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SOUTH CAROLINA DEPARTMENT OF HEALTH & ENVIRONMENTAL CONTROL

RECORD OF DECISION
SUMMARY OF REMEDIAL ALTERNATIVE SELECTION
Operable Unit 1 – Onsite Soil

Former Nytronics Components State Superfund Site
700 Orange Street, Darlington, South Carolina
SCD069314292

SCDHEC BUREAU OF LAND AND WASTE MANAGEMENT

September 2014

Part I - THE DECLARATION

1.0 Site Name and Location

The former Nytronics Components Site ("Nytronics" or the "Site") is located at 700 Orange Street in Darlington, South Carolina, and includes two parcels covering approximately 18 acres. The eight acre parcel north of Cotton Street has stayed undeveloped, while the 10-acre parcel south of Cotton Street has been used for manufacturing purposes since the late 1800s. Nytronics is located in a mixed commercial and residential area in the western part of Darlington. The southern parcel is bounded on the west side by a drainage ditch and a rail line owned by RailAmerica, Inc., to the east and south by residential and commercial properties, and to the north by wetlands and Swift Creek. The Site's EPA ID Number is SCD069314292, and it is currently listed on the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS).

2.0 Statement of Basis and Purpose

This Decision Document presents the Selected Remedy for the Nytronics Site, Operable Unit 1 – Onsite Soil (OU-1). The remedy was chosen in accordance with the Comprehensive Environmental Response Compensation and Liability Act (CERCLA), and to the extent practicable, the National Contingency Plan (NCP). The decision is based on the Administrative Record for Nytronics.

3.0 Assessment of the Site

The response action selected in this Record of Decision (ROD) is necessary to protect the public health and welfare or the environment from actual or threatened releases of hazardous substances into the environment.

4.0 Description of Selected Remedy

SCDHEC has selected a remedial alternative for soils contaminated with polychlorinated biphenyls (PCBs) and volatile organic compounds (VOCs). The selected remedial alternative uses multiple treatment methods. Soils containing PCBs above 50 milligrams per kilogram (mg/kg) will be excavated and hauled offsite for disposal and soils containing PCBs between 10 and 50 mg/kg will be consolidated and capped onsite. Additionally, soils containing VOCs greater than 5,000 micrograms per kilogram (μg/kg) will undergo ex situ treatment, backfilling, and capping while soils containing VOCs below 5,000 μg/kg will be treated with soil vapor extraction (SVE) technology. Institutional controls including deed restrictions, engineering controls, and site inspections will also be implemented.

5.0 Statutory Determination

The Selected Remedy attains the mandates of CERCLA Section 121 and to the extent practicable the NCP. The remedy is protective of human health and the environment, complies with applicable or relevant and appropriate requirements (ARARs), is cost effective, and utilizes permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. The remedy also satisfies the statutory preference for treatment as a principal element of the remedy, which permanently and significantly reduces the toxicity, mobility, and volume of hazardous substances, pollutants, or contaminants.

Because this remedy will result in hazardous substances, pollutants, or contaminants remaining onsite above levels that allow for unrestricted exposure, a statutory review will be conducted within five years after initiation of the remedial action to ensure the remedy is, or will be, protective of human health and the environment.

6.0 ROD Data Certification Checklist

The following information is included in the Decision Summary section of this Record of Decision. Additional information can be found in the Administrative Record for the Site.

- Chemicals of concern and their respective concentrations.
- Baseline risk represented by the chemicals of concern.
- Cleanup levels established for chemicals of concern and the basis for these levels.
- How source materials constituting principal threats are addressed.
- Current and reasonably anticipated future use assumptions.
- Potential land use that will be available at the Site as a result of the Selected Remedy.
- Estimated capital costs, annual operation and maintenance costs, discount rate, and the number of years over which the remedy cost estimates are projected.
- Key factors that led to the selecting of the remedy.

7.0 Authorizing Signature

This ROD documents the South Carolina Department of Health & Environmental Control's selected remedy for onsite soil at the former Nytronics Components State Superfund Site, Operable Unit 1.

Daphne G. Neel

Daphne G. Neel, Chief
Bureau of Land & Waste Management
South Carolina Department of Health & Environmental Control

Sept. 8, 2014
Date

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Part II - THE DECISION SUMMARY

A. Site Name, Location, and Description

The former Nytronics Components Site (the Site) is located at 700 Orange Street in Darlington, South Carolina, and includes two parcels covering approximately 18 acres (Figure 1). Nytronics is located in a mixed commercial and residential area in the western part of Darlington. The eight acre parcel north of Cotton Street has always been undeveloped, while the 10-acre parcel south of Cotton Street has been used for manufacturing purposes since the late 1800s. Throughout the years, buildings on the property have housed a textile mill and several electronic components manufacturers (Figure 2). Nytronics' EPA ID number is SCD069314292.

Further, to enable the project to move forward to the remedial action phases, contamination associated with soil, groundwater, and wetlands were divided into three Operable Units (OUs):

OU-1 – Onsite Soil, Onsite Sewer Systems, and Western Drainage Ditch
OU-2 – Onsite and Offsite Groundwater
OU-3 – Swift Creek and Associated Wetlands

B. Site Background

B.1 Site History

The Site was first developed in the 1880s as the Darlington Manufacturing Company, a textile mill, which operated at the Site until the 1950s when the Comer Machinery Company purchased the property. Comer sold textile machinery at the facility for a little over a year before leasing the property to Pyramid Electric Company in 1958. Pyramid, an electronic component manufacturer, produced paper and foil capacitors that used PCBs. General Instrument Corporation acquired the Pyramid Electric stock in 1961 and purchased the Darlington facility in 1963.

The Site was sold five years later in 1968 to Nytronics, Inc., which continued manufacturing resistors and other electronic components under several names, including Nytronics Components Group, Inc. (NCGI). In 1990, NCGI sold the electronic manufacturing assets to Magnecraft, but retained ownership of the real estate and building. Magnecraft & Struthers-Dunn, Inc. (MSD) began operations at the Site in 1990. Until 2005, MSD produced electronic components, including inductors and delay line assemblies for printed circuit boards.

The former main building on the southern parcel was a four-story brick structure with over 205,000 square feet of floor space. North of the former main building was a 9,200-square foot, one-story building that was formerly used as a metals etch shop during the manufacturing of electrical components. The central yard between the former main building and the former etch shop building was unpaved while the facility was in operation. East of the former etch shop was a half acre reservoir and water tower, which were formerly part of the fire suppression system for the main building. An electrical substation was located just north of the water tower. West of the main building was an unlined drainage ditch.

Solvents used to clean parts and machinery throughout the facility included VOCs such as trichloroethene (TCE), 1,1,1-trichloroethane (1,1,1-TCA), tetrachloroethene (PCE), methylene chloride, toluene, and acetone. Reportedly, the full 55-gallon steel drums used to store the solvents were placed in the former etch shop building and stacked outside the former etch building in the central yard area when empty. A 2,500-gallon aboveground storage tank (AST) was installed in the central yard area in 1969 to store TCE and, after 1984, 1,1,1-TCA.

A number of capacitor oils and waxes, including mineral wax, polyester resin, and PCB oil, were also historically used at the Site. PCBs, primarily Aroclor 1254, were used at the Site from 1958 to 1972. The PCB oil was stored in the former etch shop and moved to a first floor tank room in the eastern end of the former main building for capacitor production.

B.2 Investigation Activities

Numerous investigations have been performed to identify the nature and extent of contamination at the Site. Soil data collected in 1989 as part of a real estate transaction identified PCBs in several areas of the Site, including adjacent to the former etch shop, in the facility's central yard area, near transformers on the eastern side of the facility, and in the western drainage ditch. Additional soil investigations of the etch shop's outdoor sump, other areas around the etch shop, the central yard area, the indoor sump of the former manufacturing building, and the soil around the AST have confirmed the presence of PCBs and identified further contamination from VOCs (primarily TCE and 1,1,1-TCA) and total petroleum hydrocarbons (TPHs).

Nytronics Components Group, Inc. (NCGI) performed more comprehensive investigations in 1989 to confirm the initial sampling results, characterize the contamination on surfaces inside the building, define the extent of worker exposure to PCBs, and define the vertical and horizontal extent of PCBs in soils. In 1990, NCGI completed an additional investigation to determine the extent to which other contaminants of concern (COCs) should be included in a broader, site-wide Remedial Investigation (RI). The indoor sump, the outdoor sump adjacent to the former etch shop, the central yard area, and the soil around the ASTs were sampled for PCBs, VOCs, semi-volatile organic compounds (SVOCs), pesticides, oil and grease, and TPHs. The results of these investigations confirmed the presence of PCBs, VOCs -- primarily TCE and 1,1,1-TCA --, and TPH in soil samples.

In 1991, NCGI, General Instrument Corporation (a corporate predecessor to Vishay GSI), and SCDHEC entered into a Consent Agreement to conduct a Remedial Investigation (RI) at the Site. Table 1 of the March 1, 2013 Feasibility Study (FS) Report provides a summary of the investigations and RI phases completed between 1989 and 2010. Table 1 also includes a list of sample locations, sample media, and analyses conducted during each investigation phase.

The initial phase of the RI was completed in 1991 and 1992 and included the collection of soil, sediment, and surface water samples in several areas of concern (AOCs) identified during previous site investigation activities. Thirteen groundwater monitoring wells (MWs) were installed in the shallow and deep groundwater zones and sampled. The results of the RI confirmed the presence of PCBs, specifically Aroclor 1254, in several AOCs in OU-1, as well as VOCs in onsite soil. The highest VOC concentrations were detected in the central yard area and near the AST.

Comparatively low concentrations of TPH were detected in onsite soils, and pesticides were not detected in onsite soils. PCBs and VOCs were detected at varying concentrations in the western drainage ditch. Low concentrations of TPHs and pesticides were also detected. The November 1992 RI report included recommendations for additional soil sampling to complete the delineation of PCBs and VOCs in the central yard area, near the AST, west of the etch shop, and north of the facility, as well as further evaluation of groundwater.

Following receipt of SCDHEC's approval, additional investigations were conducted in August and September 1995, including soil and sediment sampling, investigation of the potential presence of dense non-aqueous phase liquid (DNAPL) in monitoring well MW-02, the installation of one additional shallow and two deep monitoring wells, sampling of all monitoring wells at the Site, sampling surface water from Swift Creek, and the completion of groundwater hydrogeological tests at selected shallow monitoring wells. The results of the 1995 investigations were submitted to the SCDHEC in April 1996 as an addendum to the RI. The addendum included recommendations to resample two of the groundwater monitoring wells, MW-07-35 and MW-07-72, due to apparently anomalous analytical results. The wells were re-sampled in 1998, and the results were submitted to SCDHEC in 1999. A third phase of RI activity, which included collecting additional groundwater and surface water samples, was completed in July 1999, and the results were submitted to SCDHEC in a letter report dated October 8, 1999.

On April 17, 2000, Vishay GSI, Inc. entered into a Voluntary Cleanup Contract with SCDHEC to conduct a baseline human health risk assessment, an ecological risk screening evaluation, and a FS. The *Baseline Human Health and Risk Assessment and Ecological Risk Screening Evaluation* report was submitted to the SCDHEC in November 2000. A draft FS was submitted in February 2002, but SCDHEC requested the submission of a work plan to perform additional site characterization. In September 2003, the collection of additional site characterization data was proposed for incorporation into a revised FS report. Fieldwork for the first phase of this additional site characterization was completed in September and October 2004, and a summary report was provided to SCDHEC in May 2005. Activities included low-flow groundwater sampling to establish groundwater conditions at the Site, which had not been assessed since 1999; collecting soil samples in the central yard, west of the former etch shop, and northern areas of the Site to further define the horizontal and vertical extent of VOCs and PCBs; and collecting sediment and surface water samples from Swift Creek.

A work plan describing the tasks to be completed during second phase of the additional site characterization was submitted to SCDHEC on March 21, 2006 and approved by SCDHEC in a letter dated April 13, 2006. Fieldwork for the second phase was completed in 2006, and a summary report was provided to SCDHEC in June 2007. Activities during phase two included sediment sampling of the former sanitary sewer; a membrane interface probe investigation in the vicinity of the backfilled reservoir; installing and sampling six additional monitoring wells; and collecting surface soil, groundwater, and tree core samples in the wetlands around Swift Creek.

After removing the Site structures during the 2008 Interim Remedial Measure (see Section B.3), a supplemental soil investigation was performed within and surrounding the footprints of the former main manufacturing building and etch shop in March 2010. The purpose of the soil investigation was to collect additional information that would aid in the development of remedial alternatives. A total of 28 test pits and one soil boring were installed during the supplemental soil investigation. Analytical data from the RI, FS, 2008 Interim Remedial Measure (IRM), and the 2010 Supplemental Investigation were used to create a database. The database includes over 700 unique sample locations and more than 30,000 unique sample results. Three-dimensional illustrations of the extent of detected PCB and VOC concentrations in soil were generated and used to estimate the volume of soil that will need to be removed or remediated.

B.3 Interim Response Actions

In 2008, an IRM was performed at the Site. Soil and sediment containing PCBs and TCE in the western drainage ditch were removed and disposed. This removal action also included:

- Demolition and removal of existing onsite structures
- Excavation and offsite disposal of the storm water sewer system, including approximately 1,385 linear feet of sewer piping and associated sumps and sediments
- Excavation of sediments in the western drainage ditch from the most up-gradient storm water sewer outfall to the mouth of the 24-inch diameter culvert that discharges into Swift Creek
- Excavation of underlying soil in the ditch
- Offsite disposal of excavated sediments and soils, including approximately 897 tons of non-Toxic Substance Control Act (TSCA) regulated material and approximately 1,189 tons of TSCA-regulated material
- Restoration of the excavated ditch channel with clean backfill and riprap
- Installation of erosion control measures
- Draining and breaching of the onsite reservoir

C. Community Participation

The Administrative Record (AR), including the Remedial Investigation and Feasibility Study reports and Proposed Plan, was made available to the public at the Darlington County Public Library located at 204 North Main Street in the City of Darlington. The AR includes documents that form the basis for the selection of the cleanup/response actions. A more detailed account of the cleanup alternatives is available in the *Feasibility Study Report, Operable Unit 1, Revision 2* dated March 1, 2013. The notice of availability of the AR was published in the November 17, 2013 edition of The Morning News (Florence). SCDHEC presented the proposed remedy at a public meeting on November 19, 2013 at St. John's Elementary School Auditorium. The public comment period for the Proposed Plan was held from November 19 to December 20, 2013. The Responsiveness Summary, including a transcript of the November 19, 2013 public meeting and letters from the public, is included as Appendix A.

A public meeting to discuss the details of a removal action at the Site was held on May 1, 2008. As outlined in SCDHEC's Action Memorandum dated March 29, 2008, removal activities included demolition and removal of existing onsite structures; excavation of sediments in the western drainage; and draining of the onsite reservoir.

D. Scope and Role of Response Action

This action will be the final cleanup action for the soils of the Site. The remedial action objectives will prevent exposure to contaminated media through the treatment of soil at the Site. Cleanup of the groundwater and wetlands are to be addressed separately.

E. Site Characteristics

E.1 Topography

Before 2008, the area surrounding the former main building was relatively flat with a gentle slope to the north and west. Northwest of the former etch shop the slope became progressively steeper toward Swift Creek and toward the western drainage ditch. At the southern end of the drainage ditch, the slopes of the embankments were mostly gentle. In the northern part of the ditch, the western embankment between the ditch and the railroad became progressively steeper. Refer to Figure 2 to see the Site layout.

Surface water runoff from the Site was collected in a series of storm drains. The surface water discharged to the drainage ditch that runs parallel to the western property boundary along the railroad right-of-way. Storm water runoff would also reach the western drainage ditch as overland flow or through another ditch along Reservoir Street. The upper section of the western drainage ditch (near the main manufacturing building) was about 3 feet wide and 2 feet deep. The lower portion was a poorly-defined sandy channel that entered a 24-inch diameter culvert that discharged to Swift Creek. Runoff from other commercial sites along State Route 401 would also enter the western drainage ditch upstream of the Site. Flow in the western drainage ditch is intermittent, flowing only during storm events.

The topography and storm water drainage of the Site changed after the 2008 IRM was completed. The IRM included the removal of the Site storm water sewer system and the removal of all onsite structures. A depression is now located where the former basement of the western annex to the main building was located. Removal of the onsite structures significantly increased the surface area for storm water infiltration, as grass was planted in these areas.

After its excavation in 2008, the drainage ditch was backfilled with clean sand to the pre-excavation grade, minus 1 foot. In areas where the excavation was only 1-foot deep, no soil backfill is present. The ditch was graded to create a 3-foot wide channel bottom and a retention basin in front of the 24-inch culvert at the north end of the ditch. The eastern sidewall of the drainage ditch was restored such that it had a uniform slope. The western channel sidewall was smoothly graded from the channel bottom to the existing grade of the railroad.

E.2 Geology

The three major geologic units at the Site are illustrated in Figure 3:

(1) A generally sandy unit extending from the ground surface (160 to 140 above mean sea level) to a maximum of 45 feet below ground surface (bgs),

(2) A predominately sand and clayey unit extending to about 75 feet bgs, and
(3) A coarse-grained sand below 75 feet bgs.

The sandy unit ranges in thickness onsite from approximately 12 feet near MW-06-69 to 41 feet near MW-10-41. A prominent area of non-native material is located at the former reservoir in the northwest parking area. The reservoir was backfilled with sandy material that contains a variety of debris. The former structure appears to have been lined with a fine grained-material consistent with silty clay and, in some portions, by concrete or stone.

Underlying the upper sandy unit is a 2-to-5-foot-thick interval of clay located between approximately 120 and 114 feet above mean sea level (amsl). This clay layer defines a boundary between the generally sandy upper unit and the predominately clayey lower unit. This clay layer is typically yellowish-red to brown or gray. Thicknesses for this clay layer are relatively uniform (about 5 feet) for most of the Site, though it appears to thin in some areas. At deeper intervals, the geology transitions into a complex series of alternating clay and sand that varies in thickness and extent over the Site. Soils encountered beneath the Site in this unit closely match descriptions of the Black Creek Formation, as found in several published sources.

The lowermost unit encountered beneath the Site is a grey, coarse-grained sand unit. The unit was encountered in MW-08-75 and MW-11-88, with at least 10 feet encountered in each boring. The extent of this unit is unknown due to the limited number of borings that have penetrated to this depth.

E.3 Hydrogeology

Three distinct water-bearing zones have been identified below the Nytronics site: A localized groundwater zone within the confines of the former reservoir, a shallow water-bearing zone formed in the predominately sandy intervals above the clay layer, and a deep water-bearing zone formed primarily in the thicker sequences of silty or clayey sand. The localized groundwater zone may be leaking groundwater to the underlying shallow water-bearing zone. Groundwater flow within the shallow water-bearing zone is to the northwest, toward the wetlands and Swift Creek (Figure 4). Flow direction within the deep water-bearing zone is to the northeast towards the Pee Dee River Valley.

F. Areas of Concern

F.1 Western Ditch and Sloped Area

During the 2008 IRM, soil and sediment in the western drainage ditch containing PCBs and TCE above the Remedial Goals (RGs) were removed. RGs specific to the Site were developed using the Soil Screening Guidance provided by the United States Environmental Protection Agency (USEPA). The removal extended 10 feet to the west and east of the ditch centerline. Because of the closeness of the active rail line, complete excavation of all PCB contamination above RGs proved technically infeasible. Soil and sediment containing PCBs above the RG of 10 mg/kg remain along irregular stretches of the western sidewall and excavation bottom. Almost all of the eastern sidewall verification samples contained PCBs above the RG of 10 mg/kg.

Approximately 3,400 cubic yards of soil and sediment with PCB concentrations above 10 mg/kg remain along the western ditch and sloped area of the Site. Of this volume, approximately 880 cubic yards contain PCBs above 50 mg/kg. Also, about 1,490 cubic yards of soil and sediment with TCE concentrations above 5,000 µg/kg remain. Of this volume, about 880 cubic yards contain TCE concentrations above 10,000 µg/kg. Most of the PCB-affected soil is shallow (approximately 0 to two feet), with concentrations above the RG of 10 mg/kg extending beyond two feet only in the vicinity of one sample location. Similarly, TCE concentrations above 5,000 µg/kg are mostly within the upper two feet of soil. In two sampling locations, TCE concentrations above 5,000 µg/kg were detected at maximum depths of 6.5 feet and 10 feet.

Samples collected from the ditch sediments prior to starting the IRM in 2008 detected several metals above the applicable RGs including: antimony, arsenic, total chromium, and selenium. With few exceptions, the distribution of metals at concentrations above the RGs coincides with the distribution of PCBs above the RG of 10 mg/kg.

F.2 West of the Former Etch Shop Area

The area west of the former etch shop location is primarily impacted with VOCs and represents an area where concentrations of TCE may extend outside of the commingled PCB/TCE mass. The potential VOC source area appears to be confined to shallow depths less than five feet bgs.

Approximately 270 cubic yards of soil with TCE concentrations greater than 5,000 µg/kg are present in this area. Of this volume, approximately 120 cubic yards contain TCE concentrations above 10,000 µg/kg.

F.3 Southwest of the Former Etch Shop Area

Soil containing PCBs and TCE remains in the area southwest of the former etch shop. Approximately 1,920 cubic yards of soil with PCB concentrations above 10 mg/kg remain in this area. Of this volume, approximately 800 cubic yards contain PCBs above 50 mg/kg. Approximately 150 cubic yards of soil contain TCE concentrations in excess of 5,000 µg/kg, and of this volume, approximately 60 cubic yards contain TCE concentrations above 10,000 µg/kg.

The PCBs and TCE detected in this area are generally mixed throughout the impacted soil volume. PCB and TCE affected soil is generally confined to shallow soils less than two feet bgs, with the exception of the area surrounding the former location of the outdoor sump. The sump served as a migration pathway for contaminants and led to soil contamination at depth. In this area, a PCB concentration of 4,400 mg/kg was detected at a depth of 8.5 feet bgs.

