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South Carolina Department of Health and Environmental Control

Proposed Plan--Addendum

EFP Products Facility

6247 Campbell Road, York, South Carolina

September 10, 2009

ANNOUNCEMENT OF PROPOSED PLAN ADDENDUM

The South Carolina Department of Health and Environmental Control (DHEC or the Department) recently completed a second evaluation of cleanup alternatives to address soil contamination at the former EFP Products Facility (Site). This Proposed Plan Addendum (Addendum) identifies the Preferred Alternative for cleaning up the contaminated soil and provides the reasoning for this preference. In addition, this Addendum includes summaries of other cleanup alternatives evaluated. These alternatives were identified based on information gathered during environmental investigations conducted by SPX Corporation (SPX) pursuant to Consent Agreement 95-32-HW dated November 30, 1995, between SPX and the Department.

The Department is presenting this Addendum to inform the public of our activities and to gain your input. The Addendum summarizes information that can be found in greater detail in the Feasibility Study (FS) Addendum and other reports contained in the Administrative Record file. The Department encourages the public to review these documents to gain a comprehensive 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 15-day public comment period. The Department may modify the Preferred Alternative or select another response action presented in this Addendum based on new information or public comments. Therefore, the public is encouraged to review and comment on all the alternatives presented in this Addendum.

Summary of DHEC's New Preferred Soil Cleanup

DHEC's preferred soil remedial alternative, Alternative S-4, involves the pneumatic fracturing of the clayey soils beneath the former plating area and the subsequent injection of zero valent iron into the contaminated area. This procedure will reduce hexavalent chromium to an insoluble form of chromium, thus removing the potential of the chromium to impact the groundwater in the future through leaching.

The remaining pages provide additional details of the Department's evaluation.

MARK YOUR CALENDAR

❑ **PUBLIC COMMENT PERIOD:**
September 14, 2009 through September 29, 2009

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

Angie Jones, Project Manager
DHEC-L&WM
2600 Bull St.
Columbia, SC 29201
or
jonesar@dhec.sc.gov
or
via fax at 803-896-4292

❑ **FOR MORE INFORMATION:**

Call: Angie Jones, Project Manager, 803-896-4076
Paul Edinger, DHEC's Lancaster Office, 803-909-7613

See: DHEC's website at:
www.dhec.sc.gov/environment/lwm/html/superfund_info.htm

View: The Administrative Record at the following locations:

- York Public Library
  21 East Liberty Street, York, SC
  Hours: Monday-Thursday: 9:00am – 8:00pm
  Friday & Saturday: 9:00am – 6:00pm

- DHEC's Bureau of Land & Waste Management
  8911 Farrow Road - Columbia, SC
  Contact: Freedom of Information Office: 803-898-3817
  Hours: Monday - Friday: 8:30am - 5:00pm

INTRODUCTION

In early 2008, the Department held public meetings to discuss the preferred remedial alternatives and Proposed Plan for addressing chromium-contaminated soils and groundwater at the Site. There was no opposition to the Department's preferred groundwater remedy, and it will be selected as the final remedy to address the contaminated groundwater.

There was, however, strong public opposition to the Department's "No Action With Deed Restrictions" preferred alternative to address the contaminated soils. In response to the public comments, SPX (the former owner of the property and Responsible Party) re-evaluated potential treatment technologies that could address the chromium-contaminated clayey soils that are present beneath a former plating area, without the removal of the overlying structure.

After evaluating data collected from a pilot study, SPX submitted an addendum to the January 2005 Feasibility Study (FS) which presented the analysis of an additional alternative for soil remediation. This alternative was not presented in the original January 2005 FS report as it represents a newly emerging technology.

This Proposed Plan Addendum discusses information related ***only*** to soil conditions. The discussion of ground water alternatives remains as presented in the Department's original November 2007 *Proposed Plan for Site Remediation.*

SITE HISTORY

The Site is located at 6247 Campbell Road, approximately 12 miles northeast of York, South Carolina (Figures 1 and 2). The Site was historically home to EFP Products, a facility that included office, plating, production, wastewater treatment, and warehouse areas. The approximately 25-acre property includes a 70,000-square-foot building and surrounding area that is predominantly grassy or paved for parking. Currently the facility is owned and operated by a trucking company. Single-family homes, pastures, and wooded land surround the Site. Campbell Road bounds the Site to the northwest. Little Allison Creek is located approximately 1 mile to the southeast of the Site. Private residences are located to the southwest, west, and northeast of the Site, along Campbell Road. These residences currently use private wells as their source of potable water.

Plating operations began at the Site in the early 1950s. Various on-site wells were used as water supply wells over the historic operating period. In general, as soon as chromium was detected in a water supply well, a new supply well was installed and used for water at the Site. As of early 2004, when EFP Products vacated the Site, use of on-site wells for water supply purposes ceased.

Various waste management, treatment, and storage techniques were used at the Site over the historic operating period and were investigated, along with other Site features, during the environmental investigations. These study areas include a former wastewater lagoon, the former location of sludge drying beds, areas referred to as current and former plating bath areas, a 50-foot deep waste disposal well used in the 1950s, a steel grinding machine and associated discharge areas, two septic leach fields, a treated water discharge area, a reported chromic acid disposal area, and a reported sludge disposal trench. A site plan indicating the relative locations of these areas is provided as Figure 3.

The former plating area occupies a 3,200-square-foot area of the approximately 70,000-square-foot building. The 50-foot deep waste disposal well was reportedly located in the southeast corner of the former plating area and was used to discharge wastes directly to the bedrock surface. In addition, plating baths set into the concrete floor of the plating area also contributed to chromium contamination in vadose zone (unsaturated) soils underneath the former plating area.

SPX Corporation entered into Consent Agreement 95-32-HW with the Department on November 30, 1995 in order to investigate the nature and extent of Site contamination.

SITE CHARACTERISTICS

Based on the Remedial Investigation (RI), total chromium and hexavalent chromium have been identified as the contaminants of concern in Site soils.

