Proposed Plan
US Finishing/Cone Mills Superfund Site
Greenville, Greenville County, South Carolina

This Proposed Plan is not a technical document. It presents EPA's preferred alternative for site cleanup.

You Are Invited to Comment on this Proposed Plan for the US Finishing/Cone Mills Superfund Site, Operable Unit 3 (OU3) in Greenville, South Carolina

INTRODUCTION

The U.S. Environmental Protection Agency (EPA) seeks public review and comment on the proposed remedy for addressing potentially unacceptable risks to human health and the environment from contaminated groundwater at the US Finishing/Cone Mills Superfund Site (the Site) located in the town of Greenville in Greenville County, South Carolina. Union Bleachery, Cone Mills and US Finishing operated textile dye and manufacturing businesses at the Site from 1903 to 2003, when a fire partially destroyed the main plant. To manage investigations and cleanup, EPA divided the Site into three operable units, or OUs (Figure 1). OU1 is the Main Facility. OU2 is the Off Main Facility. OU3 is Sitewide Groundwater and includes contaminated groundwater located beneath the former facility including any groundwater plume that has migrated off the facility. This Proposed Plan presents EPA's Preferred Alternative for the cleanup of OU3 Sitewide Groundwater.

EPA considered the four remedial alternatives evaluated in the Site's July 2020 Final Feasibility Study Report for OU1, OU2, and OU3 (Sitewide FS Report). This Proposed Plan identifies EPA's Preferred Alternative for groundwater contamination (OU3) at the Site. As detailed below, EPA's Preferred Alternative for the OU3 remedy is Alternative GW4A: treatment of groundwater using in-situ chemical reduction (ISCR) and in-situ enhanced bioremediation (ISEB), and implementation of institutional controls to prohibit groundwater use within the contaminated groundwater plume.

EPA is the lead agency at the Site. The South Carolina Department of Health and Environmental Control (SCDHEC) is the support agency. EPA, in consultation with the SCDHEC, will select a final remedy in a Record of Decision (ROD) for OU3 after reviewing and considering all information submitted during the 30-day public comment period. EPA is issuing this Proposed Plan as part of its public participation responsibilities under Section 300.430(f)(2), of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP).

Public participation is an important part of the Site's remedial decision-making process. EPA, in consultation with the SCDHEC, may modify the Preferred Alternative or select another response action presented in this Proposed Plan based on new information or public comments received during the public comment period.

This Proposed Plan was developed in compliance with the requirements of the NCP, 40 Section 300.430(f)(2), and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), Section 117(a). This Proposed Plan presents a summary of the Remedial Investigation (RI)/Feasibility Study (FS) data and other documents included in the Site's Administrative Record file. These documents may be found at the Information Repository for the Site, which is available at Hughes Main Library, located at 25 Heritage Green Place in Greenville, South Carolina 29601. During this time, EPA is not providing hard copies of Administrative Record documents. You can visit your local repository or access these documents online at:

https://www.epa.gov/superfund/us-finishing-cone-mills.

EPA will hold a public meeting on July 11, 2023, 6:30-8:00 p.m. Its purpose is to present the Proposed Plan for the OU3 remedy. This meeting will provide an opportunity for the community to ask questions of EPA staff. EPA staff will record questions and answers to assist in the final selection of the remedy and in preparation of a ROD.

The public comment period for the Proposed Plan starts on June 21, 2023, and ends on August 11, 2023. During this public comment period, EPA encourages the community to review the 2020 Final RI for OU3 and the 2020 Sitewide FS Report. These materials and other site documents are available at the Site's information repository:

Hughes Main Library
25 Heritage Green Place in Greenville, South Carolina 29601.
T: (864) 242-5000

The materials are also available online at EPA's Site Profile Page: https://www.epa.gov/superfund/us-finishing-cone-mills.

The community is encouraged to submit written or emailed comments to EPA at the following addresses:

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After the public comment period, EPA will carefully consider all public comments before selecting a final remedy for OU3. All comments submitted or postmarked by August 11, 2023, will be addressed in the Responsiveness Summary section of a forthcoming ROD for OU3, as will the questions and answers discussed at the public meeting.

SITE BACKGROUND

Site Description and Background

The Site, originally comprised of 259 acres, is located at 3335 Old Buncombe Road in the town of Greenville in Greenville County, South Carolina. EPA deleted OU2 (approximately 150 acres) from the Superfund program's National Priorities List (NPL) on September 14, 2021 (86 Federal Register 51010). EPA proposed a partial deletion from the NPL of an additional 70 acres at OU1 in August 2022 and the final partial deletion took place on February 22, 2023 (88 Federal Register 10851). Langston Creek borders the Site to the east. Reedy River borders the Site to the west and south. Residential properties border the Site to the north. Most of the residential areas that border the Site are low density. No municipal or private drinking water supply wells are located near the plume or downgradient of the Site.

Historical textile operations at the Site caused contamination of surface water, groundwater, sediment and soil. In 1903, a textile bleaching and finishing facility under the name of Union Bleachery began operating on site. The plant underwent several periods of expansion between 1903 and 1947. In 1947, Aspinook Corporation purchased the facility and, in 1957, sold the facility to Cone Mills. Cone Mills operated the plant until 1984 under the name Union Bleachery/Cone Mills. American Fast Print, Ltd. (AFP) purchased the facility in May 1984 and operated under the name US Finishing until November 2003, when the main plant was partially destroyed by fire.

Contaminated Media

Facility operations contaminated groundwater with metals, semi-volatile organic compounds (SVOC), and volatile organic compounds (VOC). Chromium is the primary contaminant of concern (COC) in groundwater and the main source of risk to human health, which exceeds EPA's acceptable risk range and Safe Drinking Water Act (SDWA) Primary Drinking Water Standards maximum contaminant levels (MCLs) at 40 CFR 141.61 and 141.62 that are used as the basis for groundwater cleanup levels.

History of Site Operations

Operational details from 1903 through 1957 are not available. The main production area was located on the first floor of the main facility; the second floor contained the dye and chemical mixing areas and the inspection and grading areas for completed material. The basement consisted of an eastern and a western side separated by a concrete trench. The basement was used for spare parts storage, wastewater storage, and wastewater conveyance. Chemicals were stored in the basement until a flood in 1974 inundated the basement and flooded many of the chemical storage areas. The western half of the basement contained a wastewater conveyance system that included piping and a few smaller trenches leading to the main wastewater trench running the length of the center of the building. The main trench routed wastewater through the plant, north to south, toward the underground piping and pumps for ultimate discharge into the wastewater treatment lagoon.

A brine pit, for the storage of a brine solution used in plant processes, was located on the southwest side of the facility near one of the storage warehouses. The brine pit was a concrete basin measuring 32 feet by 12 feet and was covered during its use. Following the 2003 fire, it was pumped out and its contents transported off the facility property for use by another manufacturer. The brine pit was demolished in 2005. During operations, Cone Mills prepared process water for use at the facility in a water treatment plant. The water for the water treatment plant was drawn from the Northern Reservoir and Northwestern Reservoir (Figure 1). Prior to building the Northern Reservoir, raw water was pumped in emergencies from a pumping station on the Reedy River and directed to a raw water lagoon.

Previous Investigations and Response Actions

Response Actions Conducted Under Other Authorities

EPA and the state of South Carolina have a long regulatory history at the Site. Investigations and response actions under state and federal authorities are available in the Administrative Record file and summarized below.

In 1981, a SCDHEC special survey found that the point of discharge for the chromium contamination was below the Langston Creek impoundment on the east side of the facility property. A Progress Report indicated that the source was a break in the line between the old chromium storage tank and the dyeing area, with the exact source unknown. Cone Mills installed and operated a groundwater recovery and remediation facility on

the property in 1982 to prevent the chromium-contaminated groundwater plume from entering Langston Creek and the Reedy River.

In 1984, Cone Mills entered into a Consent Order with the SCDHEC and AFP. Under the Consent Order, Cone Mills continued to recover and treat the contaminated groundwater, despite the sale of the property. The SCDHEC's 1985 Preliminary Assessment for the Site stated that chromium had been observed in groundwater and Langston Creek since 1980 and found chromium at aqueous concentrations of up to 1.5×10^6 micrograms per liter (µg/L).