F.4 Former Central Courtyard Area

Soil containing PCBs and TCE remain in the former central courtyard area. Approximately 3,140 cubic yards of soil with PCB concentrations above 10 mg/kg remain in the area. Of this volume, approximately 870 cubic yards contain PCBs above 50 mg/kg. Approximately 2,040 cubic yards of soil contain TCE concentrations in excess of 5,000 µg/kg, and of this volume, approximately 1,070 cubic yards contain TCE concentrations above 10,000 µg/kg.

Similar to the area southwest of the former etch shop, PCBs and TCE detected in this area are generally commingled throughout the impacted soil volume. The majority of the impacted soil volume is shallow in nature (at depths less than 5 feet bgs), with some exceptions.

F.5 Former Indoor Sump Area

The indoor sump was located in the former main manufacturing building. PCBs and TCE detected in this area are generally commingled throughout the impacted soil volume. TCE impacts extend from shallow soil to the assumed base of the sump. In contrast, the soil samples adjacent to the former indoor sump contained TCE concentrations above 5,000 µg/kg in the shallow soil and at depth, with minimal impacts throughout the middle portion of the soil column (i.e., a maximum concentration of 168 µg/kg between 1 and 14.5-feet bgs). The release from the indoor sump likely occurred at depth and didn't affect the soil column above the release point, except in the area immediately adjacent to the sump.

Approximately 340 cubic yards of soil with PCB concentrations above 10 mg/kg remain in the area. Of this volume, approximately 60 cubic yards contain PCBs above 50 mg/kg. About 530 cubic yards of soil contain TCE concentrations in excess of 5,000 µg/kg, and of this volume, approximately 310 cubic yards contain TCE concentrations above 10,000 µg/kg.

G. Current and Potential Future Land and Resource Use

The Nytronics property is currently a vacant lot surrounded by perimeter fencing, which limits access to affected surface soils. The onsite portion of OU-1 is zoned Basic Industrial under the City of Darlington's zoning regulations. The area of impacted soil along the western drainage ditch is within industrial property owned by RailAmerica. Deed restrictions are already in place prohibiting residential development of the contaminated parcel. Restrictions will be added to the deed limiting the extent of any allowable excavation or other intrusive site work. Negotiations with the railroad company would be conducted in order to place deed restrictions on the offsite portions of OU-1 (prohibiting future residential development, and as necessary, restrictions on the allowable extent of excavation or other intrusive earthwork). Future proposed restrictions include surrounding the entire perimeter of the western drainage ditch and embankments with fencing where affected soils are left in place. Signs would be posted on all perimeter fencing to warn of the dangers associated with trespassing. Because of the presence of PCBs, all signage would be in compliance with the marking and posting requirements provided in the TSCA regulations.

H. Summary of Site Risks

COCs are chemicals that significantly contribute to potentially harmful effects to human health and ecological systems. Risks are calculated by summing the hazards to a receptor, when considering all pathways, media, and routes of exposure. Chemicals are considered significant contributors to risk, and therefore are considered contaminants of concern, if their individual calculated carcinogenic risk is greater than 10^{-6} or their non-carcinogenic risk (i.e., hazard quotient) is greater than 0.1. The chemicals considered contributors to risk are shown in Table 1.

Additionally, if the level of a chemical in a given medium exceeds a state or federal Applicable or Relevant and Appropriate Requirement (ARAR), that chemical is considered a COC. ARARs are used to determine the appropriate extent of site cleanup, to design remedial action alternatives, and to govern the execution and operation of the selected action. Applicable requirements are those legally enforceable cleanup standards and other requirements that address a specific hazardous substance, pollutant, contaminant, remedial action, or other circumstance found at a site. Relevant and appropriate requirements are federal or state standards, criteria, or limitations that, while not legally applicable, address problems similar to those found at a site. To-Be-Considered (TBC) criteria refers to federal and state guidance documents or standards that are not legally enforceable and do not have the same status of potential ARARs, but should be considered during the development of the RGs and remedial action alternatives. Comparison of the Site data to ARARs and TBCs published by the state of South Carolina and the USEPA indicate long-term exposure to chemicals found at Nytronics can result in harmful effects to human health and to ecological systems.

A RG of 10 mg/kg for PCBs was proposed for the 2008 IRM for areas of OU-1 without the potential to erode. The 2008 IRM effectively eliminated the potential for erosion of contaminated sediments to Swift Creek by removing impacted surficial sediments in the ditch channel, capping and stabilizing the ditch channel with clean fill and stone, and installing a sediment retention basin at the mouth of the culvert that discharges to Swift Creek.

RGs for other COCs found at the Site were calculated using the USEPA Soil Screening Guidance. The Soil Screening Guidance is the USEPA's framework for developing risk-based, soil screening levels for protection of human health and the environment. These Site-specific soil screening levels are developed to streamline the evaluation and cleanup of Site soils. A site-specific dilution attenuation factor (DAF) of 4.7 was calculated following the USEPA guidance and using available site-specific information such as lithology, hydraulic conductivity, and hydraulic gradient. The generic USEPA soil screening levels (SSLs) were then multiplied by the calculated DAF of 4.7 to determine the site-specific RGs. The proposed RG for TCE, the most prominent VOC detected in soil at the Site, is 14 μg/kg. Table 1 below presents the calculated RGs for each individual COC. Comparison of the data to the Site-specific soil screening levels indicates long-term exposure to PCBs and VOCs at the Site can result in harmful effects to human health and to ecological systems.

I. Ecological Chemicals of Concern

Ecological COCs will be identified and calculated during the assessment of OU-3, the Swift Creek and Associated Wetlands evaluation.

J. Remedial Action Objectives and Goals

J.1 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:

- Prevent ingestion, direct contact, and inhalation of soil containing PCBs and VOCs in excess of RGs
- Eliminate the potential for further degradation of onsite and offsite groundwater quality
- Prevent future migration of PCBs and VOCs to the wetlands and Swift Creek

J.2 Remedial Goals

RGs specific to the Site were developed using the USEPA Soil Screening Guidance. Table 1 below lists all the RGs for individual chemicals, including PCBs, VOCs, SVOCs, and metals. The primary constituents of concern are PCBs and VOCs, particularly TCE. The RG of 10 mg/kg for PCBs satisfies the RAOs and is consistent with established precedent within USEPA and SCDHEC. The RG for TCE, the most prominent VOC detected in soil, is 14 µg/kg. This site-specific RG was developed following USEPA guidance and using available site-specific information including Site geology and groundwater flow.

Table 1 - Remedial Goals

OU1 Remedial Goals
Former Nytronics Components Group, Inc., Site
Darlington, South Carolina (a)

Compound	Remedial Goal (RG)
Volatile Organic Compounds (µg/kg) (b)	
Acetone	3,760
Acrylonitrile	490 (c)
2-Butanone (MEK)	110,000,000 (c)
Carbon tetrachloride	14
Chloroform	141
1,1-Dichloroethane	4,700
1,2-Dichloroethane	4.7
1,1-Dichloroethene	14
cis-1,2-Dichloroethene	94
trans-1,2-Dichloroethene	141
1,2-Dichloroethene (total)	NE
Ethylbenzene	3,290
2-Hexanone	NE
4-Methyl-2-pentanone (MIBK)	47,000,000 (c)
Methylene chloride	4.7
Tetrachloroethene	14
Toluene	2,820
1,1,1-Trichloroethane	470
1,1,2-Trichloroethane	4.2
Trichloroethene	14
1,2,4-Trimethylbenzene	170,000 (c)
Vinyl chloride	3.3
Xylenes, Total	47,000
Semi-Volatile Organic Compounds (µg/kg) (b)	
Acenaphthene	136,300
Acenaphthylene	NE
Benzo(b)fluoranthene	940
Benzo(g,h,i)perylene	NE
Benzo(k)fluoranthene	9,400
Butylbenzylphthalate	3,807,000
Carbazole	141
Chrysene	37,600
Dibenz(a,h)anthracene	210 (c)
Dibenzofuran	1,600,000 (c)
Fluoranthene	987,000
Fluorene	131,600
Indeno(1,2,3-cd)pyrene	2,100 (c)
2-Methylnaphthalene	NE
Naphthalene	18,800
Phenanthrene	NE
Pyrene	987,000

Compound	Remedial Goal (RG)
Polychlorinated Biphenyls (mg/kg)	
Aroclor 1254	NE
Aroclor 1260	NE
Total PCBs	10 (d)
Pesticides (ug/kg)	
gamma-Chlordane	2,350
Methoxychlor	37,600
Inorganics (mg/kg)	
Aluminum	100,000 (c)
Antimony	1.4
Arsenic	1.6 (c)
Barium	385
Beryllium	14
Cadmium	1.9
Calcium	NE
Chromate	NE
Chromium (hexavalent)	9.4
Chromium (total)	9.4
Cobalt	1,900 (c)
Copper	41,000 (c)
Iron	100,000 (c)
Lead	800 (c)
Magnesium	NE
Manganese	19,000 (c)
Mercury	310 (c)
Nickel	NE
Potassium	NE
Selenium	1.4
Silver	9.4
Sodium	NE
Thallium	NE
Vanadium	1,000 (c)
Zinc	2,914

a/ Only compounds detected above method reporting limits in samples collected from OU1 are included on this table; NE = not established; μg/kg = micrograms per kilogram; mg/kg = milligrams per kilogram.
b/ The RGs are based on the 2004 Site-Specific EPA Region IX Soil Screening Levels (SSLs) using a Dilution Attenuation Factor = 4.7 unless otherwise noted.
c/ The RG for this compound is based on the 2004 Generic EPA Region IX Preliminary Remedial Goals (PRGs) because either SSLs were not established or the PRGs were lower than the SSLs.
d/ The RG for PCBs is based on the SCDHEC-approved criterion of 10 mg/kg for onsite soil listed in the IRM Completion Report (WSP 2009a).

K. Description of Remedial Alternatives

The FS process used the information 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. Soils were considered in the FS analysis. Table 2 below briefly describes the alternatives that were carried through the identification and screening process to the final detailed analysis of alternatives. SCDHEC's current judgment is the Preferred Alternative identified in the Proposed Plan, or one of the other active measures considered in the Proposed Plan, is necessary to protect public health and the environment from continued releases of hazardous substances into the environment. All alternatives, except the No Action Alternative, include institutional controls such as deed restrictions, etc.

Table 2 - Summary of Soil Remedial Alternatives

	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Alternative 6
No Remedial Action	1					
Institutional and Engineering Controls		2	3	4	5	6
Excavation and Off Site Disposal of Soils Containing PCBs above 50 mg/kg			3	4		
Excavation and Off Site Disposal of Soils with PCBs above 10 mg/kg					5	6
Excavation and Off Site Disposal of Soils Containing VOCs above 5000 µg/kg				4	5	6
Consolidation and On Site Capping of Soils Containing PCBs between 10 -50 mg/kg			3	4		
Ex Situ Treatment, Backfill, and On Site Capping of Soils Containing VOCs Greater Than 5000 µg/kg			3			
Soil Vapor Extraction of Soils Containing VOCs Less Than 5000 µg/kg			3	4	5	6
Structural Support of the Railroad during Excavation						6

K.1 Alternative 1: No Remedial Action

The No Remedial Action alternative includes periodic inspection of onsite areas and the western drainage ditch for accelerated signs of erosion. A formal inspection plan would be prepared and submitted to DHEC for approval. Monitoring would be performed on an annual basis. Remedial Action Alternative 1 will be used as a baseline of comparison for the other alternatives. The estimated cost of this alternative is $527,000.

K.2 Alternative 2: Institutional and Engineering Controls

Alternative 2 includes institutional controls (deed restrictions), engineering controls (fencing), and inspection. Deed restrictions are already in place for the onsite portions of OU-1, prohibiting residential development of the parcel. Restrictions will be added to the deed limiting the extent of any allowable excavation or other intrusive site work. Negotiations with RailAmerica, Inc. would be conducted in order to have deed restrictions placed on the offsite portions of OU-1 prohibiting future residential development, and as necessary, restrictions on the allowable extent of excavation or other intrusive earthwork.

Alternative 2 also includes fencing surrounding the entire perimeter of the western drainage ditch and embankments where affected soils are left in place. Perimeter fencing is already installed around the onsite areas of OU-1, limiting access to affected surface soils. Signs would be posted on all perimeter fencing to warn of the dangers associated with trespassing. Because of the presence of PCBs, all signage would be in compliance with the marking and posting requirements provided in the TSCA regulations at 40 CFR Part 761. The estimated cost of this alternative is $651,000.

K.3 Alternative 3: Excavation and Offsite Disposal of Soils Containing PCBs above 50 mg/kg; Consolidation and Capping of Soils Containing PCBs between 10 and 50 mg/kg; Ex Situ Treatment, Backfill, and Capping of Soils Containing VOCs greater than 5,000 μg/kg; Soil Vapor Extraction (SVE) of Soils Containing VOCs below 5,000 μg/kg; Institutional Controls

Approximately 2,700 cubic yards of soil from the western drainage ditch and all onsite areas with PCB concentrations in excess of 50 mg/kg would be excavated, transported, and disposed of offsite as a TSCA-regulated waste.

Further, Alternative 3 involves consolidation and capping of soil onsite with PCB concentrations between 10 mg/kg and 50 mg/kg. Alternative 3 also includes the excavation, ex situ treatment, backfill, consolidation, and capping of soils with concentrations of VOCs above 5,000 μg/kg that are not commingled with soil containing PCBs above 50 mg/kg. The ex situ treatment involves the destruction or removal of contaminants through exposure to high temperature in treatment cells, combustion chambers, or other means used to contain the affected media during the treatment process. Approximately 2,300 cubic yards of soil with VOC concentrations above 5,000 μg/kg would be treated and consolidated in a central area.

An additional 2,000 cubic yards of soil from the western ditch and sloped areas with PCB concentrations between 10 mg/kg and 50 mg/kg and TCE concentrations less than 5,000 μg/kg would be excavated, consolidated onsite, and capped without ex situ treatment. An SVE system would be installed to address the remaining residual VOC mass left in place. SVE is also known as "soil venting" or "vacuum extraction" and is a technology that reduces concentrations of VOCs adsorbed to soils. In this technology, a vacuum is applied through wells near the source of contamination in the soil. VOCs evaporate and the vapors are drawn toward the extraction wells. Extracted vapor is then treated as necessary. Alternative 3 also includes the institutional controls as described in Alternative 2. The estimated cost of this alternative is $7,974,000.

K.4 Alternative 4: Excavation and Offsite Disposal of Soils Containing PCBs above 50 mg/kg and VOCs above 5,000 µg/kg; Consolidation and Capping of Soils Containing PCBs between 10 and 50 mg/kg; SVE of Soils Containing VOCs below 5,000 µg/kg; Institutional Controls

Alternative 4 includes the excavation, transportation, and offsite disposal of soil with PCB concentrations in excess of 50 mg/kg. Alternative 4 also includes the excavation, transport, and offsite disposal of soils containing concentrations of VOCs above 5,000 µg/kg. Under Alternative 4, approximately 2,700 cubic yards of soil with PCBs greater than 50 mg/kg would be excavated and disposed offsite as a TSCA-regulated waste. An additional 1,200 cubic yards would likely be disposed of as a RCRA-regulated waste. Approximately 1,100 cubic yards of soil with VOC concentrations between 5,000 µg/kg and 10,000 µg/kg would be excavated and disposed of as non-hazardous waste.

Moreover, Alternative 4 includes the consolidation and capping of soil with PCB concentrations between 10 mg/kg and 50 mg/kg. Approximately 2,000 cubic yards of soil with PCB concentrations between 10 mg/kg and 50 mg/kg and VOCs less than 5,000 µg/kg would be excavated and consolidated in an onsite area. The consolidated area would be capped similar to Alternative 3. An SVE system would be installed to address the remaining residual VOC mass left in place. Alternative 4 includes institutional controls as described in Alternative 2. The estimated cost of this alternative is $ 8,245,000.

K.5 Alternative 5: Excavation and Offsite Disposal of Soils Containing PCBs above 10 mg/kg and VOCs above 5,000 µg/kg; SVE of Soils Containing VOCs below 5,000 µg/kg; Institutional Controls

Alternative 5 is the same as Alternative 4, with the exception that all soils containing PCBs above the RG of 10 mg/kg would be excavated and disposed of offsite. Under Alternative 5, approximately 2,700 cubic yards of soil with PCBs greater than 50 mg/kg would be excavated and disposed offsite as a TSCA-regulated waste and an additional 1,200 cubic yards would likely be disposed of as a RCRA-regulated waste. Approximately 1,100 cubic yards of soil with VOC concentrations between 5,000 µg/kg and 10,000 µg/kg would be excavated and disposed of as non-hazardous waste. Approximately 5,100 cubic yards of commingled soil with PCB concentrations between 10 mg/kg and 50 mg/kg and VOCs less than 5,000 µg/kg would be excavated and disposed of as non-hazardous waste.

The remedial components of the SVE system for Alternative 5 are the same as those proposed for Alternatives 3 and 4. Alternative 5 also includes the institutional controls as described in Alternative 2. The estimated cost of this alternative is $9,100,000.

K.6 Alternative 6: Offsite Disposal of Soils Containing PCBs above 10 mg/kg and VOCs above 5,000 µg/kg; SVE of Soils Containing VOCs below 5,000 µg/kg; Excavation with Structural Support of the Railroad; Institutional Controls

Alternative 6 is the same as Alternative 5, with the exception that structural support along the railroad would be installed during excavation. Installation of the shoring system would increase the likelihood that all PCB affected soil mass above the RG could be removed safely without undermining the integrity of the active rail bed.

RailAmerica, Inc.'s engineering group requires shoring along active rail lines. RailAmerica, Inc. indicated that shoring must be installed a minimum of 10 feet from the centerline of an active track. Approximately 115 linear feet of shoring along the railroad embankment would be required. The type of shoring installed would be determined during the remedial design and would include the requirements dictated by RailAmerica, Inc. Collection of geotechnical samples along the western drainage ditch would likely be required by RailAmerica, Inc. prior to approval of the shoring design.

The depth of the shoring required would be based on the anticipated depth of soil with PCBs above the RG. Shoring would need to be installed to an approximate depth of 50 feet in order to remove the affected soil to the greatest extent practicable. An additional 600 cubic yards of soil containing PCBs above the RG could be removed compared to an open, sloped excavation. The remedial components of the SVE system for Alternative 6 are the same as those proposed for Alternatives 3, 4, and 5. The estimated cost of this alternative is $9,887,000.

L. Comparative Analysis of Alternatives

The Department uses the following criteria found in the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) to evaluate and compare the different remedial alternatives and to select a remedy:

1. Overall protection of human health and the environment
2. Compliance with ARARs
3. Long-term effectiveness and permanence
4. Reduction of toxicity, mobility, or volume through treatment
5. Short-term effectiveness
6. Implementability
7. Cost
8. Community acceptance

L.1 Description of Evaluation Criteria

L.1.1 Overall Protection of Human Health and the Environment

Overall protection of human health and the environment addresses whether each alternative provides adequate protection of human health and the environment and describes how risks posed through each exposure pathway are eliminated, reduced, or controlled through treatment, engineering controls and institutional controls.

L.1.2 Compliance with ARARs

Section 121(d) of CERCLA and NCP 300.430(f)(l)(ii)(B) require that remedial actions at CERCLA sites at least attain applicable or relevant and appropriate Federal and State requirements, standards, criteria, and limitations which are collectively referred to as ARARs, unless such ARARs are waived under CERCLA Section 121(d)(4).

Applicable requirements are those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under Federal or State environmental or facility siting laws that specifically address a hazardous substance, pollutant, contaminant, remedial action, location, or circumstance found at a CERCLA site. Relevant and appropriate requirements are those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under Federal environmental or State environmental or facility siting laws that are not applicable to a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance at a CERCLA site, but which address problems or situations sufficiently similar to those encountered at the CERCLA site such that their use is well suited to the particular site.

Compliance with ARARs addresses whether a remedy will meet all the applicable or relevant and appropriate requirements of Federal and State environmental statutes or provides a basis for invoking a waver.

L.1.3 Long-Term Effectiveness and Permanence

Long-term effectiveness and permanence refers to expected residual risk and the ability of a remedy to maintain reliable protection of human health and the environment over time, once cleanup objectives have been met. This criterion includes the consideration of residual risk that will remain onsite following remediation and the adequacy and reliability of controls.

L.1.4 Reduction of Contaminant Toxicity, Mobility, or Volume through Treatment

Reduction of contaminant toxicity, mobility, or volume through treatment refers to the anticipated performance of the treatment technologies that may be included as part of a remedy.

L.1.5 Short-Term Effectiveness

Short-term effectiveness addresses the period of time needed to implement the remedy and any adverse impacts that may be posed to workers, the community, and the environment during construction and operation of the remedy until cleanup levels are met.

L.1.6 Implementability

Implementablity addresses the technical and administrative feasibility of a remedy from design through construction and operation. Factors such as availability of services and materials, administrative feasibility, and coordination with other government entities are also considered.

L.1.7 Cost

The cost analysis evaluates capital and annual operation and maintenance costs. The estimated net present worth cost of an alternative is the sum of initial capital costs and the discounted value of operation and maintenance costs over the lifespan of the remedy.

L.1.8 Community Acceptance

Community acceptance is evaluated based on comments received at the Proposed Plan public meeting as well as any comments submitted during the 30-day public comment period.

L.2 Comparative Analysis of Soil Alternatives

A comparative analysis of each soil alternative was performed. Alternative 1 (No Action) was used as the baseline for comparison to the criteria outlined above.

L.2.1 Overall Protection of Human Health and the Environment

None of the alternatives reduce all of the potential health risks for unrestricted or residential reuse. Some form of institutional controls limiting the zoning of the property (onsite and offsite) to industrial reuse would be required.

The potential risk to human health via direct contact from exposure to COCs is greatest for Alternatives 1 and 2 and is significantly reduced under Alternatives 3 through 6. The short-term risk to human health via direct contact is comparable among Alternatives 3 through 6 because similar volumes of soil will be handled. Long-term protection of human health is comparable among Alternatives 3 through 6.

Alternatives 1 and 2 would provide no reduction in groundwater impacts to shallow water via leaching of VOCs from the overlying soil. Alternatives 3 through 6 would significantly reduce the potential for leaching of VOCs due to the treatment (Alternative 3) or removal (Alternatives 4, 5, and 6) of a large volume of the VOC soil mass and the installation of an SVE system to address residual VOCs.

