D H E C

PROMOTE PROTECT PROSPER

South Carolina Department of Health and Environmental Control

Proposed Plan for Site Remediation

Automatic Switch Company (ASCO) Site

1561 Columbia Highway, Aiken, South Carolina

May 7, 2009

ANNOUNCEMENT OF PROPOSED PLAN

The South Carolina Department of Health and Environmental Control (DHEC or the Department) recently completed an evaluation of cleanup alternatives to address contamination at the Automatic Switch Company (ASCO) Manufacturing Facility (Site). This Proposed Plan identifies the Preferred Alternative for cleaning up the contaminated soil and groundwater and provides the reasoning for this preference. In addition, this Plan includes summaries of other cleanup alternatives evaluated. These alternatives were identified based on information gathered during environmental investigations conducted by Emerson Electric Company (Emerson) pursuant to Voluntary Cleanup Contract 02-5455-RP, dated January 27, 2003, between Emerson and the Department.

The Department is presenting this Proposed Plan to inform the public of our activities and to gain your input. This Proposed Plan summarizes information that can be found in greater detail in the Focused Feasibility Study (FFS) report and other documents contained in the Administrative Record. The Department encourages the public to review these documents to gain a complete understanding of the Site and activities that have been conducted.

The Department will select a final remedy after reviewing and considering comments submitted during the 30-day public comment period. The Department may modify the Preferred Alternative or select another response action presented in this Plan based on new information or public comments. Therefore, the public is encouraged to review and comment on <u>all</u> the alternatives presented in this Proposed Plan.

DHEC's Preferred Cleanup Summary

<u>Soil Cleanup</u>: DHEC's preferred soil remedial alternative, Alternative S-3, consists of the installation of an SVE system in the former PCE storage area. The SVE system "pulls" contaminated vapors from the subsurface soils to the surface where they will be treated.

<u>Groundwater Cleanup</u>: DHEC's preferred groundwater remedial alternative, Alternative GW-3, involves the installation of a groundwater extraction and treatment system, which will pump and treat the entire plume of contaminated water.

The remaining pages provide additional details of the Proposed Plan.

MARK YOUR CALENDAR

- **PUBLIC MEETING:**

When: **Tuesday, May 19, 2009, at 6:30pm**
Where: **River of Life Church**
1411 Columbia Highway N., Aiken, SC

DHEC will hold a meeting to explain the Proposed Plan, and all of the alternatives presented in the Feasibility Study. After the Proposed Plan presentation, DHEC will respond to your questions. Also, oral and written comments will also be accepted at the meeting.

- **PUBLIC COMMENT PERIOD:**
May 19, 2009 through June 20, 2009

DHEC will accept written comments on the Proposed Plan during the public comment period. Submit your written comments to:

Angie Jones, Project Manager
DHEC-L&WM
2600 Bull St.
Columbia, SC 29201
jonesar@dhec.sc.gov

- **FOR MORE INFORMATION:**

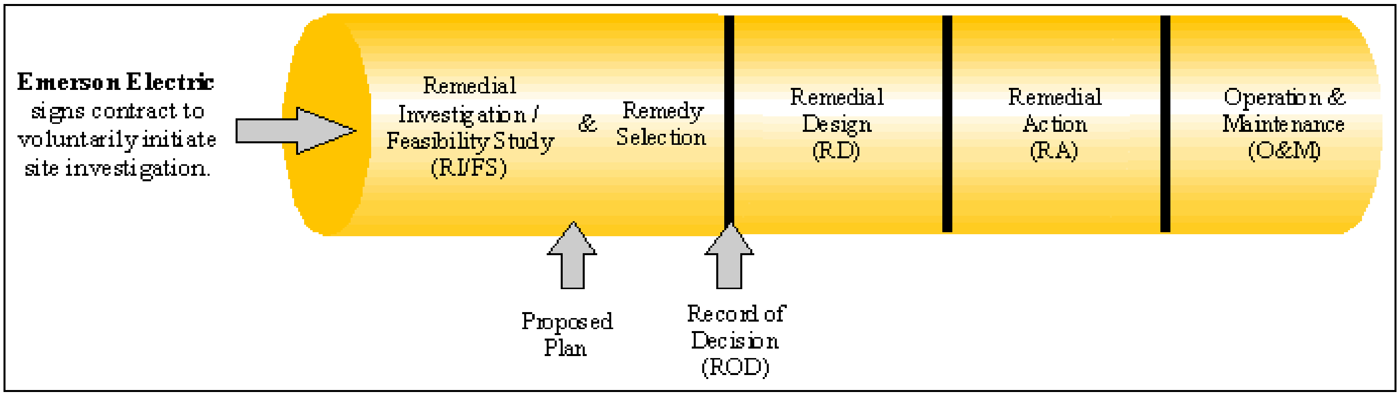
Call: Angie Jones, Project Manager, 803-896-4076
Ted Millings, DHEC's Aiken Office, 803-641-7670

See: DHEC's website at:
www.dhec.sc.gov/environment/lwm/public_notice.asp

View: The Administrative Record at the following locations:

- Aiken County Public Library
  314 Chesterfield Street SW, Aiken, SC
  <u>Hours</u>: Monday, Wednesday, & Friday: 10:00am – 6:00pm
  Tuesday & Thursday: 10:00am – 9:00pm
  Saturday: 10:00am to 4:00pm

- DHEC's Bureau of Land & Waste Management
  8911 Farrow Road - Columbia, SC
  <u>Contact</u>: Freedom of Information Office: (803) 898-3817
  <u>Hours</u>: Monday - Friday: 8:30a.m. - 5:00p.m.