AFP conducted a Preliminary Investigation from 1987 to 1990 and submitted an RI Report and an FS Report to SCDHEC in 1991. Under a 1993 Settlement Agreement with the state, Cone Mills conducted soil removal activities at the facility from July 1994 to March 1995. The removal excavated about 3,636 tons of total petroleum hydrocarbon-affected soil, 6,958 tons of chromium-affected soil, and 3,145 tons of caustic-affected soil from the facility. AFP also completed the removal of basement residues at the former facility from 1993 to 1999.

In response to the November 2003 fire that destroyed much of the main plant area, first responders used an estimated 15 million to 25 million gallons of water to suppress the fire. This released water carrying unknown constituents from the facility to Langston Creek and the Reedy River. Due to an impending bankruptcy, Cone Mills removed the groundwater recovery and treatment system from operation on June 18, 2004, after 20 years of operation. At the time the recovery system was shut down, chromium levels in the groundwater beneath the Langston Creek floodplain were as high as 81 µg/L.

In 2004, the SCDHEC completed an Expanded Site Inspection (ESI) for the Site. It detected metals and polychlorinated biphenyls (PCBs) in soils and sediments, and barium, chromium, iron, lead, magnesium, manganese, and vanadium in groundwater samples collected downgradient of the Langston Creek floodplain. Removal activities at the facility took place between October and December 2004. Despite removal actions, confirmation samples indicated contamination remained in place.

In 2005, the SCDHEC collected more surface water, sediment, groundwater, and fish-tissue samples to further evaluate the potential threat to human health and the environment. Hexavalent chromium was detected in groundwater samples at concentrations ranging from 4,100 µg/L to 100,000 µg/L. Elevated constituent concentrations were detected in Langston Creek, the drainage pathway from the former Northern Reservoir and wetlands adjacent to Langston Creek.

History of CERCLA Site Investigations and Removal Actions

EPA proposed adding the Site to the NPL in March 2011. In April 2011, EPA initiated a sitewide RI across all three OUs: the Main Facility (OU1), Off Main Facility (OU2) and Groundwater (OU3). In August 2011, EPA initiated a CERCLA emergency response to secure the Site via fencing and signage as well as to contain and ultimately dispose of abandoned containers. EPA finalized the Site's listing on the NPL in September 2011. To address the immediate threat posed by the ongoing or threat of release of asbestos to the environment, the EPA initiated a Time Critical Removal Action (TCRA) in October 2011. The scope of the removal was to demolish dilapidated structures at OU1 (Main Facility) identified as containing friable asbestos. Presumed asbestos containing material (PACM) and debris were disposed of at the Site in two concrete-lined cells (P-1 and P-2) in the former water treatment area of the plant. Approximately 18.7 cubic yards of PACM debris were disposed of in the on-site cells, 21.04 tons of ACM (pipe, bagged asbestos, and exposed ACM from the boiler room) were taken off site for disposal along with miscellaneous drummed and lab-packed material, and 11 tons of metal were recycled. This removal action was completed in May 2012.

EPA issued a Final Remedial Investigation Report for OU3 in April 2020. EPA issued a Final Site-wide FS Report in July 2020, which evaluated remedial alternatives to address OU3 groundwater contamination.

Public Participation Activities Prior to Issuance of the Proposed Plan

The public has been kept informed of the progress on the OU3 RI Report and Sitewide FS Report and other Superfund actions through community notification flyers, presentations and updates in accordance with EPA's Community Involvement Plan for the Site, available at: https://semspub.epa.gov/src/document/04/11139332.

Due to public health concerns related to the COVID-19 public health emergency, EPA did not hold any in-person public meetings regarding the 2022 OU1 Proposed Plan and 2022 OU1 ROD or the 2020 OU2 Proposed Plan and 2021 OU2 ROD. Instead, EPA shared video presentations online to provide a full opportunity for public participation and comment without risking public health. EPA provided a public comment period on the OU1 and OU2 proposed plans.

EPA has also updated the Site's profile page (https://www.epa.gov/superfund/us-finishing-cone-mills) to provide information to the community.

To ensure the community's concerns are being addressed, a public comment period for the OU3 Proposed Plan will be held from June 21, 2023, to August 11, 2023. EPA will sponsor a public meeting July 11, 2023, 6:30 p.m. to 8:00 p.m., at the Parisview Baptist Church located at 100 Bud Street, Greenville, SC 29617, during which you will be able to share your opinions and ask questions about the cleanup.

SITE CHARACTERISTICS

Physical Characteristics

The former facility encompasses about 259 acres and is located about 4 miles north/northwest of downtown Greenville. The facility property is bordered to the west by the Reedy River and to the east by Langston Creek. Langston Creek drains into the Reedy River. A residential neighborhood, a church, a wooded area, and Lakeview Middle School are north of the Site. The Swamp Rabbit Trail, a former railbed converted into a recreation trail, is located on the western side of the Site. It is a popular local attraction for activities such as walking, running, and cycling. The topography varies. The main facility area is generally flat, with a downhill gradient sloping toward Langston Creek. Figure 2 shows the former facility layout.

Cleanup to be performed under the 2022 OU1 ROD is expected to address dilapidated, former facility buildings and structures, underlying contaminated soils in the unsaturated zone (4 to 5 bgs), and maintenance and institutional controls to ensure the integrity of the soil covers on two on-site, concrete-lined disposal cells used for disposal of asbestos-containing material and demolition debris generated during the 2011 TCRA.

Site Hydrogeology

Ground surface elevations at the Site range from about 930 feet to 954 feet above mean sea level. Surface water flows into Langston Creek and then to the Reedy River or directly into the Reedy River. Most of the eastern and southern sides of the property lie within a 100-year Federal Emergency Management Agency (FEMA) flood zone along the Langston Creek and Reedy River floodplains. Federally designated wetlands are next to the Reedy River in the southwest part of the Site. Groundwater flows to the east-southeast towards Langston Creek and its tributaries. Depending on topographical location, groundwater is about 3 feet to 30 feet below ground surface.

The Site is in the Piedmont geologic province, where bedrock is characterized by high-grade metamorphic and igneous rock. Drilling logs indicate that the gray granite gneiss bedrock is overlain by weathered bedrock (saprolite) and poorly sorted alluvium. Per SCDHEC R.61-68 H. CLASS DESCRIPTIONS AND SPECIFIC STANDARDS FOR GROUND WATERS, the groundwater located underneath this Site is considered Class GB that includes all ground waters of the State, unless classified otherwise, which meet the definition of underground sources of drinking water (USDW) as defined in SCDHEC R.61-68 B. DEFINITIONS.

Nature and Extent of OU3 Contamination

A summary of the nature and extent of contamination associated with OU3 is in the RI documents, which are available in the Administrative Record. Sampling completed as part of the RI characterized the extent of the contamination within OU3 as compared to EPA's and SCDHEC's Primary Drinking Water Standards maximum contaminant levels (MCLs) and risk-based screening levels. A brief summary of the nature and extent of the groundwater contamination is below.

The 2020 RI Report for OU3 found metals, semi-volatile organic compounds (SVOCs) and volatile organic compounds (VOCs) at concentrations in groundwater exceeding MCLs, or levels that exceed protection of human health from direct exposure to contaminated groundwater. Metals contamination consisted primarily of chromium and, more specifically, hexavalent chromium. With a few exceptions, total chromium and hexavalent chromium were detected in similar concentrations; if the concentration of one metal exceeded MCLs, both metals exceeded MCLs. In most instances, the remaining metals preliminary response goal (PRG) exceedances were widespread and occurred at different locations than the chromium exceedances. SVOCs and VOCs were detected in areas both with and without chromium exceedances.

Metal, SVOC, and VOC contamination was present in groundwater beneath the Site. In the aquifer[1], the chromium exceedance plume occurs mostly east of the Main Plant and west of the facility property boundary at Blue Ridge Drive. The highest concentrations occurred along Langston Creek, near the Langston Creek Impoundment. A separate shallow plume occurs in the alluvial sediments southwest of the Main Plant near the Main Plant gray warehouse. The plume in saprolite lithology extends west under the Main Plant and southwest to Main Plant gray warehouse. Vertical contaminant migration is evident due to exceedances being present in both saprolite and bedrock lithologies. Figure 2 and Figure 3 show the main plant layout during the RI and the locations of the Site groundwater monitoring wells, respectively.

