

SCANNED

October 27, 2011
141730

Ms. Lori Landmeyer
South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management
Site Assessment Remediation & Revitalization Division
AST Petroleum Restoration & Site Environmental Investigations
2600 Bull Street
Columbia, South Carolina 29201



Subject: Additional Assessment Work Plan
Wix Filtration Corporation - Dillon, South Carolina
The Affinia Group, Inc.
Site ID # 03139

Dear Ms. Landmeyer:

On behalf of our client, Wix Filtration, Inc., Environmental Resources Management (ERM) is pleased to provide the enclosed Additional Assessment Work Plan for your review and approval. The Work Plan was developed pursuant to your letter dated August 8, 2011. The Work Plan provides the details for the additional ground water assessment that you requested. ERM requests a 120-day extension for preparation of the Work Plan for the remediation system modification, as ERM believes it will be prudent to complete the assessment prior to proposing the modifications to the current system. Once the extent of the impacts to ground water is defined, we will develop a Work Plan to modify the current system.

We look forward to working with you on this project. If you have any questions, please do not hesitate to contact us at 843-856-4270.

Sincerely,

Ron Yarborough, P.G.
Project Manager

Jerry Prosser, P.G.
Principal-in-Charge

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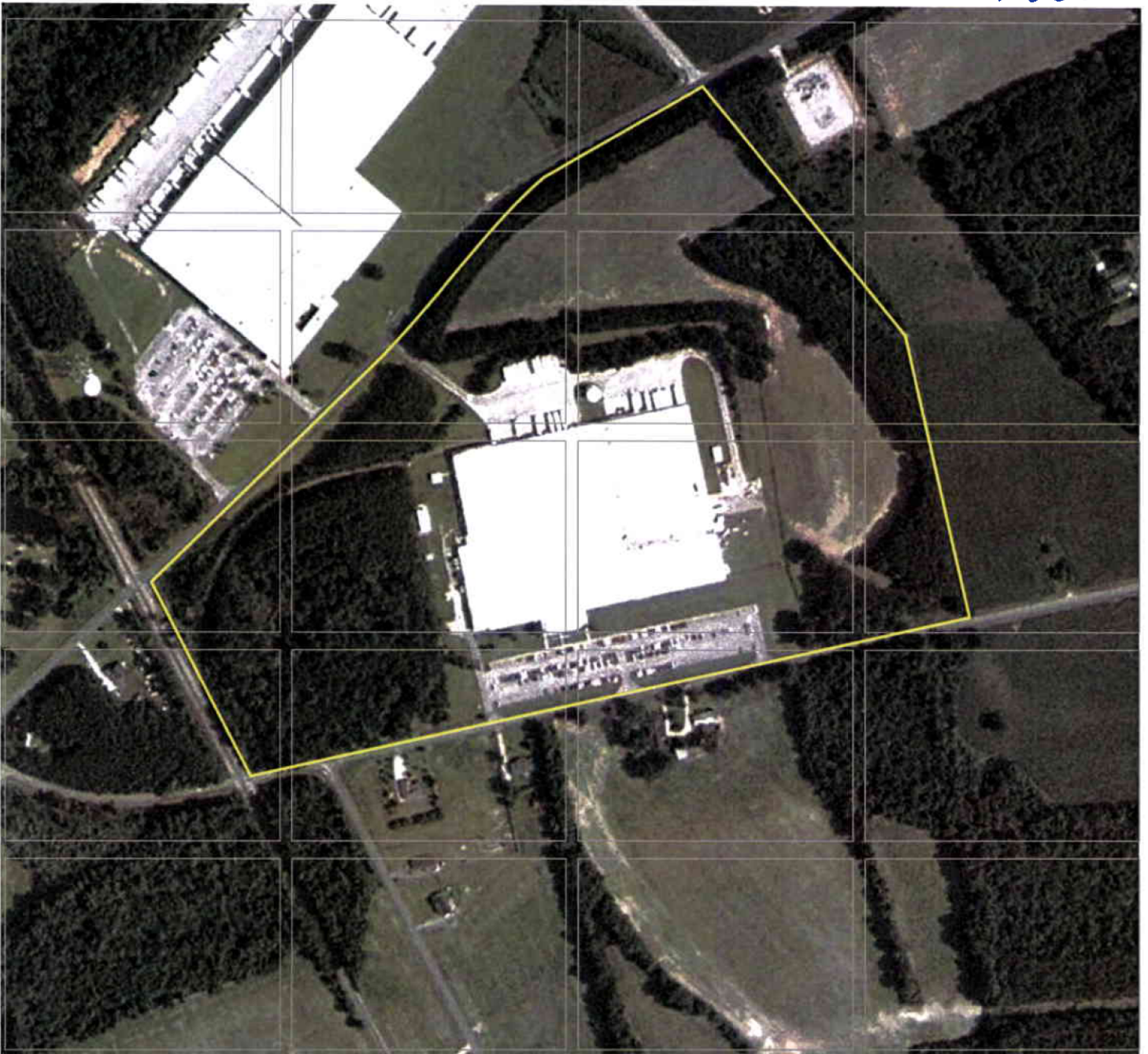
OCT 28 2011

