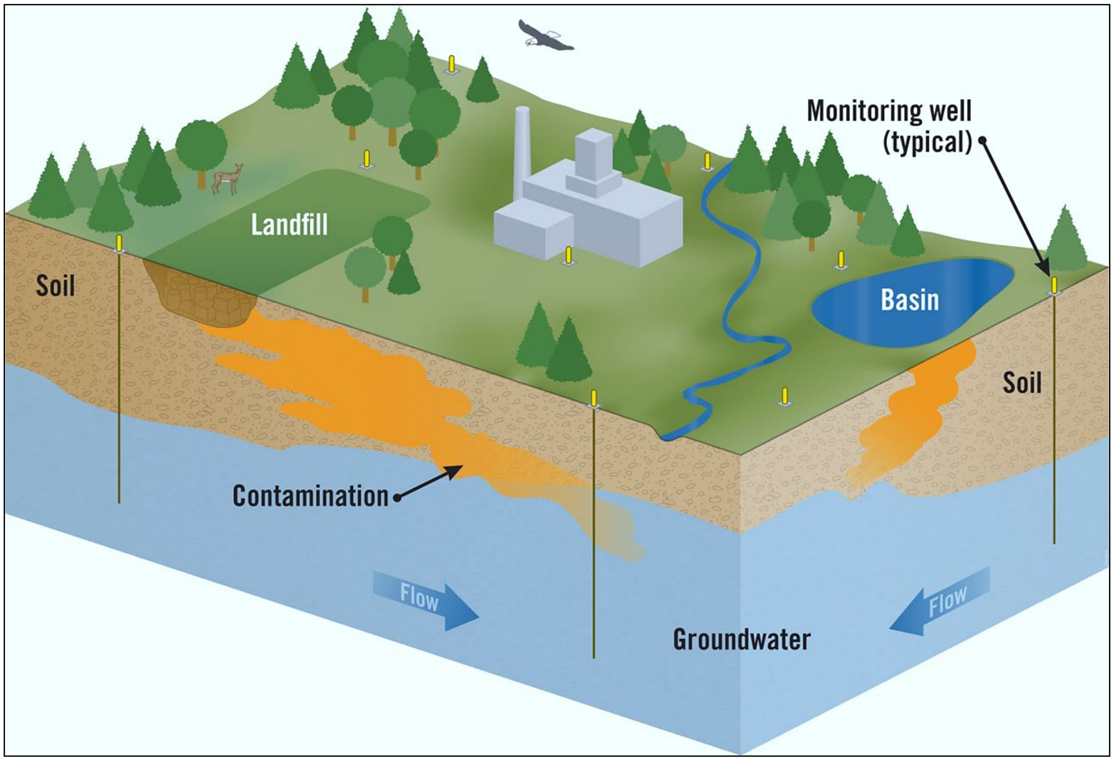


Figure 7-2 How Contamination Gets to Soil and Groundwater

7.3.1 Protecting SRS Groundwater

SRS groundwater management focuses on preventing and monitoring groundwater contamination, protecting the public and environment from contamination, and preserving groundwater quality for future use. SRS protects groundwater by:

- Preventing or controlling groundwater contamination sources from construction sites, hazardous waste management facilities, and waste units
- Monitoring groundwater and surface water to detect contaminants
- Reducing contaminants via a groundwater cleanup program

7.3.2 Monitoring SRS Groundwater

The purpose of monitoring groundwater is to observe and evaluate changes in the groundwater quality over time and to establish, as accurately as possible, the baseline quality of the groundwater occurring naturally in the aquifers. The SRS groundwater monitoring program includes two primary components: groundwater contaminant source monitoring and groundwater surveillance monitoring. SRS evaluates groundwater-monitoring data frequently to identify whether new groundwater contamination exists or whether it should modify the current monitoring program.

SRS uses groundwater-monitoring data to determine the effects of Site operations on groundwater quality. The program supports the following critical activities:

- Complying with environmental regulations and DOE directives
- Evaluating the status of groundwater plumes

- Evaluating potential impacts from activities planned near or within the groundwater plume footprint
- Enhancing groundwater remediation through basic and applied research projects

Monitoring the groundwater around SRS facilities, waste disposal sites, and associated streams is the best way to detect and track contaminant migration. Through careful monitoring and analysis, SRS implements appropriate remedial or corrective actions. Figure 7-3 shows the groundwater plumes associated with SRS.

Increasing national attention to "emerging contaminants" or contaminants of emerging concern (CEC) can trigger a call for action from federal, state, and local government. Increased monitoring and detections of unregulated substances can lead the EPA to identify solutions to address these substances that may present a risk to human health or the environment. As a result of discussions with the EPA and SCDHEC, SRS adds emerging contaminants to analyte lists when historical or process knowledge indicates that a contaminant could be of concern.

1,4-Dioxane is one of the emerging contaminants that SRS monitors regularly in conjunction with VOC plumes.

