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Site Name (Subject):	VC CHEMICAL
Site ID (Document ID):	NCSFN0406924
Document Name (DocType):	Correspondence (C)
Report Segment:	
Description:	General Correspondence, 1998 - 2007
Date of Document:	2/23/2007
Date Received:	2/26/2007
Box: *Enter SF and # with no spaces*	SF10,639
Access Level:	PUBLIC
Division:	WASTE MANAGEMENT
Section:	SUPERFUND
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V. C. CHEMICAL—WADESBORO

NCSFN 0406 924

Folders

1. General Correspondence file, 1998—
2. July 1999 Well Sampling Results: October 1999

Bound Reports

1. Photographs
2. Combined Preliminary Assessment/Site Inspection: December 1999
2. Combined Preliminary Assessment/Site Inspection—References: December 1999
3. **Revision 1**—Site Characterization Report: December 2001
4. Alternatives Evaluation Report: April 2002
5. Soil Arsenic and Lead Additional Delineation Work Plan: May 2002
6. Health and Safety Plan—**Revision 1**: June 2002
7. Soil Arsenic and Lead Additional Delineation Work Plan: July 2002
8. Additional Delineation Report and Remedial Action Work Plan: September 2002

Three-Ring Binders

(See shelves above filing cabinets)

9. Site Characterization Work Plan: March 2001
10. **Revision 1** Quality Assurance Project Plan for the Site Characterization: June 2002
11. Additional Delineation Report and Removal Action Work Plan: October 2002
12. Removal Action Completion Report: March 2003

ARCADIS BBL
Infrastructure, environment, facilities

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Mr. Harry Zinn
Division of Waste Management
NC Department of Environment and Natural Resources
1646 Mail Service Center
Raleigh, NC 27699-1646

RECEIVED
FEB 26 2007
SUPERFUND SECTION

Subject:
Virginia Carolina Chemical Site – Wadesboro, North Carolina
2007 Groundwater Monitoring Report

Date:
February 23, 2007

Contact:
William Anckner, P.E.

Phone:
919-415-2255

Email:
William.Anckner@arcadis-us.com

Our ref:
B0054626

Dear Mr. Zinn:

This letter provides the results of an annual groundwater monitoring event performed in January 2007 on behalf of Exxon Mobil Corporation (ExxonMobil) at the former Virginia-Carolina Chemical (VCC) Site located in Wadesboro, Anson County, North Carolina. The next groundwater monitoring event at the Site is scheduled for January 2008. Figure 1 identifies the Site on the U.S. Geological Survey (USGS) 7.5 minute quadrangle for Wadesboro, North Carolina.

Site Background

The former VCC Site operated as a fertilizer manufacturing plant from 1908 to 1945. During that time, VCC burned pyrite ore for the production of sulphuric acid used to generate super-phosphate fertilizers. Site investigation activities conducted in 2001 indicated the presence of elevated concentrations of arsenic and lead in soil. Between November 2002 and January 2003, ExxonMobil removed nearly 7,000 tons of soil from the Site which contained elevated concentrations of arsenic and lead. All work was completed in accordance with the *Additional Delineation Report and Removal Action Work Plan* (BBL, 2002) approved by both the United States Environmental Protection Agency (USEPA) and the North Carolina Department of Environment and Natural Resources (NCDENR).

Three monitoring wells are present at the former VCC Site. These wells were initially installed and sampled as part of the site characterization activities conducted in 2001. Based on the pre-removal analytical results, NCDENR expressed concern that manganese and cadmium concentrations in samples collected from these wells exceeded the state cleanup goals established by the North Carolina Inactive Hazardous Waste Branch. Although these constituents are not typically known to be

associated with releases from former phosphate fertilizer facilities, ExxonMobil agreed to perform post-removal annual groundwater monitoring at this Site to evaluate the impact (if any) of the soil removal action on groundwater quality. Annual groundwater monitoring activities following the soil removal action were initiated in January 2004. Subsequent events were performed in January 2005 and January 2006.

In April 2006, ExxonMobil submitted the 2006 Groundwater Monitoring Report (BBL, 2006) to NCDENR. This letter reported the results of groundwater sampling performed in January 2006 and requested that NCDENR approve the termination of future groundwater monitoring activities at the Site and abandonment of the three monitoring wells. In July 2006, Mr. Bruce Frink of ExxonMobil received a response letter from Mr. Harry Zinn of NCDENR. Mr. Zinn's letter indicated that, due to the low pH of groundwater at this Site, this Site would not be removed from the North Carolina State Inactive Hazardous Sites Inventory at this time and that further remedial activities may be required (NCDENR, 2006). Although further groundwater sampling was not requested in NCDENR's response letter, ExxonMobil decided to continue collecting groundwater samples from this Site on an annual basis. A description of the groundwater monitoring activities performed in January 2007 is provided below.

Groundwater Monitoring Event: January 2007

In accordance with the *Additional Delineation Report and Removal Action Work Plan* (BBL, 2002), groundwater samples were collected using low flow/low stress procedures. All samples were analyzed for Target Analyte List (TAL) metals by TestAmerica, Inc. of Nashville, Tennessee. Field parameters were recorded just prior to sample collection.

Groundwater analytical results generated from samples collected prior to, and following, the soil removal action are presented in Table 1. Table 2 contains well construction and groundwater elevation information. Monitoring well locations and potentiometric surface contours from January 2007 are shown in Figure 2.

In general, groundwater samples collected in January 2007 contained several metals at concentrations above the North Carolina 2L standards for drinking water. Metals detected above these standards in 2007 included: cadmium, copper, iron, manganese, nickel, and zinc. Although these metals were detected above the

cleanup goals, the concentrations of these metals have generally remained constant or have decreased over the last 4 years.

All analytical data were validated in accordance with USEPA standard procedures. Upon receipt by the laboratory, an aliquot of the groundwater sample collected from MW-1 was spiked to assess the precision and accuracy of the analytical method. Analytical results indicated that the matrix spike for arsenic exhibited a recovery of less than 30%; however, data validation determined that this low recovery was due to matrix interference and not laboratory error. As such, all associated non-detected total arsenic results were rejected. The data validation report for the January 2007 groundwater monitoring event is provided in Attachment 1.

If you have any questions regarding the attached, please contact Mr. Bruce Frink with ExxonMobil at (813) 991-7413.

Sincerely,

ARCADIS G&M of North Carolina, Inc.

William Anckner, P.E.
Senior Engineer I/Manager

Enclosures:
Table 1 – Summary of Detected Analytes in Groundwater Samples
Table 2 – Well Construction / Groundwater elevation Data
Figure 1 – Site Location Map
Figure 2 – Shallow Groundwater Potentiometric Surface Map
Attachment 1 – Data Validation Report

Copies:
Bruce Frink, ExxonMobil
Geoff Germann, ARCADIS BBL

ARCADIS BBL

Tables

Table 1
Summary of Detected Analytes in Groundwater Samples
VCC: Wadesboro, NC - 2007 Groundwater Monitoring Report

			Concentration in Sample[/2]				
			WB-MW1	WB-MW1	WB-MW1	WB-MW1	WB-MW1
Analyte	NC 2L[\1]	Units	Apr-01	Jan-04	Jan-05	Jan-06	Jan-07
Aluminum	NP	µg/L	52,600 J	20,900 J	109,000	138,000	70,000
Arsenic	50	µg/L	15 U	10 U	--- R	76 U	--- R
Barium	2,000	µg/L	31 B	4.6 J	1,000 U	10 U	7.5 J
Beryllium	NP	µg/L	10.8 B	6	400 U	24 J	17 J
Cadmium	2	µg/L	10.1 BJ	1 U	100 U	6 U	6.9 J
Calcium	NP	µg/L	565,000	523,000 J	534,000 J	377,000	478,000
Cobalt	NP	µg/L	631	181 J	900 J	705	327 J
Copper	1,000	µg/L	54.5 B	10 UJ	1,000 U	88 J	83 J
Iron	300	µg/L	575	50 UJ	5,000 UJ	613 U	32 U
Lead	15	µg/L	11.5 U	5 U	500 U	24 U	3.9 J
Magnesium	NP	µg/L	277,000	136,000 J	260,000 J	202,000 J	118,000 J
Manganese	50	µg/L	28,700	20,000 J	29,900	29,300	30,100
Mercury	1.05	µg/L	0.1 U	0.2 U	0.2 U	0.1 U	0.1 U
Nickel	100	µg/L	498	136 J	1,000 U	415	219 J
Potassium	NP	µg/L	6,320 B	3,600	100,000 UJ	3,400 U	160 U
Selenium	50	µg/L	--- R	9.1 J	1,000 UJ	93 U	8.2 U
Sodium	NP	µg/L	57,400	85,200 J	100,000 U	24,600	31,800
Thallium	NP	µg/L	24.5 UJ	10 U	1,000 UJ	97 J	8.7 UJ
Vanadium	NP	µg/L	4 U	20 U	2,000 U	60 U	5 UJ
Zinc	1,050	µg/L	1,480	654 J	3,100 J	2,830	1,180 J
Field Measurements							
pH		S.U.	4.59	4.7	4.25	2.44	4.57
Temperature		°C	14.23	14.68	14.37	16.06	14.78
Conductivity		mS/cm	3.95	4.07	3.87	3.96	4.05
Dissolved Oxygen		mg/L	2.83	0.54	0	0	1.3
ORP		mV	520	352	409	415	435
Flow		mL/min	350	350	300	300	300
Turbidity		NTU	clear	85	0	0.4	1.6

Notes:

\1 NC 2L - North Carolina 2L standards (Class GA).

Shaded results exceed NC 2L standards.

\2 Data Qualifiers:

B - Analyte was detected in the method blank.

J - Estimated value.

U - Not detected at the limit of detection.

R - Rejected by the data validator.

Table 1
Summary of Detected Analytes in Groundwater Samples
VCC: Wadesboro, NC - 2007 Groundwater Monitoring Report

			Concentration in Sample[/2]				
			WB-MW2	WB-MW2	WB-MW2	WB-MW2	WB-MW2
Analyte	NC 2L[\1]	Units	Apr-01	Jan-04	Jan-05	Jan-06	Jan-07
Aluminum	NP	µg/L	84,600 J	82,500 J	337,000	241,000	124,000
Arsenic	50	µg/L	15 U	7.5 J	--- R	76 U	--- R
Barium	2,000	µg/L	37.7 B	10 U	1,000 U	10 U	4.2 J
Beryllium	NP	µg/L	11.5 B	14	400 U	35 J	19.7 J
Cadmium	2	µg/L	27.8 J	1 U	100 U	13	13.9 J
Calcium	NP	µg/L	415,000	106,000 J	301,000 J	218,000	111,000
Cobalt	NP	µg/L	996	658 J	2,400	1,730	775 J
Copper	1,000	µg/L	998	1,300 J	5,900	3,520	1,670 J
Iron	300	µg/L	60,700	10,800 J	112,000 J	95,800	52,200 J
Lead	15	µg/L	10.3 U	5 U	500 U	24 U	2 UJ
Magnesium	NP	µg/L	214,000	68,100 J	211,000 J	164,000	83,400
Manganese	50	µg/L	53,900	43,300 J	52,500	39,300	41,100
Mercury	1.05	µg/L	0.1 U	0.2 U	0.2 U	0.1 U	0.1 U
Nickel	100	µg/L	505	208 J	900 J	692	348 J
Potassium	NP	µg/L	7,500 B	1,000 U	100,000 UJ	3,400 U	160 U
Selenium	50	µg/L	--- R	9.1 J	1,000 UJ	93 U	8.2 UJ
Sodium	NP	µg/L	1,350,000	768,000 J	1,220,000	1,160,000	1,310,000
Thallium	NP	µg/L	24.5 UJ	10 U	1,000 UJ	93 J	8.7 UJ
Vanadium	NP	µg/L	12.3 B	20 U	2,000 U	60 U	5 UJ
Zinc	1,050	µg/L	4,630	3,730 J	16,300	11,600	5,310 J
Field Measurements							
pH		S.U.	4.62	3.79	3.61	3.9	4.25
Temperature		°C	15.37	15.52	14.1	15.44	14.22
Conductivity		mS/cm	4.62	7.95	8.43	7.56	7.63
Dissolved Oxygen		mg/L	1.42	0.54	0	0	0.18
ORP		mV	353	293	322	283	291
Flow		mL/min	200	350	300	250	500
Turbidity		NTU	v. slight	135	0	3.5	2

Notes:

\1 NC 2L - North Carolina 2L standards (Class GA).

Shaded results exceed NC 2L standards.

\2 Data Qualifiers:

B - Analyte was detected in the method blank.

J - Estimated value.

U - Not detected at the limit of detection.

R - Rejected by the data validator.

Table 1
Summary of Detected Analytes in Groundwater Samples
VCC: Wadesboro, NC - 2007 Groundwater Monitoring Report

			Concentration in Sample[/2]				
			WB-MW3	WB-MW3	WB-MW3	WB-MW3	WB-MW3
Analyte	NC 2L[\1]	Units	Apr-01	Jan-04	Jan-05	Jan-06	Jan-07
Aluminum	NP	µg/L	400 J	151 UJ	1,000 U	100 U	100 U
Arsenic	50	µg/L	3 U	10 U	--- R	7.6 U	--- R
Barium	2,000	µg/L	198 B	29	100 U	18	19.1 J
Beryllium	NP	µg/L	0.1 U	4 U	40 U	1 U	1 UJ
Cadmium	2	µg/L	0.6 U	0.50 J	10 U	2.2 U	0.7 J
Calcium	NP	µg/L	260,000	443,000 J	520,000 J	388,000	538,000
Cobalt	NP	µg/L	2.2 B	70 J	230	132	173 J
Copper	1,000	µg/L	2.5 U	10 UJ	100 U	6.9 J	5.3 UJ
Iron	300	µg/L	469	3,790 J	16,300 J	5,610	15,000 J
Lead	15	µg/L	2.6 B	5 UJ	50 U	2.4 U	2.2 UJ
Magnesium	NP	µg/L	48,000	97,400 J	133,000 J	94,700	123,000
Manganese	50	µg/L	1,740	3,800 J	6,990	4,850	7,000
Mercury	1.05	µg/L	0.1 U	0.2 U	0.2 U	0.1 U	0.1 U
Nickel	100	µg/L	5.1 B	20 J	100 U	37.1	42.5 J
Potassium	NP	µg/L	6,290	2,110	10,000 UJ	1,510	998 J
Selenium	50	µg/L	--- R	4.6 J	100 UJ	9.3 U	8.2 UJ
Sodium	NP	µg/L	36,400	85,500 J	102,000	79,900	98,000
Thallium	NP	µg/L	6 BJ	10 U	100 UJ	7.9 U	8.7 UJ
Vanadium	NP	µg/L	1.1 U	8 J	200 U	14.1 J	5 UJ
Zinc	1,050	µg/L	1.8 B	90 J	610	323	491 J
Field Measurements							
pH		S.U.	6.88	6.48	6.46	6.09	6.65
Temperature		°C	15.51	16.16	14.82	15.97	16.06
Conductivity		mS/cm	1.53	2.74	2.8	2.69	2.95
Dissolved Oxygen		mg/L	2.34	0.52	0	0	0.32
ORP		mV	305	31	30	24	9
Flow		mL/min	200	350	300	150	150
Turbidity		NTU	clear	20	21	3.43	7

Notes:

\1 NC 2L - North Carolina 2L standards (Class GA).

Shaded results exceed NC 2L standards.

\2 Data Qualifiers:

B - Analyte was detected in the method blank.
J - Estimated value.
U - Not detected at the limit of detection.
R - Rejected by the data validator.

Table 2

Well Construction / Groundwater Elevation Data
VCC: Wadesboro, NC - 2007 Groundwater Monitoring Report

Well Designation	Date Installed	Date Measured	Top of Casing Elevation (ft msl)	Depth to Water (ft bgs)	Water Level Elevation (ft msl)	Well Diameter (inches)	Screen Interval (ft bgs)
MW-1	4/17/01	4/25/01	373.81	7.51	366.30	2	10 - 35
		1/28/04		8.09	365.72		
		1/27/05		6.57	367.24		
		1/31/06		4.84	368.97		
		1/18/07		5.37	368.44		
MW-2	4/17/01	4/25/01	367.40	8.93	364.88	2	8 - 23
		1/28/04		13.20	360.61		
		1/27/05		10.11	363.70		
		1/31/06		7.67	366.14		
		1/18/07		6.82	366.99		
MW-3	4/17/01	4/25/01	364.79	11.31	362.50	2	11 - 26
		1/28/04		13.10	360.71		
		1/27/05		10.82	362.99		
		1/31/06		9.25	364.56		
		1/18/07		9.70	364.11		

Notes:

ft bgs = Feet below ground surface.

ft msl = Feet above mean sea level.

0

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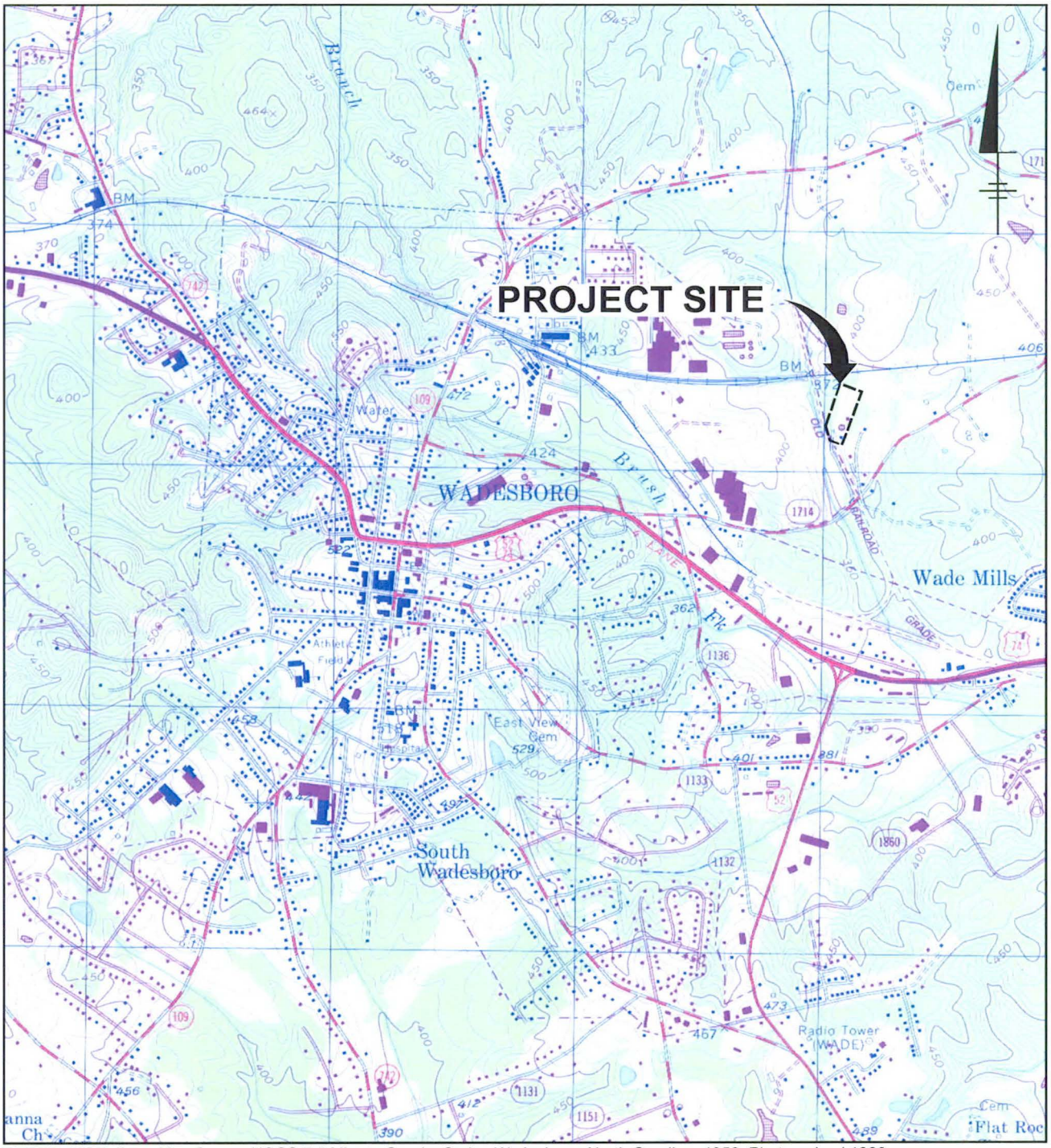
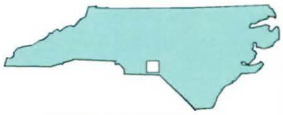
Figures



REFERENCE: Base Map Source USGS 7.5 Minute Quads. Series Wadesboro, North Carolina, 1956, Photorevised 1988.

2000' 0 2000'

Approximate Scale: 1" = 2000'



AREA LOCATION

DRAFT
PRIVILEGED AND CONFIDENTIAL
ATTORNEY WORK PRODUCT

VIRGINIA-CAROLINA CHEMICAL CO. SITE
WADESBORO, NORTH CAROLINA
JANUARY 2007 GROUNDWATER MONITORING REPORT

SITE LOCATION MAP

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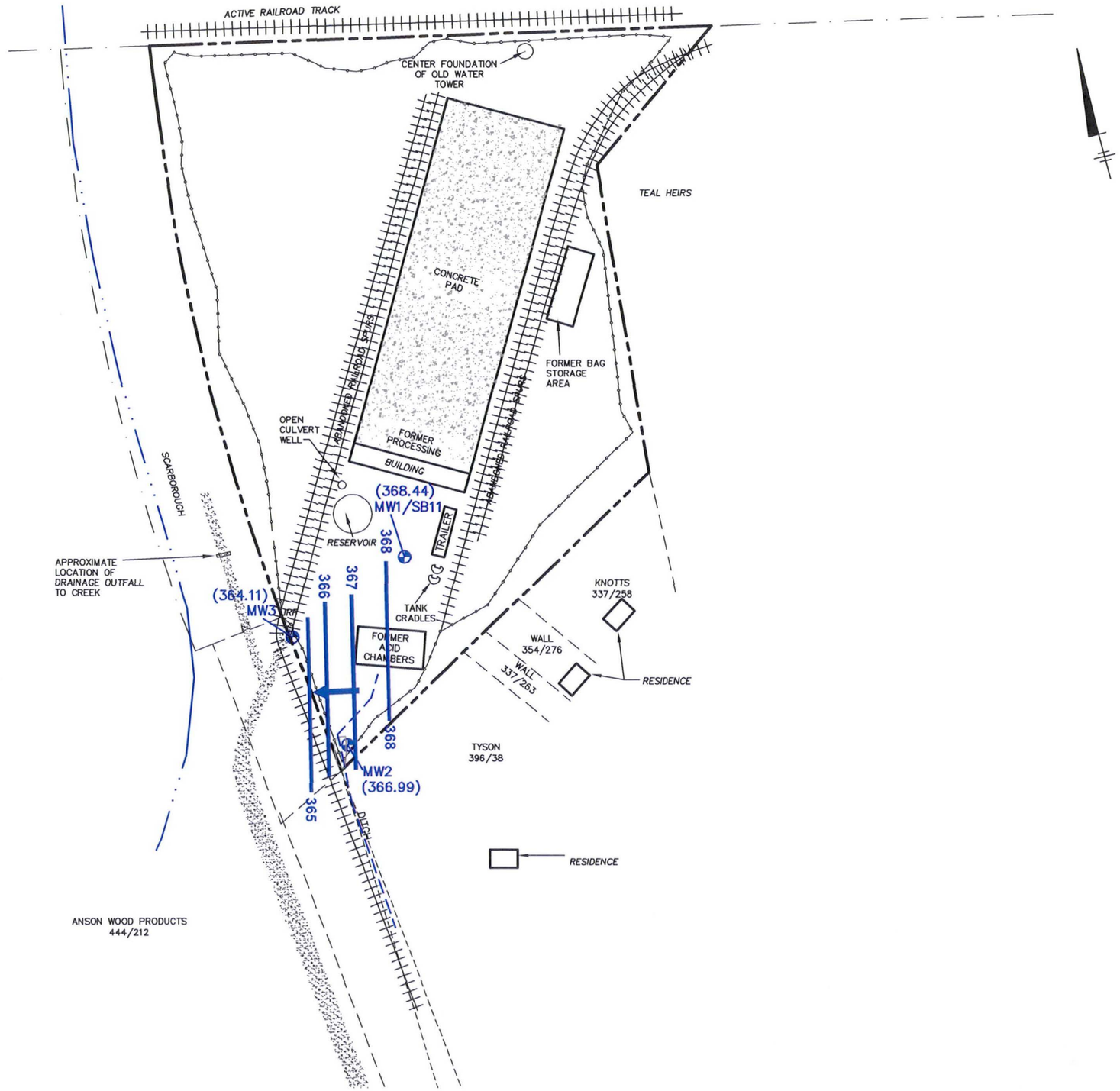
Infrastructure, environment, facilities

FIGURE
1

01/29/07 SYR-D85-LBR LJP CAR-85-LEE
54626011/GMR-2007/54626n01.cdr



LEGEND

- BUILDING
- TANK
- ROAD
- RAILROAD
- DITCH
- STREAM
- PROPERTY LINE
- CHAIN LINK FENCE
- ACCESS ROAD
- MW1 — MONITORING WELL LOCATION
- 366 — SHALLOW GROUNDWATER POTENTIOMETRIC SURFACE CONTOUR
- (366.99) — SHALLOW GROUNDWATER POTENTIOMETRIC ELEVATION (IN FEET AMSL)
- GROUNDWATER FLOW DIRECTION (DASHED WHERE INFERRED)

NOTES:

1. BASE MAP BY JAMES R. HARRINGTON AND ASSOCIATES AT A SCALE OF 1" = 100' SUPPLEMENTED BY BBL WITH FEATURES DIGITIZED FROM A DRAWING ENTITLED "FIGURE 3 – SAMPLING LOCATION MAP" BY TETRA TECH EMI (2000).
2. ELEVATIONS IN FEET AMSL MEASURED ON 1/18/07.

0 150' 300'

GRAPHIC SCALE

VIRGINIA-CAROLINA CHEMICAL CO. SITE
WADESBORO, NORTH CAROLINA
JANUARY 2007 GROUNDWATER MONITORING REPORT

SHALLOW GROUNDWATER POTENTIOMETRIC SURFACE MAP

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FIGURE
2

[CAR-85-LEE] LAYER: ON=*, OFF=*REF*
R:\Current\OTHER\54626011\GMR-2007\54626W01.dwg SAVED:4/3/2006 1:22 PM LAYOUT:2 PAGESETUP:---- PENTABLE:PLTFULL.CTB PRINTED:1/29/2007 2:34 PM BY:LELLIS
PROJECTNAME:----
XREFS: 54626XBL
IMAGES:

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Attachment 1

Data Validation

DATA REVIEW FOR

EXXONMOBIL

WADESBORO, SOUTH CAROLINA

SDG #NQA2142

METALS ANALYSES

Analyses performed by:

Test America Analytical Testing Corporation
Nashville, Tennessee

Review performed by:

ARCADIS BBL
Infrastructure, environment, facilities

Syracuse, New York
Report #6540R

Summary

The following is an assessment of the data package for sample delivery group (SDG) #NQA2142 for sampling from the ExxonMobil VCC-PBM site in Port Royal, South Carolina. Included with this assessment are the data review check sheets used in the review of the package and corrected sample results. Analyses were performed on the following samples:

Sample ID	Lab ID	Matrix	Sample Date	Analysis				
				VOC	SVOC	PCB	MET	MISC
WB-MW-1	NQA2142-01	Water	1/18/2007				X	
WB-MW-1 (Filtered)	NPL1891-02	Water	1/18/2007				X	
WB-MW-2	NPL1891-03	Water	1/18/2007				X	
WB-MW-2 (Filtered)	NPL1891-04	Water	1/18/2007				X	
WB-MW-90	NQA2142-05	Water	1/18/2007				X	
WB-MW-90 (Filtered)	NQA2142-06	Water	1/18/2007				X	
WB-MW-3	NQA2142-07	Water	1/19/2007				X	
WB-MW-3 (Filtered)	NQA2142-08	Water	1/19/2007				X	
WB-FB-011907	NQA2142-09	Water	1/19/2007				X	

Notes:

1. Matrix spike/matrix spike duplicate (MS/MSD) analyses performed on sample locations WB-MW-1 and WB-MW-1 (Filtered).
2. Sample location WB-MW-90 is the field duplicate of parent sample location WB-MW-2.

GENERAL COMMENTS

The samples were analyzed using USEPA SW846 6000/7000 methods. The USEPA National Functional Guidelines for Data Review for October 1994 were used for guidance.

INORGANIC FRACTION

All samples were analyzed within the method-specified holding times.

Several analytes were detected in the associated blanks resulting in qualification of sample results.

All initial and continuing calibration standards were acceptable.

The analyte selenium exhibited a contract required detection limit (CRDL) recovery greater than the control limit.

Several analytes exhibited matrix spike/matrix spike duplicate (MS/MSD) recoveries less than the control limit resulting in qualification of sample results.

The MS/MSD analysis was performed in addition to the laboratory duplicate analysis. The MS/MSD and laboratory duplicate relative percent difference (RPD) results were within the control limits.

The analytes calcium and zinc exhibited serial dilution percent difference (%D) results greater than the control limit resulting in qualification of sample results.

The RPD between the parent sample and the field duplicate results were within the control limit.

METALS ANALYSES

Introduction

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Method 6000/7000. Data were reviewed in accordance with USEPA National Functional Guidelines of October 1994.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and that it was already subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with the USEPA National Functional Guidelines:

- Concentration (C) Qualifiers

  U The analyte was analyzed for but not detected. The associated value is the analyte instrument detection limit.

  B The reported value was obtained from a reading less than the contract-required detection limit (CRDL), but greater than or equal to the instrument detection limit (IDL).

- Quantitation (Q) Qualifiers

  E The reported value is estimated due to the presence of interference.

  N Spiked sample recovery is not within control limits.

  * Duplicate analysis is not within control limits.

- Validation Qualifiers

  J The analyte was positively identified; however, the associated numerical value is an estimated concentration only.

  UJ The analyte was not detected above the reported sample detection limit. However, the reported limit is approximate and may or may not represent the actual limit of detection.

  R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

Data Assessment

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 6010B	Water	180 days from collection to analysis	Cooled @ 4 °C; preserved to a pH of less than 2.
	Soil	180 days from collection to analysis	Cooled @ 4 °C.
SW-846 7470	Water	28 days from collection to analysis	Cooled @ 4 °C; preserved to a pH of less than 2.
SW-846 7471	Soil	28 days from collection to analysis	Cooled @ 4 °C.

All samples were analyzed within the specified holding times.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method or rinse blanks), are prepared to identify any contamination that may have been introduced into the samples during sample preparation or field activity. Method blanks (including initial and continuing calibration blanks, and preparation blanks) measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected analyte in an associated blank is calculated for QA blanks containing concentrations greater than the IDL. The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

All analytes associated with the QA blanks exhibited a concentration less than the IDL, with the exception of the analytes listed in the following table. Sample results associated with the following sample locations were qualified.

Sample Locations	Analytes	Sample Result	Qualification
WB-MW-1 WB-MW-1 (Filtered) WB-MW-2 WB-MW-2 (Filtered) WB-MW-90 WB-MW-90 (Filtered) WB-MW-3 WB-MW-3 (Filtered) WB-FB-011907	Aluminum	Detected sample results >RL and >BAL	No Action
	Iron		
	Potassium	Sample results ND	
WB-MW-2 (Filtered) WB-MW-90 (Filtered)	Lead		
WB-MW-1 (Filtered) WB-MW-3 (Filtered)	Lead	Detected sample results <RL and <BAL	U at the PQL

RL = Reporting limit
PQL = Practical quantitation limit

3. Calibration

Satisfactory instrument calibration is established to provide that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument's continuing performance is satisfactory.

3.1 Initial Calibration and Continuing Calibration

The correct number and type of standards were analyzed. The correlation coefficient of the initial calibration was greater than 0.995 for all non-ICP analytes and all initial calibration verification standard recoveries were within control limits.

All continuing calibration verification standard recoveries were within the control limit.

3.2 CRDL Check Standard

The CRDL check standard serves to verify the linearity of calibration of the analysis at the CRDL. The CRDL standard is not required for the analysis of aluminum (Al), barium (Ba), calcium (Ca), iron (Fe), magnesium (Mg), sodium (Na), and potassium (K). The criteria used to evaluate the CRDL standard analysis are presented below in the CRDL standards evaluation table.

All analytes associated with CRDL standard recoveries were within control limits with the exception of the analytes presented in the following table.

Sample Locations	Analytes	CRDL Recovery
WB-MW-1 WB-MW-1 (Filtered) WB-MW-2 WB-MW-2 (Filtered) WB-MW-90 WB-MW-90 (Filtered) WB-MW-3 WB-MW-3 (Filtered) WB-FB-011907	Selenium	142.4%

The criteria applied to evaluate the CRDL Standard criteria are presented below. In the case of a calibration deviation, the sample results are qualified.

CRDL Standard Recovery Criteria			
Analytes	**Control Limit**	**Sample Result**	**Qualification**
All analytes, with the exception of Al, Ba, Ca, Fe, Mg, Na, and K	CRDL %R <50% (<30% for Sb, Pb, Tl)	Sample results ≥ MDL but <2x CRDL	R
		Non-detect sample results	R
		Detected sample results ≥ 2x CRDL	J
	CRDL %R 50-69% (30-49% for Sb, Pb, Tl)	Sample results ≥ MDL but <2x CRDL	J

CRDL Standard Recovery Criteria			
Analytes	**Control Limit**	**Sample Result**	**Qualification**
		Non-detect sample results	UJ
		Detected sample results ≥ 2x CRDL	No Action
	%R >130% but <180% (>150% but <200% for Sb, Pb, Tl)	Sample results ≥ MDL but <2x CRDL	J
		Non-detect sample results	No Action
		Detected sample results ≥ 2x CRDL	No Action
	CRI %R >180% (>200% for Sb, Pb, Tl)	Sample results ≥ MDL	R

3.3 ICP Interference Control Sample (ICS)

The ICS verifies the laboratories interelement and background correction factors.

All ICS exhibited recoveries within the control limits.

4. Matrix Spike/Matrix Spike Duplicate (MS/MSD)/Laboratory Duplicate Analysis

MS/MSD and laboratory duplicate data are used to assess the precision and accuracy of the analytical method.

4.1 MS/MSD Analysis

All metal analytes must exhibit a percent recovery within the established acceptance limits of 75% to 125%. The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the analyte's concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater. In instance where this is true, the data will not be qualified even if the percent recovery does not meet the control limits and the laboratory qualifier "N" will be removed.

All analytes associated with MS/MSD recoveries were within control limits with the exception of the following analytes present in the table below.

Sample Location	Analytes	MS Recovery	MSD Recovery
WB-MW-1 WB-MW-2 WB-MW-90 WB-MW-3 WB-FB-011907	Antimony	42%	39%
	Arsenic	0.0%	7%
	Barium	47%	47%
	Beryllium	43%	43%
	Cadmium	44%	45%
	Chromium	43%	43%
	Cobalt	43%	43%
	Copper	47%	47%

Sample Location	Analytes	MS Recovery	MSD Recovery
	Iron	43%	38%
	Lead	43%	45%
	Nickel	44%	45%
	Selenium	36%	40%
	Silver	43%	43%
	Thallium	36%	36%
	Vanadium	43%	43%
	Zinc	48%	48%
WB-MW-1 (Filtered) WB-MW-2 (Filtered) WB-MW-90 (Filtered) WB-MW-3 (Filtered)	Antimony	37%	40%
	Arsenic	0.0%	0.0%
	Barium	46%	47%
	Beryllium	42%	43%
	Cadmium	45%	46%
	Chromium	43%	44%
	Cobalt	40%	42%
	Copper	46%	47%
	Iron	36%	37%
	Lead	45%	44%
	Nickel	43%	44%
	Selenium	43%	42%
	Silver	43%	41%
	Thallium	31%	33%
	Vanadium	42%	43%
	Zinc	40%	44%

The criteria used to evaluate MS/MSD recoveries are presented in the following table. In the case of an MS/MSD deviation, the sample results are qualified. The qualifications are applied to the all sample results associated with this SDG.

Control limit	Sample Result	Qualification
MS/MSD percent recovery 30% to 74%	Non-detect	UJ
	Detect	J
MS/MSD percent recovery <30%	Non-detect	R
	Detect	J
MS/MSD percent recovery >125%	Non-detect	No Action
	Detect	J

4.2 Laboratory Duplicate Analysis

The laboratory duplicate relative percent difference (RPD) criterion is applied when parent and duplicate sample concentrations are greater than or equal to 5 times the CRDL. A control limit of 20% for water matrices and 35% for soil matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the CRDL, a control limit of one times the CRDL is applied for water matrices and two times the CRDL for soil matrices.

MS/MSD analysis was performed in addition to the laboratory duplicate analysis. The laboratory duplicate and the MS/MSD between the MS/MSD recoveries exhibited RPD results within the control limits.

5. Field Duplicate Analysis

Field duplicate analysis is used to assess the precision and accuracy of the field sampling procedures and analytical method. A control limit of 50% for water matrices and 100% for soil matrices is applied to the RPD between the parent sample and the field duplicate.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Analyte	Sample Result	Duplicate Result	RPD
WB-MW-2/WB-MW-90	Aluminum	124	125	0.8%
	Barium	0.00420 J	0.00420 J	AC
	Beryllium	0.0197	0.0197	AC
	Cadmium	0.0139	0.0141	1.4%
	Calcium	111	110	0.9%
	Chromium	0.00880	0.00890	AC
	Cobalt	0.775	0.774	0.1%
	Copper	1.67	1.67	0.0%
	Iron	52.2	52.2	0.0%
	Magnesium	83.4	83.1	0.4%
	Manganese	41.1	40.9	0.5%
	Nickel	0.348	0.348	0.0%
	Sodium	1310	1300	0.8%
	Zinc	5.31	5.34	0.6%
WB-MW-2/WB-MW-90 (Filtered)	Aluminum	127	127	0.0%
	Barium	0.00540 J	0.00450 J	AC
	Beryllium	0.0196	0.0196	AC
	Cadmium	0.0144	0.0145	0.7%
	Calcium	105	105	0.0%
	Chromium	0.00910	0.00960	AC
	Cobalt	0.779	0.780	0.1%
	Copper	1.70	1.70	0.0%
	Iron	52.4	52.4	0.0%
	Magnesium	79.3	79.4	0.1%
	Manganese	41.2	41.5	0.7%
	Nickel	0.354	0.356	0.6%
	Sodium	1370	1370	0.0%
	Zinc	5.37	5.37	0.0%

ND = Not detected.
AC = The field duplicate RPD is acceptable when the RPD between parent sample and field duplicate sample is less than one times the RL and where the parent sample and/or duplicate concentration is less than five times the RL.

The calculated RPDs between the parent sample and field duplicate were acceptable.

6. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences.

The LCS analysis exhibited recoveries within the control limits.

7. Serial Dilution

The serial dilution analysis is used to assess if a significant physical or chemical interference exists due to sample matrix. Analytes exhibiting concentrations greater than 50 times the MDL in the undiluted sample are evaluated to determine if matrix interference exists. These analytes are required to have less than a 10% difference (%D) between sample results from the undiluted (parent) sample and results associated with the same sample analyzed with a five-fold dilution.

All serial dilutions were within control limits, with the exception of the analytes presented in the following table. The sample locations associated with the deviant %D are also presented in the following table.

Sample Locations	Analytes	%D
WB-MW-1 (Filtered) WB-MW-2 (Filtered) WB-MW-90 (Filtered) WB-MW-3 (Filtered)	Calcium	10.3%
	Zinc	14.6%

The criteria used to evaluate the serial dilution are presented in the following table. In the case of a serial dilution deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> UL	Non-detect	UJ
	Detect	J

8. Furnace Analysis QC

No furnace analyses were performed on the samples.

9. Method of Standard Additions (MSA)

No samples were analyzed following the method of standard additions.

10. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

Data Validation Checklist

Data Validation Checklist

	YES	NO	NA
Data Completeness and Deliverables			
Is there a narrative or cover letter present?	X		
Are the sample numbers included in the narrative?	X		
Are the sample chain-of-custodies present?	X		
Do the chain-of-custodies indicate any problems with sample receipt or sample condition?		X	
Raw Data			
Are the preparation logs present?	X		
Are preparation dates present on sample preparation logs/bench sheets?	X		
Are the measurement read out records present?	X		
Is the data legible?	X		
Is the data properly labeled?	X		
Are pH values listed?			X
Percent solids calculation present for soils/sediments?			X
Holding Times			
Were all analyses performed within the specified holding times?	X		
Sample Data			
Are all forms complete?	X		
Are correct units indicated the results sheets?	X		
Are soil sample results for each parameter corrected for percent solids?	X		
Initial Calibration			
Is a record of an initial calibration present?:	X		
Is correlation coefficient less than .995?:		X	
Initial and Continuing Calibration Verification			
Present and complete for all analytes?	X		
Are all calibration standards (initial and continuing) within control limits?:	X		
Was continuing calibration performed every 10 samples or every 2 hours?	X		
Was the ICV for cyanides distilled?			X
Initial and Continuing Calibration Blanks			
Present and complete?	X		
Was an initial calibration blank analyzed?	X		
Was a continuing calibration blank analyzed after every 10 samples or every 2 hours (which ever is more frequent)?	X		
Are all calibration blanks less than or equal to the RL?		X	

	YES	NO	NA
Preparation Blank			
Was one prep. blank analyzed for:			
each batch of digested samples?	X		
each matrix type?	X		
Are all preparation blanks less than the RL?	X		
If no, is the concentration of the sample with the least concentrated analyte less than 10 times the prep. blank?			X
Matrix Spike/Matrix Spike Duplicate (MS/MSD)			
Present and complete for:			
each batch?	X		
each matrix type?	X		
Was field blank used for spiked sample?		X	
Are all recoveries for analytes with sample concentrations less than four times the spike concentration within control limits?		X	
Are results outside the control limits (75-125%) flagged with "N"?	X		
Laboratory Duplicates			
Present and complete for:			
each batch?	X		
each matrix type?	X		
Was field blank used for duplicate analysis?		X	
Are all values within control limits?	X		
If no, are all results outside the control limits flagged with an * ?			X
Field Duplicates			
Were field duplicates analyzed?	X		
Aqueous			
is any RPD greater than 50% where sample and duplicate are both greater than or equal to 5 times RL?		X	
Is any difference between sample and duplicate greater than RL where sample and/or duplicate is less than 5 times RL?		X	
Soil/Sediment			
Is any RPD (where sample and duplicate are both greater than 5 times RL) > 100%?			X
Is any difference between sample and duplicate (where sample and/or duplicate is less than 5x RL) >2xRL?			X

	YES	NO	NA
Laboratory Control Sample			
Was one LCS prepared and analyzed for:			
each matrix?	X		
each batch?	X		
Are all recoveries within control limits?	X		
Field Blank			
Is the field blank concentration less than RL for all analytes?	X		
If no, was field blank value already rejected due to other QC criteria?			X
Percent Solids			
Are the percent solids in soil/sediment(s):			
< 50%?			X
< 10%?			X

Corrected Sample Analysis Data Sheets

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Client Blasland, Bouck & Lee, Inc.(Cary) Exxon (10141)
11000 Regency Parkway, West Tower Suite 205
Cary, NC 27518
Attn Bill Anckner

Work Order: NQA2142
Project Name: Exxon R0406 Wadesboro
Project Number: Exxon R0406 Wadesboro
Received: 01/20/07 08:00

ANALYTICAL REPORT

Analyte	Result	Flag	Units	MDL	MRL	Dilution Factor	Analysis Date/Time	Method	Batch
Sample ID: NQA2142-01 (WB-MW-1 - Water) Sampled: 01/18/07 15:15									
Total Metals by EPA Method 6010B									
Aluminum	70.0		mg/L	0.0140	0.100	1	01/22/07 15:11	SW846 6010B	7013199
Antimony	ND	J	mg/L	0.00530	0.0100	1	01/22/07 15:11	SW846 6010B	7013199
Arsenic	~~ND~~	R	mg/L	0.00480	0.0100	1	01/22/07 15:11	SW846 6010B	7013199
Barium	0.00750	J	mg/L	0.00100	0.0100	1	01/22/07 15:11	SW846 6010B	7013199
Beryllium	0.0170	J	mg/L	0.00100	0.00400	1	01/22/07 15:11	SW846 6010B	7013199
Cadmium	0.00690	J	mg/L	0.000400	0.00100	1	01/22/07 15:11	SW846 6010B	7013199
Calcium	478		mg/L	0.250	10.0	10	01/22/07 15:53	SW846 6010B	7013199
Chromium	0.00380	J	mg/L	0.00130	0.00500	1	01/22/07 15:11	SW846 6010B	7013199
Cobalt	0.327	J	mg/L	0.00250	0.0200	1	01/22/07 15:11	SW846 6010B	7013199
Copper	0.0830	J	mg/L	0.00530	0.0100	1	01/22/07 15:11	SW846 6010B	7013199
Iron	ND		mg/L	0.0320	0.0500	1	01/22/07 15:11	SW846 6010B	7013199
Lead	0.00390	J	mg/L	0.00220	0.00500	1	01/22/07 15:11	SW846 6010B	7013199
Magnesium	118	J	mg/L	0.0250	1.00	1	01/22/07 15:11	SW846 6010B	7013199
Manganese	30.1		mg/L	0.0100	0.150	10	01/22/07 15:53	SW846 6010B	7013199
Nickel	0.219	J	mg/L	0.00180	0.0100	1	01/22/07 15:11	SW846 6010B	7013199
Potassium	ND		mg/L	0.160	1.00	1	01/22/07 15:11	SW846 6010B	7013199
Selenium	ND	J	mg/L	0.00820	0.0100	1	01/22/07 15:11	SW846 6010B	7013199
Silver	ND	J	mg/L	0.00190	0.00500	1	01/22/07 15:11	SW846 6010B	7013199
Sodium	31.8		mg/L	0.250	1.00	1	01/22/07 15:11	SW846 6010B	7013199
Thallium	ND	J	mg/L	0.00870	0.0100	1	01/22/07 15:11	SW846 6010B	7013199
Vanadium	ND	J	mg/L	0.00500	0.0200	1	01/22/07 15:11	SW846 6010B	7013199
Zinc	1.18	J	mg/L	0.0250	0.0500	1	01/22/07 15:11	SW846 6010B	7013199
Mercury by EPA Methods 7470A/7471A									
Mercury	ND		mg/L	0.000100	0.000200	1	01/24/07 15:25	SW846 7470A	7013219
Sample ID: NQA2142-02 (WB-MW-1 (Filtered) - Water) Sampled: 01/18/07 15:15									
Dissolved Metals by EPA Method 6010B									
Aluminum	71.4		mg/L	0.0140	0.100	1	01/22/07 17:40	SW846 6010B	7013200
Antimony	ND	J	mg/L	0.00530	0.0100	1	01/22/07 17:40	SW846 6010B	7013200
Arsenic	~~ND~~	R	mg/L	0.00480	0.0100	1	01/22/07 17:40	SW846 6010B	7013200
Barium	0.00830	J	mg/L	0.00100	0.0100	1	01/22/07 17:40	SW846 6010B	7013200
Beryllium	0.0170	J	mg/L	0.00100	0.00400	1	01/22/07 17:40	SW846 6010B	7013200
Cadmium	0.00690	J	mg/L	0.000400	0.00100	1	01/22/07 17:40	SW846 6010B	7013200
Calcium	539	J	mg/L	0.250	10.0	10	01/22/07 17:50	SW846 6010B	7013200
Chromium	0.00370	J	mg/L	0.00130	0.00500	1	01/22/07 17:40	SW846 6010B	7013200
Cobalt	0.330	J	mg/L	0.00250	0.0200	1	01/22/07 17:40	SW846 6010B	7013200
Copper	0.0842	J	mg/L	0.00530	0.0100	1	01/22/07 17:40	SW846 6010B	7013200
Iron	ND	J	mg/L	0.0320	0.0500	1	01/22/07 17:40	SW846 6010B	7013200
Lead	ND(0.005) ~~0.00440~~	J J	mg/L	0.00220	0.00500	1	01/22/07 17:40	SW846 6010B	7013200
Magnesium	115		mg/L	0.0250	1.00	1	01/22/07 17:40	SW846 6010B	7013200
Manganese	33.4		mg/L	0.0100	0.150	10	01/22/07 17:50	SW846 6010B	7013200
Nickel	0.225	J	mg/L	0.00180	0.0100	1	01/22/07 17:40	SW846 6010B	7013200
Potassium	ND		mg/L	0.160	1.00	1	01/22/07 17:40	SW846 6010B	7013200
Selenium	ND	J	mg/L	0.00820	0.0100	1	01/22/07 17:40	SW846 6010B	7013200

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Client Blasland, Bouck & Lee, Inc.(Cary) Exxon (10141)
11000 Regency Parkway, West Tower Suite 205
Cary, NC 27518
Attn Bill Anckner

Work Order: NQA2142
Project Name: Exxon R0406 Wadesboro
Project Number: Exxon R0406 Wadesboro
Received: 01/20/07 08:00

ANALYTICAL REPORT

Analyte	Result	Flag	Units	MDL	MRL	Dilution Factor	Analysis Date/Time	Method	Batch
Sample ID: NQA2142-02 (WB-MW-1 (Filtered) - Water) - cont. Sampled: 01/18/07 15:15									
Dissolved Metals by EPA Method 6010B - cont.									
Silver	ND	J	mg/L	0.00190	0.00500	1	01/22/07 17:40	SW846 6010B	7013200
Sodium	34.8		mg/L	0.250	1.00	1	01/22/07 17:40	SW846 6010B	7013200
Thallium	ND	J	mg/L	0.00870	0.0100	1	01/22/07 17:40	SW846 6010B	7013200
Vanadium	ND	J	mg/L	0.00500	0.0200	1	01/22/07 17:40	SW846 6010B	7013200
Zinc	1.22	J	mg/L	0.0250	0.0500	1	01/22/07 17:40	SW846 6010B	7013200
Dissolved Mercury by EPA Methods 7470A/7471A									
Mercury	ND		mg/L	0.000100	0.000200	1	01/24/07 14:05	SW846 7470A	7013218
Sample ID: NQA2142-03 (WB-MW-2 - Water) Sampled: 01/18/07 17:10									
Total Metals by EPA Method 6010B									
Aluminum	124		mg/L	0.0140	0.100	1	01/22/07 16:16	SW846 6010B	7013199
Antimony	ND	J	mg/L	0.00530	0.0100	1	01/22/07 16:16	SW846 6010B	7013199
Arsenic	~~ND~~	R	mg/L	0.00480	0.0100	1	01/22/07 16:16	SW846 6010B	7013199
Barium	0.00420	J	mg/L	0.00100	0.0100	1	01/22/07 16:16	SW846 6010B	7013199
Beryllium	0.0197	J	mg/L	0.00100	0.00400	1	01/22/07 16:16	SW846 6010B	7013199
Cadmium	0.0139	J	mg/L	0.000400	0.00100	1	01/22/07 16:16	SW846 6010B	7013199
Calcium	111		mg/L	0.0250	1.00	1	01/22/07 16:16	SW846 6010B	7013199
Chromium	0.00880	J	mg/L	0.00130	0.00500	1	01/22/07 16:16	SW846 6010B	7013199
Cobalt	0.775	J	mg/L	0.00250	0.0200	1	01/22/07 16:16	SW846 6010B	7013199
Copper	1.67	J	mg/L	0.00530	0.0100	1	01/22/07 16:16	SW846 6010B	7013199
Iron	52.2	J	mg/L	0.0320	0.0500	1	01/22/07 16:16	SW846 6010B	7013199
Lead	ND	J	mg/L	0.00220	0.00500	1	01/22/07 16:16	SW846 6010B	7013199
Magnesium	83.4		mg/L	0.0250	1.00	1	01/22/07 16:16	SW846 6010B	7013199
Manganese	41.1		mg/L	0.100	1.50	100	01/22/07 16:29	SW846 6010B	7013199
Nickel	0.348	J	mg/L	0.00180	0.0100	1	01/22/07 16:16	SW846 6010B	7013199
Potassium	ND		mg/L	0.160	1.00	1	01/22/07 16:16	SW846 6010B	7013199
Selenium	ND	J	mg/L	0.00820	0.0100	1	01/22/07 16:16	SW846 6010B	7013199
Silver	ND	J	mg/L	0.00190	0.00500	1	01/22/07 16:16	SW846 6010B	7013199
Sodium	1310		mg/L	25.0	100	100	01/22/07 16:29	SW846 6010B	7013199
Thallium	ND	J	mg/L	0.00870	0.0100	1	01/22/07 16:16	SW846 6010B	7013199
Vanadium	ND	J	mg/L	0.00500	0.0200	1	01/22/07 16:16	SW846 6010B	7013199
Zinc	5.31	J	mg/L	0.0250	0.0500	1	01/22/07 16:16	SW846 6010B	7013199
Mercury by EPA Methods 7470A/7471A									
Mercury	ND		mg/L	0.000100	0.000200	1	01/24/07 15:31	SW846 7470A	7013219

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Cary, NC 27518
Attn Bill Anckner

Work Order: NQA2142
Project Name: Exxon R0406 Wadesboro
Project Number: Exxon R0406 Wadesboro
Received: 01/20/07 08:00

ANALYTICAL REPORT

Analyte	Result	Flag	Units	MDL	MRL	Dilution Factor	Analysis Date/Time	Method	Batch
Sample ID: NQA2142-04 (WB-MW-2 (Filtered) - Water) Sampled: 01/18/07 17:10									
Dissolved Metals by EPA Method 6010B									
Aluminum	127		mg/L	0.0140	0.100	1	01/22/07 18:25	SW846 6010B	7013200
Antimony	ND	J	mg/L	0.00530	0.0100	1	01/22/07 18:25	SW846 6010B	7013200
Arsenic	~~ND~~	R	mg/L	0.00480	0.0100	1	01/22/07 18:25	SW846 6010B	7013200
Barium	0.00540	J	mg/L	0.00100	0.0100	1	01/22/07 18:25	SW846 6010B	7013200
Beryllium	0.0196	J	mg/L	0.00100	0.00400	1	01/22/07 18:25	SW846 6010B	7013200
Cadmium	0.0144	J	mg/L	0.000400	0.00100	1	01/22/07 18:25	SW846 6010B	7013200
Calcium	105	J	mg/L	0.0250	1.00	1	01/22/07 18:25	SW846 6010B	7013200
Chromium	0.00910	J	mg/L	0.00130	0.00500	1	01/22/07 18:25	SW846 6010B	7013200
Cobalt	0.779	J	mg/L	0.00250	0.0200	1	01/22/07 18:25	SW846 6010B	7013200
Copper	1.70	J	mg/L	0.00530	0.0100	1	01/22/07 18:25	SW846 6010B	7013200
Iron	52.4	J	mg/L	0.0320	0.0500	1	01/22/07 18:25	SW846 6010B	7013200
Lead	ND	J	mg/L	0.00220	0.00500	1	01/22/07 18:25	SW846 6010B	7013200
Magnesium	79.3		mg/L	0.0250	1.00	1	01/22/07 18:25	SW846 6010B	7013200
Manganese	41.2		mg/L	0.100	1.50	100	01/22/07 18:36	SW846 6010B	7013200
Nickel	0.354	J	mg/L	0.00180	0.0100	1	01/22/07 18:25	SW846 6010B	7013200
Potassium	ND		mg/L	0.160	1.00	1	01/22/07 18:25	SW846 6010B	7013200
Selenium	ND	J	mg/L	0.00820	0.0100	1	01/22/07 18:25	SW846 6010B	7013200
Silver	ND	J	mg/L	0.00190	0.00500	1	01/22/07 18:25	SW846 6010B	7013200
Sodium	1370		mg/L	25.0	100	100	01/22/07 18:36	SW846 6010B	7013200
Thallium	ND	J	mg/L	0.00870	0.0100	1	01/22/07 18:25	SW846 6010B	7013200
Vanadium	ND	J	mg/L	0.00500	0.0200	1	01/22/07 18:25	SW846 6010B	7013200
Zinc	5.37	J	mg/L	0.0250	0.0500	1	01/22/07 18:25	SW846 6010B	7013200
Dissolved Mercury by EPA Methods 7470A/7471A									
Mercury	ND		mg/L	0.000100	0.000200	1	01/24/07 14:11	SW846 7470A	7013218
Sample ID: NQA2142-05 (WB-MW-90 - Water) Sampled: 01/18/07 00:01									
Total Metals by EPA Method 6010B									
Aluminum	125		mg/L	0.0140	0.100	1	01/22/07 16:41	SW846 6010B	7013199
Antimony	ND	J	mg/L	0.00530	0.0100	1	01/22/07 16:41	SW846 6010B	7013199
Arsenic	~~ND~~	R	mg/L	0.00480	0.0100	1	01/22/07 16:41	SW846 6010B	7013199
Barium	0.00420	J	mg/L	0.00100	0.0100	1	01/22/07 16:41	SW846 6010B	7013199
Beryllium	0.0197	J	mg/L	0.00100	0.00400	1	01/22/07 16:41	SW846 6010B	7013199
Cadmium	0.0141	J	mg/L	0.000400	0.00100	1	01/22/07 16:41	SW846 6010B	7013199
Calcium	110		mg/L	0.0250	1.00	1	01/22/07 16:41	SW846 6010B	7013199
Chromium	0.00890	J	mg/L	0.00130	0.00500	1	01/22/07 16:41	SW846 6010B	7013199
Cobalt	0.774	J	mg/L	0.00250	0.0200	1	01/22/07 16:41	SW846 6010B	7013199
Copper	1.67	J	mg/L	0.00530	0.0100	1	01/22/07 16:41	SW846 6010B	7013199
Iron	52.2	J	mg/L	0.0320	0.0500	1	01/22/07 16:41	SW846 6010B	7013199
Lead	ND	J	mg/L	0.00220	0.00500	1	01/22/07 16:41	SW846 6010B	7013199
Magnesium	83.1		mg/L	0.0250	1.00	1	01/22/07 16:41	SW846 6010B	7013199
Manganese	40.9		mg/L	0.100	1.50	100	01/22/07 17:04	SW846 6010B	7013199
Nickel	0.348	J	mg/L	0.00180	0.0100	1	01/22/07 16:41	SW846 6010B	7013199
Potassium	ND		mg/L	0.160	1.00	1	01/22/07 16:41	SW846 6010B	7013199
Selenium	ND	J	mg/L	0.00820	0.0100	1	01/22/07 16:41	SW846 6010B	7013199

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2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client Blasland, Bouck & Lee, Inc.(Cary) Exxon (10141)
11000 Regency Parkway, West Tower Suite 205
Cary, NC 27518
Attn Bill Arickner

Work Order: NQA2142
Project Name: Exxon R0406 Wadesboro
Project Number: Exxon R0406 Wadesboro
Received: 01/20/07 08:00

ANALYTICAL REPORT

Analyte	Result	Flag	Units	MDL	MRL	Dilution Factor	Analysis Date/Time	Method	Batch
Sample ID: NQA2142-05 (WB-MW-90 - Water) - cont. Sampled: 01/18/07 00:01									
Total Metals by EPA Method 6010B - cont.									
Silver	ND	J	mg/L	0.00190	0.00500	1	01/22/07 16:41	SW846 6010B	7013199
Sodium	1300		mg/L	25.0	100	100	01/22/07 17:04	SW846 6010B	7013199
Thallium	ND	J	mg/L	0.00870	0.0100	1	01/22/07 16:41	SW846 6010B	7013199
Vanadium	ND	J	mg/L	0.00500	0.0200	1	01/22/07 16:41	SW846 6010B	7013199
Zinc	5.34	J	mg/L	0.0250	0.0500	1	01/22/07 16:41	SW846 6010B	7013199
Mercury by EPA Methods 7470A/7471A									
Mercury	ND		mg/L	0.000100	0.000200	1	01/24/07 15:33	SW846 7470A	7013219
Sample ID: NQA2142-06 (WB-MW-90 (Filtered) - Water) Sampled: 01/18/07 00:01									
Dissolved Metals by EPA Method 6010B									
Aluminum	127		mg/L	0.0140	0.100	1	01/22/07 18:39	SW846 6010B	7013200
Antimony	ND	J	mg/L	0.00530	0.0100	1	01/22/07 18:39	SW846 6010B	7013200
Arsenic	~~ND~~	R	mg/L	0.00480	0.0100	1	01/22/07 18:39	SW846 6010B	7013200
Barium	0.00450	J	mg/L	0.00100	0.0100	1	01/22/07 18:39	SW846 6010B	7013200
Beryllium	0.0196	J	mg/L	0.00100	0.00400	1	01/22/07 18:39	SW846 6010B	7013200
Cadmium	0.0145	J	mg/L	0.000400	0.00100	1	01/22/07 18:39	SW846 6010B	7013200
Calcium	105	J	mg/L	0.0250	1.00	1	01/22/07 18:39	SW846 6010B	7013200
Chromium	0.00960	J	mg/L	0.00130	0.00500	1	01/22/07 18:39	SW846 6010B	7013200
Cobalt	0.780	J	mg/L	0.00250	0.0200	1	01/22/07 18:39	SW846 6010B	7013200
Copper	1.70	J	mg/L	0.00530	0.0100	1	01/22/07 18:39	SW846 6010B	7013200
Iron	52.4	J	mg/L	0.0320	0.0500	1	01/22/07 18:39	SW846 6010B	7013200
Lead	ND	J	mg/L	0.00220	0.00500	1	01/22/07 18:39	SW846 6010B	7013200
Magnesium	79.4		mg/L	0.0250	1.00	1	01/22/07 18:39	SW846 6010B	7013200
Manganese	41.5		mg/L	0.100	1.50	100	01/22/07 18:45	SW846 6010B	7013200
Nickel	0.356	J	mg/L	0.00180	0.0100	1	01/22/07 18:39	SW846 6010B	7013200
Potassium	ND		mg/L	0.160	1.00	1	01/22/07 18:39	SW846 6010B	7013200
Selenium	ND	J	mg/L	0.00820	0.0100	1	01/22/07 18:39	SW846 6010B	7013200
Silver	ND	J	mg/L	0.00190	0.00500	1	01/22/07 18:39	SW846 6010B	7013200
Sodium	1370		mg/L	25.0	100	100	01/22/07 18:45	SW846 6010B	7013200
Thallium	ND	J	mg/L	0.00870	0.0100	1	01/22/07 18:39	SW846 6010B	7013200
Vanadium	ND	J	mg/L	0.00500	0.0200	1	01/22/07 18:39	SW846 6010B	7013200
Zinc	5.37	J	mg/L	0.0250	0.0500	1	01/22/07 18:39	SW846 6010B	7013200
Dissolved Mercury by EPA Methods 7470A/7471A									
Mercury	ND		mg/L	0.000100	0.000200	1	01/24/07 14:13	SW846 7470A	7013218

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Client Blasland, Bouck & Lee, Inc.(Cary) Exxon (10141)
11000 Regency Parkway, West Tower Suite 205
Cary, NC 27518
Attn Bill Anckner

Work Order: NQA2142
Project Name: Exxon R0406 Wadesboro
Project Number: Exxon R0406 Wadesboro
Received: 01/20/07 08:00

ANALYTICAL REPORT

Analyte	Result	Flag	Units	MDL	MRL	Dilution Factor	Analysis Date/Time	Method	Batch
Sample ID: NQA2142-07 (WB-MW-3 - Water) Sampled: 01/19/07 09:40									
Total Metals by EPA Method 6010B									
Aluminum	ND(0.100) ~~0.0271~~	J	mg/L	0.0140	0.100	1	01/22/07 17:08	SW846 6010B	7013199
Antimony	0.00530	J	mg/L	0.00530	0.0100	1	01/22/07 17:08	SW846 6010B	7013199
Arsenic	~~ND~~	R	mg/L	0.00480	0.0100	1	01/22/07 17:08	SW846 6010B	7013199
Barium	0.0191	J	mg/L	0.00100	0.0100	1	01/22/07 17:08	SW846 6010B	7013199
Beryllium	ND	J	mg/L	0.00100	0.00400	1	01/22/07 17:08	SW846 6010B	7013199
Cadmium	0.000700	J	mg/L	0.000400	0.00100	1	01/22/07 17:08	SW846 6010B	7013199
Calcium	538		mg/L	0.250	10.0	10	01/22/07 17:20	SW846 6010B	7013199
Chromium	ND	J	mg/L	0.00130	0.00500	1	01/22/07 17:08	SW846 6010B	7013199
Cobalt	0.173	J	mg/L	0.00250	0.0200	1	01/22/07 17:08	SW846 6010B	7013199
Copper	ND	J	mg/L	0.00530	0.0100	1	01/22/07 17:08	SW846 6010B	7013199
Iron	15.0	J	mg/L	0.0320	0.0500	1	01/22/07 17:08	SW846 6010B	7013199
Lead	ND	J	mg/L	0.00220	0.00500	1	01/22/07 17:08	SW846 6010B	7013199
Magnesium	123		mg/L	0.0250	1.00	1	01/22/07 17:08	SW846 6010B	7013199
Manganese	7.00		mg/L	0.00100	0.0150	1	01/22/07 17:08	SW846 6010B	7013199
Nickel	0.0425	J	mg/L	0.00180	0.0100	1	01/22/07 17:08	SW846 6010B	7013199
Potassium	0.998	J	mg/L	0.160	1.00	1	01/22/07 17:08	SW846 6010B	7013199
Selenium	ND	J	mg/L	0.00820	0.0100	1	01/22/07 17:08	SW846 6010B	7013199
Silver	0.00240	J	mg/L	0.00190	0.00500	1	01/22/07 17:08	SW846 6010B	7013199
Sodium	98.0		mg/L	2.50	10.0	10	01/22/07 17:20	SW846 6010B	7013199
Thallium	ND	J	mg/L	0.00870	0.0100	1	01/22/07 17:08	SW846 6010B	7013199
Vanadium	ND	J	mg/L	0.00500	0.0200	1	01/22/07 17:08	SW846 6010B	7013199
Zinc	0.491	J	mg/L	0.0250	0.0500	1	01/22/07 17:08	SW846 6010B	7013199
Mercury by EPA Methods 7470A/7471A									
Mercury	ND		mg/L	0.000100	0.000200	1	01/24/07 15:36	SW846 7470A	7013219
Sample ID: NQA2142-08 (WB-MW-3 (Filtered) - Water) Sampled: 01/19/07 09:40									
Dissolved Metals by EPA Method 6010B									
Aluminum	ND		mg/L	0.0140	0.100	1	01/22/07 18:48	SW846 6010B	7013200
Antimony	ND	J	mg/L	0.00530	0.0100	1	01/22/07 18:48	SW846 6010B	7013200
Arsenic	~~ND~~	R	mg/L	0.00480	0.0100	1	01/22/07 18:48	SW846 6010B	7013200
Barium	0.0208	J	mg/L	0.00100	0.0100	1	01/22/07 18:48	SW846 6010B	7013200
Beryllium	ND	J	mg/L	0.00100	0.00400	1	01/22/07 18:48	SW846 6010B	7013200
Cadmium	ND	J	mg/L	0.000400	0.00100	1	01/22/07 18:48	SW846 6010B	7013200
Calcium	500	J	mg/L	0.250	10.0	10	01/22/07 18:55	SW846 6010B	7013200
Chromium	ND	J	mg/L	0.00130	0.00500	1	01/22/07 18:48	SW846 6010B	7013200
Cobalt	0.172	J	mg/L	0.00250	0.0200	1	01/22/07 18:48	SW846 6010B	7013200
Copper	ND	J	mg/L	0.00530	0.0100	1	01/22/07 18:48	SW846 6010B	7013200
Iron	14.7	J	mg/L	0.0320	0.0500	1	01/22/07 18:48	SW846 6010B	7013200
Lead	ND(1.005) ~~0.00250~~	J	mg/L	0.00220	0.00500	1	01/22/07 18:48	SW846 6010B	7013200
Magnesium	126		mg/L	0.0250	1.00	1	01/22/07 18:48	SW846 6010B	7013200
Manganese	7.02		mg/L	0.00100	0.0150	1	01/22/07 18:48	SW846 6010B	7013200
Nickel	0.0422	J	mg/L	0.00180	0.0100	1	01/22/07 18:48	SW846 6010B	7013200
Potassium	2.07		mg/L	0.160	1.00	1	01/22/07 18:48	SW846 6010B	7013200
Selenium	ND	J	mg/L	0.00820	0.0100	1	01/22/07 18:48	SW846 6010B	7013200

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ANALYTICAL TESTING CORPORATION
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client: Blasland, Bouck & Lee, Inc.(Cary) Exxon (10141)
11000 Regency Parkway, West Tower Suite 205
Cary, NC 27518
Attn: Bill Anckner

Work Order: NQA2142
Project Name: Exxon R0406 Wadesboro
Project Number: Exxon R0406 Wadesboro
Received: 01/20/07 08:00

ANALYTICAL REPORT

Analyte	Result	Flag	Units	MDL	MRL	Dilution Factor	Analysis Date/Time	Method	Batch
Sample ID: NQA2142-08 (WB-MW-3 (Filtered) - Water) - cont. Sampled: 01/19/07 09:40									
Dissolved Metals by EPA Method 6010B - cont.									
Silver	ND J		mg/L	0.00190	0.00500	1	01/22/07 18:48	SW846 6010B	7013200
Sodium	101		mg/L	2.50	10.0	10	01/22/07 18:55	SW846 6010B	7013200
Thallium	ND J		mg/L	0.00870	0.0100	1	01/22/07 18:48	SW846 6010B	7013200
Vanadium	ND J		mg/L	0.00500	0.0200	1	01/22/07 18:48	SW846 6010B	7013200
Zinc	0.460 J		mg/L	0.0250	0.0500	1	01/22/07 18:48	SW846 6010B	7013200
Dissolved Mercury by EPA Methods 7470A/7471A									
Mercury	ND		mg/L	0.000100	0.000200	1	01/24/07 14:15	SW846 7470A	7013218
Sample ID: NQA2142-09 (WB-FB-011907 - Water) Sampled: 01/19/07 09:00									
Total Metals by EPA Method 6010B									
Aluminum	ND		mg/L	0.0140	0.100	1	01/22/07 17:24	SW846 6010B	7013199
Antimony	ND J		mg/L	0.00530	0.0100	1	01/22/07 17:24	SW846 6010B	7013199
Arsenic	~~ND~~ R		mg/L	0.00480	0.0100	1	01/22/07 17:24	SW846 6010B	7013199
Barium	ND J		mg/L	0.00100	0.0100	1	01/22/07 17:24	SW846 6010B	7013199
Beryllium	ND J		mg/L	0.00100	0.00400	1	01/22/07 17:24	SW846 6010B	7013199
Cadmium	ND J		mg/L	0.000400	0.00100	1	01/22/07 17:24	SW846 6010B	7013199
Calcium	0.0919	J	mg/L	0.0250	1.00	1	01/22/07 17:24	SW846 6010B	7013199
Chromium	ND J		mg/L	0.00130	0.00500	1	01/22/07 17:24	SW846 6010B	7013199
Cobalt	ND J		mg/L	0.00250	0.0200	1	01/22/07 17:24	SW846 6010B	7013199
Copper	ND J		mg/L	0.00530	0.0100	1	01/22/07 17:24	SW846 6010B	7013199
Iron	ND J		mg/L	0.0320	0.0500	1	01/22/07 17:24	SW846 6010B	7013199
Lead	ND J		mg/L	0.00220	0.00500	1	01/22/07 17:24	SW846 6010B	7013199
Magnesium	ND		mg/L	0.0250	1.00	1	01/22/07 17:24	SW846 6010B	7013199
Manganese	ND		mg/L	0.00100	0.0150	1	01/22/07 17:24	SW846 6010B	7013199
Nickel	ND J		mg/L	0.00180	0.0100	1	01/22/07 17:24	SW846 6010B	7013199
Potassium	ND		mg/L	0.160	1.00	1	01/22/07 17:24	SW846 6010B	7013199
Selenium	ND J		mg/L	0.00820	0.0100	1	01/22/07 17:24	SW846 6010B	7013199
Silver	ND J		mg/L	0.00190	0.00500	1	01/22/07 17:24	SW846 6010B	7013199
Sodium	ND		mg/L	0.250	1.00	1	01/22/07 17:24	SW846 6010B	7013199
Thallium	ND J		mg/L	0.00870	0.0100	1	01/22/07 17:24	SW846 6010B	7013199
Vanadium	ND J		mg/L	0.00500	0.0200	1	01/22/07 17:24	SW846 6010B	7013199
Zinc	0.0254	J	mg/L	0.0250	0.0500	1	01/22/07 17:24	SW846 6010B	7013199
Mercury by EPA Methods 7470A/7471A									
Mercury	ND		mg/L	0.000100	0.000200	1	01/24/07 15:38	SW846 7470A	7013219

DATA QUALIFIER SUMMARY

Data Qualifier Summary

Inorganic Analysis:

Table 1		
Sample(s)	**Analyte**	**Qualifier**
WB-MW-1	Antimony	J
	Arsenic	R
	Barium	J
	Beryllium	J
	Cadmium	J
	Chromium	J
	Cobalt	J
	Copper	J
	Iron	J
	Lead	J
	Nickel	J
	Selenium	J
	Silver	J
	Thallium	J
	Vanadium	J
	Zinc	J
WB-MW-1 (Filtered)	Antimony	J
	Arsenic	R
	Barium	J
	Beryllium	J
	Cadmium	J
	Calcium	J
	Chromium	J
	Cobalt	J
	Copper	J
	Iron	J
	Lead	U
	Lead	UJ
	Nickel	J
	Selenium	J
	Silver	J
	Thallium	J
	Vanadium	J
	Zinc	J
WB-MW-2	Antimony	J
	Arsenic	R

Table 1		
Sample(s)	**Analyte**	**Qualifier**
	Barium	J
	Beryllium	J
	Cadmium	J
	Chromium	J
	Cobalt	J
	Copper	J
	Iron	J
	Lead	J
	Nickel	J
	Selenium	J
	Silver	J
	Thallium	J
	Vanadium	J
	Zinc	J
WB-MW-2 (Filtered)	Antimony	J
	Arsenic	R
	Barium	J
	Beryllium	J
	Cadmium	J
	Calcium	J
	Chromium	J
	Cobalt	J
	Copper	J
	Iron	J
	Lead	J
	Nickel	J
	Selenium	J
	Silver	J
	Thallium	J
	Vanadium	J
	Zinc	J
WB-MW-90	Antimony	J
	Arsenic	R
	Barium	J
	Beryllium	J
	Cadmium	J
	Chromium	J
	Cobalt	J
	Copper	J
	Iron	J

Table 1		
Sample(s)	Analyte	Qualifier
	Lead	J
	Nickel	J
	Selenium	J
	Silver	J
	Thallium	J
	Vanadium	J
	Zinc	J
WB-MW-90 (Filtered)	Antimony	J
	Arsenic	R
	Barium	J
	Beryllium	J
	Cadmium	J
	Calcium	J
	Chromium	J
	Cobalt	J
	Copper	J
	Iron	J
	Lead	J
	Nickel	J
	Selenium	J
	Silver	J
	Thallium	J
	Vanadium	J
	Zinc	J
WB-MW-3	Antimony	J
	Arsenic	R
	Barium	J
	Beryllium	J
	Cadmium	J
	Chromium	J
	Cobalt	J
	Copper	J
	Iron	J
	Lead	J
	Nickel	J
	Selenium	J
	Silver	J
	Thallium	J
	Vanadium	J
	Zinc	J

Table 1		
Sample(s)	**Analyte**	**Qualifier**
WB-MW-3 (Filtered)	Antimony	J
	Arsenic	R
	Barium	J
	Beryllium	J
	Cadmium	J
	Calcium	J
	Chromium	J
	Cobalt	J
	Copper	J
	Iron	J
	Lead	U
	Lead	UJ
	Nickel	J
	Selenium	J
	Silver	J
	Thallium	J
	Vanadium	J
	Zinc	J
WB-FB-011907	Antimony	J
	Arsenic	R
	Barium	J
	Beryllium	J
	Cadmium	J
	Chromium	J
	Cobalt	J
	Copper	J
	Iron	J
	Lead	J
	Nickel	J
	Selenium	J
	Silver	J
	Thallium	J
	Vanadium	J
	Zinc	J

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Transmitted Via Federal Express

April 18, 2006

Michael Deaton
North Carolina Department of Environment and Natural Resources
401 Oberlin Road
Raleigh, North Carolina 27699

Re: Virginia Carolina Chemical Site – Wadesboro, North Carolina
Groundwater Monitoring Report
BBL Project: 54626#5

Dear Mr. Deaton:

This letter provides the results of groundwater sampling performed in January 2006 on behalf of Exxon Mobil Corporation (ExxonMobil) at the former Virginia-Carolina Chemical (VCC) Site located in Wadesboro, Anson County, North Carolina. Figure 1 identifies the Site on the U.S. Geological Survey (USGS) 7.5 minute quadrangle for Wadesboro, North Carolina.

Site Background

The former VCC facility operated as a fertilizer manufacturing plant from 1908 to 1945. During that time, VCC burned pyrite ore for the production of sulphuric acid in the production of super-phosphate fertilizers. The generated acid was stored in lead-lined acid chambers. While details of the exact operational history of this Site are unknown, it is believed that during periodic cleaning of the acid chambers washdown water containing acid and soluble lead was likely flushed onto the ground surface or into nearby drainage ditches. In addition, at similar sites pyrite cinders that did not burn completely in the combustions chambers were frequently used as on-site fill material. This slag material has a reddish/magenta appearance and has been found to contain levels of inorganic constituents, primarily arsenic.

Between November 2002 and January 2003, ExxonMobil removed nearly 7,000 tons of soil from the Site which contained elevated concentrations of arsenic and lead. All work was completed in accordance with the *Additional Delineation Report and Removal Action Work Plan* (BBL, 2002) approved by both the United States Environmental Protection Agency (USEPA) and the North Carolina Department of Environment and Natural Resources (NCDENR).

Three monitoring wells are present at the former VCC Site. These wells were initially installed and sampled as part of the site characterization activities conducted in 2001. Based on the pre-removal analytical results, NCDENR expressed concern that manganese and cadmium concentrations in samples collected from these wells exceeded the state cleanup goals established by the North Carolina Inactive

Hazardous Waste Branch. The cleanup goals are the NC 2L standards, which for cadmium and manganese are 2 and 50 micrograms per liter (µg/L), respectively. Although these constituents are not typically known to be associated with releases from former phosphate fertilizer facilities, ExxonMobil agreed to perform post-removal annual groundwater monitoring at this Site to evaluate the impact (if any) of the soil removal action on groundwater quality. Annual groundwater monitoring activities following the soil removal action were initiated in January 2004. Subsequent events were performed in January 2005 and January 2006.

Groundwater Monitoring Event: January 2006

In accordance with the *Additional Delineation Report and Removal Action Work Plan* (BBL, 2002), groundwater samples were collected using low flow/low stress procedures. All samples were analyzed for Target Analyte List (TAL) metals by TestAmerica, Inc. of Nashville, Tennessee. Field parameters were recorded just prior to sample collection.

Groundwater analytical results generated from samples collected prior to, and following, the soil removal action are presented in Table 1. Table 2 contains well construction and groundwater elevation information. Monitoring well locations and potentiometric surface contours for January 2006 are shown in Figure 2, and the data validation report for the January 2006 groundwater monitoring event is provided in Attachment 1.

In general, groundwater monitoring results indicate that shallow groundwater at the Site contains several metals at concentrations above the state cleanup goals established by the North Carolina Inactive Hazardous Site Branch (NC 2L standards). Metals detected above these goals during the 2006 groundwater monitoring event include: cadmium, copper, iron, manganese, nickel, and zinc. Although these metals were detected above these goals, the concentrations of these metals have generally remained constant or have decreased. In addition, these constituents are not typically associated with the production of phosphate fertilizers.

Closing

The *Additional Delineation Report and Removal Action Work Plan* (BBL, 2002) approved by NCDENR states that annual groundwater monitoring at this Site would cease after a period of two years following soil removal activities if manganese and cadmium concentrations in the wells generally remain constant or decrease. Annual groundwater monitoring has been performed for three years following the completion of soil removal activities and, as shown in Table 1, this criteria has been substantially achieved:

- MW-1: The pre-removal concentrations of cadmium and manganese detected in groundwater in April 2001 were 10.1 µg/L and 28,700 µg/L, respectively. Cadmium has not been detected above the laboratory detection limits following the soil removal action; and manganese concentrations have generally remained constant. Although matrix interferences have resulted in elevated detection limits for cadmium in samples collected in 2005 and 2006, cadmium was not detected above 1 µg/L in a sample collected from this well in January 2004.
- MW-2: Cadmium concentrations detected in monitoring well MW-2 have decreased from 27.8 µg/L in April 2001, to 13 µg/L in January 2006. Cadmium was not detected in samples collected in January 2004 or January 2005. Similarly, groundwater samples collected from MW-2 also show a trend of reduced manganese concentrations over time. Prior to soil removal activities, manganese concentrations were detected at a concentration of 53,900 µg/L. The maximum concentration of manganese detected following soil removal activities was 52,500 µg/L in

January 2005. The most recent sample collected from this well in January 2006 contained only 39,300 μg/L of manganese.

- MW-3: Cadmium concentrations have not been detected in any of the groundwater samples collected from this well. The concentration of manganese in groundwater at MW-3 varied from 1,740 μg/L in April 2001 to 6,990 μg/L in January 2005. A sample collected from MW-3 in January 2006 contained 4,850 μg/L of manganese. The concentration of manganese at this well appears to be generally stable and all concentrations of manganese in groundwater samples collected at MW-3 are well below the concentrations of manganese collected at other wells on Site.

As discussed in the *Additional Delineation Report and Removal Action Work Plan* (BBL, 2002), constituents detected above the NC 2L standards are not typically associated with the manufacturing of phosphate fertilizer. Furthermore, the groundwater beneath the water table aquifer at this Site produced such little water that the pumping rate of just 250 milliliters per minute resulted in significant drawdown in the wells. Therefore, the water table aquifer at this Site will unlikely be able to produce sufficient water to support human use.

At this time, ExxonMobil requests NCDENR's approval to terminate future annual groundwater monitoring activities at this Site. Following NCDENR's approval of this request, existing wells will be abandoned in place by removing the surface casings and cutting the wells flush with the ground surface. Grout will be placed in these wells from the bottom up under pressure using a tremie pipe.

We look forward to NCDENR's approval of this request. If you have any questions regarding the attached, please contact Mr. Bruce Frink with ExxonMobil at (813) 991-7413.

Sincerely,

BLASLAND, BOUCK & LEE, INC.