SCOPE AND ROLE OF PROPOSED REMEDY

Due to the size and complexity of the Site, EPA divided the Site into three Operable Units[2]: OU1: Main Facility; OU2: Off Main Facility; and OU3: Site-wide Groundwater.

The focus of this Proposed Plan is OU3: Sitewide Groundwater. This will be the final proposed plan and ROD for the Site.

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[1] The groundwater beneath the Site is contained in four differing lithologies: alluvium, saprolite, partially weathered rock and bedrock. They each have differing hydraulic properties but are considered one aquifer with normal varying degrees of heterogeneity. There are no defined confining layers, and these units acts together as one unconfined aquifer.

[2] The NCP defines an operable unit (OU) as "a discrete action that comprises an incremental step toward comprehensively addressing site problems. This discrete portion of a remedial response manages migration, or eliminates or mitigates a release, threat of a release, or pathway of exposure. The cleanup of a site can be divided into a number of operable units, depending on the complexity of the problems associated with the site. Operable units may address geographical portions of a site, specific site problems, or initial phases of an action, or may consist of any set of actions performed over time or any actions that are concurrent but located in different parts of a site" (NCP Section 300.5).

On April 1, 2021, EPA issued a "no action" ROD for OU2 (Off Main Facility) after determining that no remedial action is necessary to ensure protection of human health and the environment. EPA deleted about 150 acres in OU2 from the NPL on September 14, 2021 (86 Federal Register 51010).

On June 27, 2022, EPA issued a ROD for OU1 (Main Facility) selecting a remedial action for two of 11 areas of concern (AOCs): AOC12 – Water Treatment Plant and AOC16 – Main Plant Area. The same ROD issued a "no action" decision for the remaining nine AOCs. EPA issued a notice of intent to delete the nine "no action" AOCs in August 2022 and the final partial deletion of these areas took place on February 22, 2023 (88 Federal Register 10851).

Principal Threat Waste

The NCP establishes an expectation that EPA will use treatment to address the principal threats posed by a site wherever practicable (NCP Section 300.430(a)(1)(iii)(A)). The "principal threat" concept is applied to the characterization of "source materials" at a Superfund site. A source material is material that includes or contains hazardous substances, pollutants, or contaminants that act as a reservoir for migration of contamination to groundwater, surface water or air, or acts as a source for direct exposure. Contaminated groundwater generally is not considered to be a source material. There are no principal threat wastes known to be present in OU3 groundwater.

Summary of OU3 Risks

Per the NCP, EPA conducted a baseline risk assessment as part of the RI to estimate the current and future effects of contaminants on human health and the environment. A baseline risk assessment is an analysis of the potential adverse human health and ecological effects of releases of hazardous substances from a site in the absence of any actions or controls to mitigate such releases, under current and reasonably anticipated future land uses. The baseline risk assessment typically includes a human health risk assessment (HHRA) and an ecological risk assessment (ERA) It provides the basis for taking action and identifies the contaminants and exposure pathways that need to be addressed by the remedial action. Groundwater at the Site is in the subsurface and does not have any ecological receptors. For this reason, an ERA was not performed for OU3. This section of the Proposed Plan summarizes the results of the 2018 Final HHRA for OU3.

Contaminants of Concern for OU3

Contaminants of concern (COCs) in Site groundwater include metals, SVOCs and VOCs. The primary groundwater COC at the Site is chromium and, more specifically, hexavalent chromium. The COCs for Site groundwater include 1,2-dichlorobenzene, 2-methylnaphthalene, 4-chloroaniline, arsenic, cobalt, hexavalent chromium, iron, manganese, molybdenum, and strontium.

Reasonably Anticipated Future Use of OU3

The current and reasonably anticipated future use of OU3: Groundwater is a potential source of drinking water.

Human Health Risk Assessment for OU3

The assessment of pathways by which human receptors may be exposed to chemicals of potential concern includes an examination of existing migration pathways (i.e., soil) and exposure routes (i.e., ingestion, dermal absorption), as well as those that may be reasonably expected in the future. Potentially complete exposure pathways examined in the 2018 Final HHRA for OU3 are:

- Ingestion of groundwater.
- Inhalation of vapors released from groundwater while showering.

Potential receptor populations include child and adult future residents.

EPA considers two types of risk: cancer risk and noncancer risk. The likelihood of any kind of cancer resulting from a Superfund site is generally expressed as an upper bound probability, for example, a "1 in 10,000 chance". In other words, for every 10,000 people that could be exposed, one extra cancer may occur because of exposure to site contaminants. An extra cancer case means that one more person could get cancer than would normally be expected to from all other causes. For noncancer health effects, EPA calculates a "hazard index". The key concept is that a "threshold level" (measured as a hazard index of less than 1) exists below which noncancer health effects are no longer predicted. A CERCLA response action is generally warranted when cancer risk is greater than 1×10^{-4} or when noncancer health effects are greater than a hazard index of 1.

Excess cancer risk exceeded EPA's generally accepted risk range for the future lifetime resident (1×10^{-1}) in the saprolite aquifer and (4×10^{-2}) in the bedrock aquifer. The risk is attributable to exposure to hexavalent chromium. Non-cancer hazards exceeded EPA's generally accepted hazard range of HI of 1 for the future lifetime resident (HI = 206) in the saprolite aquifer and (HI = 66) in the bedrock aquifer. Most of the hazard is attributable to hexavalent chromium.

Basis For Action

It is EPA's current judgment that the Preferred Alternative identified in this Proposed Plan, or one of the other active measures considered in the Proposed Plan, is necessary to protect public health or welfare or the environment from actual or threatened releases of hazardous substances into the environment. The presence of COCs in the groundwater exceeding MCLs, and protective human health risk-based levels in the absence of an MCL for a particular COC, present an unacceptable risk of exposure to future residents. The primary risk is attributable to exposure to hexavalent chromium.

REMEDIAL ACTION OBJECTIVES

Before developing cleanup alternatives for a Superfund site, EPA establishes remedial action objectives (RAOs) to protect human health and the environment. RAOs are specific goals and objectives to protect human health and the environment. These objectives address contaminated media, exposure pathways and risks posed by the Site. RAOs may also include reference to preliminary remediation goals (PRGs) which are based on applicable or relevant and appropriate requirements (ARARs) such as promulgated chemical-specific standards, where available or other information and standards, such as to-be-considered (TBC) guidance, and site-specific, risk-based levels.

The 2020 Sitewide FS Report identified the following RAOs for OU3:

- Prevent exposure of humans to groundwater contaminated with COC concentrations above federal or state primary drinking water standards (i.e., MCLs) and health-based cleanup goals in the absence of a MCL for a particular COC.
- Restore groundwater to its beneficial use as a potential drinking water source by reducing groundwater COC concentrations to meet federal and state primary drinking water standards (i.e., MCLs) or health-based cleanup goals in the absence of a MCL for a particular COC.

Preliminary Remediation Goals (PRGs)

As part of the FS, per NCP at 40 CFR 300.430(e)(2)(i), PRGs are developed and may be based on chemical-specific ARARs when available. PRGs are established for each COC that will achieve the RAOs for each medium and receptor. PRGs were developed during the risk assessments and FS and are presented below. EPA will select the cleanup levels in the OU3 ROD that are based upon the Groundwater PRGs provided in Table 3 below.

Table 3: Groundwater PRGs

Groundwater COC	PRG (µg/L)	Basis
Cobalt	9	Hazard Quotient Level, Residential, Hazard Quotient = 1
Iron	20,256	
Manganese	4,051	
Molybdenum	145	
Strontium	17,362	
2-Methylnaphthalene	116	
4-Chloroaniline	0.4	Cancer Risk Level, Residential, 1 x 10^{-6}
Chromium (including Cr+6)	100*	MCLs
Arsenic	10	
1,4-Dichlorobenzene	75	

Notes:
* = The federal primary drinking water standard (MCL) for total chromium is 0.1 mg/L or 100 ppb. This regulation assumes that a measurement of total chromium is 100 percent chromium-6 (Hexavalent Chromium), the more toxic form. See https://www.epa.gov/sdwa/chromium-drinking-water
Source: Final Feasibility Study Report for OU1, OU2, and OU3, US Finishing/Cone Mills, Greenville, Greenville County, South Carolina. Versar. July 15, 2020.