SRS Engineers Inspect a Solar-powered MicroBlower™.

Other CECs include per- and polyfluoroalkyls substances (PFAS). PFAS are a family of man-made chemicals that have been manufactured and used worldwide since the 1940s. They are present in various items such as cookware, stain repellants, food packaging, and firefighting foam. In 2019, SRS began assessing the past and present use of PFAS at the Site. Groundwater sampling of PFAS continued in 2021, along with continued assessments of past use. Results from 2021 groundwater sampling range from <10 ng/L up to 1,750 ng/L, which is similar to the 2020 results. These results from D Area indicate that PFAS present are related to historical use of firefighting foams. SRS is committed to understanding the full nature and extent of PFAS contamination at SRS. The SRS groundwater monitoring program ensures that there is no cross-contamination in samples due to the presence of PFAS in many consumer products. The EPA, SCDHEC, and the Interstate Technology Regulatory Council webpages have current information on the state of knowledge and regulatory status of PFAS.

7.3.2.1 Groundwater Surveillance Monitoring

Surveillance monitoring at SRS focuses on collecting and analyzing data to characterize the groundwater flow and determine the presence or absence of contaminants. Characterization at SRS includes the following activities:

- Collecting soil and groundwater samples to determine the extent of contamination
- Obtaining geologic soil cores or seismic profiles to better determine aquifer and confining unit physical and geochemical properties

