

403139

Environmental
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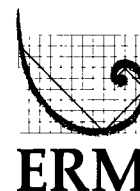
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September 30, 2010
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4/5/09

Ms. Lori Landmeyer
South Carolina Department of Health and Environmental Control
Bureau of Water Pollution Control
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:

Environmental Resources Management (ERM) is pleased to provide the enclosed Additional Assessment Work Plan on behalf of our client, Wix Filtration, Inc. for your review and approval. The Work Plan was developed pursuant to your letter dated June 30, 2010 and subsequent conversation on July 19, 2010.

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

Handwritten signature

Sincerely,

Ron Yarborough, P.G.
Project Manager

Hunter Sartain
Principal-in-Charge

RECEIVED

OCT 04 2010

SITE ASSESSMENT,
REMEDICATION &
REVITALIZATION

cc: (via electronic transmission)
Keith Clark - The Affinia Group
James Hiller, CIH - The Affinia Group
Paul H. Caulford, Jr. - Wix Filtration Corporation
Keith Kuerzel - ERM
Hunter Sartain - ERM

Enclosure

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SITE ASSESSMENT,
REMEDIATION &
REVITALIZATION

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Affinia Group, Inc. - Wix Filtration Corp.

403139

**Additional Environmental
Assessment Work Plan**
Wix Dillon Plant
Dillon, South Carolina

September 2010

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TABLE OF CONTENTS

1.0	INTRODUCTION	1
1.1.	WORK PLAN OVERVIEW	1
1.2	DELIVERABLES	2
2.0	RATIONALE FOR ADDITIONAL ENVIRONMENTAL ASSESSMENT	2
3.0	SITE BACKGROUND	2
3.1	SITE HISTORY AND OPERATIONAL PRACTICES	3
3.2	PREVIOUS INVESTIGATION	4
3.3	PHYSICAL SETTING	6
3.4	GEOLOGIC SETTING	6
3.4.1	<i>Regional Geology and Hydrogeology</i>	6
3.4.2	<i>Local Geology and Hydrogeology</i>	7
4.0	SITE ASSESSMENT STRATEGY	7
4.1	SOIL ASSESSMENT STRATEGY	7
4.2	GROUND WATER ASSESSMENT STRATEGY	8
5.0	SCOPE OF WORK PLAN ACTIVITIES	8
5.1	HEALTH AND SAFETY DEVELOPMENT	8
5.2	IDENTIFICATION OF POTENTIAL EXPOSURE PATHWAYS	8
5.3	SOIL TEST BORING PROGRAM	9
5.4	GROUND WATER PROGRAM	10
5.5	PREPARATION OF A SITE ASSESSMENT REPORT	10
6.0	ESTIMATED SCHEDULE	10

LIST OF FIGURES

- | | |
|------------------------|--|
| <i>Figure 1</i> | <i>Site Location Map</i> |
| <i>Figure 2</i> | <i>Facility Layout Map</i> |
| <i>Figure 3</i> | <i>Proposed Monitoring Well Locations</i> |
| <i>Figure 4</i> | <i>Type II Monitoring Well Schematic</i> |

1.0

INTRODUCTION

This Site Assessment Work Plan (Work Plan) has been prepared in response to June 30, 2010 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.

This Work Plan has been divided into six sections. Section 1.0 provides an overview of the Work Plan. Section 2.0 provides the rationale for additional assessment work to characterize potential sources and to further define horizontal extent of the toluene impacts to ground water. Section 3.0 provides a review of Site background information including a detailed history of site activities, site operations, waste management practices, previous investigation efforts, and a description of the geologic setting. Section 4.0 presents the assessment strategy that has been developed for the investigation of the lateral extent of affected ground water. Section 5.0 provides a detailed description of planned activities consistent with the assessment strategy including: monitoring well installations and ground water sampling and analysis. Section 6.0 includes anticipated schedules based on historical knowledge. A facility layout map is included as Figure 2.