SITE ASSESSMENT,
REMEDICATION &
REVITALIZATION

cc: (via electronic transmission)
Paul H. Caulford, Jr. - Wix Filtration Corporation
Keith Clark - The Affinia Group
James Hiller, CIH - The Affinia Group
Ken McCutcheon - Wix Filtration
Al Kovalik - ERM

Enclosure

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ASSESSMENT,
REMEDIATION &
REHABILITATION

The Affinia Group

Additional Environmental
Assessment Work Plan
Wix Filtration Facility
Dillon, South Carolina

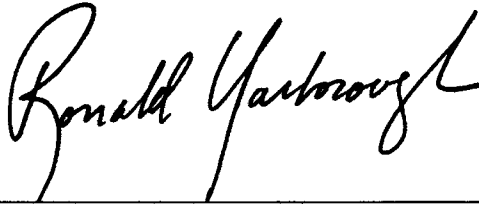
October 2011

www.erm.com

Additional Environmental
Assessment Work Plan
Wix Filtration Facility
1422 Wix Road
Dillon, South Carolina

Prepared For:
The Affinia Group

October 2011



Ron Yarborough, P.G.
Project Manager



Jerry Prosser, P.G.
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1.0 INTRODUCTION

This Site Assessment Work Plan (Work Plan) has been prepared in response to the August 8, 2011 comments provided by Ms. Lori Landmeyer of the South Carolina Department of Health and Environmental Control (SCDHEC). It is intended to define a scope of work for the additional investigation and evaluation of the occurrence and extent of constituents of concern found in ground water at the Wix Filtration Corporation's (Wix) manufacturing facility located at 1422 Wix Road in Dillon, South Carolina (hereafter referred to as the "Site"). The Site is located approximately one mile north of the town of Dillon in Dillon County, South Carolina as shown in Figure 1. A facility layout map is included as Figure 2. The Work Plan is summarized below:

- Installation of two additional monitor wells to facilitate evaluation of the source area and the downgradient extent of affected ground water
- Ground water monitoring and reporting

The results of the work plan will be submitted to the South Carolina Department of Health and Environmental Control (SCDHEC) in a report summarizing the results of investigative activities.

2.0 SITE BACKGROUND

Historical Summary

Date	Event
1977	Facility constructed and began operation
2003	Facility acquired by Affinia group from Dana Corporation
~2005	Toluene UST closed by removal
2005-10	Toluene release discovered as a result of a utility repair excavation at the facility
2005-12	SCDHEC notified of a suspected release
2006-01	SCDHEC site visit
2006-03	Environmental site assessment (ESA) work plan approved by SCDHEC
2007-02	ESA report submitted to SCDHEC
2008-01	Remedial options report for implementation of SVE/AS remediation submitted to SCDHEC
2008-10	Remedial action plan and SVE/AS system engineering design submitted to SCDHEC
2009-12	SVE/AS remediation system installed and began operation
2007-present	Semi-annual ground water monitoring
2011-02	Two additional source area monitor wells were installed

Detailed Site History

The historical summary for the site is based on interviews of long-term employees at the plant and a review of the available historical records, a history of known site activities, site operations, and waste management practices relative to the primary constituent of concern, toluene.

The Wix Dillon plant was constructed in the late 1970's and has been in operation since 1977, producing fuel filters, oil filters, and air filters for automotive, diesel, racing, agricultural, and industrial applications. The Dillon Wix facility was purchased by its current owner, Affinia Group, Inc., in 2003 from its previous owner Dana Corporation.

In its early years of operation, paints used in the manufacturing process were mixed on-site using toluene as one of their ingredients. The use and storage of toluene for mixing paints were concentrated in the southwest portion of the plant. While an "as built" set of drawings for the original plant has not been located, a proposed plant construction drawing depicting a tank labeled as "Naphtha Tank" outside the southwest corner of the building was found in a search of the plant records. No records were found indicating use of a naphtha tank during plant operations. It is probable that a toluene tank used to dispense toluene was located in or near the area where the naphtha tank appears on the proposed plant construction drawing.

Apparently installed at the time of plant construction in 1977, the toluene tank appears to have been an underground storage tank (UST), with underground piping running from the tank to the southwest corner of the building. Once inside the building, the piping network system was run overhead and distributed toluene to various satellite painting operations on the manufacturing floor. The remnants of the interior overhead metal piping remain in place and appear in sound condition with no visible evidence of leaks or breaks. Further, none of the interviewees recalled any leaks or sudden releases of product from the interior overhead piping system.

No plans or documentation of the toluene UST system have been found, but based upon interviews and a surface depression in the area where the tank was believed to have been located, it is estimated to have had a capacity of 1,500 gallons.