Applicable or Relevant and Appropriate Requirements

Per CERCLA Section 121(d)(2) remedial actions must comply with substantive requirements and standards under federal or more stringent state environmental laws and regulations that are identified as ARARs or justify a waiver under CERCLA section 121(d)(4). Potential chemical-, location-, and action-specific ARARs and TBC criteria identified in the FS to address the contamination and potential exposure pathways for OU3 are summarized below. The ARARs and TBCs for the selected remedy will be included in the OU3 ROD.

Potential Chemical-Specific ARARs

Chemical-specific ARARs usually are either health- or risk-based numerical values or methodologies that establish the acceptable amount or concentration of a chemical that may remain in or be discharged to the environment. The SDWA maximum contaminant levels (MCLs) at 40 CFR Part 141.61 and 141.62 and South Carolina groundwater classifications and standards at SC R. 61-68 H. are chemical-specific ARARs used to establish remediation levels for restoration of OU3 groundwater, which is designated as GB and is considered a potential underground source of drinking water.

Potential Action-Specific ARARs

Action-specific ARARs are usually technology- or activity-based requirements or limitations on actions taken with respect to hazardous wastes, or requirements to conduct certain actions to address particular circumstances at a site. Regulations that dictate the design, construction and operating characteristics of incinerators, air stripping units and landfill construction are examples of action-specific ARARs. Federal and state action-specific ARARs for OU3 include general construction, land-disturbing activity and stormwater management requirements (SC R. 61-9, 72-307I, 61-62.6); underground injection well (40 CFR 144.12, SC R.61-87.5, 61-87.11, 61-87.13, 61.87.14) and groundwater monitoring well installation, operation, and abandonment requirements (SC R. 61-71H); remediation and investigation-derived waste characterization, storage, treatment/disposal requirements (40 CFR Parts 262, 264, 265, 268, 403, SC R. 61-79 and 61-107); and on- and off-site waste transportation requirements (40 CFR Parts 171.1, 261.4, 262.10, 262.20, SC R. 61-79).

Potential Location-Specific ARARs and Potential "To Be Considered" (TBC)

Location-specific ARARs generally restrict certain activities or limit concentrations of hazardous substances solely because of geographical or land use concerns. Requirements addressing wetlands, historic places, floodplains, or sensitive ecosystems and habitats are potential location-specific ARARs. Potential location-specific ARARs for OU3 address protection of wetlands, surface water, floodplains and wildlife (threatened or endangered species). These ARARs include state requirements such as SC R. 61-69 as well as federal requirements such as 44 CFR Part 9, 50 CFR Part 21, the Migratory Bird Treaty Act (16 United States Code Part 703).

In addition to applicable or relevant and appropriate requirements, pursuant to the NCP at 40 CFR 300.400(g)(3), the lead and support agencies may, as appropriate, identify other advisories, criteria or guidance to be considered for a particular release. The TBC category consists of advisories, criteria or guidance developed by EPA, other federal agencies or states that may be useful in developing CERCLA remedies. Examples include health advisories, reference doses, and EPA and state technical guidance on how to perform specific response activities. Although federal agencies are required to comply with the requirements identified in Executive Orders, these are typically identified as TBC since they are not promulgated in the same manner as laws or regulations issued by federal agencies. TBCs for this Site include certain requirements in Executive Orders 11990, 11988 and 13690.

SUMMARY OF REMEDIAL ALTERNATIVES

Section 121(b)(1) of CERCLA, 42 U.S.C. § 9621(b)(1), mandates that remedial actions must be protective of human health and the environment, be cost effective, comply with ARARs, and utilize permanent solutions and alternative treatment technologies and resource recovery alternatives to the maximum extent practicable. Section 121(b)(1) of CERCLA also establishes a preference for remedial actions that employ, as a principal element, treatment to reduce permanently and significantly the volume, toxicity or mobility of the hazardous substances, pollutants and contaminants at a site. Section 121(d)(2) of CERCLA, 42 U.S.C. § 9621(d), further specifies that a remedial action must attain a level or standard of control of the hazardous substances, pollutants and contaminants that at least attains ARARs under federal and state laws, unless a waiver can be justified pursuant to Section 121(d)(4) of CERCLA, 42 U.S.C. § 9621(d)(4).

The 2020 Sitewide FS Report evaluated four remedial action alternatives for groundwater:

- Alternative GW1: No Action.
- Alternative GW2: In-Situ Chemical Reduction and Institutional Controls
- Alternative GW3: In-Situ Enhanced Bioremediation and Institutional Controls
- Alternative GW4: In-Situ Chemical Reduction, In-Situ Enhanced Bioremediation and Institutional Controls

Alternatives GW2, GW3 and GW4 all involve injections into the saprolite and bedrock aquifers to administer reagents to treat groundwater contamination and implementation of institutional controls to restrict groundwater use and to prevent well installation in the groundwater plume. The alternatives differ regarding the reagents to be injected. Alternatives GW2, GW3 and GW4 would all require long-term monitoring and maintenance, as well as five-year reviews, until OU3 groundwater is restored to beneficial use. For all three alternatives, groundwater monitoring would inform progress towards achieving cleanup goals as well as any changes to institutional controls resulting from groundwater cleanup and restoration of groundwater quality.

Alternative GW1: No Action

The “no action” alternative must be evaluated under the NCP as a baseline against which all other alternatives are compared. Under this alternative, no remedial actions would take place. There are no capital costs associated with Alternative 1, though the comparative analysis includes a cost estimate for five-year reviews.

Alternative GW2: In-Situ Chemical Reduction and Institutional Controls

Alternative GW2 consists of in situ treatment using ISCR and institutional controls. A chemical reductant solution would be used to remediate the areas with the highest hexavalent chromium concentrations. The reductant solution, injected into the groundwater, would reduce and immobilize hexavalent chromium to the less-toxic trivalent chromium. Proposed injection locations for the saprolite aquifer (Figure 4) and the bedrock aquifer (Figure 5) were developed to inform remedial technology review and selection. Groundwater monitoring would assess the effectiveness of reagent injections and the reduction of hexavalent chromium and other COCs that would not be treated. Institutional controls would be implemented to prohibit use of groundwater and to prohibit installation of new water supply wells within the plume area until cleanup goals are achieved.

The estimated timeframe for construction completion is four months. The estimated timeframe to meet RAOs is two years. The estimated capital cost associated with Alternative GW2 is $7,483,750 and the 30-year operation and maintenance (O&M) cost is $844,000. The total present worth cost of Alternative GW2 is $8,282,750.

Alternative GW3: In-Situ Enhanced Bioremediation and Institutional Controls

Alternative GW3 consists of treating the plume using ISEB and institutional controls. An electron donor solution would be injected into the groundwater in the areas with the highest hexavalent chromium concentrations. The proper application of ISEB would reduce and immobilize hexavalent chromium to the less-toxic trivalent chromium. Proposed injection locations for the saprolite aquifer (Figure 5) and the bedrock aquifer (Figure 4) were developed to inform remedial technology review and selection. Groundwater monitoring would be implemented to assess the effectiveness of reagent injections and the reduction of hexavalent chromium and other COCs that would not be treated. Institutional controls would be implemented to prohibit use of groundwater and to prohibit installation of new water supply wells within the plume area until cleanup goals are achieved.

The estimated timeframe for construction completion is three months and the estimated time to meet RAOs is three years. The estimated capital cost associated with Alternative GW3 is $4,262,500 and the 30-year O&M cost is $844,000. The total present worth cost of Alternative GW3 is $5,106,500.

Alternative GW4: In-Situ Chemical Reduction, In-Situ Enhanced Bioremediation and Institutional Controls

Alternative GW4 consists of treating the plume using a combination of ISCR, ISEB and institutional controls. A chemical reductant solution along with an electron donor solution would be injected into the groundwater in the areas with the highest hexavalent chromium concentrations. The use of the two technologies, combined with the use of the latest advancements in ISCR and ISEB reagents, would simplify implementation by reducing the overall injection volume. This alternative could also use the reagent AquaZVI[3] to reduce arsenic concentrations by co-precipitation. The proper application of ISCR and ISEB would reduce and immobilize hexavalent chromium to the less-toxic trivalent chromium. Proposed injection locations for the saprolite zone of the aquifer (Figure 4) and the bedrock portion of the aquifer (Figure 5) were developed to inform remedial technology review and selection but will be finalized as part of the Remedial Design. Groundwater monitoring would be implemented to assess the effectiveness of reagent injections and the reduction of hexavalent chromium and other COCs that would not be treated. Institutional controls, to include proprietary controls in the form of restrictive covenants, would be implemented to prohibit use of groundwater and to prohibit installation of new water supply wells within the plume area until cleanup goals are achieved.