SITE HISTORY

Therm-O-Disc, Inc. (TOD) constructed the facility in 1974 for the manufacturing of bi-metal thermostats for various commercial appliances and products. The basic raw material used in the manufacturing process consisted of processed metal composed primarily of nickel, chromium, and iron. The metal shipped to the facility was cut into discs, cleaned with tetrachloroethene (PCE), and placed in heated silicon oil baths for testing purposes. After testing, the discs were cleaned with another chlorinated solvent, 1,1,1-trichloroethane (1,1,1-TCA), and used in product assembly.

ASCO began operating at the facility in April 1988, and currently manufactures solenoid valves and pressure switches for a variety of industrial applications. Secondary operations include rebuilding actuators and manufacturing core assemblies, saw base assemblies, plug nuts, and other small machinery components for other ASCO facilities.

During the April 1987 removal of nine underground storage tanks from the 1,1,1-TCA and PCE storage areas, it was noted that one of the tanks appeared to have a small hole. Water samples collected from this excavation indicated the presence of volatile organic compounds (VOCs), specifically 1,1,1-TCA and PCE.

Since closure of these tanks, several investigations have been conducted to evaluate the environmental conditions at the property. The majority of these investigations have focused on gathering data on soil quality in the former tank area, and evaluating groundwater quality on and off the ASCO property. During one investigation, approximately 370 cubic yards of soil and debris were removed from the PCE tank area.

In January 2001, chlorinated VOCs were detected in samples from a nearby residential water supply well. Following a request from the Department to determine whether the ASCO property might be the source of the VOCs, Emerson conducted an assessment. Results from this assessment indicated PCE was detected in the onsite monitoring wells and 1,1,1-TCA and 1,1-Dichloroethene (1,1-DCE) were detected in the offsite residential water supply well. In January 2003, Emerson Electric Company, parent company of both Therm-O-Disc, Inc. and ASCO, entered into Voluntary Cleanup Contract 02-5455-RP for the performance of a Remedial Investigation/Feasibility Study.

SITE CHARACTERISTICS

Based on the Remedial Investigation results, the contaminants of concern (COCs) are PCE, 1,1,1-TCA, and their associated breakdown products, particularly Trichloroethene (TCE), 1,1-DCE, and the 1,2-Dichloroethene (1,2-DCE) isomers. **The environmental media affected at the site include subsurface soils and groundwater.** Sampling of sediments in the facility's retention pond indicates it has not been affected by the VOC contamination. In addition, the data indicate contaminated groundwater does not discharge to any surface water bodies downgradient of the site.

- Within the former PCE storage and degreaser area, subsurface soils beneath the main building are contaminated with PCE and associated breakdown products. Contamination extends to a depth of approximately 40 feet below ground surface. (See Figure 1.)

- The groundwater beneath the southwestern portion of the manufacturing building contains PCE, 1,1,1-TCA, and 1,1-DCE above Maximum Contaminant Levels (MCLs are the drinking water standards; the maximum levels of a contaminant allowable in water). The highest concentrations are found directly downgradient of the former PCE storage and degreaser area. (See Figures 2 and 3.)

- As the groundwater migrates off the ASCO property, the concentrations of contaminants generally decrease but remain above MCLs. Contaminants have been detected at concentrations above MCLs at a distance of approximately 2,000 feet downgradient of the ASCO property. (See Figures 2 and 3.)

SCOPE AND ROLE OF THE ACTION

This action will be the final cleanup action for the Site. The remedial action objectives include preventing exposure to contaminated media through the treatment of soil and groundwater at the Site.

SUMMARY OF SITE RISKS

The area adjacent to the Site is zoned for industrial, commercial, and residential usage. The affected aquifer is a potential underground drinking water source. The primary exposure route would be contact or ingestion of affected groundwater containing contamination. Although public water is available in this area, there are several properties in the vicinity of the Site with private wells. It is the Department's current judgment that the Preferred Alternative identified in this Proposed Plan, or one of the other active measures considered in the Proposed Plan, is necessary to protect public health or the environment from actual or threatened releases of hazardous substances into the environment.

REMEDIAL ACTION OBJECTIVES

Remedial action objectives (RAOs) are developed in order to set goals for protecting human health and the environment. The goals should be as specific as possible but should not unduly limit the range of alternatives that can be developed. Accordingly, the following RAOs were developed for the Site:

- Eliminate or mitigate potential organic vapors above acceptable concentrations from entering buildings.
- Prevent the migration of contaminants of concern from soil to the groundwater.
- Prevent human consumption of contaminated groundwater that exceeds federal and state MCLs (drinking water standards).
- Restore the aquifer to drinking water standards within a reasonable time frame.
- Prevent further migration of impacted groundwater (above drinking water standards) beyond the ASCO property boundary.
- Monitor groundwater quality in the affected portion of the aquifer to determine whether the plume area is stable, increasing, or decreasing.

The proposed action will reduce the concentration of soil contaminants to levels that are protective of groundwater at drinking water levels. These target levels, or Preliminary Remediation Goals (PRGs) are based on EPA Region 9 soil screening levels (SSLs). For soils, the PRGs are:

PCE	0.06 ppm
TCE	0.06 ppm
Cis-1,2-DCE	0.4 ppm
1,1-DCE	0.06 ppm

The PRGs for groundwater contaminants are based on the MCLs established under the Safe Water Drinking Act. For groundwater, the PRGs are:

PCE	5 ug/L
1,1-DCE	7 ug/L
1,1,1-TCA	200 ug/L

SUMMARY OF REMEDIAL ALTERNATIVES

Based on information collected during the previous investigations, a Focused Feasibility Study (FFS) was conducted to identify, develop, and evaluate cleanup options and remedial alternatives. The FFS process used the information on the nature and extent of contamination and associated potential human health risks developed during the Remedial Investigation and associated studies to develop and evaluate potential remedial alternatives and their overall protection of human health and the environment. Both soils and groundwater were considered in the FFS analysis. Each remedial alternative evaluated by the Department is described briefly below. Note: A final Remedial Design will be developed prior to implementation.