The UST appears to have been used for approximately seven or eight years. In anticipation of Federal and State UST rules taking effect, there was an effort to upgrade portions of the UST system. The underground pipe running from the UST to the building was replaced with a double-wall pipe consisting of CPVC inside of a larger PVC pipe, which was to serve as secondary containment. Upon introduction of the toluene product into the new piping, the product reportedly reacted with the CPVC, breaching the integrity of the pipe within 24 hours of installation. The outside UST and piping portion of the toluene piping system were abandoned shortly thereafter and removed. However, because the unit was apparently removed before the Federal and State UST rules were in effect, no documentation of the removal exists, nor could any other form of documentation, such as a purchase order or service agreement, be located to verify the exact date of removal.

Following removal of the UST, it appears toluene used to mix paint was only stored in an aboveground tank, totes, or drums located inside the paint room in the southwest corner of the plant building. Mixing of paint was discontinued when the plant switched to pre-mixed paint, apparently a high solids, water-based product. This pre-mixed paint was delivered to the site in 55-gallon drums and totes for placement around the factory floor where there were painting operations. Floor drains existed in the paint room, which could provide a pathway for releases to migrate to the southern side of the plant. However, plant personnel could not recall any toluene releases in the paint room, nor were any stains or other evidence of releases observed at the floor drains. The floor drains are currently sealed.

Other possible toluene sources/release areas, which have been identified, include a former gasoline fueling station located outside the southern end of the plant, in the vicinity of the former toluene UST. This station consisted of a small gasoline aboveground storage tank (AST) on a concrete pad, which was used to fuel yard maintenance equipment. Additionally, it was reported that paint or toluene also may have been stored on a concrete pad outside the southern wall of the paint room.

2.1 PREVIOUS INVESTIGATIONS

In October 2005, a valve on the ten-inch water line bringing service from the City of Dillon to the fire suppression loop began to leak. The City was contacted and a work crew was dispatched to excavate

and replace a valve seal on the south side of the plant south of the paint room. The City hauled away the excavated soil. Three days later, the valve began to leak again, and a local contractor was contacted to repair the valve. The contractor detected an odor in the excavated soils that was described as paint or toluene.

In response to the contractor's comments, soil samples were collected and analyzed. Toluene and low levels of other VOCs were detected. Subsequently, a confirmation soil and ground water sampling was conducted in November 2005. Upon receipt of laboratory results confirming detection of elevated concentrations of toluene and several other VOCs at lower concentrations, Wix notified SCDHEC of a suspected release in a letter dated December 9, 2005. An on-site meeting was held on January 17, 2006 with the SCDHEC, Wix personnel, and ERM to familiarize SCDHEC with the Site, its historical and current operations, and the excavation area where the water line repair occurred.

In March of 2006 an environmental site assessment (ESA) work plan was submitted and approved by SCDHEC. The resulting ESA report was submitted to SCDHEC in February 2007. In March 2007, SCDHEC requested the Site initiate an interim measures semi-annual monitoring program and develop a remedial options evaluation for the Site.

A Remedial Options Report was submitted to SCDHEC in January 2008 recommending an air sparge/soil vapor extraction (AS/SVE) remedy for the Site. After completion of a pilot test, a detail design report was submitted in October of 2008 and subsequently approved by the Department. The AS/SVE system was installed in December of 2009 and has been operating since that time. Semi-annual sampling has been conducted at the Site since August of 2007.

In February 2011 two source area soil borings were advanced and sampled. Monitor wells were then installed in the borings. Two additional downgradient extent monitor wells, MW-10 and MW-11, were installed in the area west of the loading dock. Results for the additional assessment activities were submitted to SCDHEC in the March 2011 Remediation and Assessment Report.

2.2 PHYSICAL AND GEOLOGIC SETTING

The Site lies in an area surrounded by sparsely populated land used for farming, partially wooded land with a few single-family residences, and a forested wetland area. The wetland area is located directly behind and outside the fence marking the western perimeter of the active plant area. Wix owns the property upon which the wetland is located. The nearest residences are to the south of the plant and directly across Wix Road.

2.2.1 Regional Geology and Hydrogeology

The Site is located in the Atlantic Coastal Plain physiographic province in Dillon County, South Carolina. Coastal Plain sediments are typically clastic, ranging from clay to gravel, with minor amounts of marine limestone (Winner, and Coble, 1989). The sediments dip generally eastward, forming a clastic wedge thickening to the east. Cretaceous-age rocks to recent unconsolidated sediments lie unconformably on top of crystalline basement rock, which in this area occurs at depths of less than 1,000 feet below land surface.