William H. Anckner

William H. Anckner, P.E.
Senior Project Engineer II

WHA/wha

cc: Bruce Frink, ExxonMobil
Geoff Germann, BBL

Enc. (5)

Tables

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Table 1
Summary of Detected Analytes in Groundwater Samples
VCC: Wadesboro, NC - 2006 Groundwater Monitoring Report

			Concentration in Sample[2]			
			WB-MW1	WB-MW1	WB-MW1	WB-MW1
Analyte	NC 2L[1]	Units	Apr-01	Jan-04	Jan-05	Jan-06
Aluminum	NP	µg/L	52,600 J	20,900 J	109,000	138,000
Arsenic	50	µg/L	15 U	10 U	--- R	76 U
Barium	2,000	µg/L	31 B	4.6 J	1,000 U	10 U
Beryllium	NP	µg/L	10.8 B	6	400 U	24 J
Cadmium	2	µg/L	10.1 BJ	1 U	100 U	100 U
Calcium	NP	µg/L	565,000	523,000 J	534,000 J	377,000
Cobalt	NP	µg/L	631	181 J	900 J	705
Copper	1,000	µg/L	54.5 B	10 UJ	1,000 U	88 J
Iron	300	µg/L	575	50 UJ	5,000 UJ	300 U
Lead	15	µg/L	11.5 U	5 U	500 U	24 U
Magnesium	NP	µg/L	277,000	136,000 J	260,000 J	202,000 J
Manganese	50	µg/L	28,700	20,000 J	29,900	29,300
Mercury	1.05	µg/L	0.1 U	0.2 U	0.2 U	0.1 U
Nickel	100	µg/L	498	136 J	1,000 U	415
Potassium	NP	µg/L	6,320 B	3,600	100,000 UJ	3,400 U
Selenium	50	µg/L	R	9.1 J	1,000 UJ	93 U
Sodium	NP	µg/L	57,400	85,200 J	100,000 U	24,600
Thallium	NP	µg/L	24.5 UJ	10 U	1,000 UJ	97 J
Vanadium	NP	µg/L	4 U	20 U	2,000 U	60 U
Zinc	1,050	µg/L	1,480	654 J	3,100 J	2,830
Field Measurements						
pH		S.U.	4.59	4.7	4.25	2.44
Temperature		°C	14.23	14.68	14.37	16.06
Conductivity		mS/cm	3.95	4.07	3.87	3.96
Dissolved Oxygen		mg/L	2.83	0.54	0	0
ORP		mV	520	352	409	415
Flow		mL/min	350	350	300	300
Turbidity		--	clear	85	0	0.4

Notes:

\1 NC 2L - North Carolina 2L standards (Class GA).

Shaded results exceed NC 2L standards.

\2 Data Qualifiers:

B - Analyte was detected in the method blank.

J - Estimated value.

U - Not detected at the limit of detection.

R - Rejected by the data validator.

Table 1
Summary of Detected Analytes in Groundwater Samples
VCC: Wadesboro, NC - 2006 Groundwater Monitoring Report

			Concentration in Sample[/2]			
			WB-MW2	WB-MW2	WB-MW2	WB-MW2
Analyte	NC 2L[\1]	Units	Apr-01	Jan-04	Jan-05	Jan-06
Aluminum	NP	µg/L	84,600 J	82,500 J	337,000	241,000
Arsenic	50	µg/L	15 U	7.5 J	--- R	76 U
Barium	2,000	µg/L	37.7 B	10 U	1,000 U	10 U
Beryllium	NP	µg/L	11.5 B	14	400 U	35 J
Cadmium	2	µg/L	27.8 J	1 U	100 U	13
Calcium	NP	µg/L	415,000	106,000 J	301,000 J	218,000
Cobalt	NP	µg/L	996	658 J	2,400	1,730
Copper	1,000	µg/L	998	1,300 J	5,900	3,520
Iron	300	µg/L	60,700	10,800 J	112,000 J	95,800
Lead	15	µg/L	10.3 U	5 U	500 U	24 U
Magnesium	NP	µg/L	214,000	68,100 J	211,000 J	164,000
Manganese	50	µg/L	53,900	43,300 J	52,500	39,300
Mercury	1.05	µg/L	0.1 U	0.2 U	0.2 U	0.1 U
Nickel	100	µg/L	505	208 J	900 J	692
Potassium	NP	µg/L	7,500 B	1,000 U	100,000 UJ	3,400 U
Selenium	50	µg/L	R	9.1 J	1,000 UJ	93 U
Sodium	NP	µg/L	1,350,000	768,000 J	1,220,000	1,160,000
Thallium	NP	µg/L	24.5 UJ	10 U	1,000 UJ	93 J
Vanadium	NP	µg/L	12.3 B	20 U	2,000 U	60 U
Zinc	1,050	µg/L	4,630	3,730 J	16,300	11,600
Field Measurements						
pH		S.U.	4.62	3.79	3.61	3.9
Temperature		°C	15.37	15.52	14.1	15.44
Conductivity		mS/cm	4.62	7.95	8.43	7.56
Dissolved Oxygen		mg/L	1.42	0.54	0	0
ORP		mV	353	293	322	283
Flow		mL/min	200	350	300	250
Turbidity		--	v. slight	135	0	3.5

Notes:

\1 NC 2L - North Carolina 2L standards (Class GA).

Shaded results exceed NC 2L standards.

\2 Data Qualifiers:

B - Analyte was detected in the method blank.

J - Estimated value.

U - Not detected at the limit of detection.

R - Rejected by the data validator.

Table 1
Summary of Detected Analytes in Groundwater Samples
VCC: Wadesboro, NC - 2006 Groundwater Monitoring Report

			Concentration in Sample[/2]			
			WB-MW3	WB-MW3	WB-MW3	WB-MW3
Analyte	NC 2L[\1]	Units	Apr-01	Jan-04	Jan-05	Jan-06
Aluminum	NP	µg/L	400 J	151 UJ	1,000 U	43 U
Arsenic	50	µg/L	3 U	10 U	--- R	76 U
Barium	2,000	µg/L	198 B	29	100 U	18
Beryllium	NP	µg/L	0.1 U	4 U	40 U	1 U
Cadmium	2	µg/L	0.6 U	0.50 J	10 U	0.6 U
Calcium	NP	µg/L	260,000	443,000 J	520,000 J	388,000
Cobalt	NP	µg/L	2.2 B	70 J	230	132
Copper	1,000	µg/L	2.5 U	10 UJ	100 U	6.9 J
Iron	300	µg/L	469	3,790 J	16,300 J	5,610
Lead	15	µg/L	2.6 B	5 UJ	50 U	2.4 U
Magnesium	NP	µg/L	48,000	97,400 J	133,000 J	94,700
Manganese	50	µg/L	1,740	3,800 J	6,990	4,850
Mercury	1.05	µg/L	0.1 U	0.2 U	0.2 U	0.1 U
Nickel	100	µg/L	5.1 B	20 J	100 U	37.1
Potassium	NP	µg/L	6,290	2,110	10,000 UJ	1,510
Selenium	50	µg/L	R	4.6 J	100 UJ	9.3 U
Sodium	NP	µg/L	36,400	85,500 J	102,000	79,900
Thallium	NP	µg/L	6 BJ	10 U	100 UJ	7.9 U
Vanadium	NP	µg/L	1.1 U	8 J	200 U	14.1 J
Zinc	1,050	µg/L	1.8 B	90 J	610	323
Field Measurements						
pH		S.U.	6.88	6.48	6.46	6.09
Temperature		°C	15.51	16.16	14.82	15.97
Conductivity		mS/cm	1.53	2.74	2.8	2.69
Dissolved Oxygen		mg/L	2.34	0.52	0	0
ORP		mV	305	31	30	24
Flow		mL/min	200	350	300	150
Turbidity		--	clear	20	21	3.43

Notes:

\1 NC 2L - North Carolina 2L standards (Class GA).

Shaded results exceed NC 2L standards.

\2 Data Qualifiers:

B - Analyte was detected in the method blank.

J - Estimated value.

U - Not detected at the limit of detection.

R - Rejected by the data validator.

Table 2

Well Construction / Groundwater Elevation Data
VCC: Wadesboro, NC - 2005 Groundwater Monitoring Report

Well Designation	Date Installed	Date Measured	Top of Casing Elevation (ft msl)	Depth to Water (ft bgs)	Water Level Elevation (ft msl)	Well Diameter (inches)	Screen Interval (ft bgs)
MW-1	4/17/01	4/25/01	373.81	7.51	366.30	2	10 - 35
		1/28/04		8.09	365.72		
		1/27/05		6.57	367.24		
		1/31/06		4.84	368.97		
MW-2	4/17/01	4/25/01	367.40	8.93	364.88	2	8 - 23
		1/28/04		13.20	360.61		
		1/27/05		10.11	363.70		
		1/31/06		7.67	366.14		
MW-3	4/17/01	4/25/01	364.79	11.31	362.50	2	11 - 26
		1/28/04		13.10	360.71		
		1/27/05		10.82	362.99		
		1/31/06		9.25	364.56		

Notes:

ft bgs = Feet below ground surface.

ft msl = Feet above mean sea level.

Figures

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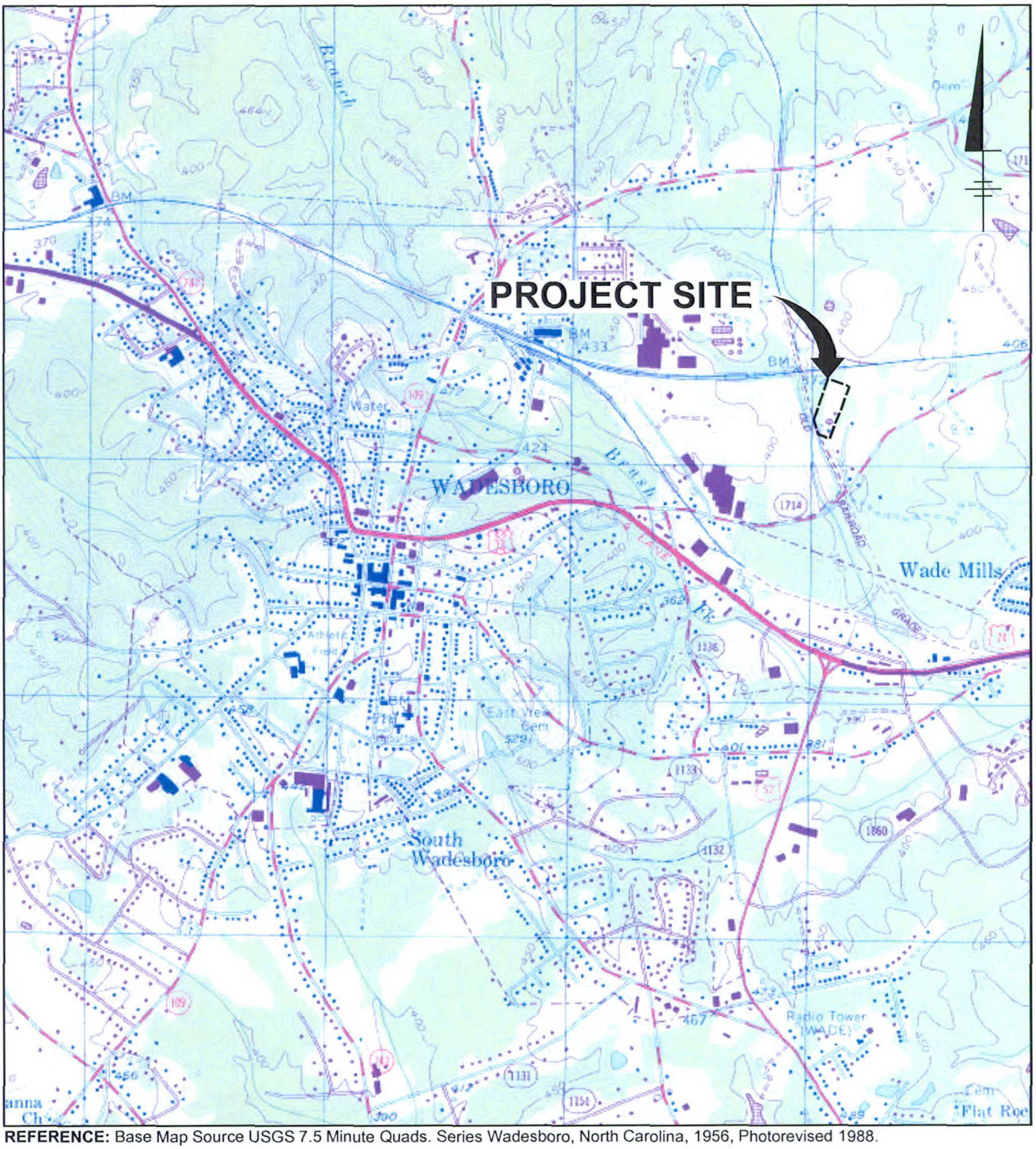
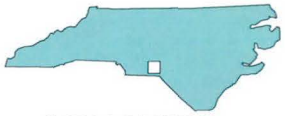


REFERENCE: Base Map Source USGS 7.5 Minute Quads. Series Wadesboro, North Carolina, 1956, Photorevised 1988.

2000' 0 2000'

Approximate Scale: 1" = 2000'



AREA LOCATION

VIRGINIA-CAROLINA CHEMICAL CO. SITE
WADESBORO, NORTH CAROLINA
GROUNDWATER MONITORING REPORT

SITE LOCATION MAP

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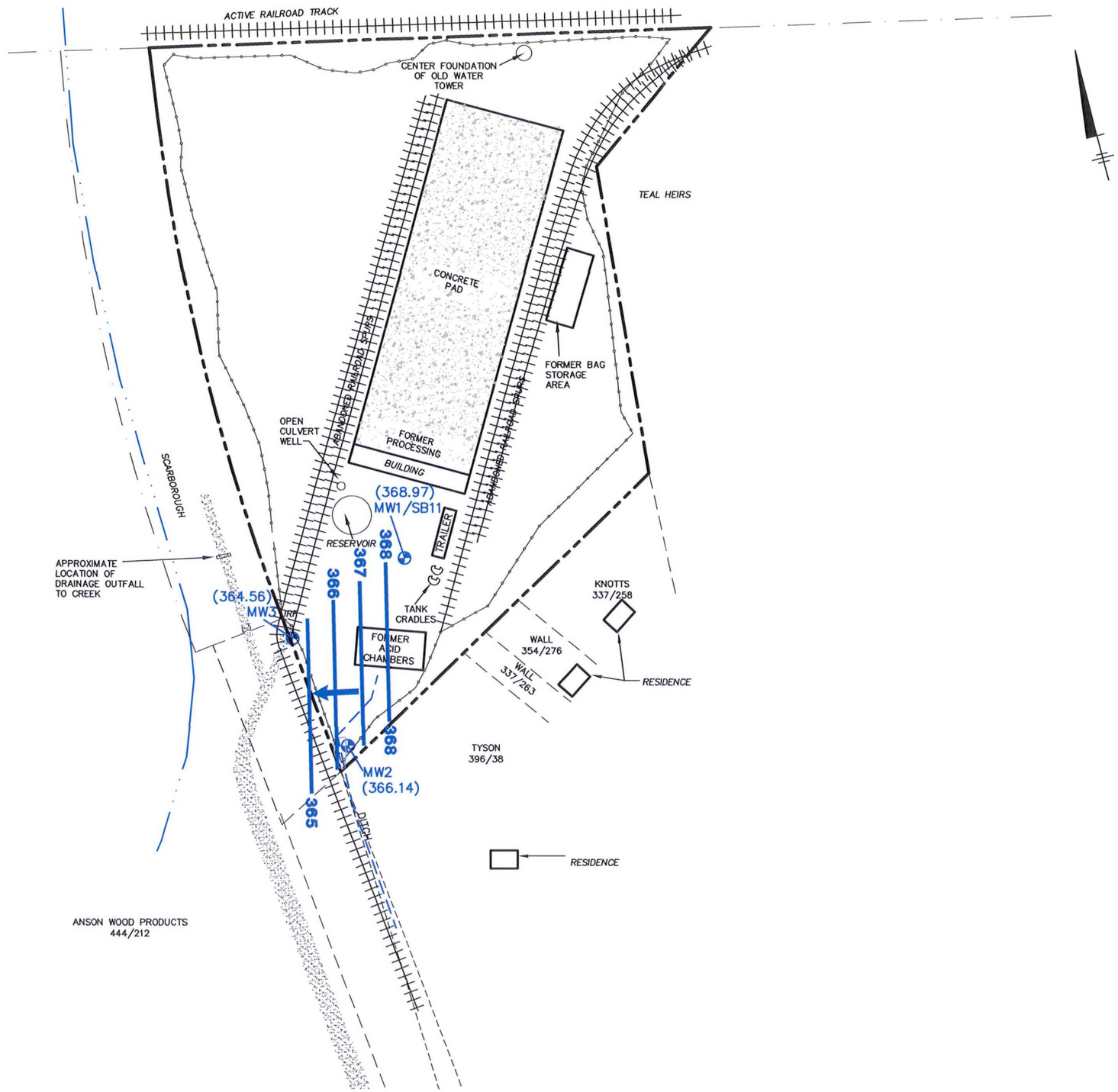
FIGURE
1

04/07/05 SYR-D85-LBR LJP
54626003/54626n01.cdr



LEGEND

- BUILDING
- TANK
- ROAD
- RAILROAD
- DITCH
- STREAM
- PROPERTY LINE
- CHAIN LINK FENCE
- ACCESS ROAD
- MW1 — MONITORING WELL LOCATION
- 366 — SHALLOW GROUNDWATER POTENTIOMETRIC SURFACE CONTOUR
- (366.14) — SHALLOW GROUNDWATER POTENTIOMETRIC ELEVATION (IN FEET AMSL)
- GROUNDWATER FLOW DIRECTION (DASHED WHERE INFERRED)

NOTES:

1. BASE MAP BY JAMES R. HARRINGTON AND ASSOCIATES AT A SCALE OF 1" = 100' SUPPLEMENTED BY BBL WITH FEATURES DIGITIZED FROM A DRAWING ENTITLED "FIGURE 3 – SAMPLING LOCATION MAP" BY TETRA TECH EMI (2000).
2. ELEVATIONS IN FEET AMSL MEASURED ON 1/27/05.

0 150' 300'
GRAPHIC SCALE

VIRGINIA–CAROLINA CHEMICAL CO. SITE
WADESBORO, NORTH CAROLINA
JANUARY 2006 GROUNDWATER MONITORING REPORT

SHALLOW GROUNDWATER POTENTIOMETRIC SURFACE MAP

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FIGURE
2

L: ON=*, OFF=REF
P: PAGESET/PLT-BL1
04/03/06 SYR-85-LJP CAR-85-LEE
54626003/54626W01.DWG

Attachment 1

Data Validation Report

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DATA REVIEW FOR

EXXONMOBIL
WADESBORO, NORTH CAROLINA

SDG #NPB0334

METALS ANALYSES

Analyses performed by:

Test America
Nashville, Tennessee

Review performed by:

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Blasland, Bouck & Lee, Inc.
Syracuse, New York
Report #5506

Summary

The following is an assessment of the data package for sample delivery group (SDG) # NPB0334 for sampling from ExxonMobil VCC site in Wadesboro, North Carolina. Included with this assessment are the data review check sheets used in the review of the package and corrected sample results. Analyses were performed on the following samples:

Sample ID	Lab ID	Matrix	Sample Date	Analysis				
				VOC	SVOC	PCB	MET	MISC
WB-MW-1	NPB0334-01	Water	1/31/2006				X	
WB-MW-1 Filtered	NPB0334-02	Water	1/31/2006				X	
WB-MW-2	NPB0334-03	Water	1/31/2006				X	
WB-MW-2 Filtered	NPB0334-04	Water	1/31/2006				X	
WB-MW-3	NPB0334-05	Water	1/31/2006				X	
WB-MW-3 Filtered	NPB0334-06	Water	1/31/2006				X	
WB-MW-91	NPB0334-07	Water	1/31/2006				X	
WB-MW-91 Filtered	NPB0334-08	Water	1/31/2006				X	
WB-EB-013106	NPB0334-09	Water	1/31/2006				X	

1. Matrix spike/matrix spike duplicate (MS/MSD) analyses performed for Total Metals analysis on sample location WB-MW-3.
2. Sample location WB-MW91 is the field duplicate of parent sample location WB-MW2.

GENERAL COMMENTS

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Method 6000/7000. Data were reviewed in accordance with USEPA National Functional Guidelines of October 1994.

INORGANIC FRACTION

All samples were analyzed within method-specified holding time.

Several analytes were detected in the associated blanks resulting in qualification of sample results.

All initial and continuing calibration standards were acceptable.

The contract required detection limit (CRDL) recovery was outside the control limit for selenium. Associated sample results were non-detect; therefore, none of the sample results were qualified.

The MS/MSD exhibited acceptable recoveries and RPD between the MS/MSD recoveries.

The sample results between the total and dissolved exhibited percent differences (%D) greater than the control limit resulting in qualification of sample results.

The calculated RPDs between the parent sample and laboratory duplicate were acceptable.

The calculated RPDs between the parent sample and field duplicate were acceptable.

All laboratory control sample recoveries were within control limits.

The serial dilution %D analyses were performed on non-site sample locations. Therefore, none of the sample locations were qualified due to any serial dilution %D which were outside of the control limits.

METALS ANALYSES

Introduction

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Method 6000/7000. Data were reviewed in accordance with USEPA National Functional Guidelines of October 1994.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and that it was already subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with the USEPA National Functional Guidelines:

- Concentration (C) Qualifiers

  U The analyte was analyzed for but not detected. The associated value is the analyte instrument detection limit.

  B The reported value was obtained from a reading less than the contract-required detection limit (CRDL), but greater than or equal to the instrument detection limit (IDL).

- Quantitation (Q) Qualifiers

  E The reported value is estimated due to the presence of interference.

  N Spiked sample recovery is not within control limits.

  * Duplicate analysis is not within control limits.

- Validation Qualifiers

  J The analyte was positively identified; however, the associated numerical value is an estimated concentration only.

  UJ The analyte was not detected above the reported sample detection limit. However, the reported limit is approximate and may or may not represent the actual limit of detection.

  R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

Data Assessment

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 6010B	Water	180 days from collection to analysis	Cooled @ 4 °C; preserved to a pH of less than 2.
	Soil	180 days from collection to analysis	Cooled @ 4 °C.
SW-846 7470	Water	28 days from collection to analysis	Cooled @ 4 °C; preserved to a pH of less than 2.
SW-846 7471	Soil	28 days from collection to analysis	Cooled @ 4 °C.

All samples were analyzed within the specified holding times.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method or rinse blanks), are prepared to identify any contamination that may have been introduced into the samples during sample preparation or field activity. Method blanks (including initial and continuing calibration blanks, and preparation blanks) measure laboratory contamination. Rinse blanks measure contamination of samples during field operations. A blank action level (BAL) of five times the concentration of a detected analyte in an associated blank is calculated for QA blanks containing concentrations greater than the IDL. The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

All analytes associated with the QA blanks exhibited a concentration less than the IDL, with the exception of the analytes listed in the following table. Sample results associated with the following sample locations were qualified.

Sample Locations	Analytes	Sample Result	Qualification
WB-MW-3 WB-MW-3 Filtered	Aluminum	Detected sample results <RL and <BAL	U at the PQL
WB-MW-1 WB-MW-3 Filtered	Cadmium	Detected sample results >RL and <BAL	U at detected sample concentration
WB-MW-1	Iron		

RL = reporting limit

3. Calibration

Satisfactory instrument calibration is established to provide that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument's continuing performance is satisfactory.

3.1 *Initial Calibration and Continuing Calibration*

The correct number and type of standards were analyzed. The correlation coefficient of the initial calibration was greater than 0.995 for all non-ICP analytes and all initial calibration verification standard recoveries were within control limits.

All continuing calibration verification standard recoveries were within the control limit.

3.2 CRDL Check Standard

The CRDL check standard serves to verify the linearity of calibration of the analysis at the CRDL. The CRDL standard is not required for the analysis of aluminum (Al), barium (Ba), calcium (Ca), iron (Fe), magnesium (Mg), sodium (Na), and potassium (K). The criteria used to evaluate the CRDL standard analysis are presented below in the CRDL standards evaluation table.

All analytes associated with CRDL standard recoveries were within control limits with the exception of the analytes presented in the following table.

Sample Locations	Analytes/CRDL Recovery
WB-MW-1 Filtered WB-MW-2 Filtered WB-MW-3 Filtered WB-MW-91 Filtered	Selenium 131.7%

The criteria applied to evaluate the CRDL Standard criteria are presented below. In the case of a calibration deviation, the sample results are qualified.

CRDL Standard Recovery Criteria			
Analytes	**Control Limit**	**Sample Result**	**Qualification**
All analytes, with the exception of Al, Ba, Ca, Fe, Mg, Na, and K	CRDL %R <50% (<30% for Sb, Pb, Tl)	Sample results ≥MDL but <2x CRDL	R
		Non-detect sample results	R
		Detected sample results ≥2x CRDL	J
	CRDL %R 50-69% (30-49% for Sb, Pb, Tl)	Sample results ≥MDL but <2x CRDL	J

CRDL Standard Recovery Criteria			
Analytes	**Control Limit**	**Sample Result**	**Qualification**
		Non-detect sample results	UJ
		Detected sample results ≥2x CRDL	No Action
	%R >130% but <180% (>150% but <200% for Sb, Pb, Tl)	Sample results ≥MDL but <2x CRDL	J
		Non-detect sample results	No Action
		Detected sample results ≥2x CRDL	No Action
	CRI %R >180% (>200% for Sb, Pb, Tl)	Sample results ≥MDL	R

3.3 ICP Interference Control Sample (ICS)

The ICS verifies the laboratories interelement and background correction factors.

All ICS exhibited recoveries within the control limits.

4. Matrix Spike / matrix spike duplicate (MS/MSD)/Laboratory Duplicate Analysis

MS/MSD and laboratory duplicate data are used to assess the precision and accuracy of the analytical method.

4.1 MS/MSD Analysis

All metal analytes must exhibit a percent recovery within the established acceptance limits of 75% to 125%. The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations were the analyte's concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater. In instance were this is true, the data will not be qualified even if the percent recovery does not meet the control limits and the laboratory qualifier "N" will be removed.

The MS/MSD analysis performed on sample location WB-MW-3exhibited recoveries and RPD results within the control limits.

4.2 Laboratory Duplicate Analysis

The laboratory duplicate relative percent difference (RPD) criterion is applied when parent and duplicate sample concentrations are greater than or equal to 5 times the CRDL. A control limit of 20% for water matrices and 35% for soil matrices is applied when the criteria above is true.

In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the CRDL, a control limit of one times the CRDL is applied for water matrices and two times the CRDL for soil matrices.

The laboratory duplicate sample results exhibited RPD within the control limit.

5. Field Duplicate Analysis

Field duplicate analysis is used to assess the precision and accuracy of the field sampling procedures and analytical method.

Results for duplicate samples are summarized in the following table.

Sample ID / Duplicate ID	Analyte	Sample Result	Duplicate Result	RPD
WB-MW2 / WB-MW91 (Total)	Aluminum	241	232	3.8%
	Beryllium	0.0350 J	0.0340 J	AC
	Cadmium	0.0130	0.0110	AC
	Calcium	218	207	5.2%
	Cobalt	1.73	1.67	3.5
	Copper	3.52	3.39	3.8%
	Iron	95.8	92.8	3.2%
	Magnesium	164	158	3.7%
	Manganese	39.3	38.0	3.4%
	Nickel	0.692	0.670	3.2%
	Sodium	1160	1210	4.2%
	Thallium	0.0930 J	0.0880 J	AC
	Zinc	11.6	11.2	3.5%
WB-MW2 / WB-MW91 (Dissolved)	Aluminum	252	259	2.7%
	Beryllium	0.0360 J	0.0370 J	AC
	Cadmium	0.00600 J	ND(0.010)	AC
	Calcium	228	233	2.2%
	Cobalt	1.72	1.76	2.3%
	Copper	3.57	3.68	3.0%
	Iron	97.0	99.5	2.5%

Sample ID / Duplicate ID	Analyte	Sample Result	Duplicate Result	RPD
	Magnesium	172	177	2.9%
	Manganese	39.8	40.9	2.7%
	Nickel	0.674	0.695	3.1%
	Sodium	1230	1330	7.8%
	Thallium	0.0790 J	ND(0.100)	AC
	Zinc	11.8	12.1	2.5%

ND = Not detected.
AC = The field duplicate RPD is acceptable when the RPD between parent sample and field duplicate sample is less than two times the RL and where the parent sample and/or duplicate concentration is less than five times the RL.

The calculated RPDs between the parent sample and field duplicate were acceptable.

6. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences.

The LCS analysis exhibited recoveries within the control limits.

7. Serial Dilution

The serial dilution analysis is used to assess if a significant physical or chemical interference exists due to sample matrix. Analytes exhibiting concentrations greater than 50 times the MDL in the undiluted sample are evaluated to determine if matrix interference exists. These analytes are required to have less than a 10% difference (%D) between sample results from the undiluted (parent) sample and results associated with the same sample analyzed with a five-fold dilution.

The serial dilution was not performed within this SDG.

8. Furnace Analysis QC

No furnace analyses were performed on the samples.

9. Method of Standard Additions (MSA)

No samples were analyzed following the method of standard additions.

10. General Assessment

The calculated %D between the total and the dissolved sample results were within the control limit, with the exception of the analytes presented in the following table.

Sample Location	Analytes	%D
WB-MW-1 WB-MW-1 Filtered	Magnesium	10.8%
WB-MW-91 WB-MW-91 Filtered	Aluminum	11.0%
	Magnesium	11.3%

The criteria used to evaluate total and dissolved %D are presented in the following table. In the case of a laboratory duplicate RPD deviation, the sample results are qualified. The qualifications are applied to the all sample results associated with this SDG.

Sample Concentration	Control Limit	Sample Result	Qualification
Dissolved sample concentration > total sample concentration and > CRDL	>10%	Non-detect	UJ
		Detect	J
Dissolved sample concentration > total sample concentration and > CRDL	>50%	Non-detect	R
		Detect	R

11. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST

	YES	NO	NA
Data Completeness and Deliverables			
Is there a narrative or cover letter present?	X		
Are the sample numbers included in the narrative?	X		
Are the sample chain-of-custodies present?	X		
Do the chain-of-custodies indicate any problems with sample receipt or sample condition?		X	
Are all the Forms labeled with:			
Laboratory name?	X		
Sample No.?	X		
SDG No.?	X		
Correct units?	X		
Matrix?	X		
Raw Data			
Is the digestion log for flame AA/ICP present?	X		
Is the digestion log for furnace AA present?			X
Is the distillation log for mercury present?	X		
Are pH values listed?	X		
pH for metals analyses <2 (waters)?	X		
Percent solids calculation present for soils/sediments?	X		
Are preparation dates present on sample preparation logs/bench sheets?	X		
Are the measurement read out records present for:			
ICP	X		
Flame AA			X
Furnace AA			X
Mercury	X		
Is the data legible?	X		
Is the data properly labeled?	X		
Holding Times			
Were mercury analyses performed within 28 days?	X		
Were other metal analysis performed within 6 months?	X		
Final Data			
Are all forms complete?	X		
Are correct units indicated on Form I's?	X		
Are soil sample results for each parameter corrected for percent solids?			X
Are all "less than IDL" values properly coded with "U"?	X		
Are the correct concentration qualifiers used with final data?	X		
Is a physical description of samples given on Form I's?	X		

	YES	NO	NA
Calibration			
Is a record of at least 2 point calibration present for ICP analysis?		X	
Is a record of 5 point calibration present for Hg analysis?			X
Is a record of 4 point calibration present for:			
Flame AA?			X
Furnace AA?			X
Is one calibration standard at the CRDL level for all AA (except Hg) and cyanides analyses?			X
Is correlation coefficient less than .995 for:			
Mercury Analysis?		X	
Atomic Absorption Analysis?			X
Initial and Continuing Calibration Verification			
Present and complete for all analytes?	X		
Are all calibration standards (initial and continuing) within control limits for:			
Metals (90-110%)?	X		
Hg (80-120%)?			X
Was continuing calibration performed every 10 samples or every 2 hours?	X		
CRDL Standards for AA and ICP			
Was a CRDL standard (CRA) analyzed after initial calibration for all AA metals (except Hg)?			X
Was a 2XCRDL standard (CRI) analyzed for each ICP run?	X		
Was CRI analyzed after the ICV/ICB and before the final CCV/CCB, and twice every eight hours for each ICP run?	X		
Are CRA and CRI standards within control limits for metals?		X	
Initial and Continuing Calibration Blanks			
Summary form present and complete?	X		
Was an initial calibration blank analyzed?	X		
Was a continuing calibration blank analyzed after every 10 samples or every 2 hours (which ever is more frequent)?	X		
Are all calibration blanks (when IDL<CRDL) less than or equal to the Contract Required Detection Limits (CRDLs)?	X		
Are all calibration blanks less than two times Instrument Detection Limit (when IDL>CRDL)?		X	
Preparation Blank			
Was one preparation blank analyzed for:			
each Sample Delivery Group SDG)?	X		
each batch of digested samples?	X		
each matrix type?	X		

	YES	NO	NA
Is concentration of prep. blank value less than the CRDL (when IDL≤CRDL)?	X		
If no, is the concentration of the sample with the least concentrated analyte less than 10 times the prep. blank?			X
Is concentration of prep. blank value less than two times IDL (when IDL>CRDL)?	X		
Is concentration of prep. blank below the negative CRDL?		X	
ICP Interference Check Sample			
Summary form present and complete?	X		
Was ICS analyzed at beginning and end of run (or at least twice every 8 hours)?	X		
Are all ICS results inside the control limits (±20%)?	X		
If no, is concentration of Al, Ca, Fe, or Mg lower than the respective concentration in ICS?			X
Matrix Spike			
Present and complete for:			
each SDG?	X		
each matrix type?	X		
Was field blank used for spiked sample?		X	
Are all recoveries for analytes with sample concentrations less than four times the spike concentration within control limits (75-125)?	X		
Are sample results for analytes outside the control limits (75-125%) flagged with "N"?			X
Aqueous			
Are any spike recoveries:			
less than 30%?		X	
between 30-74%?		X	
between 126-150%?		X	
greater then 150%?		X	
Soil/Sediment			
Are any spike recoveries:			
less than 10%?			X
between 10-74%?			X
between 126-200%?			X
greater than 200%?			X
Laboratory Duplicate			
Present and complete for:			
each SDG?	X		
each matrix type?	X		
Was field blank used for duplicate analysis?		X	

	YES	NO	NA
Are all values within control limits (RPD 20% or difference. ±CRDL)?	X		
If no, are sample results for analytes outside the control limits flagged with an * ?			X
Aqueous			
Is any RPD greater than 20% where sample and duplicate are both greater than or equal to 5 times CRDL?			X
Is any difference between sample and duplicate greater than CRDL where sample and/or duplicate is less than 5 times CRDL?			X
Soil/Sediment			
Is any RPD (where sample and duplicate are both greater than or equal to 5 times CRDL) > 100%?		X	
Is any difference between sample and duplicate (where sample and/or duplicate is less than 5xCRDL) > 2xCRDL?		X	
Field Duplicates			
Were field duplicates analyzed?	X		
Aqueous			
is any RPD greater than 50% where sample and duplicate are both greater than or equal to 5 times CRDL?		X	
Is any difference between sample and duplicate greater than CRDL where sample and/or duplicate is less than 5 times CRDL?		X	
Soil/Sediment			
Is any RPD (where sample and duplicate are both greater than 5 times CRDL) > 100%?			X
Is any difference between sample and duplicate (where sample and/or duplicate is less than 5x CRDL) >2xCRDL?			X
Laboratory Control Sample			
Was one LCS prepared and analyzed for:			
each SDG?	X		
each batch samples digested/distilled?	X		
Aqueous LCS			
Is any LCS recovery:			
less than 50%?		X	
between 50% and 79%?		X	
between 121% and 150%?		X	
greater than 150%?		X	
Solid LCS			
Is LCS "Found" value higher than the control limits?			X
Is LCS "Found" lower than the control limits?			X

	YES	NO	NA
ICP Serial Dilution			
Was Serial Dilution analysis performed for:			
each SDG?		X	
each matrix type?	X		
Were field blanks used for Serial Dilution Analysis?		X	
Are any required % difference values:			
> 10%?	X		
.100%?		X	
Are results outside control limit flagged with an "E" when initial concentration is equal to 50 times IDL or greater.		X	
Furnace Atomic Absorption (AA) QC Analysis			
Are duplicate injections present in furnace raw data (except during full Method of Standard Addition) for each sample analyzed by GFAA?			X
Do the duplicate injection readings agree within 20% Relative Standard Deviation (RSD) or coefficient of Variation (CV) for concentrations greater than CRDL?			X
Were dilutions analyzed for samples with analytical spike recovery less than 40%?			X
Is analytical spike recovery outside the control limits (85-115%) for any sample?			X
Method of Standard Addition Results			
Present?		X	
If no, is any Form I result coded with "S" or "+"?		X	
Was MSA required for any sample but not performed?		X	
Is the coefficient of correlation for MSA less than 0.995 for any sample?			X
Is the coefficient of correlation for MSA less than 0.990 for any sample?			X
Was proper quantitation procedure followed?			X
Dissolved/Total for Inorganic/Total Analytes			
Were any analyses performed for dissolved as well as total analytes on the same sample?	X		
Is the concentration of any dissolved analyte greater than its total concentration by more than 10%? (if greater than CRDL)	X		
Is the concentration of any dissolved analyte greater than its total concentration by more than 50%?		X	
Field Blank			
Is the field blank concentration less than CRDL (or 2xIDL when IDL>CRDL) for all analytes?			X
If no, was field blank value already rejected due to other QC criteria?			X

	YES	NO	NA
Verification of Instrumental Parameters			
Is verification report present for :			
Instrument Detection Limits (quarterly)?	X		
ICP Interelement Correlation Factors (annually)?	X		
ICP Linear Ranges (quarterly)?	X		
Is IDL greater than CRDL for any analyte?		X	
If yes, are the concentrations of the samples analyzed on the instrument whose IDL exceeds CRDL, greater than 5xIDL.			X
Was any sample result higher than the linear range of ICP.		X	
Was any sample result higher than the highest calibration standard for non-ICP parameters?			X
If yes for any of the above, was the sample diluted to obtain the reported result?			X
Percent Solids			
Are the percent solids in soil/sediment(s):			
< 50%?			X
< 10%?			X

SAMPLE COMPLIANCE REPORT

SAMPLE COMPLIANCE REPORT

Sample Delivery Group	Sampling Date	Protocol	Sample ID	Matrix	Compliancy[1]					Noncompliance
					VOC	SVOC	PCB/PEST /HERB	MET	MISC	
NPB0334	1/31/2006	SW-846	WB-MW-1	Water	--	--	--	no	--	MET – Associated Blank, Dissolved/Total %D
NPB0334	1/31/2006	SW-846	WB-MW-1 Filtered	Water	--	--	--	no	--	MET – Dissolved/Total %D
NPB0334	1/31/2006	SW-846	WB-MW-2	Water	--	--	--	yes	--	
NPB0334	1/31/2006	SW-846	WB-MW-2 Filtered	Water	--	--	--	yes	--	
NPB0334	1/31/2006	SW-846	WB-MW-3	Water	--	--	--	no	--	MET – Associated Blank
NPB0334	1/31/2006	SW-846	WB-MW-3 Filtered	Water	--	--	--	no	--	MET – Associated Blank
NPB0334	1/31/2006	SW-846	WB-MW-91	Water	--	--	--	no	--	MET – Dissolved/Total %D
NPB0334	1/31/2006	SW-846	WB-MW-91 Filtered	Water	--	--	--	no	--	MET – Dissolved/Total %D
NPB0334	1/31/2006	SW-846	WB-EB-013106	Water	--	--	--	yes	--	

1 Samples which are compliant with no added validation qualifiers are listed as "yes". Samples which are non-compliant or which have added qualifiers are listed as "no". A "no" designation does not necessarily indicate that the data have been rejected or are otherwise unusable.