The maximum hexavalent chromium concentration (4,300 ppm) detected in soils outside the footprint of the existing building was detected in a single composite sample collected from the reported sludge disposal trench in the southern portion of the site (Area L). During supplemental sampling conducted in 2003, the hexavalent chromium levels detected in the Area L soil samples ranged from non-detectable to 55 mg/kg, well below the previously reported level of 4,300 ppm. Background soil sampling indicates that naturally occurring total chromium levels fall in the range of 3.25 ppm to 54.5 ppm.

Beneath the building, the maximum level of *total* chromium detected during the RI and subsequent studies was 5,500 ppm, while the maximum level of *hexavalent* chromium was 1,400 ppm. These maximum chromium levels were detected in the vadose zone soils located beneath the former plating area.

In June 2008, supplemental sampling of these vadose zone soils was conducted to further define the nature and extent of the chromium contamination. During this most recent sampling, the maximum level of *total* chromium was 4,500 ppm while the maximum level of *hexavalent* chromium was 1,200 ppm (Figure 4).

Leachability studies conducted on soil samples from areas of potential concern located outside of the building's footprint have indicated very little of the chromium detected within the outdoor

soils is leachable. Within the building footprint, recent studies of vadose zone soils located beneath the former plating area indicate that subsurface chromium contamination from the plating activities is leachable. Depth to ground water in this area has ranged from approximately 15 feet below ground surface to as much as 20 to 22 feet below ground surface, depending on the amount of rainfall. The mobility of this contamination is limited, however, since there are no driving forces to leach the contamination from the soils. The driving force that would be provided by precipitation is not present due to the existing building that acts as a barrier, preventing the infiltration of precipitation through the soils.

The area of soil contamination to be targeted by the remedial action is located beneath the existing building in the area of the former plating room, and occupies a 3,200 square-foot area of the approximately 70,000 square-foot building (Figures 3 and 4).

SCOPE AND ROLE OF THE ACTION

This action will be the final cleanup action for the Site soils. The remedial action objectives include preventing exposure to, and migration of, chromium-contaminated soil. Through the use of treatment technologies, this response will permanently reduce the toxicity, mobility, and volume of contaminated soil beneath the building.

SUMMARY OF SITE RISKS

The RI evaluated potential health impacts due to exposures to soil based on USEPA health-based soil screening levels (SSLs) and Region III risk-based concentrations (RBCs) for total chromium, hexavalent chromium, and trivalent chromium. At the time the RI was conducted, total chromium levels detected in soil samples exceeded the then-applicable USEPA Region III RBCs. Therefore, additional characterization of chromium in soils was recommended and supplemental soil leachability studies were conducted. The total chromium and hexavalent chromium results from the leachability studies indicated that, with the exception of soils in the reported sludge disposal trench, the soil concentrations of hexavalent and trivalent chromium are below the SSLs for risk to human health. In the composite sample collected from the sludge disposal trench, the concentration of hexavalent chromium exceeded the screening levels for both ingestion and inhalation. However, additional investigations of this area indicated USEPA Region IX Preliminary Remediation Goals (PRGs), which DHEC currently uses as soil screening levels, for industrial soils were not exceeded. Only two of these samples exceeded PRGs for residential soils.

Recent investigations of soils beneath the former plating areas have identified the presence of hexavalent chromium at levels exceeding the residential and industrial PRGs; but the presence of the building over these soils prevents any unacceptable human health impacts under existing site conditions.

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 soils:

- Prevent current and future exposure to hexavalent chromium in soil at levels in excess of the Region IX PRGs.
- Prevent the migration of hexavalent chromium from impacted soil containing hexavalent chromium at levels exceeding the Region IX SSL, due to leaching of contaminants to the groundwater.

Total chromium consists of hexavalent chromium and trivalent chromium, with the hexavalent chromium component composing a greater concern with respect to human health than the trivalent chromium component. Trivalent chromium is relatively non-toxic when compared to hexavalent chromium. Therefore, cleanup criteria based on hexavalent chromium are more directly protective of human health than those based on total chromium. For soil, the USEPA Region IX Industrial Preliminary Remediation Goal (PRG) of 64 ppm hexavalent chromium was considered to be applicable to areas where human exposure to contaminated soils is of concern, while the Soil Screening Level (SSL) of 38 ppm hexavalent chromium was considered to be applicable to soils where infiltration of precipitation and associated impacts to ground water are of concern.

SUMMARY OF SOIL REMEDIAL ALTERNATIVES

Based on information collected during the previous investigations, a Feasibility Study (FS) and Feasibility Study Addendum were conducted to identify, develop, and evaluate cleanup options and remedial alternatives to address the soil contamination. The FS process used the information regarding the nature and extent of contamination and associated potential human health risks developed during the Remedial Investigation to develop and evaluate potential remedial alternatives and their overall protection of human health and the environment. Each remedial alternative evaluated by the Department is described briefly below.

Note: A final Remedial Design will be developed prior to implementation of a remedy.

Table 1
SUMMARY OF SOIL REMEDIAL ALTERNATIVES
EFP Products Facility

Identifier	Soil Alternative	Components of Remedy
S-1	No Action	No response activities Soils remain beneath building
S-2	No Action with Deed Restrictions	Soils remain beneath building Restriction for use of property filed with the County Clerk of Court
S-3	Soil Excavation	Existing concrete floor removal Impacted soils removed from beneath building Stabilization of soils (prior to disposal) if leachability of chromium is a concern Soils disposed off-site Backfilling of excavation area and replacement of floor If necessary, restriction for use of property filed with County Clerk of Court
S-4	Zero Valent Iron (ZVI) In-situ Chemical Reduction	Underground Injection Control Permit Installation of soil borings Pneumatic fracturing of clayey soils beneath existing building Injection of zero valent iron solution into contaminated soil Structural/surficial heave analysis If necessary, restriction for use of property filed with County Clerk of Court

Description of Alternative 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.