The estimated timeframe for construction completion is three months. The estimated timeframe to meet RAOs is two years. The estimated capital cost associated with Alternative GW4 is $9,535,000 and the 30-year O&M cost is $844,000. The total present worth cost of Alternative GW4 is $10,379,000.

Evaluation of Remedial Alternatives

This section summarizes the relative performance of each alternative against the nine criteria and each other. A detailed analysis of alternatives is provided in the 2020 Sitewide FS Report.

In evaluating the remedial alternatives, each alternative is assessed against nine evaluation criteria set forth in the NCP at 40 CFR 300.430(e)(9)(iii). The text box on the next page presents the nine evaluation criteria. The remedial alternative selected for a Superfund site must meet the two threshold criteria, as well as attain the best balance among the five balancing criteria. State and community acceptance are evaluated after the close of the public comment period. EPA, after considering state acceptance and public comments received on this Proposed

[3] An alternative reagent may be identified during the final design process.

Plan, will select the final remedy in a ROD for OU3. EPA's Preferred Alternative may be altered or changed based on the two modifying criteria.

THE NINE SUPERFUND EVALUATION CRITERIA

Threshold Criteria:

1. **Overall Protectiveness of Human Health and the Environment** evaluates whether an alternative eliminates, reduces or controls threats to public health and the environment through institutional controls, engineering controls or treatment.
2. **Compliance with ARARs** evaluates whether the alternative meets federal and state environmental statutes, regulations and other requirements that pertain to a site, or whether a waiver is justified.

Balancing Criteria:

3. **Long-term Effectiveness and Permanence** considers the ability of an alternative to maintain protection of human health and the environment over time.
4. **Reduction of Toxicity, Mobility or Volume of Contaminants through Treatment** evaluates an alternative's use of treatment to reduce the harmful effects of principal contaminants, their ability to move in the environment and the amount of contamination present.
5. **Short-term Effectiveness** considers the length of time needed to implement an alternative and the risks the alternative poses to workers, the community and the environment during implementation.
6. **Implementability** considers the technical and administrative feasibility of implementing the alternative, including factors such as the relative availability of goods and services.
7. **Cost** includes estimated capital and annual operation and maintenance costs, as well as present worth cost. Present worth cost is the total cost of an alternative over time in terms of today's dollar value. Cost estimates are expected to be accurate within a range of +50% to -30%.

Modifying Criteria:

8. **State/Support Agency Acceptance** considers whether the state agrees with EPA's analyses and recommendations, as described in the RI Report, FS Report and Proposed Plan.
9. **Community Acceptance** considers whether the local community agrees with EPA's analyses and preferred alternative. Comments received on the Proposed Plan are an important indicator of community acceptance.

Comparison of Remedial Alternatives

Overall Protection of Human Health and the Environment

During every FS, a "no action" alternative is developed as a baseline for comparative analysis purposes. The current condition of OU3 groundwater represents a potentially unacceptable risk and does not meet the RAOs. Without engineering controls and/or institutional controls, there is a potential for exposure to hexavalent chromium and other COCs for current and future site users. Therefore, Alternative GW1 (No Action) does not meet the threshold criteria and will not be assessed further in these comparative analyses.

Alternatives GW2, GW3 and GW4 would be protective of human health and the environment. Restricting the use of groundwater would eliminate potential risks to human health from exposure to contaminated groundwater. ISCR under Alternative GW2 and ISEB by carbon substrate injection under Alternatives GW3 and GW4 would eliminate the highest concentrations of hexavalent chromium in groundwater, facilitating attenuation in the remainder of the groundwater plume. The use of monitoring would protect human health and the environment by assisting in predicting when remediation will reach PRGs. This will be further quantified by the development of a Remedial Management Plan as part of the Remedial Design. That document will identify and approximately quantify the expected timeframe for successful remedial action and identify criteria that would trigger the need for additional treatments.

Compliance with ARARs

Alternatives GW2, GW3 and GW4 would comply with the potential location-specific and action-specific ARARs identified in the 2020 Sitewide FS Report and summarized in preceding sections of this Proposed Plan. Chemical-specific ARARs, specifically SDWA MCLs, would eventually be achieved with any of these three alternatives, although restoration timeframes will vary.

Long-Term Effectiveness and Permanence

Alternatives GW2, GW3 and GW4 would provide long-term effectiveness and permanence. Elimination of the highest hexavalent chromium concentrations by ISCR, ISEB or both should enhance the attenuation processes and shorten the time to achieve cleanup goals. Institutional controls would effectively address the human health risk until treatment and chemical processes reduce the remaining hexavalent chromium and other COC concentrations to PRGs. Hexavalent chromium reduction to trivalent chromium forms an immobile precipitate. The reversal reaction will not occur at the natural pH of the groundwater, thereby providing long-term effectiveness and permanence.

Reduction of Toxicity, Mobility and/or Volume Through Treatment

This criterion addresses the preference under CERCLA for remedial alternatives that permanently and significantly reduce the mobility, toxicity or volume of hazardous substances through treatment. This preference is satisfied when treatment is used to reduce the principal threats at a site through destruction of toxic contaminants, reduction of the total mass of toxic contaminants, irreversible reduction in contaminant mobility, or reduction of total volume of contaminated media. There are no principal threat wastes in OU3. However, Alternative GW2, Alternative GW3 and Alternative GW4 will all reduce the toxicity, mobility and volume of hexavalent chromium, as well as other COCs, in groundwater through in-situ treatment and reduce the total plume area until cleanup goals are achieved. While outer portions of the plume would not be treated, the reduction in the higher concentration areas of the plume would allow attenuation processes to reduce levels in the remaining plume more effectively.

In addition, Alternative GW4 could also reduce dissolved arsenic concentrations with the injection of the reagent AquaZVI. Arsenic is co-precipitated by ZVI by forming complexes with ZVI corrosion products.

Short-Term Effectiveness

Exposure to contaminated groundwater during on-site injection or sampling activities could present a short-term risk to workers for Alternative GW2, Alternative GW3 and Alternative GW4. Exposure to calcium polysulfide could be a short-term risk for Alternative GW2. Exposure to pH buffer could be a short-term risk for Alternative GW3 and Alternative GW4. However, the potential for exposure would be minimized by wearing appropriate personal protective equipment and compliance with the Occupational Safety and Hazard Administration regulations and site-specific health and safety procedures.

Implementation of Alternative GW2, Alternative GW3 and Alternative GW4 would not result in short-term adverse impact to the local community. The short-term risk of mobilization of redox-sensitive and exchangeable sorbed metals would be monitored under Alternative GW2 and Alternative GW4, as arsenic and manganese are more soluble when reduced. In addition, institutional controls will be implemented to prohibit groundwater use until cleanup levels are achieved.

Implementability

Alternatives GW2, GW3 and GW4 are all implementable at the Site using proven in-situ treatment technologies with readily available equipment and injection reagents. Alternative GW3 and Alternative GW4 are both easier to implement due to reduced injection volumes compared to Alternative GW2. Institutional controls will be implemented to restrict groundwater use until cleanup standards have been achieved.

Cost

The breakdown of the estimated costs for the four alternatives is provided below, in the Comparative Analysis of Remedial Alternatives for Groundwater table. For cost estimation purposes, Alternative GW2, Alternative GW3 and Alternative GW4 are presented with an initial evaluation of cost impacts associated with injection method. For all three of these alternatives, option A consists of conventional injection technology and option B consists of the more costly hydro-fracture injection technology. The assumed technology is option A for all three alternatives. However, a final assessment of which technology to use will be made during the remedial design, following selection of the groundwater remedy in a ROD for OU3.

For treatment of a large, dilute contaminant plume, ISEB is typically a more cost-effective option than ISCR. This is reflected in the lower cost of Alternative GW3 compared to Alternative GW2. The relatively low costs of vegetable oil (soybean oil) in the current market contribute to the favorable cost of Alternative GW3. However, if difficulties are encountered during remedy design, either higher concentrations of the Alternative GW3 emulsified vegetable oil or use of the Alternative GW4 ISCR and ISEB reagents should be considered.