As a result of the 2008 IRM, all of the alternatives provide some level of protection to ecological receptors in Swift Creek and its associated wetlands. The restoration of the western ditch in 2008 eliminated the exposure pathway for PCBs to migrate to Swift Creek via erosion of contaminated sediments in the ditch. Under Alternative 1, this pathway is eliminated for current site conditions and land use; however, without maintenance or controls on the property use, the pathway could again exist in the future. Alternative 2 provides additional protection compared to Alternative 1 by including maintenance of the current engineering controls in the ditch and restricting property usage via deed restrictions.

Under both Alternatives 1 and 2, the risk remains for surface soils at upland locations to potentially serve as a source of PCBs and VOCs to ecological receptors in Swift Creek. Alternatives 3 through

6 provide equal levels of protection by removing the affected soils from locations of potential erosion.

L.2.2 Compliance with ARARs

ARARs are used to determine the appropriate extent of site cleanup, to scope and formulate the remedial action alternatives, and to govern the implementation and operation of the selected remedy. Applicable requirements are those legally enforceable standards that specifically address a hazardous substance, pollutant, contaminant, remedial action, or other circumstance found at a site. Relevant and appropriate requirements are federal or state standards, criteria, or limitations that, while not legally applicable to a site, address problems sufficiently similar to those found so that their use is well-suited to a particular site.

The developed alternatives focus primarily on the removal and treatment of PCB-affected and VOC-affected soils. Under Alternatives 3 through 6, the chemical-specific ARARs would be met for PCBs and VOCs. Removal or treatment of both PCBs and VOCs to their RGs would only be achieved under Alternatives 5 and 6. Under Alternatives 1 and 2, the chemical-specific ARARs and RGs would not be met because PCBs would remain in place above the TSCA self-implementing cleanup standards for low occupancy sites (40 CFR 761) and VOCs would remain in soil above the proposed RGs.

L.2.3 Long-Term Effectiveness and Permanence

Alternatives 1 and 2 do not meet the RAOs for PCBs. Alternatives 3 and 4 would offer long-term effectiveness and permanence at addressing PCBs; however, it would require increased annual maintenance (to ensure cap integrity) compared to Alternatives 5 and 6. Alternatives 5 and 6 completely remove PCB-affected soil from the Site at concentrations above the RG. Any long-term care will be transferred to the permitted disposal facility.

Alternatives 1 and 2 are inadequate for meeting RAOs specific to VOCs. The Ex Situ treatment of VOC-impacted soils as part of Alternative 3 and the offsite disposal of these soils for Alternatives 4, 5, and 6 would significantly reduce the potential for further groundwater impacts to shallow water. The SVE system would provide a permanent remedy to address residual concentrations of VOCs after a sufficient period of operation, which was assumed to be 10 years for Alternatives 3 through 6.

The primary difference between Alternatives 5 and 6 is the installation of a structural support system along the railroad embankment. Installation of the shoring system would increase the likelihood that all PCB-affected soil mass above the RG could be removed safely without undermining the integrity of the active rail bed. Alternative 5 has the greater likelihood of leaving residual PCB affected soil above the RG in the area of the western drainage ditch.

L.2.4 Reduction of Toxicity, Mobility, or Volume through Treatment

Alternatives 1 and 2 will not reduce the toxicity, mobility, or volume of PCB- and VOC-affected soil. Alternative 3 will reduce the volume of PCB- and VOC-affected soil by approximately 2,700 cubic yards through excavation and offsite disposal of soil with PCBs above 50 mg/kg. Consolidation and capping of soil with PCB concentrations between 10 mg/kg and 50 mg/kg will minimize infiltration of rainfall, thereby eliminating any mechanism for transport of contaminants to groundwater. The cap would reduce the mobility of VOCs by minimizing infiltration and a reduction in toxicity and volume would be realized through Ex Situ treatment and operation of the SVE system.

Alternatives 3 through 6 offer an equal reduction in VOC volume through ex situ treatment and capping (Alternative 3), offsite disposal and capping (Alternative 4), or complete excavation and offsite disposal of source area VOCs (Alternatives 5 and 6). The ex situ treatment capabilities are expected to significantly reduce the concentration of VOCs to, or near, non-detectable concentrations, which makes the reduction in volume equal when comparing alternatives. Alternatives 5 and 6 provide a slightly greater reduction in PCB volume, when compared to Alternatives 3 and 4, through the excavation and offsite disposal of all soils with concentrations of PCBs above 10 mg/kg. Alternatives 3 and 4 would retain some soil under the cap with PCBs at concentrations between 10 mg/kg and 50 mg/kg. Structural support of the railroad embankment under Alternative 6 increases the likelihood that complete removal of PCBs above the RG can be accomplished if the limits of the excavation require expansion towards the railroad or to a greater depth.

L.2.5 Short-Term Effectiveness

Alternatives 1 and 2 provide no short-term effectiveness. The short-term effectiveness for Alternatives 3 through 6 is generally the same. Also, the short-term risks to human health and the environment are generally the same for Alternatives 3 through 6. The risks result from activities associated with excavation, construction, and transportation. Excavation of soil can generate fugitive dust and direct contact with affected soil. However, engineering controls can be applied to reduce the production of dust, and health and safety measures can reduce direct contact with contamination. Alternative 6 has increased short-term risks for remedial workers, when compared to Alternative 5, because of the additional shoring requirements and the risk of working near an active rail line.

L.2.6 Implementability

Alternative 1 involves no construction and is easy to implement. Alternative 2 would be easy to implement since it only involves the construction of a fence restricting access to the Site. Schedule delays are not likely to occur during the implementation of Alternatives 1 and 2.

Excavation of affected soil would be conducted using readily available equipment and the technology is well established. The likelihood of technical problems and schedule delays increases with complexity. The structural support component in Alternative 6 would therefore be more difficult to implement than the other alternatives.

Ex Situ thermal treatment (Alternative 3) and SVE (Alternatives 3 through 6) are also well established technologies that can be implemented with readily available equipment. The lithology of the soils in OU-1 and the targeted COCs for Ex Situ thermal treatment and SVE treatment are well within the accepted limits of the technologies.

L.2.7 Cost

The capital costs of Alternatives 3 through 6 range from $5,215,000 to $7,267,000, with the capital costs of Alternatives 1 and 2 being significantly lower ($10,000 to $35,000).

Alternatives 3 through 6 assume 10 years of SVE operation and maintenance costs totaling $247,000. Alternatives 3 through 6 assume 30 years of cleanup related Operation and Maintenance (O&M) costs. The O&M costs for Alternatives 3 and 4 ($34,000) are higher than the costs for Alternatives 5 and 6 ($27,000) because of the expenses associated with maintenance of a cap. The net present value/total costs of Alternatives 1 through 6 range from $527,000 to $9,887,000.

L.2.8 Community Acceptance

Community acceptance of the preferred remedy was evaluated based on oral comments presented at the Proposed Plan public meeting as well as written comments submitted during the public comment period. Overall, the community's response to the selected soil and groundwater remedy was favorable. All public participation activities are summarized in the Responsiveness Summary (Part III of this Record of Decision). A copy of the Public Meeting transcript and copies of letters from the public are also provided in Appendix A.

M. Selected Remedy

Under CERCLA 121 and the NCP, the Department must select remedies that are protective of human health and the environment, comply with applicable or relevant and appropriate requirements, are cost effective, and utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent possible. In addition, CERCLA includes a preference for remedies that use treatment that permanently and significantly reduces the volume, toxicity, or mobility of hazardous wastes as a principle element. The following sections explain how the selected remedy meets these statutory requirements.

M.1 Description of the Selected Remedy

To achieve the RAOs proposed for OU-1, the Department recommends Alternative 3. While Alternatives 3 through 6 satisfy the RAOs, Alternative 3 achieves RAOs by using:

- Less energy to transport contaminated material,
- Less energy to contain contaminated material, and
- Less offsite landfill space

Alternative 3 prevents direct exposure to PCBs and VOCs by soil excavation, consolidation, installation and maintenance of a cap, ex situ treatment of VOC soils, operation of a soil vapor extraction system, and institutional controls that limit property use.

Alternative 3 eliminates the potential for further degradation of groundwater quality by excavating soils with significantly elevated concentrations of VOCs and operating an SVE system to remove the residual VOCs. The risk of PCBs migrating to groundwater is very low due to their tendency to adsorb to soil; however, excavating and disposing of soils containing PCBs above 50 mg/kg and consolidating soils with PCBs between 10 mg/kg and 50 mg/kg under a cap further reduces the potential for PCBs to leach into the groundwater.

Finally, Alternative 3 eliminates the exposure pathway to the wetlands and Swift Creek via erosion by removing and consolidating all soils containing PCBs greater than 10 mg/kg from all areas of OU-1 with the potential to erode. Figure 5 is a conceptual illustration of Alternative 3.

The net present value of this alternative is $ 7,974,000.

M.2 Expected Outcome of Selected Remedy

Under the selected remedy, exposure is controlled through the use of treatment and institutional controls. The land is currently available and will continue to be available for commercial and industrial use.

N. Five Year Review Requirements

Because the selected remedy will result in hazardous substances, pollutants, or contaminants remaining on-Site above levels allowed for unlimited use and unrestricted exposure, a statutory review will be conducted within five years after the start of the remedial action to ensure the remedy continues to be protective of human health and the environment.

O. Statutory Determination

The selected remedy will adequately protect human health and the environment through treatment and institutional controls. Specifically, the selected remedy will treat contaminated soil such that it will no longer pose a continuing risk of leaching contaminants to the underlying groundwater. Implementation of the selected remedy will not pose unacceptable short-term risks or cross-media impacts. The selected remedy will comply with and attain Federal and State ARARs. The remedy will comply with these regulations through the treatment of contaminated soils.

PART III - RESPONSIVENESS SUMMARY

A notice indicating that the Department's Proposed Plan was available was mailed to local residents and other interested parties on November 8, 2013 and the notice of availability of the Administrative Record was published in the November 17, 2013 edition of The Morning (Florence) News. The Department then presented the proposed remedy at a public meeting on November 19, 2013 at the St. John's Elementary School Auditorium. At this meeting, representatives of the Department presented the results of the Remedial Investigation, explained the remedial alternatives evaluated in the Feasibility Study, presented the Department's preferred alternative, and received comments from those in attendance.

The meeting started the official public comment period for interested parties to comment on the Department's Proposed Plan. No requests for an extension of the comment period were received, and therefore, the comment period ended on December 20, 2013.

Based upon oral comments at the public meeting, public response to the Department's preferred alternative was favorable. Some members of the public did express a preference for Alternative 6. Alternative 6 includes offsite disposal of soils containing PCBs above 10 mg/kg and VOCs above 5,000 μg/kg; SVE of soils containing VOCs below 5,000 μg/kg; excavation with structural support of the railroad; and institutional controls. Alternative 6 does not include the onsite soil capping or the ex situ treatment of soils. As stated in the meeting, SCDHEC believes that Alternatives 3, 4, 5, and 6 provide overall protective of human health and the environment. Subsequently, the other criteria (listed on page 16) are used to help compare the various alternatives. Therefore:

1. Under Alternatives 3 through 6, the chemical-specific ARARs would be met for PCBs and VOCs. Removal or treatment of both PCBs and VOCs to their RGs would be achieved under Alternatives 5 and 6. The removal of the affected soils as outlined in Alternative 6 would require the excavation of about 50% more soils when compared to Alterative 3. Truck traffic in the area would increase by a proportional amount.
2. The ex situ treatment of VOC-impacted soils as part of Alternative 3 and the offsite disposal of these soils for Alternatives 4, 5, and 6 would significantly reduce the potential for further groundwater impacts to shallow water. Alternative 6 would require additional engineering design work and additional negotiation with RailAmerica to ensure the integrity of the active rail line.
3. Alternatives 3 through 6 offer an equal reduction in VOC volume. Alternatives 5 and 6 provide a slightly greater reduction in PCB volume, when compared to Alternatives 3 and 4, through the excavation and offsite disposal of all soils with concentrations of PCBs above 10 mg/kg.
4. The short-term risks to human health and the environment are generally the same for Alternatives 3 through 6. Alternative 6 has increased short-term risks for remedial workers, when compared to Alternative 3, because of the additional shoring requirements and the risk of working near an active rail line.
5. Excavation of affected soil would be conducted using readily available equipment and the technology is well established. The likelihood of technical problems and schedule delays increases with complexity. The structural support component in Alternative 6 would therefore be more difficult to implement than the other alternatives.

6. The net present cost of Alternative 3 is calculated to be $7,974,000 while Alternative 6 would cost $9,887,000.

The remainder of the Responsiveness Summary is included in Appendix A, and consists of the following:

- The Department's Proposed Plan;
- A transcript of the Proposed Plan Public Meeting which includes oral questions/comments from the public and the Department's responses; and
- A copy of the written comments received during the public comment period.