CORRECTED SAMPLE ANALYSIS DATA SHEETS

TestAmerica
ANALYTICAL TESTING CORPORATION
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client Blasland, Bouck & Lee, Inc. (10141) EM B. Frink
11000 Regency Parkway, West Tower Suite 205
Cary, NC 27511
Attn Bill Anckner

Work Order: NPB0334
Project Name: Exxon R0406 Wadesboro PO:R0406
Project Number: Exxon R0406 PO:R0406
Received: 02/02/06 07:55

ANALYTICAL REPORT

Analyte	Result	Flag	Units	MDL	MRL	Dilution Factor	Analysis Date/Time	Method	Batch
Sample ID: NPB0334-01 (WB-MW-1 - Water) Sampled: 01/31/06 12:30									
Total Metals by EPA Method 6010B									
Aluminum	138		mg/L	0.430	1.00	10	02/08/06 14:52	SW846 6010B	6020739
Antimony	ND		mg/L	0.0540	0.100	10	02/08/06 14:52	SW846 6010B	6020739
Arsenic	ND		mg/L	0.0760	0.100	10	02/08/06 14:52	SW846 6010B	6020739
Barium	ND		mg/L	0.0100	0.100	10	02/08/06 14:52	SW846 6010B	6020739
Beryllium	0.0240	J	mg/L	0.0100	0.0400	10	02/08/06 14:52	SW846 6010B	6020739
Cadmium	ND		mg/L	0.00600	0.0100	10	02/08/06 14:52	SW846 6010B	6020739
Calcium	377		mg/L	2.50	10.0	10	02/08/06 14:52	SW846 6010B	6020739
Chromium	ND		mg/L	0.0240	0.0500	10	02/08/06 14:52	SW846 6010B	6020739
Cobalt	0.705		mg/L	0.0260	0.200	10	02/08/06 14:52	SW846 6010B	6020739
Copper	0.0880	J	mg/L	0.0650	0.100	10	02/08/06 14:52	SW846 6010B	6020739
Iron	ND (0.613)		mg/L	0.300	0.500	10	02/08/06 14:52	SW846 6010B	6020739
Lead	ND		mg/L	0.0240	0.0500	10	02/08/06 14:52	SW846 6010B	6020739
Magnesium	202	J	mg/L	0.200	10.0	10	02/08/06 14:52	SW846 6010B	6020739
Manganese	29.3		mg/L	0.0190	0.150	10	02/08/06 14:52	SW846 6010B	6020739
Nickel	0.415		mg/L	0.0270	0.100	10	02/08/06 14:52	SW846 6010B	6020739
Potassium	ND		mg/L	3.40	10.0	10	02/08/06 14:52	SW846 6010B	6020739
Selenium	ND		mg/L	0.0930	0.100	10	02/08/06 14:52	SW846 6010B	6020739
Silver	ND		mg/L	0.0290	0.0500	10	02/08/06 14:52	SW846 6010B	6020739
Sodium	24.6		mg/L	4.30	10.0	10	02/08/06 14:52	SW846 6010B	6020739
Thallium	0.0970	J	mg/L	0.0790	0.100	10	02/08/06 14:52	SW846 6010B	6020739
Vanadium	ND		mg/L	0.0600	0.200	10	02/08/06 14:52	SW846 6010B	6020739
Zinc	2.83		mg/L	0.0640	0.500	10	02/08/06 14:52	SW846 6010B	6020739
Mercury by EPA Methods 7470A/7471A									
Mercury	ND		mg/L	0.000100	0.000200	1	02/07/06 12:21	SW846 7470A	6020966
Sample ID: NPB0334-02 (WB-MW-1 Filtered - Water) Sampled: 01/31/06 12:35									
Dissolved Metals by EPA Method 6010B									
Aluminum	146		mg/L	0.430	1.00	10	02/09/06 12:32	SW846 6010B	6020569
Antimony	ND		mg/L	0.0540	0.100	10	02/09/06 12:32	SW846 6010B	6020569
Arsenic	ND		mg/L	0.0760	0.100	10	02/09/06 12:32	SW846 6010B	6020569
Barium	ND		mg/L	0.0100	0.100	10	02/09/06 12:32	SW846 6010B	6020569
Beryllium	0.0260	J	mg/L	0.0100	0.0400	10	02/09/06 12:32	SW846 6010B	6020569
Cadmium	ND		mg/L	0.00600	0.0100	10	02/09/06 12:32	SW846 6010B	6020569
Calcium	427		mg/L	2.50	10.0	10	02/09/06 12:32	SW846 6010B	6020569
Chromium	ND		mg/L	0.0240	0.0500	10	02/09/06 12:32	SW846 6010B	6020569
Cobalt	0.709		mg/L	0.0260	0.200	10	02/09/06 12:32	SW846 6010B	6020569
Copper	0.0710	J	mg/L	0.0650	0.100	10	02/09/06 12:32	SW846 6010B	6020569
Iron	ND		mg/L	0.300	0.500	10	02/09/06 12:32	SW846 6010B	6020569
Lead	ND		mg/L	0.0240	0.0500	10	02/09/06 12:32	SW846 6010B	6020569
Magnesium	225	J	mg/L	0.200	10.0	10	02/09/06 12:32	SW846 6010B	6020569
Manganese	31.0		mg/L	0.0190	0.150	10	02/09/06 12:32	SW846 6010B	6020569
Nickel	0.416		mg/L	0.0270	0.100	10	02/09/06 12:32	SW846 6010B	6020569
Potassium	ND		mg/L	3.40	10.0	10	02/09/06 12:32	SW846 6010B	6020569
Selenium	ND		mg/L	0.0930	0.100	10	02/09/06 12:32	SW846 6010B	6020569

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2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client Blasland, Bouck & Lee, Inc. (10141) EM B. Frink
11000 Regency Parkway, West Tower Suite 205
Cary, NC 27511
Attn Bill Anckner

Work Order: NPB0334
Project Name: Exxon R0406 Wadesboro PO:R0406
Project Number: Exxon R0406 PO:R0406
Received: 02/02/06 07:55

ANALYTICAL REPORT

Analyte	Result	Flag	Units	MDL	MRL	Dilution Factor	Analysis Date/Time	Method	Batch
Sample ID: NPB0334-02 (WB-MW-1 Filtered - Water) - cont. Sampled: 01/31/06 12:35									
Dissolved Metals by EPA Method 6010B - cont.									
Silver	ND		mg/L	0.0290	0.0500	10	02/09/06 12:32	SW846 6010B	6020569
Sodium	24.5		mg/L	4.30	10.0	10	02/09/06 12:32	SW846 6010B	6020569
Thallium	0.0870	J	mg/L	0.0790	0.100	10	02/09/06 12:32	SW846 6010B	6020569
Vanadium	ND		mg/L	0.0600	0.200	10	02/09/06 12:32	SW846 6010B	6020569
Zinc	2.93		mg/L	0.0640	0.500	10	02/09/06 12:32	SW846 6010B	6020569
Dissolved Mercury by EPA Methods 7470A/7471A									
Mercury	ND		mg/L	0.000100	0.000200	1	02/07/06 13:36	SW846 7470A	6020508
Sample ID: NPB0334-03 (WB-MW-2 - Water) Sampled: 01/31/06 15:45									
Total Metals by EPA Method 6010B									
Aluminum	241		mg/L	0.430	1.00	10	02/08/06 14:56	SW846 6010B	6020739
Antimony	ND		mg/L	0.0540	0.100	10	02/08/06 14:56	SW846 6010B	6020739
Arsenic	ND		mg/L	0.0760	0.100	10	02/08/06 14:56	SW846 6010B	6020739
Barium	ND		mg/L	0.0100	0.100	10	02/08/06 14:56	SW846 6010B	6020739
Beryllium	0.0350	J	mg/L	0.0100	0.0400	10	02/08/06 14:56	SW846 6010B	6020739
Cadmium	0.0130		mg/L	0.00600	0.0100	10	02/08/06 14:56	SW846 6010B	6020739
Calcium	218		mg/L	2.50	10.0	10	02/08/06 14:56	SW846 6010B	6020739
Chromium	ND		mg/L	0.0240	0.0500	10	02/08/06 14:56	SW846 6010B	6020739
Cobalt	1.73		mg/L	0.0260	0.200	10	02/08/06 14:56	SW846 6010B	6020739
Copper	3.52		mg/L	0.0650	0.100	10	02/08/06 14:56	SW846 6010B	6020739
Iron	95.8		mg/L	0.300	0.500	10	02/08/06 14:56	SW846 6010B	6020739
Lead	ND		mg/L	0.0240	0.0500	10	02/08/06 14:56	SW846 6010B	6020739
Magnesium	164		mg/L	0.200	10.0	10	02/08/06 14:56	SW846 6010B	6020739
Manganese	39.3		mg/L	0.0190	0.150	10	02/08/06 14:56	SW846 6010B	6020739
Nickel	0.692		mg/L	0.0270	0.100	10	02/08/06 14:56	SW846 6010B	6020739
Potassium	ND		mg/L	3.40	10.0	10	02/08/06 14:56	SW846 6010B	6020739
Selenium	ND		mg/L	0.0930	0.100	10	02/08/06 14:56	SW846 6010B	6020739
Silver	ND		mg/L	0.0290	0.0500	10	02/08/06 14:56	SW846 6010B	6020739
Sodium	1160		mg/L	21.5	50.0	50	02/08/06 16:27	SW846 6010B	6020739
Thallium	0.0930	J	mg/L	0.0790	0.100	10	02/08/06 14:56	SW846 6010B	6020739
Vanadium	ND		mg/L	0.0600	0.200	10	02/08/06 14:56	SW846 6010B	6020739
Zinc	11.6		mg/L	0.0640	0.500	10	02/08/06 14:56	SW846 6010B	6020739
Mercury by EPA Methods 7470A/7471A									
Mercury	ND		mg/L	0.000100	0.000200	1	02/07/06 12:23	SW846 7470A	6020966

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ANALYTICAL TESTING CORPORATION
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client Blasland, Bouck & Lee, Inc. (10141) EM B. Frink
11000 Regency Parkway, West Tower Suite 205
Cary, NC 27511
Attn Bill Anckner

Work Order: NPB0334
Project Name: Exxon R0406 Wadesboro PO:R0406
Project Number: Exxon R0406 PO:R0406
Received: 02/02/06 07:55

ANALYTICAL REPORT

Analyte	Result	Flag	Units	MDL	MRL	Dilution Factor	Analysis Date/Time	Method	Batch
Sample ID: NPB0334-04 (WB-MW-2 Filtered - Water) Sampled: 01/31/06 15:50									
Dissolved Metals by EPA Method 6010B									
Aluminum	252		mg/L	0.430	1.00	10	02/09/06 12:39	SW846 6010B	6020569
Antimony	ND		mg/L	0.0540	0.100	10	02/09/06 12:39	SW846 6010B	6020569
Arsenic	ND		mg/L	0.0760	0.100	10	02/09/06 12:39	SW846 6010B	6020569
Barium	ND		mg/L	0.0100	0.100	10	02/09/06 12:39	SW846 6010B	6020569
Beryllium	0.0360	J	mg/L	0.0100	0.0400	10	02/09/06 12:39	SW846 6010B	6020569
Cadmium	0.00600	J	mg/L	0.00600	0.0100	10	02/09/06 12:39	SW846 6010B	6020569
Calcium	228		mg/L	2.50	10.0	10	02/09/06 12:39	SW846 6010B	6020569
Chromium	ND		mg/L	0.0240	0.0500	10	02/09/06 12:39	SW846 6010B	6020569
Cobalt	1.72		mg/L	0.0260	0.200	10	02/09/06 12:39	SW846 6010B	6020569
Copper	3.57		mg/L	0.0650	0.100	10	02/09/06 12:39	SW846 6010B	6020569
Iron	97.0		mg/L	0.300	0.500	10	02/09/06 12:39	SW846 6010B	6020569
Lead	ND		mg/L	0.0240	0.0500	10	02/09/06 12:39	SW846 6010B	6020569
Magnesium	172		mg/L	0.200	10.0	10	02/09/06 12:39	SW846 6010B	6020569
Manganese	39.8		mg/L	0.0190	0.150	10	02/09/06 12:39	SW846 6010B	6020569
Nickel	0.674		mg/L	0.0270	0.100	10	02/09/06 12:39	SW846 6010B	6020569
Potassium	ND		mg/L	3.40	10.0	10	02/09/06 12:39	SW846 6010B	6020569
Selenium	ND		mg/L	0.0930	0.100	10	02/09/06 12:39	SW846 6010B	6020569
Silver	ND		mg/L	0.0290	0.0500	10	02/09/06 12:39	SW846 6010B	6020569
Sodium	1230		mg/L	21.5	50.0	50	02/09/06 13:30	SW846 6010B	6020569
Thallium	0.0790	J	mg/L	0.0790	0.100	10	02/09/06 12:39	SW846 6010B	6020569
Vanadium	ND		mg/L	0.0600	0.200	10	02/09/06 12:39	SW846 6010B	6020569
Zinc	11.8		mg/L	0.0640	0.500	10	02/09/06 12:39	SW846 6010B	6020569
Dissolved Mercury by EPA Methods 7470A/7471A									
Mercury	ND		mg/L	0.000100	0.000200	1	02/07/06 13:38	SW846 7470A	6020508
Sample ID: NPB0334-05 (WB-MW-3 - Water) Sampled: 01/31/06 12:10									
Total Metals by EPA Method 6010B									
Aluminum	ND (0.102) ~~0.0907~~	~~J~~	mg/L	0.0430	0.100	1	02/08/06 12:42	SW846 6010B	6020739
Antimony	ND		mg/L	0.00540	0.0100	1	02/08/06 12:42	SW846 6010B	6020739
Arsenic	ND		mg/L	0.00760	0.0100	1	02/08/06 12:42	SW846 6010B	6020739
Barium	0.0180		mg/L	0.00100	0.0100	1	02/08/06 12:42	SW846 6010B	6020739
Beryllium	ND		mg/L	0.00100	0.00400	1	02/08/06 12:42	SW846 6010B	6020739
Cadmium	ND (0.00220)		mg/L	0.000600	0.00100	1	02/08/06 12:42	SW846 6010B	6020739
Calcium	388		mg/L	2.50	10.0	10	02/08/06 15:01	SW846 6010B	6020739
Chromium	0.00760		mg/L	0.00240	0.00500	1	02/08/06 12:42	SW846 6010B	6020739
Cobalt	0.132		mg/L	0.00260	0.0200	1	02/08/06 12:42	SW846 6010B	6020739
Copper	0.00690	J	mg/L	0.00650	0.0100	1	02/08/06 12:42	SW846 6010B	6020739
Iron	5.61		mg/L	0.0300	0.0500	1	02/08/06 12:42	SW846 6010B	6020739
Lead	ND		mg/L	0.00240	0.00500	1	02/08/06 12:42	SW846 6010B	6020739
Magnesium	94.7		mg/L	0.0200	1.00	1	02/08/06 12:42	SW846 6010B	6020739
Manganese	4.85		mg/L	0.00190	0.0150	1	02/08/06 12:42	SW846 6010B	6020739
Nickel	0.0371		mg/L	0.00270	0.0100	1	02/08/06 12:42	SW846 6010B	6020739
Potassium	1.51		mg/L	0.340	1.00	1	02/08/06 12:42	SW846 6010B	6020739
Selenium	ND		mg/L	0.00930	0.0100	1	02/08/06 12:42	SW846 6010B	6020739

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Project Number: Exxon R0406 PO:R0406
Received: 02/02/06 07:55

ANALYTICAL REPORT

Analyte	Result	Flag	Units	MDL	MRL	Dilution Factor	Analysis Date/Time	Method	Batch
Sample ID: NPB0334-05 (WB-MW-3 - Water) - cont. Sampled: 01/31/06 12:10									
Total Metals by EPA Method 6010B - cont.									
Silver	0.00790		mg/L	0.00290	0.00500	1	02/08/06 12:42	SW846 6010B	6020739
Sodium	79.9		mg/L	4.30	10.0	10	02/08/06 15:01	SW846 6010B	6020739
Thallium	ND		mg/L	0.00790	0.0100	1	02/08/06 12:42	SW846 6010B	6020739
Vanadium	0.0141	J	mg/L	0.00600	0.0200	1	02/08/06 12:42	SW846 6010B	6020739
Zinc	0.323		mg/L	0.00640	0.0500	1	02/08/06 12:42	SW846 6010B	6020739
Mercury by EPA Methods 7470A/7471A									
Mercury	ND		mg/L	0.000100	0.000200	1	02/07/06 12:25	SW846 7470A	6020966
Sample ID: NPB0334-06 (WB-MW-3 Filtered - Water) Sampled: 01/31/06 12:05									
Dissolved Metals by EPA Method 6010B									
Aluminum	ND (0.100) ~~0.0770~~	~~J~~	mg/L	0.0430	0.100	1	02/09/06 11:20	SW846 6010B	6020569
Antimony	ND		mg/L	0.00540	0.0100	1	02/09/06 11:20	SW846 6010B	6020569
Arsenic	ND		mg/L	0.00760	0.0100	1	02/09/06 11:20	SW846 6010B	6020569
Barium	0.0185		mg/L	0.00100	0.0100	1	02/09/06 11:20	SW846 6010B	6020569
Beryllium	ND		mg/L	0.00100	0.00400	1	02/09/06 11:20	SW846 6010B	6020569
Cadmium	ND (0.00280)		mg/L	0.000600	0.00100	1	02/09/06 11:20	SW846 6010B	6020569
Calcium	420		mg/L	2.50	10.0	10	02/09/06 13:16	SW846 6010B	6020569
Chromium	0.0104		mg/L	0.00240	0.00500	1	02/09/06 11:20	SW846 6010B	6020569
Cobalt	0.131		mg/L	0.00260	0.0200	1	02/09/06 11:20	SW846 6010B	6020569
Copper	0.00950	J	mg/L	0.00650	0.0100	1	02/09/06 11:20	SW846 6010B	6020569
Iron	4.51		mg/L	0.0300	0.0500	1	02/09/06 11:20	SW846 6010B	6020569
Lead	ND		mg/L	0.00240	0.00500	1	02/09/06 11:20	SW846 6010B	6020569
Magnesium	98.5		mg/L	0.0200	1.00	1	02/09/06 11:20	SW846 6010B	6020569
Manganese	4.86		mg/L	0.00190	0.0150	1	02/09/06 11:20	SW846 6010B	6020569
Nickel	0.0386		mg/L	0.00270	0.0100	1	02/09/06 11:20	SW846 6010B	6020569
Potassium	1.64		mg/L	0.340	1.00	1	02/09/06 11:20	SW846 6010B	6020569
Selenium	ND		mg/L	0.00930	0.0100	1	02/09/06 11:20	SW846 6010B	6020569
Silver	0.0111		mg/L	0.00290	0.00500	1	02/09/06 11:20	SW846 6010B	6020569
Sodium	90.2		mg/L	4.30	10.0	10	02/09/06 13:16	SW846 6010B	6020569
Thallium	ND		mg/L	0.00790	0.0100	1	02/09/06 11:20	SW846 6010B	6020569
Vanadium	0.0171	J	mg/L	0.00600	0.0200	1	02/09/06 11:20	SW846 6010B	6020569
Zinc	0.307		mg/L	0.00640	0.0500	1	02/09/06 11:20	SW846 6010B	6020569
Dissolved Mercury by EPA Methods 7470A/7471A									
Mercury	ND		mg/L	0.000100	0.000200	1	02/07/06 13:40	SW846 7470A	6020508

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Project Name: Exxon R0406 Wadesboro PO:R0406
Project Number: Exxon R0406 PO:R0406
Received: 02/02/06 07:55

ANALYTICAL REPORT

Analyte	Result	Flag	Units	MDL	MRL	Dilution Factor	Analysis Date/Time	Method	Batch
Sample ID: NPB0334-07 (WB-MW-91 - Water) Sampled: 01/31/06 00:01									
Total Metals by EPA Method 6010B									
Aluminum	232	J	mg/L	0.430	1.00	10	02/08/06 15:15	SW846 6010B	6020739
Antimony	ND		mg/L	0.0540	0.100	10	02/08/06 15:15	SW846 6010B	6020739
Arsenic	ND		mg/L	0.0760	0.100	10	02/08/06 15:15	SW846 6010B	6020739
Barium	ND		mg/L	0.0100	0.100	10	02/08/06 15:15	SW846 6010B	6020739
Beryllium	0.0340	J	mg/L	0.0100	0.0400	10	02/08/06 15:15	SW846 6010B	6020739
Cadmium	0.0110		mg/L	0.00600	0.0100	10	02/08/06 15:15	SW846 6010B	6020739
Calcium	207		mg/L	2.50	10.0	10	02/08/06 15:15	SW846 6010B	6020739
Chromium	ND		mg/L	0.0240	0.0500	10	02/08/06 15:15	SW846 6010B	6020739
Cobalt	1.67		mg/L	0.0260	0.200	10	02/08/06 15:15	SW846 6010B	6020739
Copper	3.39		mg/L	0.0650	0.100	10	02/08/06 15:15	SW846 6010B	6020739
Iron	92.8		mg/L	0.300	0.500	10	02/08/06 15:15	SW846 6010B	6020739
Lead	ND		mg/L	0.0240	0.0500	10	02/08/06 15:15	SW846 6010B	6020739
Magnesium	158	J	mg/L	0.200	10.0	10	02/08/06 15:15	SW846 6010B	6020739
Manganese	38.0		mg/L	0.0190	0.150	10	02/08/06 15:15	SW846 6010B	6020739
Nickel	0.670		mg/L	0.0270	0.100	10	02/08/06 15:15	SW846 6010B	6020739
Potassium	ND		mg/L	3.40	10.0	10	02/08/06 15:15	SW846 6010B	6020739
Selenium	ND		mg/L	0.0930	0.100	10	02/08/06 15:15	SW846 6010B	6020739
Silver	ND		mg/L	0.0290	0.0500	10	02/08/06 15:15	SW846 6010B	6020739
Sodium	1210		mg/L	21.5	50.0	50	02/08/06 16:31	SW846 6010B	6020739
Thallium	0.0880	J	mg/L	0.0790	0.100	10	02/08/06 15:15	SW846 6010B	6020739
Vanadium	ND		mg/L	0.0600	0.200	10	02/08/06 15:15	SW846 6010B	6020739
Zinc	11.2		mg/L	0.0640	0.500	10	02/08/06 15:15	SW846 6010B	6020739
Mercury by EPA Methods 7470A/7471A									
Mercury	ND		mg/L	0.000100	0.000200	1	02/07/06 12:37	SW846 7470A	6020966
Sample ID: NPB0334-08 (WB-MW-91 Filtered - Water) Sampled: 01/31/06 00:01									
Dissolved Metals by EPA Method 6010B									
Aluminum	259	J	mg/L	0.430	1.00	10	02/09/06 13:03	SW846 6010B	6020569
Antimony	ND		mg/L	0.0540	0.100	10	02/09/06 13:03	SW846 6010B	6020569
Arsenic	ND		mg/L	0.0760	0.100	10	02/09/06 13:03	SW846 6010B	6020569
Barium	ND		mg/L	0.0100	0.100	10	02/09/06 13:03	SW846 6010B	6020569
Beryllium	0.0370	J	mg/L	0.0100	0.0400	10	02/09/06 13:03	SW846 6010B	6020569
Cadmium	ND		mg/L	0.00600	0.0100	10	02/09/06 13:03	SW846 6010B	6020569
Calcium	233		mg/L	2.50	10.0	10	02/09/06 13:03	SW846 6010B	6020569
Chromium	ND		mg/L	0.0240	0.0500	10	02/09/06 13:03	SW846 6010B	6020569
Cobalt	1.76		mg/L	0.0260	0.200	10	02/09/06 13:03	SW846 6010B	6020569
Copper	3.68		mg/L	0.0650	0.100	10	02/09/06 13:03	SW846 6010B	6020569
Iron	99.5		mg/L	0.300	0.500	10	02/09/06 13:03	SW846 6010B	6020569
Lead	ND		mg/L	0.0240	0.0500	10	02/09/06 13:03	SW846 6010B	6020569
Magnesium	177	J	mg/L	0.200	10.0	10	02/09/06 13:03	SW846 6010B	6020569
Manganese	40.9		mg/L	0.0190	0.150	10	02/09/06 13:03	SW846 6010B	6020569
Nickel	0.695		mg/L	0.0270	0.100	10	02/09/06 13:03	SW846 6010B	6020569
Potassium	ND		mg/L	3.40	10.0	10	02/09/06 13:03	SW846 6010B	6020569
Selenium	ND		mg/L	0.0930	0.100	10	02/09/06 13:03	SW846 6010B	6020569

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Received: 02/02/06 07:55

ANALYTICAL REPORT

Analyte	Result	Flag	Units	MDL	MRL	Dilution Factor	Analysis Date/Time	Method	Batch
Sample ID: NPB0334-08 (WB-MW-91 Filtered - Water) - cont. Sampled: 01/31/06 00:01									
Dissolved Metals by EPA Method 6010B - cont.									
Silver	ND		mg/L	0.0290	0.0500	10	02/09/06 13:03	SW846 6010B	6020569
Sodium	1330		mg/L	21.5	50.0	50	02/09/06 13:34	SW846 6010B	6020569
Thallium	ND		mg/L	0.0790	0.100	10	02/09/06 13:03	SW846 6010B	6020569
Vanadium	ND		mg/L	0.0600	0.200	10	02/09/06 13:03	SW846 6010B	6020569
Zinc	12.1		mg/L	0.0640	0.500	10	02/09/06 13:03	SW846 6010B	6020569
Dissolved Mercury by EPA Methods 7470A/7471A									
Mercury	ND		mg/L	0.000100	0.000200	1	02/07/06 13:46	SW846 7470A	6020508
Sample ID: NPB0334-09 (WB-EB-013106 - Water) Sampled: 01/31/06 00:01									
Total Metals by EPA Method 6010B									
Aluminum	0.181		mg/L	0.0430	0.100	1	02/08/06 13:27	SW846 6010B	6020739
Antimony	ND		mg/L	0.00540	0.0100	1	02/08/06 13:27	SW846 6010B	6020739
Arsenic	ND		mg/L	0.00760	0.0100	1	02/08/06 13:27	SW846 6010B	6020739
Barium	ND		mg/L	0.00100	0.0100	1	02/08/06 13:27	SW846 6010B	6020739
Beryllium	ND		mg/L	0.00100	0.00400	1	02/08/06 13:27	SW846 6010B	6020739
Cadmium	0.000700	J	mg/L	0.000600	0.00100	1	02/08/06 13:27	SW846 6010B	6020739
Calcium	0.732	J	mg/L	0.250	1.00	1	02/08/06 13:27	SW846 6010B	6020739
Chromium	ND		mg/L	0.00240	0.00500	1	02/08/06 13:27	SW846 6010B	6020739
Cobalt	0.00260	J	mg/L	0.00260	0.0200	1	02/08/06 13:27	SW846 6010B	6020739
Copper	ND		mg/L	0.00650	0.0100	1	02/08/06 13:27	SW846 6010B	6020739
Iron	0.127		mg/L	0.0300	0.0500	1	02/08/06 13:27	SW846 6010B	6020739
Lead	ND		mg/L	0.00240	0.00500	1	02/08/06 13:27	SW846 6010B	6020739
Magnesium	0.0984	J	mg/L	0.0200	1.00	1	02/08/06 13:27	SW846 6010B	6020739
Manganese	0.00730	J	mg/L	0.00190	0.0150	1	02/08/06 13:27	SW846 6010B	6020739
Nickel	0.00320	J	mg/L	0.00270	0.0100	1	02/08/06 13:27	SW846 6010B	6020739
Potassium	ND		mg/L	0.340	1.00	1	02/08/06 13:27	SW846 6010B	6020739
Selenium	ND		mg/L	0.00930	0.0100	1	02/08/06 13:27	SW846 6010B	6020739
Silver	ND		mg/L	0.00290	0.00500	1	02/08/06 13:27	SW846 6010B	6020739
Sodium	1.94		mg/L	0.430	1.00	1	02/08/06 13:27	SW846 6010B	6020739
Thallium	ND		mg/L	0.00790	0.0100	1	02/08/06 13:27	SW846 6010B	6020739
Vanadium	ND		mg/L	0.00600	0.0200	1	02/08/06 13:27	SW846 6010B	6020739
Zinc	0.00650	J	mg/L	0.00640	0.0500	1	02/08/06 13:27	SW846 6010B	6020739
Mercury by EPA Methods 7470A/7471A									
Mercury	ND		mg/L	0.000100	0.000200	1	02/07/06 12:39	SW846 7470A	6020966

FEDERAL FILE
ORIGINAL IN STATE FILE.

BBL®
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

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APR 13 2005
SUPERFUND SECTION

Transmitted Via Federal Express

April 12, 2005

Michael Deaton
North Carolina Department of Environment and Natural Resources
401 Oberlin Road
Raleigh, North Carolina 27699

Re: Virginia Carolina Chemical Site – Wadesboro, North Carolina
Groundwater Monitoring Report
BBL Project: 54626#5 EPA ID # NCSFN0406924

Dear Mr. Deaton:

This letter provides the results for groundwater sampling performed in January 2005 on behalf of Exxon Mobil Corporation (ExxonMobil) at the former Virginia-Carolina Chemical Company (VCC) Site located in Wadesboro, Anson County, North Carolina. Figure 1 identifies the Site on the U.S. Geological Survey (USGS) 7.5 minute quadrangle for Wadesboro, North Carolina.

Three monitoring wells are present at the former VCC Site. These wells were initially installed and sampled as part of the site characterization activities conducted in 2001. Based on the analytical results, the North Carolina Department of Environment and Natural Resources (NCDENR) expressed concern that manganese and cadmium concentrations in samples collected from these wells exceeded the state cleanup goals established by the North Carolina Inactive Hazardous Waste Branch. The cleanup goals are the NC 2L standards, which for cadmium and manganese are 5 and 50 micrograms per liter (µg/L), respectively.

Between November 2002 and January 2003, ExxonMobil removed nearly 7,000 tons of soil from the Site which contained elevated concentrations of arsenic and lead. In accordance with the *Additional Delineation Report and Removal Action Work Plan* (Blasland, Bouck & Lee, Inc. [BBL], October 2002), groundwater was resampled in January 2004 to evaluate the impact (if any) of the soil removal action on groundwater quality. Data indicated significant reductions in both the number of metals and concentrations detected in groundwater samples collected from MW-1 and MW-2. However, metals concentrations detected in MW-3 generally remained constant or had slightly increased.

A second round of post-removal groundwater sampling was performed in January 2005. The results from the 2005 groundwater monitoring event are described below:

- Analytical results indicated that, in general, the concentrations of detectable metals increased in comparison to results from the 2004 groundwater monitoring event. The most notable increases

are associated with aluminum in MW-1 and MW-2; and iron in MW-2 and MW-3. Due to these increases, the laboratory could not accurately quantify any of the analytes associated with the undiluted sample analyses. As such, all samples were diluted and reanalyzed. The diluted sample results are reported in Table 1.

- The concentrations of key metals (including lead, and cadmium) were not detected above the laboratory reporting limits. However, because dilutions were required for quantification, reporting limits varied from 50 to 500 µg/l for lead, and 10 to 100 µg/L for cadmium. Manganese concentrations remained relatively unchanged following soil removal activities.

- All analytical data were validated in accordance with USEPA standard procedures. Upon receipt by the laboratory, an aliquot of the groundwater sample collected from MW-3 was spiked to assess the precision and accuracy of the analytical method. Analytical results indicated that the matrix spike for arsenic exhibited a recovery of less than 30%; however, data validation determined that this low recovery was due to matrix interference and not laboratory error. As such, all associated non-detected total arsenic results were rejected.

Groundwater analytical results generated from samples collected prior to, and following, the soil removal action are presented in Table 1. Table 2 contains well construction and groundwater elevation information. Monitoring well locations and potentiometric surface contours for January 2005 are shown in Figure 2, and validated laboratory analytical data sheets for the January 2005 groundwater monitoring event are provided in Attachment 1.

Based on the sample analytical results, ExxonMobil will collect one additional round of groundwater samples from this Site in early 2006. All groundwater samples will be analyzed for Target Analyte List (TAL) metals, including cadmium and manganese. Groundwater monitoring will cease if manganese and cadmium concentrations in the wells remain stable or continue to be detected below the pre-removal baseline conditions. As described in the Site Characterization Report (BBL, December 2001), these metals are not known to be typically associated with releases from the former phosphate/fertilizer facilities.

If you have any questions regarding the attached, please contact Mr. Bruce Frink with ExxonMobil at (813) 991-7413.

Sincerely,

BLASLAND, BOUCK & LEE, INC.

William H. Anckner, P.E.
Senior Project Engineer II

WHA/wha

cc: Bruce Frink, ExxonMobil

Enc. (5)

Tables

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Table 1

Summary of Detected Analytes in Groundwater Samples
VCC: Wadesboro, NC - 2005 Groundwater Monitoring Report

			Concentration\2 in Sample:								
			WB-MW1	WB-MW1	WB-MW1	WB-MW2	WB-MW2	WB-MW2	WB-MW3	WB-MW3	WB-MW3
Analyte	NC 2L\1	Units	Apr-01	Jan-04	Jan-05	Apr-01	Jan-04	Jan-05	Apr-01	Jan-04	Jan-05
Aluminum	NP	µg/L	52,600 J	20,900 J	109,000	84,600 J	82,500 J	337,000	400 J	151 UJ	1,000 U
Arsenic	10	µg/L	15 U	10 U	— R	15 U	7.5 J	— R	3 U	10 U	— R
Barium	2,000	µg/L	31 B	4.6 J	1,000 U	37.7 B	10 U	1,000 U	198 B	29	100 U
Beryllium	NP	µg/L	10.8 B	6	400 U	11.5 B	14	400 U	0.1 U	4 U	40 U
Cadmium	5	µg/L	10.1 BJ	1 U	100 U	27.8 J	1 U	100 U	0.6 U	0.50 J	10 U
Calcium	NP	µg/L	565,000	523,000 J	534,000 J	415,000	106,000 J	301,000 J	260,000	443,000 J	520,000 J
Cobalt	NP	µg/L	631	181 J	900 J	996	658 J	2,400	2.2 B	70 J	230
Copper	1,000	µg/L	54.5 B	10 UJ	1,000 U	998	1,300 J	5,900	2.5 U	10 UJ	100 U
Iron	300	µg/L	575	50 UJ	5,000 UJ	60,700	10,800 J	112,000 J	469	3,790 J	16,300 J
Lead	NP	µg/L	11.5 U	5 U	500 U	10.3 U	5 U	500 U	2.6 B	5 UJ	50 U
Magnesium	NP	µg/L	277,000	136,000 J	260,000 J	214,000	68,100 J	211,000 J	48,000	97,400 J	133,000 J
Manganese	50	µg/L	28,700	20,000 J	29,900	53,900	43,300 J	52,500	1,740	3,800 J	6,990
Mercury	1.1	µg/L	0.1 U	0.2 U	0.2 U	0.1 U	0.2 U	0.2 U	0.1 U	0.2 U	0.2 U
Nickel	100	µg/L	498	136 J	1,000 U	505	208 J	900 J	5.1 B	20 J	100 U
Potassium	NP	µg/L	6,320 B	3,600	100,000 UJ	7,500 B	1,000 U	100,000 UJ	6,290	2,110	10,000 UJ
Selenium	50	µg/L	R	9.1 J	1,000 UJ	R	9.1 J	1,000 UJ	R	4.6 J	100 UJ
Sodium	NP	µg/L	57,400	85,200 J	100,000 U	1,350,000	768,000 J	1,220,000	36,400	85,500 J	102,000
Thallium	2	µg/L	24.5 UJ	10 U	1,000 UJ	24.5 UJ	10 U	1,000 UJ	6 BJ	10 U	100 UJ
Vanadium	NP	µg/L	4 U	20 U	2,000 U	12.3 B	20 U	2,000 U	1.1 U	8 J	200 U
Zinc	2,100	µg/L	1,480	654 J	3,100 J	4,630	3,730 J	16,300	1.8 B	90 J	610
Field Measurements											
pH		S.U.	4.59	4.7	4.25	4.62	3.79	3.61	6.88	6.48	6.46
Temperature		°C	14.23	14.68	14.37	15.37	15.52	14.1	15.51	16.16	14.82
Conductivity		mS/cm	3.95	4.07	3.87	4.62	7.95	8.43	1.53	2.74	2.8
Dissolved Oxygen		mg/L	2.83	0.54	0	1.42	0.54	0	2.34	0.52	0
ORP		mV	520	352	409	353	293	322	305	31	30
Flow		mL/min	350	350	300	200	350	300	200	350	300
Turbidity		—	clear	85	0	v. slight	135	0	clear	20	21

Notes:

\1 NC 2L - North Carolina 2L standards. Shaded results exceed NC 2L standards.

\2 Data Qualifiers:

B - Analyte was detected in the method blank.
J - Estimated value below reporting limit.
U - Not detected at the limit of detection.
R - Rejected by the data validator.

Table 2

Well Construction / Groundwater Elevation Data
VCC: Wadesboro, NC - 2005 Groundwater Monitoring Report

Well Designation	Date Installed	Date Measured	Top of Casing Elevation (ft msl)	Depth to Water (ft bgs)	Water Level Elevation (ft msl)	Well Diameter (inches)	Screen Interval (ft bgs)
MW-1	4/17/01	4/25/01	373.81	7.51	366.30	2	10 - 35
		1/28/04		8.09	365.72		
		1/27/05		6.57	367.24		
MW-2	4/17/01	4/25/01	367.40	8.93	364.88	2	8 - 23
		1/28/04		13.20	360.61		
		1/27/05		10.11	363.70		
MW-3	4/17/01	4/25/01	364.79	11.31	362.50	2	11 - 26
		1/28/04		13.10	360.71		
		1/27/05		10.82	362.99		

Notes:
ft bgs = Feet below ground surface.
ft msl = Feet above mean sea level.

Figures

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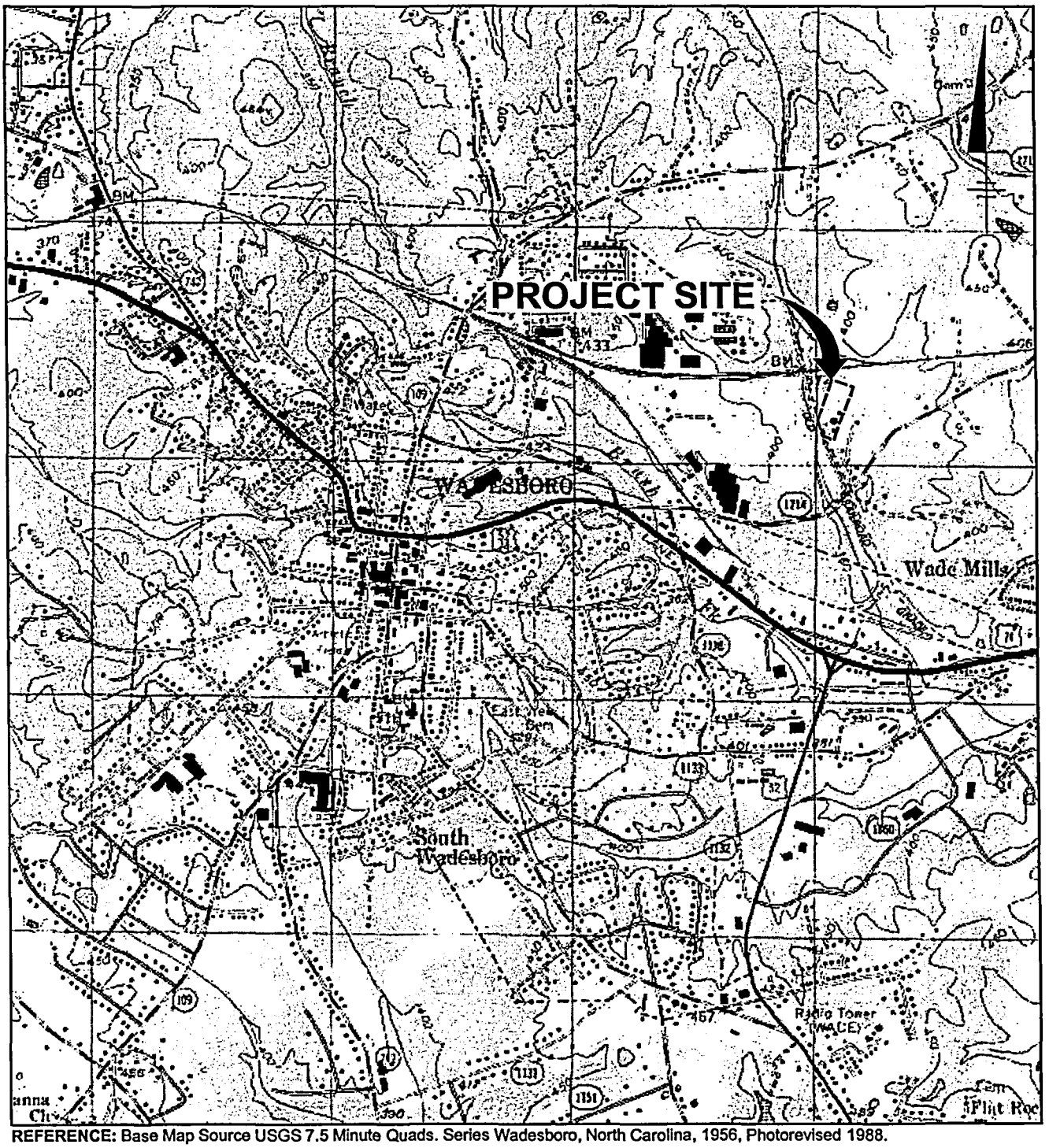

REFERENCE: Base Map Source USGS 7.5 Minute Quads. Series Wadesboro, North Carolina, 1956, Photorevised 1988.

2000' 0 2000'

Approximate Scale: 1" = 2000'

AREA LOCATION

VIRGINIA-CAROLINA CHEMICAL CO. SITE
WADESBORO, NORTH CAROLINA
GROUNDWATER MONITORING REPORT

SITE LOCATION MAP

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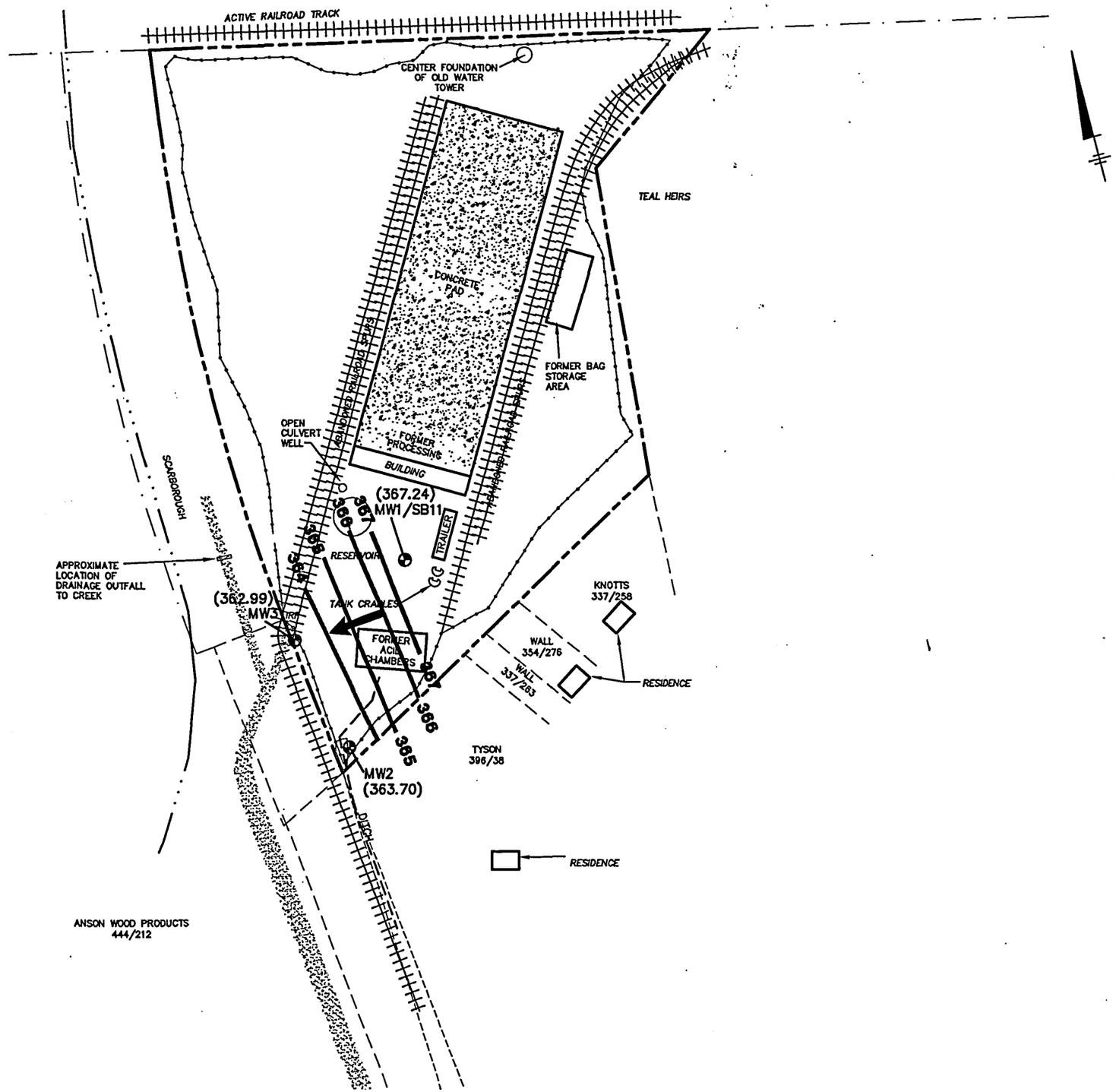
FIGURE 1

04/07/05 SYR-D85-LBR LJP
54626003/54626n01.cdr



LEGEND

- BUILDING
- TANK
- ROAD
- RAILROAD
- DITCH
- STREAM
- PROPERTY LINE
- CHAIN LINK FENCE
- ACCESS ROAD
- MW1 MONITORING WELL LOCATION
- 365 SHALLOW GROUNDWATER POTENTIOMETRIC SURFACE CONTOUR
- (367.24) SHALLOW GROUNDWATER POTENTIOMETRIC ELEVATION (IN FEET AMSL)
- GROUNDWATER FLOW DIRECTION (DASHED WHERE INFERRED)

NOTES:

1. BASE MAP BY JAMES R. HARRINGTON AND ASSOCIATES AT A SCALE OF 1" = 100' SUPPLEMENTED BY BBL WITH FEATURES DIGITIZED FROM A DRAWING ENTITLED "FIGURE 3 – SAMPLING LOCATION MAP" BY TETRA TECH EMI (2000).
2. ELEVATIONS IN FEET AMSL MEASURED ON 1/27/05.