Alternative GW4 has the highest cost, which is attributed to the higher-cost ISCR and ISEB reagents. Despite Alternative GW4 being a combination of Alternative GW2 and Alternative GW3, different, more costly reagents were considered in the cost estimate to reduce the overall injection volume and to affect the highest level reduction of toxicity, mobility and volume. Alternative GW4 also incorporates a micron-scale, zero-valent ion reductant, which is expected to reduce arsenic concentrations as well as hexavalent chromium concentrations. Alternative GW4 also allows the greatest flexibility in combinations of technologies to optimize the estimated time to achieve RAOs.

Support Agency Acceptance

Support agency acceptance of the Preferred Alternative will be evaluated after the public comment period ends and will be described in the ROD. To date, SCDHEC has been involved in the remedy selection document review process including the RI Report and FS.

Community Acceptance

Community acceptance of the Preferred Alternative will be evaluated after the public comment period ends and will be described in the ROD.

Summary of the Detailed Evaluation of Remedial Alternatives

The following table summarizes the results of the detailed evaluation of remedial alternatives presented in this Proposed Plan. As noted above, Alternative GW2, Alternative GW3 and Alternative GW4 are presented with cost estimates for two injection technologies: option A consists of conventional injection technology and option B consists of the more costly hydro-fracture injection technology. The assumed technology is option A for all three alternatives. However, a final assessment of which technology to use will be made during the remedial design, following selection of the groundwater remedy in a ROD for OU3.

Comparative Analysis of Remedial Alternatives for Groundwater
US Finishing/Cone Mills
Greenville, Greenville County, South Carolina

Evaluation Criteria	Remedial Alternative and Comparison			
	GW1: No Action	**GW2 A/B: ISCR, and ICs**	**GW3 A/B: ISEB, and ICs**	**GW4 A/B: ISCR, ISEB, and ICs**
Overall Protection of Human Health and Environment	Not protective	Would be protective as long as controls are maintained.	Would be protective as long as controls are maintained.	Would be protective as long as controls are maintained.
Compliance with ARARs	Would not comply with ARARs	Would comply with all ARARs.	Would comply with all ARARs.	Would comply with all ARARs.
Long-Term Effectiveness and Permanence	Not effective or permanent.	Would comply with NCP. Limited residual contamination would remain after implementation but should decrease over time.	Would comply with NCP. Limited residual contamination would remain after implementation but should decrease over time.	Would comply with NCP. Limited residual contamination would remain after implementation but should decrease over time.
Reduction of Contaminant Toxicity, Mobility, or Volume through Treatment	No reduction in toxicity, mobility, or volume of contaminants	High level reduction of toxicity, mobility, and volume.	High level reduction of toxicity, mobility, and volume.	Highest level reduction of toxicity, mobility, and volume. Arsenic concentrations also reduced by co-precipitation with ZVI.
Short-Term Effectiveness	No short-term effects but would likely never reach protectiveness.	Moderate short-term effects, could be effectively managed. Arsenic and manganese are more soluble when reduced by CPS.	Low short-term effects, could be effectively managed.	Low short-term effects, could be effectively managed.
Implementability	No action will be taken at the site.	Implementable at the site, uses proven technologies.	Implementable at the site, uses proven technologies. Easier to implement than GW2 due to reduced injection volumes.	Implementable at the site, uses proven technologies. Easier to implement than GW2 due to reduced injection volumes.
A Costs (conventional injections)				
Capital	$0	$7,438,750	$4,262,500	$9,535,000
30-Year NPW of O&M	$94,000	$844,000	$844,000	$844,000
Estimated Construction Time	0 Days	4 Months	4 Months	4 Months
Estimated Time to Meet RAOs	Not Applicable	2 Years	3 Years	2 Years
B Costs (hydro-fracture injections)				
Capital	$0	$8,205,000	$5,263,750	$10,511,250
30-Year NPW of O&M	$94,000	$844,000	$844,000	$844,000
Estimated Construction Time	0 Days	4 months	3 months	3 Months
Estimate Time to Meet RAOs	Not Applicable	2 Years	2 Years	2 Years
State Acceptance	*	*	*	*
Community Acceptance	*	*	*	*

NOTES:

* - To be evaluated after receiving state and public comments on the proposed plan.

ICs - Institutional Controls

ARARs - Applicable and Relevant or Appropriate Requirements

NPW - Net Present Worth

O&M - Operation and Maintenance

MNA - Monitored Natural Attenuation
ISCR - In-situ Chemical Reduction
ISEB - In-situ Enhanced Bioremediation
CPS - calcium polysulfide
ZVI - zero-valent iron

SUMMARY OF THE PREFERRED ALTERNATIVE

Considering the detailed analysis in the 2020 Sitewide FS Report and other information in the Administrative Record file, EPA's Preferred Alternative for OU3 is **Alternative GW4: ISCR, ISEB and Institutional Controls**. Alternative GW4 consists of the following remedial activities:

- In-situ treatment of highest hexavalent chromium groundwater concentrations using a combination of ISCR and ISEB reagents.
- Groundwater monitoring to assess efficacy of treatment and inform additional remedial activities, as needed.
- Implementation of institutional controls to prohibit groundwater use and to prevent installation of wells near or in groundwater contamination until cleanup levels are met.

EPA recommends this alternative because it provides the highest-level reduction of toxicity, mobility and volume of contamination in the shortest timeframe to achieve RAOs. Alternative GW4 would be easier to implement than Alternative GW2 due to reduced injection volumes. Alternative GW4 would also reduce dissolved arsenic concentrations by incorporating the injection of the reagent AquaZVI and provides maximum flexibility regarding choosing the most effective reagent and technologies to optimize groundwater cleanup. This will further allow greater coordination and alignment of remedial activities to support the planned redevelopment activities at and adjacent to the Site property.

Based on the information available now, EPA believes the Preferred Alternative meets the threshold criteria and provides the best balance of tradeoffs among the alternatives evaluated with respect to the balancing and modifying criteria. EPA expects the Preferred Alternative to satisfy the following statutory requirements of CERCLA §121: (1) to be protective of human health and the environment; (2) to comply with ARARs; (3) to be cost effective; and (4) to use permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. The Preferred Alternative can change in response to public comment or new information.

Five-Year Reviews

Because hazardous substances will remain at the Site above levels that allow for unlimited exposure and unrestricted use, EPA will review the remedial action no less than every five years, per CERCLA Section 121(c) and the NCP at 40 CFR 300.430(f)(4)(ii) until the levels of COCs allow for unrestricted use of soil and groundwater with unlimited exposure to these media. If results of the five-year reviews find that remedy integrity is compromised and protection of human health and the environment is insufficient, then additional remedial actions will be evaluated by EPA and the SCDHEC.

COMMUNITY PARTICIPATION

The Site's RI Report, risk assessment documents, the 2020 Sitewide FS Report, this Proposed Plan and all supporting documents are available online at https://www.epa.gov/superfund/us-finishing-cone-mills and have been placed in the Site's Administrative Record. The public is encouraged to review and comment on all the alternatives presented in the Proposed Plan. The public comment period for the Proposed Plan begins June 21, 2023, and ends August 11, 2023.

A public availability session will be held on July 11, 2023, at the Parisview Baptist Church located at 100 Bud Street, Greenville, SC 29617. The presentation will take place from 6:30-8:00 p.m. A court recorder will be available to record verbal comments after the presentation. Written comments may be provided that evening or mailed before the close of the comment period to the address below:

Scott Martin
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Phone: (404) 562-8916 or (800) 435-9233
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Mailing Address: EPA Region 4, 61 Forsyth Street, S.W., 11th Floor, Atlanta, GA 30303-8960

The Preferred Alternative may change in response to public comment or new information acquired during the designated public comment period. Responses to comments received will be provided in the ROD, which will identify the selected interim remedial action to be implemented.

