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Removal Site Evaluation Report

Former Virginia-Carolina Chemical Company Winston-Salem Site, Winston-Salem, Forsyth County, North Carolina

August 2009

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LIST OF ACRONYMS AND ABBREVIATIONS

AFH	American Fertilizer Handbook
bgs	below ground surface
EMES	ExxonMobil Environmental Services Company
FMD	Fertilizer Manufacturer's Directory
GPS	Global Positioning System
HSA	hollow stem auger
Haz-Mat	Haz-Mat Transportation and Disposal, Inc.
IDW	investigation-derived waste
mg/kg	milligrams per kilogram
NAD83	North American Datum of 1983
OD	outside diameter
QC	quality control
RSE	Removal Site Evaluation
SCS	Soil Conservation Service
STATSGO	State Soil Geographic Database
TCLP	Toxicity Characteristic Leaching Procedure
TestAmerica	TestAmerica, Inc. of Nashville, Tennessee
TWT	Taylor, Wiseman & Taylor
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USGS	United States Geologic Survey
VCC	Virginia-Carolina Chemical Company
Work Plan	Removal Site Evaluation Work Plan
XRF	x-ray fluorescence

1. Introduction

This report presents the results of the Removal Site Evaluation (RSE) data collection activities conducted at the former Virginia-Carolina Chemical Company (VCC) site located in Winston-Salem, Forsyth County, North Carolina (the Site) in 2009 and 2008. Figure 1-1 identifies the location of the Site on the United States Geological Survey (USGS) 7.5-minute quadrangle maps for Walkertown and Winston-Salem East, North Carolina.

Data collection activities were completed by ARCADIS on behalf of ExxonMobil Environmental Services Company (EMES). Activities were completed in accordance with the United States Environmental Protection Agency- (USEPA-) approved *Removal Site Evaluation Work Plan, Former Virginia-Carolina Chemical Corporation Site, Winston-Salem, North Carolina* (Work Plan) (ARCADIS, 2008).

In addition, results from the Soil Screening and Sampling Event Summary Report (Report) prepared by ARCADIS U.S., Inc. (ARCADIS) on behalf of EMES to document the soil screening and sampling activities that were conducted at the Site between November 19 and November 21, 2008, are included herein. Soil screening and sampling activities were performed as discussed during the June 19 2008 meeting between the North Carolina Department of Environment and Natural Resources (NCDENR), the North Carolina Department of Transportation (NCDOT), S&ME, EMES, and ARCADIS.

1.1 Project Objectives

The objective of the RSE data collection activities was to determine the presence or absence of chemical constituents in soil that may be attributed to the activities conducted at the former fertilizer plant located at the Site. Based on experience at other former fertilizer sites, the related constituents are arsenic and lead. This report summarizes the RSE data collection activities and the generated data.

1.2 Site Description and Background

1.2.1 Site Location

The Site is located near the intersection of Indiana Avenue and two separate branches of the Norfolk Southern railroad (Figure 1-1). The property that contains most of the Winston-Salem site has a street address of 3301 Glenn Avenue (Figure 1-2); however,

the former plant site is located at the far southern end of this property closer to Indiana Avenue between two branches of the Norfolk Southern Railroad. The approximate geographical location of the center of the Site is at 36.1270° North latitude and 80.2342° West longitude (North American Datum of 1983 [NAD83]).

Figure 1-2 depicts the approximate boundaries of the former Winston-Salem property superimposed on a 2002 aerial photograph. Figure 1-2 also depicts the current site features, and historical site features digitized from 1907 and 1917 Sanborn maps. The Site is in an old industrial area located northeast of downtown Winston-Salem, along North Liberty Street, near the intersection/divergence of two branches of the Norfolk Southern Railroad. The former Site is bounded to the north by Norfolk Southern's rail yard and Atlantic Scrap's facility, to the east by the Norfolk Southern Railroad (and North Liberty Street beyond), to the south by vacant industrial land (and Indiana Avenue beyond), to the southwest by the Norfolk Southern Railroad (and NCDOT Site No. 54 beyond), and to the west by a rolling stock storage yard owned by Waste Management. The Site is bisected from northwest to southeast by the US 52 / SR 8 ROW, which is approximately 150-feet wide.

Almost all of the land within 500 feet of the Site can be characterized as commercial, industrial, vacant/abandoned industrial, or transportation. A property occupied by Hanes Lowrence Middle School is located just over 400 feet southwest of the Site. The broader area shown on Figure 1-2 includes a mixture of commercial, industrial, institutional, government, and residential land uses. Areas north and south of the Site are primarily commercial and industrial. Areas to the distant east and distant west of the Site are primarily residential. A large Norfolk Southern rail yard is located north of the Site, and Smith Reynolds Airport is located northeast of the Site.

Currently, the former Winston-Salem site is occupied by 2 tax parcels. Current property boundary information was provided by a 2007 Forsyth County tax map.

1.2.2 Former Facility Description

Historical information indicates that a fertilizer plant was constructed at the Site by Southern Chemical Company between 1895 and 1900, and was continuously operated through 1927. Virginia-Carolina Chemical Company acquired the plant from Southern Chemical Company in 1902. The Fertilizer Manufacturer's Directory (FMD) and American Fertilizer Handbook (AFH) yearbooks list the Site variously as Virginia-Carolina Chemical Company and Southern Chemical Company from 1911 through 1913, and as Virginia Carolina Chemical Company from 1914 through 1926. Virginia-

Carolina Chemical Company continued to own the Site until declaring bankruptcy in 1924.

At the conclusion of federal reorganization proceedings in 1926, Virginia-Carolina Chemical Corporation emerged as a new company. In 1927, the Site is listed as Virginia Carolina Chemical Corporation. After 1927, there are no listings that correspond with the Site. From 1911 through 1920, the fertilizer yearbooks provide no specific information regarding plant operations. However, the Site is listed as a complete factory with acid chambers or acid process facilities from 1921 through 1927. Virginia-Carolina Chemical Corporation merged into Socony Mobil Oil in 1963. The company name changed in 1966 to Mobil Oil Company. In 1999, Exxon Corporation merged with Mobil Corporation to form Exxon Mobil Corporation. Mobil Oil Corporation was renamed ExxonMobil Oil Corporation, the successor to Virginia-Carolina Chemical Corporation. The site is most accurately referred to as a former Virginia-Carolina Chemical Company (VCC) site.

A review of the available Sanborn Fire Insurance maps confirmed that the facility was a complete factory with acid production facilities throughout its entire operational history. At various times throughout the plant's history, its features included an acid chamber structure, compressor room, pyrites burners, a pyrites house, acid towers, a nitre house, a boiler room, a pump house, various water towers, a 100,000-gallon reservoir, a tobacco stem and grinding warehouse and associated drying furnace, a transformer house, rock sheds, a mill building (for grinding, mixing, storage, and bagging of fertilizer), a bag house, a motor printing press, several storage/warehouses, scales, a corn crib, and an office. As indicated on the Sanborn maps, the plant received its water supply from a "branch" located north of the plant site. Figure 1-2 identifies the locations of many of these features superimposed on a base map consisting of the 2002 aerial photograph and the 2007 Forsyth County tax maps. The mill building and associated structures were located south of present-day US 52 / SR 8, and the acid plant was located beneath and to the north of present-day US 52 / SR 8. Although the plant remained essentially unchanged throughout its years of operation, some notable modifications did take place, including an expansion of the mill building and the acid plant between 1900 and 1907.

1.2.3 Regional Geology and Hydrogeology

The Site is located in the Piedmont Physiographic Province in North Carolina, which is characterized by generally rolling, well-rounded hills and ridges with a few hundred feet of elevation difference between the hills and valleys (NCGS, 2004). Specifically, the

Site is underlain by the gneiss and schist of the Charlotte belt, which consist of fine-grained biotite-quartz-feldspar gneiss and some interlayered augen gneiss. Amphibolite layers occur locally and intrusive dikes of pegmatite and granite are also present (USGS, 1975).

Review of the State Soil Geographic Database (STATSGO) soil survey data compiled by United States Department of Agriculture (USDA) Soil Conservation Service (SCS) indicates that the underlying soils of the Site (Forsyth County) are classified as urban land and are variable in texture. Urban land soils can consist of sandy, fine sandy and clay loam (EDR, 2008).

The hydrogeology of the Piedmont Region is intricate due to complex geology and the fact that porosity and permeability in the bedrock are mainly secondary in nature. Four principal hydrogeologic units exist within the Piedmont Region:

- regolith (unsaturated soil zone) — composed of organics-rich surface soil and/or artificial fill
- regolith (unsaturated and saturated zones) — composed of silt and clay-rich soil that is residual material derived from in-situ chemical weathering of bedrock known as saprolite
- transition zone or partially weathered rock (PWR) (lower saturated regolith) — composed of the PWR unit that grades to competent bedrock
- fractured crystalline bedrock system — unweathered and weathered competent bedrock that displays secondary porosity features, such as sheet joints and fractures, which generally decrease with depth

Porosity and groundwater storage are the major differences in the water-bearing characteristics of the regolith (saprolite) and bedrock (Daniel and Dahlen, 2002). Due to the lack of intergranular porosity (primary porosity) in the bedrock, water is stored in secondary openings, such as planar openings in fractures and joints (secondary porosity). These fractures are the pathways through which groundwater flows within the bedrock. In general, the bulk porosity (primary porosity plus secondary porosity) of fractured bedrock ranges from 1 percent to 3 percent in the Piedmont of North Carolina. The heterogeneity of the bedding, fractures and foliation creates permeability that typically is greatest parallel to the bedding, foliation and zones of fracture concentration (Daniel and Dahlen, 2002).