A surficial aquifer is followed by the Pee Dee aquifer system, which is the uppermost aquifer system, and the Black Creek aquifer system beneath the Site. Sediments of the Pee Dee aquifer are located between land surface and depths of approximately 50 feet below mean sea level. The 30-foot thick Pee Dee confining unit separates a surficial aquifer from the underlying Pee Dee aquifer (50 to 130 feet bgs) and Black Creek aquifer. The total thickness of these sediments varies between 175 and 200 feet. The Black Creek aquifer lies at approximately 180 to 348 feet below ground surface and is hydraulically isolated by the Pee Dee confining unit, the Pee Dee aquifer, and the Black Creek confining unit.

2.2.2 Local Geology and Hydrogeology

Generally, the Site is underlain by sedimentary deposits of Late Cretaceous-age Pee Dee and Black Creek Formations that thicken toward the coast consisting mostly of fine to medium-grained marine sands, clayey sand, clay, and lignitic sand with confining units of clay and silt. The confining units generally range from 20 to 70 feet in thickness.

According to the Soil Survey of Dillon County, South Carolina (U.S. Department of Agriculture, 1978), the soils (Dothan-Coxville) are nearly level and gently sloping in the vicinity of the Site. The soils are well-drained to poorly-drained, have a sandy loamy surface layer, and a loamy subsoil to clayey subsoil.

Clayey soils encountered in the excavation and the immediate area appear to be localized fill material associated with plant construction. The depth and aerial extent of construction fill in the immediate vicinity of the plant is unknown.

3.0 SITE ASSESSMENT WORK PLAN

The planned assessment activities are intended to evaluate the lateral extent of the ground water impacts in the downgradient and upgradient areas of the site. The horizontal extent of affected ground water will be evaluated through the installation of two additional monitor wells. The locations of the proposed monitor wells are shown in Figure 3.

3.1 SCOPE OF WORK

The following Site assessment strategy is based on the available ground water quality data and guidance provided by the SCDHEC for further Site investigation and characterization work. Activities conducted under this Work Plan will be conducted in accordance with the procedures addressed in the QAPP.

3.1.1 Ground Water Monitoring

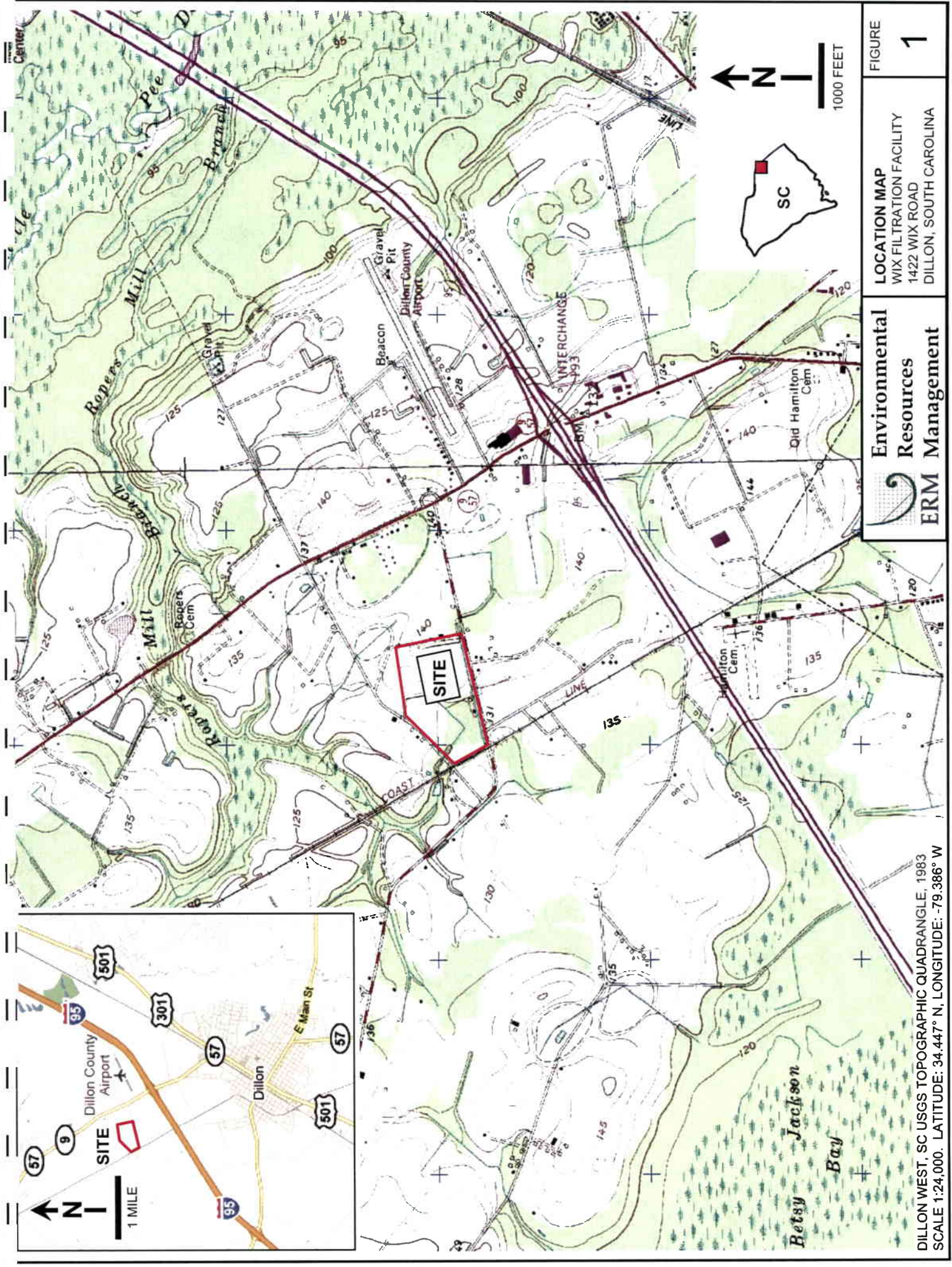
The ground water monitoring program will consist of the installation of one monitor well (MW-14) downgradient of the currently defined extent of affected ground water and one monitor well (MW-15) upgradient of the source area and within the manufacturing area of the building. A typical monitor well construction diagram is illustrated as Figure 4. A permit for the installation of the monitor wells will be obtained from SCDHEC prior to installation. The new monitor wells will be sampled for EPA Method 8260B VOCs in accordance with the Site-specific QAPP. The locations of the proposed wells are shown in Figure 3. The new monitor wells will be sampled as part of the scheduled semi-annual ground water monitoring event.