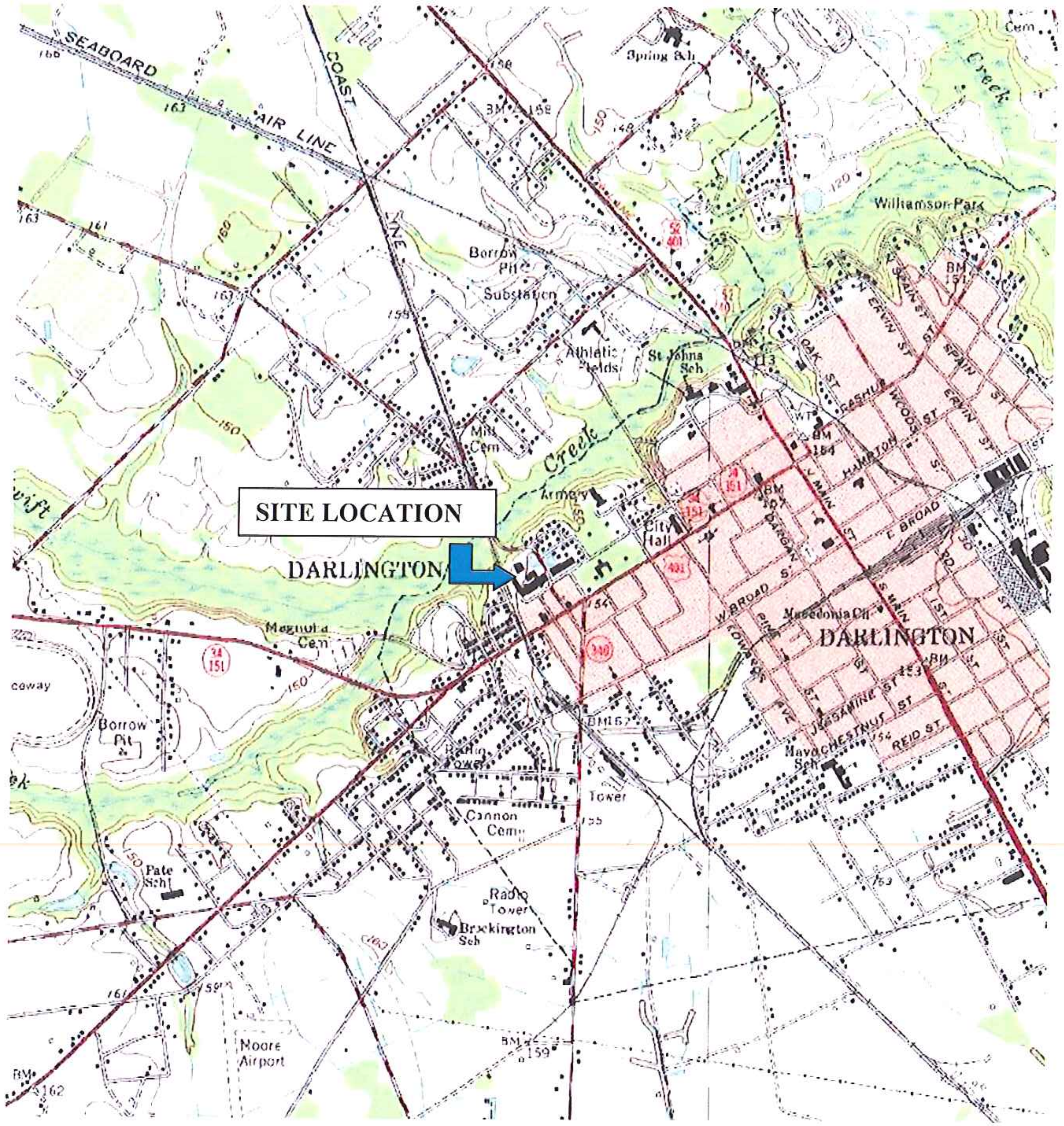


Figure 1 – Site Location

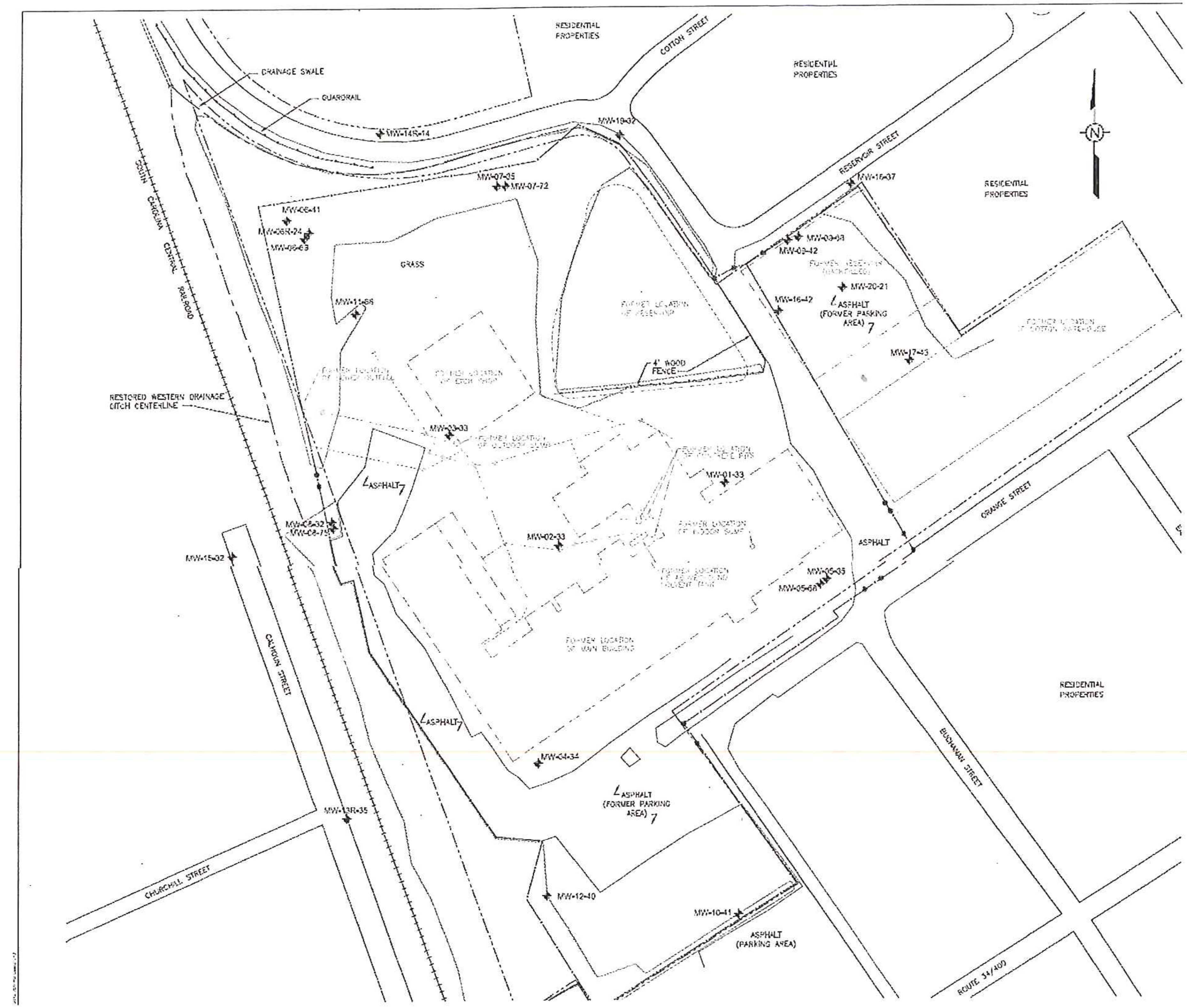


Figure 2 – Site Layout

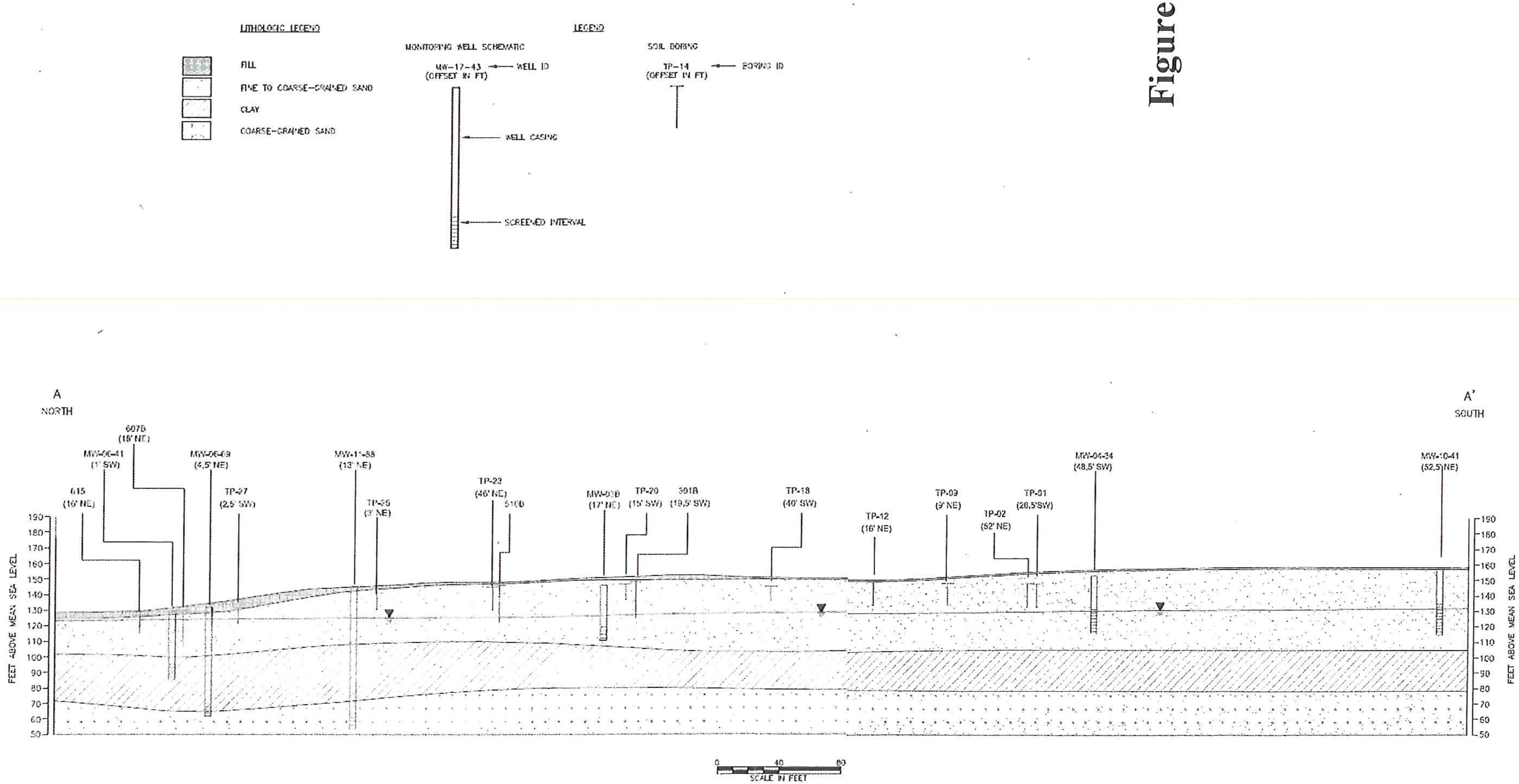


Figure 3 – Site Geology

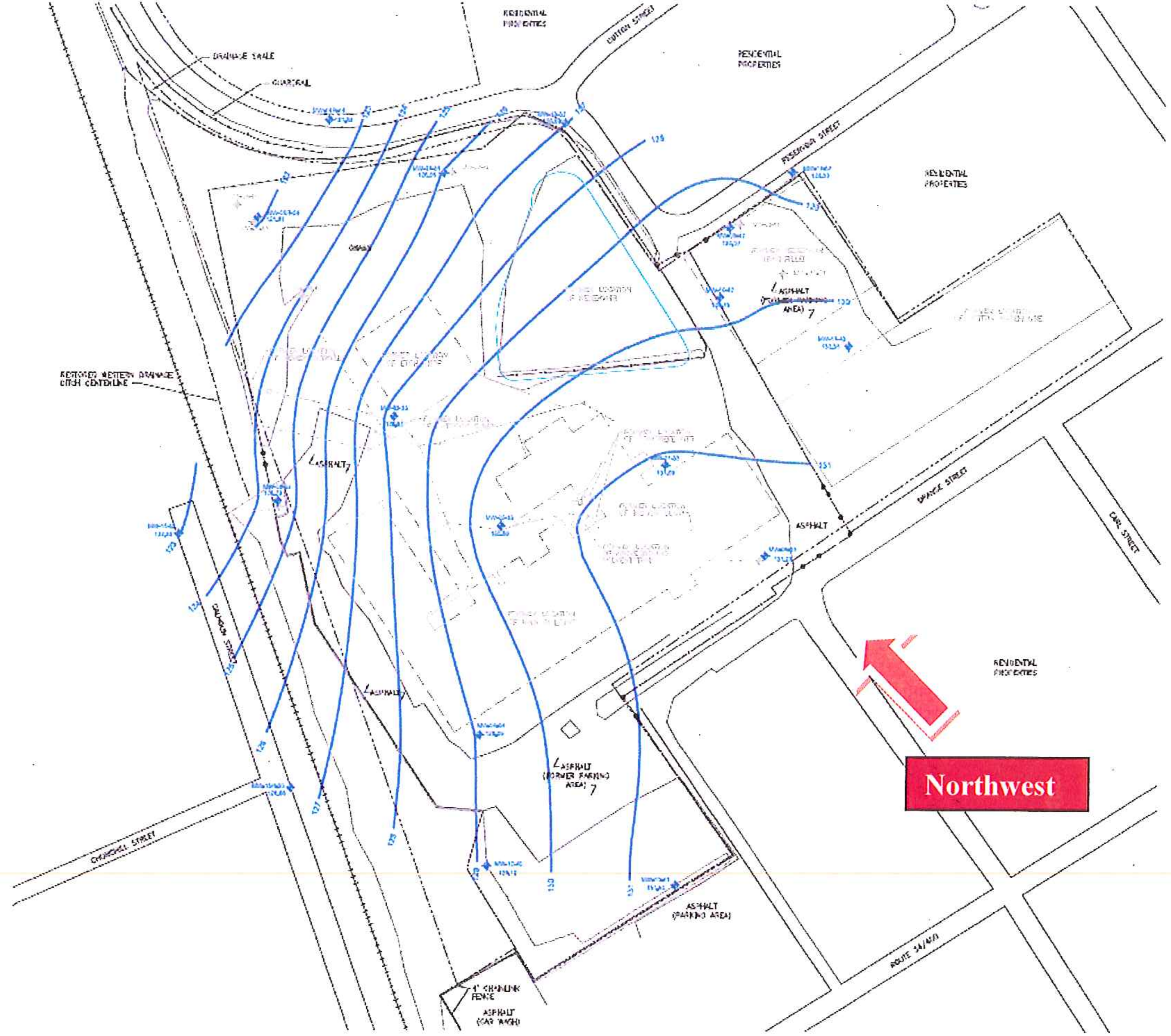
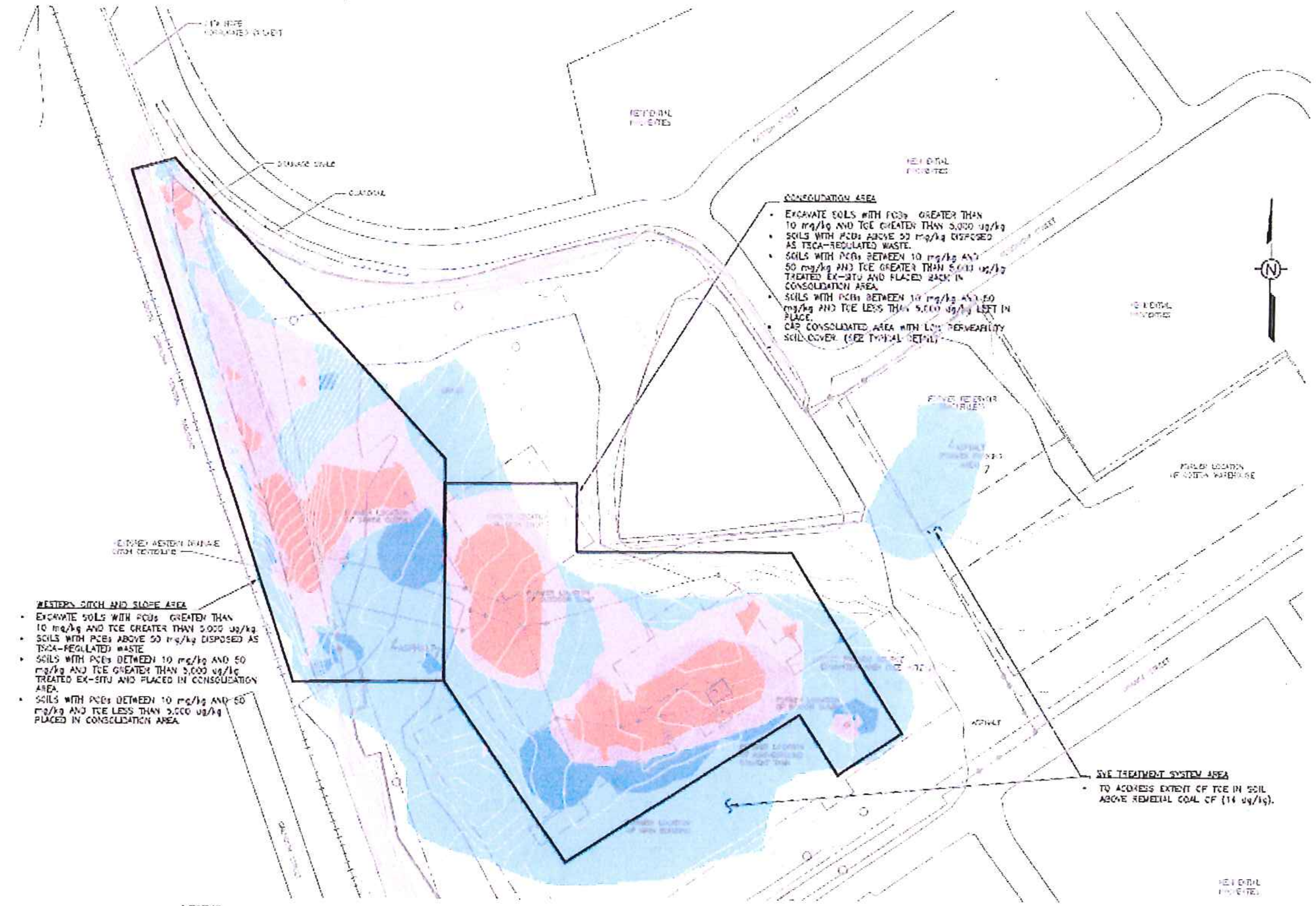


Figure 4 - Shallow Groundwater Flow Direction



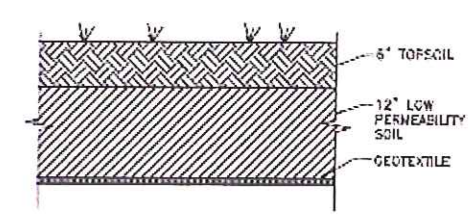
LEGEND

- GATE POST
- FORMER SEWER JUNCTION/ACCESS MANHOLE
- FORMER SEWER LINE
- TOPOGRAPHIC CONTOUR
- TREE LINE
- EDGE OF PAVEMENT
- RAILROAD TRACKS
- 8' CHAINLINK FENCE W/ BARBWIRE
- PROPERTY LINE
- FORMER BUILDING OUTLINE
- EXTENT OF PCBs IN SOIL > 10 mg/kg
- EXTENT OF PCBs IN SOIL > 50 mg/kg
- EXTENT OF TCE IN SOIL > 14 ug/kg
- EXTENT OF TCE IN SOIL > 5,000 ug/kg

PCBs POLYCHLORINATED BIPHENYLS
TCE TRICHLOROETHYLENE
TSCA TOXIC SUBSTANCE CONTROL ACT

NOTE:

THE OBSERVED EXTENT OF PCBS AND TCE IN SOIL IS A PLAN VIEW REPRESENTATION OF THE 3-DIMENSIONAL EXTENT OF PCBS IN SOIL > 10 mg/kg AND 50 mg/kg AND TCE > 14 μg/kg AND 5,000 μg/kg. THE OBSERVED EXTENT OF PCBS AND TCE IN SOIL WAS GENERATED WITH EARTH VISION SOFTWARE (EVS) USING THE STATISTICAL KRIGING INTERPRETATION METHOD.



TYPICAL LOW PERMEABILITY SOIL COVER DETAIL
SCALE: 1"=1'-0"

Figure 5 – Alternative 3 Conceptual Illustration

APPENDIX A

GLOSSARY

amsl	Above Mean Sea Level
AOCs	Areas of Concern
AR	Administrative Record
ARARs	Applicable or Relevant and Appropriate Requirements
AST	Aboveground Storage Tank
bgs	Below Ground Surface
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
COCs	Contaminants of Concern
DAF	Dilution Attenuation Factor
DNAPL	Dense Non-aqueous Phase Liquid
FS	Feasibility Studies
IRM	Interim Remedial Measure
MSD	Magnecraft & Struthers-Dunn, Inc.
µg/kg	Micrograms Per Kilogram
mg/kg	Milligrams Per Kilogram
MW	Monitoring Well
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NCGI	Nytronics Components Group, Inc.
O&M	Operation and Maintenance
OUs	Operable Units
OU-1	Operable Unit 1
PCBs	Polychlorinated Biphenyls
PCE	Perchloroethylene or Tetrachloroethene
RGs	Remedial Goals
RI	Remedial Investigation
RAO	Remedial Action Objective
ROD	Record of Decision
SCDHEC	South Carolina Department of Health and Environmental Control
SSLs	Soil Screening Levels
SVE	Soil Vapor Extraction
SVOCs	Semi-volatile Organic Compounds
TBC	To-Be-Considered
1,1,1-TCA	1,1,1-Trichloroethane
TCE	Trichloroethene
TPHs	Total Petroleum Hydrocarbons
TSCA	Toxic Substance Control Act
USEPA	United States Environmental Protection Agency
VOCs	Volatile Organic Compounds

APPENDIX B

Proposed Plan, Public Meeting Transcript, Public Comment Letters

DHEC
PROMOTE PROTECT PROSPER

South Carolina Department of Health and Environmental Control

Proposed Plan for Site Remediation
(Operable Unit 1 – Onsite Soil)
Former Nytronics Components Site
700 Orange Street, Darlington, South Carolina

November 2013

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 soil contamination at the former Nytronics Components Group, Inc. Site (the Site). This Proposed Plan identifies DHEC's Preferred Alternative for cleaning up the contaminated soil and provides the reasoning for this preference. Also, this Plan includes summaries of the other cleanup alternatives that were evaluated. These alternatives were identified based on information gathered during environmental investigations performed at the Site pursuant to Voluntary Cleanup Contract 99-5124-RP, dated April 17, 2000, between General Semiconductor, Inc. and the Department.

The Department is presenting this Proposed Plan to inform the public of our activities, to gain public input, and to fulfill the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). This Proposed Plan summarizes information that can be found in greater detail in the Feasibility Study (FS) report (Revised March 2013) and other documents contained in the Administrative Record file. The Department encourages the public to review these documents to gain an understanding of the Site and the activities that have been completed.

The Department will select a final soil 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 Proposed Plan based on new information or public comments. Therefore, the public is encouraged to review and comment on all the alternatives presented in this Proposed Plan.

DHEC's Preferred Soil Cleanup Summary

Soil Cleanup: DHEC's preferred soil remedial option, Alternative 3, includes:

- Excavation and offsite disposal of soils containing Polychlorinated Biphenyls (PCBs) above 50 milligrams per kilogram (mg/kg),
- Consolidation and onsite capping of soils containing concentrations of PCBs between 10 mg/kg and 50 mg/kg,
- *Ex Situ* treatment, backfill, and capping of soils containing concentrations of Volatile Organic Compounds (VOCs) greater than 5000 micrograms per kilogram (µg/kg),
- Soil Vapor Extraction (SVE) of soils containing concentrations of VOCs less than 5000 µg/kg and
- Institutional Controls

MARK YOUR CALENDAR

- **PUBLIC MEETING:**

When: **November 19, 2013**
Where: **St. John's Elementary School Auditorium**
140 Park Street
Darlington, 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. Oral and written comments will be accepted at the meeting.

- **PUBLIC COMMENT PERIOD ENDS:**
December 20, 2013

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

Keisha D. Long, Project Manager
DHEC's Bureau of Land & Waste Management
2600 Bull Street
Columbia, SC 29201
Email: longkd@dhec.sc.gov

- **FOR MORE INFORMATION:**

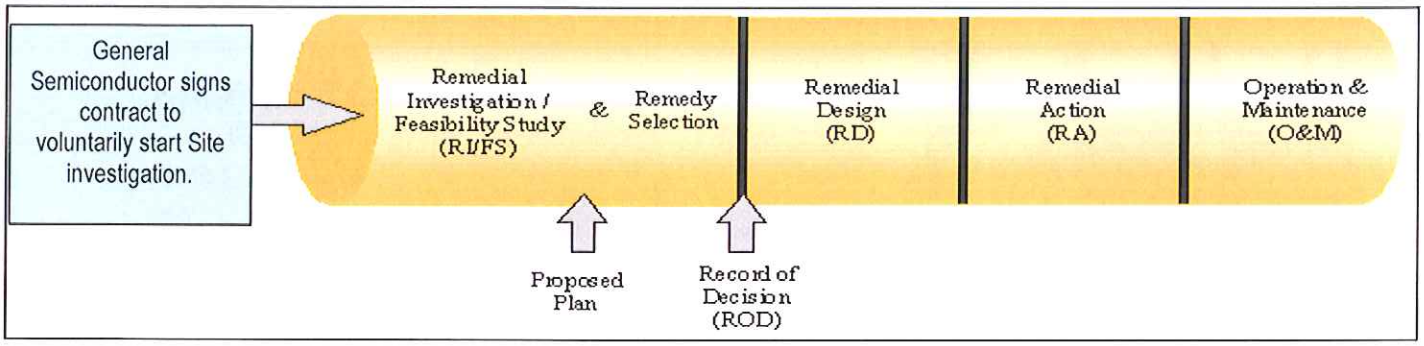
Call: Keisha D. Long, Project Manager, 803-898-0774

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

View: The Administrative Record at the following locations:

Darlington County Public Library
204 North Main Street, Darlington, SC
Hours: Monday - Thursday 9 am - 8 pm
Friday 9 am - 5 pm
Saturday 10 am - 2 pm
Sunday 2 pm - 5 pm

DHEC Freedom of Information Office
2600 Bull Street, Columbia, SC
(803) 898-3817
Hours: Monday - Friday: 8:30 am - 5:00 pm



SITE HISTORY

The Site is located at 700 Orange Street in Darlington, South Carolina, and includes two parcels covering approximately 18 acres (Figure 1). The eight acre parcel north of Cotton Street has always been undeveloped, while the 10-acre parcel south of Cotton Street has been used for manufacturing purposes since the late 1800s. The Site is located in a mixed commercial and residential area in the western part of Darlington. The southern parcel is bounded on the west side by a drainage ditch and a rail line owned by RailAmerica, Inc., to the east and south by residential and commercial properties, and to the north by wetlands and Swift Creek.

The Site was first developed in the 1880s as the Darlington Manufacturing Company, a textile mill, which operated at the Site until the 1950s when the Comer Machinery Company purchased the property. Comer sold textile machinery at the facility for a little over a year before leasing the property to Pyramid Electric Company in 1958. Pyramid, an electronic component manufacturer, produced paper and foil capacitors that used PCBs. General Instrument Corporation acquired the Pyramid Electric stock in 1961 and purchased the Darlington facility in 1963.

The Site was sold five years later in 1968 to Nytronics, Inc., which continued manufacturing resistors and other electronic components under several names until 1990. Magnecraft & Struthers-Dunn, Inc. (MSD) began operations at the Site in 1990. Until 2005, MSD produced electronic components, including inductors and delay line assemblies for printed circuit boards.

The former main building on the southern parcel was a four-story brick structure with over 205,000 square feet of floor space. North of the former main building was a 9,200-square foot, one-story building that was formerly used as a metals etch shop during the manufacturing of electrical components. The central yard between the former main building and the former etch shop building was unpaved while the facility was in operation. East of the former etch shop was a half acre reservoir and water tower, which were formerly part of the fire suppression system for the main building. An electrical substation was located just north of the water tower.

Before the mid-1960s, a number of additional structures were present in the northern and eastern sections of the Site. These structures included a rail spur from the adjacent railroad that ran north of the former etch building to the central yard area, a former cotton warehouse east of the former main building, and a second firewater reservoir. Reportedly, the additional building to the east was demolished and the second firewater reservoir was backfilled to make room for the eastern parking lot. Further, the rail spur was removed, areas north and west of the former etch shop were filled with at least 3 feet of material, and sections of the western property line (parallel to the rail line) were paved for access to the rear of the building. The former main building and the former etch shop were removed in 2008 during the Interim Remedial Measure (IRM).

Solvents used to clean parts and machinery throughout the facility included VOCs such as trichloroethene (TCE), 1,1,1-trichloroethane (1,1,1-TCA), tetrachloroethene (PCE), methylene chloride, toluene, and acetone. Reportedly, the full 55-gallon steel drums used to store the solvents were placed in the former etch shop building and stacked outside the former etch building in the central yard area when empty. A 2,500-gallon aboveground storage tank (AST) was installed in the central yard area in 1969 to store TCE and, after 1984, 1,1,1-TCA.

A number of capacitor oils and waxes, including mineral wax, polyester resin, and PCB oil, were also historically used at the Site. PCBs, primarily Aroclor 1254, were used at the Site from 1958 to 1972. The PCB oil was stored in the former etch shop and moved to a first floor tank room in the eastern end of the former main building for capacitor production.

In 2008, an Interim Remedial Measure (IRM) was performed at the Site, where soil and sediment in the western drainage ditch containing PCBs and TCE were removed and disposed. This removal action also included demolition and removal of existing onsite structures, excavation and offsite disposal of the storm water sewer system, and installation of erosion control measures in the western drainage ditch.

AREAS OF CONCERN

Numerous investigations have been performed to identify the nature and extent of contamination at the Site. Data from soil samples collected in 1989 identified PCBs in several areas of the Site: an outdoor sump adjacent to the former etch shop, the central yard area, near transformers on the east side of the facility, and in the western drainage ditch. Additional investigations of the outdoor sump, other areas around the etch shop, the central yard area, the indoor sump of the former manufacturing building, and the soil around the AST confirmed the presence of PCBs, VOCs (primarily TCE and 1,1,1-TCA), and total petroleum hydrocarbons (TPH) in soil samples.

Further, to enable the project to efficiently move forward to the remedial action phases, contamination associated with soil, groundwater, and wetlands were divided into three Operable Units (OUs):

- OU-1 – Onsite Soil, Onsite Sewer Systems, and Western Drainage Ditch
- OU-2 – Onsite and Offsite Groundwater
- OU-3 – Swift Creek and Associated Wetlands

Analytical data collected during the Remedial Investigation (RI) phases, Feasibility Studies (FS), the 2008 IRM, and the 2010 supplemental investigation were added to a database. The database includes over 700 unique sample locations and more than 30,000 unique sample results. Three-dimensional illustrations of the extent of detected PCB and VOC concentrations in soil were generated and used to estimate the volume of soil that needs to be removed or remediated.