Based on the limited data collected from shallow soil borings advanced at the Site, the subsurface generally consists of orange brown, red brown, and brown silt and sandy

silt with varying amounts of fine-grained gravel and mica. Rootlets and gravel were generally observed from the ground surface to 0.5 feet below ground surface (bgs). Organic matter and brick fragments were observed in soil boring SB-22 extending from the ground surface to approximately 2 feet bgs. No additional fill material or magenta slag was observed in any of the soil borings. Groundwater was not encountered in any of the soil borings, which were advanced to a maximum depth of 4 feet bgs during the field activities. Appendix A details soils encountered during this investigation.

1.3 Report Organization

The introduction provided in this section is followed in Section 2 with a description of the data collection activities that were performed at the Site. Section 3 presents the results of the data collection activities and Section 4 summarizes the findings of this investigation. Section 5 lists the references cited in this report.

This report has three appendices. These appendices provide visual soil classifications (Appendix A), a waste manifest detailing the disposal of investigative-derived waste (IDW) (Appendix B), and photographs taken during field activities (Appendix C).

2. Data Collection Activities

2.1 Introduction

Samples were collected in accordance with the USEPA-approved Work Plan (ARCADIS, 2008) to determine the presence or absence of elevated concentrations of arsenic and lead in site soils. Representatives of ARCADIS implemented the field activities between May 18 and May 21, 2009. The field sampling activities are described below.

2.2 Sampling Preparation Activities

Prior to the start of field activities, ARCADIS contacted North Carolina One Call to submit public utility locate requests for the two parcels. A health and safety meeting for personnel was conducted on the morning of May 18, 2009. Representatives from ARCADIS conducted a site walk and identified the proposed sample locations. A representative of Taylor, Wiseman & Taylor (TWT) of Cary, North Carolina (a private utility locator and surveyor) was onsite to provide subsurface clearance services, which included identifying and marking the utilities proximate to the proposed sample locations.

2.3 Soil Sampling and Analysis Activities

Soil samples were collected on May 18 through May 20, 2009. Soil sampling included the collection of 71 soil samples from 24 soil boring locations (WS-SB-1 through WS-SB-24) advanced at the locations shown on Figure 2-1. Soil samples were collected from 0 to 0.5, 0.5 to 2, and 2 to 4 feet bgs unless auger refusal was encountered. Soil samples were collected using properly decontaminated stainless steel hand augers.

As part of this investigation, ARCADIS used a portable Niton XLT 898D X-ray fluorescence (XRF) unit to screen soil samples for arsenic and lead concentrations. Samples were submitted to TestAmerica, Inc. of Nashville, Tennessee (TestAmerica) for arsenic, lead, and pH analyses in accordance with the methods specified in the Work Plan. A summary of the samples collected and the analyses performed is presented in Table 2-1. Physical descriptions of the soil samples collected are presented in Appendix A.

2.4 2008 Soil Sampling

In November 2008, ARCADIS, on behalf of EMES, and in coordination with NCDOT, collected soil samples from the Site as described in the *VCC Winston-Salem Site: Soil Screening and Sampling Event Summary Report* (ARCADIS, 2009).

ARCADIS collected a total of 38 soil samples from two soil boring locations (B1-C and EB2-D) at the Site as shown on Figure 2-1. At each location, 6.25-inch outside diameter (OD) hollow stem augers (HSAs) were advanced and select soil depth intervals were collected with 24-inch split spoon samplers. ARCADIS screened and collected soil samples from 0 to 4 feet bgs (or below bottom of concrete for location EB2-D). Below 4 feet, one 24-inch split spoon sampler was advanced a depth of 18-inches for every 2.5 feet of HSA advancement. All samples were screened for arsenic and lead in the field using a portable x-ray fluorescence (XRF) instrument. Six of the 38 soil samples were submitted for laboratory analysis of arsenic, lead, and pH.

Lead was not detected in any of the soil samples at concentrations exceeding the screening level of 895 mg/kg. Arsenic was detected in one sample (WS-EB2-D) collected from a depth of 38.5 to 40 feet bgs at a concentration of 121 mg/kg, which exceeds the screening level of 27 mg/kg for arsenic. A summary of the 2008 soil sampling analytical program is provided in Table 2-1. A summary of the laboratory analytical results is presented in Table 2-2. XRF data and soil descriptions are provided in the *VCC Winston-Salem Site: Soil Screening and Sampling Event Summary Report.*

2.5 Investigation-Derived Waste Sampling

Two properly labeled 55-gallon steel drums (one containing decontamination water and one containing soil and personal protective equipment [PPE]) of investigation-derived waste (IDW) were generated during the sampling activities at the Site. All drums were staged at the Site pending transport and disposal.

A composite soil sample was collected from the soil drum and analyzed for Toxicity Characteristic Leaching Procedure (TCLP) metals. A composite sample from the drum containing decontamination water was collected and analyzed for target analyte list (TAL) metals and pH. These data were used to adequately characterize IDW materials for proper transport and off-site disposal. A summary of the IDW sampling program is presented in Table 2-1.

2.6 Surveying

Soil sample locations were initially located and documented by ARCADIS using a handheld Global Positioning System (GPS) unit, which is accurate to within 3 meters (approximately 10 feet). Following the completion of sampling activities, soil sample locations were surveyed by TWT using a combination of conventional survey techniques and GPS survey with a Trimble R8 unit.

2.7 Data Validation

Laboratory analytical data were validated by ARCADIS to evaluate data quality and accuracy. Data validation entails a review of the quality control (QC) data and the raw data to verify that the laboratory was operating within required limits, the analytical results are correctly transcribed from the instrument read outs, and which, if any, environmental samples are related to any deficient QC samples. The objective of the data validation is to identify any questionable or invalid laboratory measurements and to determine if the quality is sufficient to meet the data quality objectives. A summary of the field quality control sampling program is presented in Table 2-1.

3. Summary of Results

Samples were collected and analyzed as described in Section 2 from the locations shown on Figure 2-1. This section of the report describes the results of the field screening and laboratory analytical analyses.

3.1 Soil Sample Results

A total of 71 soil samples were collected from the locations shown on Figure 2-1 and screened in the field for arsenic and lead using the XRF unit. Arsenic and lead concentrations were recorded for each sample depth. The soil samples were then submitted to, and analyzed by, TestAmerica for arsenic, lead, and pH. In addition, two of the soil samples were analyzed for TCLP arsenic and lead.

Laboratory analytical results for soil samples were compared to USEPA screening levels of 27 milligrams per kilogram (mg/kg) and 895 mg/kg for arsenic and lead, respectively. Arsenic was detected in 11 soil samples from 8 soil boring locations at concentrations exceeding the screening level of 27 mg/kg. Lead was detected in 8 soil samples from 6 soil boring locations at concentrations exceeding the screening level of 895 mg/kg. Elevated arsenic and lead concentrations were most frequently detected in samples collected from the northeastern (near the location of the former acid chamber) and eastern portions of the Site. The maximum arsenic and lead concentrations detected in soil were 238 mg/kg and 4,380 mg/kg, respectively, collected from soil boring WS-SB-22 at a depth of 0.5 to 2 ft bgs. The pH of the soil samples varied between 3.1 and 7.3 standard units.

Ten of the 24 boring locations sampled had arsenic and/or lead concentrations that exceeded the screening levels. At six of the locations arsenic and/or lead exceed screening levels in the surficial (0-0.5' bgs) sample collected. Sample location WS-SB-8 is located in a densely vegetated area on the northern portion of the Site. Sample location WS-SB-13 is located in a densely vegetated area on the south-central portion of the Site. Sample locations WS-SB-17, WS-SB-18, WS-SB-19 are located approximately 100 feet west of the Norfolk Southern Railroad on the northeastern portion of the Site. Sample location SW-SB-24 is located on the southeast portion of the Site. Soil boring locations with soil arsenic and/or lead concentrations greater than the screening levels are presented on Figure 2-1. A summary of the soil sample analytical results is presented in Table 3-1.

Two soil samples were analyzed for arsenic and lead TCLP concentrations. TCLP arsenic was not detected in either of the soil samples analyzed. TCLP lead was present in the soil samples at concentrations of 16.2 milligrams per liter (mg/L) and 20.6 mg/L, respectively. A summary of the TCLP results is presented in Table 3-2.

3.2 Investigation-Derived Waste Disposal

Two (2) drums (one containing decontamination water and one containing soil and PPE) of IDW were generated during the sampling activities at the Site. Based on the laboratory analytical results, the soil and liquid IDW samples were characterized as non-hazardous. Haz-Mat Transportation and Disposal, Inc. (Haz-Mat) transported and disposed of the liquid IDW drum at their Charlotte, North Carolina facility. The drum containing soil/PPE IDW was transported by Haz-Mat and disposed of at the Allied CMS Landfill in Concord, North Carolina. Analytical results of the IDW drums are presented in Tables 3-3 and 3-4. A copy of the waste manifest is provided in Appendix B.