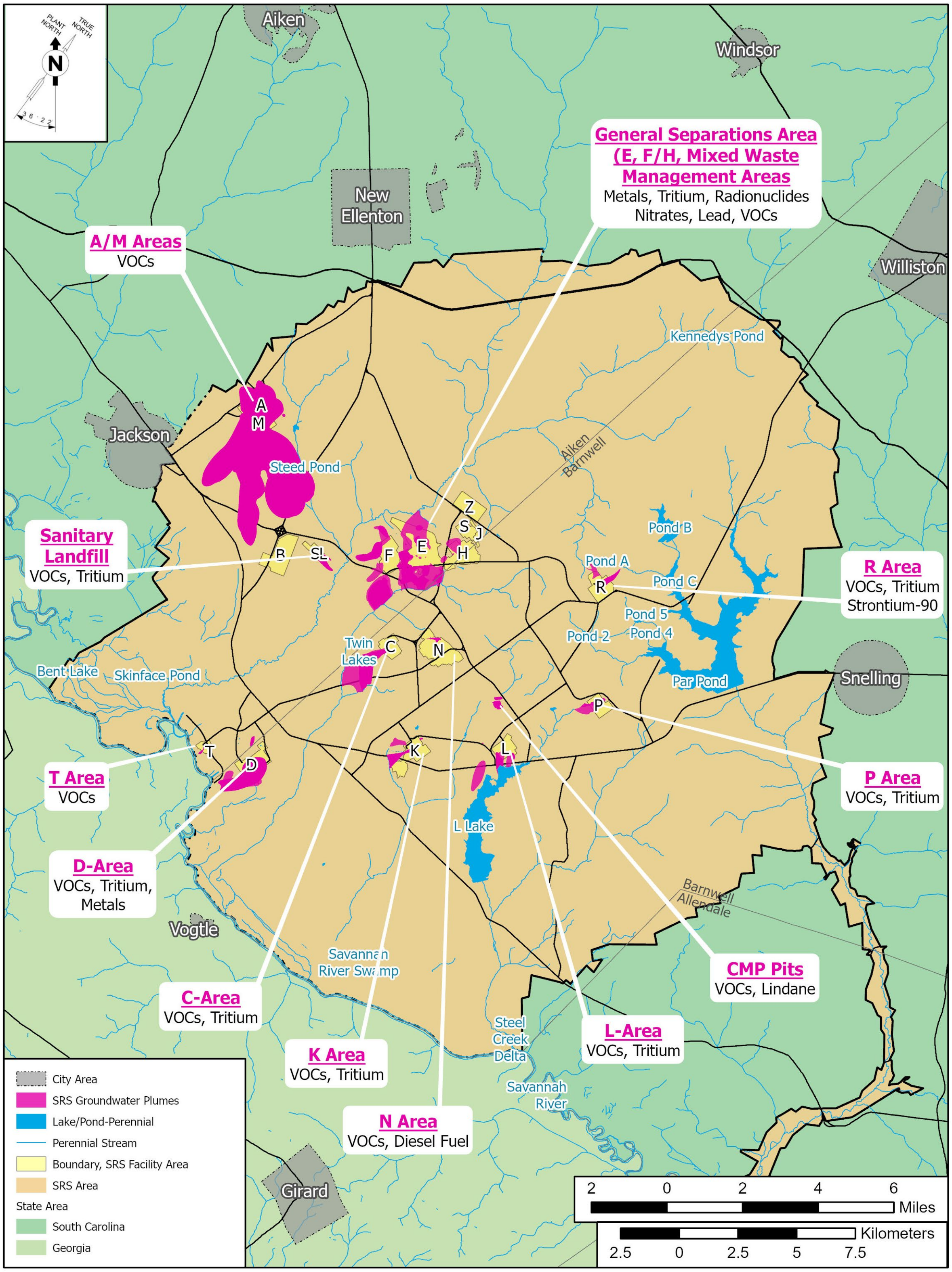


Figure 7-3 Groundwater Plumes at SRS

- Installing wells to periodically collect water-level measurements and groundwater samples
- Developing maps to help define groundwater flow, and visualize the extent of horizontal and vertical contamination
- Performing calculations based on water elevation data to estimate groundwater velocities
- Using groundwater modeling to understand future SRS groundwater movement—and specifically contaminant movement—near facilities, individual waste units, and at the Site boundary
- Characterizing regional surface water flow to assess contaminant risk to perennial streams, which receive groundwater flow

7.3.2.2 2021 Groundwater Data Summary

SRS uses more than 150 wells to monitor a significant plume beneath A/M Area. Some of these monitoring wells lie within a half-mile of the northwestern boundary of SRS. The direction of groundwater flow in the area is parallel to the Site boundary; however, groundwater flow direction can fluctuate. Because of this, SRS concentrates on the groundwater results from the wells along the Site boundary, as well as those between A/M Area and the nearest population center, Jackson, South Carolina (SRNS 2022a). The data show no exceedances of drinking water standards (MCLs or RSLs) in SRS boundary wells near A/M Area. No detectable contamination exists in most of these SRS boundary wells.

Although most SRS-contaminated groundwater plumes do not approach the Site boundary, the potential to affect Site streams exists when contaminated groundwater flows into nearby streams. SRS monitors and evaluates groundwater contamination that flows into Site streams and remediates it as appropriate. In conjunction with stream monitoring, as discussed in Chapter 5, *Radiological Environmental Monitoring Program*, Section 5.4.3, *SRS Stream Sampling and Monitoring*, SRS conducts extensive monitoring near SRS waste units and operating facilities, regardless of their proximity to the boundary. *Savannah River Site Groundwater Management Strategy and Implementation Plan* (SRNS 2020) details groundwater monitoring and conditions at individual sites.

Table 7-1 identifies the typical contaminants of concern (COCs) found in SRS groundwater and their significance. These COCs are a result of historical SRS operations that released chemicals and radionuclides into the soil and groundwater near hazardous waste management facilities and waste disposal sites. Table 7-2 presents a general summary of the most common contaminants found in groundwater at SRS facility areas, based on 2021 monitoring data, and compares the maximum concentrations to the appropriate drinking water standards. Table 7-2 shows the major COCs in the groundwater beneath SRS, including common degreasers (TCE and PCE) and radionuclides (tritium, gross alpha, and nonvolatile beta emitters).

Since the early 1990s, SRS has directed considerable effort to assessing the likelihood of flow beneath the Savannah River from South Carolina to Georgia. A groundwater model developed by the U.S. Geological Survey indicates there is no mechanism by which groundwater could flow under the Savannah River and contaminate Georgia wells (Cherry 2006). SRS continues to monitor for tritium in groundwater wells in Georgia (Figure 7-4) by collecting samples annually during the second half of the year. Detections of tritium in groundwater in these Georgia offsite wells have been below 1.5 pCi/mL (1,500 pCi/L) since 1999 (Figure 7-5). The MCL, or drinking water standard, for tritium is 20 pCi/mL (20,000 pCi/L). For the fourth consecutive year, the results had no detectable concentrations of tritium.

Table 7-1 Typical Contaminants of Concern at SRS

Contaminants	Sources	Limits, Exposure Pathways, and Health Effects
Gross Alpha	Alpha radiation emits positively charged particles from radioactive decay of certain elements including uranium, thorium, and radium. Alpha radiation in drinking water can be in the form of dissolved minerals or a gas (radon).	MCL is 15 pCi/L. An alpha particle cannot penetrate a piece of paper or human skin. It causes increased risk of cancer through ingestion or inhalation.
Nonvolatile Beta	Beta decay commonly occurs among neutron-rich fission byproducts produced in nuclear reactors.	MCL is 4 mrem/yr. It causes increased risk of cancer through ingestion, inhalation, or dermal exposure.
Tritium	Radioactive isotope of hydrogen with a half-life of 12.3 years. It emits a very weak beta particle and behaves like water.	MCL is 20 pCi/mL. It primarily enters the body when people swallow tritiated water. It causes increased risk of cancer through ingestion, inhalation, or dermal exposure.
TCE/PCE	VOCs used primarily to remove grease from fabricated metal parts.	MCL is 5 µg/L. It causes increased risk of cancer through ingestion, inhalation, or dermal exposure.
Vinyl Chloride	VOC formed as a degradation product of TCE/PCE.	MCL is 2 µg/L. It causes increased risk of cancer through ingestion, inhalation, or dermal exposure.
1,4-Dioxane[a]	Synthetic industrial chemical used as a stabilizer for VOCs to reduce degradation.	RSL for tap water is 0.46 µg/L. It causes increased risk of cancer through ingestion, inhalation, or dermal exposure.
PFAS[a]	Constituent in firefighting foams, and in consumer products such as cookware, packaging, and stain repellants.	EPA Drinking Water Lifetime Health Advisory Limit (nonenforceable) is 70 ng/L. It causes low birth weights, effects on the immune system, cancer, and thyroid disruption.