0 150' 300'

GRAPHIC SCALE

VIRGINIA–CAROLINA CHEMICAL CO. SITE
WADESBORO, NORTH CAROLINA
JANUARY 2005 GROUNDWATER MONITORING REPORT

SHALLOW GROUNDWATER POTENTIOMETRIC SURFACE MAP

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FIGURE 2

L: ON=*, OFF=REF
P: PAGESET/PLT-BL1
4/7/105 SYR-85-LJP
54626003/54626W01.DWG

Attachment 1

Corrected Laboratory Analytical Data Sheets

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TestAmerica
ANALYTICAL TESTING CORPORATION

2960 Foster Creighton Drive • Nashville, Tennessee 37204
800-765-0980 • 615-726-3404 Fax

Sample Identification

WB-MW-1

Matrix: Water
pH:
Units: ug/l
Dilution Factor: 100.
Analysis Method: 6010B
Delivery Group: 404528
Instrument:
Mercury DilFact: 1.
Mercury Method: 7470A

Lab Sample ID: 05-A12356
Date Sampled:: 1/27/05
Date Received: 1/29/05
Analysis Date: 2/ 1/05
Analysis Time: 9:44
Sample QC Group: 1352

Mercury Date: 2/ 1/05
Mercury Time: 11:23
Mercury QC Group: 1353

FORM I

CAS NUMBER	ANALYTE	CONCENTRATION	FLAG
7429-90-5	Aluminum	109000	
7440-36-0	Antimony	1000	U
7440-38-2	Arsenic	~~1000~~	~~U~~ R
7440-39-3	Barium	1000	U
7440-41-7	Beryllium	400.	U
7440-43-9	Cadmium	100.	U
7440-70-2	Calcium	534000	J
7440-47-3	Chromium	500.	U
7440-48-4	Cobalt	900.	J
7440-50-8	Copper	1000	U
7439-89-6	Iron	5000	UJ
7439-92-1	Lead	500.	U
7439-95-4	Magnesium	260000	J
7439-96-5	Manganese	29900	
7439-97-6	Mercury	0.200	U
7440-02-0	Nickel	1000	U
7440-09-7	Potassium	100000	UJ
7782-49-2	Selenium	1000	UJ
7440-22-4	Silver	500.	U
7440-23-5	Sodium	100000	U
7440-28-0	Thallium	1000	UJ
7440-62-2	Vanadium	2000	U
7440-66-6	Zinc	3100	J

TestAmerica
ANALYTICAL TESTING CORPORATION

2960 Foster Creighton Drive • Nashville, Tennessee 37204
800-765-0980 • 615-726-3404 Fax

Sample Identification

WB-MW-2

Matrix: Water
pH:
Units: ug/l
Dilution Factor: 100.
Analysis Method: 6010B
Delivery Group: 404528
Instrument:
Mercury DilFact: 1.
Mercury Method: 7470A

Lab Sample ID: 05-A12355
Date Sampled:: 1/27/05
Date Received: 1/29/05
Analysis Date: 2/ 1/05
Analysis Time: 9:44
Sample QC Group: 1352

Mercury Date: 2/ 1/05
Mercury Time: 11:23
Mercury QC Group: 1353

FORM I

CAS NUMBER	ANALYTE	CONCENTRATION	FLAG
7429-90-5	Aluminum	337000	
7440-36-0	Antimony	1000	U
7440-38-2	Arsenic	~~1000~~	~~U~~ J
7440-39-3	Barium	1000	U
7440-41-7	Beryllium	400.	U
7440-43-9	Cadmium	100.	U
7440-70-2	Calcium	301000	J
7440-47-3	Chromium	500.	U
7440-48-4	Cobalt	2400	
7440-50-8	Copper	5900	
7439-89-6	Iron	112000	J
7439-92-1	Lead	500.	U
7439-95-4	Magnesium	211000	J
7439-96-5	Manganese	52500	
7439-97-6	Mercury	0.200	U
7440-02-0	Nickel	900.	J
7440-09-7	Potassium	100000	UJ
7782-49-2	Selenium	1000	UJ
7440-22-4	Silver	500.	U
7440-23-5	Sodium	1220000	
7440-28-0	Thallium	1000	UJ
7440-62-2	Vanadium	2000	U
7440-66-6	Zinc	16300	

TestAmerica
ANALYTICAL TESTING CORPORATION

2960 Foster Creighton Drive • Nashville, Tennessee 37204
800-765-0980 • 615-726-3404 Fax

Sample Identification

WB-MW-3

Matrix: Water
pH:
Units: ug/l
Dilution Factor: 10.
Analysis Method: 6010B
Delivery Group: 404528
Instrument:
Mercury DilFact: 1.
Mercury Method: 7470A

Lab Sample ID: 05-A12358
Date Sampled:: 1/27/05
Date Received: 1/29/05
Analysis Date: 2/ 1/05
Analysis Time: 9:44
Sample QC Group: 1352

Mercury Date: 2/ 1/05
Mercury Time: 11:23
Mercury QC Group: 1353

FORM I

CAS NUMBER	ANALYTE	CONCENTRATION	FLAG
7429-90-5	Aluminum	1000	U
7440-36-0	Antimony	100.	U
7440-38-2	Arsenic	~~100.~~	~~U~~ R
7440-39-3	Barium	100.	U
7440-41-7	Beryllium	40.0	U
7440-43-9	Cadmium	10.0	U
7440-70-2	Calcium	520000	J
7440-47-3	Chromium	50.0	U
7440-48-4	Cobalt	230.	
7440-50-8	Copper	100.	U
7439-89-6	Iron	16300	J
7439-92-1	Lead	50.0	U
7439-95-4	Magnesium	133000	J
7439-96-5	Manganese	6990	
7439-97-6	Mercury	0.200	U
7440-02-0	Nickel	100.	U
7440-09-7	Potassium	10000	U J
7782-49-2	Selenium	100.	U J
7440-22-4	Silver	50.0	U
7440-23-5	Sodium	102000	
7440-28-0	Thallium	100.	U J
7440-62-2	Vanadium	200.	U
7440-66-6	Zinc	610.	

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

May 13, 2003

WMD-ERRB

RECEIVED
MAY 16 2003

Mr. Kyle Harris
Exxon Mobil Corporation
601 Jefferson Street
Room 1221
Houston, TX 77002

Subject: **Removal Action Completion Report**
Virginia Carolina Chemical - Wadesboro Site
Wadesboro, Anson County, North Carolina

Dear Mr. Harris:

The United States Environmental Protection Agency, Region 4 ("EPA") has reviewed the above referenced document, submitted by BBL, Inc. on behalf of Exxon Mobil Corporation. This report summarizes the removal action field work completed for the Virginia-Carolina Chemical Company Wadesboro Site ("VCC-Wadesboro"). EPA has no additional comments at this time in regards to the Removal Action Completion Report. This document is acceptable to EPA as written.

If you have any questions, please feel free to contact me at 404-562-8922. Thank you for your cooperation in the clean-up of this site.

Sincerely,

Kevin S. Misenheimer
On-Scene Coordinator
Emergency Response and Removal Branch

cc: Mike Deaton, NCDENR

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

November 6, 2002

WMD-ERRB

Mr. Kyle Harris
Exxon Mobil Corporation
601 Jefferson Street
Room 1221
Houston, TX 77002

Subject: Additional Delineation Report and Removal Action Work Plan
Virginia Carolina Chemical - Wadesboro Site
Wadesboro, Anson County, North Carolina

Dear Mr. Harris:

The Unites States Environmental Protection Agency, Region 4 ("EPA") has reviewed the above referenced document submitted by BBL, Inc. on behalf of Exxon Mobil Corporation. This document is approved by EPA under the following conditions:

Section 5.6 During the analysis of the need for post-removal site control, Exxon Mobil should calculate the 95% upper confidence level for arsenic in soils to determine whether residential action levels have been attained. An alternative to this approach would be to remove all surface soils onsite to residential action levels for arsenic. (22 mg/Kg). If, through this evaluation, it is determined that post-removal site control is necessary, in the form of institutional controls, then Exxon Mobil will be expected to follow the procedures as specified in section 5.6 of the work plan.

Please contact me at 404-562-8922 if you have any questions.

Sincerely,

Kevin S. Misenheimer
On-Scene Coordinator
Emergency Response and Removal Branch

cc: Mike Deaton, NCDENR

BBL
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

RECEIVED
OCT 30 2002
SUPERFUND SECTION

Transmitted Via Federal Express

October 29, 2002

Kevin Misenheimer
USEPA Region 4
61 Forsyth Street, S.W.
Atlanta, Georgia 30303-8960

Re: Revised Additional Delineation Report and Removal Action Work Plan (October 2002),
Wadesboro VCC Site, Wadesboro, NC
BBL Project #: 54626

Dear Mr. Misenheimer:

On behalf of Exxon Mobil Corporation, attached for your approval are two copies of the document *Additional Delineation Report and Removal Action Work Plan, Former Virginia-Carolina Chemical Company Phosphate/Fertilizer Plan, Wadesboro, North Carolina (October 2002)*. This document presents the results of the additional soil delineation activities performed in August 2002 and contains the work plan that will be used to guide remediation activities at the site. It has been revised to address your October 24, 2002 comments.

Please contact Mr. Kyle Harris at 713/656-9059 if you have any questions or wish to discuss the contents of this document.

Sincerely,

BLASLAND, BOUCK & LEE, INC.

Geoffrey G. Germann, P.E.
Manager/Senior Engineer I

GGG:gg
Enclosures: 2

c: M. Deaton, NCDENR (2)
K. Harris, ExxonMobil (1)
J. Stiles, de maximis (1)
C. Chwalek, BBL (1)
D. Montanari, BBLES (1)
W. Anckner, P.E., BBLES (1)
File 54626 (1)

3700 Regency Parkway • Suite 140 • Cary, NC 27511-8574
Tel (919) 469-1952 • Fax (919) 469-5676 • www.bbl-inc.com • offices nationwide

Add SB-10 643 ppm to SB-11 & SB-12 ave

Table 5-1

Summary of Lead Concentrations at SB11 and SB12 after Removal Action
Wadesboro VCC Site - Additional Delineation Report and RAWP

Sample ID	Sample Depth (ft bgs)	Date Collected	Concentration (mg/kg)	Will Location Be Excavated?	Concentrations Remaining after Excavation
SB11	0.0-0.5	4/17/02	8520 J	Yes	
	0.5-1.0	8/12/02	77900	Yes	
	1.0-1.5	8/12/02	1570	Yes	
	1.5-2.0	8/12/02	3330	Yes	
	2.0-4.0	4/18/02	15.3 J	No	15.3
SB11-A1	0.0-2.0	8/12/02	2760	Yes	
SB11-A2	0.0-2.0	8/12/02	1910	Yes	
SB11-A3	0.0-2.0	8/12/02	6190	Yes	
SB11-A4	0.0-2.0	8/12/02	3400	Yes	
SB11-B1	0.0-2.0	8/20/02	834	Yes	
DUP-082002-1 (duplicate of SB11-B1)	0.0-2.0	8/20/02	1200	Yes	
SB11-B2	0.0-2.0	8/20/02	472 J	No	472
SB11-B3	0.0-2.0	8/20/02	339 J	No	339
SB11-B4	0.0-2.0	8/20/02	254 J	No	254
SB11-B5	0.0-2.0	8/20/02	1980 J	Yes	
SB11-B6	0.0-2.0	8/20/02	1480 J	Yes	
SB11-B7	0.0-2.0	8/20/02	94500 J	Yes	
SB11-B8	0.0-2.0	8/20/02	3070 J	Yes	
SB11-B9	0.0-2.0	8/20/02	4670 J	Yes	
DUP-082002-2 (duplicate of SB11-B9)	0.0-2.0	8/20/02	4950 J	Yes	
SB11-B10	0.0-2.0	8/20/02	308 J	No	308
SB11-B11	0.0-2.0	8/20/02	473 J	No	473
SB11-B12	0.0-2.0	8/20/02	2170 J	Yes	
SB11-C1	0.0-2.0	8/23/02	4830 J	Yes	
DUP-082302-1 (duplicate of SB11-C1)	0.0-2.0	8/23/02	4590 J	Yes	
SB11-C2	0.0-2.0	8/26/02	2100 J	Yes	
SB11-C3	0.0-2.0	8/26/02	2980 J	Yes	
SB11-C4	0.0-2.0	8/23/02	688 J	No	688
SB11-C5	0.0-2.0	8/23/02	13300 J	Yes	
SB11-C6	0.0-2.0	8/23/02	3840 J	Yes	
SB11-C7	0.0-2.0	8/23/02	3190 J	Yes	
SB11-C8	0.0-2.0	8/23/02	2590 J	Yes	
SB11-C9	0.0-2.0	8/26/02	1530 J	Yes	
SB11-C10	0.0-2.0	8/26/02	2830 J	Yes	
SB11-C11	0.0-2.0	8/26/02	387 J	No	387
SB11-D2	0.0-2.0	8/27/02	1360 J	Yes	
SB11-D9	0.0-2.0	8/28/02	2090 J	Yes	
SB11-E13	0.0-2.0	8/28/02	1090	Yes	
SB12	0.0-0.5	4/18/02	32100 J	Yes	
	0.5-1.0	8/12/02	171	No	171 — ok
	1.0-1.5	8/12/02	140	No	140 — don't use
	1.5-2.0	8/12/02	29.8	No	29.8 — don't use

Table 5-1

Summary of Lead Concentrations at SB11 and SB12 after Removal Action
Wadesboro VCC Site - Additional Delineation Report and RAWP

Sample ID	Sample Depth (ft bgs)	Date Collected	Concentration (mg/kg)	Will Location Be Excavated?	Concentrations Remaining after Excavation
	2.0-4.0	4/18/02	105 J	No	105
SB12-A1	0.0-2.0	8/12/02	29400	Yes	
SB12-A2	0.0-2.0	8/12/02	1410	Yes	

Table 5-1

Summary of Lead Concentrations at SB11 and SB12 after Removal Action
Wadesboro VCC Site - Additional Delineation Report and RAWP

Sample ID	Sample Depth (ft bgs)	Date Collected	Concentration (mg/kg)	Will Location Be Excavated?	Concentrations Remaining after Excavation
SB12-A3	0.0-2.0	8/12/02	284	No	284
SB12-A4	0.0-2.0	8/12/02	1090	Yes	
SB12-B1	0.0-0.5	8/21/02	242 J	No	242
SB12-B2	0.0-0.5	8/21/02	2440 J	Yes	
SB12-B3	0.0-0.5	8/21/02	945	Yes	
SB12-B4	0.0-0.5	8/21/02	671	No	671
SB12-B5	0.0-0.5	8/21/02	1330	Yes	
SB12-B6	0.0-0.5	8/21/02	2390	Yes	
SB12-B7	0.0-0.5	8/21/02	15000	Yes	
SB12-B8	0.0-0.5	8/21/02	1150	Yes	
SB12-B9	0.0-0.5	8/21/02	1770	Yes	
SB12-B10	0.0-0.5	8/26/02	260 J	No	260
SB12-C1	0.0-0.5	8/26/02	5010	Yes	
SB12-C2	0.0-0.5	8/26/02	164	No	164
SB12-C3	0.0-0.5	8/26/02	861	Yes	
SB12-C4	0.0-0.5	8/26/02	1730	Yes	
SB12-C5	0.0-0.5	8/27/02	48.8	No	48.8
SB12-C6	0.0-0.5	8/27/02	167	No	167
SB12-C7	0.0-0.5	8/27/02	1110	Yes	
SB12-C8	0.0-0.5	8/27/02	1270	Yes	
SB12-C9	0.0-0.5	8/26/02	3560 J	Yes	
SB12-C10	0.0-0.5	8/26/02	7100 J	Yes	
SB12-C11	0.0-0.5	8/26/02	1090 J	Yes	
SB12-C12	0.0-0.5	8/26/02	602 J	No	602
SB12-C13	0.0-0.5	8/26/02	1780 J	Yes	
SB12-D1	0.0-0.5	8/27/02	4290 J	Yes	
SB12-D3	0.0-0.5	8/27/02	351 J	No	351
SB12-D9	0.0-0.5	8/27/02	58 J	No	58
SB12-D11	0.0-0.5	8/27/02	37.5 J	No	37.5
SB12-D12	0.0-0.5	8/27/02	1870 J	Yes	
RD-11	0.0-1.0	8/16/02	40.6	No	40.6
S-1	0.0-0.5	8/19/02	254 J	No	ok 254
	0.5-1.0	8/19/02	24.4 J	No	can't use 24.4
	1.0-1.5	8/19/02	15.7 J	No	15.7
	1.5-2.0	8/19/02	36.9 J	No	36.9
Assumed maximum concentration of first on-bottom confirmation sample at SB11					750
Assumed maximum concentration of second on-bottom confirmation sample at SB11					750
Assumed maximum concentration of first on-bottom confirmation sample at SB12					750
Assumed maximum concentration of second on-bottom confirmation sample at SB12					750
				Average	**301**

where are these

SB-10

643

Notes:

1. If confirmation samples are assumed at 400 mg/kg each, the average = 258 mg/kg
2. If confirmation samples are assumed at 50 mg/kg each, the average = 214 mg/kg
3. If confirmation samples are not used, the average = 237 mg/kg

NA = not analyzed.

J = The associated numerical value is an estimated concentration only.

ave of 24 samples plus 4 conf. samples = 357

Table 5-1

Summary of Lead Concentrations at SB11 and SB12 after Removal Action
Wadesboro VCC Site - Additional Delineation Report and RAWP

Sample ID	Sample Depth (ft bgs)	Date Collected	Concentration (mg/kg)	Will Location Be Excavated?	Concentrations Remaining after Excavation

Shaded concentrations are greater than the following standards:

Standard	Pb
On-Site	750 mg/kg

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

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WMD-ERRB

Mr. Kyle Harris
Exxon Mobil Corporation
601 Jefferson Street
Room 1221
Houston, TX 77002

Subject: **Additional Delineation Report and Remedial Action Work Plan**
Virginia Carolina Chemical - Wadesboro Site
Wadesboro, Anson County, North Carolina

Dear Mr. Harris:

The Unites States Environmental Protection Agency, Region 4 ("USEPA") has reviewed the above referenced document submitted by BBL, Inc. on behalf of Exxon Mobil Corporation. This report presents the findings of the additional soil contamination delineation effort and outlines the removal action work proposed for the Virginia Carolina Chemical Wadesboro Site ("VCC-Wadesboro"). This letter provides comments regarding this document. These comments should be addressed in the final report.

Comments

1. Please change the title of this document from "Remedial Action Work Plan" to "Removal Action Work Plan".

2. In general, the additional delineation effort has provided a sound basis for identifying areas of the site which require excavation. However, several of these areas may need to be further delineated either visually or using additional sampling. These areas are specifically addressed in the following comments:

a. Sample S-3C did not completely define the westernmost boundary of the "contiguous area". Additional excavation may be necessary on this western side to completely remove areas exceeding action levels. In addition, samples SB15 and S5 still have exceedences of lead and arsenic. This area of excavation may require further refinement.

b. While sample SB12 did not exceed action levels at a depth below 0.5 feet, it may not be accurate to assume that the entire area of excavation triggered by SB12 will be limited to only 0.5 feet. There should be a contingency in this area to excavate at greater depth if

visual evidence of contamination is found or if confirmation samples exceed action levels.

c. Using samples SB14, SBXX and SB20 to define the width of the area requiring excavation along the access road may be appropriate, however, this area may require additional sampling around the perimeter of the excavation to ensure that action levels have been attained.

d. Why were the additional sampling grids off of location C3 (to the north) not sampled? Please address.

3. Section 5.3.2.3 states that "no additional delineation of the aerial extent of impacted soils is necessary". EPA believes that Exxon Mobil should be prepared to conduct further delineation based on field observations if necessary. Also, should additional areas requiring excavation be identified, excavation outside the currently defined areas may be necessary.

4. Section 5.3.2.4, Well abandonment.
The State of North Carolina has expressed concerns about ground water quality at the site, specifically the concentrations of manganese and cadmium in several monitoring wells. In order to address the State's concerns, abandonment of these wells should be re-considered and additional ground water monitoring conducted.

5. Section 5.3.3.2. Exxon Mobil should include a proposed soil volume to be handled during each mixing batch. Since the mixing will be performed by mechanical means (i.e. excavator bucket), there is a limit to how much volume can be mixed efficiently at one time. The characterization of the soil for disposal per 1,000 tons may be appropriate, however the frequency of sampling should be based on the soil type, area of the site from which the soil was excavated and the concentrations of lead and arsenic in the pre-treated material. (i.e. soil taken from the same area of the site, with similar concentrations of Pb and As could be profiled in larger quantities, while that taken from different areas of the site and mixed together might require more frequent profiling). The disposal facility should be consulted to determine the sampling frequency required.

6. Section 5.3.3.2, EPA is currently researching the treatment / disposal standards which apply to the waste material at the site. It is unclear as to whether the universal treatment standards (UTS) should apply. Additional comments will address this issue.

7. Section 5.3.5 discusses soil confirmation sampling. EPA recommends that a predetermined geometric shape (i.e. 25x25 or 50x50 grid) be established to conduct soil confirmation sampling. A 5 or 10 point soil composite can be collected from each grid. As currently written, two confirmation samples from an area the size of the "contiguous area" is not sufficient.

8. Section 5.3.5. The report should list the confirmation sample "turn around" time. The turn around time should be planned so that results can be reviewed and evaluated prior to the start of site restoration activities.

9. Section 5.3.6. Fill material used for site restoration should be analytically profiled for TAL Metals, volatile and semi-volatile organics, pesticides and PCBs.

10. A section entitled "Post Removal Site Control" should be included in the work plan. This section should include a discussion of post-removal site control activities. Since the planned removal activities will result in concentrations of lead and arsenic above residential levels, the site will require institutional controls to ensure that the property is used for industrial/commercial purposes. The State of North Carolina may have additional requirements for post removal site control.

Please contact me at 404-562-8922 if you have any questions.

Sincerely,

Kevin S. Misenheimer
On-Scene Coordinator
Emergency Response and Removal Branch

cc: Mike Deaton, NCDENR

Additional Delineation Report and Removal Action Work Plan, Former Virginia-Carolina Chemical Company ›hate/Fertilizer Plant, boro, North Carolina

Must include SB-10 in ave. w/ SB-11 & 12. Ave = 357
Indicates averaging may work.
Must ave. post remedial conf samples/ non-remediated samples in all areas of concern.

Must also include an ave for SB16 w/ SB14, VC-04-SS, SB13, SB-20

Areas fully delineated?

Do for As as well.

Exxon Mobil Corporation
Houston, Texas

October 2002

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Appendix A Soil Boring Logs and Photos

LIST OF ACRONYMS AND ABBREVIATIONS

AER	Alternatives Evaluation Report
AOC	Administrative Order on Consent
BBL	Blasland, Bouck & Lee, Inc.
bgs	below ground surface
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CLP	Contract Laboratory Program
cy	cubic yard
ExxonMobil	Exxon Mobil Corporation
FSP	Field Sampling Plan
mg/kg	milligrams per kilogram
NCDENR	North Carolina Department of the Environment and Natural Resources
OSC	On-Scene Coordinator
QAPP	Quality Assurance Project Plan
QC	quality control
RAWP	~~Remedial~~ Removal Action Work Plan
SARA	Superfund Amendments and Reauthorization Act
TCLP	Toxicity Characteristic Leaching Procedure
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
VCC	Virginia-Carolina Chemical Company

1. Introduction

1.1 Introduction

This report presents the results of additional site delineation activities and the ~~Remedial~~ Removal Action Work Plan (RAWP) for the former Virginia-Carolina Chemical Company (VCC) phosphate/fertilizer plant located in Wadesboro, North Carolina (the Site). Figure 1-1 identifies the site location on the U.S. Geological Survey (USGS) 7.5-minute quadrangle for Wadesboro, North Carolina.

The delineation activities and RAWP were completed in accordance with, and subject to, the terms, conditions, reservations of rights, denial of any admission of liability, and all other provisions of the Administrative Order on Consent (AOC) for Removal Action for the Site entered into voluntarily by Exxon Mobil Corporation (ExxonMobil), the successor in interest to the former VCC plant listed above and the United States Environmental Protection Agency (USEPA) pursuant to the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) and the Superfund Amendments and Reauthorization Act of 1986 (SARA). The Docket Number for the AOC is 01-06-C. The effective date of the AOC is December 29, 2000. The delineation activities were performed in accordance with the requirements of the AOC and as outlined in the USEPA-approved document *Soil Arsenic and Lead Additional Delineation Work Plan for the Former Virginia-Carolina Chemical Company Phosphate/Fertilizer Plant, Wadesboro, North Carolina* (Work Plan) (Blasland, Bouck, and Lee [BBL], 2002a).

1.2 Project Objectives

The objective of the additional delineation activities was to more completely and accurately delineate the magnitude and horizontal and vertical extent of soil at the Site previously identified as containing arsenic and/or lead at concentrations above action levels. These data will be used to select the ~~remedial action~~removal action that will be performed at the site in accordance with the RAWP. All field activities were conducted as outlined in the Work Plan (BBL, 2002a). This report summarizes the activities that were undertaken to complete the project objectives and presents the data collected in support of these objectives.

1.3 Report Organization

The introduction provided in this section is followed by Section 2 with a description of the delineation activities that were performed. Section 3 summarizes the data generated from the delineation activities and Section 4 identifies the ~~remedial action~~removal action that will be performed at the site. Section 5 presents the RAWP and Section 6 lists the references cited in this report.

This report has one appendix. Appendix A contains the logs and photos for soil borings collected from the Site during the additional delineation activities.

2. Delineation Data Collection Activities

2.1 Introduction

Soil samples were collected to provide data for the delineation activities at the former VCC Phosphate/Fertilizer Plant, Wadesboro, North Carolina. Representatives of BBL implemented and oversaw all field activities in support of delineation activities, which took place from August 12 to August 28, 2002. All sampling and analysis activities were performed in accordance with the USEPA-approved Work Plan (BBL, 2002a).

2.2 Delineation Strategy

The Site is comprised of two principal processing areas located on the central and southern portions of the Site. The Central Processing Area was formerly comprised of a brick building, two tanks, a fire reservoir, and a concrete pad that was once apparently the foundation slab for a large packaging and distribution warehouse. The Southern Processing Area was formerly comprised of two utility buildings and the former acid chambers. A general site map is presented on Figure 2-1.

Initial characterization (Tetra Tech EMI, 2000; BBL, 2001b) of the magnitude and horizontal and vertical extent of soil containing arsenic and/or lead indicated that soil in the southern portion of the site in the vicinity of the former acid chambers generally contained the highest arsenic and lead concentrations.

Due to the past industrial use of the Site, the current zoning of the Site is for heavy industrial use, and the restricted access to the Site resulting from the installation of a fence during the Phase I Removal Action, Site-Specific Action Levels were developed for the on-site soils that reflect the industrial nature of the Site. On-Site soils are those soils located on the former VCC property currently owned by Mr. Weston. However, the close proximity of residences to the Site and the current unrestricted access to off-site soils that have been impacted by Site activities warranted the development of Site-Specific Action Levels for off-site soils that reflect the potential for exposure to local residents. Off-site soils refer to soil not located on Mr. Weston's property.

As described in the document *Alternatives Evaluation Report, Wadesboro VCC Site, Wadesboro North Carolina* (BBL, 2002b), the USEPA-approved action levels for the Site are as follows:

	Action Levels (mg/kg)	
Analyte	**On-Site**	**Off-Site**
Arsenic	27	22
Lead	750	400

Most of the soils at the Wadesboro VCC site that contain arsenic and/or lead at concentrations exceeding the site-specific action levels are concentrated in and around an area of discolored soil located in the southern portion of the site (Figure 2-1). This area is referred to as the "Contiguous Area". In addition, arsenic- and/or lead-containing soils are also present in the southern portion of the site at locations distinct from the Contiguous Area; these areas are referred to as "isolated areas". As described in the approved Work Plan (BBL, 2002a), the strategies employed for the delineation of each of these types of areas is described below.

2.2.1 Horizontal Delineation

Data from the site investigation indicated that the presence of arsenic- and/or lead-impacted soil was limited to the southern half of the site, at and to the south of borings SB9, SB11, and SB12 (Figure 2-1). Additional delineation was needed around these borings because data from individual soil borings were used to represent relatively large surface areas. Additional horizontal delineation was also needed around the borings along the southern perimeter of the property to fully define the extent of elevated arsenic and lead concentrations. Physical boundaries to soil transport exist in the form of the bed of the former railroad spur to the southwest and a hill to the southeast; however, additional delineation between the perimeter borings and these physical features was needed to fully characterize the limits of the arsenic- and lead-containing soil. Finally, additional delineation was needed around off-site boring SB20 and the access road to more closely define the limits of arsenic- and lead-containing soil around boring SB20 and in the access road, as well as in the dry drainage ditch that drains the southern portion of the Site (borings SD3 and SD4).

2.2.2 Vertical Delineation

During the site characterization (BBL, 2001a) soil samples were collected from each boring from the depths of 0 to 0.5 feet below ground surface (bgs), 2 to 4 feet bgs, 4 to 6 feet bgs, and in some borings 6 to 8 feet bgs and 8 to 10 feet bgs (Figure 2-1). The soil samples from the 0 to 0.5 foot bgs interval were collected as five-point composite samples of soil from the central soil boring and from four equally-spaced surficial soil samples located approximately 20 feet from the central boring. The 0 to 0.5 and 2 to 4 feet bgs samples from every boring were analyzed. In borings where the 2 to 4 feet bgs samples contained potentially elevated arsenic and/or lead concentrations, samples from deeper intervals were also analyzed until arsenic and/or lead concentrations were no longer elevated. In this manner it was determined that soil containing arsenic and/or lead at concentrations greater than action levels was limited primarily to the upper two feet of soil, with elevated concentrations extending to no more than 4 feet bgs in only a few borings.

While the lower depth boundary of elevated arsenic and/or lead concentrations was generally well defined across the Site, additional vertical delineation was needed to further define the depth of impact from the 0.5 to 2 feet bgs depth interval. No data were collected from this depth interval during the site characterization; therefore, soil volume estimates made during the evaluation of alternatives for the site (BBL, 2002b) made the assumption that the soil data from the 0 to 0.5 foot bgs soil interval was representative of the 0 to 2 feet bgs soil interval, which may have resulted in an overestimate of the volume of impacted soil that needs to be remediated. Therefore, additional delineation of the 0.5 to 2 foot bgs interval was conducted in numerous borings to determine the actual depth of impacted soil. Additional vertical delineation was performed in 6- to 12-inch increments.

2.3 Soil Sample Collection

2.3.1 Contiguous Area

The existing sampling data confirmed that the area of discolored soil in the southern portion of the site contains soil with arsenic and lead concentrations greater than the action levels. The objectives of the additional delineation activities were to delineate the perimeter of this area, as well as to more finely delineate the depth of arsenic- and/or lead-impacted soil within this area.

Several shallow trenches (approximately 1 to 4 feet deep) were excavated with a backhoe within the area of discolored soil to visually identify the limits of contamination via the observed presence of the pyrite slag and/or magenta-stained soil typically associated with the presence of elevated arsenic and/or lead concentrations at

these types of sites. Upon completion of the visual delineation, the outer limits were marked (and later surveyed) and the trenches were backfilled with the excavated material.

Soil samples were then collected from soil borings advanced at nine locations around the perimeter of the Contiguous Area (as identified by the trenching) to define the horizontal boundaries of the area. At several of these locations additional borings were incrementally added further away from the Contiguous Area until soil samples with arsenic and/or lead concentrations below action levels were collected. The locations of the trenches and soil borings are shown on Figure 2-2. The soil samples collected and analyzed from this area are presented in Table 2-1.

2.3.2 Isolated Areas

Samples from several soil borings located away from the area of discolored soil contained arsenic and/or lead concentrations greater than action levels. Arsenic and/or lead concentrations were delineated around the following isolated borings:

- VC-07-SS (Pb only)
- SB09 (Pb only)
- SB11 (As & Pb)
- SB12 (Pb only)
- SB13 (As only)
- SB14 (As & Pb)
- SB16 (As only)
- SB17 (As only)
- SB20 (As & Pb)
- SD03 (As & Pb)
- SD04 (As & Pb)

Delineation of arsenic and/or lead concentrations around these borings was performed only for the element that was detected in the samples from existing borings at a concentration greater than the site-specific action level, as listed above. Delineation was initiated by advancing four soil borings around the original boring. The four borings surrounded the existing boring in the centers of four 10 foot by 10 foot grids as shown on Figure 2-3 (locations A1, A2, A3, and A4). These four borings characterize an area of approximately 400 square feet (in a 20 foot by 20 foot grid) around the original boring. In some cases, grid spacing was expanded to 20-foot spacing to accommodate the expansion of some isolated areas.

Additional sampling was performed beyond the initial four borings as necessary to complete the delineation to concentrations that are below the action levels. The location and intervals for additional delineation was determined in the field based on an evaluation of the generated data and field conditions and as described in the Work Plan (BBL, 2002a).

Delineation borings were also collected in the southern drainage ditch. These included delineation borings at and around borings SD03 and SD04, as well as borings from three additional locations (SD05, SD06, and SD08). Samples were also collected from borings located along the access roadway leading into the site (RD-1 through RD-10). Finally, trenching was performed around boring SB20 to delineate the extent of the observed presence of magenta-stained soil in this area.

The locations of borings and trenches installed in the isolated areas, the drainage ditch, and along the access roadway are shown on Figure 2-2. Soil samples collected and analyzed are presented in Table 2-1.

2.4 Sample Analysis

Additional delineation was only performed for the metals that were present in the sample at concentrations above action levels (i.e., arsenic and/or lead). For example, at boring SB09, only lead was present in the soil samples at concentrations exceeding action levels; therefore, additional delineation in polygon SB9 was only performed for lead. Conversely, at boring SB16, only arsenic was present in the soil samples at concentrations

exceeding action levels; therefore, additional delineation around this boring was only performed for arsenic. Finally, both arsenic and lead was measured around borings with samples that contained both of these metals at concentrations above action levels. Samples collected in the access road and from the perimeter of the Contiguous Area were analyzed for both arsenic and lead.

At several of the soil samples collected from soil borings around the Contiguous Area either arsenic or lead concentrations was below the action level while the other remained above the action level. Therefore, the metal that was below the action level was considered to be delineated, and additional delineation outside of that boring was performed only for the metal that remained above the action level.

All samples were sent to TestAmerica Inc. of Nashville, Tennessee for expedited analyses. Sample analyses were performed in accordance with the USEPA-approved Work Plan (BBL, 2002a). Table 2-1 presents a summary of the soil samples collected and analyzed from the Wadesboro VCC Site during the delineation activities.

2.5 Data Validation

All laboratory analytical data generated from the sample analysis were validated in accordance with the procedures outlined in the Quality Assurance Project Plan (QAPP) contained in the USEPA-approved Work Plan (BBL, 2002a). 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 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.

The validation of the data found that the laboratory analyzed the samples using USEPA SW-846 Method 6010B (Inductively Coupled Plasma-Emission Spectrometry) instead of the Contract Laboratory Program (CLP) method specified in the QAPP (BBL, 2002a). However, because the method used was fully appropriate for the analysis of these samples for these analytes and the data were reported in accordance with CLP requirements, the use of SW-846 Method 6010B does not adversely affect the usability of the data in any way.

2.6 Surveying

Surveying was conducted by J.R. Harrington & Associates of Wadesboro, North Carolina, using standard instrument survey techniques. The location and elevation of each soil boring was measured. In addition, the location of the major physical features was also surveyed.

3. Summary of Results

3.1 Introduction

Soil samples were collected and analyzed as part of the delineation activities at the former VCC phosphate/fertilizer plant in Wadesboro, North Carolina. Tables 3-1 through 3-9 present the concentrations of arsenic and lead detected in the soil samples. Table 3-10 presents the concentrations of analytes detected in the associated field QC samples.

3.2 Contiguous Area

Trenches were advanced in the area of discolored soil to define the initial boundaries of the Contiguous Area. Soil borings were then advanced at nine "perimeter delineation stations" located around the Contiguous Area to facilitate the collection of soil samples.

Trenching was initiated in the center of the area of discolored soil near existing boring SB19, which consisted of a visually distinctive layer of magenta-colored soil. The trenches were extended outward from the center of the area of discolored soil until magenta-colored soil was no longer observed. The locations of the trenches are shown on Figure 3-1.

The depth of the trenches was a function of the depth of the magenta-colored soil observed at a particular location. In the center of the area of discolored soil, parent material (the orange brown silty clay present in unimpacted areas of the site) was present at 3 to 4 feet bgs. The depth to the parent soil typically decreased with increasing distance from the center of the previous boundaries of the area of discolored soil until magenta-colored soil was not observed in the trench. The trenches indicate that the maximum depth of impacted soil is approximately 3 to 4 feet; therefore additional vertical delineation data was not performed.

Once the general boundaries of the Contiguous Area had generally been defined by the trenching, soil borings were advanced at nine perimeter delineations stations spaced approximately 50 feet apart. Where necessary, additional soil borings were advanced at several delineation stations (further away from the Contiguous Area) if samples from the initial boring contained arsenic and/or lead at concentrations greater than action levels. The perimeter delineation stations and their associated soil borings are as follows:

Delineation Station	Soil Boring
S-1	S-1
S-2	S-2, S-2A
S-3	S-3, S-3A, S-3B, S-3C
S-4	S-4
S-5	S-5
S-6	S-6A, S-6B
S-7	S-7
S-8	S-8, S-8A, S-8B
S-9	S-9

The soil boring locations are shown on Figure 3-1. The analytical results from soil samples collected from these soil borings are presented in Table 3-1.

Arsenic and lead concentrations were below the action levels in borings S-1 and S-4. No additional delineation was needed in these areas. At perimeter delineation stations S-2, S-6, and S-8, multiple additional soil borings were necessary to collect soil samples that contained arsenic and lead concentrations below the action levels.

Arsenic and lead concentrations in samples from boring S-5, located at the southernmost end of the Contiguous Area, exceeded action levels. No additional delineation was performed in this area because the boring was located at the head of the drainage ditch, which also contains soil with elevated arsenic and lead concentrations. Therefore, the area of impacted soil in the Contiguous Area is considered to be connected to the ditch. However, if visual evidence of impacted soil is observed to the west and/or southeast of this boring during implementation of the removal action, then the removal action activities described in Sections 4 and 5 will be extended to address those soils.

Arsenic concentrations slightly exceeded the action level in the surficial sample from the boring S-7, which was located in close proximity to borings SB17-B1, -A3, and -A4 from individual area SB17. The samples from these borings did not contain arsenic at concentrations greater than the action level; therefore, they will be used to bound the area of impacted soil at Contiguous Area station S-7.

Lead concentrations exceeded the action level at station S-9, which was located immediately adjacent to a remnant wall from the acid chambers. This physical barrier prevented the installation of additional borings east of boring S-9. No further delineation is needed in this area.

Finally, arsenic and/or lead concentrations exceeded action levels in soil samples collected from four soil borings advanced at perimeter delineation station S-3. If visual evidence of impacted soil is observed to the west of these borings during implementation of the removal action, then the removal action activities described in Sections 4 and 5 will be extended to address these soils.

3.3 Drainage Ditch

Additional delineation of the drainage ditch was performed to determine how far downstream, e.g., away from the site, arsenic- and/or lead-impacted soil was present. This was done by advancing soil borings downstream of the furthest existing downstream sample (SD4). The sediment sample locations are shown on Figure 3-2. The analytical results from the sediment samples collected from these locations are presented in Table 3-2.

Two soil borings (SD5 and SD6) were advanced downstream of SD4; arsenic and lead were not present at concentrations greater than action levels in samples from the furthest downstream boring (SD6). Therefore, the area of impacted soil in the ditch ends between borings SD5 and SD6.

Soil borings were also advanced on the top of the ditch banks on each side of the ditch at existing borings SD3 and SD4 to define the width of impacted soil along the ditch. None of the top-of-bank soil samples contained arsenic or lead at concentrations greater than action levels. This indicates that impacted soil is contained within the ditch itself. Therefore, the width of the impacted area is the width of the ditch (a maximum of approximately 10 feet).

Vertical delineation data at borings SD3 and SD4 indicate that the depth of impacted soil is approximately 2 to 4 feet. Therefore, the area of impacted soil in the ditch extends from the origination of the ditch at the Contiguous Area to halfway between borings SD5 and SD6. The depth of the impacted soil in the ditch is 2 to 4 feet.