1.1

WORK PLAN OVERVIEW

This Work Plan provides details for the additional Site investigation and characterization and the anticipated schedules and activities, as summarized below:

- A review of the receptor survey and well survey to support the proposed assessment activities;
- A review of data on the local geology and hydrogeology to support proposed actions; and
- Collection and analysis of soil and ground water samples to further characterize site media.

1.2

DELIVERABLES

The results of the identified activities of this Work Plan will be submitted to the South Carolina Department of Health and Environmental Control (SCDHEC) in a detail report summarizing the results of investigative activities.

2.0

RATIONALE FOR ADDITIONAL ENVIRONMENTAL ASSESSMENT

While Wix has determined that the volatile organic compounds (VOCs) detected at the Dillon site do not appear to be associated with current operations or processes, activities thus far have not been able to identify the extent to these historical releases. The environmental assessment work proposed in this Work Plan seeks to define the horizontal extent of the contaminants of concern in the ground water. While the previous phases of sampling indicated elevated VOC concentrations in the vicinity of the utility trench excavation, it appeared that the horizontal extent of impacted soils and ground water had been defined to the extent practicable. Access restrictions within the forested area, directly downgradient from the apparent historical toluene release, prevented proposed soil test borings from being installed by the ATV drill rig at that time. Consequently, hand auger borings were installed and ground water was encountered at two feet bgs. No VOCs were detected in the shallow hand auger boring soil samples collected. No ground water samples were collected from this area.

Correspondence dated June 30, 2010 from Ms. Lori Landmyer with the South Carolina Department of Environmental Control (SCDHEC) recommended that an assessment and remediation work plan be developed and submitted to better define the sources in and around the building and to define the extent of the toluene plume in the downgradient direction. This Work Plan addresses these recommendations.

3.0

SITE BACKGROUND

The Dillon Wix facility was purchased by its current owner, Affinia Group, Inc. in 2003 from its previous owner Dana Corporation. Based on interviews of long-term employees at the plant, and a review of the available historical records, the following section provides a history of known site activities, site operations, and waste management practices relative to the primary constituent of concern, toluene. The second part of this section provides a general description of the geologic setting.

3.1

SITE HISTORY AND OPERATIONAL PRACTICES

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.

As a result of utility excavation outside the southwest corner of the plant, VOCs, principally toluene, were detected in soils and ground water. These initial findings were reported to the SCDHEC in a letter dated December 9, 2005.

In its early years of operation, paints used in the manufacturing process were mixed on site using toluene as one of their ingredients. It appears that the use and storage of toluene for mixing paints was 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 were located, 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 the Federal and State UST rules taking effect, it appears there was some effort to upgrade portions of the UST system. The underground pipe running from the UST to the building was replaced

with a double-lined 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 formal 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 premixed paint, apparently a high solids water-based product. This premixed 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 complete 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.

3.2

PREVIOUS INVESTIGATION

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, but the City could not respond in a timely manner. A local contractor was then contacted to effect repair. Several days later the fire suppression loop line leaked again and the contractor responded to effect repair by welding. The

contractor detected an odor in the excavated soils that was described as paint or toluene.

In response to the contractor's comments, ERM was dispatched at Wix's direction to collect samples of the shallow subsurface soil for EPA Method 8260B laboratory analysis on October 18, 2005. Toluene and low levels of other VOCs were detected. Subsequently, a confirmation soil sampling event, including collection of three shallow ground water samples was conducted on November 18, 2005. Again, VOCs were detected, with the primary constituent detected being toluene. Wix could not identify either a suspected source of the suspected constituents or the character of the material detected.

Upon receipt of laboratory results confirming detection of elevated concentrations of toluene and several other VOCs at lower concentrations, Wix notified the SCDHEC in a letter dated December 9, 2005 of the results and of the previous investigation activities that prompted initial sampling.

An on-site meeting was held on January 17, 2006 with the SCDHEC, Wix Dillon and Wix Corporate personnel, ERM, and Affinia's environmental counsel to familiarize the SCDHEC with the Site, its historical and current operations, and the excavation area where the water line leak occurred.