[a] Substance identified by EPA as contaminant of emerging concern

Table 7-2 Summary of the Maximum Contaminant Concentrations for Major Areas within SRS

Location	Major Contaminant	Units	2021 Max Concentration	Well	MCL/ RSL	Likely Stream Endpoints
A/M Area	Tetrachloroethylene	µg/L	82,600	MSB002CR	5	Upper Three Runs
	Trichloroethylene	µg/L	64,200	MSB002CR	5	
	1,4-Dioxane	µg/L	500	MCB037C	0.46[a]	
C Area	Tetrachloroethylene	µg/L	8.71	CRP 5C	5	Fourmile Branch
	Trichloroethylene	µg/L	1,940	CRP 20CU	5	
	Tritium	pCi/mL	2,300	CRW024C	20	
	Vinyl Chloride	µg/L	209	CRP 50B	2	
CMP Pits (G Area)	Tetrachloroethylene	µg/L	2,470	CMP 35D	5	Pen Branch
	Trichloroethylene	µg/L	1,390	CMP 35D	5	
	Lindane	µg/L	5.14	CMP 35D	0.2	
	1,4-Dioxane	µg/L	101	CMP 35D	0.46[a]	
D Area	Beryllium	µg/L	112	DCB 26AR	4	Savannah River
	Tetrachloroethylene	µg/L	8.34	DCB 45C	5	
	Trichloroethylene	µg/L	114	DCB 62	5	
	Vinyl Chloride	µg/L	29.5	DOB 15	2	
	Tritium	pCi/mL	206	DCB 26AR	20	
	PFAS	ng/L	1,750	DCB 62	70[b]	

Table 7-2 Summary of the Maximum Contaminant Concentrations for Major Areas within SRS (continued)

Location	Major Contaminant	Units	2021 Max Concentration	Well	MCL/ RSL	Likely Stream Endpoints
E Area (MWMF)	Trichloroethylene	µg/L	414	HSB120C	5	Upper Three Runs/ Fourmile Branch
	1,4-Dioxane	µg/L	550	BSW 6C3	0.46[a]	
	Tritium	pCi/mL	30,900	BGO 15D	20	
	Nonvolatile Beta	pCi/L	36.6	HSP-097A	50[c]	
	Gross Alpha	pCi/L	13.9	BSW 3D2	15	
F Area	Trichlorethylene	µg/L	30.4	FGW003C	5	Fourmile Branch
	Tritium	pCi/mL	109	FGW012C	20	
	Gross Alpha	pCi/L	1,753	FGW005C	15	
	Nonvolatile Beta	pCi/L	7,766	FGW005C	50[c]	
F-Area HWMF	Trichloroethylene	µg/L	13.7	FSB 78C	5	Fourmile Branch
	Tritium	pCi/mL	894	FSB 78C	20	
	Gross Alpha	pCi/L	265	FSB 95DR	15	
	Nonvolatile Beta	pCi/L	552	FSB 94C	50[c]	
F-Area Tank Farm	Tritium	pCi/mL	6.27	FTF012R	20	Fourmile Branch/ Upper Three Runs
	Nonvolatile Beta	pCi/L	171	FTF 28	50[c]	
	Manganese	µg/L	129	FTF030D	28	
H Area	Trichloroethylene	µg/L	3.8	HGW 3D	5	Upper Three Runs/ Fourmile Branch
	Gross Alpha	pCi/L	34.3	HR3 16DU	15	
	Nonvolatile Beta	pCi/L	8.73	HAA 9AR	50[c]	
	Tritium	pCi/mL	18.3	HGW 2D	20	
H-Area HWMF	Trichloroethylene	µg/L	228	HSB120C	5	Fourmile Branch
	Tritium	pCi/mL	1,670	HSB120C	20	
	Gross Alpha	pCi/L	34.3	HSB101D	15	
	Nonvolatile Beta	pCi/L	481	HSB103D	50[c]	
H-Area Tank Farm	Tritium	pCi/mL	34.9	HAA 12C	20	Fourmile Branch/ Upper Three Runs
	Nonvolatile Beta	pCi/L	33.8	HAA 12B	50[c]	
	Manganese	µg/L	395	HAA 10D	28	
K Area	Tetrachloroethylene	µg/L	6.13	KDB 1	5	Indian Grave Branch
	Trichloroethylene	µg/L	2.15	KRP 9	5	
	Tritium	pCi/mL	1,360	KRB 19D	20	
L Area	Tetrachloroethylene	µg/L	65.8	LSW 25DL	5	Steel Creek
	Trichloroethylene	µg/L	2.94	LSW025DL	5	
	Tritium	pCi/mL	405	LSW 25DL	20	
P Area	Trichloroethylene	µg/L	7,530	PGW026DL	5	Steel Creek/Lower Three Runs
	Tritium	pCi/mL	12,000	PSB002B	20	
R Area	Trichloroethylene	µg/L	20	RAG008B	5	Lower Three Runs
	Tritium	pCi/mL	353	RDB 3D	20	
	Carbon-14	pCi/L	95	RDB 3D	2,000	
	Strontium-90[d]	pCi/L	14.4	RSE029D	8	
Sanitary Landfill	1,4-Dioxane	µg/L	150	LFW 62C	0.46[a]	Upper Three Runs
	Trichloroethylene	µg/L	6.15	LFW 32	5	
	Vinyl Chloride	µg/L	18.5	LFW 21	2	
TNX	Trichloroethylene	µg/L	32.6	TRW 2	5	Savannah River