3.4 Access Road

Additional delineation of the access road was performed to determine the extent of arsenic- and lead-impacted soil in the roadway. This was done by advancing soil borings down the center of the access road. Several

isolated areas (SB14, SB16, SB20, and SBXX) were incorporated into the roadway delineation due to their close proximity to the road. Data from these borings were used to delineate the eastern and western boundaries of impacted soil. The soil boring locations are shown on Figure 3-3. The analytical results from soil samples collected from these soil borings are presented in Table 3-3.

Ten soil borings (RD-1 through RD-10) were advanced down the center of the access road. A continuous layer of magenta-stained soil was observed in the roadway from approximately 2 to 3 feet bgs in borings RD1 through RD7. Samples from the magenta layer in these borings contained arsenic and/or lead at concentrations greater than action levels; however, samples from the parent soil located below the magenta soil layer did not contain arsenic or lead at concentrations greater than or equal to action levels. Arsenic and lead were not present at concentrations greater than action levels in samples from the northernmost borings (RD-9 and RD-10). Therefore, the area of impacted soil at the northern end of the access road ends at boring RD-9. No further delineation is needed in the northern section of the access road.

Additional soil borings were advanced around borings SB14, SB16, SB20, and SBXX that overlap with the access road delineation soil borings. These borings will be used to define the width of impacted soil in the access road. Soil boring RD-11 was advanced at the eastern edge of the access road and did not contain arsenic or lead concentrations greater than action levels. This location will be used as the northeast corner of the access road delineation. Soil borings SBXX-A2 and SBXX-A3 advanced at boring SBXX (the original SB16 location) did not contain arsenic or lead concentrations greater than action levels. These locations will be used to delineate the eastern edge of impacted soil in the access road. If the visual evidence of impacted soil is observed to the west of these borings during implementation of the removal action, the removal action activities described in Sections 4 and 5 will be extended to address these soils.

Arsenic and/or lead concentrations were greater than the action levels in the soil sample collected from the southern most soil boring advanced at boring SB20 (SB20-A3), which was located immediately north of the end of the paved portion of the access road that approaches the site from Standback Ferry Road. However, installation of trenches around SB20 identified the limits of magenta-stained soil around this boring and at the southern area of the gravel road (Figure 3-3).

Finally, soil borings SB16-A4, SB20-A1, and SB20-A4 advanced around borings SB16 and SB20 did not contain arsenic and lead at concentrations greater than action levels. These locations will be used to delineate the western edge of impacted soil in the access road. Arsenic and/or lead concentrations exceeded action levels in the soil samples collected from four soil borings (SB14-A4, -B1, -B2, and -B3) advanced west of boring SB14.

Chemical and visual vertical delineation data indicate that the depth of impacted soil is approximately 2 to 4 feet in the access road. Therefore, the area of impacted soil (Figure 3-3) in the access road extends from the end of the paved portion of the access road north to soil boring RD-9 (approximately 140 feet). The width of the impacted area is the width of the access road (approximately 15 feet). The depth of the impacted soil is between 2 and 4 feet.

3.5 SB9

Additional delineation around isolated area SB9 was performed to determine the extent of lead-impacted soil in that area. This was done by advancing four soil borings (SB9-A1 through SB9-A4) around the existing boring in the centers of four 10 foot by 10 foot grids as described in Section 2.3.2. The soil sample locations are shown on Figure 3-4. The analytical results from the soil samples collected from these locations are presented in Table 3-4.

Delineation soil samples collected around SB9 did not contain arsenic or lead at concentrations greater than action levels. Vertical delineation data at boring SB9 indicate that the depth of impacted soil is 0.5 feet. Therefore, the area of impacted soil at SB9 is limited to the 10 foot by 10 foot area around SB9 to a depth of 0.5 feet (Figure 3-4).

3.6 SB11

Additional delineation around isolated area SB11 was performed to determine the extent of lead-impacted soil at boring SB11. This was done by advancing four soil borings (SB11-A1 through SB11-A4) around the existing boring in the centers of four 10 foot by 10 foot grids as described in Section 2.3.2. Lead concentrations at these borings dictated the collection of an additional 26 soil borings (SB11-B1 through -B12, SB11-C1 through SB11-C11, SB11-D2, SB11-D9, and SB11-E13) in the centers of an additional twenty-four 10 foot by 10 foot grids and three 20 foot by 20 foot grids. The soil sample locations are shown on Figure 3-5. The analytical results from the soil samples collected from these locations are presented in Table 3-5.

Lead concentrations exceeded the action level at boring SB11-E13, which was located immediately adjacent to a tall (approximately 20 feet high) retaining wall. This physical barrier prevented the installation of additional borings southeast of SB11-E13. Lead concentrations exceeded the action level at borings SB11-C5, -C6 and -C7, which were located immediately adjacent to a steep slope. This physical barrier prevented the installation of additional borings east and southeast; therefore, no further delineation is needed to the east or southeast.

Soil samples collected from soil borings SB11-B2 through -B4 and -C4 did not contain lead concentrations greater than the action level; therefore, they will be used to bound the area of impacted soil to the north. The absence of elevated lead concentrations in samples from these four borings located along the northern perimeter of SB11 is sufficient evidence that the northern boundary of SB11 is delineated. Soil samples collected from soil borings SB11-B10, -B11, and -C11 did not contain lead concentrations greater than the action level; therefore, they will be used to bound the area of impacted soil to the south.

Finally, the soil sample collected from soil boring SB11-D2 contained lead at a concentration greater than the action level. This location will be combined with the soil boring locations at isolated area SB12 to define the extent of impacted soil to the west.

Vertical delineation data at boring SB11 indicate that the depth of impacted soil is 2 feet. Therefore, the area of impacted soil at SB11 is defined as the area described above and shown on Figure 3-5 to a depth of 2 feet.

3.7 SB12

Additional delineation around isolated area SB12 was performed to determine the extent of lead-impacted soil around boring SB12. This was done by advancing four soil borings (SB12-A1 through SB12-A4) around the existing boring in the centers of four 10 foot by 10 foot grids as described in Section 2.3.2. Lead concentrations at these borings dictated the collection of an additional 28 soil borings (SB12-B1 through SB12-B10, SB12-C1 through SB12-C13, SB12-D1, SB12-D3, SB12-D9, SB12-D11, and SB12-D12) in the centers of an additional twenty-three 10 foot by 10 foot grids and five 20 foot by 20 foot grids. The soil sample locations are shown on Figure 3-5. The analytical results from the soil samples collected from these locations are presented in Table 3-6.

The soil sample collected from soil boring SB12-D9 did not contain lead at a concentration greater than the action level. Soil samples collected from soil borings SB12-C5, -C6, and -D3 did not contain lead at concentrations greater than the action level. These locations will be used to bound the area of impacted soil to the north and west, respectively.

The soil sample collected from soil boring SB12-D1 contained lead at concentrations greater than the action level. The southern boundary of impacted soil is the line between Contiguous Area sample S1 and road sample RD11, neither of which contained arsenic and/or lead at concentrations greater than action levels.

Finally, the soil sample collected from soil boring SB12-D12 contained lead at a concentration greater than the action level. The close proximity of this boring with SB11-D2 indicates that impacted soil around isolated areas SB11 and SB12 merge.

Vertical delineation data indicate that at boring SB12 the depth of impacted soil is 0.5 feet. Therefore, the area of impacted soil at SB12~~1~~ is defined as the area described above to a depth of 0.5 feet.

3.8 SB13

Additional delineation around isolated area SB13 was performed to determine the extent of arsenic-impacted soil at boring SB13. This was done by advancing four soil borings (SB13-A1 through SB13-A4) around the existing boring in the centers of four 10 foot by 10 foot grids as described in Section 2.3.2. The soil sample locations are shown on Figure 3-1. The analytical results from the soil samples collected from these locations are presented in Table 3-7.

Arsenic concentrations were greater than the action level only at boring SB13-A2, which was located immediately adjacent to the concrete pad associated with the former acid chambers. This concrete pad prevented the installation of additional borings around SB13-A2; therefore, no further delineation could be performed in this area.

Vertical delineation data indicate that the depth of impacted soil is approximately 2 feet. Therefore, the area of impacted soil at SB13 is limited to the immediate vicinity of SB13 and SB13-A2 to a depth of 2 feet.

3.9 SB17

Additional delineation around isolated area SB17 was performed to determine the extent of arsenic-impacted soil at boring SB17. This was done by advancing four soil borings (SB17-A1 through SB17-A4) around the existing boring in the centers of four 10 foot by 10 foot grids as described in Section 2.3.2. The soil sample locations are shown on Figure 3-1. The analytical results from the soil samples collected from these locations are presented in Table 3-8.

Arsenic concentrations were greater than the action level at SB17-A1, which led to the collection of three additional borings (SB17-B1, -B2, and -B3). The samples from these borings did not contain arsenic at concentrations greater than the action level; therefore, they will be used to bound the area of impacted soil to the north. The area of impacted soil is bounded to the east and south by borings SB17-A2 and -A3, respectively.

Vertical delineation data indicate that the depth of impacted soil is approximately 1 foot. Therefore, the area of impacted soil at SB17 is limited to the immediate vicinity of SB17 and SB17-A1 to a depth of 1 foot.

3.10 VC-07-SS

Additional delineation around isolated area VC-07-SS was performed to determine the extent of lead-impacted soil at boring VC-07-SS. This was done by advancing three soil borings (VC-07-SS-A2 through VC-07-SS-A4) around the existing boring in the centers of four 10 foot by 10 foot grids as described in Section 2.3.2. A sample could not be collected from location VC-07-SS-A1 due to the presence of the shallow concrete pad associated with the former acid chambers. The soil sample locations are shown on Figure 3-1. The analytical results from the soil samples collected from these locations are presented in Table 3-9.

Lead concentrations were greater than the action level at boring VC-07-SS-A4, which led to the collection of three additional borings (VC-07-SS-B1, -B2, and -B3). The samples from these borings did not contain lead at concentrations greater than the action level; therefore, they will be used to bound the area of impacted soil to the south and west.

Vertical delineation data indicate that the depth of impacted soil is approximately 2 feet. Therefore, the area of impacted soil at VC-07-SS is limited to the immediate vicinity of VC-07-SS and VC-07-SS-A4 to a depth of 2 feet.

4. ~~Remedial Action~~Removal Action Alternative Selection

4.1 Removal~~edial~~ Action Alternative Selection

ExxonMobil intends to remediate arsenic- and lead-impacted soil at the Wadesboro VCC site in accordance with the requirements of the AOC for the site. ExxonMobil will implement the alternative identified in this section contingent upon agreement by USEPA and the North Carolina Department of the Environment and Natural Resources (NCDENR) that once the ~~remedial action~~removal action is successfully completed by ExxonMobil, no future additional investigation, remediation, maintenance, or monitoring activities will be performed at the Wadesboro VCC site, with the exception of limited groundwater monitoring at the site as required by NCDENR.~~.~~

In the document *Alternatives Evaluation Report, Wadesboro VCC Site, Wadesboro, NC* (AER) (BBL, 2002b), six alternatives for the remediation of on- and off-site arsenic- and lead-impacted soil were developed and comparatively evaluated. Alternative 3, Excavation of Off-Site Soil with Consolidation Under On-site Soil Cover and Institutional Controls, was selected for the site. This alternative was selected because it was protective of human health and the environment, minimized the potential for migration of impacted soils, and was the least-cost alternative of the alternatives that met the evaluation criteria.

The evaluation of the alternatives in the AER (BBL, 2002b) discussed above was performed based on the assumption that approximately 8,600 in-place cubic yards (cy) of soil at the site exceeded the action levels. This made alternatives involving the excavation and off-site disposal of soil at RCRA Subtitle C and D landfills cost ineffective. However, based on the data collected during the additional delineation activities that are presented in Section 3 of this report, the estimated volume of soil present at the site that exceeds action levels is now approximately 2,600 cy, which is approximately 30% of the original volume estimate (see Section 4.2 for a discussion of the of the volume estimates). This reduction in volume makes alternatives that include excavation and off-site disposal much more cost effective.

In addition, ExxonMobil recently received bids for remediation of the site from prospective contractors. In their bids the contractors were required to submit the results of treatability studies performed on site soils to test the ability of stabilization reagents to reduce the leachability of arsenic and lead in the soil to concentrations that would enable the disposal of the treated soil at a RCRA Subtitle D (non-hazardous waste) landfill. Treatability study results indicate that the soil can be successfully treated using phosphate-based reagents to achieve the necessary levels of arsenic and lead stabilization. Therefore, the need for disposal of some of the soils at a RCRA Subtitle C landfill, which was a significant cost element in the off-site disposal alternatives, can be eliminated with the appropriate on-site treatment of soil.

Based on the reduction in estimated soil volumes and the ability to easily and cost-effectively treat soil to reduce the leachability of arsenic and lead to acceptable levels (and therefore facilitate the disposal of all impacted soils at a Subtitle D landfill), excavation, on-site treatment of some or all excavated soil, and off-site disposal of the soil at a RCRA Subtitle D landfill is now considered to be the most appropriate and cost-effective option for the ~~remedial action~~removal action. Therefore, the ~~remedial action~~removal action for the Wadesboro VCC Site will consist of the excavation of on- and off-site soils that exceed their respective action levels, stabilization (as needed to facilitate disposal of the soil at a Subtitle D landfill) of impacted soil using a phosphate-based stabilization reagent, off-site disposal of the soil at the BFI Anson County Landfill, and backfill of the excavated areas with clean soil fill and topsoil. The backfilled areas will be graded to ensure proper drainage and seeded with grass to control erosion. Table 4-1 presents a summary of the surface areas and volumes of impacted soil

that will be excavated, the estimated depth of each excavation, and the total volume to be excavated. The boundaries of the areas to be excavated are shown on a single map on Figure 4-1. The boundaries of the areas to be excavated shown on Figure 4-1 are the same as the shaded "Area of Impacted Soil" shown on Figures 3-1 through 3-5.

~~Finally, all three existing groundwater monitoring wells (wells WB-MW1, -MW2, and -MW3) present at the site will be abandoned.~~ With the approval of this ~~remedial action~~removal action strategy by USEPA and NCDENR and its successful implementation by ExxonMobil, no future additional investigation, remediation, maintenance, or monitoring activities will be performed at the Wadesboro VCC site with the exception of limited groundwater monitoring at the site as required by NCDENR~~.~~

4.2 Description of Areas to be Excavated

This section describes the boundaries and depths of the areas to be excavated.

4.2.1 Contiguous Area

Data generated during the trenching and soil sample collection activities described in Section 3.2 were used to define the area of impacted soil in the Contiguous Area. The excavation area, shown on Figure 3-1, encompasses all of the soil borings that exceeded the action levels. Excavation at the southern end of the Contiguous Area will connect with the excavation area of the southern drainage ditch. Excavation to the east will connect with the excavation area at SB17. The wall that remains at the southern corner of the former acid chambers is used as an excavation boundary east and south of perimeter delineation station S9. The area of excavation has been extended west of boring S3C to bound the excavation on the west side of the contiguous area. Overall, an area of approximately 14,000 square feet at the Contiguous Area will be excavated to a maximum estimated depth of 3 feet for a total of approximately 1,550 cy removed (Table 4-1). The surface area of the excavation may increase if impacted soil is observed at the planned boundaries of the excavation. The depth of the excavation will initially be guided by the depth of magenta-stained soil.

4.2.2 Drainage Ditch

Soil samples were collected in the drainage ditch south of the site and were used to define the area of impacted soil. The excavation area, shown on Figure 3-2, encompasses all of the soil borings that exceeded the action levels. The area of excavation in the drainage ditch is defined as a 250 foot length of the drainage ditch measured along the center with a maximum width of 10 feet and to an estimated maximum depth of 4 feet. A total of approximately 370 cy of soil will be excavated within the drainage ditch to the limits shown on Figure 3-2.

4.2.3 Access Road

Soil samples were collected in the access road leading into the site as well as at locations SB14, SB16, SB20, and SBXX. The area of excavation of the access road was determined to encompass a 140 ft length of the access road measured along the center of the road with a general width of 15 feet. Excavation will be guided by the presence or absence of magenta-stained soil. The northern section of road that encompasses soil borings RD-11, SB14, SB16, and their associated grid samples that exceed the action levels will be excavated to a depth of approximately 2 feet for a total of approximately 80 cy. The excavation area has been extended five feet west of boring SB14-B3 to bound lead-impacted soil in that area. The excavation area has been extended west of boring SB14-B3 to bound lead impacted soil in that area. The central section of road that encompasses soil borings RD-1 through RD-6, SBXX, and their associated grid samples that exceed the action levels will be excavated to a depth of approximately 3 feet for a total of approximately 140 cy. The southern section of the road that encompasses soil borings RD-7, SB20, and their associated grid samples that exceed the action levels will be excavated to a depth of approximately 4 feet for a total of approximately 60 cy. A total of approximately 280 cy of soil will be excavated from within the access road, around SB14, SB16, SB20, and SBXX to the limits

shown on Figure 3-3. The surface area of the excavation may increase if impacted soil is observed at the planned boundaries of the excavation.

4.2.4 SB9

Soil samples collected around SB9 in the 10 foot by 10 foot grids did not contain lead concentrations above the action level. The excavation area, shown on Figure 3-4, includes an area of approximately 100 square feet around soil boring SB9. Soil will be excavated to a depth of 0.5 feet for a total of approximately 2 cy removed.

4.2.5 SB11

Soil samples collected around SB11 resulted in many locations with concentrations of lead greater than the action level. Sampling at SB11 indicated that lead concentrations were greater than the action level to a depth of 2 feet. Excavation will consist of removing twenty-seven 10 foot by 10 foot grids and three 20 foot by 20 foot grids shown on Figure 3-5 to a depth of 2 feet. In addition, the area south of the line from the top of grid box SB11-C5 to the base of the hill and east of grid boxes SB11-C5, -C6, -C7, and -D9 is also considered to be impacted and will also be excavated. A total of approximately 300 cy of soil will be excavated at SB11.

4.2.6 SB12

Soil samples collected around SB12 resulted in many locations with lead concentrations greater than the action level. Sampling at SB12 indicated that lead concentrations were only greater than the action level in the 0 – 0.5 ft interval. Excavation will consist of removing twenty-seven 10 foot by 10 foot grids and five 20 foot by 20 foot grids shown on Figure 3-5 to a depth of 0.5 feet. Excavation to depths beyond 0.5 feet will be performed if on-bottom confirmation sampling (see Section 5.3.5) results indicate that soil lead concentrations in the remaining soil are greater than action levels. In addition, the area between the line from the top corner of grid box SB11-C3 to the top corner of grid box SB12-D12 and the line from the southern corner of grid box SB11-D2 to the southern corner of grid box SB12-C13 is considered to be impacted and will be excavated. Finally, the soil north of the line between road boring RD11 and Contiguous Area boring S1 and east of the line from RD11 and the northwestern corner of grid box SB12-D1 is considered impacted and will also be excavated. A total of approximately 60 cy of soil will be excavated at SB12.

4.2.7 SB13

Soil samples collected around SB13 in the 10 foot by 10 foot grids resulted in one location (SB13-A2) with concentrations of arsenic greater than the action level. The excavation area, shown on Figure 3-1, includes a 10 foot by 10 foot box around SB13 as well as a 10 foot by 10 foot grid represented by SB13-A2. This area will be excavated to one foot for a total of approximately 6 cy of soil excavated at SB13.

4.2.8 SB17

Soil samples collected around SB17 in the 10 foot by 10 foot grids resulted in one location (SB17-A1) with concentrations of arsenic greater than the action level. The excavation area, shown on Figure 3-1, includes a 10 foot by 10 foot box around SB17 as well as a 10 foot by 10 foot grid represented by SB17-A1. This area will be excavated to one foot for a total of approximately 6 cy of soil excavated at SB17.

4.2.9 VC-07-SS

Soil samples collected around VC-07-SS in the 10 foot by 10 foot grids resulted in one location (VC-07-SS-A4) with concentrations of arsenic greater than the action level. The excavation area, shown on Figure 3-1, includes a 10 foot by 10 foot box around VC-07-SS as well as a 10 foot by 10 foot grid represented by VC-07-SS-A4. This area will be excavated to a depth of 2 feet for a total of approximately 13 cy of soil excavated at VC-07-SS.

5. Removal~~edial~~ Action Work Plan

5.1 Introduction

The RAWP presented in this section has been prepared to outline the technical approach and methods for conducting a ~~remedial action~~removal action at the former VCC facility in Wadesboro, North Carolina. The ~~remedial action~~removal action will entail the excavation, on-site stabilization (as needed), and off-site disposal of soils containing arsenic and/or lead at concentrations greater than or equal to the action levels listed in Section 2.2, followed by restoration of the site by backfilling and hydroseeding the excavated areas.

5.1.1 Work Plan Objectives

The overall objective of the ~~remedial action~~removal action, as described in the AOC, is to conduct ~~remedial action~~removal actions "to abate the imminent and substantial endangerment of the public health, welfare, or the environment that may be presented by the actual or threatened release of hazardous substances at or from the Site." Specific objectives are to:

- Excavate soil containing arsenic and/or lead at concentrations greater than or equal to site-specific on- and off-site action levels;
- Reduce the leachability of arsenic and/or lead (as needed) so that all excavated soil may be disposed of at a local RCRA Subtitle D landfill;
- Document via sampling of the bottom of the excavations that the soil containing arsenic and/or lead at concentrations greater than or equal to action levels has been excavated; and
- Restore the site to pre-excavation grades.

5.2 Project Organization

5.2.1 Regulator

The USEPA is the regulatory agency for this project. The USEPA On-Scene Coordinator (OSC) will be responsible for providing and coordinating regulatory oversight and direction, as necessary, including review, comment, and approval of all required submittals. The USEPA OSC for this project is Mr. Kevin Misenheimer of USEPA Region 4.

5.2.2 Respondent

ExxonMobil is the Respondent named in the AOC for the Site. While ExxonMobil's interests will be represented in the field by the Engineer and ~~Remedial Action~~Removal action Contractor (as described below), ExxonMobil will maintain an active role in the project through periodic site visits, participation in project meeting updates, and review/approval of project activities and reports. The ExxonMobil Project Coordinator is Mr. Kyle Harris.

5.2.3 Engineer

BBL of Cary, North Carolina, on behalf of ExxonMobil, will be responsible for the engineering aspects of the ~~remedial action~~removal action. General BBL responsibilities will include, but are not limited to, the following:

- Preparing this RAWP and appendices;
- Reviewing materials prior to submittal to the USEPA;
- Interfacing with regulatory agency personnel;
- Collecting confirmatory and waste characterization samples;
- Preparing and submitting status reports to the USEPA;

- Managing field activities; and
- Preparing and submitting the final report to the USEPA.

BBL has designated a Project Coordinator to oversee implementation of the above activities. The BBL Project Coordinator is Mr. Geoffrey Germann, P.E.

5.2.4 ~~Remedial Action~~Removal action Contractor

ExxonMobil will retain a contractor to perform the ~~remedial action~~removal action. Responsibilities of the ~~remedial action~~removal action contractor will include, but not be limited to, the following:

- Providing the labor, material, and equipment necessary to complete the ~~remedial action~~removal action activities in accordance with this RAWP;
- Coordinating the handling, transport, and disposal of waste material, including soils, residuals and personal protective equipment;
- Performing surveying as needed;
- Providing site health and safety monitoring for their own workers and subcontractors (if any); and
- Preparing submittals as required.

The ~~remedial action~~removal action contractor will appoint one member of its on-site ~~remedial action~~removal action team as the Site Supervisor. The Site Supervisor will be a qualified professional with experience in waste site cleanup and will coordinate all activities in accordance with the RAWP. In the event that an unexpected circumstance may hinder the Site Supervisor from adhering to the RAWP, the Site Supervisor will consult immediately with the Engineer.

5.2.5 Waste Disposal Facility

Excavated soil will be disposed of at the following RCRA Subtitle D landfill:

BFI - Anson County Landfill
Route 1, Box 235
Polkton, NC 28135
704-694-6900

All waste disposal subcontractors proposed to receive and accept Site waste shall be in compliance with the Off-site Rule prior to transporting the waste stream. Notifications for scheduled waste shipments shall be submitted to the USEPA OSC prior to shipment.

5.2.6 Analytical Laboratory

TestAmerica Incorporated (TestAmerica) of Nashville, Tennessee has been selected for the analysis of samples collected as part of this project. If additional laboratories are to be used to process samples from the Site approval will be requested from USEPA prior to the use of such laboratories.

5.3 Technical Approach and Scope of Work

The objective of the ~~remedial action~~removal action at the Site is to mitigate the current or potential future releases of hazardous substances to the environment. The ~~remedial action~~removal action will consist of the excavation of on- and off-site soils that exceed their respective action levels, stabilization of impacted soil using a phosphate-based stabilization reagent (as needed to facilitate disposal of the soil at a Subtitle D landfill), off-site disposal of the soil at the BFI Anson County Landfill, and backfill of the excavated areas with clean soil fill and topsoil. The following sections describe these activities in more detail.

5.3.1 Mobilization

Prior to mobilization, the ~~remedial action~~removal action contractor will submit an Operations Plan, Health and Safety Plan, and Project Schedule for review and approval. Equipment and personnel needed to implement the ~~Remedial Action~~Removal Action will then be mobilized to the Site. Local suppliers for goods and services (i.e., water, portable toilets, etc) will be identified upon mobilization to the Site.

5.3.2 Prepare Site for ~~Remedial Action~~Removal action Activities

The following sections describe the activities that will be performed at the site in preparation of the ~~remedial action~~removal action.

5.3.2.1 Install Erosion and Sediment Control Measures

Erosion and sediment control (E&SC) measures will be installed at the Site to prevent migration of soil/sediment-bound contaminants to surface water bodies. The type and location of E&SC measures to be installed will be determined upon mobilization to the Site but may include silt fence, hay bales, etc. E&SC measures will be inspected daily by the Contractor to ensure their continued effectiveness. Additional E&SC measures will be installed as needed as the ~~remedial action~~removal action progresses to prevent the transport of eroded soil away from the site.

5.3.2.2 Clearing

Areas of the Site to be affected by the ~~remedial action~~removal action will be cleared to provide access. Trees and shrubs will be removed above ground surface. Tree roots and impacted debris will to be removed with the soil with which it is located. Specific areas of the site to be cleared will be determined upon mobilization but will likely include:

- Equipment staging areas;
- Haul roads;
- Soil staging/mixing areas;
- Soil areas to be excavated;
- Drainage ditch to be excavated; and
- Other areas as needed.

Woody vegetation that is cleared will be stockpiled on site at a location to be determined upon mobilization.

5.3.2.3 Locate Area of Soil to be Excavated

As described in Section 4.2, boundaries were established around the areas of impacted soils. No additional delineation of the aereal extent of impacted soil is necessary~~.~~ The boundaries of the "Area of Impacted Soil" shown on Figures 3-1 through 3-5, which are summarized on Figure 4-1 as the "Area of Excavation", depict the aereal limits of the soil that will be excavated. No excavation will be performed outside of these boundaries. However, if during implementation of the RAWP evidence of the presence of impacted soil, e.g., the presence of magenta-stained soil, at the boundaries of the areas designated for excavation, additional excavation of these soils may be necessary.~~.~~

The boundaries of the areas to be excavated will be marked in the field based on the surveyed locations of the appropriate soil borings. The stakes installed at all soil boring locations during the additional delineation activities were left in place and will be used when marking excavation boundaries. Excavation boundaries will be marked using hazard tape, pin flags, spray paint, or other appropriate means. The designated soils will be excavated as described below.

~~5.3.2.4Monitoring Well Abandonment~~

~~The three existing monitoring wells at the site (WB-MW1, -MW2, and -MW3) will be abandoned in accordance with Title 15A, Subchapter 2C, Section .0214 of the North Carolina Administrative Code. Well abandonment will be performed by a North Carolina licensed well driller. Wells will be completely filled with cement grout, which shall be introduced to the well through a pipe that extends to the bottom of the well and raised as the well is filled.~~

5.3.3 Excavate/Stabilize Impacted Soil

Excavated soil will be stockpiled on-site at an area to be determined during removal activities. It has been determined that some or all of the soils may require treatment prior to off-site disposal at a RCRA Subtitle D landfill.

5.3.3.1 Soil Excavation

Soil will be excavated from the areas described in Section 4.2, listed in Table 4-1, and shown on Figures 3-1 through 3-5 and 4-1. The estimated aereal dimensions, depths, and in-place volumes for each excavated area are also shown on Table 4-1. In areas where magenta soil is present, e.g., the Contiguous Area and Road, the depth of the excavation will be to approximately 0.5 foot below the bottom of the magenta soil layer. In the other areas, the depth of the excavation will be to the depth (as determined by the existing vertical delineation data in that area) at which arsenic and/or lead are no longer present in the soil at concentrations greater than or equal to the action levels. These depths (and volumes) may be adjusted in the field based on the results of the excavation-bottom confirmation sampling (Section 5.3.6) to ensure that all soil within an area containing analytes at concentrations exceeding the Site-specific ~~remedial action~~removal action levels are excavated.

Excavated soil will be transported to another area of the site, likely the concrete pad for the former processing building, for staging and stabilization. The soil will be staged on impermeable plastic sheeting to minimize contact with the underlying pad.

5.3.3.2 Soil Arsenic/Lead Stabilization

Arsenic and/or lead contained in the excavated soil will be stabilized as needed to reduce the leachability of these metals to levels that will facilitate acceptance of the soil at a RCRA Subtitle D landfill. Pending approval of the waste profile by the landfill, stabilized soil will have leachable arsenic and/or lead concentrations that are below the following standards:

- Arsenic = 5.0 mg/L TCLP; and
- Lead = 5.0 mg/L TCLP.

The Universal Treatment Standards (UTS's) for lead and arsenic are 0.75 mg/L TCLP and 5.0 mg/L TCLP respectively. However, based on the federal alternative treatment standards for soil (promulgated at 40 CFR 268.49), which states that successful treatment of a characteristically hazardous soil such as the soil present at the Wadesboro site requires that the characteristic be eliminated and that the underlying hazardous constituents (UHCs) are reduced by 90%, or to concentrations less than ten times the UTS's. Therefore, the alternative treatment standards for soil at this site are 7.5 mg/L TCLP for lead and 50 mg/L TCLP for arsenic. However, since this soil is to be disposed of at a Subtitle D Landfill, the TCLP limits of 5.0 mg/L for lead and arsenic apply. Therefore, 5.0 mg/L TCLP for lead and arsenic will be used as the standard for treatment at the site. However, the final treatment standard will be determined by the landfill after its review of the waste profile.

Stabilization (as needed) will be achieved via the mixing of a phosphate-based stabilization reagent with the excavated soil. Mixing will be performed via mechanical means using equipment such as an excavator bucket. Soil will be treated with stabilization reagent in batches not exceeding approximately 200 tons, so that efficient

and uniform blending of the stabilization reagent with the soil can be achieved. - Soil samples will be collected to determine compliance with the above standards at a minimum frequency of one sample per 1,000 tons of soil disposed at the landfill. Disposal compliance samples may be collected at a frequency greater than 1 sample per 1,000 tons of soil if soil from different areas of the site are segregated (or combined) into smaller batches. Each disposal compliance sample will consist of a composite of 10 subsamples collected from the soil pile. Each disposal compliance sample will be analyzed for TCLP arsenic and/or lead. The metal to be analyzed will be determined based on the area from which the soil was excavated and the metal present in that area (see Sections 2.3.1 and 2.3.2). If soil from two or more areas containing different metals, e.g., one area's soil contains arsenic and the other area's soil contains lead, then the mixed soil pile will be tested for both TCLP arsenic and TCLP lead.

5.3.4 Transport to Disposal Facility

Treated and non-treated soils shown to be non-hazardous by analytical testing will be transported to the RCRA Subtitle D landfill for disposal. The ~~remedial action~~removal action contractor will be responsible for coordinating and scheduling the transport vehicles and loading the materials. All waste streams will be characterized before disposal as required by applicable federal, state, and local laws, rules, and regulations, as well as any additional requirements imposed by the receiving landfill or disposal facility (see Section 5.3.3.2).

Excavated soil will be loaded into dumptrucks for transport to the disposal facility. Traffic patterns will be established that prevent trucks hauling soil off-site from traversing bare soil in impacted areas to eliminate the need to decontaminate the trucks prior to exiting the site.

All containers used for off-site transport of materials will be covered with tarps prior to off-site transport. The ~~remedial action~~removal action contractor will be responsible for ensuring that all transportation containers are tarped, manifested, and placarded in accordance with appropriate RCRA and NCDOT requirements before leaving the site.

The weight of the transportation containers prior to departure from the site will be within its allowable loaded capacity for subsequent transport and in compliance with any and all NCDOT regulation. A daily log of information will be compiled that includes the date and time, container identification number, and measured weight of each loaded transportation container to have departed the site.

5.3.5 Confirmation Sampling

Confirmation sampling will be performed in all areas where soil was excavated to determine if the concentrations of analytes in the remaining soil are below the Site-specific ~~remedial action~~removal action levels. If the results of the confirmation sampling indicate that analyte concentrations in the soil or sediment continue to exceed the Site-specific ~~remedial action~~removal action levels then additional excavation and confirmation sampling will be performed.

Confirmation sampling will be achieved via the collection of one or more composite samples from the bottom of each excavated area. Confirmation will be performed at a frequency of 1 sample for approximately every 2,500 ft^2 of excavation in an individual area. This approach was selected instead of a grid spacing pattern due to the irregular shapes of the planned excavations; however, the sampling frequency of 1 sample per 2,500 ft^2 of excavation provides the same coverage as a 50 foot by 50 foot sampling grid. Samples will be analyzed for arsenic and/or lead based on the presence of these metals in the soil excavated from a particular area. ~~The~~ The expected confirmation sampling program will be as follows:

Area	Estimated Excavation	Number of Samples	Analyte(s)

	Surface Area (ft^2)		
Contiguous Area	14,000	~~2~~6	As, Pb
Drainage Ditch	2,500	2	As, Pb
Access Road	2,800	2	As, Pb
SB9	100	1	Pb
SB11	4,000	~~1~~2	Pb
SB12	3,400	~~1~~2	Pb
SB13		1	As
SB17		1	As
VC-07-SS		1	Pb

Each confirmation sample will be a composite of 5 to 10 subsamples collected across the surface of the bottom of an excavation. ~~In areas where two samples will be collected, each sample will be collected so that the subsamples for each are collected from approximately 50% of the surface area of the excavation.~~Samples, including field quality control samples, will be collected and analyzed in accordance with the procedures in the Field Sampling Plan (FSP) and QAPP included in BBL (2001a). Rapid (2-4 day) turnaround of sample analyses will be requested so that results can be reviewed and evaluated prior to the onset of backfilling.

5.3.6 Site Restoration

Upon completion of the ~~remedial action~~removal action the Site will be restored to minimize the potential for future erosion. Areas of excavation soil will be backfilled to pre-existing grade, compacted, and graded to ensure positive drainage~~.~~. Fill material used for site restoration will be analyzed for TAL metals, and Target Compound List, volatile organic compounds, semivolatile organic compounds, pesticides, and polychlorinated biphenyls. Excavation areas within the ditches will be backfilled (as necessary), and graded to ensured positive drainage. The need for installation of additional slope stabilization materials for the excavation ditches (e.g., rip rap) will be assessed in the field. All disturbed areas will be hydroseeded with a suitable local seed mixture.

5.4 Demobilization

All equipment will be decontaminated and demobilized from the Site upon completion of the site restoration activities. All containerized decontamination waste will be disposed off site at this time.

5.5 Reporting

5.5.1 Weekly Reports

Brief written progress reports that describe actions taken pursuant to the Order will be submitted to the USEPA OSC on a weekly basis. Each weekly report shall:

- Describe all significant developments during the preceding seven day period, including actions performed and any problems encountered;
- Include analytical data received during the reporting period;
- Describe developments anticipated during the next reporting period, including anticipated problems and a schedule of work to be performed; and
- Discuss planned resolutions of past and anticipated future problems.

5.5.2 Final Report

A final report summarizing the actions taken to comply with this Order will be submitted to USEPA for review and approval within sixty days after completion of the ~~remedial action~~removal action. The final report will

conform with, at a minimum, the requirements of Section 300.165 (entitled OSC Reports) of the National Contingency Plan and will include the following:

- A listing of the quantities and types of materials removed off-site;
- A discussion of the removal and disposal options considered for removed materials;
- A listing of the ultimate destinations of all removed materials;
- A presentation of the analytical results of all sampling and analyses performed; and
- Appendices containing all relevant documentation generated during the ~~remedial action~~removal action (e.g., manifests, invoices, bills, contracts, and permits).

The final report shall also include the following certification signed by a person who supervised or directed the preparation of the report:

"Under penalty of law, I certify that to the best of my knowledge, after appropriate inquiries of all relevant persons involved in the preparation of the report, the information submitted is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations".

5.6 Post-Removal Site Control

ExxonMobil intends to remove onsite and offsite soil containing arsenic and/or lead concentrations greater than site-specific action levels during the removal action. Action levels (developed in BBL [2001a]) for offsite soil were developed to be protective of human health where future use is expected to be residential in nature, while action levels for onsite soil were developed to be protective of human health where future use is expected to be industrial/commercial. Post-removal site control is not necessary for the offsite areas that are be remediated to the offsite, i.e., residential use, action levels.

Post-removal site controls limiting future use of the site to industrial/commercial activities may be necessary for onsite soils since ExxonMobil intends to remove soils to industrial/commercial action levels. However, this will not be necessary if the average concentrations of arsenic and/or lead in the soil remaining onsite do not exceed the offsite, i.e., residential use, action levels. To determine in advance whether post-removal site controls will be necessary at the site, the average lead and arsenic concentrations for soil remaining in Areas SB11 and SB12 after implementation of the removal action was calculated (Tables 5-1 and 5-2). Approximately 7,400 ft^2, or approximately 0.2 acres, will be excavated in Areas SB11 and SB12. Only data for soil samples around areas SB11/SB12 that will not be excavated during the removal action, along with estimated concentrations for the 4 on-bottom confirmation samples that will be collected from these areas (2 from each area), were included in the average calculations. The residual arsenic and lead concentrations for the on-bottom confirmation samples were assumed to be 27 mg/kg and 750 mg/kg, respectively. As shown in Tables 5-1 and 5-2, the average lead (301 mg/kg) and arsenic (15.3 mg/kg) concentrations are well below the offsite, i.e., residential, standards of 400 mg/kg and 22 mg/kg, respectively. Therefore, since the planned excavation of soil from Areas SB11/SB12 will result in average arsenic and lead concentrations below the residential standards, post-removal site controls are not necessary based on the data from Areas SB11/SB12.

Avg. method correct?

The other major onsite areas to be excavated (Contiguous Area, SB13, SB17, and VC-07) will esentually be excavated as one area. Therefore, the data from these four areas have been combined during the following analysis of the arsenic and lead concentrations that will remain after excavation. The combined surface area of these areas is approximately 14,500 ft^2, or approximately 0.33 acres. Only data for soil that will not be excavated during the removal action, along with estimated concentrations for the 9 on-bottom confirmation samples that will be collected from these areas (6 from the Contiguous Area and 1 each from the SB-13, SB-17, and VC-07 Areas), were included in the average calculations. The residual arsenic and lead concentrations for

the on-bottom confirmation samples were assumed to be 27 mg/kg and 750 mg/kg, respectively. As shown in Tables 5-3 and 5-4, the average lead (296 mg/kg) and arsenic (13.2 mg/kg) concentrations are well below the offsite, i.e., residential, standards of 400 mg/kg and 22 mg/kg, respectively. Therefore, since the planned excavation of soil from the combined Contiguous/SB13/SB17/VC-07 Area will result in average arsenic and lead concentrations below the residential standards, post-removal site controls are not necessary based on the data from the Contiguous/SB13/SB17/VC-07 Areas.

The above evaluation of the existing and anticipated data indicates that post-removal site controls will not be necessary at the site. However, if the average arsenic and/or lead concentrations in either of the SB11/SB12 or Contiguous/SB13/SB17/VC-07 Areas exceed the offsite, i.e., residential, action levels, then post-removal site controls will be necessary. A final evaluation of the need for post-removal site controls will be performed once the removal action is completed and all data are available. This evaluation will be presented in the Removal Action Summary Report. If found to be necessary after the above data evaluation has been performed with the final data, the following limitations on future use will be implemented for the Site:

- Future use of the Site will preclude all uses except industrial/commercial uses.
- Future use of the Site will preclude child-occupied businesses.
- The land use restrictions will be recorded at the Anson County Register of Deeds office and indexed in the grantor index under the names of the owners of all affected property. A certified copy of the recorded land use restrictions document and a copy of the relevant index page(s) will be provided to USEPA and NCDENR.
- ExxonMobil will inspect the site annually to ascertain that the site continues to be used only for the proscribed uses, certify that the deed restrictions are still in place for the site, and provide this information to NCDENR in an annual certification letter.

If post-removal site controls are necessary, ExxonMobil will work with USEPA and NCDENR to implement the necessary controls in an expeditious manner.

5.7 Groundwater Monitoring

NCDENR has expressed concern over the presence of groundwater manganese and cadmium concentrations in samples from the three onsite groundwater monitoring wells that exceed the USEPA Region 9 preliminary remediation goals (PRGs). The groundwater beneath the water table aquifer at the site produced such little water that the pumping rate of just 250 milliliters per minute resulted in significant draindown of the water in the wells. Therefore, the water table aquifer at and in the immediate vicinity of the site will unlikely be unable to produce sufficient amounts of water to support human use.

Nonetheless, ExxonMobil will sample the three existing onsite wells for cadmium and manganese within 1 year of demobilization from the removal action. If the cadmium and manganese concentrations are still above the tap water PRGs during this sampling event, the wells will subsequently be sampled annually for 1 additional year to determine if the soil removal action has beneficially impacted groundwater manganese and cadmium concentrations. Samples will be collected using low flow/low stress procedures listed in the Site Characterization Work Plan (BBL, 2001a) and analyzed for cadmium and manganese. Groundwater monitoring will cease after 2 years of annual monitoring if manganese and cadmium concentrations in the wells generally remain constant or decrease. If concentrations do not generally remain constant or decrease, then ExxonMobil will evaluate and recommend an alternate course of action, as appropriate. ExxonMobil will work directly with NCDENR during the planning, development, and implementation of this limited groundwater monitoring program.