4. Summary

Arsenic was detected in 11 soil samples from 8 RSE soil boring locations at concentrations exceeding the screening level of 27 mg/kg. Lead was detected in 8 soil samples from 6 RSE soil boring locations at concentrations exceeding the screening level of 895 mg/kg. Elevated arsenic and lead concentrations were most frequently detected in samples collected from the northeastern (near the location of the former acid chamber) and eastern portions of the Site. The maximum arsenic and lead concentrations detected in soil were 238 mg/kg and 4,380 mg/kg, respectively, collected from soil boring WS-SB-22. The pH of the soil samples varied between 3.1 and 7.3 standard units.

Ten of the 24 boring locations sampled had arsenic and/or lead concentrations that exceeded the screening levels. At six of the locations arsenic and/or lead exceed in the surficial (0-0.5' bgs) sample collected. Sample location WS-SB-8 is located in a densely vegetated area on the northern portion of the Site. Sample location WS-SB-13 is located in a densely vegetated area on the south-central portion of the Site. Sample locations WS-SB-17, WS-SB-18, WS-SB-19 are located approximately 100 feet west of the Norfolk Southern Railroad on the northeastern portion of the Site. Sample location SW-SB-24 is located on the southeast portion of the Site. Soil boring locations with soil arsenic and/or lead concentrations greater than the screening levels are presented on Figure 2-1. A summary of the soil sample analytical results is presented in Table 3-1.

5. References

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Tables

Table 2-1
Summary of Sampling and Analytical Program
Removal Site Evaluation Report
Former VCC Winston-Salem Site, Winston-Salem, North Carolina

Sample Identification	Depth (ft bgs)	Sample Date	Arsenic and Lead Field Screening[a]	Laboratory Analyte: Arsenic and Lead	pH	TCLP Arsenic and Lead	TCLP Metals	TAL Arsenic and Lead	Comments
Soil									
WS-B1-C (0-0.5)	0-0.5	11/20/08	X	X	X				
WS-B1-C (0.5-2)	0.5-2	11/20/08	X	X	X				
WS-B1-C (2-4)	2-4	11/20/08	X	X	X				
WS-EB2-D (1-1.5)	1-1.5	11/20/08	X	X	X				
WS-EB2-D (1.5-3)	1.5-3	11/20/08	X	X	X				
WS-EB2-D (3-5)	3-5	11/20/08	X	X	X				
WS-EB2-D (36-37.5)	36-37.5	11/20/08	X	X	X				
WS-EB2-D (38.5-40)	38.5-40	11/20/08	X	X	X				
WS-EB2-D (41-42.5)	41-42.5	11/20/08	X	X	X				
WS-SB-1 (0-0.5')	0-0.5	05/18/09	X	X	X				
WS-SB-1 (0.5-2')	0.5-2	05/18/09	X	X	X				
WS-SB-1 (2-4)	2-4	05/18/09	X	X	X				
WS-SB-2 (0-0.5')	0-0.5	05/18/09	X	X	X				
WS-SB-2 (0.5-2')	0.5-2	05/18/09	X	X	X				
WS-SB-2 (2-4')	2-4	05/18/09	X	X	X				
WS-SB-3 (0-0.5')	0-0.5	05/19/09	X	X	X				
WS-SB-3 (0.5-2')	0.5-2	05/19/09	X	X	X				
WS-SB-DUP-3	0.5-2	05/19/09	X	X	X				Field Duplicate of WS-SB-3 (0.5-2')
WS-SB-3 (2-4')	2-4	05/19/09	X	X	X				MS/MSD
WS-SB-4 (0-0.5')	0-0.5	05/19/09	X	X	X				
WS-SB-4 (0.5-2')	0.5-2	05/19/09	X	X	X				
WS-SB-4 (2-4')	2-4	05/19/09	X	X	X				
WS-SB-5 (0-0.5')	0-0.5	05/19/09	X	X	X				
WS-SB-5 (0.5-2')	0.5-2	05/19/09	X	X	X				
WS-SB-5 (2-4')	2-4	05/19/09	X	X	X				
WS-SB-6 (0-0.5')	0-0.5	05/19/09	X	X	X				
WS-SB-6 (0.5-2')	0.5-2	05/19/09	X	X	X				
WS-SB-6 (2-4')	2-4	05/19/09	X	X	X				
WS-SB-7 (0-0.5')	0-0.5	05/20/09	X	X	X				
WS-SB-7 (0.5-2')	0.5-2	05/20/09	X	X	X				
WS-SB-7 (2-4')	2-4	05/20/09	X	X	X				MS/MSD
WS-SB-8 (0-0.5')	0-0.5	05/20/09	X	X	X	X			
WS-SB-8 (0.5-2')	0.5-2	05/20/09	X	X	X				
WS-SB-8 (2-4')	2-4	05/20/09	X	X	X				
WS-SB-9 (0-0.5')	0-0.5	05/20/09	X	X	X				
WS-SB-9 (0.5-2')	0.5-2	05/20/09	X	X	X				
WS-SB-9 (2-4')	2-4	05/20/09	X	X	X	X			
WS-SB-DUP-4	2-4	05/20/09	X	X	X				Field Duplicate of WS-SB-9 (2-4')

Table 2-1
Summary of Sampling and Analytical Program
Removal Site Evaluation Report
Former VCC Winston-Salem Site, Winston-Salem, North Carolina

				Laboratory Analyte					
Sample Identification	Depth (ft bgs)	Sample Date	Arsenic and Lead Field Screening[a]	Arsenic and Lead	pH	TCLP Arsenic and Lead	TCLP Metals	TAL Arsenic and Lead	Comments
WS-SB-10 (0-0.5')	0-0.5	05/20/09	X	X	X				
WS-SB-10 (0.5-2')	0.5-2	05/20/09	X	X	X				
WS-SB-10 (2-4')	2-4	05/20/09	X	X	X				
WS-SB-11 (0-0.5')	0-0.5	05/19/09	X	X	X				
WS-SB-11 (0.5-2')	0.5-2	05/19/09	X	X	X				
WS-SB-11 (2-4')	2-4	05/19/09	X	X	X				
WS-SB-12 (0-0.5')	0-0.5	05/19/09	X	X	X				
WS-SB-12 (0.5-2')	0.5-2	05/19/09	X	X	X				
WS-SB-12 (2-4')	2-4	05/19/09	X	X	X				
WS-SB-13 (0-0.5')	0-0.5	05/19/09	X	X	X				
WS-SB-13 (0.5-2')	0.5-2	05/19/09	X	X	X				
WS-SB-13 (2-4')	2-4	05/19/09	X	X	X				
WS-SB-14 (0-0.5')	0-0.5	05/19/09	X	X	X				
WS-SB-14 (0.5-2')	0.5-2	05/19/09	X	X	X				
WS-SB-14 (2-4')	2-4	05/19/09	X	X	X				MS/MSD
WS-SB-15 (0-0.5')	0-0.5	05/19/09	X	X	X				
WS-SB-15 (0.5-2')	0.5-2	05/19/09	X	X	X				
WS-SB-16 (0-0.5')	0-0.5	05/19/09	X	X	X				
WS-SB-DUP-2	0-0.5	05/19/09	X	X	X				Field Duplicate of WS-SB-16 (0-0.5')
WS-SB-16 (0.5-2')	0.5-2	05/19/09	X	X	X				
WS-SB-16 (2-4')	2-4	05/19/09	X	X	X				
WS-SB-17 (0-0.5')	0-0.5	05/20/09	X	X	X				
WS-SB-17 (0.5-2')	0.5-2	05/20/09	X	X	X				
WS-SB-17 (2-4')	2-4	05/20/09	X	X	X				
WS-SB-18 (0-0.5')	0-0.5	05/20/09	X	X	X				
WS-SB-18 (0.5-2')	0.5-2	05/20/09	X	X	X				
WS-SB-18 (2-4')	2-4	05/20/09	X	X	X				
WS-SB-19 (0-0.5')	0-0.5	05/20/09	X	X	X				
WS-SB-19 (0.5-2')	0.5-2	05/20/09	X	X	X				
WS-SB-19 (2-4')	2-4	05/20/09	X	X	X				
WS-SB-20 (0-0.5')	0-0.5	05/20/09	X	X	X				
WS-SB-20 (0.5-2')	0.5-2	05/20/09	X	X	X				
WS-SB-20 (2-4')	2-4	05/20/09	X	X	X				
WS-SB-21 (0-0.5')	0-0.5	05/19/09	X	X	X				
WS-SB-21 (0.5-2')	0.5-2	05/19/09	X	X	X				
WS-SB-21 (2-4')	2-4	05/19/09	X	X	X				
WS-SB-22 (0-0.5')	0-0.5	05/19/09	X	X	X				
WS-SB-22 (0.5-2')	0.5-2	05/19/09	X	X	X				
WS-SB-DUP-1	0.5-2	05/19/09	X	X	X				Field Duplicate of WS-SB-22 (0.5-2')
WS-SB-22 (2-4')	2-4	05/19/09	X	X	X				
WS-SB-23 (0-0.5')	0-0.5	05/19/09	X	X	X				

Table 2-1
Summary of Sampling and Analytical Program
Removal Site Evaluation Report
Former VCC Winston-Salem Site, Winston-Salem, North Carolina

				Laboratory Analyte					
Sample Identification	**Depth (ft bgs)**	**Sample Date**	**Arsenic and Lead Field Screening[a]**	**Arsenic and Lead**	**pH**	**TCLP Arsenic and Lead**	**TCLP Metals**	**TAL Arsenic and Lead**	**Comments**
WS-SB-23 (0.5-2')	0.5-2	05/19/09	X	X	X				
WS-SB-23 (2-4')	2-4	05/19/09	X	X	X				
WS-SB-24 (0-0.5')	0-0.5	05/19/09	X	X	X				
WS-SB-24 (0.5-2')	0.5-2	05/19/09	X	X	X				
WS-SB-24 (2-4')	2-4	05/19/09	X	X	X				MS/MSD
Field Quality Control									
WS-EB-051809	NA	05/18/09		X	X				Field Equipment Blank
WS-EB-051909	NA	05/19/09		X	X				Field Equipment Blank
WS-EB-052009	NA	05/20/09		X	X				Field Equipment Blank
Investigative Derived Waste									
WS-IDW-Soil-1	NA	05/20/09			X		X		Investigative Derived Waste - Soil
WS-IDW-Water-1	NA	05/20/09		X	X			X	Investigative Derived Waste - Water

Notes:

a. Field screening data obtained using a portable Niton XLT 898 unit.