Table 7-2 Summary of the Maximum Contaminant Concentrations for Major Areas within SRS (continued)

Location	Major Contaminant	Units	2021 Max Concentration	Well	MCL/ RSL	Likely Stream Endpoints
Z Area	Technetium-99	pCi/L	117	ZBG002D	900	Upper Three Runs
	Nitrate-Nitrate as Nitrogen	mg/L	8.77	ZBG002D	10	
	Nonvolatile Beta	pCi/L	47.5	ZBG002D	50[c]	

Notes:
MWMF is the Mixed Waste Management Facility; HWMF is the Hazardous Waste Management Facility; TNX is the 678-T facilities; CMP is the Chemicals, Metals, and Pesticides Pits.
µg = micrograms

[a] The 1,4-dioxane standard is a RCRA-permitted Groundwater Protection Standard.
[b] The PFAS standard is an EPA Drinking Water Lifetime Health Advisory Limit (ng/L)
[c] The MCL for nonvolatile beta activity (pCi/L or pCi/mL) equivalent to 4 mrem/yr varies according to which specific beta emitters are present in the sample. At SRS, this value equates to 50 pCi/L.
[d] At R Area, strontium-90 is sampled every two years. It was last sampled in 2020.

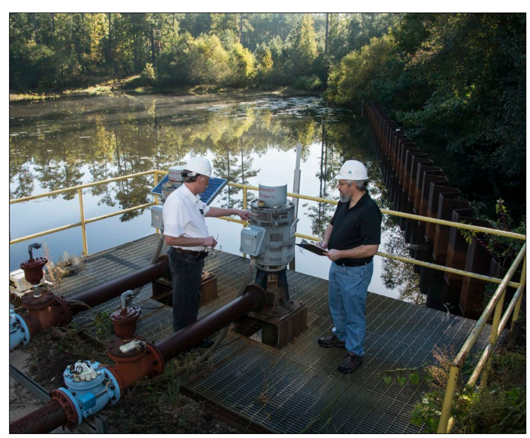
7.3.3 Remediating SRS Groundwater

SRS's environmental remediation program has been in place for more than 20 years. The Federal Facility Agreement (FFA) for the Savannah River Site (FFA 1993) specifies that RCRA and the Comprehensive Environmental Response, Compensation, and Liability Act regulate the processes of remediating and monitoring contaminated groundwater. Remediation focuses on removing mass, reducing contaminant levels, and reducing the exposure of humans and the environment to contaminants that exceed either the MCLs or RSLs. Table 7-2 identifies the MCLs and RSLs for the primary contaminants of concern in SRS groundwater.

For each remediation project, SRS determines the degree of contamination in the groundwater. After this evaluation, SRS and the regulatory agencies decide upon a strategy for remediating the groundwater.

SRS often applies remedial actions to the groundwater contamination source. For instance, SRS widely uses soil vapor extraction, a technology that extracts contaminated soil vapor from the vadose (unsaturated) zone to remove VOCs. This technology minimizes the VOCs that will reach the water table. Recently, SRS has emphasized converting soil vapor extraction systems requiring permanent electrical power to passive systems using solar power or barometric pumping.

SRS implements several groundwater remedial technologies. These technologies manage the rate the contaminants move and reduce the risk of contaminant exposure to human health and ecological receptors. Thirty-nine remediation systems are currently operating. In 2021, SRS removed 18,544 lbs of VOCs from the groundwater and the vadose zone, preventing 51.7 Ci of tritium from reaching SRS streams (SRNS 2022b). SRS has worked for more than 20 years to reduce the tritium flux to Fourmile Branch. Since 2000, SRS has reduced the tritium flux to Fourmile Branch by almost 70% using groundwater remedial technologies (subsurface barriers and water capture with phytoirrigation). The Mixed Waste Management Facility (MWMF) Phytoremediation Project has the largest tritium reductions of the technologies currently in use on the Site.



