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HEALTH AND SAFETY PLAN – VERSION 1.0

Wix Filtration Corp LLC Plant, Dillon, South Carolina

Voluntary Cleanup Contract No. 13-5996-RP

October 18, 2013 Revised: January 31, 2014

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Client

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1 Introduction

WSP has prepared this Health and Safety Plan (HASP) to address the potential health and safety issues which may arise during the implementation of the Remedial Investigation (RI) at the Wix Filtration Corp LLC (Wix) Plant Site located at 1422 Wix Road in Dillon, South Carolina. The work covered under this HASP is being performed pursuant Item 3 of Voluntary Cleanup Contract (VCC) Number 13-5996-RP.

This HASP provides an overview of conditions at the Site and describes the safety procedures to be employed during implementation of the Work Plan. The HASP presents the minimum requirements applicable to all WSP employees and WSP's subcontractors; all subcontractors are required to implement their own HASP and may use more stringent requirements as necessary to fulfill their own corporate requirements.

During the development of this HASP, consideration was given to current safety standards as defined by the Environmental Protection Agency (EPA), the Occupational Safety and Health Administration (OSHA), the American Conference of Governmental Industrial Hygienists (ACGIH), the National Institute of Occupational Safety and Health (NIOSH), the South Carolina Department of Health and Environmental Control (SCDHEC), and Wix Filtration Corp LLC. In addition, the HASP includes information on health effects and standards for known contaminants and the procedures designed to account for the potential for exposure to unknown substances. Specifically, the following references have been consulted:

- 29 Code of Federal Regulations (CFR) 1910.120 and 40 CFR 311
- OSHA/NIOSH/EPA Occupational Health and Safety Guidelines for Activities at Hazardous Waste Sites
- NIOSH Pocket Guide to Chemical Hazards
- ACGIH Threshold Limit Values (TLVs)
- Quick Selection Guide to Chemical Protective Clothing
- Ansell Resistance Guide Permeation and Degradation for Gloves and Protective Clothing

1.1 Scope and Applicability of the Health and Safety Plan

The objective of this HASP is to define the lines of communication, lines of authority, and lines of responsibility regarding the protection of WSP employees from potential health risk exposures while conducting work related to the RI at the Wix Plant Site. Based on previous work conducted at the Site, site groundwater and soils are primarily affected by toluene. Secondary chemicals detected historically at low levels in site groundwater and soils include other volatile organic compounds (VOCs), mainly benzene, ethylbenzene and xylenes. This HASP is applicable only to WSP site personnel. Subcontractors, if required to complete the scope of work, may review this HASP; however, all subcontractors will be required to prepare a site-specific HASP specifically related to their onsite scope of work. This HASP will be used to ensure that adequate site safety practices are used during the following field activities:

- Soil boring installation
- Monitoring well abandonment, installation, and development
- Groundwater sampling
- Sub-slab vapor sampling
- Waste management and disposal
- Decontamination

All WSP personnel working at the site must have appropriate OSHA training; review and understand the HASP; and sign an agreement to comply with its requirements before entering an investigation zone or a contamination reduction zone if such zones are established during the field activities. A copy of the HASP Certification is

provided in Section 15. All field personnel will be briefed by the Field Task Leader of their specific task(s) and will be required to become familiar with all sections of this plan. All contractors that will be under WSP's direct supervision must maintain a separate HASP and, at a minimum, be familiar with these sections of the plan:

- Groundwater Analytical Results – Appendix A
- Soil Analytical Results – Appendix B
- Heat Stress and Heat Stress Monitoring – Appendix C
- Cold Stress Prevention for Winter Months – Appendix D
- Safety Rules and Personal Hygiene – Appendix E
- Field Standard Operating Procedures for Putting On and Decontaminating Personal Protective Equipment (PPE) – Appendix F
- WSP personnel are included in a medical monitoring program that is described in Appendix G
- Route to hospital from site – Appendix H

WSP personnel performing these field activities will be subject to the standards, procedures, and requirements specified in this HASP. Contractors and subcontractors will follow their own company's health and safety protocols, and their protocols must be at least equivalent to the safety guidelines contained in this plan. Such a determination of equivalency will be made solely by the WSP health and safety officer.

This HASP may be modified if it becomes evident to the site health and safety coordinator or others associated with this work that the provisions specified are not feasible or adequate to protect the health and safety of site personnel. Modifications shall be accomplished by consultation with WSP's health and safety committee, which shall recommend appropriate modifications after conferring with WSP's health and safety officer. All changes to this HASP shall be documented by completing a HASP change form. This form must be signed by the site health and safety coordinator, WSP health and safety officer, and the site coordinator. A copy of each completed form is to be included in each copy of the HASP and in the project files. The site health and safety coordinator will be responsible for informing the staff of all changes to the HASP during the daily briefing meetings.

1.2 Related Documents

Companion documents prepared with this HASP include the RI Work Plan and the Sampling and Analysis Plan (SAP). The RI Work Plan outlines the scope and objectives of the remedial investigation, and the SAP provides a description of the field activities and associated procedures, and the organization, protocols, and controls to ensure the collection of adequate quality data.

2 Site Background

2.1 General Facility Information

The Wix Plant Site is located at 1422 Wix Road in Dillon, Dillon County, South Carolina (Figure 1). The plant property is approximately 81 acres in size and includes a 376,000-square-foot manufacturing building (Figure 2). Other small ancillary structures are located to the east (hazardous waste and tractor shed), north (fire water pump house), and west (paint storage building). Two 30,000-gallon capacity aboveground storage tanks (ASTs) containing propane are located west of the manufacturing building. The concrete and asphalt paved area along the north side of the building is used for the loading/unloading and staging of truck trailers. Fifteen acres of the property, located to the north and east of the manufacturing building, are leased to a local farmer. According to facility personnel, Progress Energy owns and operates a power substation on approximately 4 acres of land in the northeast portion of the Wix property.

The Wix facility is located in a mixed industrial, agricultural, and residential area north and west of the city of Dillon and Interstate 95. The property is bordered to the north by farmland and the Franco Manufacturing facility, to the east by cultivated and wooded farmland, to the south by farmland and a small number of residential properties, and to the west by the CSX Transportation railroad line and residence/small business.

The Wix facility is situated in an area of hilly terrain characterized by low relief and dissected dendritic streams (Figure 1). The pre-development ground surface gently slopes from east to west from approximately 140 feet mean sea level (ft. MSL) to approximately 125 ft. MSL.

The Wix facility may be accessed by road via the entrances on the south and north sides of the property and by air via the parking area on the south side of the facility.

2.2 Plant Operations

Based on historical information, the Wix Dillon plant was constructed around 1977.

Plant operations have been ongoing from 1977 to the present and involve the manufacture of fuel filters, oil filters, and air filters for automotive, diesel, racing, agricultural, and industrial applications. Production activities conducted include metal parts fabrication, element curing, assembly, painting, printing, packaging and shipment.

2.3 Environmental Investigation and Remediation Background

In October 2005, plant workers detected a paint-like odor in soil material excavated during repairs to an underground water line northwest of the plant structure. Based on this finding, eight soil samples and three groundwater samples were collected from the area and analyzed for VOCs typically associated with paint products to determine the presence/absence of these chemicals in the area (ERM 2011). The analytical results for the soil samples indicated elevated toluene concentrations, with a maximum detection of 1,630 milligrams per kilogram (mg/kg). Toluene was detected in the groundwater samples at concentrations ranging from 7,610 micrograms per liter (µg/l) to 184,000 µg/l together with lower detections of other VOCs. Upon receipt of the sampling data, Wix provided written notification of the discovery of a suspected release of toluene to the SCDHEC in early December 2005.

SCDHEC-approved investigation and remediation activities have been conducted by ERM since spring 2006 to evaluate the environmental impacts from the toluene release. These activities have included the following:

- 2006 Environmental Site Assessment (ESA) to evaluate the nature and the extent of contamination associated with the release

- 2008 Remedial Options Evaluation and 2008 Remedial Action Plan (RAP) to select and implement an applicable remedial technology to mitigate the environmental impacts
- 2010 and 2011 supplemental assessment activities to further characterize toluene concentrations in soil and groundwater in the release area
- implementation of an interim groundwater monitoring program to gather additional data on contaminant levels in the release area

In December 2009, an air sparge/soil vapor extraction (AS/SVE) system was installed and began operating as the remedial measure for the impacted area. Based on information provided in the ERM groundwater monitoring reports, the AS/SVE system has been in continuous operation since the start-up. The system layout and location of the equipment enclosure are shown on Figure 3. The system consists of five AS wells installed to the top of the clay layer and one horizontal SVE well installed at a depth of 3.5 feet below ground surface (bgs). Based on the system design, air is injected into the five AS wells to release toluene-containing vapors into the vadose, or unsaturated zone, which are then removed via the SVE well. To ensure capture of the toluene-containing vapors, the SVE system was designed to extract vapors at a higher flow rate than the air is injected. The SVE off-gas is piped to an equipment trailer, where it is treated with granular activated carbon and then discharged to the atmosphere. Operations, maintenance, and monitoring of the AS/SVE system continue to be conducted by Wix Plant Site and ERM personnel.

2.4 Soil and Groundwater Concentrations for Chemicals of Concern

Based on the investigations conducted at the Site since 2005, groundwater and soil are affected by toluene used in historical manufacturing operations at the facility. Toluene, defined as the primary chemical of concern (COC), has been detected in soils at a maximum concentration of 3,640 mg/kg (STB-15/MW-12; February 2011) and in groundwater at a maximum concentration of 666,000 µg/l (MW-13; August 2012). A tabulated summary of the VOC results for all soil samples collected from the toluene release area is provided in Appendix A, and a tabulated summary of the groundwater sampling data obtained from 2005 through 2012 is provided in Appendix B. Toluene concentrations greater than 50,000 µg/l in samples collected from the shallow monitoring wells indicates the likely presence of non-aqueous phase liquid (NAPL) at the groundwater surface over a small area extending from the paint room west to the former underground tank. When moving away from the area, the toluene concentrations decrease to levels below the groundwater quality standard over relatively short distances (less than 40 feet). Historically, no offsite toluene impacts to groundwater have been identified.

Other VOCs, which have been detected at much lower concentrations, are categorized as secondary COCs. These include benzene, ethylbenzene, and xylene isomers. Of them, benzene is the only compound present at concentrations above the respective South Carolina maximum contaminant level (MCL) of 5 µg/l. The benzene levels detected in the groundwater samples range from below the laboratory detection limit to 118 µg/l.

2.5 Climate

Dillon has a warm, humid climate characterized by long, hot summers and short, mild winters. Average temperature of the warmest month (July) is above 90°F, and during at least 9 months the average temperature is above 60°F. The average temperature of January, the coldest month, is 55°F. Annual precipitation is approximately 52 inches and summer is typically the wettest season.

Appendices C and D provide information regarding safety procedures during summer and winter months (extreme heat and locally extreme cold). These procedures must be followed to prevent adverse health effects due to climate while implementing the site scope of work.

3 Project Organization

A number of roles are required for the safe and efficient operation of a field team. These roles include site coordinator, health and safety officer, Field Team Leader, site health and safety coordinator, and field team members. A team member may take on more than one role, but the roles must be clearly assigned and must cover all those required. The following guidelines outline assignment of responsibilities of field team members.

3.1 Project Director – Steve Kretschman

The WSP Project Director has primary responsibility for the completion of project activities. He is responsible for overall planning, scheduling, and cost control. The WSP Project Director is responsible for assigning resources to the project, maintaining communication with the client; ensuring compliance with all project programs and protocols; providing oversight; managing the document control process; and maintaining consistency in and reviewing all work products. Mr. Kretschman will be directly responsible for the preparation of technical reports and other project documents and for ensuring adherence to the HASP. Mr. Kretschman will assist the Project Manager in planning, coordinating, and controlling technical aspects of the project. He is responsible for monitoring the quality of the technical and management aspects of the project, implementing the SAP, implementing tasks, and maintaining communication with the SCDHEC to ensure that the objectives of the project are met. Additionally, Mr. Kretschman will provide strategic direction during the project regarding client and contract requirements, work quality, and compliance with budget and schedule requirements, as well as review project deliverables.

3.2 Project Manager – Eric Johnson, P.G.

The Project Manager is responsible for the day-to-day progress of the project and overall supervision of field personnel during site investigations and, if necessary, studies conducted during the selection and screening of remedial technologies. These responsibilities include organizing field activities, complying with the provisions of the work plan, field documentation and record keeping, and ensuring quality control of field activities. The Project Manager will ensure that all necessary equipment and supplies are available to complete the proposed tasks and any necessary accident, incident, and near hit investigations are completed in a safe, thorough, and effective manner. The project manager must ensure that all Field Team Leaders have the necessary training and equipment to implement their assigned tasks as well as the skills necessary to lead a field crew and manage WSP contractors.

The Project Manager may conduct periodic site inspections to ensure that WSP personnel and WSP contractors are complying with all requirements of this HASP and all Wix Dillon plant safety policies.

3.3 WSP Corporate Health and Safety Officer – Keith Green CIH, CSP

The Corporate Health and Safety Officer (CSO) is responsible for ensuring that this HASP complies with all local, state, and federal regulations, as well as any WSP and Wix Plant policies and procedures that may be applicable to the proposed work. The CSO will work directly with the Project Manager to ensure that all necessary equipment (e.g., monitoring instruments) and supplies (e.g., PPE) are available to the task leaders and field personnel and that employees receive the necessary training to conduct their work properly and safely to prevent exposures to known and predictable hazards. Additionally, the CSO will work with the Project Manager to ensure that all subcontractors have the necessary health, safety, and potential exposure information to safely and effectively complete their onsite tasks. They will ensure that investigations are performed in a safe manner to eliminate hazards and coordinate with personnel and contractors regarding all procedures related to health and safety. The CSO will report directly to the Project Manager for this project.

3.4 Site Safety Coordinator and Field Site Safety Coordinator – Assigned by Project Manager

Site Safety Coordinator (SSC) and Field Site Safety Coordinator (FSSC) responsibilities will be assigned by the Project Manager before the beginning of every field task. The assignment will continue until the end of the field task or until the Project Manager re-assigns the responsibilities.

In the absence of the SSC during field activities, a member of the WSP project team will be designated as the FSSC. The SSC or FSSC will be responsible for observing field activities for compliance with this HASP; ensuring that decontamination procedures are followed and are effective; and maintaining the onsite documentation of WSP employees' medical clearances and emergency medical treatment programs. Additionally, the SSC or FSSC will assist in onsite emergencies, if any, and modify the health and safety protocols or terminate field work when unsafe work conditions exist. The SSC or FSSC will familiarize personnel with health and safety protocols and observe that field personnel wear appropriate PPE. Data from direct reading instruments, hazards evaluation, and any occurrence of site injury or illness will be recorded by the SSC or FSSC. Decontamination procedures will also be monitored by the SSC or FSSC.