3.1.2 Report Preparation

The results of the additional assessment will be included with the next semi-annual ground water monitoring report. An evaluation of the current remediation system will be performed once the additional assessment activities have been completed.

4.0 SCHEDULE

The proposed scope of work can be completed within 90 days of receiving SCDHEC approval of this ESA work plan.

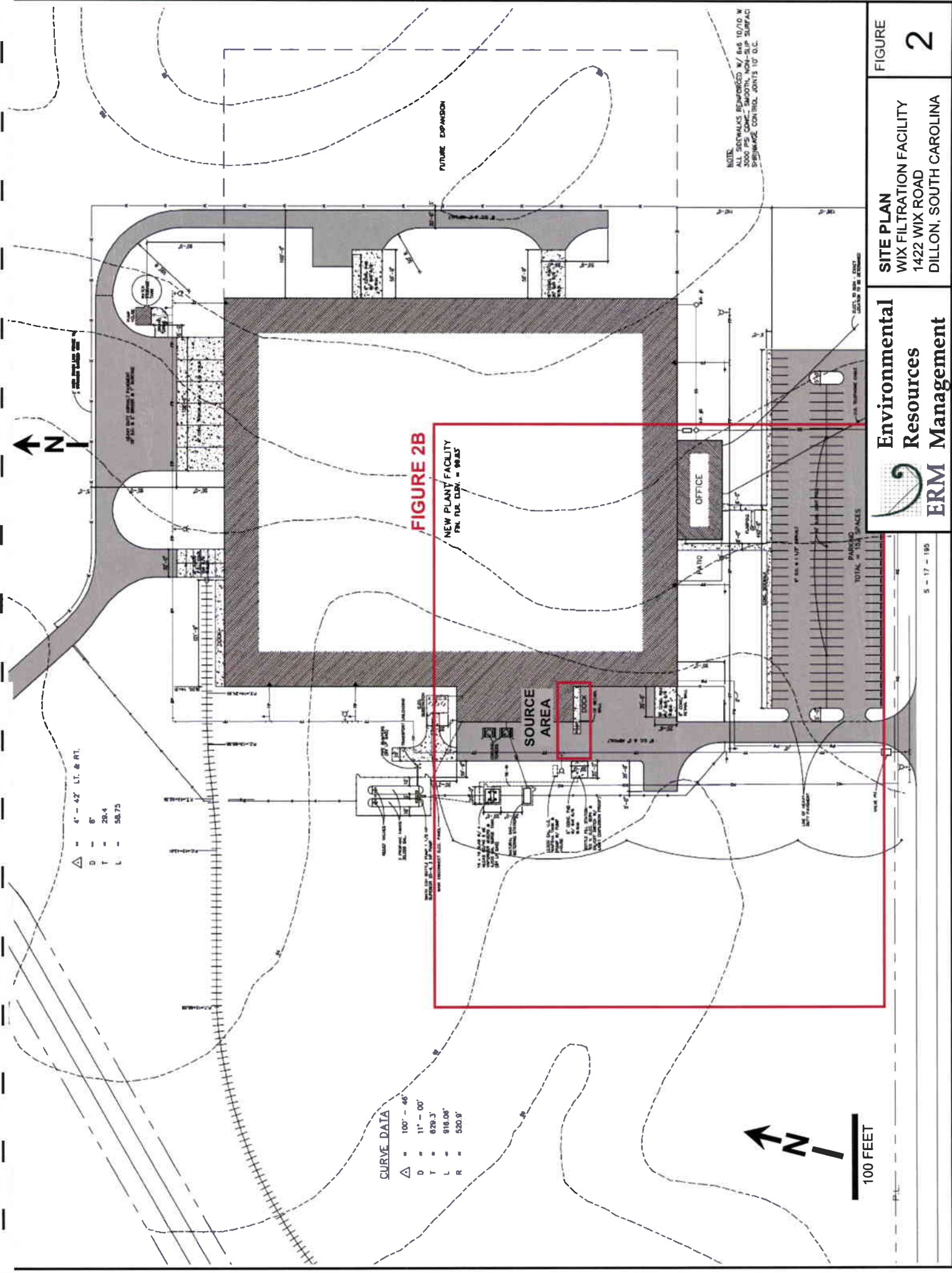


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LOCATION MAP
WIX FILTRATION FACILITY
1422 WIX ROAD
DILLON, SOUTH CAROLINA