Western Ditch and Sloped Area

During the 2008 IRM, soil and sediment in the western drainage ditch containing PCBs and TCE above the Remedial Goals (RGs) were removed. RGs specific to the Site were developed using the USEPA Soil Screening Guidance. The removal extended 10 feet to the west and east of the ditch centerline. Because of the closeness of the active rail line, complete excavation of all PCB contamination above RGs proved technically infeasible. Soil and sediment containing PCBs above the RG of 10 milligrams per kilogram (mg/kg) remain along irregular stretches of the western sidewall and excavation bottom. Almost all of the eastern sidewall verification samples contained PCBs above the RG of 10 mg/kg.

Approximately 3,400 cubic yards of soil and sediment with PCB concentrations above 10 mg/kg remain along the western ditch and sloped area of the Site. Of this volume, approximately 880 cubic yards contain PCBs above 50 mg/kg. Also, about 1,490 cubic yards of soil and sediment with TCE concentrations above 5,000 micrograms per kilogram (µg/kg) remain. Of this volume, about 880 cubic yards contain TCE concentrations above 10,000 µg/kg. Most of the PCB-affected soil is shallow (approximately 0 to two feet), with concentrations above the RG of 10 mg/kg extending beyond two feet only in the vicinity of one sample location. Similarly, TCE concentrations above 5,000 µg/kg are mostly within the upper two feet of soil. In two sampling locations, TCE concentrations above 5,000 µg/kg were detected at maximum depths of 6.5 feet and 10 feet.

Samples collected from the ditch sediments prior to starting the IRM in 2008 detected several metals above the applicable RGs including: antimony, arsenic, total chromium, and selenium. With few exceptions, the distribution of metals at concentrations above the RGs coincides with the distribution of PCBs above the RG of 10 mg/kg.

West of the Former Etch Shop Area

The area west of the former etch shop location is primarily impacted with VOCs and represents an area where concentrations of TCE may extend outside of the commingled PCB/TCE mass. The potential VOC source area appears to be confined to shallow depths less than five feet below ground surface (bgs).

Approximately 270 cubic yards of soil with TCE concentrations greater than 5,000 µg/kg are present in this area. Of this volume, approximately 120 cubic yards contain TCE concentrations above 10,000 µg/kg.

Southwest of the Former Etch Shop Area

Soil containing PCBs and TCE remains in the area southwest of the former etch shop. Approximately 1,920 cubic yards of soil with PCB concentrations above 10 mg/kg remain in this area. Of this volume, approximately 800 cubic yards contain PCBs above 50 mg/kg. Approximately 150 cubic yards of soil contain TCE concentrations in excess of 5,000 µg/kg, and of this volume, approximately 60 cubic yards contain TCE concentrations above 10,000 µg/kg.

The PCBs and TCE detected in this area are generally mixed throughout the impacted soil volume. PCB and TCE affected soil is generally confined to shallow soils less than two feet bgs, with the exception of the area surrounding the former location of the outdoor sump. The sump served as a migration pathway for contaminants and led to soil contamination at depth. In this area, a PCB concentration of 4,400 mg/kg was detected at a depth of 8.5 feet bgs.

Former Central Courtyard Area

Soil containing PCBs and TCE remain in the former central courtyard area. Approximately 3,140 cubic yards of soil with PCB concentrations above 10 mg/kg remain in the area. Of this volume, approximately 870 cubic yards contain PCBs above 50 mg/kg. Approximately 2,040 cubic yards of soil contain TCE concentrations in excess of 5,000 µg/kg, and of this volume, approximately 1,070 cubic yards contain TCE concentrations above 10,000 µg/kg.

Similar to the area southwest of the former etch shop, PCBs and TCE detected in this area are generally commingled throughout the impacted soil volume. The majority of the impacted soil volume is shallow in nature (i.e., at depths less than 5 feet bgs), with some exceptions.

Former Indoor Sump Area

The indoor sump was located in the former main manufacturing building. PCBs and TCE detected in this area are generally commingled throughout the impacted soil volume. TCE impacts extend from shallow soil to the assumed base of the sump. In contrast, the soil samples adjacent to the former indoor sump contained TCE concentrations above 5,000 µg/kg in the shallow soil and at depth, with minimal impacts throughout the middle portion of the soil column (i.e., a maximum concentration of 168 µg/kg between 1 and 14.5-feet bgs). The release from the indoor sump likely occurred at depth and didn't affect the soil column above the release point, except in the area immediately adjacent to the sump.

Approximately 340 cubic yards of soil with PCB concentrations above 10 mg/kg remain in the area. Of this volume, approximately 60 cubic yards contain PCBs above 50 mg/kg. About 530 cubic yards of soil contain TCE concentrations in excess of 5,000 µg/kg, and of this volume, approximately 310 cubic yards contain TCE concentrations above 10,000 µg/kg.

PREVIOUS CLEANUP ACTIVITIES

The following cleanup activities have been performed at the Site:

- Demolition and removal of existing onsite structures;
- Excavation and offsite disposal of the storm water sewer system, including approximately 1,385 linear feet of sewer piping and associated sumps and sediments;
- Excavation of sediments (0 to 6 inches bgs) in the western drainage ditch from the most up-gradient storm water sewer outfall to the mouth of the 24-inch diameter culvert that discharges into Swift Creek;
- Excavation of underlying soil in the ditch;
- Offsite disposal of excavated sediments and soils, including approximately 897 tons of non-Toxic Substance Control Act (TSCA) regulated material and approximately 1,189 tons of TSCA-regulated material;
- Restoration of the excavated ditch channel with clean backfill and riprap;
- Installation of erosion control measures; and
- Draining and breaching of the onsite reservoir

SUMMARY OF SITE RISKS

Investigations have revealed elevated concentrations of PCBs and VOCs in several areas including: the central yard area, the western drainage ditch, and areas surrounding the former etch shop. Comparison of the data to general soil screening levels published by the United States Environmental Protection Agency (USEPA) indicate long-term exposure to these chemicals can result in harmful effects to human health and to ecological systems.

RGs specific to the Site were developed using the USEPA Soil Screening Guidance. The Soil Screening Guidance presents a framework for developing risk-based, soil screening levels for protection of human health. These Site-specific soil screening levels are intended to be used to streamline the evaluation and cleanup of Site soils.

Comparison of the data to the Site-specific soil screening levels indicates long-term exposure to the PCBs and VOCs at the Site can result in harmful effects to human health and to ecological systems.

CLEANUP GOALS

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:

1. Prevent ingestion, direct contact, and inhalation of soil containing PCBs and VOCs in excess of RGs;
2. Eliminate the potential for further degradation of onsite and offsite groundwater quality; and
3. Prevent future migration of PCBs and VOCs to the wetlands and Swift Creek

As stated earlier, RGs specific to the Site were developed using the USEPA Soil Screening Guidance. Table 4 of the FS Report (Revised March 2013) lists all the RGs for individual chemicals, including PCBs, VOCs, Semi-Volatile Organic Compounds (SVOCs), and metals. The primary constituents of concern are PCBs and VOCs, particularly TCE.

The RG for PCBs is 10 mg/kg:
The RG of 10 mg/kg for PCBs satisfies the RAOs and is consistent with established precedent within USEPA and DHEC. This RG is also more stringent than the Toxic Substances Control Act (TSCA) self-implementing criteria [Code of Federal Regulations (40 CFR 761)] for a low occupancy site.

The RG for TCE is 14 µg/kg:
The RG for TCE, the most prominent VOC detected in soil, is 14 µg/kg. This site-specific RG was developed following USEPA guidance and using available site-specific information including Site geology and groundwater flow.

SCOPE AND ROLE OF THE ACTION

The proposed action in this plan will be the final cleanup action for soils for the Site. The remedial action objectives for this proposed action include preventing exposure to contaminated soils and preventing the migration of contaminants from soil to groundwater and surface water. The proposed response actions will permanently reduce the toxicity, mobility, and volume of contamination at the Site.

SUMMARY OF REMEDIAL ALTERNATIVES

The FS process used the information 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. Soils were considered in the FS analysis. The table below briefly describes the alternatives that were carried through the identification and screening process to the final detailed analysis of alternatives. DHEC's current judgment is 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 and the environment from continued releases of hazardous substances into the environment. All alternatives, except the No Action Alternative, will include institutional controls such as deed restrictions, etc.

SUMMARY OF SOIL REMEDIAL ALTERNATIVES		
	Alternative	Description
SOIL	1	• No Action
	2	• Institutional and Engineering Controls
	3	• Excavation and offsite disposal of soils containing Polychlorinated Biphenyls (PCBs) above 50 mg/kg • Consolidation and on Site capping of soils containing concentrations of PCBs between 10 mg/kg and 50 mg/kg • Ex Situ treatment, backfill, and capping of soils containing concentrations of Volatile Organic Compounds (VOCs) greater than 5000 µg/kg • Soil Vapor Extraction of soils containing concentrations of VOCs less than 5000 µg/kg • Institutional Controls
	4	• Excavation and offsite disposal of soils containing PCBs above 50 mg/kg and VOCs greater than 5000 µg/kg • Consolidation and on Site capping of soils containing concentrations of PCBs between 10 mg/kg and 50 mg/kg • Soil Vapor Extraction of soils containing concentrations of VOCs less than 5000 µg/kg • Institutional Controls
	5	• Excavation and offsite disposal of soils containing PCBs above 10 mg/kg and VOCs greater than 5000 µg/kg • Soil Vapor Extraction of soils containing concentrations of VOCs less than 5000 µg/kg • Institutional Controls
	6	• Excavation and offsite disposal of soils containing PCBs above 10 mg/kg and VOCs greater than 5000 µg/kg • Soil Vapor Extraction of soils containing concentrations of VOCs less than 5000 µg/kg • Excavation with Structural Support of the Railroad • Institutional Controls
The No Action Alternative 1 will be used as a baseline of comparison for the other alternatives.		

Soil Alternatives

Alternative 1 - No Action

The No Action alternative includes no remedial action. The alternative includes periodic inspection of onsite areas and the western drainage ditch for accelerated signs of erosion. A formal inspection plan would be prepared and submitted to DHEC for approval. Monitoring frequency would be performed on an annual basis.

The estimated cost of this alternative is $527,000.

Alternative 2 - Institutional and Engineering Controls

Alternative 2 includes institutional controls (deed restrictions), engineering controls (fencing), and inspection. Deed restrictions are already in place for the onsite portions of OU-1, prohibiting residential development of the parcel. Restrictions will be added to the deed limiting the extent of any allowable excavation or other intrusive site work. Negotiations with RailAmerica, Inc. would be conducted in order to have deed restrictions placed on the offsite portions of OU-1 prohibiting future residential development, and as necessary, restrictions on the allowable extent of excavation or other intrusive earthwork.

Alternative 2 also includes fencing surrounding the entire perimeter of the western drainage ditch and embankments where affected soils are left in place. Perimeter fencing is already installed around the onsite areas of OU-1, limiting access to affected surface soils. Signs would be posted on all perimeter fencing to warn of the dangers associated with trespassing. Because of the presence of PCBs, all signage would be in compliance with the marking and posting requirements provided in the TSCA regulations at 40 CFR Part 761.

The estimated cost of this alternative is $651,000.

Alternative 3 - Excavation and Offsite Disposal of Soils Containing PCBs above 50 mg/kg; Consolidation and Capping of Soils Containing PCBs between 10 and 50 mg/kg; *Ex Situ* treatment, Backfill, and Capping of Soils Containing VOCs greater than 5,000 µg/kg; SVE of Soils Containing VOCs below 5,000 µg/kg; Institutional Controls

Approximately 2,700 cubic yards of soil from the western drainage ditch and all onsite areas with PCB concentrations in excess of 50 mg/kg would be excavated, transported, and disposed of offsite as a TSCA-regulated waste.

Further, Alternative 3 involves consolidation and capping of soil onsite with PCB concentrations between 10 mg/kg and 50 mg/kg. Alternative 3 also includes the excavation, *Ex Situ* treatment, backfill, consolidation, and capping of soils with concentrations of VOCs above 5,000 µg/kg that are not commingled with soil containing PCBs above 50 mg/kg. The *Ex Situ* treatment involves the destruction or removal of contaminants through exposure to high temperature in treatment cells, combustion chambers, or other means used to contain the affected media during the treatment process. Approximately 2,300 cubic yards of soil with VOC concentrations above 5,000 µg/kg would be treated and consolidated in a central area.

An additional 2,000 cubic yards of soil from the western ditch and sloped areas with PCB concentrations between 10 mg/kg and 50 mg/kg and TCE concentrations less than 5,000 µg/kg would be excavated, consolidated onsite, and capped without *Ex Situ* treatment. An SVE system would be installed to address the remaining residual VOC mass left in place. SVE is also known as "soil venting" or "vacuum extraction" and is a technology that reduces concentrations of VOCs adsorbed to soils. In this technology, a vacuum is applied through wells near the source of contamination in the soil. VOCs evaporate and the vapors are drawn toward the extraction wells. Extracted vapor is then treated as necessary. Alternative 3 also includes the institutional controls as described in Alternative 2.

The estimated cost of this alternative is $7,974,000.

Alternative 4 - Excavation and Offsite Disposal of Soils Containing PCBs above 50 mg/kg and VOCs above 5,000 µg/kg; Consolidation and Capping of Soils Containing PCBs between 10 and 50 mg/kg; SVE of Soils Containing VOCs below 5,000 µg/kg; Institutional Controls

Alternative 4 includes the excavation, transportation, and offsite disposal of soil with PCB concentrations in excess of 50 mg/kg. Alternative 4 also includes the excavation, transport, and disposal of soils containing concentrations of VOCs above 5,000 µg/kg. Under Alternative 4, approximately 2,700 cubic yards of soil with PCBs greater than 50 mg/kg would be excavated and disposed offsite as a TSCA-regulated waste. An additional 1,200 cubic yards would likely be disposed of as a RCRA-regulated waste. Approximately 1,100 cubic yards of soil with VOC concentrations between 5,000 µg/kg and 10,000 µg/kg would be excavated and disposed of as non-hazardous waste.

Moreover, Alternative 3 includes the consolidation and capping of soil with PCB concentrations between 10 mg/kg and 50 mg/kg. Approximately 2,000 cubic yards of soil with PCB concentrations between 10 mg/kg and 50 mg/kg and VOCs less than 5,000 µg/kg would be excavated and consolidated in an onsite area. The consolidated area would be capped similar to Alternative 3. An SVE system would be installed to address the remaining residual VOC mass left in place. Alternative 4 includes institutional controls as described in Alternative 2.

The estimated cost of this alternative is $ 8,245,000.

Alternative 5 - Excavation and Offsite Disposal of Soils Containing PCBs above 10 mg/kg and VOCs above 5,000 µg/kg; SVE of Soils Containing VOCs below 5,000 µg/kg; Institutional Controls

Alternative 5 is the same as Alternative 4, with the exception that all soils containing PCBs above the RG of 10 mg/kg would be excavated and disposed of offsite. Under Alternative 5, approximately 2,700 cubic yards of soil with PCBs greater than 50 mg/kg would be excavated and disposed offsite as a TSCA-regulated waste and an additional 1,200 cubic yards would likely be disposed of as a RCRA-regulated waste. Approximately 1,100 cubic yards of soil with VOC concentrations between 5,000 µg/kg and 10,000 µg/kg would be excavated and disposed of as non-hazardous waste. Approximately 5,100 cubic yards of commingled soil with PCB concentrations between 10 mg/kg and 50 mg/kg and VOCs less than 5,000 µg/kg would be excavated and disposed of as non-hazardous waste.

The remedial components of the SVE system for Alternative 5 are the same as those proposed for Alternatives 3 and 4. Alternative 5 also includes the institutional controls as described in Alternative 2.

The estimated cost of this alternative is $9,100,000.

Alternative 6 - Offsite Disposal of Soils Containing PCBs above 10 mg/kg and VOCs above 5,000 µg/kg; SVE of Soils Containing VOCs below 5,000 µg/kg; Excavation with Structural Support of the Railroad; Institutional Controls

Alternative 6 is the same as Alternative 5, with the exception that structural support along the railroad would be installed during excavation. Installation of the shoring system would increase the likelihood that all PCB affected soil mass above the RG could be removed safely without undermining the integrity of the active rail bed.

RailAmerica, Inc.'s engineering group requires shoring along active rail lines. RailAmerica, Inc. indicated that shoring must be installed a minimum of 10 feet from the centerline of an active track. Approximately 115 linear feet of shoring along the railroad embankment would be required. The type of shoring installed would be determined during the remedial design and will include the requirements dictated by RailAmerica, Inc. Collection of geotechnical samples along the western drainage ditch would likely be required by RailAmerica, Inc. prior to approval of the shoring design.

The depth of the shoring required would be based on the anticipated depth of soil with PCBs above the RG. Shoring would need to be installed to an approximate depth of 50 feet in order to remove the affected soil to the greatest extent practicable. An additional 600 cubic yards of soil containing PCBs above the RG could be removed compared to an open, sloped excavation. The remedial components of the SVE system for Alternative 6 are the same as those proposed for Alternatives 3, 4, and 5.

The estimated cost of this alternative is $9,887,000.

EVALUATION OF ALTERNATIVES

The National Contingency Plan requires the Department use specific criteria to evaluate and compare the different remediation alternatives in order to select a remedy. The criteria are:

1. Overall protection of human health and the environment;
2. Compliance with Applicable or Relevant and Appropriate Requirements (ARARs);
3. Long-term effectiveness and permanence;
4. Reduction of toxicity, mobility, or volume through treatment
5. Short-term effectiveness;
6. Implementability;
7. Cost; and
8. Community acceptance

Comparative Analysis of Soil Alternatives

A comparative analysis of each soil alternative was performed. Alternative 1 (No Action) was used as the baseline for comparison to the criteria outlined above.

Overall Protection of Human Health and the Environment

None of the alternatives reduce all of the potential health risks for unrestricted or residential reuse. Some form of institutional controls limiting the zoning of the property (onsite and offsite) to industrial reuse would be required.

The potential risk to human health via direct contact from exposure to Contaminants of Concern (COCs) is greatest for Alternatives 1 and 2 and is significantly reduced under Alternatives 3 through 6. The short-term risk to human health via direct contact is comparable among Alternatives 3 through 6 because similar volumes of soil will be handled. Long-term protection of human health is comparable among Alternatives 3 through 6.

Alternatives 1 and 2 would provide no reduction in groundwater impacts to shallow water via leaching of VOCs from the overlying soil. Alternatives 3 through 6 would significantly reduce the potential for leaching of VOCs due to the treatment (Alternative 3) or removal (Alternatives 4, 5, and 6) of a large volume of the VOC soil mass and the installation of an SVE system to address residual VOCs.

As a result of the 2008 IRM, all of the alternatives provide some level of protection to ecological receptors in Swift Creek and its associated wetlands. The restoration of the western ditch in 2008 eliminated the exposure pathway for PCBs to migrate to Swift Creek via erosion of contaminated sediments in the ditch. Under Alternative 1, this pathway is eliminated for current site conditions and land use; however, without maintenance or controls on the property use, the pathway could again exist in the future. Alternative 2 provides additional protection compared to Alternative 1 by including maintenance of the current engineering controls in the ditch and restricting property usage via deed restrictions.

Under both Alternatives 1 and 2, the risk remains for surface soils at upland locations to potentially serve as a source of PCBs and VOCs to ecological receptors in Swift Creek. Alternatives 3 through 6 provide equal levels of protection by removing the affected soils from locations of potential erosion.

Compliance with ARARs

ARARs are used to determine the appropriate extent of site cleanup, to scope and formulate the remedial action alternatives, and to govern the implementation and operation of the selected remedy. Applicable requirements are those legally enforceable standards that specifically address a hazardous substance, pollutant, contaminant, remedial action, or other circumstance found at a site. Relevant and appropriate requirements are federal or state standards, criteria, or limitations that, while not legally applicable to a site, address problems sufficiently similar to those found so that their use is well-suited to a particular site.

The developed alternatives focus primarily on the removal and treatment of PCB-affected and VOC-affected soils. Under Alternatives 3 through 6, the chemical-specific ARARs would be met for PCBs and VOCs. Removal or treatment of both PCBs and VOCs to their RGs would only be achieved under Alternatives 5 and 6. Under Alternatives 1 and 2, the chemical-specific ARARs and RGs would not be met because PCBs would remain in place above the TSCA self-implementing cleanup standards for low occupancy sites (40 CFR 761) and VOCs would remain in soil above the proposed RGs.

Long-Term Effectiveness and Permanence

Alternatives 1 and 2 do not meet the RAOs for PCBs. Alternatives 3 and 4 would offer long-term effectiveness and permanence at addressing PCBs; however, it would require increased annual maintenance (to ensure cap integrity) compared to Alternatives 5 and 6. Alternatives 5 and 6 completely remove PCB-affected soil from the Site at concentrations above the RG. Any long-term care will be transferred to the permitted disposal facility.

Alternatives 1 and 2 are inadequate for meeting RAOs specific to VOCs. The *Ex Situ* treatment of VOC-impacted soils as part of Alternative 3 and the offsite disposal of these soils for Alternatives 4, 5, and 6 would significantly reduce the potential for further groundwater impacts to shallow water. The SVE system would provide a permanent remedy to address residual concentrations of VOCs after a sufficient period of operation, which was assumed to be 10 years for Alternatives 3 through 6.

The primary difference between Alternatives 5 and 6 is the installation of a structural support system along the railroad embankment. Installation of the shoring system would increase the likelihood that all PCB-affected soil mass above the RG could be removed safely without undermining the integrity of the active rail bed. Alternative 5 has the greater likelihood of leaving residual PCB affected soil above the RG in the area of the western drainage ditch.