The SSC and/or FSSC are responsible for monitoring Field Team Leaders and field personnel to determine if employees should be removed from the work site. Behaviors such as, but not limited to:

- horse play
- fatigue
- evidence of lack of fitness for duty
- heat or cold stress
- irresponsible behavior
- harassment (physical or verbal threats/abuse) of WSP or other site workers

If unsafe conditions are encountered, if illness or injury occurs, or if the level of protection needs to be changed, the SSC or FSSC will consult in a timely manner with the Project Manager and/or the CSO, as well as other authorized individuals.

In the event that unsafe acts conducted by WSP contractors are observed, the SSC or FSSC will inform the contractor and ensure that the subcontractor comply with this HASP. If the subcontractor continues with unsafe practices, the Site Safety Coordinator shall have the authority to stop work until corrective measures are implemented. Subcontractors are responsible for correcting any unsafe conditions created by their activities or acts by their employees in compliance with their HASP and any applicable regulations.

The SSC will determine if work practices or site conditions require changes in this HASP including, but not limited to, upgrades or downgrades in personal protection; changes in equipment or methodology to more safely accomplish work tasks or monitoring; and implementation of engineering or administrative controls. The SSC shall notify the Project Manager of these changes.

3.5 Field Team Leaders – Assigned by Project Manager

The Field Team Leaders are responsible for the proper implementation of each work task assigned to WSP and WSP's contractors. Team leader responsibilities include:

- organization of field activities
- ensuring contractors are onsite and ready to implement work tasks
- ensuring the necessary and properly operational field equipment is procured and onsite
- compliance with the provisions of the work plans/tasks

- field documentation and record keeping
- quality control of field activities
- communication with the project manager, project engineer, or other designated contact
- monitor the SSC/FSSC's behavior to determine if they should be removed from the work site as defined in the SSC/FSSC's responsibility

The Field Team Leaders must ensure that all field team members are properly trained to fulfill their assigned tasks, which includes implementation of both the HASP and work plan. The Field Team Leaders, along with the SSC/FSSC, must ensure that WSP and WSP contractor personnel conduct their tasks safely and in accordance with the HASP as well as Wix/Affinia health and safety requirements.

WSP Field Team Leaders will be responsible for the onsite implementation of the accident, incident, and near hit investigation process. The team leaders will work under the direction of the CSO to investigate accidents, incidents, and near hits. They will work with the Project Manager, SSC/FSSC, WSP field personnel, and WSP contractors as necessary to gather information necessary to determine the cause of the accident, incident, or near hit; to determine the corrective actions necessary to prevent repeating the accident, incident, or near hit; and to conduct the investigation and track it through to the implementation of a corrective action.

3.6 Field Team – Assigned by SSC

The field team members are responsible for complying with the HASP, notifying the site health and safety coordinator of hazardous or potentially hazardous conditions, and carrying out assigned tasks during field operations. These tasks may include inspecting, calibrating, maintaining, and using field equipment; collecting and preserving soil and groundwater samples; maintaining decontamination stations; preparing and decontaminating sampling equipment; and packaging and shipping samples according to proper chain-of-custody procedures. All members of the field team will have successfully completed an American Red Cross course in first aid.

4 Description of Site Activities

The following subsections describe tasks that may be performed during onsite activities and the hazards associated with each task. These activities will be conducted in areas containing VOC-affected media (soil, groundwater, and vapor). Some of the protective measures to be implemented during completion of those operations are also identified.

For all intrusive tasks, WSP or their subcontractors will arrange for location of all underground utilities in the work area. If necessary, WSP personnel will also coordinate redirecting traffic flow with the appropriate local agency.

Hazards associated with these activities will be anticipated and avoided by following the safety rules, as well as personal hygiene standards outlined in Appendix E. All tasks may be initiated in Level D personal protective equipment, as defined in Section 9.

4.1 Soil Sampling

As part of the remedial investigation, soil samples will be collected using direct-push technology or manual (bucket auger) methods, depending on accessibility and conditions encountered. Single-use acetate liners will be used with direct-push drilling techniques.

All soil borings will be located outdoors in paved and unpaved (grassy) areas. WSP personnel will oversee the installation of soil borings (with the exception of manual methods), classify the soils using the Unified Soil Classification System, screen the soils for organic vapors with a portable photoionization detector (PID), screen for non-aqueous phase liquid (i.e., soil-water shake test), and collect samples for laboratory analysis.

4.2 Monitoring Well Abandonment, Installation, and Development

WSP field personnel will oversee monitoring well abandonment by a South Carolina-certified well driller. Wells will be abandoned by either the forced injection or pouring of grout through a tremie pipe starting at the bottom of the well and proceeding to the surface in one continuous operation.

WSP field personnel will oversee monitoring well installation. The wells will be installed by a South Carolina-certified well driller in accordance with the South Carolina Well Standards (R.61-71). Monitoring wells will be installed using a drill rig equipped with 4.25-inch inner diameter (I.D.) hollow stem auger augers. The wells will be constructed of stainless steel or polyvinyl chloride (PVC) casing and screen. A sand filter will be placed in the annulus between the borehole and screen. A hydrated bentonite seal will be placed in the annulus above the filter pack and the remaining annular space will be grouted with neat cement or a bentonite-cement mixture, as the length of riser casing extending above the screen allows.

WSP or its drilling subcontractor will purge groundwater from the newly installed monitoring wells using submersible pumps, bailers, or inertial pumps in conjunction with surging of the well screen with a surge block assembly. WSP field personnel may monitor groundwater level during development and measure field parameters (pH, temperature, specific conductance, and turbidity) using a multi-parameter water quality meter (e.g., Horiba® U-52). The wells will be purged until the groundwater is free of suspended particulates or at the discretion of the WSP geologist.

4.3 *In-Situ* Permeability Tests

In situ permeability tests (i.e., slug tests) will be performed using pre-fabricated slugs, weighing less than 10 pounds. The slug will be lowered into the well using a pre-measured section of rope secured to the top end of the slug. Each slug test will consist of both falling- and rising-head components, and a minimum of two tests conducted for each well. The slug will be lowered and raised slowly enough to avoid splashing and minimize

turbidity. The test data – time and water level – for each test will be recorded using a pressure transducer-data logger installed within the well and downloaded to a personal computer for reduction and analysis.

4.4 Groundwater Gauging and Sampling

Monitoring wells are located inside and outside the facility building. Groundwater levels will be measured prior to commencement of groundwater sampling activities or as necessary with an electronic water level tape or oil-water interface probe. All wells will be purged and sampled using dedicated bailers or pumps (e.g stainless steel bladder pumps, electrical submersible pumps, peristaltic pumps) with dedicated polyethylene bladders and tubing. Field hydrogeochemical parameters (e.g., pH, oxidation-reduction potential, and dissolved oxygen) will be monitored during purging with a multi-parameter water quality meter (e.g., Horiba® U-52).

4.5 Sub-slab Vapor Sampling

Sub-slab vapor samples will be collected from within the facility building. At each sub-slab vapor sample location, a hole will be drilled through the floor slab using a hammer drill. Prior to emplacement of the sample port (e.g. Vapor Pin™ or similar), the borehole will be cleared of loose cuttings and debris with a vacuum. The port will be placed or hammered into the borehole; if necessary the borehole will be sealed with grout, bentonite or beeswax.

The sample port will be purged of stagnant/ambient air with a personal air sampling pump (or similar) into a Tedlar® bag. Air purged from the port will be screening with a portable organic vapor analyzer. After all stagnant/ambient air has been removed, the pump will be removed and an evacuated canister (Summa® canister or similar) fitted with a pneumatic flow controller provided by the analytical laboratory, will be attached using a suitable secure connection (e.g. Swagelock® fitting). The canister valve will then be opened initiating sample collection. Field personnel will monitor the vacuum of the canister during sample collection; the sample will be collected once the required pressure (as specific by the analytical laboratory) is reached by closing the canister valve.

The sample port will be removed after sample collection and the borehole filled with hydraulic cement. If the port cannot be easily removed, the entire port will be filled with hydraulic cement.

4.6 Waste Management Disposal

Liquid and solid waste will be stored in the appropriate designated waste storage area, and then transferred offsite for disposal by licensed non-hazardous and hazardous waste haulers to approved, permitted waste treatment, storage, and disposal facilities. All trucks will be lined, covered, and placarded in accordance with Department of Transportation (DOT) regulations. WSP personnel with current DOT training will be present onsite during waste management activities to label waste containers and during truck loading activities to sign shipping documents.

4.7 Decontamination

Decontamination procedures are detailed in Section 5.7 of this HASP. WSP personnel will be responsible for decontaminating reusable (non-disposable) equipment which is exposed to affected soil or groundwater and also for personal decontamination.

5 Job Hazard Analysis

The following subsections describe the potential hazards to which employees may be exposed while performing required tasks onsite (Section 4). Activities will be conducted in areas containing VOC-affected media, (soil, groundwater, and vapor). Some of the protective measures to be implemented during completion of those operations are also identified.

For all intrusive tasks, WSP or their subcontractors will conduct a search using best available technology to locate underground utilities within and nearby the work area. If necessary, WSP personnel will also coordinate redirecting traffic flow with the appropriate local agency. WSP employees and their subcontractors will also ensure that ignition sources and heat generating equipment used for site activities are kept a minimum distance of 100 feet from any site-related flammable storage areas, which includes the two, 30,000-gallon capacity propane ASTs located west of the manufacturing building. This buffer zone will also be protective in the event that debris or equipment that accidentally become airborne and may present a puncture hazard to storage tanks or other stored materials.

Hazards associated with these activities will be anticipated and avoided by following the safety rules and personal hygiene outlined in Appendix E. Based on current site conditions, all tasks may be initiated in personal protection Level D personal protective equipment, as defined in Section 9. However, should site conditions change or monitoring data show evidence of potentially hazardous exposures work initiation of PPE may change.

5.1 Soil Sampling

Potential hazards associated with soil sampling activities include:

- vehicle traffic
- contact with VOC-contaminated groundwater or soil
- contact with solvent NAPL absorption and/or inhalation of organic (VOC-affected) water or vapor
- physical contact with heavy equipment and machinery
- contact with underground and/or overhead utilities
- slips, trips, and falls
- heat and cold stress
- noise above the OSHA permissible exposure limit (PEL) of 90 decibels (dBA)
- drilling-specific hazards including:
  - any unguarded equipment, including gears and belts
  - any rotating equipment (keep loose clothing or other items away from rotating items)
  - hoisting/overhead hazards related to the drill rig
  - proper leveling of the drill rig
  - starting the drill rig motor when the drill pipe is not secure
  - subcontractor applying too much down-pressure on the drill bit and having the machine topple over or bit shatter
  - drill rig contact with overhead/underground electric power lines
  - serious burns can occur if workers are not careful and touch the hot exhaust mufflers or engines on the drill rigs

WSP employees must survey the work area thoroughly and select an observation point that provides adequate clearance from potential hazards.

5.2 Monitoring Well Abandonment, Installation, and Development

Potential hazards associated with oversight of well abandonment and installation activities include:

- vehicle traffic
- contact with VOC-contaminated groundwater or soil
- contact with solvent NAPL
- absorption and/or inhalation of organic (VOC-affected) water or vapor
- physical contact with heavy equipment and machinery
- contact with underground and/or overhead utilities
- slips, trips, and falls
- poisonous/venomous flora and/or fauna
- heat and cold stress
- noise above the OSHA PEL of 90 dBA
- drilling-specific hazards including:
  - wire rope “whip” hazards during use
  - any unguarded equipment, including gears and belts
  - any rotating equipment (keep loose clothing or other items away from rotating items)
  - hoisting/overhead hazards related to the drill rig
  - proper leveling of the drill rig
  - starting the drill rig motor when the drill pipe is not secure
  - subcontractor applying too much down-pressure on the drill bit and having the machine topple over or bit shatter
  - drill rig contact with overhead/underground electric power lines
  - serious burns can occur if workers are not careful and touch the hot exhaust mufflers or engines on the drill rigs

WSP employees must survey the work area thoroughly and select an observation point that provides adequate clearance from potential hazards.

5.3 In-Situ Permeability Testing

Potential hazards that may be encountered during slug testing include:

- vehicle traffic
- slips, trips, and falls
- contact with VOC-contaminated groundwater

- contact with solvent NAPL
- absorption and/or inhalation of organic (VOC-affected) water or vapor
- heavy lifting
- poisonous/venomous flora and/or fauna
- heat and cold stress

5.4 Groundwater Gauging and Sampling

Potential hazards that may be encountered during groundwater gauging and sampling include:

- vehicle traffic
- slips, trips, and falls
- contact with VOC-contaminated groundwater
- contact with solvent NAPL
- absorption and/or inhalation of organic (VOC-affected) water or vapor
- active manufacturing operations in the facility
- poisonous/venomous flora and/or fauna
- heat and cold stress
- energetic hazards associated with sampling equipment (i.e., pneumatic, hydraulic, electric)

5.5 Sub-slab Vapor Sampling

Potential hazards that may be encountered during sub-slab vapor sampling include:

- slips, trips, and falls
- inhalation of VOC-affected vapor or dust
- noise above the OSHA PEL of 90 dBA due to facility manufacturing operations, or while operating an electric handheld hammer drill
- electrical hazards associated with operating an electric handheld hammer drill
- contact with underground/in-slab utilities
- jerking or binding of the electric handheld hammer drill
- dust or flying debris while operating electric handheld hammer drill

Note that the sub-slab vapor sampling locations are located in a manufacturing area of the facility with hearing protection required.

5.6 Waste Management and Disposal

Potential hazards that may be encountered during waste management and disposal activities include:

- crushing or pinching when moving drums
- heavy equipment and truck traffic

- contact with VOC-contaminated groundwater or soil
- contact with solvent NAPL
- slips, trips, and falls
- absorption and/or inhalation of organic (VOC-affected) vapor
- heat and cold stress

5.7 Decontamination

General hazards that may be encountered during decontamination include:

- slips, trips, and falls
- contact with VOC-contaminated groundwater, soil, or decontamination fluid
- contact with solvent NAPL
- absorption and/or inhalation of VOC-affected groundwater or vapor
- poisonous/venomous flora and/or fauna
- heat and cold stress
- energetic hazards associated with sampling equipment (i.e., pneumatic, hydraulic, electric)

6 Exposure to Toxic Substances

As provided in Section 2.4, the primary COC in groundwater and soil is toluene. Secondary COCs include benzene, ethylbenzene, and xylene. Toxicological profiles, chemical, and physical characteristics for these compounds are included in Table 1.