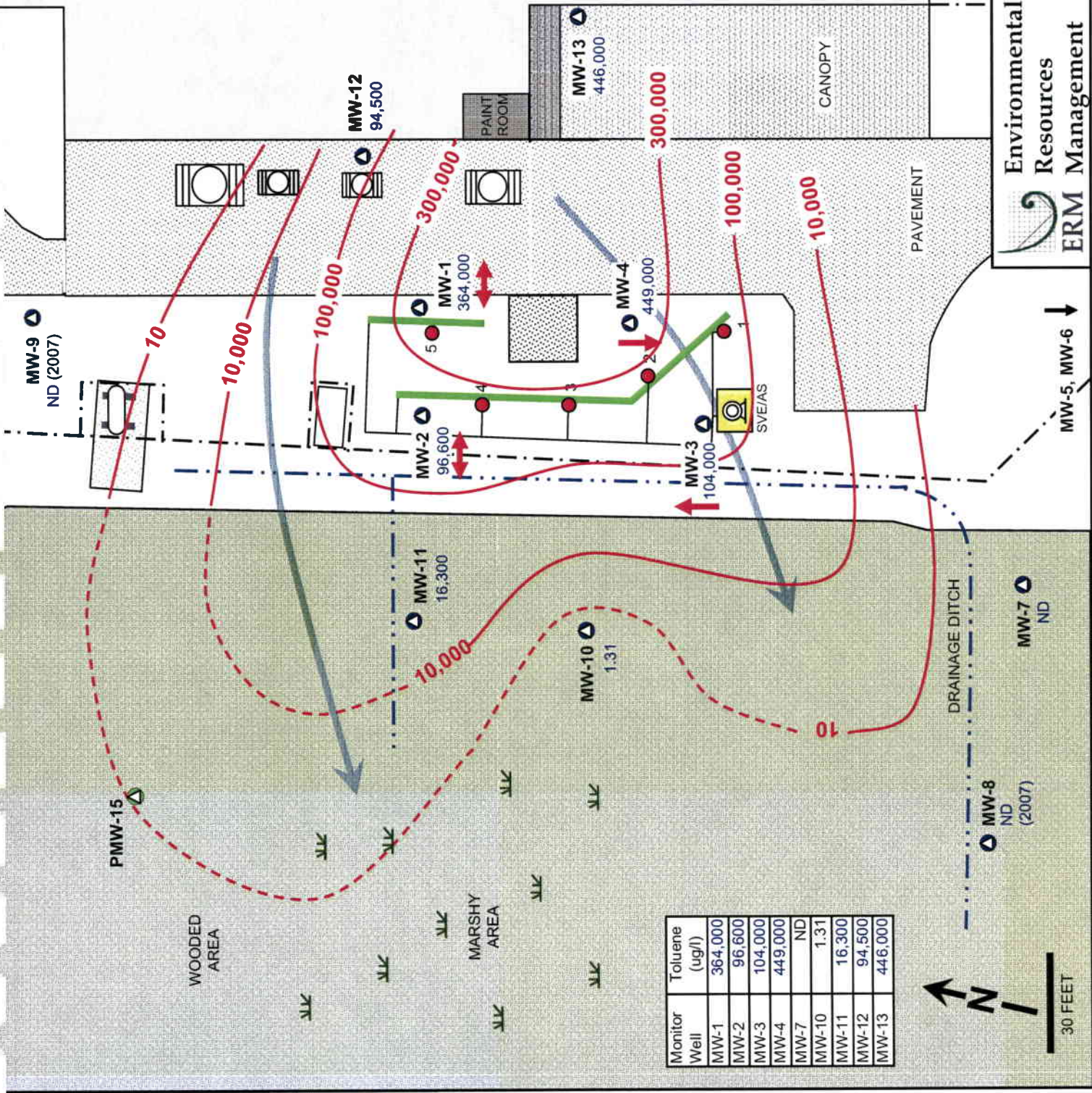
**FIGURE
1**

DILLON WEST, SC USGS TOPOGRAPHIC QUADRANGLE, 1983
SCALE 1:24,000. LATITUDE: 34.447° N, LONGITUDE: -79.386° W



LEGEND

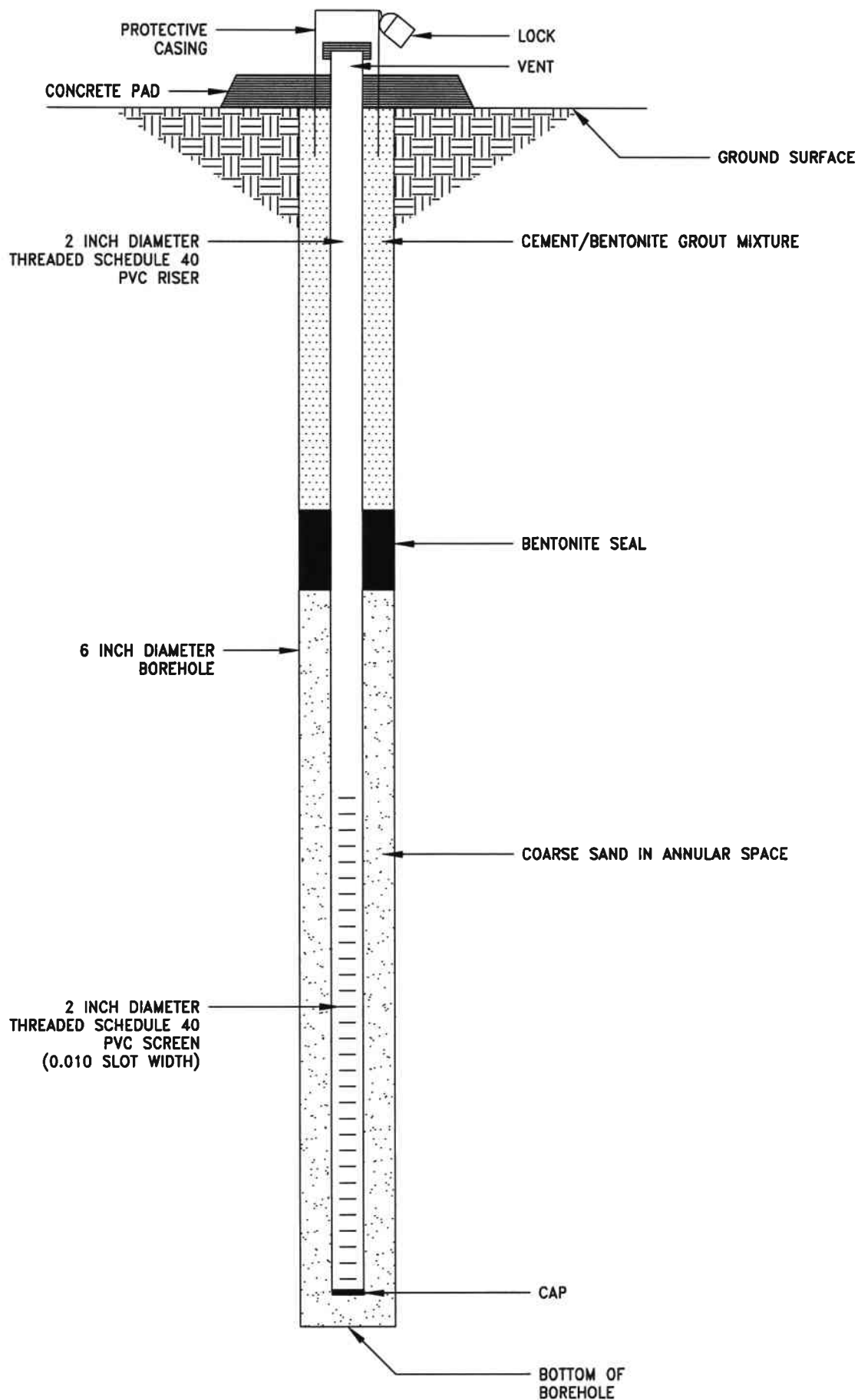
- MONITOR WELL
- AIR SPARGING POINT
- SVE TRENCH
- GROUND WATER FLOW DIRECTION
- TOLUENE CONCENTRATION TREND
- CONCENTRATIONS ARE GIVEN IN MICROGRAMS/LITER (ug/l)
- PROPOSED MONITOR WELL



Environmental Resources Management

ADDITIONAL ASSESSMENT
WORKPLAN
WIX FILTRATION FACILITY
DILLON, SOUTH CAROLINA

FIGURE
3



TYPE2S.DWG 02-17-06 NTS DDP REV



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**TYPE II MONITORING WELL SCHEMATIC
WIX FILTRATION CORPORATION
AFFINIA GROUP, INC.
DILLON, SOUTH CAROLINA**