1. Samples depths are measured in feet below ground surface (ft bgs).

2. Laboratory analyses were performed by TestAmerica, Inc. of Nashville, Tennessee.

NA - not applicable

MS/MSD - matrix spike/matrix spike duplicate

TCLP - Toxicity characteristic leaching procedure

TAL - Target analyte list

Table 2-2
Summary of 2008 Soil Sample Analytical Results
Removal Site Evaluation Report
Former VCC Winston-Salem Site - Winston-Salem, North Carolina

Sample ID	Laboratory Result	
	Arsenic (mg/kg)	Lead (mg/kg)
WS-B1-C (0-0.5)	ND [ND]	185 J [163]
WS-B1-C (0.5-2)	ND	57.3
WS-B1-C (2-4)	ND	18.1
WS-EB2-D (1-1.5)	1.54	27 J
WS-EB2-D (1.5-3)	2.19	24.9 J
WS-EB2-D (3-5)	ND	278 J
WS-EB2-D (36-37.5)	ND	37 J
WS-EB2-D (38.5-40)	121	17.6 J
WS-EB2-D (41-42.5)	15.5	16.5 J

Notes:

mg/kg - milligrams per kilogram

Shaded values exceed USEPA Region 4 screening levels

[ ] - blind duplicate sample result

J - the concentration is an estimated value

ND - non-detect

Table 3-1
Summary of Arsenic and Lead Concentrations in Soil Samples
Removal Site Evaluation Report
Former VCC Winston-Salem Site - Winston-Salem, North Carolina

Sample ID	Depth (ft bgs)	pH	As (mg/kg)	Pb (mg/kg)
WS-SB-1	0 - 0.5	5.6 J	6.50	61.1
	0.5 - 2	5.3 J	5.65	86.5
	2 - 4	4.8 J	6.15	15.5
WS-SB-2	0 - 0.5	5.2 J	4.34	31.6
	0.5 - 2	4.4 J	3.98	24.2
	2 - 4	4.8 J	3.66	16.8
WS-SB-3	0 - 0.5	5.9 J	6.30	38.0 J
	0.5 - 2	7.3 J [5.8 J]	3.68 [2.77]	29.2 J [25.8 J]
	2 - 4	4.7 J	2.74	35.3 J
WS-SB-4	0 - 0.5	5.3 J	7.35	32.9 J
	0.5 - 2	4.9 J	4.74	26.9 J
	2 - 4	5.3 J	2.53	19.6 J
WS-SB-5	0 - 0.5	5.3 J	5.74	40.5 J
	0.5 - 2	5.6 J	5.69	26.9 J
	2 - 4	4.9 J	3.72	27.3 J
WS-SB-6	0 - 0.5	5.3 J	8.44	53.3 J
	0.5 - 2	5.3 J	6.20	21.6 J
	2 - 4	4.4 J	3.94	19.9 J
WS-SB-7	0 - 0.5	5.0 J	1.21 J	21.3 J
	0.5 - 2	4.3 J	7.10 J	51.9 J
	2 - 4	5.1 J	3.72 J	22.0 J
WS-SB-8	0 - 0.5	4.1 J	38.3 J	1,740 J
	0.5 - 2	5.5 J	5.07 J	211 J
	2 - 4	5.6 J	3.06 J	25.1 J
WS-SB-9	0 - 0.5	4.4 J	0.731 UJ	40.2 J
	0.5 - 2	4.6 J	9.50 J	253 J
	2 - 4	4.2 J [4.1 J]	8.81 J [25.2]	635 J [3,540 J]
WS-SB-10	0 - 0.5	6.0 J	6.18	203
	0.5 - 2	6.6 J	9.82	3,650
	2 - 4	5.0 J	6.80	1,570
WS-SB-11	0 - 0.5	4.4 J	7.91	30.7
	0.5 - 2	5.8 J	7.09	21.5
	2 - 4	5.4 J	26.9	102
WS-SB-12	0 - 0.5	5.1 J	8.83	49.8
	0.5 - 2	5.6 J	6.59	64.8
	2 - 4	6.2 J	8.01	73.3
WS-SB-13	0 - 0.5	5.1 J	33.0	40.9
	0.5 - 2	5.4 J	9.39	23.0
	2 - 4	5.2 J	7.30	23.6
WS-SB-14	0 - 0.5	7.2 J	16.1	146
	0.5 - 2	5.1 J	3.30	18.3
	2 - 4	5.3 J	2.84	11.0
WS-SB-15	0 - 0.5	5.6 J	6.19	79.8
	0.5 - 2	5.2 J	6.75	30.6
WS-SB-16	0 - 0.5	5.3 J [6.7 J]	7.56 [6.12]	18.5 [15.5 J]
	0.5 - 2	5.3 J	8.25	21.3
	2 - 4	5.6 J	4.29	16.7

Table 3-1
Summary of Arsenic and Lead Concentrations in Soil Samples
Removal Site Evaluation Report
Former VCC Winston-Salem Site - Winston-Salem, North Carolina

Sample ID	Depth (ft bgs)	pH	As (mg/kg)	Pb (mg/kg)
WS-SB-17	0 - 0.5	4.9 J	38.0 J	1,360 J
	0.5 - 2	4.0 J	148 J	238 J
	2 - 4	4.0 J	2.78 J	22.4 J
WS-SB-18	0 - 0.5	6.1 J	62.8 J	946 J
	0.5 - 2	3.1 J	35.1 J	2,030 J
	2 - 4	5.3 J	5.94 J	287 J
WS-SB-19	0 - 0.5	4.8 J	55.1 J	188 J
	0.5 - 2	4.3 J	14.8 J	24.5 J
	2 - 4	4.00 J	6.59 J	35.1 J
WS-SB-20	0 - 0.5	7.0 J	0.924 J	23.9
	0.5 - 2	6.1 J	1.92	28.0
	2 - 4	5.0 J	3.56	56.5
WS-SB-21	0 - 0.5	5.5 J	9.22	123
	0.5 - 2	5.3 J	8.66	40.3
	2 - 4	5.9 J	74.8	87.0
WS-SB-22	0 - 0.5	7.2 J	15.7	214
	0.5 - 2	6.3 J [7 J]	238 [221]	3,640 [4,380 J]
	2 - 4	5.0 J	29.7	380
WS-SB-23	0 - 0.5	7.0 J	12.4	122
	0.5 - 2	7.2 J	1.50	13.1
	2 - 4	5.4 J	1.86	19.3
WS-SB-24	0 - 0.5	6.0 J	60.1	657
	0.5 - 2	5.1 J	6.73	47.9
	2 - 4	5.3 J	2.95	14.4

Notes:
mg/kg - milligrams per kilogram
ft bgs - feet below ground surface
J - estimated value
U - not detected
Duplicate sample concentrations are in brackets
Arsenic screening value of 27 mg/kg is based on USEPA Region 4 screening levels.
Lead screening value of 895 mg/kg is based on USEPA Region 4 screening levels for lead with industrial site use.
Shaded values exceed screening levels.

Table 3-2
Summary of Arsenic and Lead TCLP Concentrations in Soil Samples
Removal Site Evaluation Report
Former VCC Winston-Salem Site - Winston-Salem, North Carolina

			Concentration in Sample:	
	Screening		WS-SB-8 (0-0.5')	WS-SB-9 (2-4')
Analyte	Criteria	Units	5/20/09	5/20/09
Arsenic	5.0	mg/L	0.04 U	0.04 U
Lead	5.0	mg/L	16.2	20.6

Notes:
Notes:
mg/L - milligrams per liter
NA - not analyzed
U - not detected
Shaded values exceed USEPA maximum concentration for toxicity characteristic based on TCLP testing.