Potential exposures to VOCs are discussed on a task-specific basis in Section 5.0. Potential exposures to VOCs during field work activities include the following:

- splash hazards
- dermal contact with potentially contaminated soil and groundwater
- inhalation of vapors as well as aerosolized water and particulate

To protect workers from eye and skin contact, skin absorption, inhalation of vapors, and ingestion of airborne dust, PPE will be used as outlined in Section 9.0.

As mentioned previously, hazards associated with site activities will be anticipated and avoided by following the safety rules and personal hygiene outlined in Appendix E. The site-specific chemical, indoor work, environmental, and weather hazards are described in this section.

6.1 Chemical Hazards

A literature review was conducted to find ionization potentials (IP), exposure limits, and concentrations that are immediately dangerous to life and health (IDLH) for contaminants potentially occurring in environmental media at the Wix Dillon plant. Exposure limit data are expressed as time weighted averages (TWA) or ceiling limits. TWAs promulgated in the OSHA regulations are referred to as PELs. TWAs found in the NIOSH publications are recommended exposure limits. The ACGIH adopts values for exposure limits referred to as TLVs. ACGIH further divides some TLVs into TWAs, ceiling limits, and short-term exposure limits.

The COCs detected in environmental media during past investigations at the site are listed in Sections 2.4. The exposure limits and concentrations that are IDLH for these COCs are presented in Table 1. It is not anticipated that chemicals used in current Wix plant operations will be encountered during this work. However, all activities and associated levels of protection described herein are subject to actual field conditions and thus may change during the field activities.

Exposure levels, IPs, and IDLH values are used to establish which monitoring instruments will be needed. For example, collection methods and laboratory analysis methods vary according to the COCs. A document review will be conducted to ensure approved scientific methods are followed for all worker protection-related sampling.

These data are also used to establish action levels when upgrading to higher levels of PPE and would be needed to select the appropriate types of outer garments, gloves, and respirator cartridges. An action level for an upgrade in the level of respiratory protection is calculated by adjusting the PEL or TLV of a substance by a safety factor and a NIOSH recommended respirator protection factor. The safety factor is based on various factors, including waste mix, site conditions, synergistic effects, monitoring equipment efficiency, and warning properties such as odor. When readings on the monitoring instruments exceed the specified action levels, adjustments to the next highest level of protection will be implemented.

Action levels triggering an upgrade from Level D to Level C respiratory protection are established by examining exposure limit data to select the compound with the lowest exposure limit (either PEL or TLV) as a reference compound. All breathing zone readings are then compared to the reference compound. As required by the WSP Health and Safety Policy, the action level will be set at one half the exposure limit of the reference compound. The VOCs listed in Table 1 can be detected with a 10.6 eV lamp. Therefore, a PID with a 10.6 eV lamp will be used to monitor the breathing zone of onsite personnel performing tasks described in Section 4.0.

Combination organic vapor/acid gas/high efficiency particulate air (HEPA) cartridges (NIOSH-approved) will be worn if respirators are required. These cartridges provide protection against dusts, mists, fumes, and atmospheres containing less than 1,000 parts per million (ppm; 0.1 percent) of organic vapors, according to NIOSH specifications.

Toluene, with a TLV of 50 ppm, is the primary COC detected at the site during previous soil and groundwater investigations. Site work will be initiated in Level D protection. WSP will use the TLV as the protective concentration for this site for the determination of PPE upgrades; therefore, the action level for PPE upgrades is 25 ppm (one-half of the TLV). As mentioned previously, a PID with a 10.6 eV lamp will be used to monitor VOC concentrations in the breathing zone. If VOC measurements in the breathing zone detect levels above the action level of 25 ppm for a period of 5 minutes, work will cease and engineering and/or work practice controls will be implemented to reduce VOC vapors. This can be accomplished by increasing air speed (mechanical fans), improving ventilation, or changing work activities (move personnel farther away). If the VOC concentration in the worker breathing zone cannot be reduced by implementing controls, WSP employees will upgrade to Level C PPE. If VOCs are detected at any concentration greater than the maximum use concentration for toluene (MUC = PEL x APF; 10,000 ppm), site activities will cease until constituent-specific personal monitoring (e.g., a NIOSH reference method) is conducted to determine if an upgrade to Level B PPE is necessary. WSP employees will not upgrade to Level B equipment and will not be permitted to continue operations in the work zone if site conditions require an upgrade related to toluene. If constituent-specific monitoring indicates that Level B PPE is required (i.e., the MUC is exceeded), engineering controls will be implemented again to attempt to reduce vapors in the breathing zone. If engineering controls are ineffective, a qualified Contractor must be retained to perform any Level B work, which WSP will monitor outside the exclusion zone. If toluene is not detected above 10,000 ppm, work will proceed in Level C until worker breathing zone surveillance indicates a down-grade of PPE is possible.

Employees will determine potential exposures to VOCs during work activities using real-time air monitoring for organic vapors. Action levels for the known and suspected onsite VOCs have been calculated to determine the appropriate level of PPE for site activities. An action level for an upgrade in levels of respiratory protection is determined using the permissible exposure limit or threshold limit value, whichever is lower.

Toluene as well as the secondary COCs listed in Table 1 can enter the body by inhalation, ingestion, eye and skin contact, and absorption through the skin. Table 1 also indicates exposure pathways and short-term effects such as dizziness or eye and skin irritations, which can be identified rather promptly. However, long-term effects such as kidney and liver damage may not easily be detected until chronic damage has occurred. It is important that all personnel involved in field activities adhere to the recommended personal protective procedures advised by the SSC to reduce the potential for exposure.

6.2 Physical Hazards

The physical hazards associated with these tasks can be reduced by following a number of common sense guidelines. In advance of implementing sampling activities, the proposed sample locations shall be marked to determine the safest location for staging field equipment and team personnel. To the degree possible, field teams should limit access to the work areas.

To reduce physical injuries on the work site during the installation of the sub-slab vapor probes, the operator of the electric drill should avoid wearing loose-fitting clothes that could be drawn into exposed moving parts. Any electric equipment and associated electric cords (e.g., electric drill) should be inspected before and after each use. Specifically for the operation of an electric drill, the follow safety procedures shall be followed:

- Inspect cleanliness of drill before and after each use; avoid use of drill that does not appear clean.
- Ensure the electric drill bit is set straight in the jaws and does not wobble.
- Inspect the cord for breaks, exposed wires, and looseness at the plug or housing connections.
- Connect the electric drill's cord to grounded extension cord and locate cord so that it won't cause a tripping hazard.

- Inspect work area for tripping hazards.
- Ensure that any loose clothing or similar items are secured and maintain a safe distance from drill operation.
- Drill hole at a straight angle perpendicular to the floor surface.
- Apply the necessary amount of pressure to slowly penetrate the material to the necessary depth, but exercise care to avoid applying too much pressure, which can lead to overheating the drill or causing it to bind.

6.3 Environmental (Flora/Fauna) Hazards

A portion of the work will be conducted in areas with environmental hazards (flora/fauna). Employees may wear insect repellent to minimize exposure to insects and should monitor surroundings for evidence of snakes or poison ivy or oak. Additionally, employees will be provided sunscreen with a minimum sun protection factor (SPF) of 30 for work conducted outdoors.

6.4 Weather Hazards

Onsite work may occur during periods of extreme hot or cold weather. Site personnel must be aware of hazards associated with heat and cold stress while conducting sampling activities in PPE. Appendix C provides further details for recognizing heat stress, and Appendix D provides further details for recognizing cold stress.

7 Site Controls and Decontamination

7.1 Site Entry

The Wix Dillon Plant is located at 1422 Wix Road in Dillon, Dillon County, South Carolina (Figure 1). The Wix facility is located in a mixed industrial, agricultural, and residential area north and west of the city of Dillon and Interstate 95. The property is bordered to the north by farmland and the Franco Manufacturing facility, to the east by cultivated and wooded farmland, to the south by farmland and a small number of residential properties, and to the west by the CSX Transportation railroad line and residence/small business. As mentioned previously, the property is accessible by road from Wix Road via the entrance along the south side of the property and Scottland Road via the entrance on the north side.

To maintain a safe working environment, all WSP personnel who enter the site shall be informed of the following procedures:

- the presence of potentially hazardous materials onsite (Section 2.3)
- the site emergency response procedures (Section 12)
- any potential fire, explosion, health, or safety hazards
- standard safety rules and personal hygiene procedures (Appendix E)

7.2 Buddy System

The implementation of a buddy system may be necessary for some activities performed at the site. The buddy system requires that at least two people work as a team and maintain constant site or voice contact with each other. The size of the team depends on the level of PPE that is worn by any one team member.

7.3 Site Communication

At least once per day, all WSP field personnel and WSP contractors shall contact their respective Field Team Leader to report on the day's activities. At this time, any identified health and safety concerns (e.g., accidents, incidents, or near hits) will be reported to the SSC/FSSC. Field Team Leaders shall report to the Project Manager such that health and safety concerns may be reported to other site personnel and contractors, as appropriate.

A series of three extended car horn blasts will be the emergency signal to indicate that all WSP personnel and WSP contractors must evacuate the WSP work zones. This alarm system may be initiated by any member of the WSP team. Field Team Leaders or SSCs/FSSCs will use electronic communication (e.g., cell phones) to notify Wix plant personnel, as required by the Site Emergency Evacuation Plan. WSP Field Team Leaders and/or SSCs/FSSCs will then relate all instructions to WSP field personnel and contractors for the safe evacuation of the site.

7.4 Decontamination

Decontamination is the process of removing or neutralizing contaminants that accumulated on personnel and equipment during site activities. Decontamination protects workers from hazardous substances that may contaminate and eventually permeate the protective clothing, respiratory equipment, sampling equipment, vehicles, and other equipment used onsite. Proper decontamination protects all site personnel by preventing the transfer of harmful materials into clean areas, the mixing of incompatible materials, and the uncontrolled transportation of contaminants from the site. Decontamination at the site will take two forms: equipment and personnel.

7.4.1 Equipment Decontamination

Decontamination of equipment will prevent the transfer of chemicals from the site to offsite areas and prevent cross-contamination from dirty to clean areas of the site. Equipment to be decontaminated includes all tools which may come into contact with the potentially contaminated media and reusable sampling equipment. The decontamination process will use a non-phosphate soap and water wash and a distilled water rinse to clean equipment.

As necessary, a bermed decontamination pad will be installed at the site. The pad will consist of polyethylene sheeting, or equivalent impermeable material, and a collection sump. Large equipment and vehicles, which require decontamination, will be cleaned inside the decontamination area. Rinsate water derived from the decontamination of sampling and construction equipment, and vehicles will be contained in DOT-compliant 55-gallon drums for offsite disposal.

7.4.2 Personnel Decontamination

The HASP specifies the correct level of PPE to be worn based on the conditions and potential for exposure. Personal decontamination procedures are provided in Appendix F.

8 Level of Protection

WSP personnel responsible for the project have completed a 40-hour health and safety training course fulfilling the initial instruction requirements specified in 29 CFR 1910.120(e)(2). Before personnel arrive onsite, WSP's subcontractors will be responsible for certifying that their employees meet the OSHA training requirements, and that a site-specific health and safety plan has been prepared for the work to be conducted.

WSP site activities are expected to be performed in Level D PPE with Level C being the contingency. Modifications of these levels are permitted and routinely employed during site activities to maximize efficiency. Levels of protection will be selected based on the concentration of the reference chemical in the ambient atmosphere based on PID readings and the potential for direct contact with material due to field activities or sampling.

The current PPE assessment was based on the anticipated hazards of work activities using existing site characterization data. Proper modifications to the level of PPE to be used will be made as necessary. The types of sampling that may be performed include instantaneous organic vapor monitoring, and OSHA and NIOSH reference method sampling. This monitoring will be performed at a frequency and duration to adequately assess potential hazards at the site.

9 Personal Protective Equipment

9.1 Equipment

Level D will consist of the following equipment:

- steel-toe work boots
- safety glasses
- nitrile chemical resistant gloves
- work (i.e., leather palm) gloves
- hard hat when working near drill rigs and other equipment that pose an overhead hazard
- high-visibility vest

Level C will consist of the same protective clothing as Level D with the following additions:

- dual-canister full or half-face air-purifying respirator (NIOSH approved)
- organics, dust, and pesticide respirator cartridges (MSA cartridges GMA-H, GMC-H, GMC-S)
- Tyvek® or polyethylene-coated Tyvek® coveralls

The fit of the facepiece-to-face seal of the respirator affects its performance. The SSC/FSSC will be responsible for ensuring that a good seal is maintained. After each day's use, the respirator will be inspected, cleaned, and stored.

Damaged PPE will be replaced immediately. Backup equipment will be kept onsite for replacement as necessary. Subcontractors will provide their own PPE.

The following protective equipment will be discarded and replaced daily and/or after each use:

- respirator cartridges
- Tyvek® coveralls
- Chemical resistant gloves

Procedures for donning PPE are given in Appendix F. Item 15 in Appendix F outlines procedures for containerizing PPE and personal decontamination wastes.

The level of protection provided by PPE selection may be upgraded or downgraded by the SSC/FSSC based on changes in site conditions or findings of investigations. When a significant change occurs, the hazards will be reassessed. Some indicators of the need for reassessment are as follows:

- the start of a new work phase, such as the start of work on a different portion of the site
- a change in job tasks during a work phase
- a change of weather
- encountering contaminants other than those previously identified
- a change in ambient levels of contaminants
- a change in work scope that affects the degree of contact with contaminants

9.2 Inspection

Proper inspection of PPE features several sequences of inspection depending on specific articles of PPE and its frequency of use. The different levels of inspection are as follows:

- inspection and operational testing of equipment received from the factory or distributor
- inspection of equipment as it is issued to workers
- inspection after use or training
- periodic inspection of stored equipment
- periodic inspection when a question arises concerning the appropriateness of the selected equipment or when problems with similar equipment arise

The primary inspection of PPE in use for activities at the Wix Plant Site will occur before use and will be conducted by the user. This ensures that the device or article has been checked out by the user and the user is familiar with its use. Table 2 provides a sample PPE inspection list.

10 Onsite Safety Equipment

Several pieces of safety equipment will be provided near the work area. A PID will be used to detect organic vapors in the breathing zone of the workers upwind and downwind of each sampling location. Depending on the site activities, colorimetric tubes for compound-specific air screening will be available for select onsite contaminants. A first aid kit will be kept in the field vehicle, and eye wash and fire extinguishers are available in the manufacturing building onsite. Awareness of the location of the nearest telephone, water supply, and sanitary facility at each field activity location will be acknowledged by all appropriate personnel.