In March of 2006 a detail Work Plan was submitted and approved by SCDHEC to conduct a comprehensive soil, ground water, sediment and surface water assessment at the Site. The data collected for the assessment completed as a part of the 2006 Work Plan was submitted in a summary report in February 2007. Specifically, this data report presented additional soil and ground water results, as well as an updated exposure pathway receptor study. This work was undertaken in an effort to further evaluate the horizontal extent of impacted soils and ground water related to an apparent toluene release discovered in a utility excavation area in October 2005 and subsequently confirmed during environmental investigations in October 2005, November 2005, May 2006, and December 2006. 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. The March 2010 semi-annual sampling reported slight increases in toluene concentrations in the upgradient monitoring wells (MW-1 and MW-4) and slight decreases in the downgradient monitoring wells (MW-2 and MW-3). Additional data is needed to accurately assess the effectiveness of the AS/SVE system.

3.3 *PHYSICAL 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.

3.4 *GEOLOGIC SETTING*

Brief regional and local geology and hydrogeology pertaining to the Site are discussed in the following sections. The information presented is primarily regional in nature since there is no Site-specific information available concerning rock classification or quality at the Site. The information presented in this section has been used to develop a conceptual model necessary to prepare this Work Plan.

3.4.1 *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 Peedee aquifer system, which is the uppermost aquifer system, and the Black Creek aquifer system beneath the Site. Sediments of the Peedee aquifer are located between land surface and depths of approximately 50 feet below mean sea level. The 30-foot thick Peedee confining unit separates a surficial aquifer from the underlying Peedee 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 Peedee confining unit, the Peedee aquifer, and the Black Creek confining unit.

3.4.2 *Local Geology and Hydrogeology*

Because no Site information is available relative to hydrogeology and to characterization of underlying soil and bedrock, assumptions must be made based on available literature. Generally, the site is underlain by sedimentary deposits of Late Cretaceous-age Peedee 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, but it appears that the clayey material encountered may have impeded migration of toluene within the subsurface.

4.0 *SITE ASSESSMENT STRATEGY*

The assessment strategy that has been developed for the Site is based on the existing information known about the toluene condition at the site and the comments provided by DEHEC on July 27 and June 30, 2010. Previous assessment data has shown that VOCs have impacted soils and ground water at the Site. The planned assessment activities are intended to evaluate the lateral extent of the downgradient ground water impact.

4.1 *SOIL ASSESSMENT STRATEGY*

Soil samples will be collected from the areas upgradient of the sampling points previously installed at the Site in an effort to determine the lateral extent of the toluene-impacted soils in this direction. The soil assessment strategy includes installing two soil test borings and performing laboratory analysis to provide data in the areas upgradient of MW-1 and MW-4. Soil

assessment borings will be advanced using direct push technology or other drilling techniques described in the QAPP, as appropriate.

4.2 *GROUND WATER ASSESSMENT STRATEGY*

The impact to ground water will be evaluated through installing, developing, and sampling two permanent ground water monitoring wells in the downgradient direction and two permanent monitoring wells in the upgradient direction. The wells will be sampled in an effort to define the extent of the ground water impact and to assess the potential for migration of VOCs through ground water. ERM has provided approximate locations of the proposed monitoring wells in Figure 3. Actual monitoring well locations may be subject to revision in the field based upon site conditions.

5.0 *SCOPE OF WORK PLAN ACTIVITIES*

The following scope of work is based on the Site assessment strategy as discussed in Section 4.0 and also is based on guidance documents provided by the SCDHEC for further Site investigation and characterization work. Completion of the identified scope of work will contribute to the assessment of lateral extent of contamination in ground water and identification of other potential sources. Activities conducted under this Work Plan will be conducted in accordance with the procedures addressed in the QAPP.

5.1 *HEALTH AND SAFETY PLAN DEVELOPMENT*

A site-specific health and safety plan (HASP) will be developed to address anticipated site hazards, exposure scenarios, monitoring requirements, personnel protective equipment requirements, and action levels for planned assessment activities. The HASP will be reviewed by a Certified Industrial Hygienist who will be consulted on health and safety issues during implementation of field activities. A site safety supervisor will be designated to enforce and document compliance with HASP requirements and to react to situations that may arise in the field.