SUMMARY OF REMEDIAL ALTERNATIVES

Medium	Designation	Description
SOIL	S-1	No Action.
	S-2	Legal and physical barriers; groundwater use restriction; fencing; concrete flooring.
	S-3	Soil Vapor Extraction or SVE; vacuum "pulls" contaminated vapors from the subsurface soils to the surface where they are treated.
GROUND WATER	GW-1	No Action.
	GW-2	Monitoring wells and private wells are routinely sampled in order to monitor the plume.
	GW-3	Pump and treat the entire plume.
	GW-4	Treatment occurs "in-place" as treatment material is injected into the contaminated aquifer.

Soil Alternatives

S-1: No Action

Regulations governing the Superfund program require that the "No Action" alternative be evaluated to establish a baseline for comparison of the other remedial action alternatives. Under this alternative, there would be no action taken to prevent exposure to the soil contamination. No institutional controls or active remediation would be implemented under this alternative.

No cost would be associated with this alternative.

S-2: Institutional and Engineering Controls

Institutional and engineering controls are a means of access restriction that provide both legal and physical barriers to restrict access to the affected areas. An example of an institutional control is a deed restriction, which limits specific activities on all or a portion of the property. Examples of engineering controls currently in use on the ASCO property are perimeter fencing, concrete flooring, and asphalt paving.

Although public access to the ASCO property is controlled, institutional and engineering controls do not reduce the volume, toxicity, or mobility of contamination. Therefore, institutional and engineering controls generally have a medium degree of effectiveness, unless used in concert with other technologies.

The net present value of this alternative is estimated at $30,000.

S-3: Soil Vapor Extraction

Soil vapor extraction (SVE) technology targets volatile contaminants (which readily evaporate, such as PCE) present in unsaturated soils. SVE works by inducing a vacuum on the affected soils, causing the contaminated vapors to be "pulled" to the surface where they are treated.

As part of the FFS, Emerson performed an SVE pilot study at the facility in October 2004. The pilot test results indicate SVE is an effective technology and will remove contaminants of concern from the subsurface soils. Based on the favorable pilot test results, the effectiveness of SVE as a soil remediation technology is considered high. Overall, SVE is well suited for implementation in the former PCE storage area. The close location of the building slab and paved areas outside the building will enhance the airflow patterns and extend the effective radius of influence. The implementability of SVE is considered high.

The net present value of this alternative is estimated at $500,000.

Groundwater Alternatives

GW-1: No Action

The No Action alternative is carried through the screening process, as it serves as a baseline for comparison of the other remedial action alternatives. No active remediation or routine groundwater monitoring would be implemented under this alternative. Existing groundwater contamination would not be addressed through any means other than naturally occurring attenuation processes. There would be no restrictions on groundwater use at the facility and protections against potential contamination migrating to adjacent residences would not be provided.

No cost would be associated with this alternative.

GW-2: Groundwater Monitoring

Groundwater monitoring is commonly used alone or in conjunction with other remedial technologies in order to evaluate the effectiveness of a remedial design. When used alone, groundwater monitoring does not directly reduce the mobility, volume, or toxicity of contamination; therefore, the effectiveness when used alone is considered low. In some situations, a groundwater monitoring plan alone is effective if the contaminants do not present an unacceptable risk to human health. The effectiveness is considered high when monitoring is used in conjunction with other remedial technologies. The implementability of groundwater monitoring is high. The FFS did not evaluate groundwater monitoring as a stand-alone technology, but carried it forward for detailed analysis as a supplement for active remedial technologies.

The net present value of this alternative is estimated at $340,000.

GW-3: Groundwater Extraction and Treatment

Groundwater extraction and treatment (also known as groundwater pump and treat technology) is effective as a groundwater containment and contaminant removal technology. Groundwater extraction and treatment can create a hydraulic barrier that eliminates migration of contaminants in groundwater beyond the barrier. Extraction points can also be placed in areas of the highest contaminant concentrations to increase the efficiency at which contaminant mass is removed from groundwater.

Groundwater extraction via recovery wells is an applicable technology for the site. Emerson performed a pumping test at the facility to determine the effectiveness of the technology and to provide design parameters for a full-scale system. Extracted groundwater can be treated through a variety of methods, the effectiveness of which are dependent upon the type of contaminants and their concentrations. The contaminant concentrations present at the eastern (downgradient) ASCO property line may require the use of air stripping as the primary treatment technology and possibly granular activated carbon as secondary treatment. The specific types of treatment would be determined in the remedial design phase. Groundwater extraction and treatment is relatively effective due to the removal of contamination from affected groundwater and the ability to control continued contaminant migration. This alternative is easily implemented due to the conventional equipment and materials required to construct and favorable results of the pumping test.

The net present value to implement this alternative, both on and downgradient of the ASCO property, is estimated at $4,700,000.

GW-4: Permeable Reactive Barrier Wall

Permeable reactive barrier walls (PRBs) are water permeable walls that are installed across the flow path of a plume of affected groundwater, allowing contaminated groundwater to be treated as it moves through the wall. Typically, zero-valent iron is used to promote degradation by reductive dechlorination of VOCs. PRBs have been shown to be successful in treating plumes with concentrations of VOCs similar to that at the ASCO Site. The conventional method of installing PRBs is by excavating a trench and backfilling it with the treatment medium. Conventional installation methods may reach a depth of 60 to 80 feet; however, the FFS evaluated a deep injection technique that could be expected to reach greater depths.