11 Accident and Incident Investigation and Reporting

Accidents are defined by the National Safety Council as an undesired event that results in personal injury or property damage. Generally, incidents are defined as an unplanned, undesired event that adversely affects completion of a task. Lastly, near hits describe incidents where no property was damaged and no personal injury sustained, but where, given a slight shift in time or position, damage and/or injury easily could have occurred. WSP's health and safety programs and procedures are focused on preventing exposure to hazardous chemicals and potential accidents and incidents. One way of preventing future accidents and injuries is by investigating accidents and incidents as well as tracking near hits.

All accidents and incidents related to the work that WSP and WSP's contractors conduct on the Wix Plant Site property will be investigated, the root cause determined, and corrective actions implemented. Field personnel will report accidents and incidents to their respective Field Team Leader who will report to the SSC and Project Manager. The Project Manager will report all incidents to the host facility and, subsequently, to applicable regulatory agencies within the necessary timeframe to meet regulatory requirements. However, all accidents/incidents will be reported within 24 hours.

Near hits will be reported directly to the Project Manager with a "copy" to the Field Team Leader within 1 week of occurrence. The Project Manager will report the near hit to the CSO within 48 hours of the near hit report. The Corporate Health and Safety Officer will compile the data related to near hits to determine patterns and repeat issues where training, re-training, and work practice controls may reduce the likelihood of near hits becoming accidents or incidents.

The Field Task Leader will work with the CSO, Project Manager, SSC, and field personnel to conduct an investigation. At a minimum, the investigation will consist of:

- affected employee and witness interviews
- initial identification of evidence
- collection, preservation, and securing of physical evidence
- preparation of accident, incident, and near hit reports
- communication of preliminary findings with project management
- preparation of final report and corrective action
- communication of final report with all WSP site personnel and WSP contractors

Incidents shall be investigated regardless of whether they caused personal injury or not, so to prevent their recurrence in the future. According to WSP policy, near hits and all accidents/incidents will be summarized in a monthly report to the Performance Committee. The summary report will include the details of the near hit and/or accident/incident and suggested corrective actions to ensure the issue is not repeated. Issues that are repeated will be immediately reviewed by the Corporate Health and Safety Officer and the safety committee to ensure that the issues are corrected. In accordance with OSHA requirements (29 CFR 1904 and 29 CFR 1910.20), all reportable injuries or illnesses should be recorded on the OSHA Form 300 and either the OSHA 301 or equivalent state workmen's compensation form within 6 days of the injury.

12 Contingency Plan and Emergency Procedures

If PID readings indicate a sudden increase of COCs within the breathing zone to levels exceeding IDLH levels or if other threatening hazards are noted, WSP will evacuate the area. No personnel will return unless instrumentation, engineering control, or an emergency response official indicates that it is safe and proper to do so.

To obtain medical assistance as soon as possible in case of an emergency, the following telephone numbers, addresses, and directions for the nearest medical treatment facilities will be available:

Dillon EMS:	911
Dillon Fire Department:	911
Dillon Police Department:	911
Dillon Hospital:	911
Poison Control Center	(800) 222-1222
Center for Disease Control	(404) 488-4100
WSP: Eric Johnson	(703) 709-6500

Hospital Address: McLeod Medical Center
301 E Jackson St
Dillon, SC 29536
Tele: (843) 774-4111

DIRECTIONS TO HOSPITAL:

Head EAST on Wix Road toward SC-57 N/SC-9 N for 0.5 miles. Turn RIGHT onto SC-57 S/SC 9 S/Radford Boulevard and continue for 1.6 miles. Turn RIGHT on N Second Avenue and follow for 0.4 miles. Turn left onto E. Madison Street and follow for 0.1 miles. McLeod Medical Center will be on the right.

A route to hospital map is provided in Appendix H.

12.1 Emergency Medical Treatment Procedures

In an emergency, the primary concern is to prevent the loss of life or severe injury to site personnel. If immediate medical treatment is required, decontamination will be delayed until the condition of the victim has stabilized. If decontamination can be performed without interfering with first aid or if a worker has been contaminated with an extremely toxic or corrosive material that could cause severe injury, decontamination will be performed immediately. If an emergency caused by a heat-related illness develops, protective clothing will be removed from the victim as soon as possible to reduce heat stress.

The following standard emergency procedures will be used by onsite personnel. The site health and safety coordinator shall be notified of any onsite emergencies and be responsible for ensuring that the appropriate procedures are followed. These procedures shall be rehearsed regularly as part of the overall program for the site.

Minor injuries: If the injury or illness is minor, full decontamination should be completed and first aid administered before the injured is transported to McLeod Medical Center.

Major injuries: If the patient's condition is serious, call the Dillon Fire Department for ambulance and paramedic support. At least partial decontamination should be completed. (i.e., complete disrobing of the victim and redressing in clean coveralls or wrapping in a blanket). First aid should be administered while awaiting an ambulance or paramedics.

Any person being transported to a clinic or hospital for treatment should take with them information of the chemical or chemicals they have been exposed to at the site.

12.2 Medical Emergencies

Four medical emergencies have been identified as requiring implementation of emergency procedures. These emergencies are cardio-pulmonary emergencies, physical injuries, heat-related injuries, and chemical exposures. Heat-related injuries are outlined in Appendix C. Provisions will be made to ensure that an emergency response team comprised of properly trained technicians will be prepared to respond to any situation in the appropriate level of PPE for the site.

12.2.1 Cardio-Pulmonary Emergencies

Cardio-pulmonary emergencies are life-threatening situations requiring immediate response of trained individuals to prevent death. At no time will these emergencies be considered less than life-threatening. These emergencies include heart attack, cardiac arrest, or respiratory arrest. Response and emergency treatment will be rendered without regard to protective equipment or decontamination procedures. As a precaution, and if necessary, a representative from the site will accompany the worker to the hospital in order to advise on matters of decontamination.

12.2.2 Physical Injuries

Physical injuries can range from minor sprains, to internal injuries, to an open compound fracture. Depending on the severity of the injury, treatment may be delayed for decontamination procedures to be performed. The level of decontamination will be directly related to the seriousness of the injury and will be determined by the site health and safety coordinator or his/her designee.

The outside garments can be removed (depending on the weather) if they do not cause delays, interfere with treatment, or aggravate the injury. Respiratory masks, backpack assemblies, and chemically-resistant clothing should be removed from the injured person. If the outer contaminated garments cannot be safely removed, the individual should be wrapped in blankets to help prevent contaminating the inside of the ambulance or medical personnel. Outside garments are then removed at the medical facility. One exception would be if it is known that the individual has been contaminated with an extremely toxic or corrosive material that could also cause severe injury of loss or life.

If an employee working in a contaminated area is physically injured, appropriate first aid procedures will be followed. Depending on the severity of the injury, emergency medical response may be sought. If the employee can be moved, he/she will be taken to the edge of the work area (on a stretcher, if needed) where contaminated clothing will be removed, additional emergency first aid will be administered, and transportation to a local emergency medical facility will be arranged.

12.2.3 Chemical Exposure

Exposure to chemicals can be divided into two categories:

- injuries from direct contact, such as acid burns or inhalation of toxic chemicals
- potential injury due to gross contamination on clothing or equipment

For the inhaled contaminant, treatment can only be provided by qualified physicians. If the contaminant is on the skin or in the eyes, immediate measures must be taken to counteract the substance's effect. First aid treatment

usually is flooding the affected area with water; however, for a select few chemicals, water may cause more severe problems.

When protective clothing is grossly contaminated, the chemicals may be transferred to treatment personnel or the wearer and cause injuries. Unless severe medical problems have occurred simultaneously with splashes, the protective clothing should be washed off as rapidly as possible and carefully removed. Portable eye washes will be available to provide a means of flushing and washing such contamination.

If the injury to the worker results from a chemical splash or uncontrolled release, the following first aid procedures are to be instituted:

- Eye Exposure – If contaminated solids or liquids get into the eyes, wash eyes immediately at the emergency eyewash station using large amounts of water and lifting the lower and upper lids occasionally. Obtain medical attention immediately. Contact lenses will not be worn when working onsite.
- Skin Exposure – If contaminated solids or liquids get on the skin, promptly wash the contaminated skin using soap or mild detergent and water. Obtain medical attention immediately when exposed to concentrated solids or liquids.
- Breathing – If a person breathes in large amounts of contaminants, move the exposed person to fresh air at once. If breathing has stopped, perform artificial respiration immediately. Keep the affected person warm and at rest. Obtain medical attention as soon as possible.
- Swallowing – When contaminated solids or liquids have been swallowed and the person is conscious, attempt to obtain information from the person to aid in identifying the substance swallowed. Contact the poison control center immediately. Under their direction, one or two glasses of milk or water may be administered to dilute the swallowed material. The poison control center may direct responder to induce vomiting. Do not induce vomiting if: the person is unconscious or semiconscious, or convulsing; if a strong corrosive has been swallowed or if a petroleum product has been swallowed. Vomiting is best induced by administering 1 tablespoon of Syrup of Ipecac. Transport the person to the hospital and monitor the airway constantly.

12.3 Fire/Explosion

On notification of a fire or explosion onsite, the designated emergency signal of a series of three extended car horn blasts shall be sounded and all site personnel will move to the designated meeting location. The fire department shall be alerted and all personnel moved to a safe distance from the emergency area.

Fire extinguishers are present onsite. If a small, localized fire breaks out, chemical fire extinguishers will be used to bring the occurrence under control. If necessary and feasible, a fire blanket, soil, or other inert materials will be placed on the burning area to extinguish the flames and minimize the potential for spreading. If appropriate, local fire-fighting authorities will be contacted for notification and assistance.

If an uncontrolled fire develops releasing potentially toxic gases, onsite personnel and the public in the immediate vicinity will be evacuated. Only personnel trained in firefighting and outfitted with proper protective equipment will be allowed in the immediate fire area. The Field Team Leader or his/her designated assistant will alert local fire-fighting companies.

12.4 Evacuation Routes and Procedures

WSP personnel and WSP contractors will notify the facility contact each day upon arriving onsite. Additionally, WSP will inform designated facility personnel of the day's work location on the facility property at the beginning of the work day and each time the location changes. The following describes the general emergency evacuation procedures that WSP personnel and WSP contractors will implement.

12.4.1 WSP Work Zone-Related Evacuation

It is possible that an emergency could necessitate evacuation of all personnel. If such a situation should arise at a WSP work zone, the designated emergency signal of a series of three extended horn blasts shall be sounded and all personnel will move to the designated meeting location. Electronic communication (e.g., cell phone) will be used to alert workers beyond the range of the horns.

All available vehicles outside the work area would be used in the evacuation of a WSP work zone. All personnel would exit the area, making sure to be upwind of smoke, vapors, or spill location(s) and meet at the front entrance of the facility. A second rendezvous point will be selected by the SSC/FSSC in case the front entrance would be inappropriate based on wind direction, severity, and type of incident. The Field Team Leader or his designee will conduct a head count to insure all personnel have been evacuated safely. If someone is missing, the Field Team Leader or his designee will alert the appropriate facility personnel and local emergency response personnel.

12.4.2 Wix Plant Operations or Weather-Related Evacuation

Each day before starting work, the Field Team Leader reviews the location of the facility-assigned muster point for the area of the facility where WSP and their contractors will be working. If an emergency related to facility operations or a weather event occurs, an intermittent, high-pitched horn will sound indicating a required evacuation. Electronic communication (e.g., cell phone) will be used to alert workers beyond the range of the horns. WSP personnel and WSP contractors will immediately move to the muster point assigned to the zone in which they are working.

12.5 Personal Protective Equipment Failure

If any site worker experiences a failure or alteration of protective equipment that affects the protection factor, that person and his/her buddy shall immediately leave the work area. Re-entry shall not be permitted until the equipment has been repaired or replaced.

12.6 Other Equipment Failure

If any other equipment onsite fails to operate properly, the Field Team Leader or the SSC/FSSC shall be notified to determine the effect of this failure on continuing operations onsite. If the failure affects worker safety or prevents completion of the activity, all personnel shall evacuate the work area until the situation is evaluated and appropriate actions taken.

In all situations when an emergency results in the evacuation of a work area, personnel shall not re-enter the area until the following conditions have been met:

- the conditions resulting in the emergency have been corrected
- the hazards have been reassessed
- the HASP has been reviewed
- site personnel have been briefed on any changes in the HASP

13 Training Requirements

Several levels of health and safety training are required for personnel participating in the implementation of field activities. Documentation of this training will be maintained in the WSP project files and at the Site for all personnel who have access to or work at the site.

13.1 Initial Training

All WSP employees and, with the exception of the non-intrusive geophysical subcontractor, all subcontractors participating in field activities will have received training in accordance with 29 CFR 1910.120. This training shall include, but is not limited to:

- names and responsibilities of site health and safety personnel
- chemical and physical hazards present on the Site
- safe use of PPE, including respiratory protection
- safe work practices
- use of engineering controls and equipment on the Site
- medical surveillance requirements, including right-to-know
- air monitoring program and record keeping
- material handling procedures
- decontamination procedures
- site control procedures
- evacuation and emergency procedures

All WSP employees must have current training documentation for the following before field activities commence:

- 40-hour OSHA training
- current 8-hour refresher certificates
- first-aid and CPR
- annual qualitative fit test results for half-face or full-face respirators

13.2 Accident, Incident, and Near Hit Reporting and Investigation

All WSP employees receive annual training regarding reporting requirement for accidents, incidents, and near hits including reporting and investigation. Investigation is a primary tool WSP uses in an effort to identify and recognize the areas responsible for accidents, incidents, and near hits. Investigations are in writing and adequately identify the cause(s) of the accident, incident, or near hit occurrence.

The primary focus of all investigations is the understanding of why the accident, incident or near hit occurred and what actions can be taken to preclude recurrence. Questions to ask in an accident investigation include:

- What happened?: The investigation should describe what took place that prompted the investigation: an injury to an employee, an incident that caused a work task delay, damaged material or any other conditions recognized as having a potential for losses or delays.
- Why did the incident happen?: The investigation must obtain all the facts surrounding the occurrence: what caused the situation to occur; who was involved; was/were the employee(s) qualified to perform the functions

involved in the accident, incident, or near hit; were they properly trained; were proper operating procedures established for the task involved; were procedures followed, and if not, why not; where else this or a similar situation might exist, and how it can be corrected.

- What should be done?: The person conducting the investigation must determine which aspects of the operation or processes require additional attention. It is important to note that the purpose here is not to establish blame, but to determine what type of constructive action can eliminate the cause(s) of the accident or near miss.
- What action has been taken?: Action already taken to reduce or eliminate the exposures being investigated should be noted, along with those remaining to be addressed. Any interim or temporary precautions should also be noted. Any pending corrective action and reason for delaying its implementation should be identified.