Description of Alternative S-2: No Action with Deed Restrictions

Under current site conditions, the floor of the existing building provides a barrier against direct contact with impacted soils located beneath the former plating area and also prevents the infiltration of precipitation through the soils and any subsequent leaching of chromium from the soils. Therefore, under existing site conditions, the former plating area soils present little direct risk to human health and little risk of groundwater impacts due to leaching of contamination from the subsurface soils.

This alternative would include the placement of a deed restriction to ensure the integrity of the building floor over the former plating areas (or an alternate impermeable cap) is maintained in the future and to ensure this portion of the Site would not be developed in the future for residential use. The deed restriction would be filed with the York County Clerk of Court (Register of Deeds).

The estimated present worth cost of this alternative is $150,000.

Description of Alternative S-3: Excavation and Off-Site Disposal with Contingency for Soil Stabilization and Deed Restrictions

This alternative would involve excavation of the soils beneath the former plating area and subsequent off-site disposal. To remove the soils from beneath the former plating area, either the building would have to be removed or work would have to be conducted within the confines of the building, severely restricting the methods of excavation that could be used, as well as the achievable depth of excavation. In the latter case, the existing concrete floor and former plating bath pits would have to be removed prior to removal of the soils.

This alternative also includes a contingency for stabilization of the soils should they contain chromium at levels significantly high to present a concern with respect to their ultimate disposal. The stabilization could either be conducted on-site or at an off-site facility. The remedial action would be combined as necessary with the implementation of deed restrictions to ensure the impacted area of the site is not developed for residential use in the future.

The present worth value of this alternative, including the contingency for stabilization, is estimated to range from $800,000 to $1,500,000.

Description of Alternative S-4: Zero Valent Iron (ZVI) In-Situ Chemical Reduction and Deed Restrictions

This alternative involves the in-situ treatment of chromium-contaminated soils underlying the former plating room. The

technology incorporates pneumatic fracturing of the relatively tight clayey soils and the subsequent injection of a patented Ferox liquid containing zero valent iron (ZVI) and carrier gas into the soil (Figure 5). The pneumatic fracturing provides a path by which the ZVI can be introduced into the area of contamination, and the ZVI serves as the reductant which reduces hexavalent chromium to an insoluble chromium and/or elemental chromium. This reduction would limit contaminated soils beneath the former plating area from leaching and acting as a potential source of future ground water contamination.

This alternative would be implemented in the vadose zone soils under the former plating room, an area of approximately 3,200 square feet. The remedial action would be combined with the implementation of deed restrictions to ensure the impacted area of the site is not developed for residential use in the future.

The present worth value of this alternative, including completion of a structural analysis, is estimated to be $520,000. This cost is highly dependent upon the number of injection points and quantity of ZVI solution delivered to the contaminated soil underneath the former plating room.

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 Alternative (S-1) offers the least protection of human health and the environment, providing no active remediation of the chromium contaminated soils. Although the building currently provides a barrier against direct contact and precipitation infiltration, this alternative offers no assurance the existing conditions would be maintained. The potential for human exposure would remain.

The remaining remedial alternatives are all protective of human health and the environment by preventing direct exposures to chromium soil contamination that is present beneath the former plating area and by preventing the mobility of the contamination due to leaching of precipitation through the soils. While Alternative S-3 may provide a greater degree of permanence through the removal of the contaminated soils, the constraints associated with implementing an excavation program within the confines of an existing building do not guarantee all of the impacted soils will be able to be removed. The excavation and subsequent soil handling components of Alternative S-3 also present greater short-term risks and increased implementability hurdles when compared to Alternative S-2.

Alternative S-4 provides a similar degree of protection to human health and the environment based on the modification of the toxicity and mobility (leachability) of the chromium-contaminated soils to attain a less toxic and less mobile form of chromium, although it too is limited by the potential completeness of the treatment process, which is dependent upon the success of the pneumatic fracturing in allowing the treatment solution to reach all of the contaminated soils. Each of these alternatives utilizes deed restrictions to ensure long-term protection against any remaining impacted soils is provided in the future.

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.

There are no chemical-specific cleanup standards applicable to the alternatives. With the exception of S-1, each alternative is expected to attain risk-based criteria through engineering controls and/or soil removal. Alternative S-3 is subject to more regulations regarding the characterization, management, and disposal of excavated soil than Alternatives S-2 or S-4. However, Alternative S-4 must meet DHEC requirements for underground injection control (UIC) due to the introduction of the treatment solution into the subsurface.

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.

Excluding S-1, each of the soil remedial alternatives requires long-term enforcement of deed restrictions. Existing barriers, in-situ treatment, and removal of contaminated soils provide long-term protection against direct contact with impacted soils beneath the former plating area, as well as infiltration of precipitation through these same soils. While Alternative S-3 offers a higher degree of permanence in its removal of impacted soils from beneath the plating area, the ability to completely remove all impacted materials may be constrained by the presence of the building over the impacted area. Similarly, the long-term effectiveness of Alternative S-4 will be directly related to the degree of contact between the ZVI solution and the contaminated soil. To attain a higher degree of effectiveness, Alternative S-4 includes pneumatic fracturing to allow greater penetration and coverage of the treatment solution throughout the vadose zone; however, it is possible that pockets of untreated soil may remain. Post-treatment sampling will help define the level of treatment attained. Therefore, AlternativesS-2, S-3, and S-4 are all considered to be relatively comparable in terms of long-term effectiveness.

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.

For the soil remedial alternatives, mobility of chromium contamination is reduced either through maintenance of existing barriers to infiltration of precipitation, through in-situ treatment of impacted soils, or through removal and off-site disposal of impacted soils. Reduction in pollutant mobility through treatment is most notable for Alternative S-4, which utilizes in-situ treatment methods to reduce the chemical mobility and toxicity of the chromium.