5.2 *IDENTIFICATION OF POTENTIAL EXPOSURE PATHWAYS*

The objective of the environmental pathways analysis conducted at the Site was to identify the potential exposure pathways by which site-specific constituents may impact human and environmental receptors. An exposure

pathway receptor study was prepared for the Wix site during the previous assessment. The study concluded the following major findings:

- incidental exposure to Wix site soils and/or sediment in the area in question by off-site residents and/or trespasser is unlikely due to the physical boundary fence that limits access to the active portion of the site;
- the potential for routine contact with impacted ground water at the site is low due to the lack of ground water use for potable or industrial supply in the area surrounding the site; and,
- no contaminants were detected in site sediments and surface water. No ecological risk assessment is necessary due to the absence of contaminants in sediments and surface water at the Site.

In addition, given the current conditions at the Wix site, industrial site workers represent the maximally-exposed population. Potentially, complete exposure pathways include the following:

- exposure to VOCs released to the ambient air from surficial soil (low risk due to the lower concentrations of contaminants detected in surficial soils and dilution from exterior air flow/exchange);
- exposure to VOCs released to indoor air (facility workers only) from soils and ground water beneath the building (low risk due to sealed floor drains and lack of a source beneath the building); and
- exposure of workers to VOCs via dermal, ingestion, or inhalation routes from soils and/or ground water during utility trenching/construction, repair, or maintenance activities.

5.3

SOIL TEST BORING PROGRAM

Two soil test borings (STB-15 and STB-16) will be advanced to an estimated depth of 15 feet below ground surface (BGS). The borings, as shown on Figure 3, will be advanced using direct push techniques. During boring advancement, soil samples will be collected continuously using split-barrel samplers for physical classification and field screening for the presence of volatile constituents using a photo ionization detector (PID). The sample above the water table from each boring displaying the highest PID reading, or in the absence of readings above background, the sample closest to the water table, will be submitted for laboratory analysis by EPA Method 8260B. Samples will be field preserved in accordance with Method 5035.

5.4 *GROUND WATER PROGRAM*

The ground water monitoring program will consist of the installation of two permanent monitoring wells (MW-10 and MW-11) in the downgradient direction and two permanent monitoring wells (MW-12 and MW-13) in the upgradient direction. These monitoring wells will be used to define the lateral extent of affected ground water in these directions. A typical ground water monitoring well schematic is illustrated as Figure 4. The number and locations for the monitoring wells will be reviewed with the SCDHEC for permit approval prior to proceeding with installation.

The new wells will be developed and sampled for EPA Method 8260B VOCs in accordance with the Site-specific QAPP. The locations of the proposed wells are shown in Figure 3.

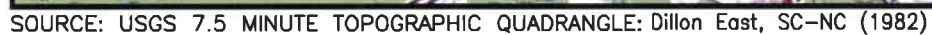
5.5 *PREPARATION OF A SITE ASSESSMENT REPORT*

A Site Assessment Report (SAR) will be prepared for the evaluation of the Site characterization data. The SAR will include the results of the various media programs (soil and ground water). The data will be used to confirm the conceptual Site model, identify any additional source areas, and provide recommendations for additional assessment activities, if necessary.

6.0 *ESTIMATED SCHEDULE*

ERM estimates that the scope of work for the planned tasks as described in this Work Plan can be completed in 12 weeks. The identified tasks have been organized in a manner that will allow for timely and orderly assessment of Site conditions to support real-time identification and selection of corrective measures, if appropriate.