Reduction of Toxicity, Mobility, or Volume through Treatment

Alternatives 1 and 2 will not reduce the toxicity, mobility, or volume of PCB- and VOC-affected soil. Alternative 3 will reduce the volume of PCB- and VOC-affected soil by approximately 2,700 cubic yards through excavation and offsite disposal of soil with PCBs above 50 mg/kg. Consolidation and capping of soil with PCB concentrations between 10 mg/kg and 50 mg/kg will minimize infiltration of rainfall, thereby eliminating any mechanism for transport of contaminants to groundwater. The cap would reduce the mobility of VOCs by minimizing infiltration and a reduction in toxicity and volume would be realized through *Ex Situ* treatment and operation of the SVE system.

Alternatives 3 through 6 offer an equal reduction in VOC volume through *Ex Situ* treatment and capping (Alternative 3), offsite disposal and capping (Alternative 4), or complete excavation and offsite disposal of source area VOCs (Alternatives 5 and 6). The *Ex Situ* treatment capabilities are expected to significantly reduce the concentration of VOCs to, or near, non-detectable concentrations, which makes the reduction in volume equal when comparing alternatives. Alternatives 5 and 6 provide a slightly greater reduction in PCB volume, when compared to Alternatives 3 and 4, through the excavation and offsite disposal of all soils with concentrations of PCBs above 10 mg/kg. Alternatives 3 and 4 would retain some soil under the cap with PCBs at concentrations between 10 mg/kg and 50 mg/kg. Structural support of the railroad embankment under Alternative 6 increases the likelihood that complete removal of PCBs above the RG can be accomplished if the limits of the excavation require expansion towards the railroad or to a greater depth.

Short-Term Effectiveness

Alternatives 1 and 2 provide no short-term effectiveness. The short-term effectiveness for Alternatives 3 through 6 is generally the same. Also, the short-term risks to human health and the environment are generally the same for Alternatives 3 through 6. The risks result from activities associated with excavation, construction, and transportation. Excavation of soil can generate fugitive dust and direct contact with affected soil. However, engineering controls can be applied to reduce the production of dust, and health and safety measures can reduce direct contact with contamination. Alternative 6 has increased short-term risks for remedial workers, when compared to Alternative 5, because of the additional shoring requirements and the risk of working near an active rail line.

Implementability

Alternative 1 involves no construction and is easy to implement. Alternative 2 involves the construction of a fence restricting access to the Site, which is also easy to construct. Schedule delays are not likely to occur during the implementation of Alternatives 1 and 2.

Excavation of affected soil would be conducted using readily available equipment and the technology is well established. The likelihood of technical problems and schedule delays increases with complexity. The structural support component in Alternative 6 would therefore be more difficult to implement than the other alternatives.

Ex Situ thermal treatment (Alternative 3) and SVE (Alternatives 3 through 6) are also well established technologies that can be implemented with readily available equipment. The lithology of the soils in OU-1 and the targeted COCs for *Ex Situ* thermal treatment and SVE treatment are well within the accepted limits of the technologies.

Cost

The capital costs of Alternatives 3 through 6 range from $5,215,000 to $7,267,000 with the capital costs of Alternatives 1 and 2 being significantly lower ($10,000 to $35,000).

Alternatives 3 through 6 assume 10 years of SVE operation and the same annual SVE system Operation and Maintenance cost ($247,000). Alternatives 3 through 6 assume 30 years of cleanup related Operation and Maintenance. The annual site costs for Alternatives 3 and 4 ($34,000) are higher than Alternatives 5 and 6 ($27,000) because of the increase in costs associated with maintenance of the cap. The net present value/total costs of Alternatives 1 through 6 range from $527,000 to $9,887,000.

SUMMARY OF THE DEPARTMENT'S PREFERRED ALTERNATIVE

To achieve the RAOs proposed for OU-1, the Department recommends Alternative 3.

While Alternatives 3 through 6 satisfy the RAOs, Alternative 3 achieves RAOs by using:

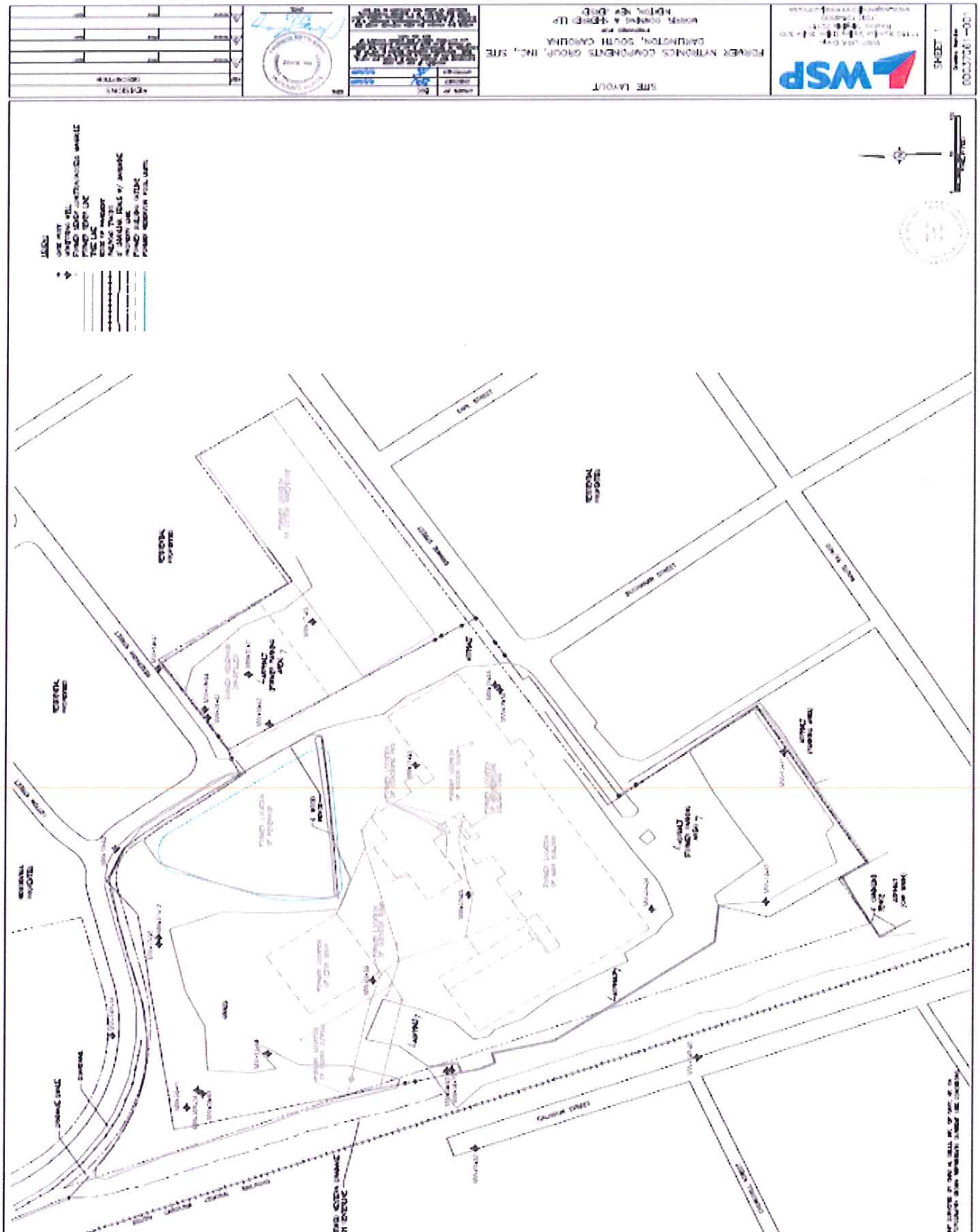
- Less energy to transport contaminated material,
- Less energy to contain contaminated material, and
- Less offsite landfill space

Alternative 3 prevents direct exposure to PCBs and VOCs by soil excavation, consolidation, installation and maintenance of a cap, *Ex Situ* treatment of VOC soils, operation of a soil vapor extraction system, and institutional controls that limit property use.

Alternative 3 eliminates the potential for further degradation of groundwater quality by excavating soils with significantly elevated concentrations of VOCs and operating an SVE system to remove the residual VOCs. The risk of PCBs migrating to groundwater is very low due to their tendency to adsorb to soil; however, excavating and disposing of soils containing PCBs above 50 mg/kg and consolidating soils with PCBs between 10 mg/kg and 50 mg/kg under a cap further reduces the potential for PCBs to leach into the groundwater.

Finally, Alternative 3 eliminates the exposure pathway to the wetlands and Swift Creek via erosion by removing and consolidating all soils containing PCBs greater than 10 mg/kg from all areas of OU-1 with the potential to erode.

The net present value of this alternative is $ 7,974,000.


SITE LAYOUT
FORMER NYTRONICS COMPONENTS GROUP, INC., SITE
DARLINGTON, SOUTH CAROLINA
PREPARED FOR
MORRIS, DOWNING & SHERRED LLP
NEWTON, NEW JERSEY
WSP
SHEET 1
REVISIONS
DESCRIPTION

State of South Carolina)
)
County of Darlington)

In Re: Former Nytronics Components Site

Transcript of Public Meeting

Date: Tuesday, November 19, 2013

Time: 7:02 p.m.

Location: St. John's Elementary School, 140 Park Street, Darlington, South Carolina

Reported by
Kathleen R. Tackett, CVR

APPEARANCES

DHEC officials present:

Pat Vincent
Keisha D. Long
Gary Stewart

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PROCEEDINGS

MS. VINCENT: Hello, everyone. We're so glad you came out tonight. The South Carolina Department of Health and Environmental Control is glad to be here today to present some information for you regarding the former Nytronics Components Group site. First, I wanted to let you know that the site that we're referring to is -- was located at 700 Orange Street in Darlington. And I wanted to also let you know that we will have a presentation today. And then, after the presentation, you'll have an opportunity to ask some questions that you might have.

My name is Pat Vincent, and I am with the South Carolina Department of Health and Environmental Control, and we do have several folks here from DHEC. Keisha Long is our project manager for the site. She will be the -- presenting the presentation for us, and she has reviewed all the documents relating to the site and is here to present our department's plan of cleanup for the soil. Then we have Gary Stewart who is the manager of the state remediation section. Gary, do you want to wave to the crowd? We are pleased also that we have Buck Graham and Jason Lambert and -- your name escaped me --

MS. MCKAY: Oh. Connie.
MS. VINCENT: -- Connie from our Florence regional office. They're -- they know the community better than we do, of course, and we're very glad to have them to help us out.
We want to -- to make sure that you knew that we have a court reporter here today. She's going to be just recording everything, and she will be able to provide to us a transcript, which is word-by-word verbatim of what is presented today. And that will help us in being sure that we answer all your questions that you have. Sometimes, you know, it happens that you might just answer a question or two and not quite completely answer it, and it makes us -- gives us an opportunity to be sure that we have everything provided to you.
We also -- I -- I wanted to also mention to you that we have Dyan Cohen here from the City Council. Do we have any other officials today? Please tell us your name.
MS. HINES: Gloria Hines.
MS. VINCENT: Thank you so much for coming out.
MR. BOB KILGO: Bob Kilgo Darlington County Council.
MS. VINCENT: Thank you. Thank you guys for coming.
UNKNOWN FEMALE 1: One more.

MS. VINCENT: Oh, I'm sorry.

MR. WATKINS: Tony Watkins, Mayor of Darlington.

MS. VINCENT: Thank you. Thank you, Mr. Watkins. Before we start, I wanted to tell you that we have a sign-in sheet. And we ask that everybody signs that. I know we've got some folks who came in late. I'll try to get that to -- the sign-out (as spoken) sheet to you after Ms. Long starts her presentation. If we could get you to fill that out for us.

And we do have the proposed plan that we wanted to also provide to you if you don't have a copy off the Internet. We wanted to also let you know that we've got an electronic version of our administrative record, and that administrative record is documents that we have relied on in making our technical decisions at this site. They can sometimes be very techy in their language, but they always have a summary that will help you to understand if you're like me and don't have that science background. So please don't hesitate to go and look at these documents. They're at the Darlington location at 204 North Main at the library there. And so just ask at the reference desk and they can provide that to you. You may want to review those documents in helping us to provide some comments later.

After the -- the presentation, as I said, we will have an opportunity to receive your questions. All right. And we're going to go ahead and get started with Keisha Long.

MS. LONG: Thank you, Pat. Just out of curiosity -- we were here back in 2008. Were you in the audience also here? As you might remember, there was a orange building, four-story, there at the time that's no longer there. I will go through that briefly before getting to the next steps.

But, again, my name is Keisha Long, and I am the project manager for the Nytronics Components site. I just wanted to go through a few things regarding the site. Also, if you have the handout -- this is the condensed version of about 400 different documents that's been generated since probably the '80s. So that might -- if you go to the library to look at the administrative record, as Pat has suggested, then this will be a -- a good guide to start with before you get into the technical information.

But this is the format: We're going to do a brief history, discuss the current site conditions, as well as the proposed cleanup plan, and then we'll have questions and answers. And can everyone hear me okay? Okay.

And, as Pat said earlier, the actual project site is located at 700 Orange Street and included -- includes two parcels, but the main parcel is south of Cotton Street. And this is a more interesting slide to look at than that map. So several companies have occupied this property since the 1880s. It started off as a manufacturing company for textiles, and then it transitioned in the 1950s to an electronics manufacturer where they used all kind of chemicals and PCBs, and they built inductors and capacitors and other electrical equipment all the way through 2005 where -- where the property ceased to make any kind of electrical components and it -- the building sat for several years until about 2008.

Here is a map of some of the features of the property before the buildings came down. There's a -- the lot map here at the bottom. The orange blob here you see is the main -- was the main building. And north of that, the green square was the metal etch shop, which was used during the manufacturing of the -- the electrical components. And there was a reservoir for fire suppression, and then there's some older features like the -- the old cotton warehouse that was associated with the textile mill, and another reservoir that was filled in and now it's a parking lot.

Okay. As I said earlier, several chemicals were used at the property when there was manufacturing going on including PCBs, which is one of the main contaminants of concern that the Department has. There also were several solvents that were used to clean the machinery and such at these facilities including trichloroethylene, also known as TCE; 1,1-trichloroethane -- I know some of these are long chemical names -- but shortcut 1, 1-TCA; perchloroethylene, also known as "PCE," and we are all familiar with that chemical because that's what they use to clean your clothes at the dry cleaners. And some of the other chemicals like acetone, which is like fingernail polish. Just solvents that we use every day, but obviously, since it's a company, they use a lot more than a average household would use.

During demolition, several of the buildings that were shown on the map have been taken down. The large manufacturing four-story building was taken down. The etch shop was taken down. There was a stormwater system on the property that was dug up and taken away. The reservoir had water in it and wildlife, and so the turtles were caught and taken to the wetlands, and then the reservoir was breached and the water was allowed to go downhill. And then there's a drainage ditch along the railroad tracks that was excavated, and about over 2,000 tons of sediment came out of that ditch. And then it was restored with a mat -- it's called a "geotextile," some gravel and some other erosion-control-type measures.

Okay. As I said a little earlier, the main chemicals concerned: polychlorinated biphenyls, also known as PCBs, which was actually banned in the United States in 1979 because of the toxicity of this particular chemical and because of its persistence in the environment. It doesn't break down easily; as well as the TCE and PCE and the TCA, which again are solvents that are used as cleaners.

Okay. During the 2008 demolition, these arrows are showing different features that were taken down: the etch shop, the main building, the water tower that was out there. There were some storage sheds, pump house, above-ground storage tanks, which all were needed during the manufacturing of components for electrical components. During this removal, over 16,000 tons of wood and concrete and bricks were hauled away. 329 tons of scrap metal was recycled, and over 3,000 florescent lightbulbs were recycled. So it was a lot of stuff out there that had to be taken away.

On this particular slide is the stormwater sewer system that had to be dug up and disposed of, and that was over 1300 linear feet of pipe that was dug and -- up and taken away. And then the reservoir, which had the water in it, had to be breached and drained, basically.

Now, a main feature of this project at the time was this western drainage ditch. And the bottom of the slide is where it started and goes all the way down and discharges just above Swift Creek. And this drainage ditch is basically where all the water from the facility that flowed over the property and also from the sewer system was basically dumped into this ditch and flowed down the hill. As I said, over 2,000 tons of sediments and soils were excavated out of this particular ditch, and -- but, because there's so much, the remedial goals that were established back in 2008 and which we came here in 2008 to discuss before, all of the remedial goals were not met at that point.

So the proposed plan for the future is to try to go back in and take out more and try to make the ditch even -- even better. Right now it's okay. But, in order to make it a little bit better for the environment, for the health of the community, part of the preferred proposed plan is to go back into the ditch and dig out some more.

Okay. So we're to the next steps. One of the important pieces of any kind of environmental cleanup is to establish why you're doing what you're doing. And we often refer to these as "remedial action objectives." And the three that have been established for this particular site are the prevention of ingestion, direct contact and inhalation of soil containing PCBs and VOCs, which are the solvents that I discussed -- the TCE and PCE. That's just a -- how to describe them generally. How to avoid these contacts with these chemicals that are above the remedial goals to eliminate the potential for further degradation of the groundwater quality because the soil -- due to the rains, it -- they interact and they do flow into the groundwater. And then further -- prevent further migration of these chemicals into Swift Creek into -- into the wetlands.

The main remedial goals: PCBs 10 milligrams per kilogram. I might say 10 parts per million. These phrases are interchangeable. I might do it unconsciously. I've been doing this a while, but please forgive me if I don't say milligrams per kilogram. For TCE, the remedial goal is 14 micrograms per kilogram, which is a smaller amount, also known as parts per billion.

And I wanted to give, like, an example of what that really means. What is a part per million? A part per million is like saying you have one penny out of $10,000. Okay. These are small amounts. Toxicology does show that these small amounts can be harmful, but just so you kind of recognize that it's not this huge amount of contamination. A part per billion is even smaller. It's like having one penny out of $10 million. So we're closer to being millionaires than we thought, right? One penny out of $10 million. So that's the parts per billion or microgram per kilogram. One penny out of $10,000, that's a part per million, 1 milligrams per kilogram. Okay?

Now, during the -- my reviewing all these documents, several cleanup alternatives were established, and this is a list of the states. And that -- those are in your handout on Page Number 5. Okay. And I will go through these briefly.

Okay. Alternative Number 1 is basically no remedial action, no excavation, no digging up of the ditch, no treatment of soils. It's just basically stay as is and every year someone will drive by and look at it, basically. Okay. This is a alternative that has to be included in every single proposed plan that is done under what I work in -- this is the Superfund program -- and it's used as a comparison to all other cleanup alternatives. So Alternative 1 is basically no remedial action with an annual inspection.

Okay. Alternative 2 is -- involves a little more paperwork. It's like "no action-plus." There will be what we call "deed restrictions" where you won't be allowed to build a residence on the property, you won't be able to use the groundwater for drinking, no nursing homes, no elementary schools, things like that. Also, it would include engineering controls like fencing and signs warning that there are chemicals on the property that can harm you, as well as the inspection that I just stated in the first alternative.

Now Alternative 3 is very much more involved and will include excavation and disposal of the soils on the site that currently contain 50 parts -- more than 50 parts per million, that's the one in -- one penny in 10,000. Fifty parts per million. That would be dug up and taken to a landfill. Okay. Then PCBs that are above the 10 part per million -- between 10 and 50 will be actually dug up on the property, consolidated, and placed into what we call a "cap" or a -- an engineered cap, which is a -- basically, it would be a small tomb for the soils that will remain on the property that will be engineered so that the rain can't get into it and affect the groundwater any more negatively.

As for the solvents, the cleaners, those soils that contain 5,000 parts per billion -- that's the one penny in 10 million -- that have more than 5,000 of those pennies, actually will be dug up and treated what we call "ex situ," which is a fancy way of saying "out of the ground," put into a closed system and put into a -- kind of a fancy washing machine to make it not hazardous. And that will also be taken and put into this soil tomb. Everything for the solvents that are less than 5,000 parts per billion, there's a system we'll call "soil vapor extraction," which is -- it's like fancy vacuum cleaner system for the soils. We put an apparatus -- sucking vacuum. The volatile organics will come out, and it's run through a treatment system and clean air comes out the vacuum.

And then the institutional controls such as the deed restrictions: no digging, no using groundwater, etc., etc. So just so you see some of what I'm discussing, this is the ex situ treatment -- the -- the washing machine-type thing for soils. And how it works is it uses a high temperature -- it's a high-temperature system, lots of steam. It's a self-contained process. It is not an incinerator. There will be no exhaust. The soil will go in, as in Step 1, go through the processes. The chemicals will come out in a liquid. The liquid will be cleaned using carbon, like you would use a filter on your faucet at home. Clean water comes back through, and it's a endless loop. And the soil that -- like I said before, is -- will be much less in terms of contamination and would be placed into the soil tomb on the property. Okay.

And this is just a -- a cartoon of how the -- the soil vapor extraction will work -- the -- the vacuum for the soil. Basically, you put in wells, add a vacuum to the wells, and the vapors that come out of the -- the apparatus will be cleaned using a filter like on your faucet at home, and clean air comes out.

Alternative Number 4, similar to Number 3. The only difference really is that the -- the steam extraction system would not be used. PCBs above 50 parts per million and volatile organics above 5,000 parts per billion, will be dug up, hauled away to a landfill. It still will be the capping -- the tomb -- soil tomb for PCBs 10 to 50 parts per million. It still will have the soil vapor extraction system for -- to get rid of the residual volatile organics and the -- the deed restrictions.

Alternative Number 5, again the variation of the same theme, except for the levels are changing here. The PCB -- PCBs above 10 parts per million, as I stated before, the -- the level was 50; now we're down to 10 parts per million. That will be

-- the soils there will be taken away to a landfill. There will be no soil tomb. Everything that is above this particular level for PCBs will be taken away, probably to a landfill in Alabama, some of it. Some of it might go to Lee County. VOCs, everything above 5,000 parts per billion would also be dug up and hauled away. Still will be the soil vapor extraction system and the Institutional controls.

And Alternative 6, the main difference here -- it's same as the previous, Alternative Number 5, but the main difference is the -- the railroad out there. Another complication of digging up the western drainage ditch was the railroad. And, in order not to compromise the stability of that railroad bed, several engineering controls will have to be placed during the excavation of the -- the drainage ditch. And so Alternative 6 adds that component to the proposed cleanup. Okay.