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, Alternatives S-1 and S-2 are the most effective in the short-term because they do not pose the short-term risks associated with the soil treatment or removal and management activities included with Alternatives S-3 and S-4. The existing Site conditions already protect against the potential risks posed by the presence of chromium contamination beneath the plating area. Alternative S-4 follows in terms of short-term effectiveness due to the rapid treatment provided by the ZVI technology and the minimal worker exposure to contaminated soils due to the in-situ treatment process. Alternative S-3 would present the greatest short-term risks due to the potential exposures to excavated soils during excavation activities and due to the health and safety issues associated with performing excavation within the confines of a building.

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.
For the soil remedial alternatives, Alternative S-1 is the most easily implemented alternative since it requires no action. Alternative S-2 is also easily implemented, requiring only the establishment of deed restrictions or other institutional controls to limit future exposures to impacted soils and maintain a barrier to precipitation over the former plating area. Alternative S-4 would be more complex to implement, requiring the installation of numerous borings through the floor of the former plating room and monitoring of potential surface heaves associated with the pneumatic fracturing. Experienced vendors are available, however, to implement this alternative. Implementation of S-4 also requires obtaining an underground injection control (UIC) permit. Alternative S-3 would be the most complicated alternative to implement, requiring excavation within the confines of an existing structure, implementation of the necessary health and safety protocols to ensure worker safety with respect to both construction- and contaminant-related concerns, and potentially requiring processing of the excavated soils to render them suitable for disposal as non-hazardous wastes.

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 involves no remedial activities and therefore is the least costly alternative. Alternative S-2 has a present worth cost of $150,000, requiring only the establishment of deed restrictions. Alternative S-4 is slightly more expensive at $520,000, with the cost highly dependent upon the quantity of soil treatment solution to be used. Alternative S-3 is significantly more expensive than the other alternatives, costing between $800,000 and $1,500,000, depending on the nature of the excavated soils.

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's Preferred Alternative for soil remediation, Alternative S-4, involves the in-situ treatment of chromium contamination in vadose zone soils underlying the former plating room at the Site. The technology involves injection of a patented Ferox liquid containing zero valent iron and carrier gas into the soil. The zero valent iron serves as a reductant and has been shown to reduce hexavalent chromium to insoluble trivalent chromium and/or elemental chromium. This alternative would be implemented in vadose zone soils under the former plating room, an area of approximately 3,200 square feet. The soil treatment zone will extend vertically from beneath the concrete slab to the water table. The remedial action would be combined with deed restrictions to ensure the impacted area of the Site is not developed for residential use in the future.

The location of the former plating room is shown in Figures 3 and 4.

Based on pilot test results, this in-situ chemical reduction alternative was shown to be an effective technology for use in the chromium-contaminated soils.

The preferred soil alternative was selected over the other alternatives because it is highly protective of human health and the environment, and is technically and administratively feasible to implement. The technology will modify the chemical characteristics of the hexavalent chromium and permanently remove the potential threat the contaminants provide with respect to direct exposure and ground water quality impacts. The alternative provides long-term effectiveness by changing the chemical characteristics of contaminants in the subsurface soil; thereby removing the potential of the contaminants to impact ground water quality in the future through leaching. The alternative could be implemented within a relatively short time frame, with the injection program being conducted over a three to four week period. During this implementation phase, worker exposure to the impacted soil will be minimal. The technology has been shown to be effective in pilot studies.

The details and specifications of the in-situ process will be determined during the design process. An estimated $520,000 would be required to implement this treatment technology. Alternative S-4 was selected over other alternatives because it is expected to achieve substantial and long-term risk reduction and prevent migration of contaminants from soil to groundwater.

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

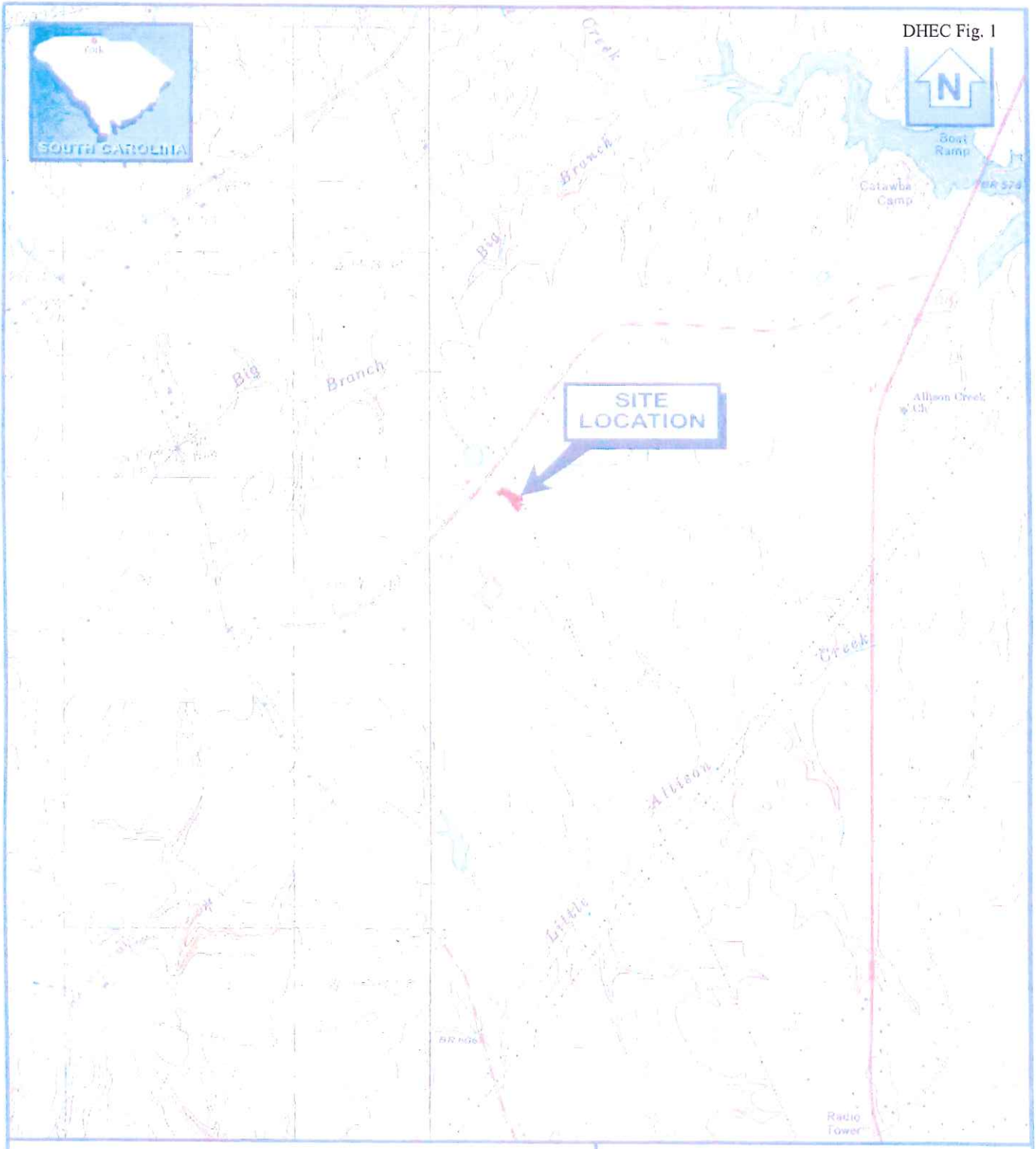
The Department will evaluate comments from the public before selecting a final alternative. A comment period has been established to allow the public an opportunity to submit written comments to the Department.