Phytoremediation Uses Trees and Plants to Remove or Break Down Contaminants.

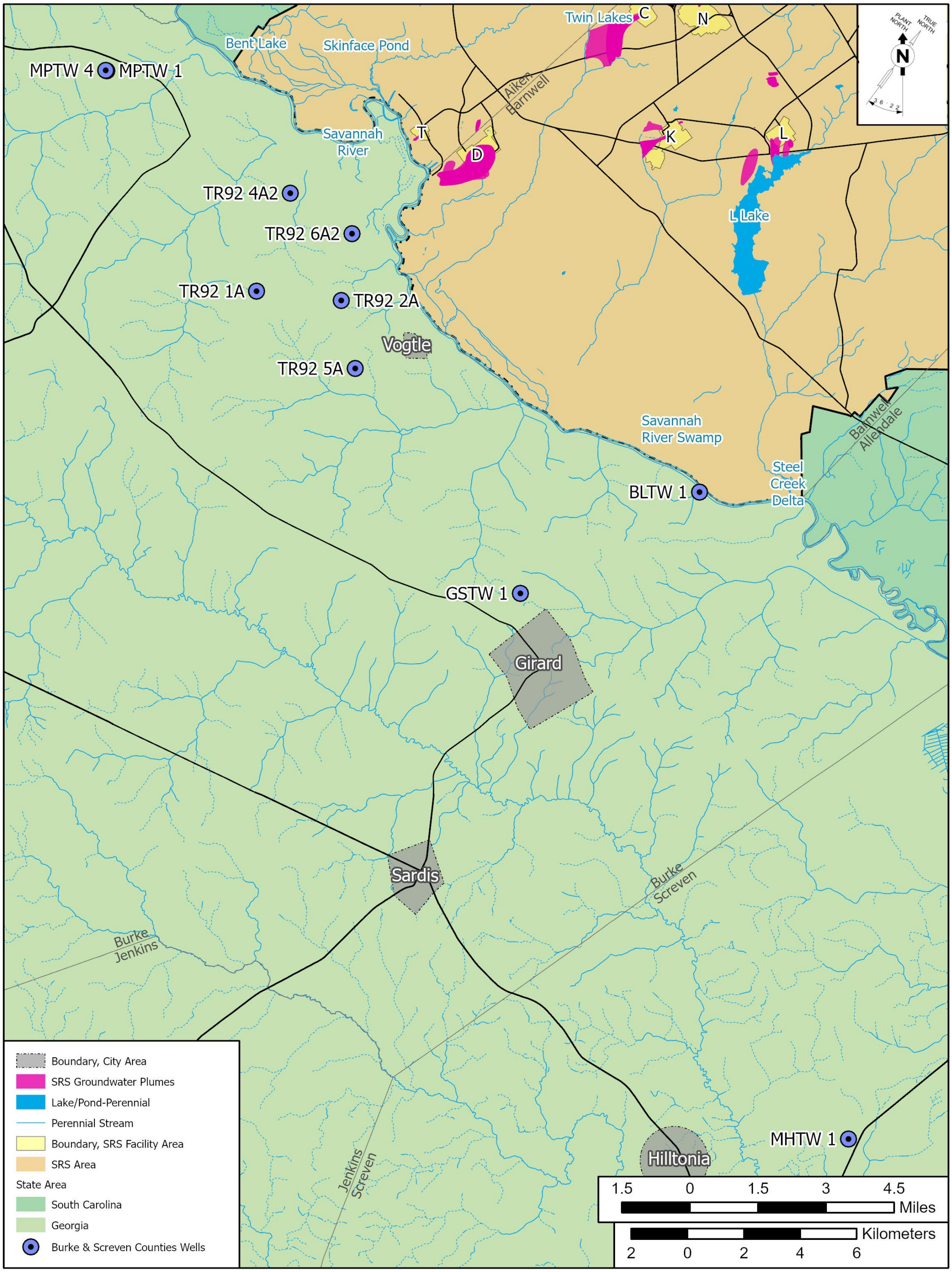


Figure 7-4 Locations of Tritium Monitoring Wells in Burke and Screven Counties, Georgia