A PRB located at the eastern (downgradient) ASCO property boundary would require an installed depth of at least 180 feet below ground surface, significantly deeper than any previously installed. Even greater depths would be required at locations downgradient from the ASCO property.

The net present value of this alternative is estimated at $12,600,000. This cost includes addressing groundwater contamination both on and downgradient of the ASCO property.

EVALUATION OF ALTERNATIVES

The National Contingency Plan requires the Department use specific criteria to evaluate the different remediation alternatives individually and against each other in order to select a remedy. This section of the Proposed Plan profiles the relative performance of each alternative against the criteria, noting how it compares to the other options under consideration. The criteria are discussed below:

1. Overall Protection of Human Health and the Environment

When evaluating alternatives in terms of overall protection of human health and the environment, consideration is given to the degree to which site-related risks are eliminated, reduced, or controlled through treatment, engineering controls, or institutional controls.

The No Action Alternatives (S-1 and GW-1) offer the least protection of human health and the environment, providing no active remediation of the soil and groundwater contamination, no groundwater use restrictions to limit potential future exposures to impacted groundwater, and no long-term monitoring to evaluate potential naturally occurring VOC attenuation mechanisms.

Although Alternative S-2 is protective of human health by eliminating the potential risk to the direct contact of contaminated soils, it is not protective of the environment. Institutional and engineering controls do not prevent the contaminated soil from potentially leaching to the groundwater. Alternative S-3 is protective of both human health and the environment because the contaminants would be removed from the soil by the soil vapor extraction system.

For the remaining groundwater alternatives, Alternative GW-2 is the least protective of human health and the environment. Although there are currently no known exposures to contaminants above MCLs, the groundwater would still be contaminated, and monitoring alone would only track the contaminant migration. Alternatives GW-3 and GW-4 provide protection through their active remediation of VOCs within the groundwater, with each alternative eventually reducing the contaminants to reach the groundwater remediation goal. However, Alternative GW-3 provides the greatest overall protection of human health and the environment through its use of groundwater pump and treat technology to best achieve the cleanup goals and reduce contaminant migration within the shortest overall remedial time frame.

2. Compliance with State and Federal Regulations

Each of the alternatives is evaluated with respect to its ability to comply with applicable state and federal regulations.

For the soil remedial alternatives, Alternatives S-2 and S-3 are expected to attain risk-based criteria through institutional and engineering controls and/or soil vapor extraction. However, Alternative S-2 would not prevent the potential migration of the contaminants in soil to groundwater; whereas Alternative S-3 has the greatest potential to attain the remediation goal because it actively treats all targeted soils.

For the groundwater alternatives, Alternative GW-3 is expected to be the most effective method for reaching the remediation goals (MCLs), based on the groundwater extraction and treatment approach. This remedy will contain the elevated VOC concentration areas of the plume and remove the contaminants from the treated groundwater.

In terms of potential ability to meet the chemical-specific cleanup goal for the Site, Alternative GW-4 involves the installation of a permeable reactive barrier wall that when successfully installed is able to treat contaminated groundwater; however, this technology will not treat groundwater that is located downgradient of the barrier wall.

When used alone, Alternative GW-2 will not comply with the state and federal regulations for all parts of the Site because it only consists of the monitoring of groundwater.

3. Long-term Effectiveness and Permanence

This factor considers the ability of an alternative to maintain protection of human health and the environment over time.

The long-term effectiveness of Alternative S-2, institutional and engineering controls (deed restrictions, perimeter fencing, asphalt paving, etc.), would prevent direct contact exposure, but would not prevent migration through the soil-to-groundwater pathway; and it would require continued monitoring to ensure long-term protection. For Alternative S-3, the long-term effectiveness is high, as there will be no potential risk to human health or the environment after the contaminated soils are treated.

Alternative GW-3 would be the most successful in its long-term attainment of cleanup goals compared to GW-2 and GW-4 due to its ability to control the migration of the contaminated plume through extraction and treatment of the groundwater. Alternatives GW-2 and GW-4 both provide less long-term effectiveness. For Alternative GW-4 there is potential for degradation of the barrier and breakthrough to occur that would require significant maintenance and reinstallation.

Alternative GW-1 provides the least long-term effectiveness because it does not provide active remediation of the VOCs Additionally, no long-term protection is provided against potential exposures due to existing VOC impacts to the groundwater or potential future migration of VOCs beyond the ASCO property.

4. Reduction of Toxicity, Mobility or Volume through Treatment

This factor evaluates an alternative's use of treatment to reduce the harmful effects of principal contaminants, their ability to move in the environment, and the amount of contamination present.

Neither Alternative S-1 nor S-2 provides reduction in the toxicity, mobility, or volume of VOCs in the soils and groundwater. Only soil vapor extraction (S-3) achieves reduction of toxicity, mobility, and volume by actively extracting VOCs from the soil.

For the groundwater remedial alternatives GW-3 and GW-4, each of these active remedial alternatives is expected to provide a reduction in the toxicity, mobility and volume of the VOCs through either the extraction and treatment of groundwater or through in-situ reductive dechlorination. When Alternative GW-2 is used without other remedial technologies, it does not reduce the toxicity, mobility, and volume of VOCs in the groundwater.

Alternative GW-1 also provides no reduction in the toxicity, mobility or volume of VOCs within the groundwater other than that which occurs through natural attenuation processes.