The dates for the public comment period, 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.

DHEC Fig. 1



0 2000
SCALE FEET

0 1
SCALE MILE

1:24000

BASE CREATED FROM 7.5' USGS TOPOGRAPHIC MAPS
Clover, SC-PE 1985 and Lake Wylie, SC-NC 1993

TRC
Companies Focused Solutions

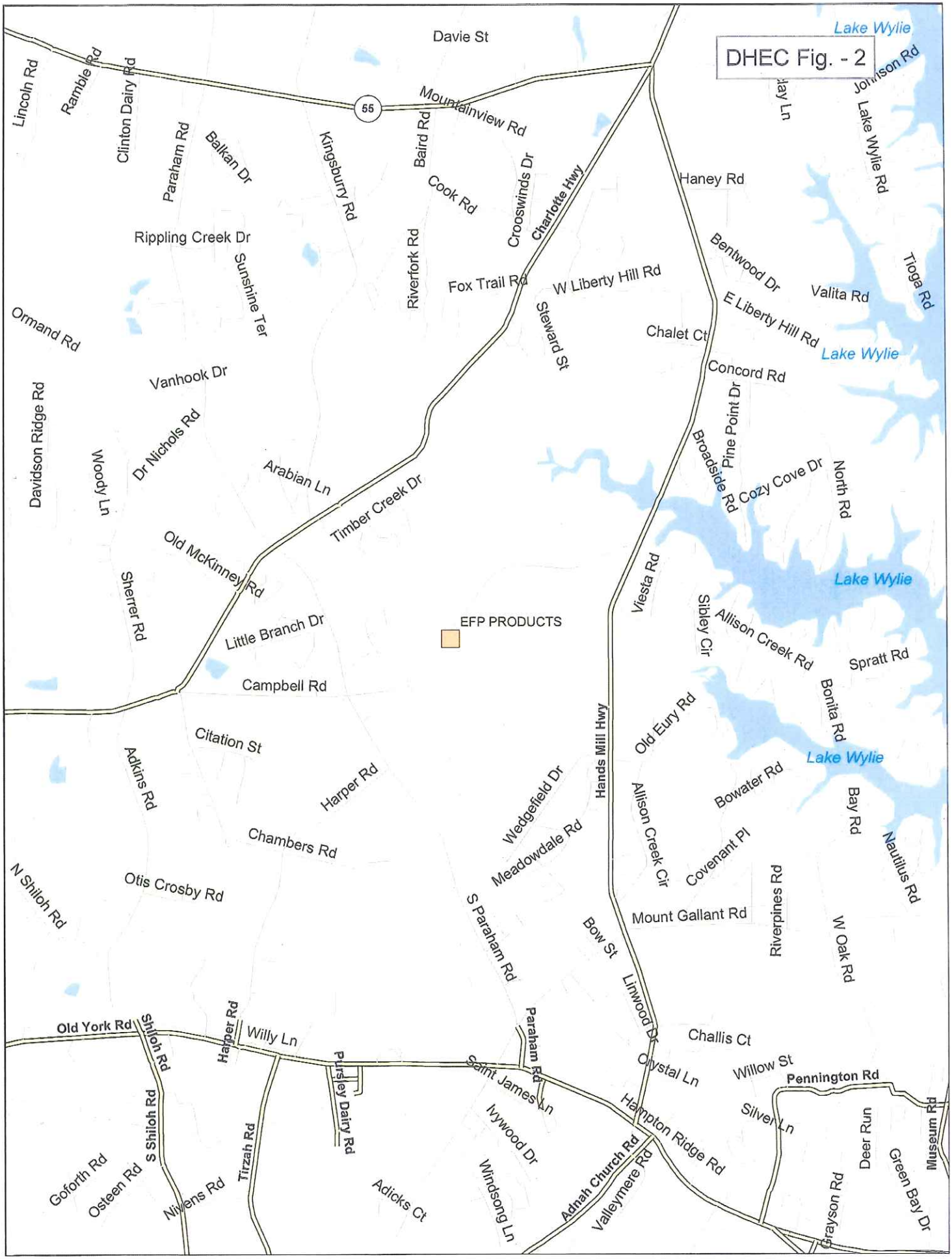
5 Waterside Crossing
Windsor, CT 06095
(860) 298-9692