Figures



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1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

NATIONAL GEODETIC VERTICAL DATUM OF 1929



Environmental Resources Management

**SITE LOCATION MAP
WIX FILTRATION CORPORATION
AFFINIA GROUP, INC.
DILLON, SOUTH CAROLINA**

FIGURE

1



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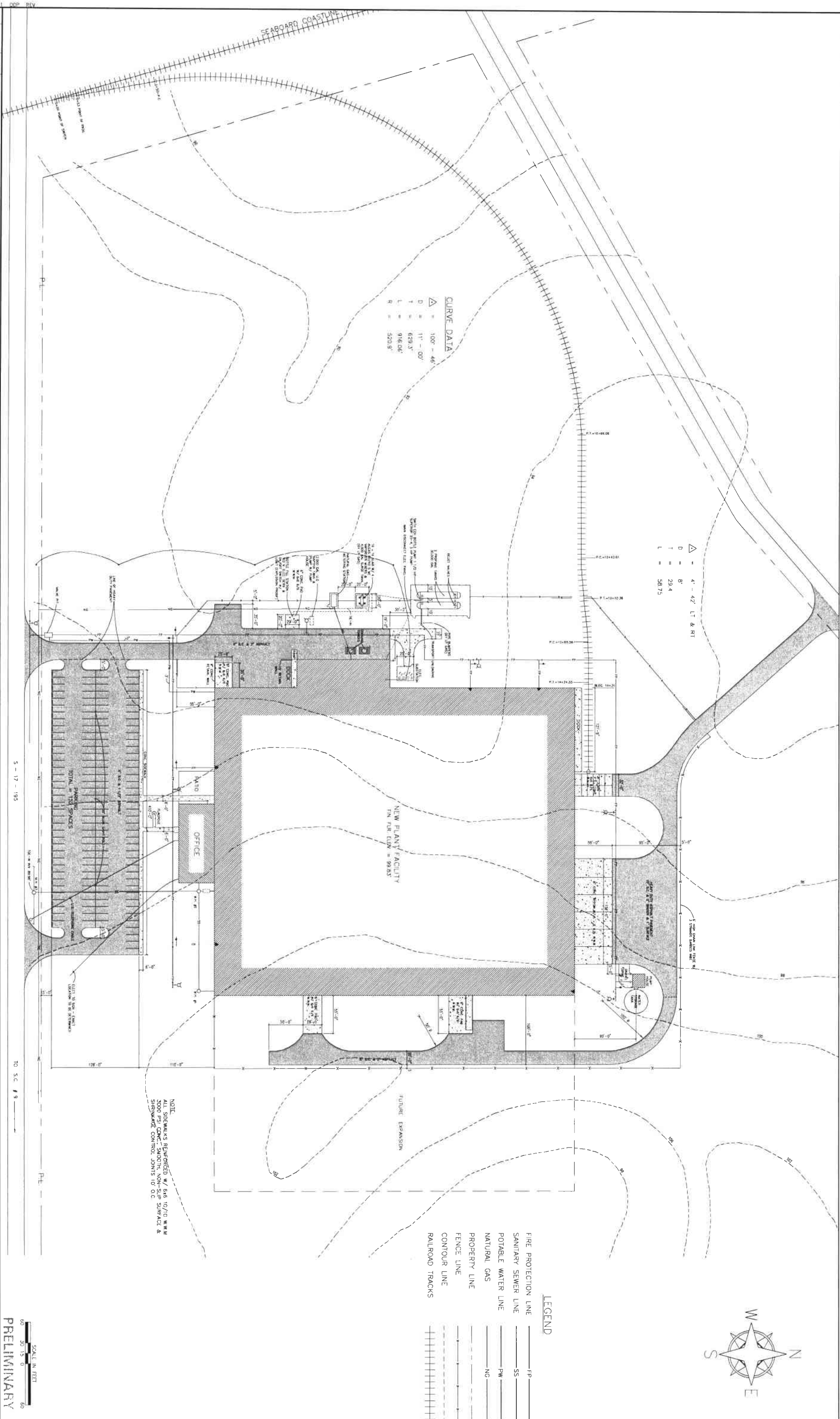
FACILITY LAYOUT MAP

SCALE	1"=60'	DATE	February 27, 2008
PROJECT NO.	412B4	AutoCAD 2002	06-02-SP-01

DRAWING NO. **2**

REV. NO.