5. Short-term Effectiveness

The short-term effectiveness evaluation considers the length of time needed to implement an alternative and the risks the alternative poses to workers, residents, and the environment during implementation.

For the soil remedial alternatives, although there is no short-term risk presented by Alternatives S-1 and S-2, neither is effective in protecting the soil-to-groundwater pathway. And although Alternative S-3 may present a short-term risk to workers during the construction of the treatment system, the time frame for remediation is only 3-5 years.

For the groundwater remedial alternatives, Alternative GW-1 presents a great short-term risk due to the non-existence of remedial activities associated with it. This would pose a risk to not only on-site workers, but also the surrounding community and environment because there would be no restrictions on groundwater use at the Site and no protections against potential contamination migrating to adjacent residences. Alternative GW-2 also poses a short-term risk to workers who collect samples to monitor the migration of the plume and the toxicity of the contaminants. The short-term risks for Alternatives GW-3 and GW-4 are related to the construction of the treatment system. However, one difference between the two is that Alternative GW-4 requires significantly more time than Alternative GW-3 to remediate the contaminated groundwater.

6. Implementability

The analysis of implementation considers the technical feasibility and administrative feasibility of implementation, as well as the availability of required materials and services.

Alternative S-2 is easily implemented through access controls and use restrictions to limit future exposures to impacted soils. For Alternative S-3, a field pilot study was performed to establish the technical feasibility as well as to obtain information necessary to design and configure the system. The pilot test results indicated that SVE is an effective technology and will remove the contaminants from the subsurface soils. Alternative S-3 would be simple to design and operate and well suited for implementation for use in the former PCE storage tank area. SVE is actually enhanced when implemented beneath the building due to the low permeability that is provided by the building slab. The required goods and services required for Alternative S-3 are readily available.

Alternative GW-2 is easily implemented due to the existing monitoring wells and because ASCO owns the property where a majority of field work will occur. For Alternative GW-3, the implementability is considered high due to the availability of conventional equipment and materials required to construct the extraction/treatment system. A pumping test was also performed to determine the effectiveness of the technology and to provide design parameters for a full-scale system. Results from this test were favorable. For groundwater contamination located on the ASCO property, groundwater extraction/treatment can be easily implemented along the property boundary. The upgradient facility acreage also provides an excellent opportunity to return the treated water to the aquifer. For contamination beyond the ASCO property, the implementability of Alternative GW-3 is slightly lower because a treated groundwater management location is not readily available east of Highway 1, so extracted groundwater would need to be piped back to the ASCO property. The intrusiveness of this alternative would depend on the number and location of extraction wells and piping.

Alternative GW-4 would be the most complicated alternative to implement, requiring excavation to install the barrier at a depth of at least 180 feet below ground surface, significantly deeper than any previously installed. Even greater depths would be required at locations downgradient from the ASCO property (specifically, the intersection of May Royal Drive and Rodgers Road). Conventional techniques, such as trenching, cannot be used for installation, which adds to the difficulty of installation of the PRB wall.

7. Cost

The cost analysis evaluated capital costs and annual operation and maintenance (O&M). The net present value of an alternative is the sum of initial capital costs and the discounted value of O&M costs over the lifespan of the remedy.

For the soil remedial alternatives, Alternative S-1 ($0.00) involves no remedial activities and, therefore, is the least costly alternative. Alternative S-2 has a net present value of $30,000. Alternative S-3 is significantly more expensive, with a net present value of approximately $500,000.

For the groundwater alternatives, Alternative GW-1 ($0.00) involves no remedial activities and, therefore, is the least costly alternative. Assuming monitoring of the entire plume for thirty years (from quarterly to annually), the net present value of Alternative GW-2 is $340,000. Of the active groundwater remedial alternatives to address contamination within the ASCO property boundary, the lower cost alternative is Alternative GW-3, followed by Alternative GW-4, with net present values of $3.1M and $8M respectively. In order to address contamination beyond the ASCO property, the net present value of Alternative GW-3 ($1.6M) is less than Alternative GW-4 ($4.6).

8. Community Response

Community acceptance of the preferred remedy will be evaluated after the public comment period ends. Public comments will be summarized and responses provided in the Responsiveness Summary Section of the Record of Decision document that will present the Department's final alternative selection. The Department may choose to modify the preferred alternative or select another based on public comments or new information.

SUMMARY OF THE DEPARTMENT'S PREFERRED ALTERNATIVE

The Department has identified a combination of alternatives to address both the soil and groundwater contamination at the Site.

Soil: The preferred soil remedial alternative, Alternative S-3, consists of the installation of an SVE system in the former PCE storage area.

Based on pilot test results, SVE is well suited for implementation in the PCE storage area.

The details and specifications of the SVE system will be determined during the design process. An estimated $500,000 would be required to implement this treatment technology. Alternative S-3 was selected over other alternatives because it is expected to achieve substantial and long-term risk reduction and prevent further migration of contaminants from soil to groundwater.

Groundwater: The preferred groundwater remedial alternative, Alternative GW-3, involves the installation of a groundwater extraction and treatment system.