Administrative Record

The Administrative Record contains all the information used by EPA to select a site's remedial action. Copies of the Administrative Record are available at:

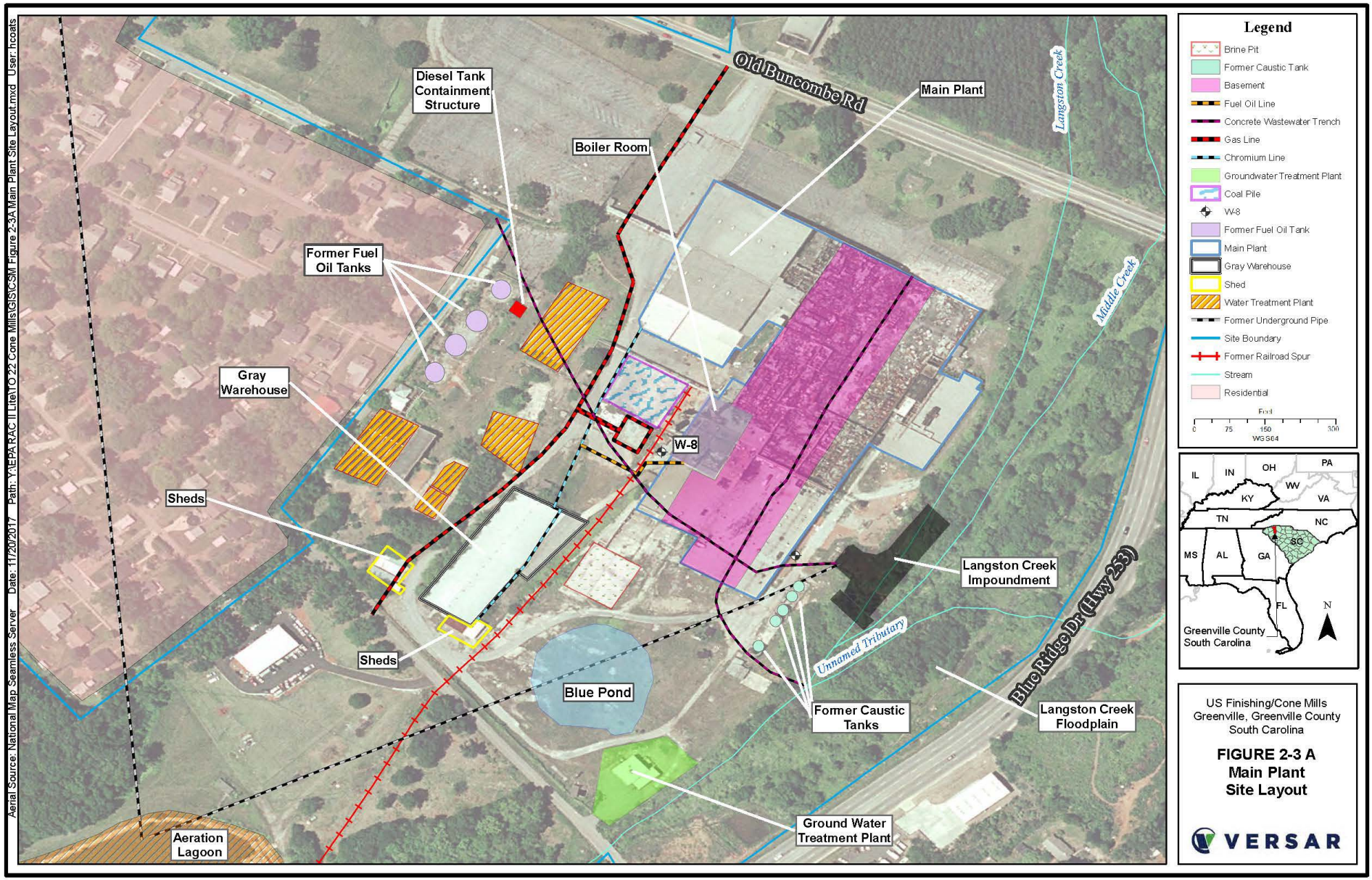
Hughes Main Library
25 Heritage Green Place
Greenville, South Carolina 29601
(864) 242-5000
Hours: Monday to Thursday, 10:00 a.m. to 8:00 p.m.
Friday and Saturday, 10:00 a.m. to 5:00 p.m.

Online at https://semspub.epa.gov/src/collections/04/AR/SCD003358744.

Figure 1: Site Location Map

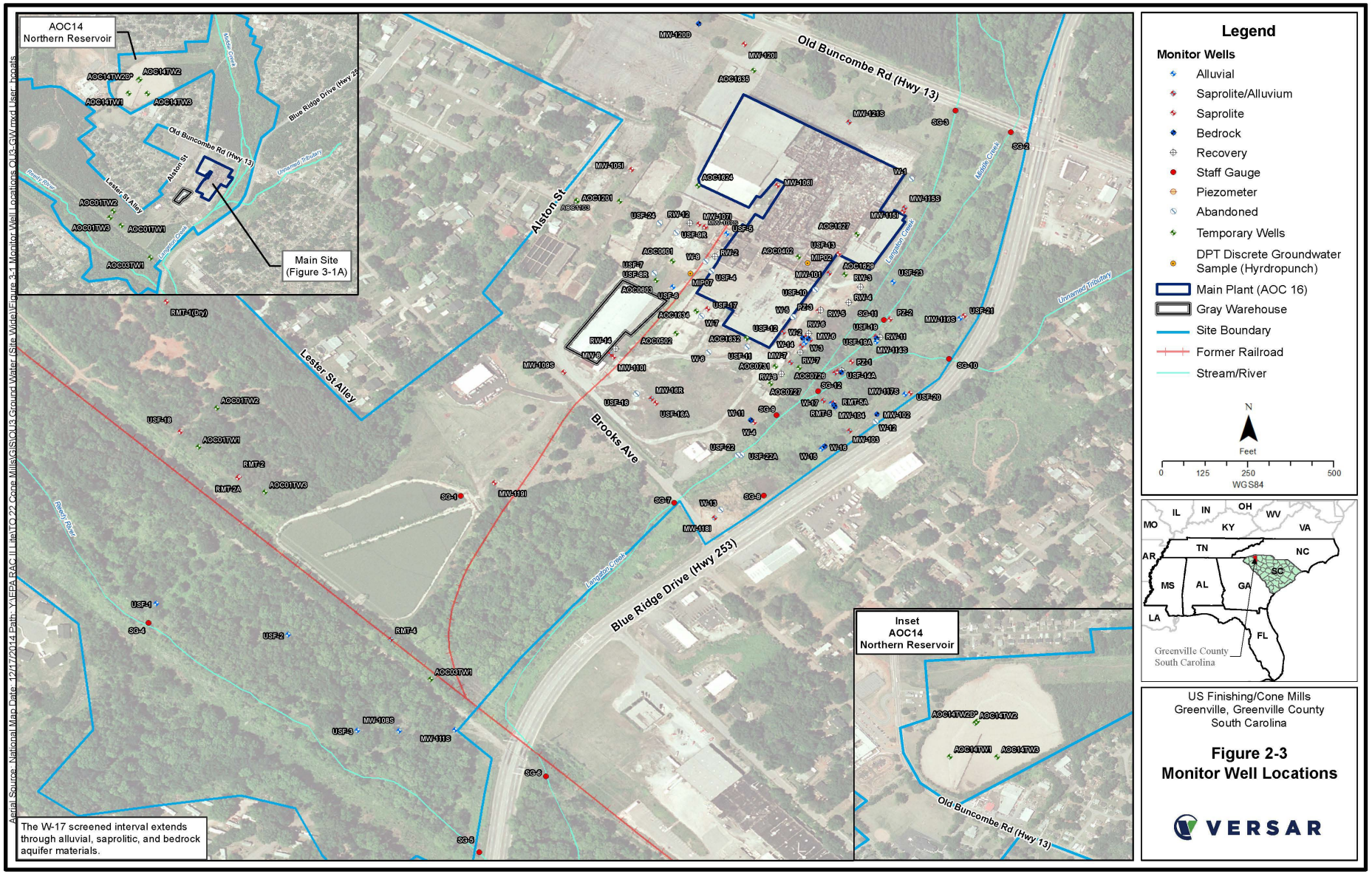
Source: Record of Decision for the US Finishing/Cone Mills, Greenville, South Carolina. Operable Unit 2. Prepared by EPA Region 4. April 2021.