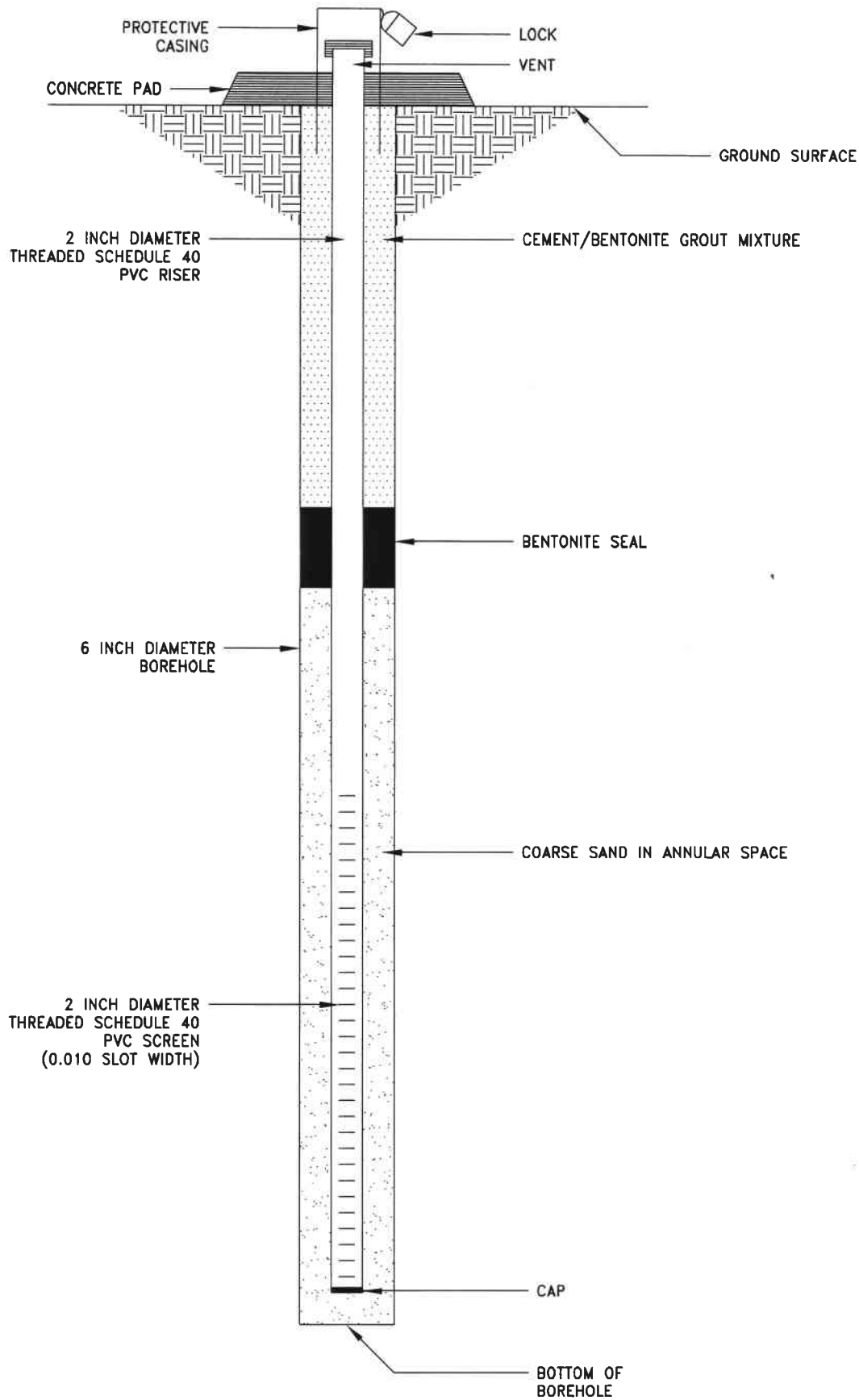
SHEET **1** OF **1**



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

FIGURE

4