To address groundwater contamination on the ASCO property, extraction wells would be located along the eastern (downgradient) property line in order to minimize the migration of VOCs above MCLs off the ASCO property and to remove VOCs from treated groundwater. For remediation of contamination located beyond the ASCO property, the extraction wells would be located within the areas of highest VOC concentrations and along the downgradient edge of the plume where MCLs are exceeded. The extracted water from the wells will be piped to the ASCO property for treatment and discharge. The treatment system would include an equalization tank, air stripper, and liquid-phase carbon. The treatment system will be contained within a dedicated building on the ASCO property. A number of options are available for disposal of the treated groundwater. These options include the following:

- Publicly owned treatment works;
- Land application via spray fields, tile fields, rapid infiltration basins, percolation ponds, or evaporation basins;
- National Pollutant Discharge Elimination System (permitted surface water discharge); and/or
- Underground injection

The anticipated discharge location for the treated groundwater is to the existing retention pond located on the ASCO property. Water from the pond is conveyed to the western (upgradient) portion of the ASCO property and either sprayed or land applied where it infiltrates. Upgradient infiltration of treated groundwater provides the added benefit of returning the treated water to the groundwater aquifer through seepage. The details and specifications of the system and discharge location will be determined in the design process. Periodic monitoring of the extraction wells, existing monitoring wells, and selected private wells will be implemented to determine the effectiveness of the extraction and treatment system and to monitor natural attenuation processes. In the event a private drinking water well exceeds an MCL for any VOC, the monitoring plan would provide for an alternative water supply for the property. The groundwater-monitoring program will be determined during the remedial design process. An estimated $4.7M would be required to implement this treatment technology.

Based on information currently available, the Department believes the Preferred Alternative meets the mandatory threshold criteria (Criteria 1 and 2) and provides the best balance of trade-offs among the other alternatives. The Department expects the Preferred Remedy to satisfy the following statutory requirements: 1) be protective of human health and the environment; 2) comply with applicable or relevant and appropriate requirements; 3) be cost-effective; 4) utilize permanent solutions to the maximum extent practicable; and 5) satisfy the preference for treatment as a principle element of the remedy.

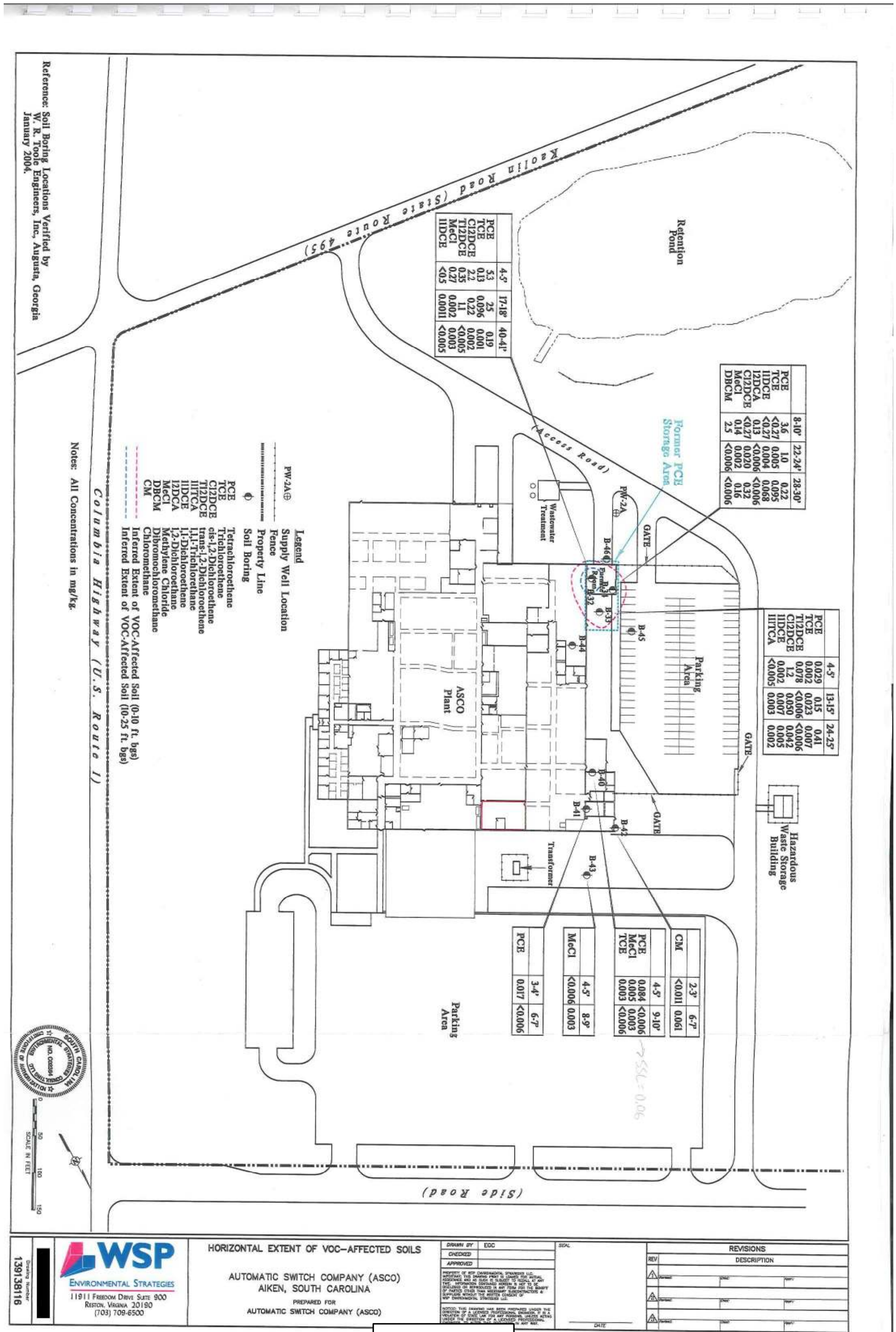
COMMUNITY PARTICIPATION

The Department will evaluate comments from the public before selecting a final alternative. A comment period has been established to allow the public an opportunity to submit written comments to the Department. The community is also invited to a public meeting where the Department will discuss the Feasibility Study results, present the preferred alternative, and accept comments on the remedial alternatives.