Table 3-3
Summary of Solid IDW Sample Analytical Results
Removal Site Evaluation Report
Former VCC Winston-Salem Site - Winston-Salem, North Carolina

Analyte	Screening Criteria	Units	Concentration in Sample: WS-IDW-Soil-1 5/20/09
Inorganics - TCLP			
Arsenic	5.0	mg/L	0.0400 U
Barium	100	mg/L	0.159
Cadmium	1.0	mg/L	0.00600 U
Chromium	5.0	mg/L	0.0260 U
Lead	5.0	mg/L	2.37
Mercury	0.2	mg/L	0.00100 U
Selenium	1.0	mg/L	0.0863 J
Silver	5.0	mg/L	0.0280 U
Miscellaneous			
pH		pH Units	4.9

Notes:
mg/L - milligrams per liter
NA - not analyzed
J - estimated value
U - not detected
TCLP - Toxicity Characteristic Leaching Procedure

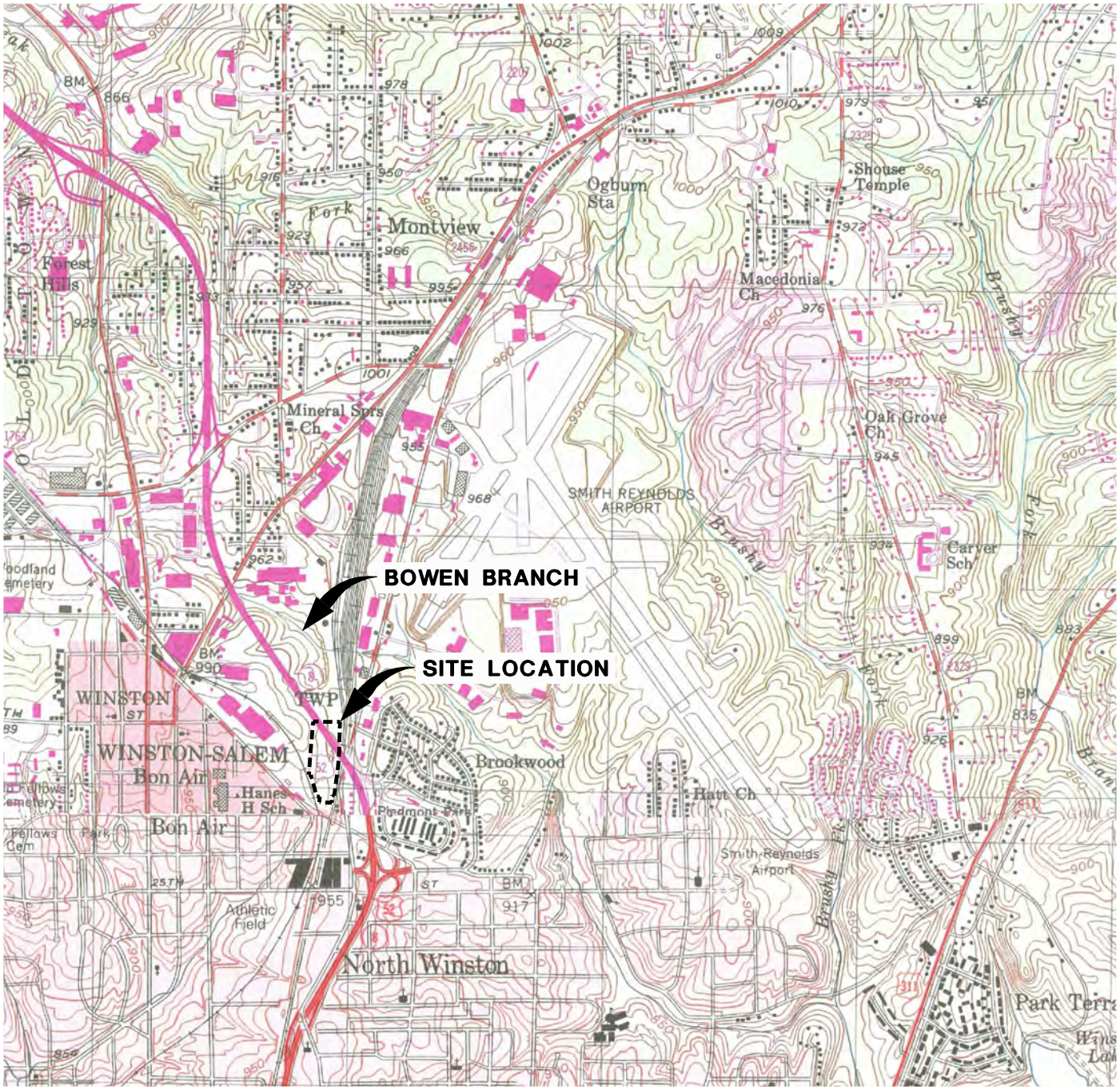
Table 3-4
Summary of Liquid IDW Sample Analytical Results
Removal Site Evaluation Report
Former VCC Winston-Salem Site - Winston-Salem, North Carolina

Analyte	Screening Criteria	Units	Concentration in Sample: WS-IDW-Water-1 5/20/09
Inorganics			
Aluminum	--	mg/L	17.7
Antimony	--	mg/L	0.023 J
Arsenic	5.0	mg/L	0.036 U
Barium	100	mg/L	0.108
Beryllium	--	mg/L	0.010 U
Cadmium	1.0	mg/L	0.009 J
Calcium	--	mg/L	8.74 J
Chromium	5.0	mg/L	0.106
Cobalt	--	mg/L	0.050 U
Copper	--	mg/L	0.104
Iron	--	mg/L	102
Lead	5.0	mg/L	0.350
Magnesium	--	mg/L	1.35
Manganese	--	mg/L	0.644
Mercury	0.2	mg/L	0.00113 J
Nickel	--	mg/L	0.240
Potassium	--	mg/L	39.2
Selenium	1.0	mg/L	0.042
Silver	5.0	mg/L	0.028 U
Sodium	--	mg/L	3080
Thallium	--	mg/L	0.063 U
Vanadium	--	mg/L	0.050
Zinc	--	mg/L	84.7
Miscellaneous			
pH		pH Units	7.70

Notes:
mg/L - milligrams per liter
J - estimated value
U - not detected

ARCADIS

Figures



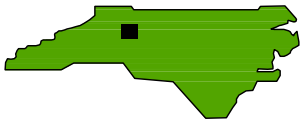
REFERENCE: USGS 7.5 MIN. QUAD., WALKERTOWN/WINSTON-SALEM EAST, N.C., 1951 PHOTOREVISED 1997

LEGEND:

- - - - - APPROXIMATE LOCATION OF FORMER PLANT FENCE LINE (APPROXIMATE BOUNDARIES OF THE FIRST LOT OF THE ORIGINAL PLACE)

NOTE:

1. PLANT FENCE LINE DRAWN AS DESCRIBED IN WINSTON-SALEM PROPERTY REPORT DATED MARCH, 2006. THE VIRGINIA-CAROLINA CHEMICAL CORPORATION PLANT FENCE LINE APPROXIMATES THE BOUNDARY OF THE FIRST LOT OF THE ORIGINAL PLACE.



AREA LOCATION

0 2000' 4000'

APPROXIMATE GRAPHIC SCALE

EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
WINSTON-SALEM, FORSYTH COUNTY, NORTH CAROLINA
REMOVAL SITE EVALUATION REPORT

SITE LOCATION MAP

ARCADIS

FIGURE **1-1**

CITY:ELLIS DIVGROUP:41 DB:LELLIS LD:(Opt) PIC:(Opt) PM:(Reqd) TM:(Opt) LYR:(Opt)ON=*;OFF=*REF*
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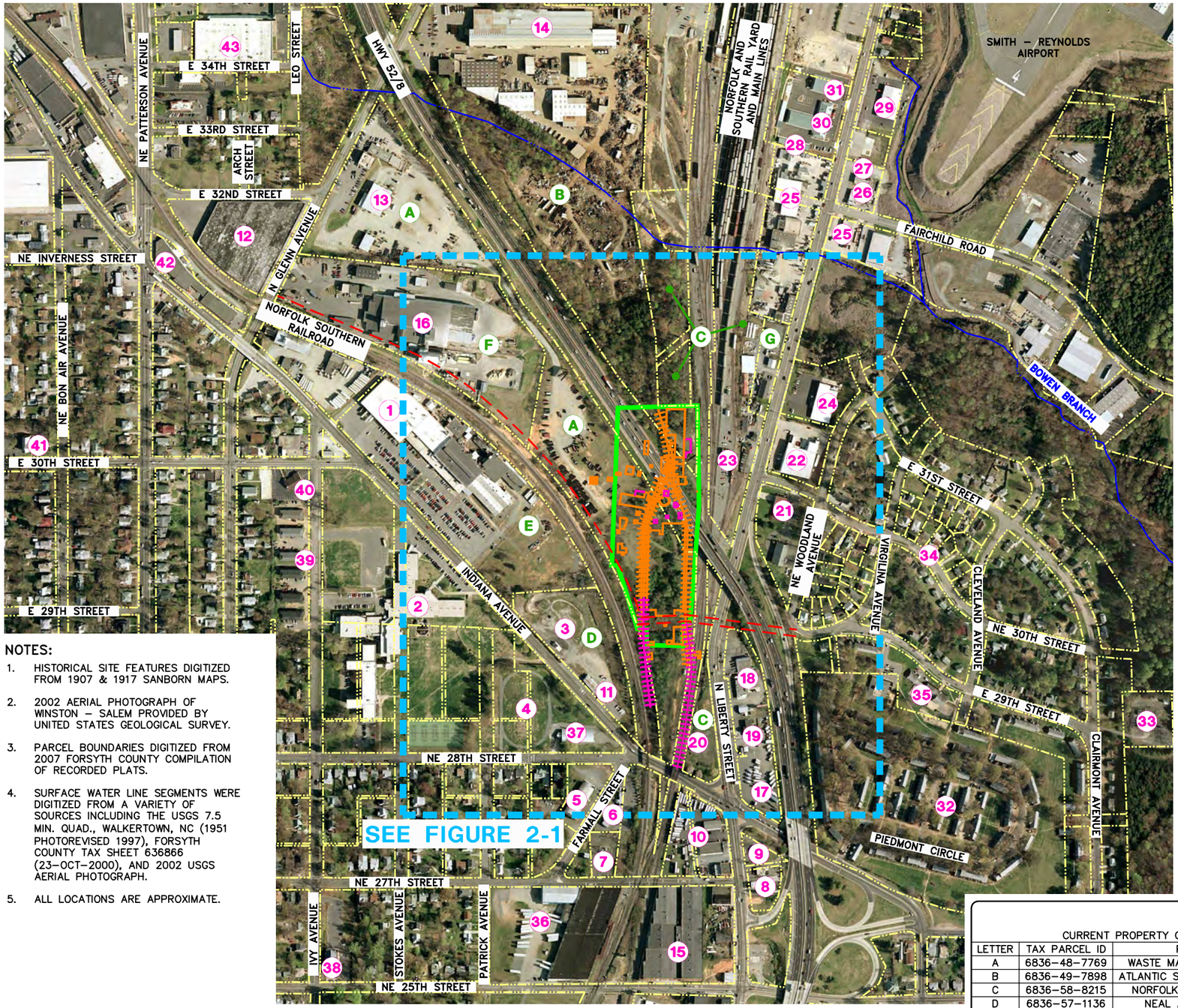