Corrective action should be identified in terms of not only how it will prevent a recurrence of the accident, incident, or near hit, but also how it will improve the overall safety of the implementation of the work plan. The solution should be a means of achieving not only accident control, but also total operation control.

Thorough investigation of all accidents, incidents, and near hits will help identify causes and needed corrections, and can help determine why accidents occur, where they happen, and any trends. Such information is critical to preventing and controlling hazards and potential accidents, incidents, and near hits.

13.3 Site-Specific Training

Pre-entry briefings will be held prior to initiating any Site activity, and at such other times as necessary to ensure that employees are apprised of the HASP and that it is being followed. The information and data obtained during site characterization activities will be used to prepare and update the HASP.

13.4 Visitor Training

All visitors to the active work areas will be briefed by the SSC or their designee on health and safety procedures to be followed. The visitors will be provided the HASP to review and, depending on the locations to be visited, will sign a certification that the plan has been provided, reviewed, and understood before visitors enter an active work area.

The FSSC or his designee will control visitor entry to the active work areas. No visitor will enter these areas without previously notifying the Field Team Leader or designee of the visit and providing documentation of training outlined in Section 13.1. The SSC or their designee will ensure that all visitors have the proper level of PPE for downrange activities and training in the use of the equipment. Visitors who do not have the appropriate training will not be permitted in areas where the use of PPE is required.

14 References

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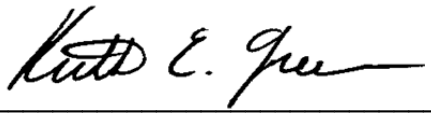
15 Certification

This HASP has been reviewed and approved by WSP's health and safety officer. The Plan satisfies the requirements of OSHA 1910.120 as implemented by the WSP Health and Safety Committee for hazardous waste site investigations.



Keith E. Green, CIH, CSP

All site personnel have read the Health and Safety Plan and are familiar with its provisions.

NAME	SIGNATURE
_____	_____
_____	_____
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_____	_____
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_____	_____
_____	_____

16 Acronym List

µg/l	micrograms per liter
ACGIH	American Conference of Governmental Industrial Hygienists
AS	air sparge
bgs	below ground surface
CFR	Code of Federal Regulations
COC	chemical of concern
CSO	Corporate Health and Safety Officer
dBA	decibels
DOT	Department of Transportation
EPA	Environmental Protection Agency
ESA	Environmental Site Assessment
FSSC	Field Site Safety Coordinator
HASP	health and safety plan
HEPA	high efficiency particulate air
I.D.	inner diameter
IDLH	immediately dangerous to life and health
IP	ionization potential
MCL	maximum contaminant level
mg/kg	milligrams per kilogram
MSL	mean sea level
NAPL	non-aqueous phase liquid
NIOSH	National Institute of Occupational Safety and Health
OSHA	Occupational Safety and Health Administration
PEL	permissible exposure limit
PVC	polyvinyl chloride
PID	photoionization detector
PPE	personal protective equipment
ppm	parts per million
RAP	Remedial Action Plan
RI	Remedial Investigation
SAP	sampling and analysis plan
SCDHEC	South Carolina Department of Health and Environmental Control
SPF	sun protection factor

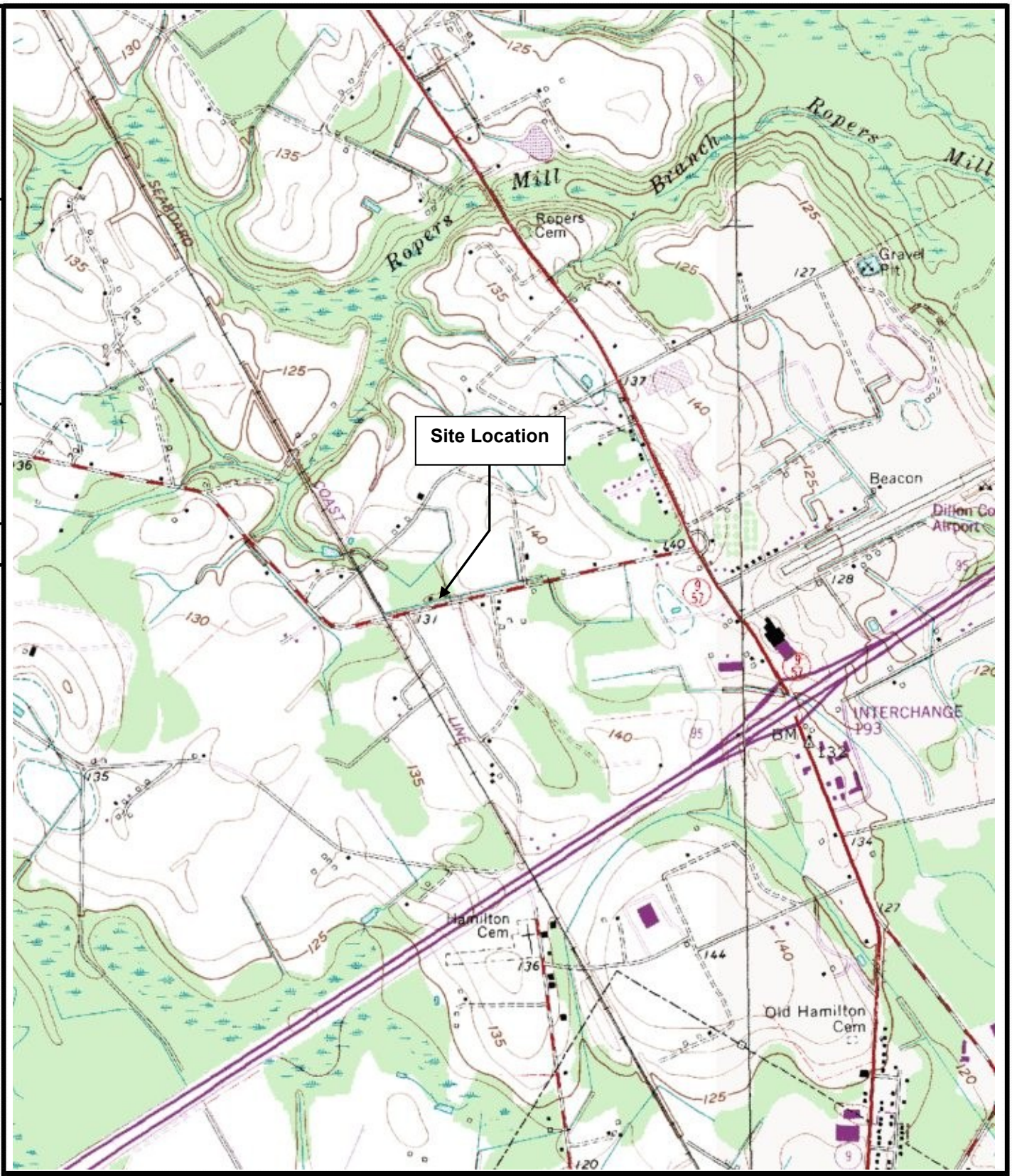
SSC	Site Safety Coordinator
SVE	soil vapor extraction
TLV	threshold limit value
TWA	time weighted average
VCC	voluntary cleanup contract
VOCs	volatile organic compounds

Figures

DWG Name:

Checked: Approved:

Drawn By: A



REFERENCE:
7.5 MINUTE SERIES TOPOGRAPHIC QUADRANGLE
DILLON WEST, SOUTH CAROLINA
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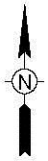

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WSP USA Corp.
11190 Sunrise Valley Drive, Suite 300
Reston, Virginia 20191
(703) 709-6500

FIGURE 1

SITE LOCATION MAP

WIX FILTRATION FACILITY
DILLON, SOUTH CAROLINA

PREPARED FOR

WIX FILTRATION, INC.
DILLON, SOUTH CAROLINA

LEGEND
PROPERTY BOUNDARY
DRAINAGE DITCH
FENCE
TREE LINE

SCOTTLAND ROAD
FORMER RAILROAD SPUR
PUMP HOUSE
WATER STORAGE TANK
WIX FILTRATION FACILITY
2 30,000-GALLON PROPANE TANKS
4,000-GALLON TANK
NATURAL GAS METERING STATION
BOTTLE FILL STATION
CANOPY
OFFICE
PARKING
PARKING
WETLAND AREA
SEABOARD COASTLINE R.R.
WIX ROAD

REFERENCES:
1. ERM FIGURE TITLED AIR SPARGE/SOIL VAPOR EXTRACTION SYSTEM LAYOUT, DRAWING S-1, DATED SEPTEMBER 22, 2008, 86002SRS.DWG.
2. GOOGLE EARTH PRO AERIAL.

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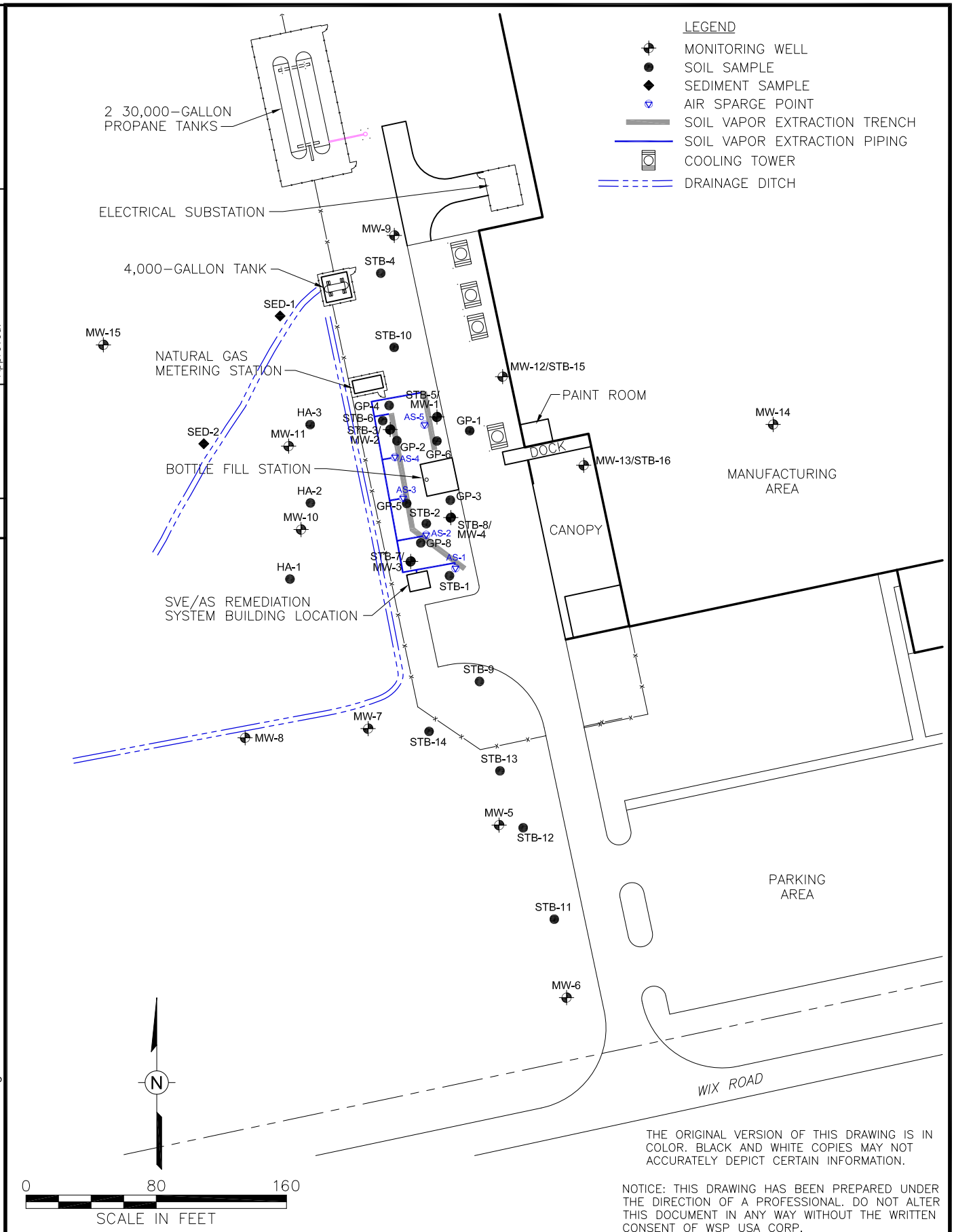
DWG Name: 00031999-018

WIX FILTRATION FACILITY
DILLON, SOUTH CAROLINA
PREPARED FOR
WIX FILTRATION, INC.
DILLON, SOUTH CAROLINA

Figure 2
CURRENT SITE PLAN

WSP
WSP USA Corp.
11190 Sunrise Valley Drive, Suite 300
Reston, Virginia 20191
(703) 709-6500
www.wspgroup.com/usa



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NOTICE: THIS DRAWING HAS BEEN PREPARED UNDER THE DIRECTION OF A PROFESSIONAL. DO NOT ALTER THIS DOCUMENT IN ANY WAY WITHOUT THE WRITTEN CONSENT OF WSP USA CORP.