FIGURE

4

TABLE 1. MONITOR WELL CONSTRUCTION

Monitor Well	Installation Date	Diameter (inches)	TOC Elevation (ft NAVD)	Screened Top (ft BGL)	Screen Bottom (ft BGL)	Depth to Water (ft below TOC)	Northing	Easting	Hydraulic Conductivity (cm/sec)
MW-1	05/17/06	2	131.56	6.9	16.9	5.7	954878.9	2486306	--
MW-2	05/17/06	2	129.58	7.1	17.1	6.7	954869.4	2486275	--
MW-3	05/17/06	2	129.06	6.5	16.5	5.9	954787.4	2486293	--
MW-4	05/17/06	2	130.47	6.8	16.7	7.8	954815.5	2486315	--
MW-5	12/06/06	2	128.97	5.6	15.2	6.4	954618.7	2486334	2.3.E-04
MW-6	12/06/06	2	129.73	6.4	16.0	6.7	954515.9	2486382	2.4.E-04
MW-7	12/04/06	2	128.24	7.7	17.4	6.2	954678.4	2486244	2.5.E-04
MW-8	12/05/06	2	130.91	10.3	19.9	9.2	954675.8	2486153	2.2.E-04
MW-9	12/07/06	2	131.76	5.2	15.2	3.6			2.2.E-04
MW-10	02/15/11	2	130.34	5.0	15.0	3.7	--	--	--
MW-11	02/15/11	2	130.59	5.0	14.95	3.5	--	--	--
MW-12	02/15/11	2	134.56	3.0	13.0	1.8	--	--	--
MW-13	02/15/11	2	131.42	3.0	13.0	3.1	--	--	--

TOC = Top of well Casing

TABLE 2. GROUND WATER ELEVATION DATA

Monitor Well	Gauging Date	TOC Elevation (ft NAVD)	Depth to Water (ft below TOC)	Ground Water Elevation (ft NAVD)
MW-1	08/11/11	131.56	6.21	125.35
MW-2	08/11/11	129.58	7.66	121.92
MW-3	08/11/11	129.06	6.94	122.12
MW-4	08/11/11	130.47	9.04	121.43
MW-5	08/11/11	128.97	7.49	121.48
MW-6	08/11/11	129.73	8.23	121.50
MW-7	08/11/11	128.24	6.74	121.50
MW-8	08/11/11	130.91	10.50	120.41
MW-9	08/11/11	131.76	7.29	124.47
MW-10	08/11/11	130.34	8.29	122.05
MW-11	08/11/11	130.59	8.99	121.60
MW-12	08/11/11	134.56	4.26	130.30
MW-13	08/11/11	131.42	8.30	123.12

TABLE 3. GROUND WATER ANALYTICAL RESULTS

EPA 8260 (ug/l)	Sample Date	Acetone	Benzene	cis-1,2-DCE	trans-1,2-DCE	Ethylbenzene	Isopropylbenzene	p-Isopropyl-toluene	n-Propylbenzene	Toluene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Xylene (Total)	Carbon disulfide	2-Butanone (MEK)	sec-Butylbenzene	n-Butylbenzene	tert-Butylbenzene
SC GW Standard (MCL)		NE	5	70	100	700	NE	NE	NE	1,000	NE	NE	10K	360	NE	NE	NE	NE
MW-1	08/12/11	ND	63.2	ND	ND	35.6	ND	6.02	1.43	364,000	3.81	1.56	37	1.52	ND	ND	ND	ND
DUP-01	08/12/11	ND	58.5	ND	ND	ND	ND	ND	ND	338,000	ND	ND	ND	ND	ND	ND	ND	ND
MW-2	08/12/11	ND	61.6	ND	ND	10.4	ND	1.03	ND	96,600	ND	ND	11	ND	ND	ND	ND	ND
MW-3	08/13/11	ND	20.2	ND	ND	13.9	8.38	1.49	15	104,000	70.6	21	42.2	ND	ND	ND	1.26	ND
MW-4	08/12/11	230	118	ND	ND	36.8	8.49	3.65	13.6	449,000	61.5	18.8	79.4	2.11	ND	ND	ND	ND
MW-7	08/11/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-10	08/11/11	ND	ND	ND	ND	ND	ND	ND	ND	1.31	ND	ND	ND	ND	ND	ND	ND	ND
MW-11	08/11/11	ND	ND	ND	ND	ND	ND	ND	ND	16,300	ND	ND	ND	ND	ND	ND	ND	ND
MW-12	08/11/11	ND	ND	ND	ND	191	1.48	5.94	2.84	94,500	27	13.2	230	ND	ND	ND	1.54	ND
MW-13	08/11/11	ND	ND	ND	ND	ND	ND	ND	ND	446,000	ND	ND	ND	ND	ND	ND	ND	ND
Trip Blank	08/11/11	ND	ND	ND	ND	ND	ND	ND	ND	46.8	ND	ND	ND	ND	ND	ND	ND	ND

NE - Not established

Blue font - exceeds SC MCL where an MCL is established

ND - Not detected