NOTES:

1. HISTORICAL SITE FEATURES DIGITIZED FROM 1907 & 1917 SANBORN MAPS.
2. 2002 AERIAL PHOTOGRAPH OF WINSTON – SALEM PROVIDED BY UNITED STATES GEOLOGICAL SURVEY.
3. PARCEL BOUNDARIES DIGITIZED FROM 2007 FORSYTH COUNTY COMPILATION OF RECORDED PLATS.
4. SURFACE WATER LINE SEGMENTS WERE DIGITIZED FROM A VARIETY OF SOURCES INCLUDING THE USGS 7.5 MIN. QUAD., WALKERTOWN, NC (1951 PHOTOREVISED 1997), FORSYTH COUNTY TAX SHEET 636866 (23–OCT–2000), AND 2002 USGS AERIAL PHOTOGRAPH.
5. ALL LOCATIONS ARE APPROXIMATE.

LEGEND:

- APPROXIMATE LOCATION OF THE VIRGINIA–CAROLINA CHEMICAL CORPORATION PLANT FENCE LINE (APPROXIMATE BOUNDARY OF THE FIRST LOT OF THE ORIGINAL PLACE)
- APPROXIMATE LOCATION OF FORMER FERTILIZER PLANT FEATURES (1907)
- APPROXIMATE LOCATION OF FORMER FERTILIZER PLANT FEATURES (1917 ADDITIONS)
- APPROXIMATE LOCATION OF FORMER RAILROAD SIDINGS (1907 & 1917 PLANT FEATURES)
- APPROXIMATE LOCATION OF SURFACE WATER FEATURES
- CURRENT TAX PARCEL BOUNDARIES
- 30' POWER TRANSMISSION RIGHT–OF–WAY

CURRENT PROPERTY USAGE KEY: (#)

1. KABA ILCO FACTORY
2. HANE LOWRENCE MIDDLE SCHOOL
3. VACANT, FENCED PROPERTY WITH AT LEAST 12 MW'S AND SCATTERED 55–GALLON STEEL DRUMS (NO SIGNAGE, POSSIBLY 2805 INDIANA AVE)
4. RECREATION FIELD/TRACK (PART OF SCHOOL)
5. MATRIX (NIGHT CLUB)
6. NEW GENERATION HAIR/NAIL SHOP
7. ELECTRICAL SUBSTATION
8. CITGO (GAS STATION WITH USTS)
9. B & B PROFESSIONAL CARWASH
10. CW MYERS TRADING POST (POSSIBLE AUTO SALES)
11. UNIDENTIFIED INDUSTRIAL FACILITY (NO SIGNAGE OR INDICATION OF PROPERTY USE)
12. STORAGE WAREHOUSE (POSSIBLY FOR SALE, 116,000 SQ. FT., 722–1986)
13. WASTE MANAGEMENT (MULTIPLE BUILDINGS; OFFICE BUILDINGS ALONG STREET; POSSIBLE STORAGE/MAINTENANCE BUILDINGS).
14. ATLANTIC SCRAP & PROCESSING (LARGE FACILITY; NOT MUCH WAS VISIBLE FROM STREET; POSSIBLE COMMERCIAL BUILDING IN FRONT AVAILABLE FOR RENT).
15. UNIDENTIFIED INDUSTRIAL FACILITY (NO SIGNAGE OR INDICATION OF PROPERTY USE)
16. RAINBOW ROYSTER CLARK (LARGE INDUSTRIAL–TYPE FACILITY; COULD NOT GET CLOSE ENOUGH TO PROVIDE LAND USE INFORMATION)
17. DICK KELLY TRUCK SALES
18. LIBERTY BUTCHER SHOP
19. LIBERTY STREET SPORTS BAR
20. UNIDENTIFIED/ABANDONED BUILDING
21. WINSTON–SALEM RESCUE SQUAD (POSSIBLE RE–FUELING STATION ALONG BUILDING)
22. TRADER PUBLISHING
23. SURBURBAN PROPANE (PROPANE ASTS OF VARIOUS SIZES)
24. NATIONAL WELDERS (TANKS)
25. METROMONT MATERIALS (MANUFACTURED CONCRETE PRODUCTS; STORAGE TANKS)
26. J & W BAR
27. SAM'S KITCHEN (RESTAURANT)
28. FORSYTH COUNTY GROUNDS MAINTENANCE FACILITY (NEW BUILDING)
29. CRUISE ON (AUTO REPAIR/PERFORMANCE)
30. FORSYTH COUNTY GENERAL SERVICES (NEW COMMERCIAL/OFFICE TYPE BUILDING)
31. FORSYTH COUNTY FLEET MAINTENANCE (NEW GARAGE/OFFICE BUILDING)
32. PIEDMONT PARK HOUSING DEVELOPMENT
33. ELECTRICAL SUBSTATION
34. STREETS BLOCKED OFF; ROADS REMOVED, AND ALL BUILDINGS RAZED
35. NEXT TO MOM LEARNING CENTER
36. UNIDENTIFIED LOGISTICS/WAREHOUSE TYPE BUSINESS
37. UNIDENTIFIED SMALL WAREHOUSE TYPE BUILDING
38. UNITED HOUSE OF PRAYER FOR ALL PEOPLE (CHURCH)
39. IVY APARTMENTS
40. NEW UNITY MISSIONARY BAPTIST CHURCH
41. SAINT PHILIP'S MORAVIAN CHURCH
42. WE'S CLOTHING – $1 STORE AND STRIP MALL
43. SHOPPING CENTER

FORMER STREET NAMES:

NE PATTERSON AVE. (FKA DEPOT ST.)
NORFOLK SOUTHERN RAILROAD (FKA SOUTHERN RR AND ROANOKE SOUTHERN RR)
INDIANA AVE. (FKA INVERNESS AVE.)
FARMALL ST. (FKA OGBURN ST.)
LIBERTY ST. (FKA WALKERTOWN RD.)
FAIRCHILD RD. (FKA NORWOOD ST.)
NORFOLK AND SOUTHERN RAIL YARD AND MAIN LINES (FKA NORFOLK AND WESTERN RAILWAY CO.)

CURRENT PROPERTY OWNERS KEY (#)

LETTER	TAX PARCEL ID	PROPERTY OWNER
A	6836–48–7769	WASTE MANAGEMENT OF CAROLINAS
B	6836–49–7898	ATLANTIC SCRAP AND PROCESSING LLC
C	6836–58–8215	NORFOLK AND WESTERN RAILROAD
D	6836–57–1136	NEAL AND DESHANNA WILSON
E	6836–47–6811	KABA IICO CORP.
F	6836–48–3589	ROYSTER–CLARK AGRIBUSINESS INC.
G	6836–58–9355	VIRGINIA HOLDING CORP.