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Reston, Virginia 20191
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Figure 3

PREVIOUS SAMPLING AND MONITORING WELL LOCATIONS AND AS/SVE SYSTEM LAYOUT

WIX FILTRATION FACILITY
DILLON, SOUTH CAROLINA

PREPARED FOR
WIX FILTRATION, INC.
DILLON, SOUTH CAROLINA

Tables

Table 1

Toxilogical Profiles and the Exposure Limits for Primary Groundwater and Soil Constituents
Wix Plant Site
Dillon, South Carolina

Known or Suspected Material	Maximum Groundwater Concentration µg/l	Maximum Soil Concentration mg/kg	Toxic Effects	ACGIH TLV-TWA ppm	OSHA PEL TWA ppm	IDLH ppm	Reactivity, Stability, Flammability	IP eV	MUC ppm
Toluene	450,000	3,640	irritation eyes, nose; lassitude (weakness, exhaustion), confusion, euphoria, dizziness, headache; dilated pupils, lacrimation (discharge of tears); anxiety, muscle fatigue, insomnia; paresthesia; dermatitis; liver, kidney damage	50	200	500	Strong oxidizers	8.82	10,000
Benzene	118	0.015	irritation eyes, skin, nose, respiratory system; dizziness; headache, nausea, staggered gait; anorexia, lassitude (weakness, exhaustion); dermatitis; bone marrow depression; [potential	0.5	1	500	Strong oxidizers, many fluorides & perchlorates, nitric acid	9.24	50
Ethylbenzene	91.9	0.29	irritation eyes, skin, mucous membrane; headache; dermatitis; narcosis, coma	20	100	800	Strong oxidizers	8.76	5,000
Xylenes (total)	230	0.45	irritation eyes, skin, nose, throat; dizziness, excitement, drowsiness, loss of coordination, staggering gait; corneal vacuolization; anorexia, nausea, vomiting, abdominal pain; dermatitis	100	100	900	Strong oxidizers, strong acids	8.56	5,000

a\ Sources: ACGIH (1999) and NIOSH (1998)
b\ ACGIH = American Conference of Governmental Industrial Hygienists
TLV-TWA = Threshold Limit Value-Time Weighted Average
OSHA = Occupational, Safety, and Health Administration
IDLH = Immediately Dangerous to Life and Health
PEL = Permissible Exposure Limit
IP = Ionization Potential
IP values in electron volts (eV)
ppm = parts per million
mg/kg = milligrams per kilogram
ppm = parts per million

Table 2

Sample Personal Protective Equipment Inspection Checklist
Wix Plant Site
Dillon, South Carolina

Clothing

Before use:

- Determine that the clothing material is correct for the specified task at hand
- Visually inspect for:
    - imperfect seams
    - non-uniform coatings
    - tears
    - malfunctioning closures
- Hold up to light and check for pinholes
- Flex product:
    - observe for cracks
    - observe for other signs of shelf deterioration
- If the product has been used previously, inspect inside and out for sign of chemical attack:
    - discoloration
    - swelling
    - stiffness

During the work tasks, periodically inspect for:

- Evidence of chemical attack such as discoloration, swelling, stiffening, and softening; keep in mind, however, that chemical permeation can occur without any visitble effects
- Closure failure
- Tears
- Punctures
- Seam discontinuities

Gloves

Before use:

- Visually inspect for:
    - imperfect seams
    - tears, abrasions
    - non-uniform coating

Appendix A – Groundwater Analytical Results

APPENDIX B. GROUND WATER ANALYTICAL DATA SUMMARY - WIX FILTRATION FACILITY, DILLON, SC

EPA 8260 (ug/l) Sample Location	Sample Date	Acetone	Benzene	Chloroethane	cis-1,2-DCE	trans-1,2-DCE	1,2-DCE (Total)	1,1-DCA	1,1-DCE	Ethylbenzene	2-Hexanone	Isopropylbenzene	p-Isopropyltoluene	n-Propylbenzene	Toluene	TCE	PCE	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	1,1,1-TCA	Xylene (Total)	m&p-Xylene	o-Xylene	Carbon disulfide	2-Butanone	sec-Butylbenzene	n-Butylbenzene	tert-Butylbenzene	Styrene	2-Chlorotoluene	4-Chlorotoluene	Methylene Chloride	Naphthalene	Vinyl Chloride
SC GWr Std (MCL)		NE	5	NE	70	100	170	NE	7	700	NE	NE	NE	NE	1,000	5	5	NE	NE	200	10K	NE	NE	360	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
MW-1	05/25/06	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	340,000	ND	ND	ND	ND	ND	230	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-1	08/08/07	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	260,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-1	01/10/08	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	231,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-1	08/14/08	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	254,000	ND	ND	ND	ND	ND	ND	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-1	03/12/09	ND	69.8	ND	4.02	ND	4.02	ND	ND	45.9	ND	ND	4.1	ND	286,000	ND	ND	2.18	ND	ND	44	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-1	09/01/09	ND	57.9	ND	2.85	ND	2.85	ND	ND	25.4	ND	ND	3.3	ND	229,000	ND	ND	1.86	1.57	ND	26	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-1	03/10/10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	326,000	ND	ND	ND	ND	ND	ND	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-1	09/09/10	62	ND	ND	2.66	ND	ND	ND	ND	48.4	ND	1.02	8.13	3.81	332,000	ND	1.24	10.8	4.05	ND	51.4	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-1	02/23/11	ND	60.3	ND	2.8	ND	2.8	ND	ND	ND	ND	ND	6.75	1.91	282,000	ND	ND	6.39	2.31	ND	ND	--	--	2.93	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-1	08/12/11	ND	63.2	ND	2.92	ND	ND	ND	ND	35.6	ND	ND	6.02	1.43	364,000	ND	2.08	3.81	1.56	ND	37	--	--	1.52	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
DUP-01	08/12/11	ND	58.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	338,000	ND	ND	ND	ND	ND	ND	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-1	02/13/12	ND	20.4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	18,100	ND	ND	ND	ND	ND	ND	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-1	08/10/12	ND	54.3	ND	1.95	ND	ND	ND	ND	9.28	ND	ND	0.988(j)	0.436(J)	66,700	ND	0.353(J)	1.56	0.614(j)	ND	10.4	--	--	0.292(J)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
DUP-01	08/10/12	ND	53	ND	2.2	ND	ND	ND	ND	10.8	ND	ND	0.33(J)	ND	44,200	ND	0.404	3.47	1.23	ND	12.7	--	--	0.351(J)	ND	ND	ND	ND	0.422(J)	0.754(J)	ND	ND	ND	ND
																								ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-2	05/24/06	ND	21	ND	ND	ND	ND	ND	ND	3.0	ND	ND	ND	ND	11,000	ND	ND	ND	ND	ND	2.8	2.4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-2	08/08/07	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	31,100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-2	01/10/08	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	127,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-2	08/14/08	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	81,500	ND	ND	ND	ND	ND	ND	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-2	03/12/09	ND	56.4	ND	1.89	ND	1.89	ND	ND	27.9	ND	ND	1.24	1.21	141,400	ND	ND	1.1	ND	ND	18.9	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-2	09/01/09	ND	44.8	ND	1.39	ND	1.39	ND	ND	11.9	ND	ND	1.74	ND	91,800	ND	ND	ND	ND	ND	12.4	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-2	03/10/10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	99,400	ND	ND	ND	ND	ND	ND	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-2	09/09/10	ND	69.1	ND	1.72	ND	ND	ND	ND	25.5	ND	ND	7.48	1.69	167,000	ND	ND	2.81	ND	ND	24.3	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-2	02/23/11	ND	60	ND	1.72	ND	ND	ND	ND	21	ND	ND	2.94	1.57	115,000	ND	ND	1.73	ND	ND	20.7	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-2	08/12/11	ND	61.6	ND	1.44	ND	ND	ND	ND	10.4	ND	ND	1.03	ND	96,600	ND	ND	ND	ND	ND	11	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-2	02/13/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	222,000	ND	ND	ND	ND	ND	ND	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-2	08/10/12	18.6(J)	64.2	ND	1.84	ND	ND	ND	ND	23.8	ND	0.303(J)	3.82	1.32	137,000		0.295(J)	2.22	0.722(J)	ND	24.4	--	--	0.629(J)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-3	05/24/06	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	210,000	ND	ND	2,100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
DUP-1	05/24/06	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	220,000	ND	ND	2,100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-3	08/08/07	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	142,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
DUP-1	08/08/07	ND	25.3	ND	2.3	ND	2.3	ND	ND	28.5	5.7	16.3	ND	ND	132,000	ND	ND	134	ND	ND	86.4	39.7	46.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-3	01/10/08	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	78,300	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
DUP-1	01/10/08	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	90,300	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-3	08/14/08	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	57,800	ND	ND	ND	ND	ND	ND	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-3	03/12/09	ND	9.85	ND	ND	ND	ND	ND	ND	15.2	ND	23.8	5.43	35.8	14,200	ND	ND	173	60.2	ND	30.1	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-3	09/01/09	ND	13.8	ND	1.09	ND	1.09	ND	ND	22.7	ND	22.3	7.55	50.1	41,000	ND	ND	159	69.6	ND	63.9	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-3	03/10/10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	112	6,470	ND	ND	150	184	ND	ND	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-3	09/09/10	ND	ND	ND	ND	ND	ND	ND	ND	23.7	ND	21.3	6.1	36.2	65,300	ND	ND	156	55.3	ND	68.0	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-3	02/23/11	474	29.4	ND	1.67	ND	ND	ND	ND	38.4	ND	25	5.19	48.1	156,000	ND	ND	165	60.7	ND	113.0	--	--	1.27	66.2	1.46	3.5	25.7	3.5	25.7	66.2	1.46	3.5	25.7
MW-3	08/13/11	ND	20.2	ND	1.13	ND	ND	ND	ND	13.9	ND	8.38	1.49	15	104,000	ND	ND	70.6	21	ND	42.2	--	--	ND	ND	ND	1.26	ND	1.26	ND	ND	ND	1.26	ND
MW-3	02/13/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	161,000	ND	ND	ND	ND	ND	ND	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-3	08/10/12	43.6(J)	21.4		1.29	ND			ND	21.5		11.6	2.41	20.6	93,500		0.465(J)	93.4	30.9		66.5			ND	.82(J)	0.797(J)	ND	ND	1	ND	ND	ND	ND	ND
MW-4	05/24/06	27	27	ND	4.8	ND	5.1	ND	ND	3.4	ND	ND	ND	1.1	41,000	ND	ND	ND	1.6	ND	9.3	4.1	5.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-4	08/08/07	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	169,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-4	01/10/08	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	321,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-4	08/14/08	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	321,000	ND	ND	ND	ND	ND	ND	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
DUP-1	08/14/08	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	333,000	ND	ND	ND	ND	ND	ND	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-4	03/12/09	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	340,000	ND	ND	ND	ND	ND	ND	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
DUP-1	03/13/09	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	349,000	ND	ND	ND	ND	ND	ND	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-4	09/01/09	64.7	81.1	ND	12.9	ND	12.9	ND	ND	25.5	ND	4.07	2.06	ND	272,000	ND	1.03	33.1	9.09	ND	56.2	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-4	03/10/10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	112	450,000	ND	ND	150	184	ND	ND	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
DUP-1	03/10/10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	112	447,000	ND	ND	150	184	ND	ND	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-4	09/09/10	72.8	93.4	ND	13.4	ND	ND	ND	ND	27.4	ND	5.32	1.5	8.31	296,000	ND	1.31	37.4	11.5	ND	59.2	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
DUP-1	09/09/10	70.0	93.1	ND	13.6	ND	ND	ND	ND	25.1	ND	4.71	1.23	6.98	304,000	ND	1.26	32.4	9.87	ND	54.6	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-4	02/24/11	157	95	ND	14	ND	ND	ND	ND	33.3	ND	5.89	1.83	9.44	267,000	ND	ND	40.4	12.8	ND	71.1	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-4	08/12/11	230	118	ND	14	ND	ND	ND	ND	36.8	ND	8.49	3.65	13.6	449,000	ND	2.4	61.5	18.8	ND	79.4	--	--	2.11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-4	02/13/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	384,000	ND	ND	ND	ND	ND	ND	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-4	08/10/12	287	20.2	ND	14.1	ND	ND	ND	ND	34.8	ND	5.81	1.5	8.25	404,000	ND	ND	37.4	11.8	ND	72	--	--	2.71	4.7(J)	ND	ND	ND	0.954(J)	ND	ND	ND	ND	ND
MW-5	01/04/07	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-6	01/04/07	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

APPENDIX B. GROUND WATER ANALYTICAL DATA SUMMARY - WIX FILTRATION FACILITY, DILLON, SC

EPA 8260 (ug/l) Sample Location	Sample Date	Acetone	Benzene	Chloroethane	cis-1,2-DCE	trans-1,2-DCE	1,2-DCE (Total)	1,1-DCA	1,1-DCE	Ethylbenzene	2-Hexanone	Isopropylbenzene	p-Isopropyltoluene	n-Propylbenzene	Toluene	TCE	PCE	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	1,1,1-TCA	Xylene (Total)	m&p-Xylene	o-Xylene	Carbon disulfide	2-Butanone	sec-Butylbenzene	n-Butylbenzene	tert-Butylbenzene	Styrene	2-Chlorotoluene	4-Chlorotoluene	Methylene Chloride	Naphthalene	Vinyl Chloride
SC GWr Std (MCL)		NE	5	NE	70	100	170	NE	7	700	NE	NE	NE	NE	1,000	5	5	NE	NE	200	10K	NE	NE	360	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
MW-7	01/04/07	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-7	DUP-1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-7	08/08/07	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	59.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-7	08/23/07	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-7	01/10/08	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-7	08/14/08	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-7	03/13/09	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-7	09/01/09	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-7	03/10/10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-7	09/09/10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-7	02/23/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	7.76	ND	ND	ND	ND	ND	ND	--	--	ND	ND	ND	ND	ND	ND	ND	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	ND	ND	ND	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-7	02/13/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
DUP-01	02/13/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-7	08/09/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-8	01/04/07	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-9	01/04/07	ND	ND	ND	3.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-10	02/23/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.38	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	ND	ND	ND	ND	ND	1.31	ND	ND	ND	ND	ND	ND	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-10	02/13/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.26	ND	ND	ND	ND	ND	ND	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-10	08/09/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-11	02/23/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	13,200	ND	ND	1.9	ND	ND	5.19	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-11	08/11/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	16,300	ND	ND	ND	ND	ND	ND	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-11	02/12/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	42,900	ND	ND	ND	ND	ND	ND	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-11	08/09/12	ND	0.443(J)	ND	ND	ND	ND	ND	ND	0.845(J)	ND	ND	ND	ND	3,070	ND	ND	1.400(J)	ND	ND	1.04(J)	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
																												ND		ND				ND
MW-12	02/24/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	494	ND	ND	1.05	ND	ND	ND	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-12	08/11/11	ND	ND	ND	13.3	ND	ND	ND	ND	191	ND	1.48	5.94	2.84	94,500	ND	ND	27	13.2	ND	230	--	--	ND	ND	ND	1.54	ND	1.54	ND	ND	ND	1.54	ND
MW-12	02/13/12	ND	ND	ND	ND	ND	ND	ND	ND	62.6	ND	ND	ND	ND	5,770	ND	ND	ND	ND	ND	66.8	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-12	08/09/12	ND	0.528(J)	ND	10.1	ND	ND	ND	ND	91.9	ND	0.588(J)	3.53	1.29	7,060	ND	ND	11.7	6.15	ND	94.5	--	--	ND	ND	0.263(J)	1.09	ND	ND	ND	ND	ND	ND	ND
MW-13	02/24/11	35800	ND	ND	86.5	7.07	ND	ND	ND	ND	ND	14.8	ND	21.8	371,000	ND	ND	99.3	30.4	ND	187	--	--	7.04	695	ND	ND	ND	ND	ND	695	ND	ND	ND
MW-13	08/11/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	446,000	ND	ND	ND	ND	ND	ND	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-13	02/13/12	86,800	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	459,000	ND	ND	ND	ND	ND	ND	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-13	08/09/12	66,100	80.6	ND	62	7.27	ND	ND	ND	52.8	ND	89.5	6.97	156	666,000	ND	9	501(E)	218(E)	ND	402	--	--	7.15	741	0.545(J)	7.06	80.8	7.03	142	23.1	1.51(J)	3.23(J)	0.439(J)
MW-14	02/12/12	ND	ND	ND	436	ND	ND	ND	1.27	ND	ND	ND	ND	ND	ND	ND	1.24	ND	ND	ND	ND	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-14	08/09/12	ND	ND	ND	447	ND	ND	0.887(J)		ND		0.293(J)		0.865(J)	23		0.864(J)	ND	ND	ND	ND	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-15	02/12/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-15	08/09/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.624(J)	0.731(J)	3	ND	ND	1.541(J)	ND	ND	ND	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Temporary Monitor Wells																																		
TW-1	11/18/05	ND	54.1	3.43	3.93	ND	ND	13.9	8.02	39.3	ND	ND	1.88	2.58	140,000	ND	ND	ND	ND	7.52	30.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TW-2	11/18/05	ND	23.7	ND	2.68	ND	ND	ND	ND	13.8	ND	2.8	3.75	6.49	7,610	ND	ND	28.4	6.64	ND	13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TW-3	11/18/05	ND	55.0	ND	9.15	ND	ND	1.39	1.51	21.9	ND	5.9	1.03	9.85	184,000	ND	1.26	61.1	12.7	ND	44.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TW-3	DUP-1	51.6	57.8	ND	13.3	ND	ND	ND	ND	43.4	ND	12.8	2.48	24.1	184,000	ND	2.07	137	32.3	ND	88.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
QA/QC Samples	**Equipment blanks**																																	
EB-1	11/18/05	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.41	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
EB-1	05/25/06	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
EB-1	01/04/07	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
EB-1	08/08/07	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
EB-1	01/10/08	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
QA/QC Samples	**Field blanks**																																	
FB-1	11/18/05	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FB-1	05/25/06	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FB-1	01/04/07	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FB-1	08/08/07	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FB-2	08/23/07	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FB-1	01/10/08	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
QA/QC Samples	**Laboratory trip blanks**																																	