The dates for the public comment period, the date, location, and time of the public meeting, and the locations of the Administrative Record files, are provided on the first page of this Proposed Plan.

Technical Reports

- ♦ A **Remedial Investigation (RI)** identifies the potential sources of contamination; and determines what contaminants are at the site, and the extent of the contamination.
- ♦ A **Feasibility Study (FS)** considers various cleanup alternatives for the soil and groundwater.
- ♦ A **Proposed Plan (PP)** describes cleanup alternatives to address contamination.
- ♦ A **Record of Decision (ROD)** identifies the selected cleanup method.
- ♦ The **Remedial Design (RD)** is the development of specifications and drawings necessary for the construction and implementation of the ROD.



Retention Pond
Kaolin Road (State Route 495)
(Access Road)
Former PCE Storage Area
Wastewater Treatment
GATE
Parking Area
ASCO Plant
Transformer
Hazardous Waste Storage Building
(Side Road)
Columbia Highway (U.S. Route 1)
Legend
Supply Well Location
Fence
Property Line
Soil Boring
PCE Tetrachloroethene
TCE Trichloroethene
Cl2DCE cis-1,2-Dichloroethene
T12DCE trans-1,2-Dichloroethene
111TCA 1,1,1-Trichloroethane
11DCE 1,1-Dichloroethene
12DCA 1,2-Dichloroethane
MeCl Methylene Chloride
DBCM Dibromochloromethane
CM Chloromethane
Inferred Extent of VOC-Affected Soil (0-10 ft. bgs)
Inferred Extent of VOC-Affected Soil (10-25 ft. bgs)
Notes: All Concentrations in mg/kg.
Reference: Soil Boring Locations Verified by W. R. Toole Engineers, Inc, Augusta, Georgia January 2004.
SCALE IN FEET
HORIZONTAL EXTENT OF VOC-AFFECTED SOILS
AUTOMATIC SWITCH COMPANY (ASCO)
AIKEN, SOUTH CAROLINA
PREPARED FOR
AUTOMATIC SWITCH COMPANY (ASCO)
WSP
ENVIRONMENTAL STRATEGIES
11911 FREEDOM DRIVE SUITE 900
RESTON, VIRGINIA 20190
(703) 709-6500
13913816
REVISIONS
DESCRIPTION

Figure 1

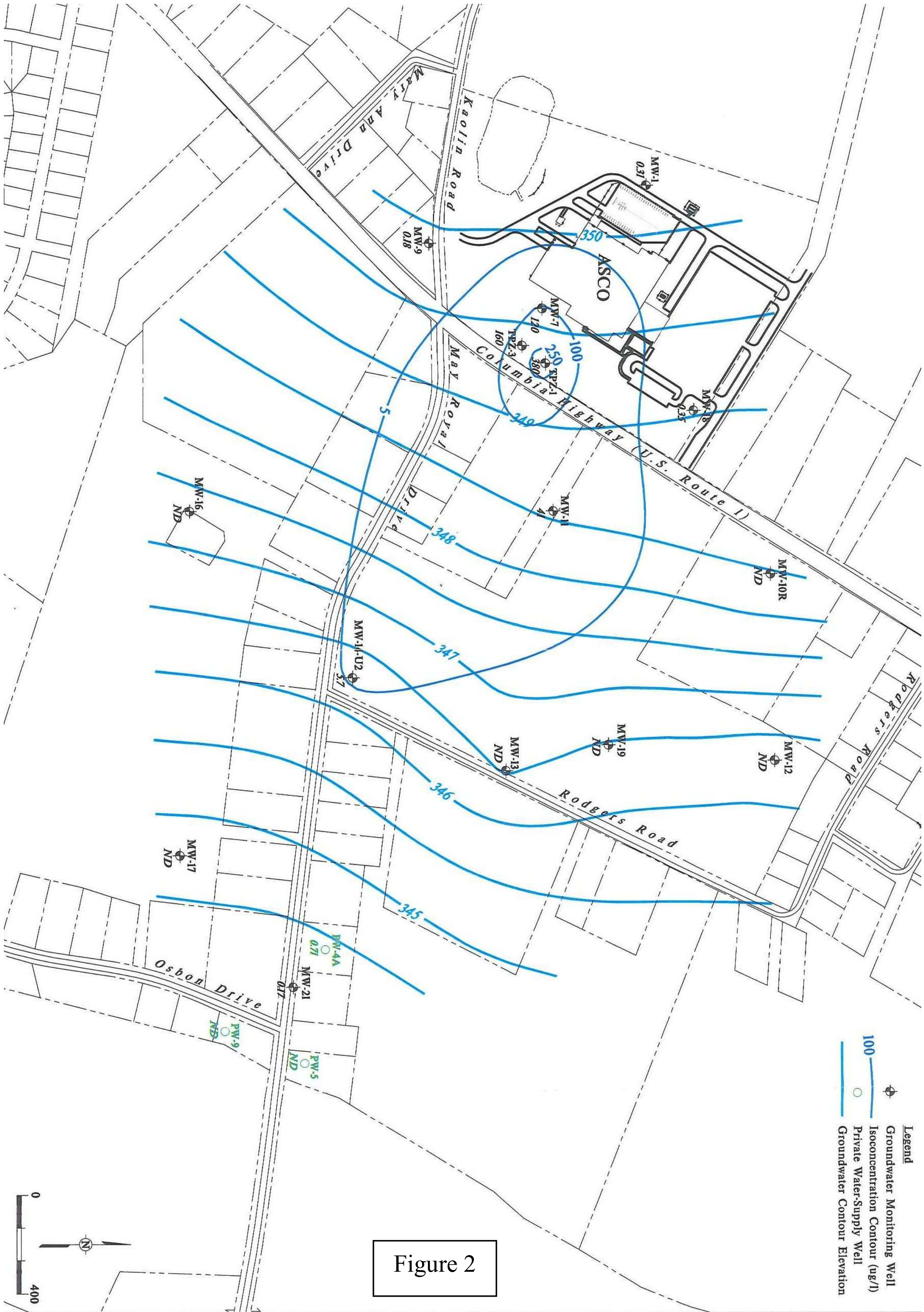


Figure 2

WSP 11911 Freedom Drive Suite 900

[redacted]