0 500' 1000'

GRAPHIC SCALE

EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
WINSTON-SALEM, FORSYTH COUNTY, NORTH CAROLINA
REMOVAL SITE EVALUATION REPORT

CURRENT AND HISTORICAL SITE FEATURES

ARCADIS

FIGURE 1-2

CITY:CARY DIV/GROUP:41 DB:LELLIS LD:(Opt) PIC:(Opt) PM:(Req'd) TM:(Opt) LYR:(Opt)ON=*;OFF=*REF*
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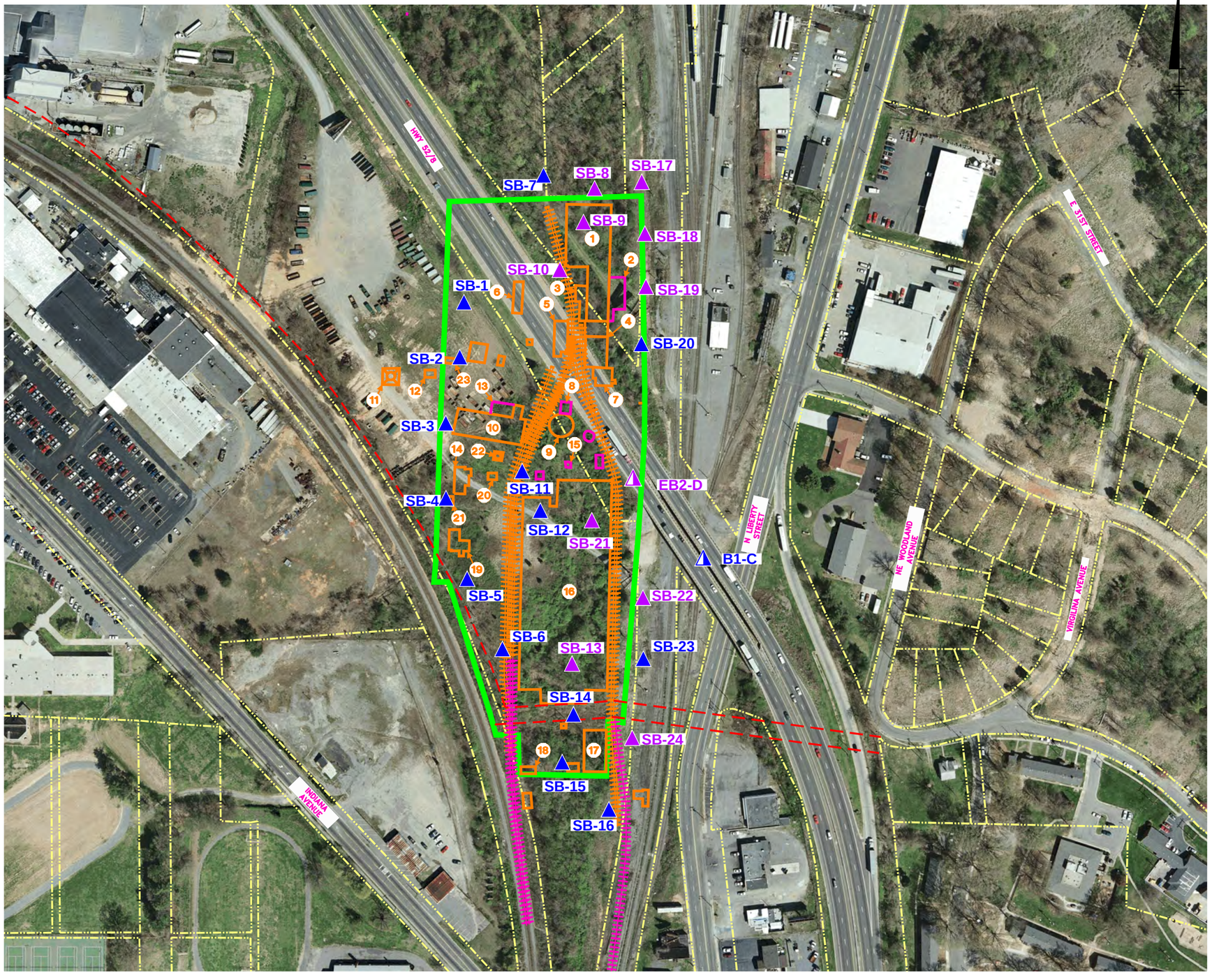

LEGEND:

- APPROXIMATE LOCATION OF THE VIRGINIA–CAROLINA CHEMICAL CORPORATION PLANT FENCE LINE (APPROXIMATE BOUNDARY OF THE FIRST LOT OF THE ORIGINAL PLACE)
- APPROXIMATE LOCATION OF FORMER FERTILIZER PLANT FEATURES (1907)
- APPROXIMATE LOCATION OF FORMER FERTILIZER PLANT FEATURES (1917 ADDITIONS)
- APPROXIMATE LOCATION OF FORMER RAILROAD SIDINGS (1907 & 1917 PLANT FEATURES)
- CURRENT TAX PARCEL BOUNDARIES
- 30' POWER TRANSMISSION RIGHT–OF–WAY
- SOIL BORING LOCATION (ARCADIS, 2009)
- APPROXIMATE LOCATION OF SOIL BORING WITH ARSENIC AND/OR LEAD ABOVE SCREENING LEVELS
- SOIL BORING LOCATION (ARCADIS, 2008)
- APPROXIMATE LOCATION OF SOIL BORING (ARCADIS, 2008) WITH ARSENIC AND/OR LEAD ABOVE SCREENING LEVELS

NOTES:

1. HISTORICAL SITE FEATURES DIGITIZED FROM 1907 & 1917 SANBORN MAPS.
2. 2005 AERIAL PHOTOGRAPH OF WINSTON – SALEM PROVIDED BY NC ONEMAP.
3. PARCEL BOUNDARIES DIGITIZED FROM 2004 FORSYTH COUNTY COMPILATION OF RECORDED PLATS.
4. ALL LOCATIONS ARE APPROXIMATE.
5. mg/kg = MILLIGRAMS PER KILOGRAMS.
6. SOIL BORING NAMES BEGIN WITH "WS–".

HISTORICAL BUILDING KEY: (#)

1. ACID CHAMBER (BUILT ON AN OLDER ACID CHAMBER, AS SHOWN IN 1900 SANBORN MAP)
2. COMPRESSOR ROOM
3. BURNERS
4. BURNER ROOM (BUILT ON AN OLDER BURNER ROOM, AS SHOWN IN 1900 SANBORN MAP)
5. PYRITES HOUSE
6. NITRE HOUSE
7. BOILER ROOM
8. PUMP HOUSE
9. 100,000 GALLON RESERVOIR
10. TOBACCO STEM WAREHOUSE
11. 54,000 GALLON WATER TOWER
12. STORAGE
13. DRYER
14. OFFICE
15. OIL HOUSE
16. MILL BUILDING (GRINDING, MIXING, STORAGE AND BAGGING OF FERTILIZER)
17. BAG HOUSE
18. LIME HOUSE
19. STORAGE
20. TRANSFORMER HOUSE
21. SCALES
22. 8,000 GALLON TANK
23. CORN CRIB

USEPA REGION 4 INDUSTRIAL CRITERIA	
ARSENIC	27 mg/kg
LEAD	895 mg/kg

FORMER STREET NAMES:

INDIANA AVE. (FKA INVERNESS AVE.)
LIBERTY ST. (FKA WALKERTOWN RD.)

0 200' 400'
GRAPHIC SCALE

EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
WINSTON-SALEM, FORSYTH COUNTY, NORTH CAROLINA
REMOVAL SITE EVALUATION REPORT

SOIL SAMPLE LOCATION MAP

ARCADIS

FIGURE
2-1

CITY:CARY DIV/GROUP:41 DB:LELLIS LD:(Opt) PIC:(Opt) PM:(Reqd) TM:(Opt) LYR:(Opt)ON=*;OFF=*REF*
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XREFS: IMAGES: PROJECTNAME: ----
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ARCADIS

Appendix A

Visual Soil Classifications

Appendix A
Visual Soil Classifications
Removal Site Evaluation Report
Former VCC Winston-Salem - Winston-Salem, North Carolina

Soil Boring Identification	Depth Interval (ft bgs)	Visual USCS Classification	Soil Lithology/Characteristics
SB-1	0-0.5	ML	Red Brown Sandy SILT, fine gravel
	0.5-2	CL	Red Brown Sandy CLAY
	2-4	ML	Red Brown Sandy SILT
SB-2	0-0.5	ML	Brown Sandy SILT, some gravel
	0.5-2	ML	Red Brown Sandy SILT, some fine gravel
	2-4	ML	Red Brown Sandy SILT, some clay, micaceous
SB-3	0-0.5	ML	Orange Brown Sandy SILT, micaceous
	0.5-2	ML	Orange Brown Sandy SILT, micaceous
	2-4	ML	Orange Brown Sandy SILT, micaceous
SB-4	0-0.5	ML	Red Brown SILT, micaceous, rootlets
	0.5-2	ML	Red Brown SILT, micaceous, some sand
	2-4	ML	Red Brown SILT, micaceous, some sand
SB-5	0-0.5	ML	Red Brown SILT, micaceous, rootlets
	0.5-2	ML	Red Brown SILT, micaceous
	2-4	ML	Red Brown SILT, micaceous
SB-6	0-0.5	ML	Red Brown Sandy SILT
	0.5-2	ML	Red Brown Sandy SILT
	2-4	CL	Red Brown Silty CLAY, trace sand
SB-7	0-0.5	ML	Brown Sandy SILT, moist
	0.5-2	ML/CL	Brown Sandy SILT; Orange Brown Silty CLAY at 1 ft bgs
	2-4	CL	Orange Brown Silty CLAY, stiff
SB-8	0-0.5	ML	Brown to Orange Brown Sandy SILT, rootlets, moist
	0.5-2	CL	Orange Brown Silty CLAY, micaceous
	2-4	CL/ML	Orange Brown Silty CLAY, stiff; Orange Brown sandy SILT at 3 ft bgs, micaceous
SB-9	0-0.5	ML	Brown Sandy SILT
	0.5-2	ML	Brown Sandy SILT, loose
	2-4	ML/CL	Brown Sandy SILT; Orange Brown Silty CLAY at 3 ft bgs
SB-10	0-0.5	ML	Brown Sandy SILT, rootlets
	0.5-2	ML	Brown Sandy SILT, micaceous, loose, some fine gravel at 2 ft bgs
	2-4	CL	Red Brown Silty CLAY, stiff
SB-11	0-0.5	CL	Red Brown Silty CLAY, rootlets, moist
	0.5-2	ML	Red Brown Sandy SILT, micaceous, moist
	2-4	ML	Red Brown Sandy SILT, micaceous; Brown Sandy SILT at 3 ft bgs, micaceous