APPENDIX B. GROUND WATER ANALYTICAL DATA SUMMARY - WIX FILTRATION FACILITY, DILLON, SC

EPA 8260 (ug/l) Sample Location	Sample Date	Acetone	Benzene	Chloroethane	cis-1,2-DCE	trans-1,2-DCE	1,2-DCE (Total)	1,1-DCA	1,1-DCE	Ethylbenzene	2-Hexanone	Isopropylbenzene	p-Isopropyltoluene	n-Propylbenzene	Toluene	TCE	PCE	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	1,1,1-TCA	Xylene (Total)	m&p-Xylene	o-Xylene	Carbon disulfide	2-Butanone	sec-Butylbenzene	n-Butylbenzene	tert-Butylbenzene	Styrene	2-Chlorotoluene	4-Chlorotoluene	Methylene Chloride	Naphthalene	Vinyl Chloride
SC GWr Std (MCL)		NE	5	NE	70	100	170	NE	7	700	NE	NE	NE	NE	1,000	5	5	NE	NE	200	10K	NE	NE	360	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
TB-1	11/18/05	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.73	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TB-1	01/04/07	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TB-2	08/23/07	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TB	01/10/08	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trip Blank	08/14/08	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trip Blank	03/13/09	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.6	ND	ND	ND	ND	ND	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trip Blank	09/01/09	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trip Blank	03/10/10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trip Blank	09/09/10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trip Blank	02/23/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	46.8	ND	ND	ND	ND	ND	ND	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trip Blank	08/11/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	46.8	ND	ND	ND	ND	ND	ND	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trip Blank	02/12/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	46.8	ND	ND	ND	ND	ND	ND	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trip Blank	08/09/12	3.25(J)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	46.8	ND	ND	ND	ND	ND	ND	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

ND = Not detected above analytical method quantitation limit µg/L = Micrograms per Liter NE = Not established "--" - Not analyzed J - Approximate Value E - Exceeded Calibration Range

Blue font - compound exceeds South Carolina MCL if an MCL has been established

Appendix B – Soil Analytical Results

TABLE 4. SOIL ANALYTICAL RESULTS - WIX FILTRATION FACILITY, DILLON, SC

EPA Method 8260 (mg/kg) Monitor Well	Depth (ft)	Sample Date	Acetone	Benzene	cis-1,2-DCE	Carbon disulfide	Ethylbenzene	Isopropyl-benzene	p-Isopropyl-toluene	n-Propyl-benzene	Methylene chloride	Naphthalene	Toluene	1,2,4-Trimethyl-benzene	1,3,5-Trimethyl-benzene	Xylene (Total)	m&p-Xylene	o-Xylene
SCDHEC Preliminary Remediation			14K	0.64	43	360	400	570	NE	240		NE	520	52	21	270	NE	NE
GP-1	--	11/08/05	ND	0.014	ND	0.009	ND	ND	ND	ND	ND	ND	0.156	ND	ND	ND	ND	ND
GP-2	--	11/08/05	0.043	0.004	ND	ND	0.009	ND	0.002	0.004	ND	ND	9.11	0.005	ND	0.009	ND	ND
GP-3	--	11/08/05	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	656	0.870	ND	ND	ND	ND
GP-4	--	11/08/05	0.041	0.006	ND	ND	0.011	ND	0.006	0.021	ND	ND	44.9	0.009	ND	0.006	ND	ND
GP-5	--	11/08/05	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1,630	ND	ND	ND	ND	ND
GP-6	--	11/08/05	ND	ND	ND	ND	ND	ND	1.710	ND	ND	ND	232	3.21	1.23	ND	ND	ND
GP-7	--	11/08/05	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	28.0	0.083	ND	ND	ND	ND
GP-8	--	11/08/05	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	990	1.95	0.800	ND	ND	ND
STB-1	4-6	05/16/06	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.10	410	4.00	1.30	2.10	ND	ND
STB-2	6-8	05/16/06	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1,800	4.10	ND	ND	ND	ND
STB-3	8-10	05/16/06	ND	ND	ND	ND	0.0099	ND	ND	ND	ND	ND	30.0	0.0082	ND	0.014	0.012	ND
STB-4	4-6	05/16/06	ND	ND	ND	ND	0.290	ND	0.410	ND	ND	ND	66.0	ND	ND	0.450	0.450	ND
STB-5/MW-1	4-6	05/17/06	0.220	0.015	ND	ND	0.038	0.005	0.140	0.055	ND	0.084	370	0.130	0.042	0.084	0.055	0.028
STB-6	6-8	05/17/06	ND	0.0069	ND	ND	0.018	ND	0.011	ND	ND	ND	25.0	ND	ND	0.017	0.014	ND
STB-7/MW-3	2-4	05/17/06	ND	ND	ND	ND	0.0085	0.0094	0.0054	0.022	ND	ND	0.140	ND	0.028	0.011	0.0094	ND
STB-7/MW-3	8-10	05/17/06	--	--	--	ND	--	--	--	--	ND	--	--	--	--	--	--	--
STB-8/MW-4	6-8	05/17/06	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2,000	ND	ND	6.00	ND	4.70
STB-8/MW-4	Duplicate	05/17/06	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1,700	ND	ND	4.40	ND	4.40
STB-9	8-10	05/17/06	ND	0.013	0.0048	ND	0.110	0.079	ND	0.190	ND	0.005	380	0.570	0.230	0.300	0.160	0.140
STB-10	8-10	05/18/06	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
STB-10	12-14	05/18/06	--	--	--	ND	--	--	--	--	ND	--	--	--	--	--	--	--
STB-11/GP-9	4-6	12/06/06	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
STB-12/GP-10	6-8	12/05/06	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
STB-13/GP-11	8-10	12/05/06	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
STB-14/GP-12	6-8	12/07/06	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
STB-15/MW-12	2-4	02/15/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3,640	ND	ND	ND	ND	ND
STB-16/MW-13	0-2	02/15/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	420	4.09	ND	ND	ND	ND
MW-5	12-14	12/06/06	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-6	8-10	12/06/06	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-7	4-6	12/04/06	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-8	4-6	12/05/06	ND	ND	ND	ND	ND	ND	0.012	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-9	6-8	12/06/06	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
HA-1/GP-13	0-2	12/07/06	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
HA-2/GP-14	0-2	12/07/06	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
HA-3/GP-15	0-2	12/07/06	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SED-1	Surface	05/24/06	0.120	ND	ND	ND	ND	ND	0.0049	ND	ND	ND	ND	ND	ND	ND	ND	ND
SED-2	Surface	05/24/06	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Excavation-1	--	10/18/05	ND	0.002	ND	0.002	0.002	ND	ND	0.002	0.004	ND	11.1	0.008	0.003	0.005	ND	ND
Excavation-2	--	10/18/05	ND	ND	ND	ND	0.128	ND	ND	ND	ND	ND	127	0.211	0.092	0.169	ND	ND
Excavation-3	--	10/18/05	ND	ND	ND	0.002	0.002	ND	ND	ND	ND	ND	29.2	ND	ND	ND	ND	ND
Soil Pile-1	--	10/18/05	ND	ND	ND	0.005	0.010	ND	0.002	0.002	0.006	ND	6.90	0.023	0.005	0.017	ND	ND
Soil Pile-2	--	10/18/05	0.106	0.005	ND	0.003	0.031	0.003	0.003	0.008	0.006	ND	78.4	0.044	0.011	0.040	ND	ND

ND - Not detected "--" - Not analyzed NE - Not established Blue Font - exceeds SCDHEC PRG

Appendix C – Heat Stress and Heat Stress Monitoring

Heat Stress and Heat Stress Monitoring

Heat is one of the most common (and potentially serious) illnesses at hazardous waste sites where PPE is worn; therefore, regular monitoring and other preventive precautions are vital. Shelter from the sun will be provided during rest periods. Below is a list of the signs and symptoms of heat stress. Initial work schedules will be approximately 90 minutes of work followed by 15 minutes of rest. Work intervals will be adjusted to shorter periods based on the assessment of the Site Health and Safety Coordinator. Monitoring for heat stress will be conducted by visual observation by the individual team members.

Signs and Symptoms of Heat Stress

Heat rash may result from continuous exposure to heat or humid air.

Heat cramps are caused by heavy sweating with inadequate electrolyte replacement. Signs and symptoms include:

- muscle spasms
- pain in the hands, feet, and abdomen

Heat exhaustion occurs from increased stress on various body organs, including inadequate blood circulation caused by cardiovascular insufficiency or dehydration. Signs and symptoms include:

- pale, cool, moist skin
- heavy sweating
- dizziness
- nausea
- fainting

Heat stroke is the most serious form of heat stress. Temperature regulation fails, and the body temperature rises to critical levels. Immediate action must be taken to cool the body before serious injury and death occur. Competent medical help must be obtained. Signs and symptoms include:

- red, hot, usually dry skin
- lack of or reduced perspiration
- nausea
- dizziness and confusion
- strong, rapid pulse
- coma

First-aid remedies for heat stress and heat stroke include removing the worker to a cool place, providing cool water or a commercial sport drink, loosening tight clothing, and calling for an ambulance if victim vomits or starts to lose consciousness.

Appendix D – Cold Stress Prevention for the Winter Months

Cold Stress Prevention for the Winter Months

The types of cold-related stress are frostbite, hypothermia, and immersion or trench foot. Personnel performing field tasks in the winter months should be aware of the signs and symptoms of cold-related stress so they can take precautionary measures to avoid cold-induced injury and illness. The following is a brief synopsis of each type of cold-related stress.

Frostbite results when cells are cooled until ice crystals form inside them. Most injuries from frostbite are localized to the exposed part of the body. First degree frostbite or frostnip usually strikes the tips of fingers, toes, ears, nose, and chin or cheeks. It is usually painless, and the victim is often unaware of it. The skin turns pale or white from first degree frostbite. Second degree frostbite can occur in skin and its underlying tissue. The skin becomes firm and white, waxy, or translucent. As the third injured areas warm, it will become numb, and then will turn blue or purple and swell. The superficial capillaries have been injured, and edema fluid will leak out into the tissue. Stinging and burning pain and superficial blisters may develop. The throbbing, aching, and burning may last for some weeks, and the body part may become permanently red and be extremely sensitive if again exposed to the cold. Third degree frostbite involves freezing not only the skin and subcutaneous tissue but even muscle and bone. This serious injury usually involves the hands and feet. The tissues are cold, pale, and frozen to the touch. The injured area usually turns purple or blue and is extremely painful after thawing. Large blisters and tissue death (gangrene) may occur within the first day or two.

Generalized, severe, progressive body cooling is known as systemic hypothermia. This may occur at outside temperatures above freezing as well as below freezing. It occurs when the core temperature of the body falls below 95°F (35°C) and results when the body temperature controlling mechanism is overwhelmed. At 96.8oF, the body attempts to compensate for the cold. As core temperatures fall below 95ºF, the body is unable to rewarm itself without assistance because of the failure of the temperature control system.

Hypothermia may be of acute duration if someone is suddenly immersed in cold water. Subacute hypothermia may occur in otherwise healthy people, such as skiers, mountain climbers, or lost hunters, subject to prolonged cold exposure and physical exertion. Chronic hypothermia may occur in old people or those who are ill.
Hypothermia may be mild to moderate, when the core temperature is between 81°F and 95°F and the patient is conscious, or it may be severe, when the core temperature is below 80°F and the patient is unconscious.
The symptoms of hypothermia depend on the core temperature and become progressively more severe as the core temperature drops. Between 95°F and 98.6°F, the first symptom is shivering, a subconscious attempt of the body to generate more heat through muscular action. In addition, certain semiconscious activities occur, such as stamping the foot and dancing up and down. Below 95°F, difficulty in speaking, incoordination, stumbling, falling, and an inability to use the hands are seen. It is at this point that the loss of temperature control occurs and the body is unable to rewarm itself. Below 90°F, shivering decreases and the muscles become progressively rigid. Below 85°F, the victim becomes irrational and may fall into a coma. The pulse and respiration slow. Below 80°F, unconsciousness occurs. The pulse is weaker, and cardiac arrhythmias may be noted. Below 78°F, the respiratory and cardiovascular centers fail, with resulting pulmonary edema and ventricular fibrillation and then cardiac standstill. Ventricular fibrillation is the usual cause of death in these victims.