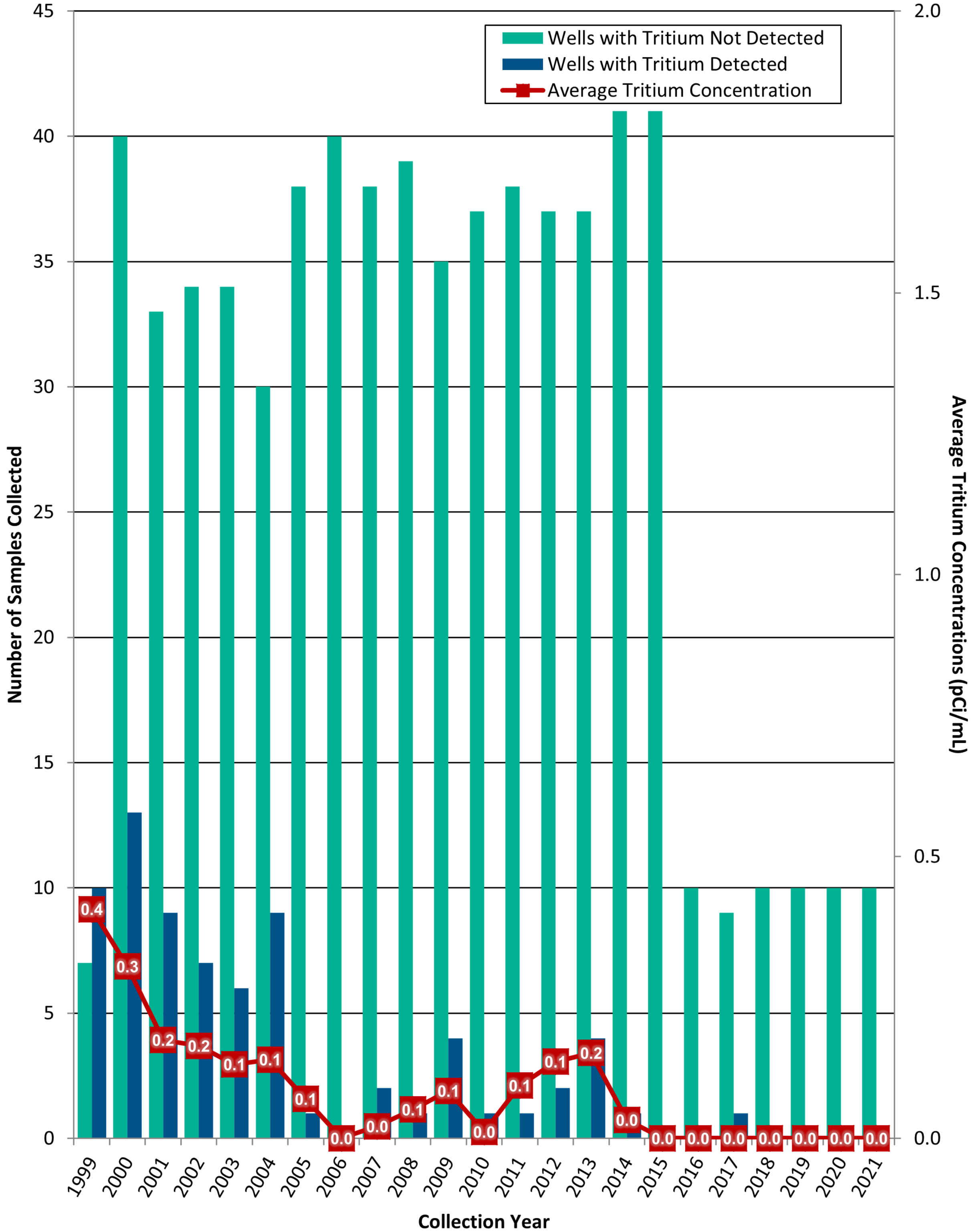


Figure 7-5 Tritium Concentration in Wells Sampled in Burke and Screven Counties, Georgia

A/M Area is SRS's largest groundwater plume, as Figure 7-3 shows. The earliest identified contamination in the A/M Area plume is associated with the M-Area and Metallurgical Laboratory Hazardous Waste Management Facility (HWMF), located in the general proximity of the "M" shown in Figure 7-3. Remediation at these two facilities began in 1983, when SRS pumped groundwater from wells to an above-ground treatment system, followed by soil vapor extraction, and then by thermal treatment. Figure 7-6 shows that as of 2021, these technologies have removed 1.60 million lbs of solvent, consisting of TCE and PCE.

Overall, the size, shape, and volume of most SRS groundwater plumes are shrinking because most of the contaminant sources have remediation systems in place. The *Savannah River Site Groundwater Management Strategy and Implementation Plan* (SRNS 2020) contains details concerning groundwater monitoring and conditions at individual sites.