Isoconcentration Contour Map of Tetrachloroethene

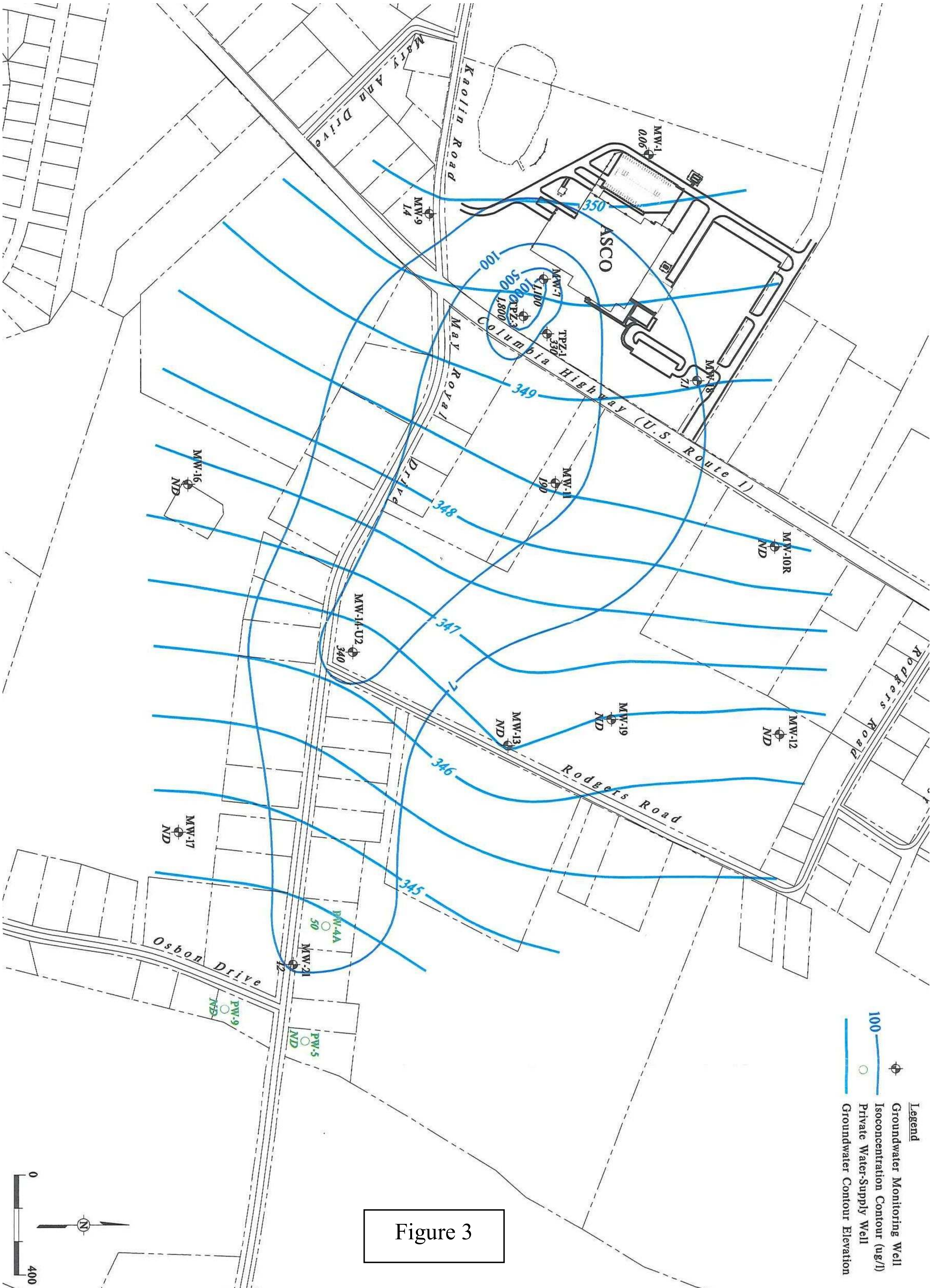


Figure 3

WSP 11911 Freedom Drive Suite 900

[redacted] Isoconcentration Contour Map of 1,1-Dichloroethene

USE THIS SPACE TO WRITE YOUR COMMENTS

Your input on the Proposed Plan for the Automatic Switch Company (ASCO) Site is important. Comments provided by the public are valuable in helping DHEC select a final cleanup remedy.

You may use the space below to write your comments, then fold and mail to: Angie Jones, SCDHEC-LWM-SARR, 2600 Bull Street, Columbia, SC 29201 or you may send electronically to: jonesar@dhec.sc.gov. Comments must be postmarked by **June 20, 2009**. If you have any questions, please contact Angie Jones at 803-896-4076 or email at jonesar@dhec.sc.gov.

Name ____ Telephone ______________________________

Address ______________________________________ Email _________________________________

City _____________________State ___ Zip _________