Even without a thermometer, the level of hypothermia may be noted by observing the victim's mental state. With a few degrees' drop in core temperature, the victim may become withdrawn, discouraged, or mildly depressed. As the temperature drops a few degrees more, to 94°F or below, the victim may become indecisive, confused, or disoriented and may make incorrect decisions. Below 86°F, sleepiness, lethargy, and confusion are obvious. These progressively become more severe until coma occurs. The comatose state, if allowed to continue, results in death. The stages of hypothermia may progress rapidly after the victim's temperature falls below 90°F.
Trench foot of immersion foot occurs from the wet cooling of an extremity over hours or days at a temperature just above freezing while remaining relatively immobile. It used to be seen commonly in shipwrecked sailors or soldiers forced to remain in trenches for days at a time. The extremity is cold, swollen, waxy, mottled, and may be numb.

Preventive Work Guidelines
Exposure to cold will be terminated immediately when severe shivering becomes evident.

When air temperature falls below 30°F, dry bulb temperature and wind speed will be measured periodically, and the wind chill factor will be calculated. (Weather radios are an adequate substitute.)

All work except for emergencies will be terminated when the wind chill is below 18°F. Metal tool handles will be covered with thermal insulating material at temperatures below 30°F. When work is performed continuously in the cold at a wind chill of below 20°F, heated shelter will be made available. A vehicle can be used for shelter if it is kept idling with the heater on. Work will be arranged in such a way that sitting or standing for long periods of time is minimized. Keep warm, dry, and keep moving, but do not become overheated while working in the cold. Exercise fingers and toes.

Appendix E – Safety Rules and Personal Hygiene

Safety Rules and Personal Hygiene

1. Remove all facial hair that interferes with a satisfactory fit of respiratory protective equipment.
2. Do not wear contact lenses while wearing full-face respirators.
3. Do not take prescribed drugs unless specifically approved by a physician. Notify the Site Health and Safety Coordinator that prescription medication is being taken.
4. In the work zone, do not eat, drink, smoke, chew gum or tobacco, or engage in any other practice that increases the probability of hand-to-mouth transfer or ingestion of material.
5. Wash hands and face thoroughly after leaving the work area and before eating, drinking, or any other activities.
6. Thoroughly wash entire body as soon as possible after removing Level C protective garments.
7. Whenever possible, avoid contact with contaminated or suspected contaminated surfaces.

Appendix F – Procedures for Putting On and Decontaminating Personal Protective Equipment (PPE)

Procedures for Putting On and Decontaminating Personal Protective Equipment (PPE)

1. Park vehicles outside work boundaries.

2. During the pre-work safety meeting, the Site Health and Safety Coordinator will provide the following information:
   A. a description of the site and known problem areas
   B. the level of protection required
   C. emergency medical information
   D. the locations of the first aid kit and fire extinguisher

3. Use the nearest lavatory.

   Lay out and check safety gear.

4. Check and don modified Level D PPE

5. For work in Level C PPE, put on safety gear in the following order:
   A. Coveralls
   B. Steel-toed work boots
   C. Connect suit and boots with tape
   D. Outer booties, if used
   E. Air purifying respirators (APRs), if required

6. For work in Level C PPE, put on APRs as follows:
   A. Inspect.
      (1) Inspect before each use to ensure that they have been cleaned adequately.
      (2) Check material conditions for signs of pliability, deterioration, or distortion.
      (3) Examine cartridges and ensure that they are the correct type for the intended use, that the expiration date has not passed, and that they have not been opened or used previously.
      (4) Check face shields for cracks or fogginess.
   B. Loosen all harness strap adjustments.
   C. Place chin in chin cup and draw back evenly on strap adjustments – the two bottom straps first, then the two top straps, and the center top strap last.
   D. Check that the respirator is centered evenly on the face and that the straps are not uncomfortably tight.
   E. Check for leaks or proper facial seals.
      (1) To conduct a negative pressure test, close the inlet part with the palm of the hand so it does not pass air, and gently inhale for about 10 seconds. Any inward rush of air indicates a poor fit. Note that a leaking facepiece may be drawn tightly to the face to form a good seal, giving a false indication of adequate fit.
      (2) To conduct a positive pressure test, gently exhale while covering the exhalation valve to ensure that a positive pressure can be built up. Failure to build a positive pressure indicates a poor fit.

7. Put on the rest of the gear in the following order:
   A. Raise hood
   B. Hard hat
   C. Surgical gloves
   D. Outer gloves
   E. Connect gloves and suit with tape

8. Select a buddy to act as a safety backup.

9. Check your buddy's equipment and have your buddy check yours for rips, tears, or malfunctions. Pay special attention to respirators, making sure that seals are good and that cartridges are securely in place.

10. If any equipment or gear gets damaged or if your suit tears badly, GO BACK.

11. If you experience physical discomfort, breathing difficulties, light headedness, dizziness, or other abnormalities, GO BACK.

12. When you return, have your buddy check for external accumulation of contamination and remove it. Also check gear for damage.

Decontamination will be performed in steps as follows (as appropriate for the PPE being utilized):

Step 1 – Segregated Equipment Drop: Deposit equipment used onsite (tools, sampling devices and containers, monitoring instruments, clipboards, etc.) in different containers with plastic liners. Each may be contaminated to a different degree. Segregation at the drop reduces the probability of cross-contamination. This equipment may be reused if properly decontaminated.

Equipment:
- various sizes of containers
- plastic drop cloths

Step 2 – Boot Cover and Outer Glove Wash and Rinse: (Optional – will be used at the Site Health and Safety Coordinator's discretion.)

Equipment:
- pesticide sprayer with nozzle
- two wash basins or tubs
- scrub brush
- water
- Liqui-nox nonphosphate soap solution (1%)

Step 3 – Tape Removal: Remove tape around boots and gloves, and deposit in container with plastic liner. Remove boot covers, then outer gloves, and place them in the container.

Equipment:
- container (30-50 gallons)
- plastic liners
- folding chairs

Step 4 – Safety Boot Wash and Rinse: (Optional – will be used at discretion of Environmental Strategies field team members.)

Equipment:
- two wash basins or tubs
- scrub brush
- water
- Liqui-nox solution (1%)

Step 5 – Protective Coverall Removal: With the assistance of a helper, remove protective coverall. Deposit in container with plastic liner.

Equipment:
- container (30-50 gallons)
- folding chairs
- plastic liners

Step 6 – Respirator Removal: Remove facepiece. Avoid touching face with gloves. If work is completed for the day, discard cartridges in lined container, and wash and rinse respirator.

Equipment: container (30-50 gallons)
plastic liners

Step 7 – Inner Glove Removal: Remove inner gloves and deposit in container with plastic liner.

Equipment: container (20-30 gallons)
plastic liners

13. Respirators will be cleaned daily by hand washing with MSA cleaner-sanitizer solution followed by a thorough rinse and air-drying. NEVER ALLOW A RESPIRATOR TO DRY WITH THE STRAPS PLACED FORWARD ACROSS THE FACESHIELD, BECAUSE THIS MAY CAUSE CHANGES IN THE FACE-TO-RESPIRATOR SEAL SURFACE. The specific procedures to be employed are as follows:
    A. Remove all cartridges (canisters) and filters plus gaskets and seals not permanently affixed to their seats.
    B. Loosen harness adjustment straps.
    C. Remove exhalation valve cover.
    D. Remove inhalation and exhalation valves.
    E. Remove protective faceshield cover.
    F. Wash facepiece in MSA cleaner/sanitizer powder mixed with warm water, preferably at a temperature of 120□F. Wash components separately from facepiece. Heavy soil may be removed from the facepiece surface using a medium-soft handbrush.
    G. Remove all parts from the wash solution, and rinse twice in clean, warm water.
    H. Air-dry all parts in a designated clean area.
    I. Pat facepieces, valves, and seats to remove any remaining soap residue, water, or other foreign material with a clean, damp, lint-free cloth.
    J. Reassemble respirator.
    K. Place respirator in a plastic bag and the respirator box or otherwise store the respirator to prevent exposure to dust, moisture, sunlight, damaging chemicals, extreme temperatures, and impact.

14. Investigation-derived/waste material will be handled as follows:
    A. Expendable material, such as tape, boot covers, inner and outer gloves, coveralls, and expendable sampling items, will be placed in a lined 30- to 33-gallon garbage can. When the container is full, the garbage sack will be removed and promptly placed in a contaminated soil stockpile or placed directly into licensed waste hauler trucks for offsite disposal.
    B. Wash and rinse waters from personal and equipment decontamination will be containerized in 55-gallon drums.
    C. All drummed wastes will be labeled "Property of [company name]." Drummed liquids will be treated onsite in an activated carbon system. If drums must be transported offsite, they will be labeled in accordance with DOT shipping regulations contained in 49 CFR Parts 171-179 and transported offsite by a licensed waste hauler.

Appendix G – WSP Medical Monitoring Program

WSP Medical Monitoring Program

An examination and updated occupational history will be performed on an annual basis during the anniversary month of the baseline physical examination. This annual examination serves to identify and prevent illness caused by cumulative exposure to toxic substances.
The Annual Physical Examination will include:

- a personal work history (based on specific project histories)
- a physical examination, stressing neurological, cardiopulmonary, musculoskeletal, and skin systems
- pulmonary function test (FEV1, FVC, FEV 25 75)
- a multi-chemistry blood panel, including kidney and liver function test
- an audiogram
- tests deemed necessary by symptoms or exposure history
- an optional wellness profile

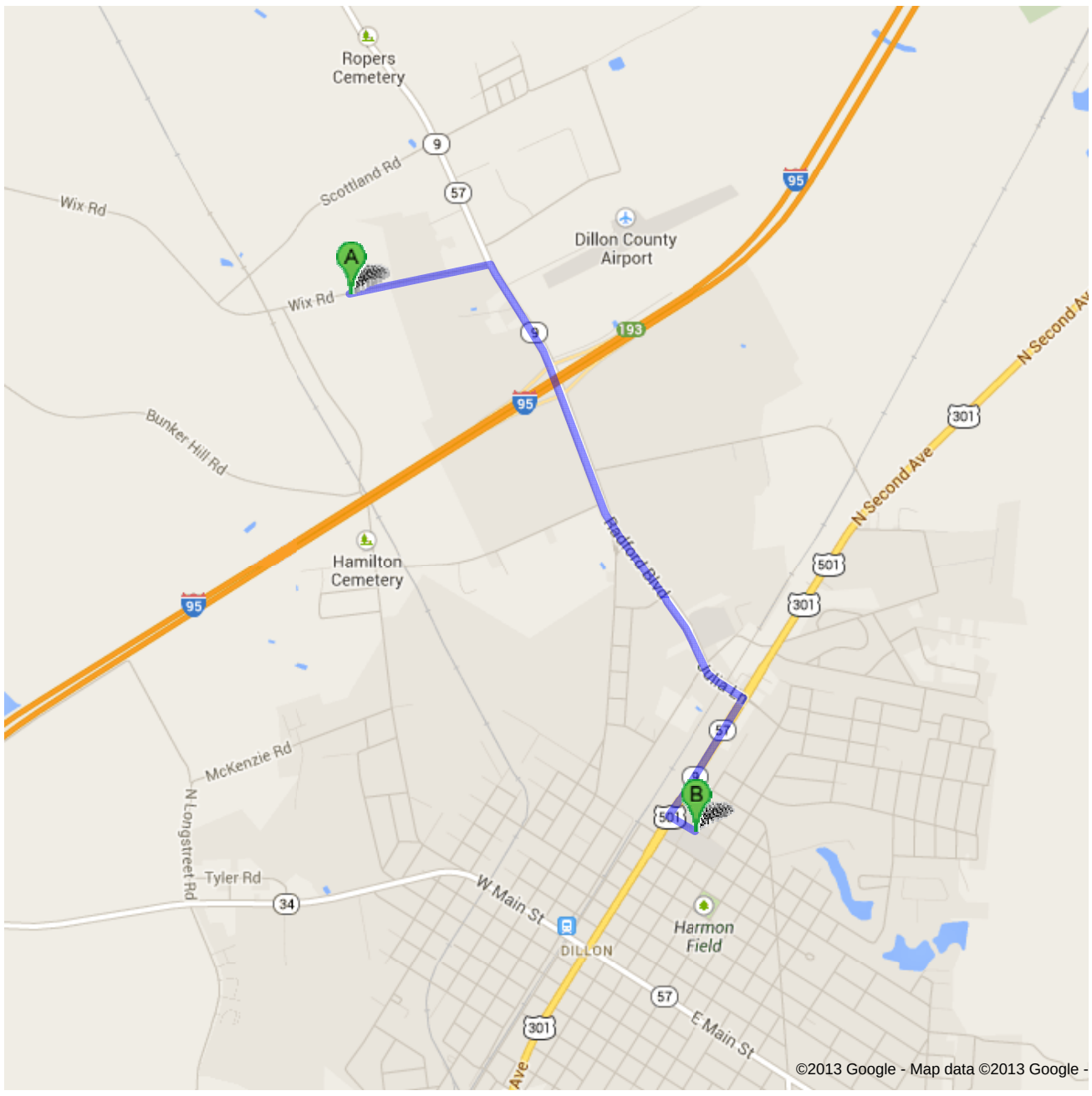
Return to Work Examination
Any job related illness or injury will be followed by a medical examination to determine fitness for duty or possible job restrictions based on the physical findings of the medical examiner. A similar examination will be performed following three missed workdays caused by a non job related illness or injury requiring medical intervention.

Exit Physical Examination
The content of the Exit Physical Examination will include:

- a personal work history (based on specific project histories)
- medical, exposure, and fertility histories
- a physical examination, stressing neurological, cardiopulmonary, musculoskeletal, and skin systems
- a pulmonary function test (FEV1, FVC, FEV 25 75)
- an electrocardiogram
- PA and lateral chest x rays
- an audiogram
- a multi-chemistry blood panel, including kidney and liver function tests, CBC with differential, and urinalysis
- tests deemed necessary by symptoms or exposure history
- a red blood cell cholinesterase
- physical parameters, including blood pressure and visual acuity testing

Appendix H – Route to Hospital

Directions to McLeod Medical Center
Dillon, SC
2.6 mi – about **8 mins**



1422 Wix Rd, Dillon, SC 29536

1.	Head **east** on **Wix Rd** toward **SC-57 N/SC-9 N** About 1 min	go 0.5 mi total 0.5 mi
2.	Turn right onto **SC-57 S/SC-9 S/Radford Blvd** Continue to follow SC-57 S/SC-9 S About 4 mins	go 1.6 mi total 2.1 mi
3.	Turn right onto **N Second Ave** About 1 min	go 0.4 mi total 2.5 mi
4.	Turn left onto **E Madison St** Destination will be on the right About 1 min	go 0.1 mi total 2.6 mi

McLeod Medical Center
Dillon, SC

These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.

Directions weren't right? Please find your route on maps.google.com and click "Report a problem" at the bottom left.

Tel: (703) 709-6500
Fax: (703) 709-8505