Appendix A
Visual Soil Classifications
Removal Site Evaluation Report
Former VCC Winston-Salem - Winston-Salem, North Carolina

Soil Boring Identification	Depth Interval (ft bgs)	Visual USCS Classification	Soil Lithology/Characteristics
SB-12	0-0.5	ML	Red Brown Sandy SILT
	0.5-2	ML	Red Brown Sandy SILT, micaceous
	2-4	ML	Red Brown Sandy SILT, micaceous
SB-13	0-0.5	ML	Brown Sandy SILT, rootlets, moist
	0.5-2	ML	Brown Sandy SILT
	2-4	CL	Orange Brown Silty CLAY, stiff
SB-14	0-0.5	ML	Brown Sandy SILT, rootlets
	0.5-2	ML	Orange Brown Sandy SILT, loose
	2-4	ML	Orange Brown Sandy SILT
SB-15	0-0.5	ML	Brown Sandy SILT, rootlets
	0.5-2	ML	Orange Brown Sandy SILT, moist; refusal at 2 ft bgs due to presence of quartzite
SB-16	0-0.5	CL	Red Brown Sandy CLAY
	0.5-2	CL	Red Brown Silty CLAY, stiff, moist
	2-4	CL	Red Brown Silty CLAY, stiff, moist
SB-17	0-0.5	ML	Brown Sandy SILT
	0.5-2	ML	Brown Sandy SILT, trace clay
	2-4	CL	Orange Brown Silty CLAY
SB-18	0-0.5	ML	Brown Sandy SILT
	0.5-2	ML	Brown to Orange Brown Sandy SILT
	2-4	ML/CL	Brown to Orange Brown Sandy SILT; Silty CLAY at 3 ft bgs
SB-19	0-0.5	ML	Brown Sandy SILT, fine gravel
	0.5-2	ML/CL	Brown Sandy SILT, moist; Red Brown Silty CLAY at 1.5 ft bgs
	2-4	CL	Red Brown CLAY, stiff
SB-20	0-0.5	ML	Brown Sandy SILT, rootlets
	0.5-2	ML	Brown Sandy SILT
	2-4	ML	Red Brown Sandy SILT
SB-21	0-0.5	CL	Red Brown Silty CLAY, moist
	0.5-2	ML	Orange Brown Sandy SILT, moist
	2-4	CL/ML	Orange Brown CLAY, moist, some debris at 3 ft bgs; Sandy SILT at 3.5 ft bgs
SB-22	0-0.5	ML	Dark Brown Sandy SILT, organic material, fine gravel
	0.5-2	ML/CL	Dark Brown Sandy SILT, organic material, fine gravel, brick; Orange Brown sandy CLAY at 2 ft bgs
	2-4	ML	Orange Brown Sandy SILT

Appendix A
Visual Soil Classifications
Removal Site Evaluation Report
Former VCC Winston-Salem - Winston-Salem, North Carolina

Soil Boring Identification	Depth Interval (ft bgs)	Visual USCS Classification	Soil Lithology/Characteristics
SB-23	0-0.5	ML	Dark Brown Sandy SILT, rootlets
	0.5-2	ML	Orange Brown Sandy SILT, moist
	2-4	ML	Orange Brown Sandy SILT, moist; Light Brown Sandy SILT at 3 ft bgs.
SB-24	0-0.5	ML	Brown Sandy SILT, trace fine gravel, rootlets
	0.5-2	ML	Orange Brown Sandy SILT, micaceous
	2-4	ML	Light Brown Sandy SILT, micaceous

Notes:
USCS - Unified Soil Classification System
ft bgs - feet below ground surface

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Appendix B

Manifests for Investigative-Derived Waste

HAZ~MAT

ENVIRONMENTAL SERVICES
P.O. BOX 37392 • CHARLOTTE, N.C. 28237
(704) 332-5600
FAX (704) 375-7183

Manifest No. 42774

P.O. No. 09-4061

Job No. 21461

NON-HAZARDOUS SPECIAL WASTE

Section I. GENERATOR (Generator complete all of Section I)

GENERATOR LOCATION Exxon Mobil R0525
NAME 3303 N. Glenn Ave.
ORIGINATING ADDRESS
MAILING ADDRESS Winston Salem NC 27105
CITY STATE ZIP
PHONE NO. Matthew Pelton 919-415-2308
CONTACT NAME Non DOT Regulated Material
DES. OF WASTE:

WORK CONTRACTED BY
Bill To (If different from information at left)
Arcadis
NAME 11000 Regency Pkwy Suite 205 W Tower
ADDRESS Cary NC 27518
CITY 919-415-2286 STATE ZIP
PHONE NO. Corinda Chwalek
CONTACT NAME

No.	Type	Units	Quantity

Section II. INVOICE INFORMATION

DESCRIPTION	GALLONS QUANTITY	DRUMS QUANTITY	LINE TOTAL
1. PETROLEUM CONTACT WATER PUMPED FROM TANKS, DRUMS OR AFVR			
2. OFF-SPEC LIGHT OIL, DIESEL OR GAS PUMPED FROM TANKS OR DRUMS			
3. SOLUBLE OILS OR COOLANTS PUMPED FROM STORAGE			
4. SEDIMENT OR SOLIDS VACUUMED FROM CONTAINMENT AREA			
5. 55-GALLON DRUM REMOVED - SOLID OR EMPTY (circled) 1 Decon Water 1 Soil		2 TOTAL	
6. 55-GALLON DRUM REMOVED - LIQUID			
7.			
8.			
9.			
10. ARRIVAL TIME: 1145 DEPARTURE TIME: 1205			

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

X Anna Hagemeister on behalf of Exxon Mobil
Generator Authorized Agent Name

X A M. [signature]
Signature

06 25 09
Shipment Date

Section III. TRANSPORTER

TRANSPORTER (Generator complete a-d; Transporter I complete e-g; Transporter II complete h-n)

HAZ~MAT
ENVIRONMENTAL SERVICES
P.O. BOX 37392 • CHARLOTTE, N.C. 28237

a. Driver Name / Title Adrian N Uno
b. Phone No. 7043325600 c. Truck No. PVH 6

Hazardous Waste Transporter Permits
EPA NCR 000003186
EPA NCD048461370

d. Adrian N Uno 06 25 09
Driver Signature Shipment Date

TRANSPORTER II

e. Name
f. Address
g. Driver Name / Title
h. Phone No. i. Truck No.
j. Transporter II Permit Nos.

Driver Signature
Shipment Date

Section IV. FACILITY INFORMATION AND CERTIFICATE OF DISPOSAL

Site Name: Haz-Mat Environmental Services
Physical Address: 210 Dalton Avenue, Charlotte, N.C. 28206
a. Phone No. 704-332-5600
b. Mailing Address: P.O. Box 37392, Charlotte, N.C. 28237

e: Discrepancy Indication Space

This is to certify that all non-hazardous material removed from above location has been received and will be disposed of in accordance with applicable local, state and federal regulations in the following manner: (1) Petroleum products are blended into a beneficial reusable fuel for use in large industrial burners. (2) Waste waters are to be treated with polymers, pH adjusters, and a flocculant, then flows through a dissolved air flotation system for pretreatment separation, then into the CMUD sanitation sewer system under permit IUP#5012. (3) Sludges from treatment systems are hauled to E.P.A. approved facilities for proper disposal. Manifest and certificate of disposal are on file. (4) Our treatment system operates on a first in, first out basis and product should be processed within seven days.

SIGNATURE OF FACILITY AGENT	Mike Hinds	DATE	MONTH 6	DAY 25	YEAR 09

ORIGINAL - FINAL T.S.D. • YELLOW - DISPOSER • PINK - 1ST T.S.D. • GOLD - GENERATOR

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Appendix C

Site Visit Photographs – May 2009

Appendix C
Site Visit Photographs – May 2009
Former VCC Winston-Salem Site, Winston-Salem, North Carolina

Photo 1 – View along the west side of Norfolk-Southern railroad tracks looking south.

Photo 2 – View of typical ground cover conditions at the site.

Photo 3 – View of power transmission right-of-way looking west.

Photo 4 – View of west side of railroad tracks looking north.

Appendix C
Site Visit Photographs – May 2009
Former VCC Winston-Salem Site, Winston-Salem, North Carolina

Photo 5 – View of old concrete structure (ruins) on the north side of Route 52.

Photo 6 – View of monitoring well located adjacent to the concrete structure.

Appendix C
Site Visit Photographs – May 2009
Former VCC Winston-Salem Site, Winston-Salem, North Carolina

Photo 7 – View of site conditions at WS-SB-9 looking north.

Photo 8 – View of site conditions east of WS-SB-10 looking north.

Photo 9 – View of temporary decontamination station.

Photo 10 – View of north side of Route 52 bridge looking south.

Appendix C
Site Visit Photographs – May 2009
Former VCC Winston-Salem Site, Winston-Salem, North Carolina

Photo 11 – View of typical abandoned soil boring.

Photo 12 – View of investigation-derived waste drums.