~~5.6~~5.8 Schedule

The project schedule, starting with USEPA approval of this RAWP and concluding with the submittal of the Final Report, is included as Figure 5-1.

6. References

BBL. 2001a. Site Characterization Work Plan for the Former Virginia-Carolina Chemical Company Phosphate/Fertilizer Plant, Wadesboro, North Carolina. March 28, 2001.

BBL. 2001b. Site Characterization Report for the Former Virginia-Carolina Chemical Company Phosphate/Fertilizer Plant, Wadesboro, North Carolina (Revision 1). December 2001. Prepared for Exxon Mobil Corporation.

BBL. 2002a. Soil Arsenic and Lead Additional Delineation Work Plan for the Former Virginia-Carolina Chemical Company Phosphate/Fertilizer Plant, Wadesboro, North Carolina. July 25, 2002. Prepared for Exxon Mobil Corporation.

BBL. 2002b. Alternatives Evaluation Report, Wadesboro VCC Site, Wadesboro, North Carolina. April 3, 2002. Prepared for Exxon Mobil Corporation.

Tetra Tech EMI. 2000. Letter Report, Virginia Carolina Chemical Site, Wadesboro, Anson County, North Carolina. Letter from Steve Pierce, Tetra Tech EMI to John Nolen, USEPA. February 1, 2000.

Tables

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Figures

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Appendices

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Appendix A

Soil Boring Logs and Photos

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RECEIVED
SEP 27 2002

Transmitted Via Federal Express

September 26, 2002

Kevin Misenheimer
USEPA Region 4
61 Forsyth Street, S.W.
Atlanta, Georgia 30303-8960

Re: Additional Delineation Report and Remedial Action Work Plan,
Wadesboro VCC Site, Wadesboro, NC
BBL Project #: 54626

Dear Mr. Misenheimer:

On behalf of Exxon Mobil Corporation, attached for your review are two copies of the document *Additional Delineation Report and Remedial Action Work Plan, Former Virginia-Carolina Chemical Company Phosphate/Fertilizer Plan, Wadesboro, North Carolina.* This document presents the results of the additional soil delineation activities performed in August 2002 and contains the work plan that will be used to guide remediation activities at the site.

Please contact Mr. Kyle Harris at 713/656-9059 if you have any questions or wish to discuss the contents of this document.

Sincerely,

BLASLAND, BOUCK & LEE, INC.

Geoffrey G. Germann, P.E.
Manager/Senior Engineer I

GGG:gg
Enclosures: 2

c: M. Deaton, NCDENR (2)
K. Harris, ExxonMobil (1)
J. Stiles, de maximis (1)
C. Chwalek (1)
File (1)

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

1. HEADING

Date: August 26, 2002

Subject: V.C. Chemical - Wadesboro Site
Wadesboro, Anson County, North Carolina

From: Kevin S. Misenheimer, OSC
Emergency Response and Removal Branch

To: Doug Lair, Chief, ERRB
Region 4 Response Center
Mike Deaton, NCDENR

POLREP 5

Period of Record: 08/08/01 to 08/23/02

2. BACKGROUND

Site Name: Virginia Carolina Chemical-Wadesboro
Address: Stanback Ferry Road
Wadesboro, Anson County, North Carolina

Site No: A42B
Response Authority : CERCLA
Incident Category: Time-Critical
Start Date: 12-22-00
Completion Date: on-going

EPA ID: NCSFNO406924
NPL Status: non-NPL
State Notification:
Demobilization Date: on-going

3. SITE INFORMATION

See Polrep 2 for background information.

IV. RESPONSE INFORMATION

A. Situation

The following activities have been completed during this reporting period:

- EPA and NCDENR submitted comments to ExxonMobil regarding the Site Characterization report. ExxonMobil addressed comments and submitted a final document to EPA.

- In April 2002, ExxonMobil submitted a Draft Alternatives Evaluation Report to EPA which outlined removal alternatives for the Site. Upon receipt of this document, EPA requested and received comments from NCDENR.

- On May 7, 2002, representatives from ExxonMobil and EPA met to discuss the removal alternatives evaluation report. Based on discussions during this meeting, ExxonMobil proposed additional sampling and site characterization in order to better estimate removal quantities and therefore aid in the development of the removal strategy.

- In June 2002, ExxonMobil submitted a draft Soil Arsenic and Lead Additional Delineation Work Plan, which proposed additional data collection activities for the site. After review of this document, EPA held discussions with ExxonMobil and a revised final document was submitted to EPA in July 2002. This document was subsequently approved by EPA.

- On August 12, 2002, contractors for ExxonMobil mobilized to the site to conduct additional sampling and site characterization activities. EPA provided oversight and met with representatives of ExxonMobil and associated contractors. Soil samples were collected using direct push technology to better define arsenic and lead soil concentrations in both horizontal and vertical directions. A backhoe was mobilized to the site and used to excavate a test trench in the southern portion of the site. The purpose of this trenching operation was to define the aerial extent of magenta-colored soil, which is likely an indication of the area of highest contaminated soils. Soil samples were collected around the perimeter of this excavation to determine concentrations of contaminants in this area.

- On August 15, 2002, ExxonMobil submitted a draft project schedule to EPA.

B. Planned Removal Activities

ExxonMobil will develop a removal action work plan which will outline the detailed scope of the removal action.

C. Next Steps

- Upon receipt of analytical data, ExxonMobil will prepare a report which summarizes the additional data collection activities. Based on this data, ExxonMobil will propose a removal action strategy to mitigate the threats posed by the site.

- Upon approval of the removal strategy by EPA, ExxonMobil will submit a removal action work plan which details all site activities that will be followed during the removal. It is anticipated that ExxonMobil will mobilize additional resources to the site in November 2002 to complete the removal action.

- OSC Misenheimer will continue to coordinate all activities and provide oversight of actions taken by ExxonMobil.

- Key Issues

None

Appendix D: Land Use Restrictions

D.1. Approval Process for Use of Land Use Restrictions as the Remedy

Land use restrictions, for soil and sediment contamination, may be proposed as part or all of a site remedy when such a remedy is supported by the results of the feasibility study (See section 5.2.2.). Depending on contaminant concentrations and the site's proposed restricted use, additional remedial action may or may not be required.

Cleanup levels for the standard industrial/commercial exposure scenario will be provided by the branch upon request. Cleanup levels for other site specific exposure scenarios must be calculated by the remediating party. If the remediating party calculates cleanup levels, all supporting risk and exposure assessment calculations must be provided for the branch's review and approval.

***Note*: All containment remedies require land use restrictions.**

The following steps outline the process that the remediating party must follow for approval of remedies involving land use restrictions:

1 The remediating party notifies the branch, in writing, that it proposes to use land use restrictions at a site. The notification letter must include either a request for standard industrial/commercial cleanup levels or indicate that site specific cleanup levels will be calculated.

2. The remediating party submits a draft Remedial Action Plan (RAP) that includes a land use restriction proposal. The land use restriction proposal (proposal) should contain:

   a. A description/list outlining what activities and uses should be restricted at the site. Examples of precluded activities are:

      - Construction of buildings and other man-made structures.

      - Excavating, dredging or otherwise removing soils and sediments at all, or below specified depths.

      - Planting or removal of vegetation including edible varieties, trees and shrubs.

      - Limitations on site use (e.g., preclusion of all uses other than industrial/commercial).

   b. The deed book and page numbers for the property or properties where the restrictions will apply if approved.

c. The plat book and page numbers for any "Notice of an Inactive Hazardous Substance or Waste Disposal Site" already recorded in relation to the site.

d. Proposed remediation goals for restricted land use.

Note: **The remediating party must provide all supporting risk and exposure assessment calculations if a site specific exposure scenario is proposed.**

e. Written consent by the owner(s) of the site to the imposition of land use restrictions using the form provided in section D.2.

f. A proposed inspection plan for the site to verify that the recorded land use restrictions are in place and activities at the site are in compliance with these restrictions. The proposed inspection plan must be included in the section of the RAP that describes planned inspection, maintenance, and progress reporting (see section 5.2.4).

Note: **The site owner or remediating party will be required to conduct an inspection of the site no less than annually and submit a signed and notarized statement stating that the land use restrictions are still in effect and that conditions at the site are not in violation of the land use restrictions. The branch may later supply a form for such purposes. Owners, operators and other responsible parties are required under N.C.G.S. 130A-310.3(f) to enforce the land use restrictions and are expected to take action immediately upon discovery of a violation of the land use restrictions. Failure to do so will cause automatic revocation of branch approval of the remedial action.**

3. After reviewing the proposal, the branch will either approve, reject or provide comments on the proposal. If an agreement is reached on the proposal, the branch will transmit the land use restrictions document to the remediating party as it is to be recorded. If this document is acceptable to the remediating party, a final RAP that includes the land use restrictions document must be submitted. The branch will proceed with public notice of the final RAP in accordance with N.C.G.S. 130A-310.4(c)(2).

4. During the RAP public notice period, the remediating party must submit a draft "Notice of Inactive Hazardous Substance or Waste Disposal Site" (Notice) to the branch for review. The Notice takes the form of a site survey plat prepared in accordance with N.C.G.S. 130A-310.8 and branch guidance. The branch will not issue approval to proceed with recordation of the land use restrictions until the branch has received the draft Notice and concludes it is complete (with the exception of the required references to the book and page numbers where the land use restrictions are recorded). If a Notice for the site has already been approved by the branch and properly recorded, another Notice does not need to be prepared.

5. After the RAP public notice period concludes and the draft Notice has been approved by the branch, the branch will give approval to proceed with implementation of the RAP and recordation of the land use restrictions document. After receiving written approval to proceed, the remediating party must have the land use restrictions document recorded in the appropriate Register of Deeds office and indexed in the grantor index under the names of the owners of all affected property.

6. Within a time period specified by the branch, the remediating party must submit a certified copy of the recorded land use restrictions document and a copy of the relevant grantor index page(s). The remediating party must also submit a finalized copy of the Notice, ready for recordation. The book and page numbers where the land use restrictions are recorded must be referenced on the Notice.

7. Once the final Notice is approved by the branch, the remediating party must have the Notice recorded in the appropriate Register of Deeds office and indexed in the grantor index under the name(s) of the owner(s) of all affected property.

8. The remediating party must submit a certified copy of the recorded Notice and a copy of the relevant grantor index page(s) to the branch within the time period specified.

Note: ***Failure of the remediating party to comply with deadlines issued by the branch for submittal of above referenced documents will cause automatic revocation of branch approval of the RAP.***

D.2. Land Use Restrictions Consent Form

The following is the form required to be submitted (see 2.e in section D.1) indicating provisional consent of the site's owner to the imposition of land use restrictions, subject to later withdrawal when the owner reviews the land use restrictions document.

VOLUNTARY CONSENT TO IMPOSITION OF LAND USE RESTRICTIONS

_____ Superfund Site, _____ County, North Carolina

I, _____, owner in fee simple of real property located at ____[street address]____, ___[town or city]_, _____ County, North Carolina which includes the _____ Superfund site (the "Site"), am agreeable to the imposition of Land Use Restrictions ("Restrictions") partially or completely in lieu of actual remediation of hazardous substances at the Site. I understand that I will be required to document any agreement to the actual Restrictions approved for the Site by the North Carolina Department of Environment and Natural Resources, and that I may refuse to consent upon review of the actual Restrictions.

IN WITNESS WHEREOF, _____ has caused these presents to be executed in its name by __[name of atty. or other agent if the is one]__, its _____[title]_____, this _____ day of _____, _____.

_____[name of owner if agent is signing]_____

By: _[signature of atty. or other agent if there is one]_____

Signatory's name typed or printed: _____

STATE OF NORTH CAROLINA
COUNTY OF _____

I, _____, a Notary Public, do hereby certify that _____ personally appeared before me this day and acknowledged that he/she is the _____[title]_____ of _____[owner]_____ and that by authority duly given, and as the act of _____[owner]_____, the foregoing instrument was signed in its name by such _____[title]_____.

WITNESS my had and official seal this _____ day of _____, _____.

_____
Notary Public

My commission expires _____.

D.3. Cancellation of Land Use Restrictions

At a subsequent date, should the owner believe that all hazards have been removed and that hazardous substances are no longer present at the site above unrestricted use remediation goals, the owner may request branch approval to cancel the land use restrictions. Canceling land use restrictions without prior branch approval will cause automatic revocation of approval of the RAP and will subject the party taking such action to enforcement.

Declaration is a part, shall have access through the real property described in Deed Book 149, Page 388, in the McDowell County, North Carolina Register of Deeds Office, to undertake such activity.

4. Groundwater beneath the Site shall not be used as a source of potable or irrigation water. The installation of groundwater wells or other devices for any purpose other than monitoring groundwater quality is prohibited without prior approval by DENR, or its successor in function. All groundwater wells must be secured with a locking cover to prevent unauthorized access. All groundwater monitoring wells must be installed, operated, and maintained in accordance with all applicable laws and regulations.

5. The owner shall submit annually, on or before the anniversary date of the recordation of this Declaration, to DENR, or its successor in function, a signed and notarized statement confirming that this Declaration is still recorded in the Office of the McDowell County Register of Deeds and that activities and conditions at the Site remain in compliance with the land use restrictions herein.

ENFORCEMENT

The above land use restrictions shall be enforced by any owner, operator, or other party responsible for the Site. The above land use restrictions may also be enforced by DENR through the remedies provided in NCGS Chapter 130A, Article 1, Part 2 or by means of a civil action, and may also be enforced by any unit of local government having jurisdiction over any part of the Site. Any attempt to cancel this Declaration without the approval of DENR or its successor in function shall constitute noncompliance with the Remedial Action Plan approved by DENR for the Site, and shall be subject to enforcement by DENR to the full extent of the law. Failure by any party required or authorized to enforce any of the above restrictions shall in no event be deemed a waiver of the right to do so thereafter as to the same violation or as to one occurring prior or subsequent thereto.

NOTICE

These land use restrictions are an integral part of the remedy for the contamination at the Site. Adherence to the restrictions is necessary to protect public health and the environment. In addition to this Declaration and the corresponding survey plat showing the location of the Site recorded in the McDowell County Register of Deeds Office at Map Book ----, Page-----, a Notice of Inactive Hazardous Substance or Waste Disposal Site, constituting a survey plat identifying the type of hazardous substances remaining on the Site and approved by DENR pursuant to NCGS Section 130A-310.8, has been recorded at the McDowell County Register of Deeds' office at Book 5, Page 66.

FUTURE SALES, LEASES, CONVEYANCES AND TRANSFERS

When any portion of the Site is sold, leased, conveyed or transferred, pursuant to NCGS Section 130A-310.8(e) the deed or other instrument of transfer shall contain in the description

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

RECEIVED
AUG 5 2002
SUPERFUND SECTION

July 31, 2002

WMD-ERRB

Mr. Kyle Harris
Exxon Mobil Corporation
601 Jefferson St.
Room 1221
Houston, TX 77002

Subject: Soil Arsenic and Lead Additional Delineation Work Plan
VCC-Wadesboro Site
Wadesboro, North Carolina

Dear Mr. Harris:

EPA Region 4 has reviewed the document entitled *Soil Arsenic and Lead Delineation Work Plan*, submitted by BBL on July 25, 2002, on behalf of Exxon Mobil Corporation ("Exxon Mobil"). This document is approved by EPA for the purposes of further delineating the magnitude and extent of soils containing arsenic and/or lead at concentrations exceeding the action levels at the VCC-Wadesboro Site.

After receipt of this approval, EPA expects that Exxon Mobil will conduct this additional work in a timely manner so as to further the progress of the Removal Action required under the Administrative Order on Consent (AOC) entered into voluntarily by Exxon Mobil Corporation on December 29, 2000. Upon completion of the additional soil delineation work, it is anticipated that Exxon Mobil will complete the Removal Action plan and soon thereafter continue with on-site removal operations. In addition, EPA requests a schedule that outlines major events and milestones associated with the upcoming removal work. Please submit this schedule to EPA no later than August 16, 2002.

If you have any questions, please contact me at 404-562-8922. I appreciate your continued cooperation with the clean up of this site.

Sincerely,

Kevin S. Misenheimer
On-Scene Coordinator
Emergency Response and Removal Branch

cc: Mike Deaton, NCDENR

BBL
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

RECEIVED
JUL 26 2002
SUPERFUND SECTION

Transmitted Via Federal Express

July 25, 2002

Kevin Misenheimer
USEPA Region 4
61 Forsyth Street, S.W.
Atlanta, Georgia 30303-8960

Re: Soil Arsenic and Lead Additional Delineation Work Plan
Wadesboro VCC Site, Wadesboro, NC
BBL Project #: 54626

Dear Mr. Misenheimer:

On behalf of Exxon Mobil Corporation, attached for your review are two copies of the revised document *Soil Arsenic and Lead Additional Delineation Work Plan for the Former Virginia-Carolina Chemical Company Phosphate/Fertilizer Plan, Wadesboro, NC.* This work plan outlines the technical approach and methods to further delineate the magnitude and extent of soils containing arsenic and/or lead at concentrations greater than action levels at the Site. This document has been revised to reflect the changes discussed in our recent conference call.

Field activities are anticipated to begin shortly after signed Site access agreements have been received.

Please contact Mr. Kyle Harris at 713/656-9059 if you have any questions or wish to discuss this work plan further.

Sincerely,

BLASLAND, BOUCK & LEE, INC.

for GGG

Geoffrey G. Germann, P.E.
Manager/Senior Engineer I

Cbc:cc
Enclosures: 2

cc: M. Deaton, NCDENR (2)
K. Harris, ExxonMobil (1)
C. Chwalek (1)
File (1)

3700 Regency Parkway • Suite 140 • Cary, NC 27511-8574
Tel (919) 469-1952 • Fax (919) 469-5676 • www.bbl-inc.com • offices nationwide

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BBL
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

RECEIVED
JUN 13 2002

Transmitted Via Federal Express

June 12, 2002

Kevin Misenheimer
USEPA Region 4
61 Forsyth Street, S.W.
Atlanta, Georgia 30303-8960

Re: Health and Safety Pan
Wadesboro, VCC Site, Wadesboro, NC
BBL Project #: 54626

Dear Mr. Misenheimer:

On behalf of Exxon Mobil Corporation (ExxonMobil), attached for your review and approval are two copies of the revised document *Health and Safety Plan* (HASP), *Wadesboro VCC Site, Wadesboro, NC (Revision 1)*. Revisions were made to this document to bring it into compliance with the requirements of ExxonMobil's Operations Integrity Management System (OIMS). The changes to this document relate to the addition of procedures for drilling and traffic safety. The text associated with these changes has been underlined for your convenience.

Please contact Mr. Kyle Harris at 713/656-9059 if you have any questions or wish to discuss the contents of this HASP.

Sincerely,

BLASLAND, BOUCK & LEE, INC.

Candace L. /FOR

Geoffrey G. Germann, P.E.
Manager/Senior Engineer

GGG:cl
Enclosures: 2

cc: M. Deaton, NCDENR (2)
K. Harris, ExxonMobil (1)
C. Leonard (1)
File

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BBL
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

RECEIVED
JUN 12 2002
SUPERFUND SECTION

Transmitted Via FedEx

June 10, 2002

Kevin Misenheimer
USEPA Region 4
61 Forsyth Street, S.W.
Atlanta, Georgia 30303-8960

Re: Request for Subcontractor Approval, Wadesboro VCC Site, Wadesboro, NC
BBL Project #: 54626

Dear Mr. Misenheimer:

BBL is requesting, on behalf of Exxon Mobil Corporation, approval of the following subcontractors for use during the planned additional delineation of arsenic and lead in soil at the Wadesboro VCC site. The proposed subcontractors are:

Geoprobe/Driller	XRF Operator
Parratt Wolff, Inc.	Bradford Environmental Services, Inc.
501 Millstone Drive	4817 Holly Brook Drive
Hillsborough, NC 27278	Apex, NC 27502
800-627-7920	919-303-4448

A brief description of the qualifications of these two proposed subcontractors are enclosed with this letter.

In addition, two currently-approved subcontractors, Richard L. Harrington Associates (surveyor) and SAEDACCO (driller/equipment operator) will be utilized on this project.

Please contact Mr. Kyle Harris at 713/656-9059 if you have any questions or wish to discuss this request for subcontractor approval.

Sincerely,

BLASLAND, BOUCK & LEE, INC.

Geoffrey G. Germann, P.E.
Manager/Senior Engineer I

GGG:gg

3700 Regency Parkway • Suite 140 • Cary, NC 27511-8574
Tel (919) 469-1952 • Fax (919) 469-5676 • www.bbl-inc.com • offices nationwide

F:\2002file\055223696.doc

Enclosures: 2

cc: M. Deaton, NCDENR (1)
K. Harris, ExxonMobil (1)
File

Qualifications

Bradford Environmental Services, Inc.

Bradford Environmental Services, Inc.

DENISE A. POPEO
PRESIDENT

EDUCATIONAL BACKGROUND

1984 B.S. - Business Management

CONTINUING EDUCATION

Currently enrolled in Environmental Science Technology Degree Program

SUCCESSFULLY COMPLETED COURSES TO DATE:

Environmental Science, Environmental Issues, Industrial Safety, Biology, Instrumentation, General Chemistry, Organic & Bio Chemistry, Ecology

PROFESSIONAL CERTIFICATIONS

NIOSH 582 – Airborne Asbestos Sampling & Evaluation Techniques
North Carolina Lead Inspector/Risk Assessor (#120073)
Hazardous Waste Operations & Emergency Response (HAZWOPER)
North Carolina Asbestos Air Monitor (# 80702)
North Carolina Asbestos Inspector (#12048)
South Carolina Asbestos Inspector (#BI-00012)

EXPERIENCE AND QUALIFICATIONS

Ms. Popeo formed Bradford Environmental Services, Inc. (BES) in May of 1997. BES is incorporated in the State of North Carolina and was developed as a Woman-owned Business Entity (WBE).

Prior to establishing Bradford Environmental Services, Inc. (BES), Ms. Popeo worked for a Philadelphia-based environmental consulting firm for over 9 and 1/2 years in an office management an marketing position. Ms. Popeo also performed the services as a laboratory technician on a part time, as-needed basis in the Philadelphia corporate office. In addition, Ms. Popeo has assisted on over 75 asbestos projects and phase I audits. Lead/asbestos inspections completed at military facilities include Ft. Bragg, NC, White Sands Missle Range, NM, Ft. Campbell, KY, Ft. Benning, GA, Ft. Stewart, GA, and Ft. Belvoire, VA.

Ms. Popeo has performed lead inspections on over 100 housing units throughout North Carolina and various government facilities including a 280,000 SF Army Hospital in Ft. Belvoir, VA. In addition, Ms. Popeo routinely performs Lead Risk Assessments for Section 8 Housing for various Housing Authorities. Ms. Popeo is NITON trained and proficient with the NITON XRF. Ms. Popeo has also utilized the SITEC Map 4 unit.

NORTH CAROLINA
LEAD CERTIFICATION

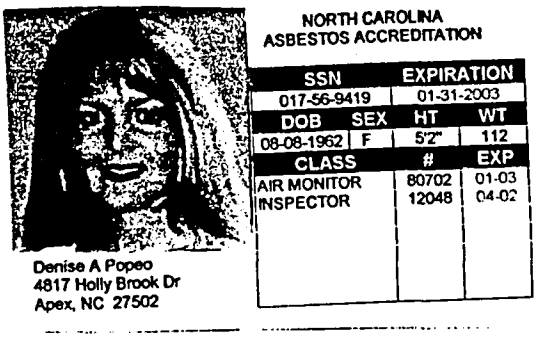
Denise A Popeo
4817 Holly Brook Dr
Apex, NC 27502

DOB	SEX	HT	WT
08-08-1962	F	5'2"	112

DISCIPLINE	#	LAST COURSE	EXPIRATION
RISK ASSESSOR	120073	INS 08-31-2000 RIS 08-04-2000	08-31-2002

North Carolina
Department of Health and Human Services
Division of Public Health
2728 Capital Boulevard • 1912 Mail Service Center • Raleigh, North Carolina 27699-1912 • Courier 56-32-00
Ann F. Wolfe, M.D., M.P.H., Director

February 5, 2002



Denise A Popeo
4817 Holly Brook Dr
Apex, NC 27502

Dear Ms. Popeo:

Based upon the review of your accreditation application, the Health Hazards Control Unit (HHCU) has determined that you have fulfilled the requirements and are eligible for asbestos accreditation as a(n) AIR MONITOR. Your assigned North Carolina accreditation number is 80702, which is reflected on your enclosed North Carolina Accreditation card. Please be sure to take this card with you to any asbestos work site where you are employed. The State requires that all persons conducting asbestos abatement or asbestos management activities be accredited and have their identification card on site.

Your North Carolina Air Monitor accreditation will expire on JANUARY 31, 2003. It is NOT the policy of the HHCU to issue renewal notices. If you wish to continue working as a(n) Air Monitor after this expiration date, you must successfully complete the required training and submit a completed application to this office prior to January 31, 2003. If you should continue to perform asbestos management activities as a(n) Air Monitor without a valid North Carolina accreditation, you will be in violation of State regulations and may be cited for noncompliance.

Sincerely,

John J. "Pat" Curran, CIH
Manager
Health Hazards Control Unit
Occupational & Environmental Epidemiology Branch
(919) 733-0820

Enclosure

NITON

CORPORATION

Certificate of Achievement

Denise Popeo

Bradford Environmental Services

has successfully completed the Manufacturer's Training Course for the
NITON Spectrum Analyzer *and is now certified*
in radiation safety and monitoring, measurement technology,
and machine maintenance of the **NITON XRF Spectrum Analyzer.**
(CIH's - The ABIH awards 1 CM point, approval #5827)

99081959103
Certificate Number

09/09/99 Charleston, SC
Date & Site of Course

OFFICIAL SEAL OF EXCELLENCE

Victoria Grzybinski
Training Coordinator

Kenneth P. Smith
Director of Training

North Carolina Department of Health and Human Services
Division of Public Health

Health Hazards Control Unit

Lead-Based Paint Hazard Management Program

Bradford Environmental Services Inc

Is Issued Lead Firm Certification

Lead Certification Number - FPB-0055

Valid between August 29, 2001 and August 31, 2002

Manager

NC Health Hazards Control Unit
1912 Mail Service Center, Raleigh, NC 27699-1912
Phone 919-733-0820

NORTH CAROLINA
DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
DIVISION OF WASTE MANAGEMENT

MICHAEL F. EASLEY, GOVERNOR
WILLIAM G. ROSS, JR., SECRETARY
DEXTER R. MATTHEWS, DIRECTOR

NCDENR

FAX TRANSMITTAL RECORD

DATE: 5/3/02

TO: Mr. Kevin Misenheimer

FAX #: 404-562-8699

FROM: Mike Weaton, Superfund Section

RE: V.C. Chemical - Wadesboro

Number of pages (including cover) 3

Comments:

Steve Roberts
- LANDFILL MGR
Route 1 Box 235
Polkton, NC 28135
(704)
694-6900
Permit # 0403

Confirm receipt of document(s):

Mike Weaton, Superfund Section (919) 733-2801, ext. 298

SF/slb(C:\WPWIN60\WPDOCS\SF\SF-FAX.FRM)

1646 MAIL SERVICE CENTER, RALEIGH, NORTH CAROLINA 27699-1646
401 OBERLIN ROAD, SUITE 150, RALEIGH, NC 27605
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North Carolina
Department of Environment and Natural Resources
Division of Waste Management

Michael F. Easley, Governor
William G. Ross Jr., Secretary
Dexter R. Matthews, Director

NCDENR

May 2, 2002

Kevin Misenheimer
On-Scene Coordinator
US EPA Region 4
Waste Management Division-ERRB
61 Forsyth Street, SW
Atlanta, GA 30303

SUBJ: Comments on April 2002 Alternatives Evaluation Report
V.C. Chemical - Wadesboro
US EPA ID: NCSFN0406924
Wadesboro, Anson County, North Carolina

Dear Mr. Misenheimer:

The NC Superfund Section received the Alternatives Evaluation Report on April 4, 2002. This report was prepared on behalf of the potentially responsible parties (PRPs) by their consultant, Blasland, Bouck & Lee, Inc (BBL). BBL has proposed the following remedial alternative titled, "excavation of off-site soil and consolidation under on-site soil cover and institutional controls," as the preferred remedy for the lead and arsenic contaminated soil found at the subject site. After a review of the April 2002 Alternatives Evaluation Report, NC Superfund Section identified two ARARs not cited in this report - rules and regulations from the NC Inactive Hazardous Sites Branch (IHSB) and the NC Solid Waste Management Division. NC Superfund Section has prepared the following comments.

Site-Specific Action Levels for lead

BBL has proposed a site-specific action level of 1,200 milligrams per kilogram (mg/kg) for on- and off-site soil contaminated with lead. This action level will not be acceptable. The NC IHSB Soil Remediation Goals (SRG) for lead contaminated residential soil is 400 mg/kg. Further soil remediation at the site would be required under the NC IHSB if the lead were not removed to a level of 400 mg/kg. Therefore, site-specific action levels for lead contaminated soil located off site should be at least 400 mg/kg. Due to the past industrial use and current zoning of the site, an acceptable site-specific action level for on-site lead contaminated soil is 750 mg/kg, provided that institutional controls restrict the future use of the property. This concentration is based on the USEPA Region IX Industrial Preliminary Remediation Goal (PRG) for lead.

Waste Determination

Although groundwater analytical data suggests that leaching of lead into the shallow groundwater aquifer is minimal, the NC Superfund Section recommends that before any off-site excavation and subsequent removal commences, a waste determination must be performed on the off-site contaminated soil. The NC Superfund Section recommends that a Toxicity Characteristics Leaching Procedure (TCLP) analysis be performed to determine if the contaminated soil meets the requirements as a non-hazardous material. If TCLP analysis reveals that the contaminated soil exhibits hazardous characteristics, then the contaminated soil should be remediated and disposed of properly.

ARAR Compliance: 15A NCAC 13B.0200, .0500, .0600

These ARARs require that any person who establishes a solid waste management facility, or attempts to treat, store, or dispose of solid waste on his land, must obtain approval from the NC Solid Waste Management Division. As per 15A NCAC 13B, solid waste is defined as any hazardous or non-hazardous material that is either discarded or is being accumulated, stored, or treated prior to being discarded. BBL has proposed to excavate off-site soil and consolidate under an on-site soil cover with institutional controls as the preferred remedy for the lead and arsenic contaminated soil found at the site. Therefore, requirements outlined in 15A NCAC 13B.0200 must be followed to complete the proposed remedy for the lead and arsenic contaminated soil. In addition, groundwater monitoring may be required to the extent that the Division determines to be necessary to detect the effects of the facility on groundwater in the area.

Additional Alternative Evaluation

In an effort to satisfy both the EPA and the NC Superfund Section, we request that an additional alternative be evaluated for the remedy of lead and arsenic contaminated soil. We suggest that excavation of lead and arsenic contaminated soil to site-action levels, on-site treatment to meet non-hazardous characteristics, and off site disposal to a lined, non-hazardous landfill be evaluated for this site.

If you have any questions, please call me at (919) 733-2801, extension 298 or by e-mail at mike.deaton@ncmail.net.

Sincerely,

Mike Deaton
Environmental Engineer
Site Evaluation and Removal Branch
Superfund Section

Jim Bateson, Head
Site Evaluation and Removal Branch
Superfund Section

cc: File
Charlotte Jesneck

North Carolina
Department of Environment and Natural Resources
Division of Waste Management

Michael F. Easley, Governor
William G. Ross Jr., Secretary
Dexter R. Matthews, Director

NCDENR

May 2, 2002

JEANETTE'S COMMENTS

Kevin Misenheimer
On-Scene Coordinator
US EPA Region 4
Waste Management Division-ERRB
61 Forsyth Street, SW
Atlanta, GA 30303

SUBJ: Comments on April 2002 Alternatives Evaluation Report
V.C. Chemical - Wadesboro
US EPA ID: NCSFN0406924
Wadesboro, Anson County, North Carolina

Dear Mr. Misenheimer:

The NC Superfund Section received the Alternatives Evaluation Report on April 4, 2002. This report was prepared on behalf of the potentially responsible parties (PRPs) by their consultant, Blasland, Bouck & Lee, Inc. (BBL). BBL has proposed the excavation of off-site soil, ~~with consolidation under~~ and on-site soil cover ~~with~~ institutional controls as the preferred remedy for the lead and arsenic contaminated soil found at the subject site. ~~Based on~~ After a Review of the April 2002 Alternatives Evaluation Report, rules and regulations from the NC Inactive Hazardous Sites Branch (IHSB) and the NC Solid Waste Management Division, ~~the~~ NC Superfund Section has ~~prepared~~ the following comments.

placement of excavated soil on top of on-site contam. soil, followed with an

(?) Is this what you mean

NC Superfund Section ~~has~~ identified two ARARS not cited in this Report -

Site-Specific Action Levels for lead

BBL has proposed a site-specific action level of 1,200 milligrams per kilogram (mg/kg) for on- and off-site soil contaminated with lead. This action level will not be acceptable. The NC IHSB Soil Remediation Goals (SRG) for lead contaminated soil is 400 mg/kg. Further soil remediation at the site would be required under the NC IHSB if the lead were not removed to a level of 400 mg/kg. Therefore, site-specific action levels for lead contaminated soil located off site should be at least 400 mg/kg. Due to the past industrial use and current zoning of the site, an acceptable site-specific action level for on-site lead contaminated soil is 750 mg/kg, provided that institutional controls restrict the future use of the property. This concentration is based on the USEPA Region IX Industrial Preliminary Remediation Goal (PRG) for lead.

residential

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Waste Determination

Although groundwater analytical data suggests that leaching of lead into the shallow groundwater aquifer is minimal, the NC Superfund Section recommends that before any off-site excavation and subsequent removal commences, a waste determination must be performed on the off-site contaminated soil. The NC Superfund Section recommends that a Toxicity Characteristics Leaching Procedure (TCLP) analysis be performed to determine if the contaminated soil meets the requirements as a non-hazardous material. If TCLP analysis reveals that the contaminated soil exhibits hazardous characteristics, then the contaminated soil should be remediated and disposed of properly.

ARAR Compliance: 15A NCAC 13B.0200, .0500, .0600

These ARAR require that any person who establishes a solid waste management facility, or attempts to treat, store, or dispose of solid waste on his land, must obtain a permit from the NC Solid Waste Management Division. As per 15A NCAC 13B, solid waste is defined as any hazardous or non-hazardous material that is either discarded or is being accumulated, stored, or treated prior to being discarded. BBL has proposed the excavation of off-site soil with consolidation under on-site soil cover with institutional controls as the preferred remedy for the lead and arsenic contaminated soil found at the site. Therefore, ~~according to~~ 15A NCAC 13B.0200, ~~a solid waste permit~~ must be ~~obtained~~ to complete the proposed remedy for the lead and arsenic contaminated soil. In addition, groundwater monitoring may be required to the extent that the Division determines to be necessary to detect the effects of the facility on groundwater in the area.

requirements outlined in

See comment on 1st para.

followed

Additional Alternative Evaluation

We suggest that

In an effort to satisfy both the EPA and the NC Superfund Section, we request that an additional alternative be evaluated for the remedy of lead and arsenic contaminated soil. Excavation of lead and arsenic contaminated soil to site-action levels, on-site treatment to meet non-hazardous characteristics, and off-site disposal to a lined, non-hazardous landfill ~~should~~ be evaluated for this site.

If you have any questions, please call me at (919) 733-2801, extension 298 or by e-mail at mike.deaton@ncmail.net.

Sincerely,

Mike Deaton
Environmental Engineer
Site Evaluation and Removal Branch
Superfund Section

Jim Bateson, Head
Site Evaluation and Removal Branch
Superfund Section

cc: File
Charlotte Jesneck

Subject: wadesboro
Date: Thu, 25 Apr 2002 15:31:30 -0400
From: Jeanette Stanley <Jeanette.Stanley@ncmail.net>
To: Mike Deaton <Mike.Deaton@ncmail.net>

Mike, I'm sure you can find this online. This is the code for Solid Waste Management cells.

ARAR for Landfill

15A NCAC 13B, specifically paragraphs 13B.0602(11), 13B.0503, 13B.0504, 13B.0505, 13B.0601 these are siting requirements. .0503 dsicusses buffer requirements. other sections discuss requirements for monitoring wells.

.0202, .0203, and .0203 refer to required subsurface information.

You could also cite the Inactive Sites Guidelines as an ARAR.

Personally, I prefer treatment and off site disposal in a lined Subtitle D landfill.

I hope I answered your questions. I feel very strongly that off-site soil should be cleaned to 400. There could still be little spots within a grid that exceed this number where one could use averages to reach the clean up goal.

SECTION .0200 - PERMITS FOR SOLID WASTE MANAGEMENT FACILITIES

Rules .0201 - .0205 of Title 15A Subchapter 13B of the North Carolina Administrative Code (T15A.13B .0201 - .0205); have been transferred and recodified from Rules .0201 - .0205 of Title 10 Subchapter 10G of the North Carolina Administrative Code (T10.10G .0201 - .0205), effective April 4, 1990.

15A NCAC 13B .0201 PERMIT REQUIRED

(a) No person shall establish or allow to be established on his land, a solid waste management facility, or otherwise treat, store, or dispose of solid waste unless a permit for the facility has been obtained from the Division.

(b) The permit, except for land clearing and inert debris permits, shall have two parts, as follows:

(1) A permit to construct a solid waste management facility shall be issued by the Division after site and construction plans have been approved and it has been determined that the facility can be operated in accordance with the applicable rules set forth in this Subchapter and so as to provide reasonable protection to the environment and the public health. An applicant shall not clear or grade land or commence construction for a solid waste management facility until a construction permit has been issued.

(2) A permit to operate a solid waste management facility may not be issued unless it has been determined that the facility has been constructed in accordance with the construction permit, that any pre-operative conditions of the construction permit have been met, and that the construction permit has been recorded, if applicable, in accordance with Rule .0204 of this Section.

(c) Land clearing and inert debris facilities may be issued a combined permit to construct and operate the facility.

(d) Land clearing and inert debris facilities subject to Rule .0563 Item (1) may construct and operate after notification as provided for under Rule .0563 Item (2).

(e) Permits, including those issued prior to the effective date of this Rule, shall be reviewed every five years. Modifications, where necessary, shall be made in accordance with rules in effect at the time of review for those areas of a permitted sanitary landfill site which have not previously received solid waste.

(f) All solid waste management facilities shall be operated in conformity with these Rules and in such a manner as to prevent the creation of a nuisance, unsanitary conditions, or potential public health hazard.

History Note: *Filed as a Temporary Amendment Eff. May 19, 1993 to expire on October 9, 1993 or until the permanent rule becomes effective, whichever is sooner;*
Authority G.S. 130A-294;
Eff. April 1, 1982;
Amended Eff. January 4, 1993; February 1, 1991; March 1, 1988;
Temporary Amendment Expired Eff. October 9, 1993.

15A NCAC 13B .0202 PERMIT APPLICATION

(a) Application for permits required by Rule .0201 of this Section shall be forwarded to the Department of Environment, Health, and Natural Resources, Division of Solid Waste Management, Solid Waste Section, Post Office Box 27687, Raleigh, North Carolina 27611. Permit applications shall contain the following information:

(1) Site and construction plans;

(2) An approval letter from the unit of local government having zoning authority over the area where the facility is to be located stating that the proposed facility meets all of the requirements of the local zoning ordinance, or that the site is not zoned;

(3) Detailed plans and specifications for solid waste management facilities shall be prepared by a professional engineer except for land clearing and inert debris landfills subject to Rule .0563(1) of this Subchapter. The plans shall bear an imprint of the registration seal of the engineer and geological studies shall bear the seal of a licensed professional geologist, in accordance with N.C.G.S. Chapter 89E; and

(4) Any other information pertinent to the proposed facility.

(b) Specific information for a permit application is found in Sections .0300, .0400 and .0500 of this Subchapter.

History Note: *Authority G.S. 130A-294;*
Eff. April 1, 1982;

Amended Eff. January 4, 1993; February 1, 1991; September 1, 1990; August 1, 1988.

15A NCAC 13B .0203 PERMIT APPROVAL OR DENIAL

(a) Upon receipt of a permit application, the Division shall review the request to assure that all provisions of these Rules, the Solid Waste Management Act, and the Federal Act, will be met. Based on its review, the Division shall either approve or deny the request in writing.

(b) When an application is approved, the applicant shall be mailed a permit. If the approval is contingent upon certain conditions being met by the applicant, such conditions shall be noted on the permit.

(c) Before receiving solid waste on a new site, an inspection shall be made by a representative of the Division to assure that the site is prepared in accordance with the permit.

(d) By receiving solid waste on a new site, the applicant shall be considered to have accepted the conditions.

(e) When the Division denies a permit for a solid waste management facility, it shall state in writing the reason for such denial and shall also state its estimate of the changes in the applicant's proposed activities or plans which will be required in order that the applicant may obtain a permit. A denial shall be without prejudice to the person's right to a hearing or for filing a future request after revisions are made to meet objections specified as reasons for denial. Reasons for denial are:

(1) Submission of incomplete information;

(2) Failure to meet the requirements set forth in Sections .0300, .0400 and .0500 of this Subchapter applicable to the type of facility applied for; or

(3) The past conduct by the applicant, as defined in G.S. 130A-309.06(b), which has resulted in repeated violations of solid waste management statutes, these Rules, or orders issued thereunder, or violations of permit conditions of a solid waste management facility located in this State; or

(4) Any other reasons which would prevent the solid waste facility or site from being operated in accordance with Article 9, Chapter 130A of the General Statutes, these Rules, the Federal Act, or acceptable engineering or public health and environmental standards.

(f) Appeals of permit decisions shall be in accordance with Article 3 of N.C.G.S., Chapter 150B, and the Rules adopted thereunder.

History Note: *Authority G.S. 130A-294;*
Eff. April 1, 1982;
Amended Eff. February 1, 1991; August 1, 1988; February 1, 1988.