So --

MS. BLACKMON: Can I ask you something?

MS. LONG: Yes.

MS. BLACKMON: How about the ones of us that worked in this plant and in the chemicals?

MS. LONG: I'm sorry?

MS. BLACKMON: That's what we're concerned about, too.
MS. VINCENT: Questions --
MS. BLACKMON: My question is: You talking about the railroad. Well, how about us that worked inside this plant in the chemicals? We're concerned about that, too.
MS. LONG: Okay. I understand the question is what about people who worked in the facility --
MS. BLACKMON: Right.
MS. LONG: -- and how were you affected negatively by being exposed to the chemicals while everything was active. And I -- I cannot state how it impacted you personally, healthwise. I'm sure it did; I mean, how could it not have? And I don't know how much or how much you were exposed to. And I'm not sure if that question can ever be answered, but definitely not by me personally.
MS. BLACKMON: Well, I've worked on all four floors, so I've worked in all the chemicals.
MS. LONG: Okay.
MS. BLACKMON: And that wasn't all. I had children, too, and they -- and I told my grandchildren -- they had a family day down here and -- and they toured the big plant. They fed them food in there that day, and a woman cooked a cake, and it looked

like (inaudible) and --
THE COURT REPORTER: Looked like what? I'm sorry?
MS. BLACKMON: -- they asked them was they all (inaudible).
UNKNOWN FEMALE 2: Repeat that, please.
MS. BLACKMON: So the chemicals was in that food too and in that cake.
UNKNOWN FEMALE 3: I guess, she's just --
MS. BLACKMON: So we're all concerned about that, too.
MS. LONG: I -- I understand. I would be concerned, too. But --
JOY: I -- I --
MS. LONG: But like -- like I said, I -- I can't tell how much you were exposed to it. I mean, it's no way I could tell you. I have no doubt that you were exposed.
JOY: I -- I know there's a couple of people here that just kind of wanted a point of contact where they could call somebody --
MS. LONG: A contact -- contact like a doctor or a toxicologist or --
JOY: No. Somebody that's still, I guess, handles the Nytronics side of it that already knows the side effects because I know a couple of people who are --

MS. LONG: So they can give side effects and what to look for and maybe a condition --
JOY: Well, like a list -- maybe a list of chemicals. I heard that one those got passed out last time. I mean, some --
MS. BLACKMON: Because -- because I lacked one month short working there twenty-nine years.
MS. LONG: Oh, the different chemicals? We started earlier talking about what we call "administrative record," and it does list all the chemicals that have been found out there, as well as the administrative record actually does have what we call a "toxicological profile," which shows what the chemicals are, how they can impact you, what levels are considered to be safe, what levels are not safe and other kind of health information like that. That's what I have now, outside of any kind of doctor or hospital-type situation.
MS. VINCENT: So maybe after the meeting we can get back with you and tell you which document that is or provide that to you?
MS. BLACKMON: Okay.
JOY: Okay.
MS. LONG: Thank you. Okay. So where are the chemicals now? I just want to go through a few pictures.

There -- and these "areas of concern," I believe I've called them in the handout -- and all of this starts on Page 3. This is a picture of what we call "west of the former etch shop." There are lots of boxes. The points -- all the points on this screen do not necessarily mean there's a problem. In part, the ones that are something that draw our attention if the numbers are shaded in the pink or the red. And, as you can see, towards Cotton Street is at the very top of the screen and that's the north -- northern part of the parcel. There -- there's no pink there. Okay. Most of the concern is right near the buildings where the chemicals were stored, where the chemicals were used. On the left side here, that is the western drainage ditch. And, like I stated previous, that's where everything was dumped that came out of the factory. Okay. This is -- also, it's a little bit southwest of the etch shop. It's much closer to the building. You can't see Cotton Street. At the very top are -- is a -- what we call a "monitoring well cluster."

Let me go back here. This MW6 cell -- MW6 on this particular map is about maybe a third down from the top, okay. So the next slide MW6 is the very top of the slide. So it's closer to the main manufacturing building, closer to the etch shop.

Again, areas of concern and points of concern are highlighted in the pink and red. And this is where the -- the four-story manufacturing building was. This is the courtyard area. A lot of things went on here. There was a railroad spur. That's where they stored the chemicals. It was dirt ground. I imagine there might've been some dumping, and so you see a lot pink here. Okay.

And, again, inside the building, there was a sump, and the sump here received a lot of chemicals also, particularly the blue shading are the solvents/the volatile organics. The pink, the PCBs. And, as you can see here, often in -- the PCBs and solvents are basically in the same place. There are some blues outside of the -- the pink, but that's what we're calling in the proposed plan "comingling" or "mixed soil." So, if the PCBs are there, then the solvents will probably be there, too. Okay.

This is -- I showed this map earlier, and that's the western draining ditch. And, as I stated earlier, that will be re-excavated -- or it's proposed to be re-excavated to try to get more of the PCBs and the volatiles out of the ditch.

Now, some people might be asking, "Well, what about the groundwater?" This particular project has been divided into phases or sections. The -- we call them "operable units." The first operable unit is the soil. That's what we're discussing tonight on how to clean the soils. Operable Unit 2, groundwater. Groundwater has been impacted, particularly by the solvents, not -- the PCBs tend not to -- not to flow to groundwater -- any water. It's -- it's a very sticky, mucus-like chemical. It likes to adhere or stick to soils and not get into the water, which is a good thing at this point because there's a lot of PCBs out there right now.

This purple is just showing where the wells are. It's not showing that all of this is contaminated. Again, the pink are the levels that get our attention and what concerns us. As you can see, the northern part near Swift Creek, there's not much pink. It's mostly closer to where the -- the buildings were located.

Operable Unit 3, that's Swift Creek; that's the wetlands. There are pink points here, and I'd like to note that the -- the levels of concern are a little bit lower here due to the -- the impacts to creatures that are smaller and have less tolerance to these chemicals versus a human. A human can take a lot of contamination, more than, say, a bird or a turtle just by size and how they're built biologically. So that's Operable Unit Number 3.

It's DHEC's belief that cleaning up the soils and the sediment will further make OU2, that's the groundwater, and OU3 better and improve these particular media.

Okay. How do I/may I come in contact with chemicals from this site? And that's how you can come in contact with them today and not in the past. I understand several people worked there and were in contact with these chemicals just by working there. But, today, you can contact chemicals by entering the fenced-in area or sampling a monitoring well that's inside the fenced-in area or wading in the creek east of the bridge, and that's in the sediment.

Okay. The next steps. This particular meeting, we're looking for comments on how to clean up the site. Once that is established, based on community input, what is required by law is something -- what we call the "Record of Decision," and this is the legally binding document that states, "We shall do this and this and this, and it will cost this and this and this," and that will be like the contract for this particular site.

Once that is established, the technical details have to be established. It's what is called a "review of design." So it's probably going to be three or four binders' worth of engineering drawings that shows this is how the cap will be built. This is what -- the soil vapor extraction points, this is where they will be. This is the horsepower on the extraction pumps, etc., etc., etc.

Okay. Again, documents are available for review at Darlington County Public Library, and the proposed plan, which is the eight-page handout is actually on the Internet right now. An address is at the bottom of the screen. The DHEC Freedom of Information Act -- excuse me -- office has -- I think it's all electronically scanned now. It's almost 400 different documents. As I said earlier, this is the condensed version that I wrote for you so you don't have to read 400 documents to understand what's happening. And my contact information is here. My phone number. I'm located on Bull Street in downtown Columbia. Gary Stewart is the program manager, is also Bull Street, and this is the phone number, e-mail address. And you can contact either one of us to discuss the project.

Now, what we are required to do is to choose a preferred remedy, and that would be Number 3. Again, this is the particular remedy where the soils with PCBs above the 50 parts per million level will be excavated and disposed of off-site in some landfill, probably Alabama, maybe some will go to Lee County. The PCBs between 10 and 50 will be dug up and put into a soil tomb or a cap. The ex situ treatment for the volatile organics will be used, the closed-loop system, like the -- the fancy washing machine. The soil vapor extraction, that's the vacuum for the soil. And Institutional controls.

Now, that is the remedy that DHEC prefers, but that doesn't mean that that's what you prefer. And so that is why we're here to get your input. So that's the end of my presentation. So questions?

MS. VINCENT: What we'd like to do is, if you have a question, if you'll raise your hand so we can get the mic on you, and then everyone else can also hear your question. And -- and there will be a recording of those questions as well.

MS. LONG: Several hands went up at the same time. I'm sorry.

MR. STEWART: State their name. Have them state their name.

MS. VINCENT: And please state your name, too.

MR. WATKINS: Tony Watkins. I just want to know if we can go back one slide. I was going to photograph those names -- a list of them.

MS. LONG: Oh, the contact names. Yes.

MR. WATKINS: Oh, okay. Never mind. They're on here.

MS. VINCENT: They're on the sheet he has.

MR. WATKINS: Okay.

MS. LONG: My name is on the sheet. The Freedom of Information Act is on the sheet -- office is on the sheet. And Darlington Library is on the sheet. This new name will be Gary Stewart on this particular slide. He's not on the paper. And I think there was one more. No. Okay. That -- that is on the proposed plan. These documents available for the newest file.

MS. VINCENT: We have another question. Yes.

MS. HINES: Since 2008, have people been informed not to fish in Swift Creek?

MS. LONG: What was that?
MS. HINES: People have been informed not to fish at Swift Creek? Have they? Because they fish out there.
MS. LONG: Has that happened?
MS. HINES: They still -- they still --
MS. LONG: I personally have not.
MS. HINES: -- fish down there. I mean, have people been informed not to fish there?
MS. LONG: Not to my knowledge. I have not personally stated that the creek needed to be posted for fishing. I don't remember who exactly is responsible for that.
MS. HINES: Well, you did say it was running alongside Swift Creek, right? You did not say that?
MS. LONG: The PCBs, you mean?
MS. HINES: Yeah. You -- you -- something was on the map with a purple line, said something -- said something about running along Swift Creek.
MS. LONG: Okay. Let me go back the slide so we can maybe see -- look at Swift Creek.
UNKNOWN FEMALE 4: Yeah. It does have Swift Creek down there at the bottom.
MS. HINES: Is this not Swift Creek? I thought I heard that now.

UNKNOWN MALE 1: There it is.
UNKNOWN FEMALE 4: You said it was in the -- in the sediment.
MS. LONG: Now, the -- the levels -- the boxes you see -- this is for the soil only. It's not the actual water that's flowing through the creek; it's the soils.
MS. HINES: But if the soil --
MS. LONG: You're asking if --
MS. HINES: Are you sure that it's not going in there? Are you sure?
MS. LONG: Well, with the 2008 excavation, it stopped that flow with the excavation of the 2,000 tons of sediment, by putting the riprap so -- excuse me -- the gravel so that anything that's flowing off the property right now can't get down in there. Now before all that was done, yes, it got down in there, but as you know, it's a stream and it continues to flow downstream. Not to my knowledge has that creek been posted not to fish.
MS. HINES: Well, there was another map you had a purple line running along the side. That's not the one I was exact talking about.
MS. LONG: That would've been the ditch, I believe.
MS. HINES: That would've been the ditch?

MS. LONG: That's the ditch, which is next to the building.
MS. VINCENT: Got another question.
MR. BOB KILGO: Bob Kilgo. Again, relating to Swift Creek, in other words, the riprap is -- is keeping the sediment from entering the creek at this point?
MS. LONG: Exactly. Exactly.
MR. BOB KILGO: Okay. So where you said there was a problem east of the bridge, is it currently on the land and is not in the water?
MS. LONG: This is not the ditch that received the riprap. This is the end point from the ditch.
MR. BOB KILGO: Well, I think what people are concerned about is if there are contaminants still going into Swift Creek or a possibility of them going into Swift Creek and the fact that Swift Creek flows all the way through the City of Darlington and out the other side. That's the -- I think that's the concern of a lot of people here.
MS. LONG: So the concern is if the property is still impacting Swift Creek. With -- as I stated previously, with the 2008 measure that cut that off significantly, and with this additional work, it will further stop that from happening and also when -- Swift Creek is going to be looked at further,

new -- these are older samples. More samples will be taken. More samples will take -- be taken to find the end point, even if it goes through the end of town, to determine what the levels are and how it's negatively or not negatively impacting the community.
JOY: Hi. I -- I do have a question. As far as -- oh, sorry. Joy. As far as the chemicals, you know, leach into the soil -- and I know you've already went through that. What about underwater streams and stuff like that? I mean, there was a creek --
MS. LONG: The groundwater. Right.
JOY: Right. I mean, that still has a -- a impact of getting into the part past where you're saying they put all the things, so, I mean, it still could affect the fish.
MS. LONG: The -- there are -- they're what we call a "groundwater monitoring network" out there. I don't remember how many wells are out there. Forty? Maybe more. As of right now, the plume -- the chemicals are all over the property. They're not flowing off the property. They're not impacting private wells that are out there right now. This soil remedy will further stop that. I mean, the water doesn't stop.

JOY: Right.
MS. LONG: It continues to flow. But this soil remedy would definitely make that whole situation better. And, as I stated before, there is a OU2 phase to this and to further, like, directly clean the groundwater and not depend on just the soil cleanup to make everything better. Okay.
MS. COHEN: Yes. My name is Dyan Cohen. What uses would be allowed for Alternative Number 3? Is that what you call "Institutional controls" are the uses that are allowed?
MS. LONG: The -- the use will be industrial. What we call "industrial," so maybe another factory. Just not houses like a neighborhood, not a nursing home, not a daycare or elementary school. These populations -- children and older citizens -- their -- just basically, their immune systems can't handle certain chemicals as well as just a -- a middle-aged or a younger person. So those are the typical restrictions.
If -- if someone wanted to put a condo out there, that's kind of a maybe because you're not gardening or digging into the dirt. But, as of right now, it's what we call "industrial." So another facility can go out there, another factory.

MS. COHEN: And all the other -- there's, I guess, a total of six alternatives. All the other alternatives are the same exact Institutional controls that it's acceptable?

MS. LONG: Correct. Right.

MS. COHEN: Okay. So right now it would be acceptable for industry?

MS. LONG: Correct.

MS. COHEN: But it will be more acceptable when you do this?

MS. LONG: Correct.

MS. COHEN: Okay. Also, can you talk a little more about -- you were talking about the railroad bed and some excavation. Has there already been work on that or what -- what work --

MS. LONG: In 2008, the actual ditch that runs along the railroad bed was excavated, but the sloped area which leads to the railroad was not really touched because it would've -- I mean, the train would've fallen into the ditch, basically. So, with Alternative Number 6, there will be what we call "shoring" and other -- concrete barriers to try to hold up the bed while the dirt is actually dug out of that slope. And that's Alternative Number 6.

MS. COHEN: Okay. But Number 3 doesn't dig out that

dirt or --
MS. LONG: Number 3 would not include that particular measure. No. It wouldn't.
MS. BLACKMON: I am -- I'm -- I'm going to ask: These chemicals, would they -- some of them or all of them, whatever -- would they cause cancer?
MS. LONG: PCBs are considered a potential cancer-causing chemical, yes.
MS. BLACKMON: Because I have a daughter that -- she's got cancer. She's dying with it. There ain't no cure. They're treating her right now with chemo, though. She has lung cancer in both lungs, and she worked down here in this plant.
MS. LONG: I understand your pain. My brother is diagnosed with cancer also. And I understand chemotherapy, and I understand the PET scans and the oncologists and the worry. I can't tell you definitively if it was this factory that caused it. I --
MS. BLACKMON: Right. But I was just -- I was just wanting to know. I worked down here, and I've got two daughters that worked down here; I have three daughters altogether.
MS. VINCENT: And I think your question that you had was can these contaminants cause cancer?

MS. BLACKMON: Right.
MS. VINCENT: And I think she -- she did say that. It could possibly, but whether that's caused the problem for your family --
MS. BLACKMON: She's got it in, yeah, both lungs.
MS. LONG: I believe the woman just in front of you had -- you had your hand up at one point.
MS. COX: I wanted to know if -- what about the neighbors that live around there?
MS. VINCENT: If you could state your name.
MS. COX: My name's Frances Cox, and I want to know: What about the neighbors that live in that area? I live right across from it.
MS. LONG: Across the street. I have got a slide up that show how you can come in contact with the chemicals. Is -- the main hazard is being within the fenced area, digging in the dirt in the fenced area, groundwater sampling in the fenced area, wading in the creek. In terms of if there are chemicals that may have migrated from the factory over to the housing, I think it would be highly unlikely. There are areas -- actually, clean areas between the building -- the old building and the houses where it would be unlikely that it would've jumped over those parts of the soil to get to the

houses.
MS. COX: Okay. Thank you.
MR. GARLAND: I'm Howard Garland; I'm the manager of the City of Darlington. And I want to know who is paying for this cleanup.
MS. LONG: The -- they're actually sitting right here in the second row. It's a contract with a company, Vishay, one of the many, many factory owners at -- since 1880s that are still around. So it's not taxpayer-cleanup-funded. It's private industry that will be paying for this cleanup.
MR. GARLAND: When would the site be approved for industrial use? Could we list it on the Web site in five years to try to bring in some industry to our town and to our county?
MS. LONG: I -- of course, it depends on -- like I said, their record of decision in our remedial design. But I think within five years at least this part of the remedy should be complete. So I would say yes, but I -- I mean, you would have to, I guess, negotiate with property owners on the list -- however you list it and then how do you go about doing that.
MS. VINCENT: I think we've got some questions across the way, so give me a second to get there.

UNKNOWN FEMALE 5: Who owns the property?
MR. ROBBIE KILGO: Robbie Kilgo. How -- how much say-so does the people or the companies financing this have on which alternative we're using to clean up this property?
MS. LONG: They do have a significant say. I will not lie to you. They have hired contractors. They have taken a lot of these samples. DHEC has did a little bit, but we, what we call, "oversee" what -- their work and comment and say, "You need more sampling," and pay for the labs. So it's not insignificant, no. But, as I stated before, this is your community. You're the ones who have the final say.
MR. ROBBIE KILGO: All right. Well, I mean, obviously, my final say would be let's do Alternative 6 --
MS. LONG: Number 6?
MR. ROBBIE KILGORE: -- instead of doing Alternative 3, but you've got the opportunity to -- to sell me on Alternative 3. So why should we do Alternative 3 over Alternative 6? So now would be your opportunity to sell me on that.
MS. LONG: Well, the cost benefit of doing 6 versus 3. Okay. Number 6, it will be a significantly more soil that's going to be hauled out of here. So

there would be thousands of dump trucks leaving
this property and that's going to be on these
highways going to Alabama. And they're going to be
back and forth and back and forth and back and
forth for weeks and weeks. Yes. There will be
dump trucks on the roads for Number 3,
significantly less. Yes.
     There will be what we call a closed-loop
system for Alternative Number 3 cleaning the soil.
There's things that we need to consider globally,
like I know it's what we call "green" and
"sustainable." So will it be better to use all
this energy to haul dirt to Alabama, or would it be
better to use the energy to --
MR. ROBBIE KILGO: Well, frankly, I don't think that it
bothers the people of Darlington about whether or
not we're going to get rid of cancer-causing agents
in our town what it does to somebody else across
the --
MS. LONG: So you don't --
MR. ROBBIE KILGO: The neighboring --
MS. LONG: -- care about --
MR. ROBBIE KILGO: -- and surrounding counties here --
MS. LONG: -- any other communities, okay.
MR. ROBBIE KILGO: -- first.

MS. LONG: I understand that. I understand you like Alternative Number 6. I like Alternative Number 6. Alternative Number 6 is 5 million more dollars than Alternative Number 3.

MR. ROBBIE KILGO: Of their money.

MS. LONG: Right.

MS. VINCENT: We have another question.

MR. JACKSON: She just answered my question. Same one.

MS. LONG: Okay.

MR. JACKSON: I just -- I wanted to know why we couldn't use 6 as well if we weren't picking up the tab. And, even if the City had to pick up some of it, it still would be --

MS. LONG: It's not our waste, so who cares? I understand. I understand. No.

MR. JACKSON: But I do -- but now, I do care about what happened in another area as well. I mean --

MS. LONG: Okay.

MR. JACKSON: -- one scenario's right down the road. And if they dump all the chemicals on them --

MS. LONG: In Lee County.

MR. JACKSON: Yeah. -- that would be killing people there, too.

MS. HINES: And what about Alabama? It'd be killing people in Alabama, too.

MS. VINCENT: And, sir, could you state your name, too?

MR. JACKSON: Oh. James Jackson.

MS. HINES: Somebody else (inaudible).

THE COURT REPORTER: What was that?

MS. VINCENT: I think James Jackson.

MR. STEWART: I'd like to just kind of try to address your question a little bit about, you know, why Number 3 versus Number 6. We have certain criteria that we have to look at. There's -- there's nine criteria for a site that -- that the federal government's in charge, and there's -- there's eight criteria that we have to look at. And the first -- first and most important criteria we have to look at is the overall protection of human health and the environment. That's first and foremost. If a -- if a -- an alternative is not protective, we throw it out. We don't consider it. And we -- we have a range of what is considered acceptable. We will never get this site or any other site cleaned up to the point where we have no risk -- absolutely none. We try to get it into the range of what's considered acceptable. And then we have criteria that we have to balance out, you know, what's the best alternative. We have short-term effectiveness, long-term effectiveness, is it implementable, are the materials and resources available to implement a remedy, and cost. Cost is one of the factors that helps us balance between Remedy A and Remedy B.

Another one of those factors that we call "balancing criteria" is community input. That's why we're here tonight. We want your input. We have not made a decision to implement Number 3. The people paying for it hope that's where we go. It may be where we go. But we have to go back after the comment period, evaluate all the comments, and then figure out is Alternative 3 the best alternative, or is it Number 6?

But, again, the most important thing that we have to consider: Is it protecting human health? And we believe that Alternatives 3, 4, 5, and 6 all are protective. So that's where we really get into the balancing factors, the cost and implementability and how -- how short-term effective they are. So, you know, we've got a lot of work to do after this to consider all the comments and really, you know, just evaluate everything, put everything on the table and determine what we think is the best alternative. I hope that kind of clarifies it a little bit.