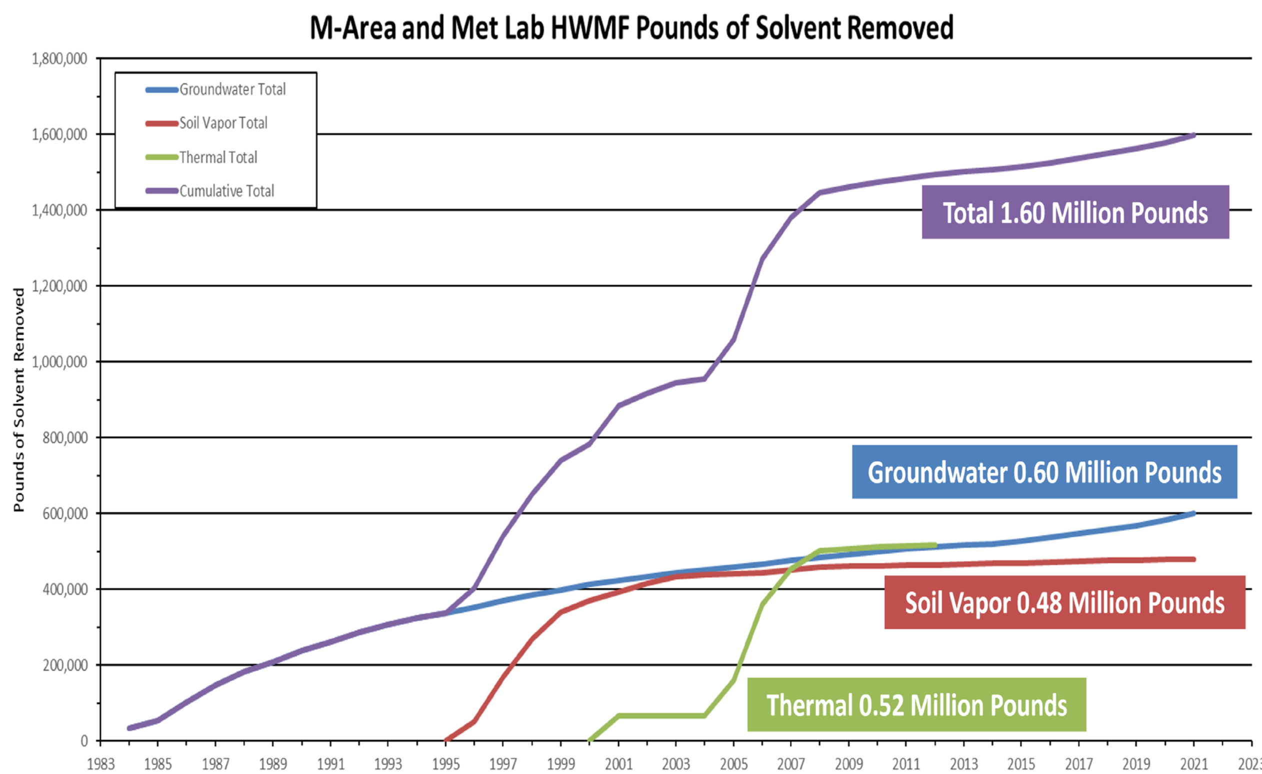


Figure 7-6 Solvent Removed from A/M-Area Groundwater Plume

7.3.4 Conserving SRS Groundwater

As in the past, SRS continues to report its drinking and process water use to SCDHEC. In 2021, SRS used 2.51 million gallons of water per day. Information on SRS water conservation is in Chapter 2, *Environmental Management System*.

SRS manages its own drinking and process water supply from groundwater beneath the Site. Approximately 40 production wells in widely scattered locations across the Site supply SRS domestic and process water systems. Eight of these wells are domestic water systems that supply drinking water. The other 32 wells provide water for all SRS facility operations. The 2021 *SRS Environmental Report* webpage contains a map of SRS domestic water systems under the *Environmental Maps* heading.

The A-Area domestic water system now supplies treated water to most Site areas. The system consists of a treatment plant, distribution piping, elevated storage tanks, and a well network. The wells range in capacity from 200 to 1,500 gallons per minute. Remote facilities, such as field laboratories, barricades, and pump houses, use small drinking water systems and bottled water. SRS domestic water systems meet state and federal drinking water quality standards. SCDHEC samples the systems quarterly for chemical analyses. Monitoring the A-Area water system for bacteria occurs monthly. SCDHEC performs sanitary surveys every two years on the A-Area system and inspects the smaller systems every three years. All 2021 water samples complied with SCDHEC and EPA water quality standards. Information on compliance activities associated with the SRS drinking water system is in Chapter 3, *Compliance Summary*, Section 3.3.7.2, *Safe Drinking Water Act (SDWA).*

A, F, H, and S Areas have process water systems to meet SRS demands for boiler feedwater, equipment cooling water, facility washdown water, and makeup water. SRS uses the makeup water for cooling towers, fire storage tanks, chilled-water-piping loops, and Site test facilities. Process water wells ranging in capacity from 100 to 1,500 gallons per minute supply water to these systems. In K Area, L Area, and Z Area, the domestic water system supplies the process water system. At some locations, the process water wells pump to ground-level storage tanks, where SRS implements corrosion control measures. At other locations, the wells directly pressurize the process water distribution piping system without supplemental treatment.