Figure 2: Features of the Main Plant Area During the RI



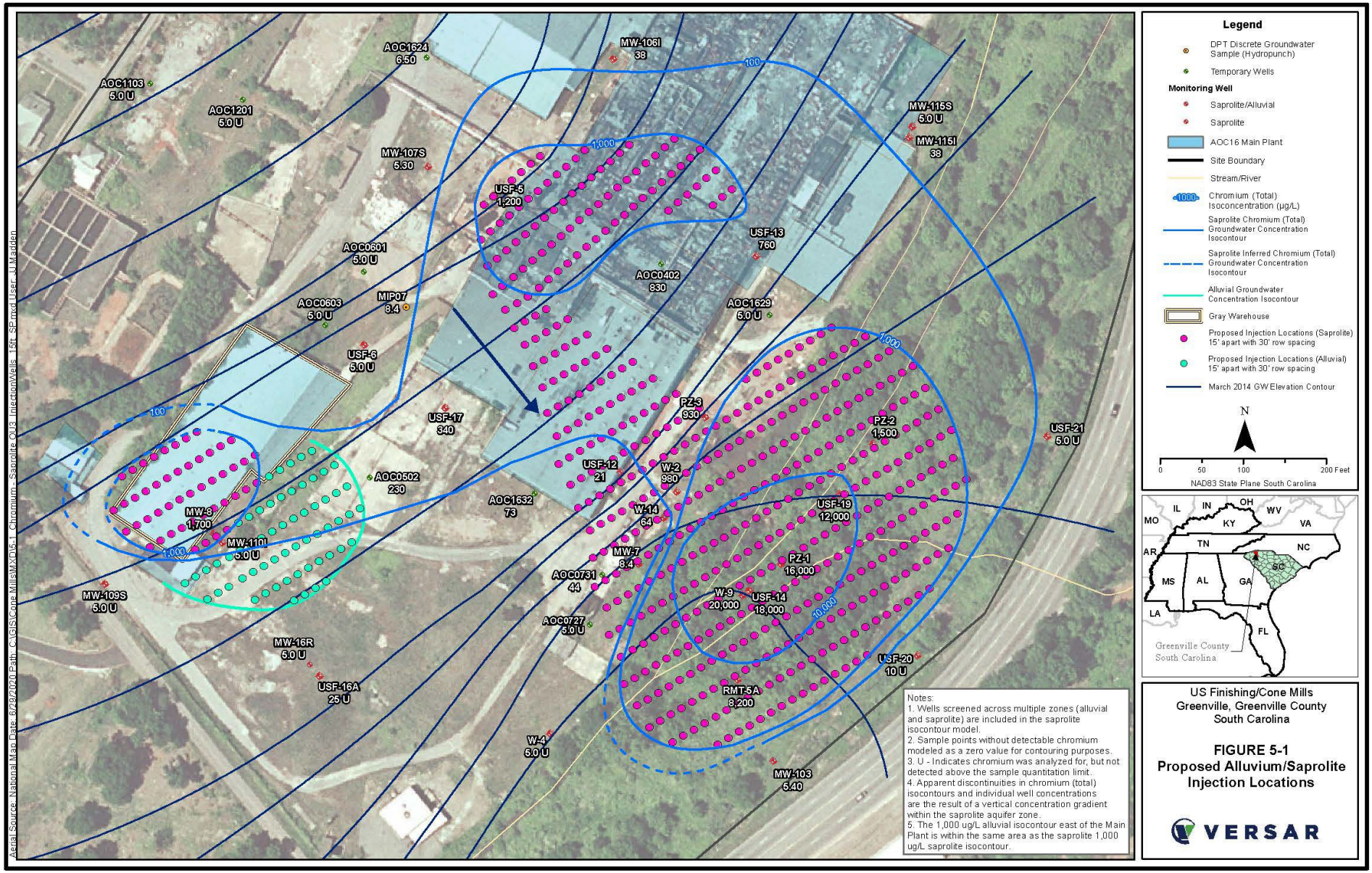
Source: Final RI Report. OU1 US Finishing/Cone Mills, Greenville, Greenville County, South Carolina. Prepared by Versar. April 2020.

Figure 3: Groundwater Monitoring Well Locations



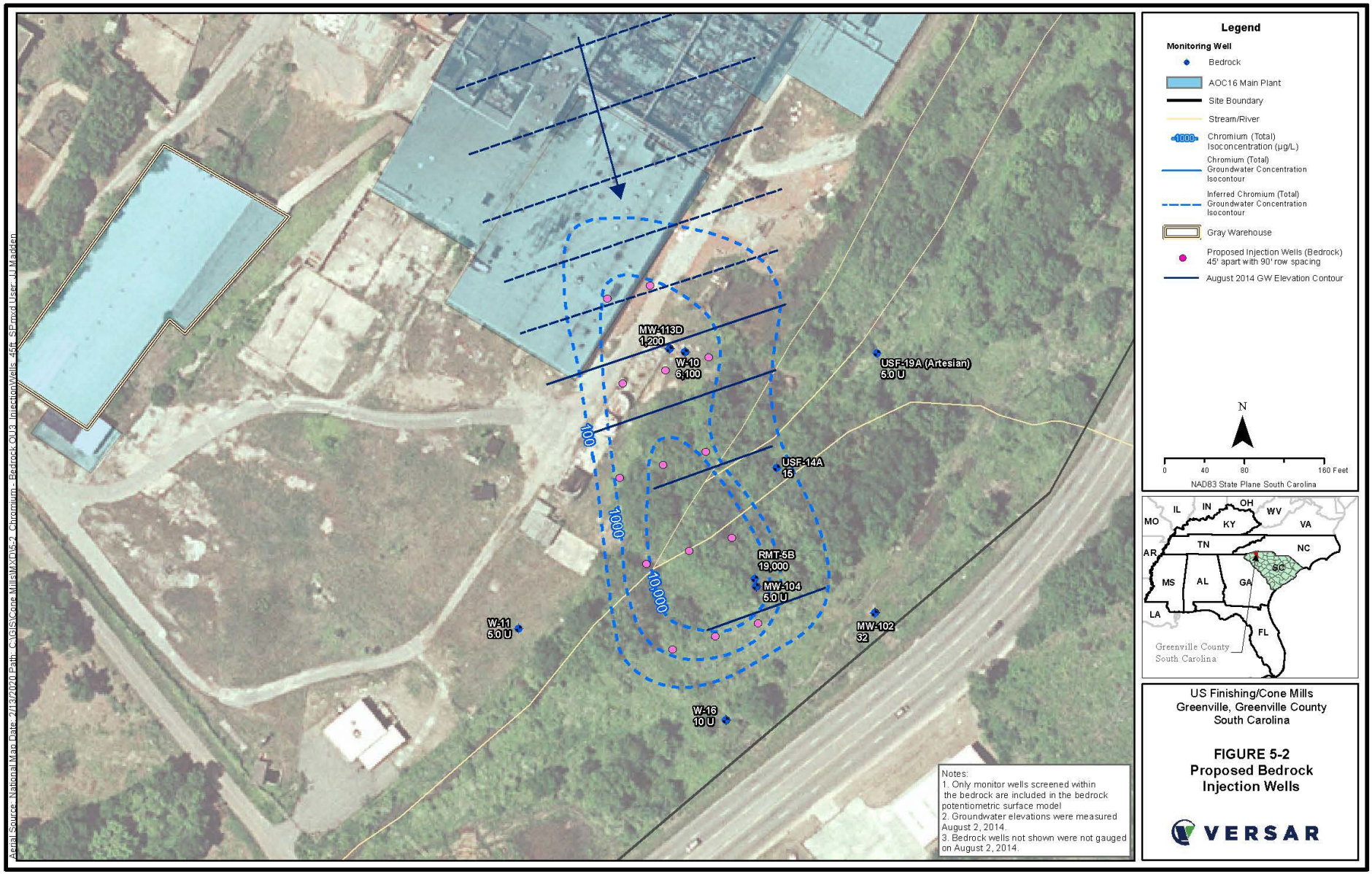
Source: Sitewide FS Report for US Finishing/Cone Mills, Greenville, Greenville County, South Carolina. Prepared by Versar. July 15, 2020.

Figure 4: Proposed Alluvium/Saprolite Injection Locations (for remedy review and selection)



Source: Sitewide FS Report for US Finishing/Cone Mills, Greenville, Greenville County, South Carolina. Prepared by Versar. July 15, 2020.

Figure 5: Proposed Bedrock Injection Wells (for remedy review and selection)



Source: Sitewide FS Report for US Finishing/Cone Mills, Greenville, Greenville County, South Carolina. Prepared by Versar. July 15, 2020.