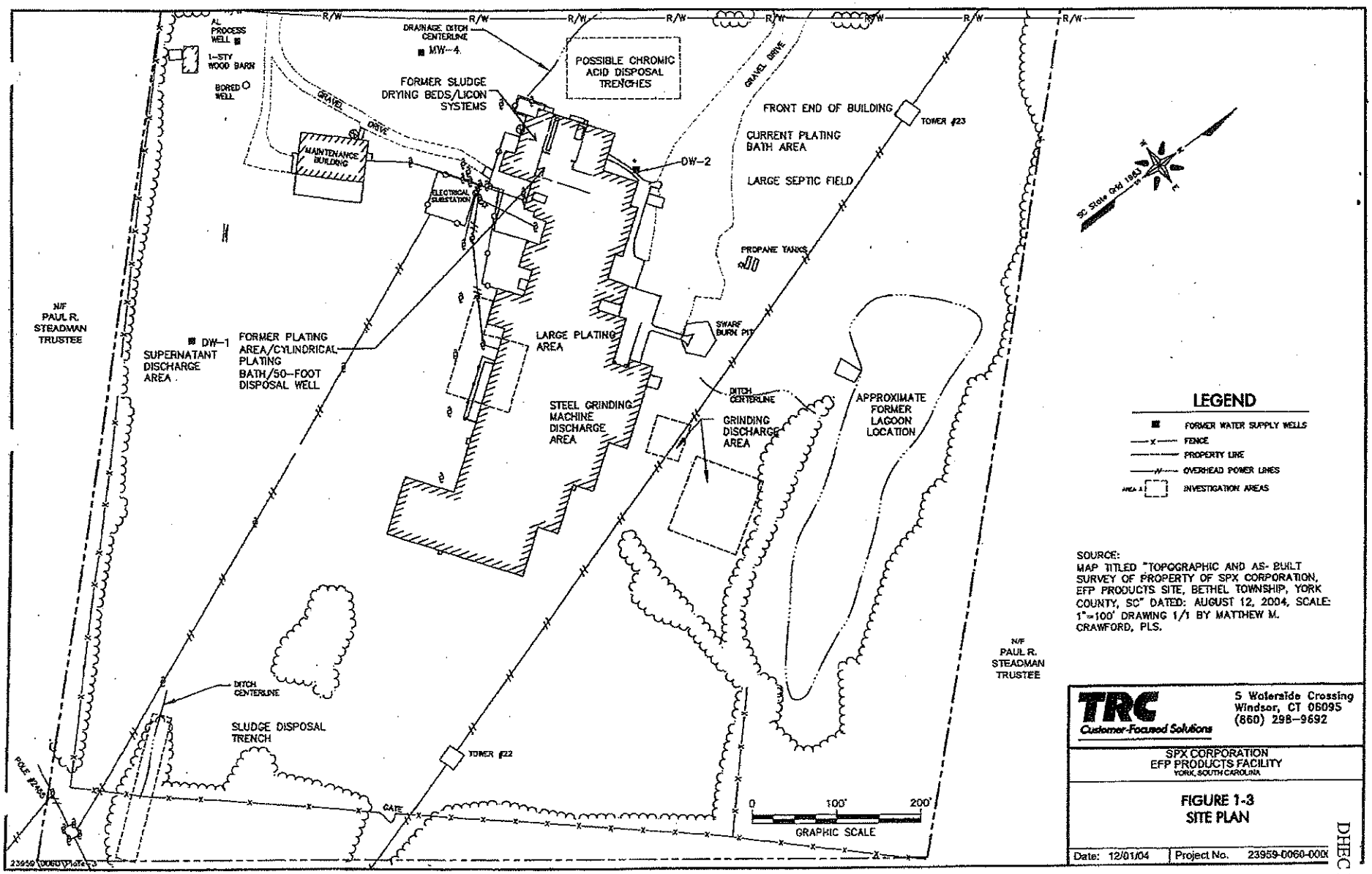
EFP PRODUCTS FACILITY
YORK, SOUTH CAROLINA