But, really, as Keisha said, Number 6: The big difference, the railroad track there. No one is being exposed to any of the soil there that has contamination. The extra -- I don't want to say "the extra effort," but it is extra effort to get every molecule of contaminated soil on that railroad track puts the railroad track in jeopardy. And, when you start excavating around a railroad track, the -- the troubles that come along with that are just magnified.

So we have a lot of things we have to consider in which one is the overall best alternative, but we do appreciate these comments, the -- you know, what you think is best, and we will certainly take that into consideration.

MS. ADAMS: Who owns the property?

MS. VINCENT: Please state your name.

MS. ADAMS: Pardon?

MS. VINCENT: Please state your name.

MS. LONG: That's a good question. I've gone through the -- the ownership history and --

MS. ADAMS: Martha Adams.

MS. LONG: -- it seems like no one really owns the property. There's a company that has taken responsibility for the cleanup and for paying electric bills when the building was there. Is there an actual owner? I think it's Darlington County, technically. It's not Darlington County. Okay.

MR. STEWART: It's probably still in the name of the --

UNKNOWN MALE: Nytronics.

MR. STEWART: -- previous -- Nytronics.

MS. LONG: Nytronics? They don't exist.

MR. STEWART: But, as far as we know, Nytronics is a defunct company.

MS. LONG: Okay. So it's Nytronics.

MS. SHEFFIELD: My name is Peggy Sheffield. Thank the Lord for those that are doing as much as they are so far to clean it up. My question is this: We've been here now five years waiting for cleanup and we're just at this point of deciding what the actual cleanup is going to still involve, and you mentioned that we've got to go back and rework the ditch. Why do we have to go back? What wasn't it done to the point it should be done in the first cleanup rather than have to go back and do more cleanup?

MS. LONG: That was one of my major concerns also. I -- again, the railroad did impact it a little bit. At the time the -- it just could not be completely

cleaned up at the time.
MS. SHEFFIELD: Well, I realize you've got a railroad involved and you can't dismantle the railroad. But the part that they've actually done is almost like a waste that you've got to redo. You've got to have more expense done. And then we are not even cleaned up where they've already dug and dug and dug, but you've got to dig more.
MS. LONG: I understand. At -- when we were here in 2008, there was a lot more there than we anticipated. I -- I really don't have a clear answer for that. It wasn't a waste. It did cut off the flow to the creek. And more has to be done.
JOY: Okay. I just -- I had a question. I -- I wasn't at the last meetings. I understand that some things were talked about --
MS. LONG: Oh, that's okay.
JOY: So I'm probably going to ask a bad question.
MS. LONG: I understand. That's okay.
JOY: I -- I understand that there were about 4,000 drums that were found buried on the property; is that true?
MS. LONG: No. That's not true.
JOY: That's not true. Well, that must have been a

different location. But were there drums found?
MS. LONG: When I came to the project, there definitely were no drums. There is a no-drum rule, and I have not read a drum removal report.
JOY: So that -- that may have been --
MS. LONG: There were drums that were used; that was how the chemicals were stored.
JOY: Right.
MS. LONG: But they were not buried.
JOY: Okay.
MS. LONG: And they did not need to be taken away.
JOY: It must have been across -- I just want to know. Thanks.
MS. CHAPMAN: I'm Helen Chapman, and I don't have a question, but I wanted to tell you I have a husband that worked at the mill. He died. My -- I had four children. The one son that I had after my husband and I both worked at the mill, he died of cancer; my husband died of cancer; and I've had cancer twice. And it just seems like you hear about some of the stuff in the mill, but yet no one can give you any answer of where you might go to get help from or compensation or anything --
MS. LONG: You mean help from attorneys of --
MS. CHAPMAN: -- for this.

MS. LONG: -- if the cancer from the factories caused -- it was caused by them.

MS. CHAPMAN: And -- and, see, it's all been so long ago, you don't -- you can't even remember much of any of this stuff.

MS. LONG: I understand.

MS. CHAPMAN: You know, so -- I mean, I'm just wanting others to know there's a lot of people in the same boat with problems that worked at that mill, and it just seems like there should be something for the people instead of -- you know, if there can be work for the land, how about the people?

MS. BLACKMON: And there's some people who -- that's dying with cancer from this here place down here, so it's got to be something from there that's killing them.

MS. LONG: Did you have a question? Right -- right next to Pat there.

MS. LEWIS: My name is Faye Lewis, and I live on Cotton Street. There is a railroad track that goes right up the street in front of my house; of course, they've got it covered up. But as you were saying, Cotton Street is not affected with the contaminations?

MS. LONG: Correct.

MS. LEWIS: Correct. How about the railroad track that goes down the middle of Cotton Street?
MS. LONG: It's just along the western drainage ditch, that part of the railroad tracks.
MS. LEWIS: Okay. And you said it was in the sediment of Swift Creek?
MS. LONG: Correct.
MR. JACKSON: James Jackson. Did anyone clarify who own it? I heard the County; I heard the City, but nobody --
MS. LONG: It's -- it's Nytronics, but Nytronics is basically a defunct company. They don't really exist. They exist on paper.
MR. JACKSON: So in actuality they still own it?
MS. LONG: Correct.
MS. HINES: Gloria Hines. Nytronics is on paper, but I'm kind of -- I'm interested in knowing what company is paying for it if they don't own it? What do -- what will they get out of that?
MS. LONG: That's a good question.
MS. HINES: I mean, they don't own it. I mean, you know --
MS. LONG: They did own it at one point, and this is part of the law. It's called -- what they call "joint and several liability," so if you have piece

of property that you owned and it's contaminated, you're considered a responsible party regardless if you sold it to somebody else.

MS. HINES: So they sold it to Nytronics?

MS. SHEFFIELD: So their insurance company is handing it?

MS. LONG: What was that?

MS. SHEFFIELD: Their insurance company, then, is handling it?

MS. LONG: I'm not sure how they're paying for it.

MS. VINCENT: Vishay acquired -- and correct me if I'm wrong -- but I believe they acquire General Semiconductors, and they used to operate at the site.

MS. BLACKMON: It's got the Nytronics name on it still. (Inaudible) Nytronics name on it.

JOY: That's what they're saying.

MS. COHEN: This is Dyan Cohen again, and the corporate responsibility of those that have come forward to -- to handle the financial end of this is greatly appreciated. I'm concerned that a company -- an industry might not want to locate above a location where we have this tomb. There could be concerns that -- you know, that that system could fail or it could just be a psychological concern that, gee, you don't want to locate where, you know, this exists, you know. And I'm just wondering if any staff from your agency have any knowledge of how successful these types of cleanups using a tomb have been in attracting companies looking here.

MS. LONG: There is a program at federal and state. We call it the "Brownfields Program" for just those concerns. What typically happens, a company buys a piece of property that might be contaminated, might have a cap on it, and what they do is they're called "non-responsible parties." And they actually acquire the piece of property. They do get tax breaks, and they do some environmental work, which is determined by DHEC or EPA or whoever's handling the contract at the time, and what that gives them is a what we call a "covenant not to sue." So, basically, they're free and clear. Like I was saying before, if you own contaminated property, no matter if you sell it to someone else, you're forever liable for any kind of cleanup. With this particular Brownfields Program, you will not be considered liable. And, also, you do get the tax breaks. The property might be a little bit cheaper because the perception that it's scary or hazardous.

So we do have a specific program. It's called Brownfields. It's been in existence for a while, and so it's not unusual for a company come in to a contaminated piece of property and develop it.

MS. COHEN: But all of these would be under Brownfields, right? Even Alternative Number 6 also would be part of Brownfields program?

MS. LONG: The Brownfield -- the site goes into Brownfields, not the particular cleanup alternatives, etc., etc. So it would be eligible for this particular program if the company decided to locate there.

MR. GARLAND: Howard Garland. Is this considered a Superfund site? And, if not, what tier would it be in -- in comparison to a Superfund site?

MS. LONG: This is a Superfund site. It is a Superfund site.

MS. VINCENT: A state Superfund site.

MS. LONG: A state Superfund. It's not federal Superfund. State Superfund site.

JOY: Hey. I just had a question. I got on the Internet. When y'all were asking about who owned Nytronics, it's pulling up that Bastian -- a Bastian-Blessing Company merged with them and that that's who the owners are now, and they're -- I was

wondering if that name was on any of the -- Bastian Industries?
MS. LONG: I have not heard that name. A property owners' search has been exhaustive as possibly --
JOY: Well, not -- not for property owners. But I'm saying as far as the name Nytronics Group or Nytronics --
MS. LONG: It still exists. There are similar and same companies that do totally different things that's not associated with this particular property.
JOY: Okay.
MS. LONG: So, if you type in "Nytronics" on the Internet, you will find several listings on Google, what have you, but they're not associated with this property.
MS. BLACKMON: Well, if they're not; nobody is taking up for Nytronics.
MS. LONG: I'm sorry. I couldn't --
MS. VINCENT: She asked if there is anyone who is taking up for Nytronics.
MS. BLACKMON: Right.
MS. VINCENT: Can you expand on your question?
MS. LONG: Do you --
MS. BLACKMON: (Inaudible.)
MS. LONG: -- mean like their -- to their defense, you

mean?
JOY: Well, I guess the -- the kind of -- where -- I guess the -- the group on the second row aren't really the owners of Nytronics.
MS. LONG: Correct.
JOY: They're just taking responsibility for the cleanup. But the company that actually bought Nytronics out, why aren't they taking any kind of responsibility in this? Why does it have to fall on people other than themselves?
MS. VINCENT: It could very well be that the company that you're referring to may have bought a portion of a Nytronics industry somewhere else, that's why it's coming up on a Google search. It could be a -- you know, a number of things of why that company is coming up.
MS. BLACKMON: Maybe you ought to check other (inaudible) Nytronics (inaudible) to do with Nytronics over there.
MS. VINCENT: Anybody else?
JOY: Actually, it does single out Nytronics Industries.
MR. WATKINS: Tony Watkins again, mayor. About five years ago we -- we did a considerable amount of research concerning this subject, and it was -- it's my educated opinion and not just --

MS. LONG: I think you just turned the microphone off.
MR. WATKINS: This better?
MS. LONG: Okay.
MS. VINCENT: Great.
MS. LONG: Uh-huh.
MR. WATKINS: I think I, along with other people, came to the conclusion, after some extensive -- rather extensive research, that there's not a person on the face of this Earth that would admit to being an owner of Nytronics and accept responsibility for anything that Nytronics did. That was our conclusion.
MS. HINES: Gloria Hines. What type regulations does DHEC -- DHEC have now for agencies -- companies coming in like with contaminants?
MS. LONG: There is a federal law. It's called the "Resource Conservation and Recovery Act," and its nickname is "Cradle To Grave," so when a chemical is created it is tracked till the end of its disposal. So back in the 1880s, there was no such thing. You had a chemical; you did whatever you want with it. No one knew why or how or how it would affect you. But now there are laws and regulations that restrict how you handle these chemicals and where you can put it and how you can

handle it.
So the premise is we won't have any more Nytronics sites; we won't have any more Love Canals; we won't have any chemicals that would make it where someone build a house on top of it and -- and passed connectively. And there are those who cheat and just dump stuff wherever, and they do deal with that. But there are laws in place to stop this kind of stuff.
MS. HINES: What about cleaners? The cleaners?
MS. VINCENT: Dry cleaners.
MS. HINES: Dry cleaners. Yes.
MS. LONG: There -- there is a dry cleaning program that tracks the -- the PCE. But earlier in the presentation -- and actually it's taxed, so that if any of the PCE gets out into the environment, then there is a fund to clean it up.
MS. HINES: How often do y'all come and check them?
MS. LONG; They're -- we have regional offices that inspect -- you can file a complaint. We have them address any complaint, and there is a dedicated dry-cleaner staff that inspects these facilities.
MS. VINCENT: Any other questions?
MS. SHEFFIELD: You just stated -- sorry. Peggy Sheffield. You stated you're with the State; is

that correct?
MS. LONG: I am. Yes, ma'am.
MS. SHEFFIELD: Who is putting the pressure to -- to continue to see that this cleanup is done and finalized? The State or DHEC?
MS. LONG: DHEC is the State, so it is me. And I work for the State of South Carolina.
MS. SHEFFIELD: Well, it's been five. You think it'll be another five and how many more after that before this will be completed?
MS. LONG: I -- I can't tell you that -- the ending point of -- over 30,000 sample points have been taken at this site now. The process is not fast. We're doing our best to try to make it go faster. Of course, we have the funding cuts and we have the staff cuts. Five years there were two of us up here discussing the project. There were two of us looking at these documents; there were two of us looking at the groundwater and the soil and Swift Creek. Now it's just me. I know that's not very encouraging.
MS. SHEFFIELD: Well, when this is done -- or I should say, from this meeting, you will carry forth what we want, as the community, to whoever to see this done?

MS. LONG: Correct.
MS. SHEFFIELD: Whether we want -- we want 3 or 6 or what, and you will put the pressure on them by what we choose?
MS. LONG: That is the intent of this meeting. Like Mr. Stewart said earlier, we consider all comments. And there are nine criteria, and, yes, your -- your comments will be considered, absolutely.
MS. VINCENT: The public's comments is one of those criterias that we would definitely consider. And we have a comment period that ends on December the 20th on this site. And what we request is that you provide those other comments to us in writing and -- and send them to Ms. Long and she can help provide additional answers.
So if you don't have the questions all together tonight, it's not the end. We do get a chance to go home, digest the information, and if you have some additional questions, you can present those to Ms. Long.
MS. LEWIS: Faye Lewis. So what you're saying is cotton mill was there first?
MS. LONG: Correct.
MS. LEWIS: Most of the contaminants were not from the cotton mill, but you think it was from Nytronics?

MS. LONG: From the manufacturing of electrical components because PCBs are used in electronic components because of the way it's built. The chemical can absorb a lot of heat, and that's very useful for electricity and those types of things. And then with the solvents that's the cleaning way.

MS. LEWIS: So that's why they're not having the problems in Hartsville where the cotton mill was there?

MS. LONG: Right. If there were PCBs, it would've been from the transformers that power the facility.

MS. VINCENT: But solvents are used in cotton facilities.

MS. LONG: Solvents are used in cotton facilities.

MS. VINCENT: They have to use that to clean. The degreaser kind of stuff or the -- the what -- any other questions? None.

All right. If we have no other questions, we'll go ahead and close the meeting and we appreciate your participation. And, if you have any other questions or want to talk off mic, we'll be glad to answer those for you. Thanks so much for coming out tonight.

(Whereupon, at 8:20 p.m., the meeting of the above-entitled matter was concluded)

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(**Certificate accompanies sealed original only.)

ERRATA

In regards to: Former Hytronics Components Site
Public Meeting
Date: 11/19/2013
Reporter: Kayce Tackett

I wish to make the following changes for the following reasons:
(Write in page, line numbers and the change in the box.)

Page #	Line #	Change:	Reason:	Office Use Only
11	19	Change "provision" to PREVENTION	the remedial objectives prevent "ingestion, direct contact..."	1 2 3
13	5	Change "of the states" to ON THE SLIDE	Comprehension	1 2 3
13	19	Add numeral '2'	Alternative 2 "involves a little more paperwork"	1 2 3
21	23	Change "cell" to WELL	MW6 is a well on the property	1 2 3
36	17	Change "reckoning" to RECORD OF'	the ROD is Record of Decision	1 2 3
45	3	Change "is a no-drum rule" to WAS NO DRUM	there wasn't a drum removal REMOVAL	1 2 3
45	4	Change "rule" to REMOVAL	there is no drum removal report	1 2 3

Your signature: [signature] ***Today's date:*** 02/05/14

Returned errata received by an agent of Southern Reporting, Inc.: ______________ on ______________.

Job No.: 9622

KEY

1 Reporter error.

2 Transcribed correctly.

3 Other.

(See attached.)

ERRATA

In regards to: Former Nytronics Components Site
Public Meeting
Date: 11/19/2013
Reporter: Kayce Tackett

I wish to make the following changes for the following reasons:
(Write in page, line numbers and the change in the box.)

Page #	Line #	Change:	Office Use Only		
48	12 & 13	capatalize General Semiconductor	1	2	3

Reason: This was the name of one of the companies

Page #	Line #	Change:			
54	6	"Passed connectively"	1	2	3

Reason: ?? I'm not sure what I said, but this makes no sense. Can it be verified?

Page #	Line #	Change:			
			1	2	3

Reason:

Page #	Line #	Change:			
			1	2	3

Reason:

Page #	Line #	Change:			
			1	2	3

Reason:

Page #	Line #	Change:			
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Reason:

Page #	Line #	Change:			
			1	2	3

Reason:

Your signature: [signature] ***Today's date:*** 02/05/14

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3 Other.

(See attached.)

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Suite 4690
Woburn, MA 01801
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VIA ELECTRONIC MAIL

December 20, 2013

Ms. Keisha Long, Project Manager
State Remediation Section
Division of Site Assessment and Remediation
Bureau of Land and Waste Management
South Carolina Department of Health and Environmental Control
2600 Bull Street
Columbia, SC 29201-1708

Re: Comments on the November 2013 Proposed Plan for Site Remediation
Operable Unit 1 (OU1) – Onsite Soil
Former Nytronics Components Group, Inc. (NCGI) Site, Darlington, South Carolina

Dear Ms. Long:

On behalf of our client, Vishay GSI, Inc. (VGSI), WSP USA Corp. is submitting this letter to provide comments on the South Carolina Department of Health and Environmental Control's (SCDHEC's) November 2013 *Proposed Plan for Site Remediation (Operable Unit 1 - Onsite Soil)* for the former NCGI site in Darlington, South Carolina. VGSI agrees with the SCDHEC's preferred soil remedial option of Alternative 3 as defined in the proposed plan and the March 1, 2013 *Operable Unit 1 Feasibility Study Report* (OU1 FS).

The FS defined the Remedial Action Objectives (RAOs) for OU1 as follows:

- Reduce, control, or eliminate unacceptable exposures to polychlorinated biphenyls (PCBs) and volatile organic compounds (VOCs) via inhalation or direct contact with soil containing these compounds.
- Eliminate potential for further degradation of onsite and offsite groundwater quality.
- Prevent future migration of soil containing PCBs and VOCs to the wetlands and Swift Creek.

To achieve the RAOs, six remedial alternatives were formulated in the FS from various technologies and process options. The FS then presented a comparative analysis of each alternative relative to the others, using the following evaluation criteria as defined in the National Contingency Plan (NCP):

Threshold Criteria

- Overall Protection of Human Health and the Environment.
- Compliance with Applicable or Relevant and Appropriate Requirements.

Balancing Criteria

- Long-Term Effectiveness and Permanence
- Reduction in Toxicity, Mobility or Volume through Treatment
- Short Term Effectiveness
- Implementability
- Cost

Modifying Criteria

- State Acceptance
- Community Acceptance

Alternatives 3 through 6 all achieve the RAOs and the threshold criteria and provide comparable levels of protection to human health and the environment. In this situation, the comparative analysis of the alternatives using the balancing criteria becomes paramount to selection of the final remedy. Alternative 3 includes the following remedial actions:

- Excavation and offsite disposal of soils containing PCBs above 50 milligrams per kilogram (mg/kg)
- Consolidation and onsite capping of soils containing concentrations of PCBs between 10 and 50 mg/kg
- *Ex Situ* treatment, backfill, and capping of soils containing concentrations of VOCs greater than 5,000 micrograms per kilogram (µg/kg)
- Soil Vapor Extraction (SVE) of soils containing concentrations of VOCs between 14 and 5,000 µg/kg
- Institutional Controls

As described further below, Alternative 3 achieves the RAOs and threshold criteria at a significantly lower impact to the community; lower impact to the environment (via the lower use of energy to contain the less contaminated soil onsite compared to the use of offsite landfill capacity); lower capital cost, and lower net present worth cost compared to Alternatives 4 through 6.

Alternative 3 eliminates the direct contact (PCBs and VOCs) and inhalation (VOCs) exposure pathways in all areas of proposed soil removal. In the consolidation area, the direct contact exposure pathway would be controlled through the installation and maintenance of a cap and deed restrictions that limit property use. In the consolidation area and areas where soils containing residual concentrations of VOCs above the remedial goals (RGs) would be left in place, the inhalation pathway for VOCs would be controlled through the excavation and *ex situ* treatment of VOC source area soils and the operation of the SVE system. Alternative 3 eliminates potential for further degradation of groundwater quality by excavating all soils with source area concentrations of VOCs and implementing SVE to remove the residual VOCs *in situ*. The risk of PCBs migrating to groundwater is very low due to their inherent affinity to adsorb to the soil matrix. Under Alternative 3, this low risk would be managed by excavating and disposing of soils containing PCBs above 50 mg/kg and consolidating soils with PCBs between 10 mg/kg and 50 mg/kg under a cap to reduce leaching potential. This would be combined with long-term groundwater monitoring (which would be addressed during the feasibility study for OU2). Finally, Alternative 3 permanently eliminates the exposure pathway to the wetlands and Swift Creek via erosion by removing and consolidating all soils containing PCBs greater than 10 mg/kg from all areas of OU1 with potential to erode.

The progression from Alternative 4 through Alternative 6 involves excavating and disposing of incrementally greater volumes of affected soil, and conversely, addressing less affected soil *ex situ* or *in situ*. As a result, Alternatives 4 through 6 have incrementally higher impact on the environment (as represented by their increased use of energy to transport greater volumes of affected soils to offsite disposal facilities) and incrementally higher capital costs compared to Alternative 3. In addition, the short-term risks and impact to the local community are higher for Alternatives 4 through 6 because of the increased truck traffic necessary to transport larger volumes of soil offsite. These unfavorable impacts for Alternatives 4 through 6 would be exacerbated if the volumes of soil realized during the remedial action are higher than the estimates developed in the FS based on the currently available data.

In summary, the increased short-term risks to the community and higher carbon footprint of Alternatives 4 through 6, as well as the additional capital and net present worth costs, do not justify their selection. WSP concurs with the SCDHEC's selection of Alternative 3.

Sincerely yours,

James A. Sobieraj, P.E.
General Manager

JS:js
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cc/encl.: Vishay GSI, Inc.
Todd Hooker, Esq., Laddey, Clark & Ryan, LLP