FIGURE 1-2
SITE LOCATION MAP

Date: 12/01/04

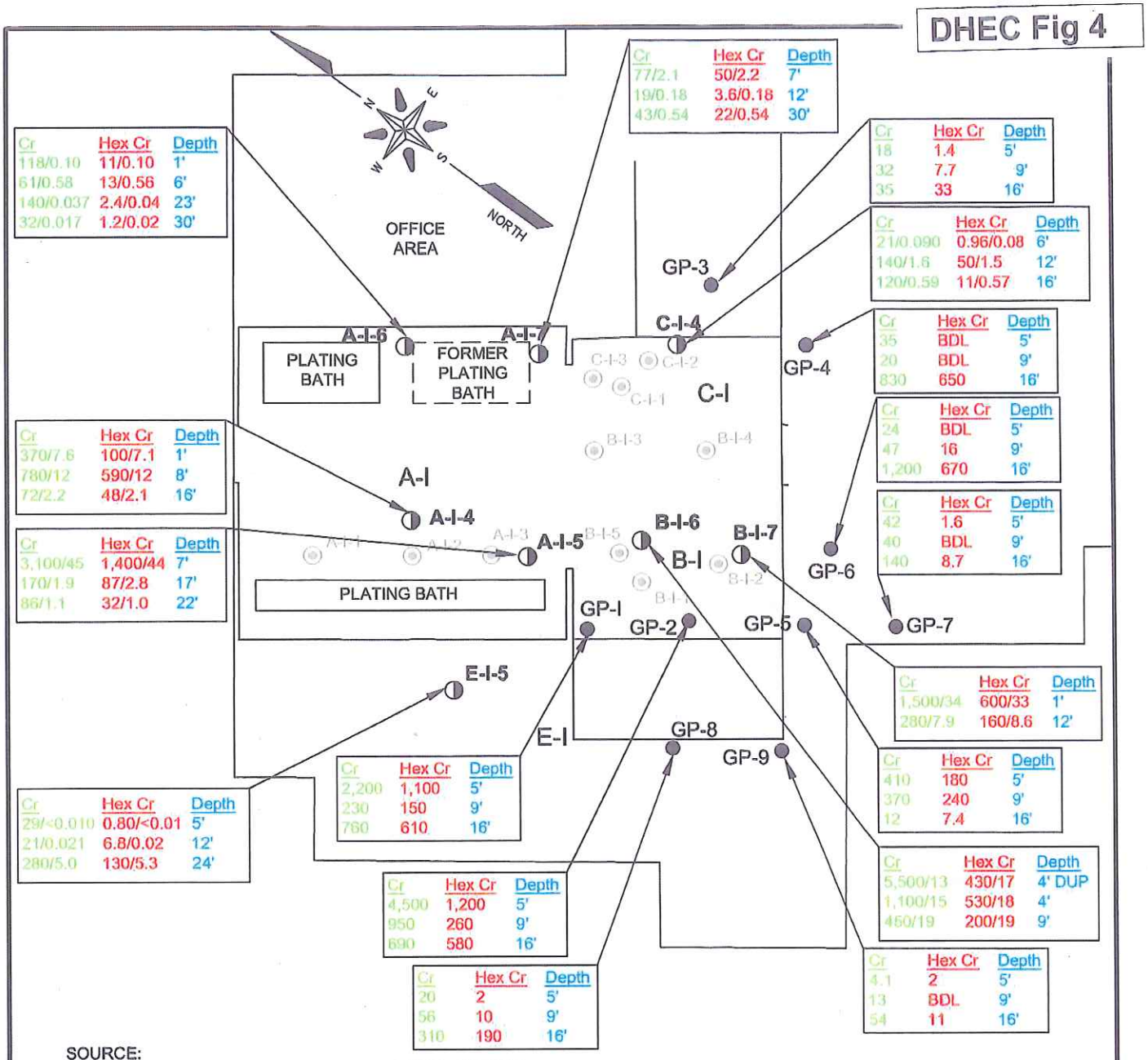
Project No. 23959-0060-00002


DHEC Fig. - 2
EFP PRODUCTS
Lake Wylie
Davie St
Mountainview Rd
55
Lincoln Rd
Ramble Rd
Clinton Dairy Rd
Paraham Rd
Balkan Dr
Kingsbury Rd
Baird Rd
Cook Rd
Crosswinds Dr
Charlotte Hwy
Haney Rd
Johnson Rd
Lake Wylie Rd
Rippling Creek Dr
Sunshine Ter
Riverfork Rd
Fox Trail Rd
W Liberty Hill Rd
Steward St
Bentwood Dr
Valita Rd
Tioga Rd
E Liberty Hill Rd
Chalet Ct
Concord Rd
Ormand Rd
Vanhook Dr
Davidson Ridge Rd
Woody Ln
Dr Nichols Rd
Arabian Ln
Timber Creek Dr
Pine Point Dr
Broadside Rd
Cozy Cove Dr
North Rd
Old McKinney Rd
Sherrer Rd
Little Branch Dr
Viesta Rd
Sibley Cir
Allison Creek Rd
Spratt Rd
Campbell Rd
Bonita Rd
Old Eury Rd
Citation St
Adkins Rd
Harper Rd
Wedgefield Dr
Hands Mill Hwy
Bowater Rd
Bay Rd
Nautilus Rd
Chambers Rd
Meadowdale Rd
Allison Creek Cir
Covenant Pl
N Shiloh Rd
Otis Crosby Rd
S Paraham Rd
Bow St
Mount Gallant Rd
Riverpines Rd
W Oak Rd
Linwood Dr
Old York Rd
Shiloh Rd
Harper Rd
Willy Ln
Challis Ct
Crystal Ln
Willow St
Pennington Rd
Paraham Rd
Saint James Ln
Pursley Dairy Rd
Hampton Ridge Rd
Silver Ln
Deer Run
Museum Rd
Green Bay Dr
Grayson Rd
S Shiloh Rd
Tirzah Rd
Ivywood Dr
Adnah Church Rd
Valleymere Rd
Goforth Rd
Osteen Rd
Niwens Rd
Adicks Ct
Windsong Ln


R/W
DRAINAGE DITCH CENTERLINE
MW-4
POSSIBLE CHROMIC ACID DISPOSAL TRENCHES
FORMER SLUDGE DRYING BEDS/LICON SYSTEMS
GRAVEL DRIVE
FRONT END OF BUILDING
TOWER #23
CURRENT PLATING BATH AREA
LARGE SEPTIC FIELD
DW-2
MAINTENANCE BUILDING
ELECTRICAL SUBSTATION
PROPANE TANKS
SC State Grid 1983
N/F PAUL R. STEADMAN TRUSTEE
DW-1
SUPERNATANT DISCHARGE AREA
FORMER PLATING AREA/CYLINDRICAL PLATING BATH/50-FOOT DISPOSAL WELL
LARGE PLATING AREA
SWARF BURN PIT
STEEL GRINDING MACHINE DISCHARGE AREA
DITCH CENTERLINE
GRINDING DISCHARGE AREA
APPROXIMATE FORMER LAGOON LOCATION
SLUDGE DISPOSAL TRENCH
TOWER #22
POLE BARN
GATE
0
100'
200'
GRAPHIC SCALE
LEGEND
FORMER WATER SUPPLY WELLS
FENCE
PROPERTY LINE
OVERHEAD POWER LINES
INVESTIGATION AREAS
SOURCE:
MAP TITLED "TOPOGRAPHIC AND AS- BUILT SURVEY OF PROPERTY OF SPX CORPORATION, EFP PRODUCTS SITE, BETHEL TOWNSHIP, YORK COUNTY, SC" DATED: AUGUST 12, 2004, SCALE: 1"=100' DRAWING 1/1 BY MATTHEW M. CRAWFORD, PLS.
TRC
Customer-Focused Solutions
5 Waterside Crossing
Windsor, CT 06095
(860) 298-9692
SPX CORPORATION
EFP PRODUCTS FACILITY
YORK, SOUTH CAROLINA
FIGURE 1-3
SITE PLAN
Date: 12/01/04
Project No. 23959-0060-000

DHEC Fig. 3

DHEC Fig 4



SOURCE:
BASE MAP FROM TOPOGRAPHIC AND AS-BUILT SURVEY OF PROPERTY OF SPX CORPORATION, EFP PRODUCTS SITE, BETHEL TOWNSHIP, YORK COUNTY, SOUTH CAROLINA BY M. CRAWFORD, PLS, AUGUST 12, 2004.

NOTE:
NOTED DEPTHS ARE APPROXIMATE.

LEGEND

- EXCEEDANCE AREA
- 2004 SOIL BORING LOCATION
- APPROXIMATE HISTORICAL SOIL BORING LOCATION
- 2008 SOIL BORING LOCATION

Cr Chromium
Hex Cr Hexavalent Chromium
Depth Sample Depth
Total(mg/kg)/Leachable(mg/L) Recoverable(mg/kg)/Leachable(mg/L)
(Feet)
Dup= Duplicate Sample
BDL= Below Detection Limits
(mg/kg)=milligrams per kilogram
(mg/L)= milligrams per Liter

0 20' 40'
GRAPHIC SCALE

J:\CAD\105041\000060\Addendum\
Figure 3-1.dwg Layout:Figure 3-1 February 09, 2009-11:54AM Raloma

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Windsor, CT 06095
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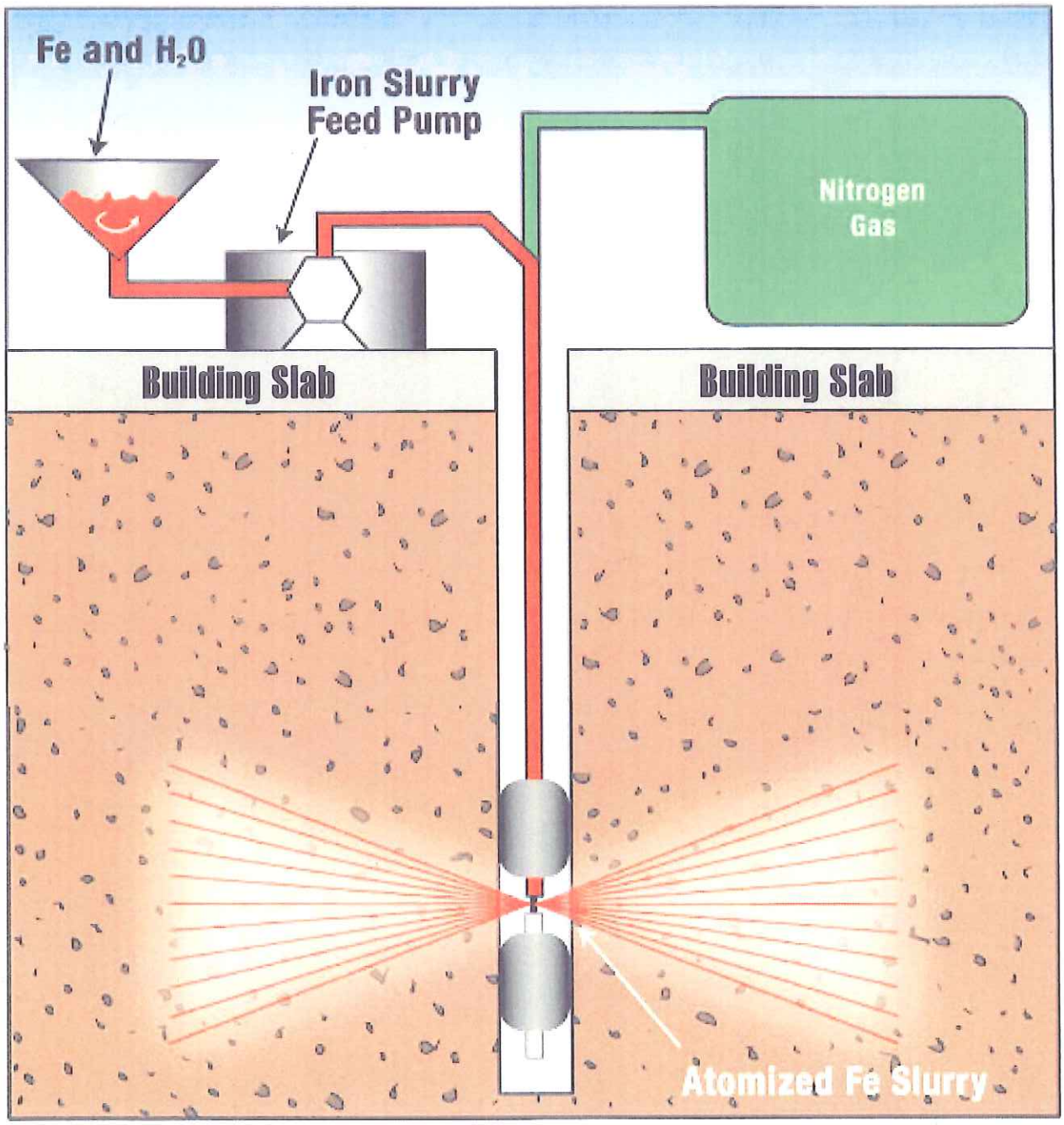
SPX CORPORATION
EFP PRODUCTS FACILITY
YORK, SOUTH CAROLINA

FIGURE 3-1
AREA OF UNSATURATED SOIL CHROMIUM CONCENTRATIONS EXCEEDING THE PRGs/SSLs

Date: 01/15/09 | Project No. 105041.0060.000002

DHEC Fig 5



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FORMER EFP PRODUCTS FACILITY
YORK, SOUTH CAROLINA

FIGURE 5-1
FEROX INJECTION SCHEMATIC

Date: 09/08 | Project No. 105041.0060.000002

pors/jwa/eszczyk/haz/105041 Former EFP/105041 Former EFP topo.fh10