15A NCAC 13B .0204 RECORDATION OF LAND DISPOSAL PERMITS

(a) Whenever the Division approves a permit for a sanitary landfill or a facility for the disposal of hazardous waste on land, the owner of the facility shall be granted both an original permit and a copy certified by the secretary or his authorized representative. The permit shall include a legal description of the site that would be sufficient as a description in an instrument of conveyance.

(b) The owner of a facility granted a permit for a sanitary landfill or a facility for the disposal of hazardous waste on land shall file the certified copy of the permit in the register of deeds' office in the county or counties in which the land is located.

(c) The register of deeds shall record the certified copy and index it in the grantor index under the name of the owner of the land.

(d) The permit shall not be effective unless the certified copy is filed as required under Paragraph (b) of this Rule.

(e) When any sanitary landfill or a facility for the disposal of hazardous waste on land is sold, leased, conveyed or transferred in any manner, the deed or other instrument of transfer shall contain in the description section in no smaller type than that used in the body of the deed or instrument a statement that the property has been used as a sanitary landfill or a disposal site for hazardous waste and a reference by book and page to the recordation of the permit.

History Note: *Authority G.S. 130A-294;*
Eff. April 1, 1982.

15A NCAC 13B .0205 VARIANCES

History Note: *Authority G.S. 130A-294;*
Eff. April 1, 1982;
Repealed Eff. July 1, 1990 in accordance with G.S. 150B-59(c).

SECTION .0300 - TREATMENT AND PROCESSING FACILITIES

Rules .0301 - .0302 of Title 15A Subchapter 13B of the North Carolina Administrative Code (T15A.13B .0301 - .0302); have been transferred and recodified from Rules .0301 - .0302 of Title 10 Subchapter 10G of the North Carolina Administrative Code (T10.10G .0301 - .0302), effective April 4, 1990.

15A NCAC 13B .0503 SITING AND DESIGN REQUIREMENTS FOR DISPOSAL SITES

Disposal sites shall comply with the following requirements in order for a permit to be issued:

(1) A site shall meet the following siting requirements:

(a) A site located in a floodplain shall not restrict the flow of the 100-year flood, reduce the temporary water storage capacity of the floodplain or result in washout of solid waste so as to pose a hazard to human life, wildlife or land or water resources.

(b) A site shall be located in consideration of the following:

(i) a site shall not cause or contribute to the taking of any endangered or threatened species of plants, fish or wildlife;

(ii) a site shall not result in the destruction or adverse modification of the critical habitat of endangered or threatened species as identified in 50 C.F.R. Part 17 which is hereby incorporated by reference including any subsequent amendments and editions. This information is available for inspection at the Department of Environment, Health, and Natural Resources, Division of Solid Waste Management, 401 Oberlin Road, Raleigh, North Carolina 27605 where copies can be obtained at no cost;

(iii) a site shall not damage or destroy an archaeological or historical site; and

(iv) a site shall not cause an adverse impact on a state park, recreation or scenic area, or any other lands included in the state nature and historic preserve.

(c) A new site disposing of putrescible wastes shall not be located within 10,000 feet of an airport runway used by turbojet aircraft or within 5,000 feet of an airport runway used by piston-type aircraft; and

(d) A site shall have available adequate suitable soils for cover either on-site or from off-site.

(2) A site shall meet the following design requirements:

(a) The concentration of explosive gases generated by the site shall not exceed:

(i) twenty-five percent of the limit for the gases in site structures (excluding gas control or recovery system components); and

(ii) the lower explosive limit for the gases at the property boundary;

(b) A site shall not allow uncontrolled public access so as to expose the public to potential health and safety hazards at the disposal site;

(c) A site shall meet the following surface water requirements:

(i) A site shall not cause a discharge of pollutants into waters of the state that is in violation of the requirements of the National Pollutant Discharge Elimination System (NPDES), under Section 402 of the Clean Water Act, as amended, or that is in violation of standards promulgated under G.S. 143-214.1 and G.S. 143-215;

(ii) A site shall not cause a discharge of dredged material or fill material into waters of the state that is in violation of the requirements under Section 404 of the Clean Water Act, as amended, or that is in violation of any state requirements regulating the discharge of dredged or fill material into waters of the state, including wetlands; and

(iii) A site shall not cause non-point source pollution of waters of the state that violates assigned water quality standards.

(d) A site shall meet the following ground water requirements:

(i) A site, except for land clearing and inert debris landfills subject to Rule .0564(8)(e) of this Section, shall be designed so that the bottom elevation of solid waste will be a minimum of four feet above the seasonal high water table;

(ii) Operators of new industrial solid waste landfills, lateral expansions of existing industrial solid waste landfills, and industrial solid waste landfills receiving solid waste on or after January 1, 1998 shall submit to the Division a design which satisfies one of the following criteria:

(A) a design that will ensure that the ground water standards established under 15A NCAC 2L will not be exceeded in the uppermost aquifer at the compliance boundary established by the Division in accordance with 15A NCAC 2L. The design shall be based upon modeling methods acceptable to the Division, which shall include, at a minimum, the following factors:

(I) the hydrogeologic characteristics of the facility and surrounding lands;
(II) the climatic factors of the area; and
(III) the volume and physical and chemical characteristics of the leachate; or

(B) a design with a leachate collection system, a closure cap system, and a composite liner system consisting of two components: the upper component shall consist of a minimum 30-ml flexible membrane (FML), and the lower components shall consist of at least a two-foot layer of compacted soil with a hydraulic conductivity of no more than 1 X 10-7cm/sec. FML components consisting of high density polyethylene (HDPE) shall be at least 60-ml thick.

The FML component shall be installed in direct and uniform contact with the compacted soil component.

(iii) The Division reserves the right to require an applicant to submit a liner design if the groundwater protection demonstration is Sub-item (ii) of this Paragraph is not satisfactory.

(iv) Industrial solid waste landfills shall comply with ground water standards established under 15A NCAC 2L at the compliance boundary.

(e) A site shall not engage in open burning of solid waste;

(f) A site, except a land clearing and inert debris landfill, shall meet the following buffer requirements:

(i) A 50-foot minimum buffer between all property lines and disposal areas;
(ii) A 500-foot minimum buffer between private dwellings and wells and disposal areas; and
(iii) A 50-foot minimum buffer between streams and rivers and disposal areas; and

(g) Requirements of the Sedimentation Pollution Control Law (15A NCAC 4) shall be met.

History Note: *Authority G.S. 130A-294;*
Eff. April 1, 1982;
Amended Eff. October 1, 1995; January 4, 1993; February 1, 1991; September 1, 1990.

15A NCAC 13B .0504 APPLICATION REQUIREMENTS FOR SANITARY LANDFILLS

A permit for a sanitary landfill shall be based upon a particular stream of identified waste, as set forth in Rule .0504 (g)(i) and (ii) of this Section. Any substantial change in the population or area to be served, or in the type, quantity or source of waste shall require a new permit and operation plan, including waste determination procedures where appropriate. Five sets of plans shall be required with each application.

(1) The following information shall be required for reviewing a site application for a proposed sanitary landfill:

(a) An aerial photograph on a scale of at least 1 inch equals 400 feet and a blueprint of the photograph accurately showing the area within one-fourth mile of the proposed site's boundaries with the following specifically identified:

(i) Entire property owned or leased by the person proposing the disposal site;
(ii) Land use and zoning;
(iii) Location of all homes, industrial buildings, public or private utilities, and roads;
(iv) Location of wells, watercourses, dry runs, and other applicable details regarding the general topography; and
(v) Flood plains.

(b) A map on a scale of at least 1 inch equals 1000 feet showing the area within two miles of the proposed site's boundaries with the following specifically identified:

(i) Significant ground-water users;
(ii) Potential or existing sources of ground-water and surface water pollution;
(iii) Water intakes;
(iv) Airport and runways; and
(v) Subdivisions.

(c) A geological and hydrological study of the site which provides:

(i) Soil borings for which the numbers and depths have been confirmed by the Division and lab testing of selected soil samples that provide:

(A) standard penetration - resistance;

(B) particle size analysis;

(C) soil classification - USCS;

(D) geologic considerations (slopes, solution features, etc.);

(E) undisturbed representative geologic samples of the unconfined or confined or semiconfined hydrological units within a depth of 50 feet that provide the following information for each major lithologic units:

(I) saturated hydraulic conductivity (or by in-situ);

(II) volume percent water; and

(III) porosity;

(F) remolded sample of cover soils that provide:

(I) saturated hydraulic conductivity,

(II) total porosity,

(III) atterberg limits;

(G) stratagraphic cross-sections identifying hydrogeological units including lithology;

(H) tabulation of water table elevations at time of boring, 24 hours, and seven days (The number of cased borings to provide this information shall be confirmed by the Division.); and

(I) boring logs;

(ii) A boundary plat locating soil borings with accurate horizontal and vertical control which are tied to a permanent onsite bench mark;

(iii) A potentiometric map of the surfical aquifer based on stabilized water table elevations; and

(iv) A report summarizing the geological and hydrological evaluation.

(d) A conceptual design plan presenting special engineering features or considerations which must be included or maintained in site construction, operation, maintenance and closure.

(e) Local government approvals:

(i) If the site is located within an incorporated city or town, or within the extra-territorial jurisdiction of an incorporated city or town, the approval of the governing board of the city or town shall be required. Otherwise, the approval of the Board of Commissioners of the county in which the site is located shall be required. Approval may be in the form of either a resolution or a vote on a motion. A copy of the resolution, or the minutes of the meeting where the vote was taken, shall be forwarded to the Division.

(ii) A letter from the unit of government having zoning jurisdiction over the site which states that the proposal meets all of the requirements of the local zoning ordinance, or that the site is not zoned.

(f) A discussion of compliance with siting standards in Rule .0503(1) of this Subchapter.

(g) A report indicating the following:

(i) population and area to be served;

(ii) type, quantity and source of waste;

(iii) the equipment that will be used for operating the site;

(iv) a proposed groundwater monitoring plan including well location and schematics showing proposed screened interval, depth and construction; and

(v) a more detailed geologic report may be required depending on specifics of the site. This report may be based on physical evidence, initially, or due to information obtained from the site plan application.

(h) Any other information pertinent to the suitability of the proposed site.

(2) The following information shall be is required for reviewing a construction plan application for a proposed sanitary landfill:

(a) A map showing existing features to include:

(i) existing topography of the site on a scale of at least 1 inch equals 200 feet with five foot contours;
(ii) bench marks;
(iii) springs;
(iv) streams;
(v) potential ground-water monitoring sites;
(vi) pertinent geological features; and
(vii) soil boring locations.

(b) A grading plan that provides:
(i) proposed excavated contours;
(ii) soil boring locations;
(iii) locations and elevations of dikes or trenches;
(iv) designated buffer zones;
(v) diversion and controlled removal of surface water from the work areas; and
(vi) proposed utilities and structures.

(c) A construction plan that provides:
(i) engineering design for liners, leachate collections systems;
(ii) proposed final contours showing removal of surface water runoff; and
(iii) locations of slope drains or other drop structures.

(d) An erosion control plan that identifies the following:
(i) locations of temporary erosion control measures (sediment basins, stone filters, terraces, silt fences, etc.);
(ii) locations of permanent erosion control measures (rip-rap, energy dissipators, ditch stabilization, pipe drain, etc.); and
(iii) seeding specifications and schedules.

(e) Detailed diagrams showing typical sections of:
(i) dikes,
(ii) trenches,
(iii) diversions,
(iv) sediment basins, and
(v) other pertinent details.

(f) A minimum of two cross sections per operational area showing:
(i) original elevations,
(ii) proposed excavated depths,
(iii) proposed final elevations,
(iv) ground-water elevation, and
(v) soil borings.

(g) Site development showing phases or progression of operation.

(h) A written report that contains the following:
(i) A copy of the deed or other legal description of the landfill site that would be sufficient as a description in an instrument of conveyance and property owner's name;
(ii) Name of individual responsible for operation and maintenance of the site;
(iii) Projected use of land after completion of the sanitary landfill;
(iv) Anticipated lifetime of the project;
(v) Description of systematic usage of area, operation, orderly development and completion of the sanitary landfill;
(vi) Earthwork calculations;
(vii) Seeding specifications and schedules;
(viii) Calculations for temporary and permanent erosion control measures;
(ix) Any narrative necessary to describe compliance with the Sedimentation Pollution Control Act of 1973 (15A NCAC 4);
(x) A discussion of compliance with design requirements in Rule .0503(2) of this Section; and
(xi) Any other information pertinent to the proposed construction plan.

History Note: *Filed as a Temporary Amendment Eff. October 1, 1987, For a Period of 180 Days to expire on March 29, 1988;*
Authority G.S. 130A-294;
Eff. April 1, 1982;
Amended Eff. February 1, 1991; September 1, 1990; March 1, 1988; January 1, 1985.

15A NCAC 13B .0505 OPERATIONAL REQUIREMENTS FOR SANITARY LANDFILLS

Any person who maintains or operates a sanitary landfill site shall maintain and operate the site in conformance with the following practices, unless otherwise specified in the permit:

(1) Plan and Permit Requirements
- (a) Construction plans shall be approved and followed.
- (b) Specified monitoring and reporting requirements shall be met.

(2) Spreading and Compacting Requirements
- (a) Solid waste shall be restricted into the smallest area feasible.
- (b) Solid waste shall be compacted as densely as practical into cells.

(3) Cover Requirements
- (a) Solid waste shall be covered after each day of operation, with a compacted layer of at least six inches of suitable cover or as specified by the Division.
- (b) Areas which will not have additional wastes placed on them for 12 months or more, but where final termination of disposal operations has not occurred, shall be covered with a minimum of one foot of intermediate cover.
- (c) After final termination of disposal operations at the site or a major part thereof, or upon revocation of a permit, the area shall be covered with at least two feet of suitable compacted earth.

(4) Erosion Control Requirements
- (a) Adequate erosion control measures shall be practiced to prevent silt from leaving the site.
- (b) Adequate erosion control measures shall be practiced to prevent excessive on-site erosion.

(5) Drainage Control Requirements
- (a) Surface water shall be diverted from the operational area.
- (b) Surface water shall not be impounded over or in waste.
- (c) Completed areas shall be adequately sloped to allow surface water runoff in a controlled manner.

(6) Vegetation Requirements
- (a) Within six months after final termination of disposal operations at the site or a major part thereof or upon revocation of a permit, the area shall be stabilized with native grasses.
- (b) Temporary seeding will be utilized as necessary to stabilize the site.

(7) Water Protection Requirements
- (a) The separation distance of four feet between waste and water table shall be maintained unless otherwise specified by the Division in the permit.
- (b) Solid waste shall not be disposed of in water.
- (c) Leachate shall be contained on site or properly treated prior to discharge. An NPDES permit may be required prior to the discharge of leachate to surface waters.

(8) Access and Security Requirements
- (a) The site shall be adequately secured by means of gates, chains, berms, fences, and other security measures approved by the Division, to prevent unauthorized entry.
- (b) An attendant shall be on duty at the site at all times while it is open for public use to ensure compliance with operational requirements.
- (c) The access road to the site shall be of all-weather construction and maintained in good condition.
- (d) Dust control measures shall be implemented where necessary.

(9) Sign Requirements

(a) Signs providing information on dumping procedures, the hours during which the site is open for public use, the permit number and other pertinent information shall be posted at the site entrance.

(b) Signs shall be posted stating that no hazardous or liquid waste can be received without written permission from the Division.

(c) Traffic signs or markers shall be provided as necessary to promote an orderly traffic pattern to and from the discharge area and to maintain efficient operating conditions.

(10) Safety Requirements

(a) Open burning of solid waste is prohibited.

(b) Equipment shall be provided to control accidental fires or arrangements shall be made with the local fire protection agency to immediately provide fire-fighting services when needed.

(c) Fires that occur at a sanitary landfill shall be reported to the Division within 24 hours and a written notification shall be submitted within 15 days.

(d) The removal of solid waste from a sanitary landfill is prohibited unless the owner/operator approves and the removal is not performed on the working face.

(e) Barrels and drums shall not be disposed of unless they are empty and perforated sufficiently to ensure that no liquid or hazardous waste is contained therein.

(11) Waste Acceptance and Disposal Requirements

(a) A site shall only accept those solid wastes which it is permitted to receive. The landfill operator shall notify the Division within 24 hours of attempted disposal of any waste the landfill is not permitted to receive, including waste from outside the area the landfill is permitted to serve.

(b) No hazardous or liquid waste shall be accepted or disposed of in a sanitary landfill.

(c) Spoiled foods, animal carcasses, abattoir waste, hatchery waste, and other animal waste delivered to the disposal site shall be covered immediately.

(d) Asbestos waste that is packaged in accordance with 40 CFR 61, which is adopted by reference in accordance with G.S. 150B-14(c), may be disposed of separate and apart from other solid wastes at the bottom of the working face or in an area not contiguous with other disposal areas, in either case, in virgin soil. Separate areas shall be clearly marked so that asbestos is not exposed by future land-disturbing activities. The waste shall be covered immediately with soil in a manner that will not cause airborne conditions. Copies of 40 CFR 61 may be obtained and inspected at the Division.

(e) Wastewater treatment sludges may only be used as a soil conditioner and incorporated into the final two feet of cover. Sludges shall be examined for acceptance by Waste Determination procedures in Rule .0103(e) of this Subchapter.

(12) Miscellaneous Requirements

(a) Effective vector control measures shall be applied to control flies, rodents, and other insects or vermin when necessary.

(b) Appropriate methods such as fencing and diking shall be provided within the area to confine solid waste subject to be blown by the wind. At the conclusion of each day of operation, all windblown material resulting from the operation shall be collected and returned to the area by the owner or operator.

History Note: *Filed as a Temporary Amendment Eff. November 1, 1987, For a Period of 180 Days to Expire on April 28, 1988;*
Authority G.S. 130A-294;
Eff. April 1, 1982;
Amended Eff. September 1, 1990; February 1, 1988; January 1, 1985.

SECTION .0600 - MONITORING REQUIREMENTS

Rules .0601 - .0602 of Title 15A Subchapter 13B of the North Carolina Administrative Code (T15A.13B .0601 - .0602); have been transferred and recodified from Rules .0601 - .0602 of Title 10 Subchapter 10G of the North Carolina Administrative Code (T10.10G .0601 - .0602), effective April 4, 1990.

15A NCAC 13B .0601 GROUND-WATER MONITORING

(a) The Division shall require a solid waste management facility to provide such ground-water monitoring capability as the Division determines to be necessary to detect the effects of the facility on ground-water in the area. In making such a determination, the Division shall consider the following factors:

(1) the design of the facility, the nature of the processes it will use, and the type of waste it will handle;
(2) soil and other geological conditions in the area;
(3) nearness of ground-water to the facility;
(4) uses that are being or may be made of any ground-water that may be affected by the facility; and
(5) any other factors that reasonably relate to the potential for ground-water effects from the facility.

(b) Responsibility for sample collection and analysis will be defined as a part of the permit condition.

(c) Any other information that the Division deems pertinent to the development of a ground-water monitoring system will be required.

(d) All monitoring wells required pursuant to this Rule shall comply with monitoring well construction standards of 15A NCAC 2C .0105. Copies of 15A NCAC 2C may be obtained from and inspected at the Division.

(e) A record of well installation shall be filed with the Division upon completion of the monitoring wells.

(f) Groundwater quality monitoring wells shall be constructed of materials, and by procedures, approved by the Division.

History Note: *Authority G.S. 130A-294;*
Eff. April 1, 1982;
Amended Eff. September 1, 1990; August 1, 1988; January 1, 1985.

15A NCAC 13B .0602 SURFACE WATER MONITORING

(a) The Division shall require a solid waste management facility to provide such surface water monitoring capability as the Division determines to be necessary to detect the effects of the facility on surface water in the area. In making such a determination, the Division shall consider the following factors:

(1) the design of the facility, the nature of the process it will use, and the type of waste it will handle;
(2) drainage patterns and other hydrological conditions in the area;
(3) nearness of surface water to the facility;
(4) uses that are being or may be made of any surface water that may be affected by the facility; and
(5) any other factors that reasonably relate to the potential for surface water effects from the facility.

(b) Responsibility for sample collection and analysis will be defined as a part of the permit conditions.

(c) Any other information that the Division deems pertinent to the development of a surface water monitoring system will be required.

History Note: *Authority G.S. 130A-294;*
Eff. April 1, 1982.

BBL
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

Transmitted Via Federal Express

APR - 4 2002

April 3, 2002

Kevin Misenheimer
USEPA Region 4
61 Forsyth Street, S.W.
Atlanta, Georgia 30303-8960

Re: Alternatives Evaluation Report, Wadesboro VCC Site, Wadesboro, NC
BBL Project #: 54626

Dear Mr. Misenheimer:

On behalf of Exxon Mobil Corporation, attached for your review are two copies of the document *Alternatives Evaluation Report, Wadesboro VCC Site, Wadesboro, NC*. This report presents the results of an evaluation of several alternatives for the Phase II Action at the Site. Also enclosed is one copy of the document *Site Characterization Report for the Former Virginia-Carolina Chemical Company Phosphate/Fertilizer Plant, Wadesboro, North Carolina*. This report, submitted in December 2001, presents the results of the past data collection efforts at the Site.

Please contact Mr. Kyle Harris at 713/656-9059 if you have any questions or wish to discuss these reports.

Sincerely,

BLASLAND, BOUCK & LEE, INC.

Geoffrey G. Germann, P.E.
Manager/Senior Engineer I

Cbl:cl
Enclosures: 2

cc: M. Deaton, NCDENR (2)
K. Harris, ExxonMobil (1)
C. Leonard (1)
File

3700 Regency Parkway • Suite 140 • Cary, NC 27511-8574
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EPA United States Environmental Protection Agency

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V.C. CHEMICAL-WADESBORO

Site Information

Actions | Aliases | Financial | Op Units | RODs

Site Name:V.C. CHEMICAL-WADESBORO
Street:STANBACK FERRY ROAD
City / State / Zip:WADESBORO, NC 28170

EPA ID:NCSFN0406924
EPA Region:04
County:ANSON

NPL Status: Not on the NPL
Non-NPL Status:ESI Ongoing
Federal Facility Flag: Not a Federal Facility
Incident Category:

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EPA United States Environmental Protection Agency

Superfund

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V.C. CHEMICAL-WADESBORO

Actions

Site Info | Aliases | Op Units | Financial | RODs

OU	Action Name	Qualifier	Lead	Actual Start	Actual Completion
00	DISCOVERY		F		04/02/1999
00	PRELIMINARY ASSESSMENT	H	S	07/06/1999	03/31/2000
00	SITE INSPECTION	H	S	07/06/1999	03/31/2000
00	ADMIN ORDER ON CONSENT		FE		12/22/2000
00	ADMINISTRATIVE RECORDS		F	05/29/2001	05/29/2001

[Back to TOP]

de maximis, inc.

450 Montbrook Lane
Knoxville, TN 37919
(865) 691-5052
(865) 691-6485 FAX
(865) 691-9835 Acct. FAX

RECEIVED
JAN 14 2002
...ION

January 10, 2002

Kevin Misenheimer
USEPA, Region IV
Atlanta Federal Center
61 Forsyth Street
Atlanta, Georgia 30303

Reference: Monthly Progress Report for December 2001
Virginia-Carolina Chemical Company Site
Wadesboro, North Carolina

Dear Mr. Misenheimer:

Enclosed is the monthly progress report for December 2001 pursuant to the Administrative Order of Consent (AOC) dated December 22, 2000. As discussed between you and Kyle Harris on January 9, submission of monthly progress reports will be temporarily discontinued until the project work reaches a phase where additional reporting is needed by EPA and a new frequency for progress reports will then be established. Furthermore, during this period of reduced reporting, Mr. Harris will accomplish updates of project progress by a monthly telephone call with you. The next progress report for the first quarter, January through March 2002, will be submitted by April 10, 2002.

If you or your staff have questions concerning this report, please contact Michael Miller at (865) 691-5052.

Sincerely,
de maximis, inc.

John Stiles for MAM

Michael A. Miller
Project Coordinator

MAM:JS:mpl

Enclosure

cc: Geoff Germann, Blasland, Bouck & Lee
J. Kyle Harris, ExxonMobil
Mike Deaton, NCDENR
John Stiles, *de maximis, inc.*

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PAPER

Virginia-Carolina Chemical Company Site
Wadesboro, North Carolina

Progress Report

PROJECT NAME: Virginia-Carolina Chemical Company Site
Wadesboro, North Carolina

TIME PERIOD COVERED: December 1–31, 2001

ACTIONS TAKEN TOWARD COMPLIANCE WITH ORDER:

- The Site Characterization Report was revised and Revision 1 to the report was submitted on December 14, 2001.

ACTION ITEMS FOR FOLLOWING MONTH:

- It is anticipated that the revised Site Characterization Report will be discussed upon agency review of the report.

ANTICIPATED DELAYS/PROBLEMS:

- None.

RESULTS OF SAMPLING/TESTING/FIELD MEASUREMENTS:

- A summary of analytical data for the soil, groundwater, and sediment sampling activities for site characterization was included in the July 19, 2001 submittal of the Site Characterization Report.

PAPER

BBL
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

RECEIVED
DEC 17 2001

Transmitted Via FedEx

December 14, 2001

Mr. John Nolen
On-Scene Coordinator
USEPA Region 4
Sam Nunn Atlanta Federal Center
61 Forsyth Street SW
Atlanta, GA 30303-8960

Re: Site Characterization Report (Revision 1), Former VCC Site, Wadesboro, North Carolina
BBL Project #: 54626

Dear Mr. Nolen:

On behalf of Exxon Mobil Corporation (ExxonMobil), enclosed for your review are two copies of the document *Site Characterization Report for the Former Virginia-Carolina Chemical Company Phosphate/Fertilizer Plant, Wadesboro, North Carolina (Revision 1)*. This report presents the results of the data collection efforts implemented in accordance with the requirements of the project work plan and presents recommendations for future actions at the Site. It has been revised as you have requested to include a comparison of soil sample analytical results to USEPA Region 9 residential preliminary remediation goals (PRGs).

The data collected during the site investigation show that shallow soils, located primarily in the southern portion of the Site, contain elevated concentrations of arsenic and lead. The data also show that groundwater, surface water, and sediment do not contain elevated concentrations of Site-related metals. Therefore, shallow soil containing elevated concentrations of arsenic and lead is the matrix of concern at the site and the groundwater, surface water, and sediments can be eliminated from further investigation.

Please contact Mr. Harris at (713) 656-9059 if you have any questions on the attached report.

Sincerely,

BLASLAND, BOUCK & LEE, INC.

Geoffrey G. Germann, P.E.
Manager/Senior Engineer I

GGG:gg

3700 Regency Parkway • Suite 140 • Cary, NC 27511-8574
Tel (919) 469-1952 • Fax (919) 469-5676 • www.bbl-inc.com • offices nationwide

Enclosures - 2

cc: 2 – M. Deaton, NCDENR ✓
1 – K. Harris, ExxonMobil
1 – J. Stiles, de maximis
1 – A. Hackenburg, BBL

NORTH CAROLINA FEDERAL REMEDIATION BRANCH TARGET SCREENING GUIDELINES

Common Name	carcinogenic/ non-carcinogenic	Std. Method	Groundwater Protection Stds (2L) ug/l	OEEB Recom-mended 2L ug/l (1)	Federal Drinking Water Std. (MCL) ug/l	Region 9 Tapwater ug/l	NC Soil-to-Groundwater Concentration ug/kg (2)	Region 9 Residential Risk-Based Concentration (Integrated) ug/kg	Region 9 Industrial Risk-Based Concentration (Integrated) ug/kg
Antimony	nc	7041 6010			6	15	5,420	31,000	820,000
Arsenic	ca	7060 6010	50	0.02	50	0.045	26,200	390	2,700
Barium	nc	6010	2,000		2,000	2,600	848,000	5,400,000	100,000,000
Beryllium	nc	6010 7091			4	73	3,380	150,000	2,200,000
Cadmium	nc	7131 6010	5	1.75	5	18	2,720	37,000	810,000
Carbon disulfide	nc	8240	700 (l)			1,000	4,940	360,000	720,000
Chromium (Total)	ca	7191 6010	50	10.5	100		27,200	210,000	450,000
Chromium VI	ca					110		30,000	64,000
Cobalt	nc	7201 6010				2,200		4,700,000	100,000,000
Copper	nc	6010	1000		1300 (al) 1000 (s)	1,400	704,000	2,900,000	76,000,000
Lead	nc	7421 6010	15		15 (al)		270,000	400,000 (n)	1,000,000
Mercury	nc	7470	1.1	1.05	2	11	15.4	23,000	610,000
Nickel	nc	6010	100	70		730	56,400	1,600,000	41,000,000
Selenium	nc	7740	50	17.5	50	180	12,200	390,000	10,000,000
Silver	nc	6010	18	17.5	100 (s)	180	223	390,000	10,000,000
Sulfide		9030							
Thallium		7841 6010			2		512	See note 3	
Tin	nc	7870				22,000		47,000,000	100,000,000
Vanadium	nc	7911 6010				260		550,000	14,000,000
Zinc	nc	6010	2,100	1,050	5,000 (s)	11,000	1,100,000	23,000,000	100,000,000
Compounds Not in Appendix IX:									
Aluminum	nc				200 (s)	36,000		76,000,000	100,000,000
Asbestos(fibers > 10 um long)					7 MF/L				
Boron	nc		320	315		3,300	20,500	5,500,000	79,000,000
Chloride			250,000		250,000				
Iron	nc		300		300	11,000	151,000	23,000,000	100,000,000
Manganese	nc		50		50	880	65,200	1,800,000	32,000,000
Nitrate (as N)			10,000		10,000	10,000		See note 3	
Sulfate			250,000		250,000				
Radium-226, pCi/L			5	0.071					
Radium-228, pCi/L			5	0.023					
Color, color units			15		15				
TDS			500,000		500,000				
Gross alpha (excluding radium-226 and uranium), pCi/L			15						
pH			6.5-8.5		6.5-8.5				

JOHN NOLEN
(404) 562-8750
EXXONMOBIL CONTACT:
Kyle Harris -
ROS.

de maximis, inc.

450 Montbrook Lane
Knoxville, TN 37919
(865) 691-5052
(865) 691-6485 FAX
(865) 691-9835 Acct. FAX

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DEC 14 2001
SUPERFUND SECTION

December 10, 2001

John Nolen, OSC
USEPA, Region IV
Atlanta Federal Center
61 Forsyth Street
Atlanta, Georgia 30303

Reference: Monthly Progress Report for November 2001
Virginia-Carolina Chemical Company Site
Wadesboro, North Carolina

Dear Mr. Nolen:

Enclosed is the monthly progress report for November 2001 pursuant to the Administrative Order of Consent (AOC) dated December 22, 2000.

If you or your staff have questions concerning this report, please contact Michael Miller at (865) 691-5052.

Sincerely,
de maximis, inc.

John Stiles for MAM
Michael A. Miller
Project Coordinator

MAM:JS:mpl

Enclosure

cc: Geoff Germann, Blasland, Bouck & Lee
J. Kyle Harris, ExxonMobil
Mike Deaton, NCDENR
John Stiles, *de maximis, inc.*

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PAPER

Virginia-Carolina Chemical Company Site
Wadesboro, North Carolina

Progress Report

PROJECT NAME: Virginia-Carolina Chemical Company Site
Wadesboro, North Carolina

TIME PERIOD COVERED: November 1–30, 2001

ACTIONS TAKEN TOWARD COMPLIANCE WITH ORDER:

- The Site Characterization Report was discussed with the EPA. The report will be revised to incorporate agency comments.

ACTION ITEMS FOR FOLLOWING MONTH:

- It is anticipated that the Site Characterization Report will be revised and submitted in December.

ANTICIPATED DELAYS/PROBLEMS:

- None.

RESULTS OF SAMPLING/TESTING/FIELD MEASUREMENTS:

- A summary of analytical data for the soil, groundwater, and sediment sampling activities for site characterization was included in the July 19, 2001 submittal of the Site Characterization Report.

PAPER

Mike,

FYI, did Dom keep a file or log on these?

See me,

Thanks,

Jack

de maximis, inc.

450 Montbrook Lane
Knoxville, TN 37919
(865) 691-5052
(865) 691-6485 FAX
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RECEIVED
OCT 17 2001
SUPERFUND SECTION

October 5, 2001

John Nolen, OSC
USEPA, Region IV
Atlanta Federal Center
61 Forsyth Street
Atlanta, Georgia 30303

Reference: Monthly Progress Report for September 2001
Virginia-Carolina Chemical Company Site
Wadesboro, North Carolina

Dear Mr. Nolen:

Enclosed is the monthly progress report for September 2001 pursuant to the Administrative Order of Consent (AOC) dated December 22, 2000.

If you or your staff have questions concerning this report, please contact Michael Miller at (865) 691-5052.

Sincerely,
de maximis, inc.

Michael A. Miller
Project Coordinator

MAM:JS:mpl

Enclosure

cc: Geoff Germann, Blasland, Bouck & Lee
J. Kyle Harris, ExxonMobil
Dan LaMontagne, NCDENR
Michael Skinner, Michael Skinner Consulting
John Stiles, *de maximis, inc.*

F:\PROJECTS\6122\2001 Correspondence\mprsep_01.wpd 6122-07

PAPER

Virginia-Carolina Chemical Company Site
Wadesboro, North Carolina

Progress Report

PROJECT NAME: Virginia-Carolina Chemical Company Site
Wadesboro, North Carolina

TIME PERIOD COVERED: September 1–30, 2001

ACTIONS TAKEN TOWARD COMPLIANCE WITH ORDER:

- The Site Characterization Report was previously submitted on July 19, 2001.

ACTION ITEMS FOR FOLLOWING MONTH:

- It is anticipated that the Site Characterization Report will be discussed upon agency review of the report.

ANTICIPATED DELAYS/PROBLEMS:

- None.

RESULTS OF SAMPLING/TESTING/FIELD MEASUREMENTS:

- A summary of analytical data for the soil, groundwater, and sediment sampling activities for site characterization was included in the July 19, 2001 submittal of the Site Characterization Report.

PAPER

EPA United States Environmental Protection Agency

Waste Programs

Region 9

PRG Tables: A-Bu

PRG Home | What's New | FAQ | Other Links
R9 PRG Tables: A-Bu | Ca-De | Di-Fe | Fl-Mo | Na-Pu | Py-Zi
Soil Calculations: A-Bu | Ca-De | Di-Fe | Fl-Mo | Na-Pu | Py-Zi
Air-Water Calculations: A-Bu | Ca-De | Di-Fe | Fl-Mo | Na-Pu | Py-Zi
Toxicity Values: A-Bu | Ca-De | Di-Fe | Fl-Mo | Na-Pu | Py-Zi
Phys-Chem Data: A-Di | Ep-Tr

	CONTAMINANT	PRELIMINARY REMEDIATION GOALS (PRGs)						
CAS No.		Residential Soil (mg/kg)		Industrial Soil (mg/kg)		Ambient Air (ug/m^3)		Tap Water (ug/l)
30560-19-1	Acephate	5.6E+01	ca**	2.8E+02	ca*	7.7E-01	ca*	7.7E+00
75-07-0	Acetaldehyde	1.1E+01	ca**	2.3E+01	ca**	8.7E-01	ca*	1.7E+00
34256-82-1	Acetochlor	1.2E+03	nc	1.8E+04	nc	7.3E+01	nc	7.3E+02
67-64-1	Acetone	1.6E+03	nc	6.2E+03	nc	3.7E+02	nc	6.1E+02
75-86-5	Acetone cyanohydrin	4.9E+01	nc	7.0E+02	nc	2.9E+00	nc	2.9E+01
75-05-8	Acetonitrile	2.7E+02	nc	1.7E+03	nc	6.2E+01	nc	7.9E+01
98-86-2	Acetophenone	4.9E-01	nc	1.6E+00	nc	2.1E-02	nc	4.2E-02
50594-66-6	Acifluorfen	4.4E+00	ca	2.2E+01	ca	6.1E-02	ca	6.1E-01
107-02-8	Acrolein	1.0E-01	nc	3.4E-01	nc	2.1E-02	nc	4.2E-02
79-06-1	Acrylamide	1.1E-01	ca	5.4E-01	ca	1.5E-03	ca	1.5E-02
79-10-7	Acrylic acid	2.9E+04	nc	1.0E+05	max	1.0E+00	nc	1.8E+04
107-13-1	Acrylonitrile	2.1E-01	ca*	5.1E-01	ca*	2.8E-02	ca*	3.9E-02
15972-60-8	Alachlor	6.0E+00	ca	3.1E+01	ca	8.4E-02	ca	8.4E-01
1596-84-5	Alar	9.2E+03	nc	1.0E+05	max	5.5E+02	nc	5.5E+03
116-06-3	Aldicarb	6.1E+01	nc	8.8E+02	nc	3.7E+00	nc	3.6E+01
1646-88-4	Aldicarb sulfone	6.1E+01	nc	8.8E+02	nc	3.7E+00	nc	3.6E+01
309-00-2	Aldrin	2.9E-02	ca*	1.5E-01	ca	3.9E-04	ca	4.0E-03
5585-64-8	Ally	1.5E+04	nc	1.0E+05	max	9.1E+02	nc	9.1E+03
107-18-6	Allyl alcohol	3.1E+02	nc	4.4E+03	nc	1.8E+01	nc	1.8E+02
107-05-1	Allyl chloride	3.0E+03	nc	4.3E+04	nc	1.0E+00	nc	1.8E+03
7429-90-5	Aluminum	7.6E+04	nc	1.0E+05	max	5.1E+00	nc	3.6E+04
20859-73-8	Aluminum phosphide	3.1E+01	nc	8.2E+02	nc			1.5E+01
67485-29-4	Amdro	1.8E+01	nc	2.6E+02	nc	1.1E+00	nc	1.1E+01
834-12-8	Ametryn	5.5E+02	nc	7.9E+03	nc	3.3E+01	nc	3.3E+02
591-27-5	m-Aminophenol	4.3E+03	nc	6.2E+04	nc	2.6E+02	nc	2.6E+03

504-24-5	4-Aminopyridine	1.2E+00	nc	1.8E+01	nc	7.3E-02	nc	7.3E-01
33089-61-1	Amitraz	1.5E+02	nc	2.2E+03	nc	9.1E+00	nc	9.1E+01
7664-41-7	Ammonia					1.0E+02	nc	
7773-06-0	Ammonium sulfamate	1.2E+04	nc	1.0E+05	max			7.3E+03
62-53-3	Aniline	8.5E+01	ca**	4.3E+02	ca*	1.0E+00	nc	1.2E+01
7440-36-0	Antimony and compounds	3.1E+01	nc	8.2E+02	nc			1.5E+01
1314-60-9	Antimony pentoxide	3.9E+01	nc	1.0E+03	nc			1.8E+01
28300-74-5	Antimony potassium tartrate	7.0E+01	nc	1.8E+03	nc			3.3E+01
1332-81-6	Antimony tetroxide	3.1E+01	nc	8.2E+02	nc			1.5E+01
1309-64-4	Antimony trioxide	3.1E+01	nc	8.2E+02	nc	2.1E-01	nc	1.5E+01
74115-24-5	Apollo	7.9E+02	nc	1.1E+04	nc	4.7E+01	nc	4.7E+02
140-57-8	Aramite	1.9E+01	ca	9.9E+01	ca	2.7E-01	ca	2.7E+00
7440-38-2	Arsenic (noncancer endpoint)	2.2E+01	nc	4.4E+02	nc			
7440-38-2	Arsenic (cancer endpoint)	3.9E-01	ca*	2.7E+00	ca	4.5E-04	ca	4.5E-02
7784-42-1	Arsine (see arsenic for cancer endpoint)					5.2E-02	nc	
76578-12-6	Assure	5.5E+02	nc	7.9E+03	nc	3.3E+01	nc	3.3E+02
3337-71-1	Asulam	3.1E+03	nc	4.4E+04	nc	1.8E+02	nc	1.8E+03
1912-24-9	Atrazine	2.2E+00	ca	1.1E+01	ca	3.1E-02	ca	3.0E-01
71751-41-2	Avermectin B1	2.4E+01	nc	3.5E+02	nc	1.5E+00	nc	1.5E+01
103-33-3	Azobenzene	4.4E+00	ca	2.2E+01	ca	6.2E-02	ca	6.1E-01
7440-39-3	Barium and compounds	5.4E+03	nc	1.0E+05	max	5.2E-01	nc	2.6E+03
114-26-1	Baygon	2.4E+02	nc	3.5E+03	nc	1.5E+01	nc	1.5E+02
43121-43-3	Bayleton	1.8E+03	nc	2.6E+04	nc	1.1E+02	nc	1.1E+03
68359-37-5	Baythroid	1.5E+03	nc	2.2E+04	nc	9.1E+01	nc	9.1E+02
1861-40-1	Benefin	1.8E+04	nc	1.0E+05	max	1.1E+03	nc	1.1E+04
17804-35-2	Benomyl	3.1E+03	nc	4.4E+04	nc	1.8E+02	nc	1.8E+03
25057-89-0	Bentazon	1.8E+03	nc	2.6E+04	nc	1.1E+02	nc	1.1E+03
100-52-7	Benzaldehyde	6.1E+03	nc	8.8E+04	nc	3.7E+02	nc	3.6E+03
71-43-2	**Benzene**	6.5E-01	ca*	1.5E+00	ca*	2.5E-01	ca*	3.5E-01
92-87-5	Benzidine	2.1E-03	ca	1.1E-02	ca	2.9E-05	ca	2.9E-04
65-85-0	Benzoic acid	1.0E+05	max	1.0E+05	max	1.5E+04	nc	1.5E+05
98-07-7	Benzotrichloride	3.7E-02	ca	1.9E-01	ca	5.2E-04	ca	5.2E-03
100-51-6	Benzyl alcohol	1.8E+04	nc	1.0E+05	max	1.1E+03	nc	1.1E+04
100-44-7	Benzyl chloride	8.9E-01	ca	2.3E+00	ca	4.0E-02	ca	6.6E-02
7440-41-7	Beryllium and compounds	1.5E+02	nc	2.2E+03	ca**	8.0E-04	ca*	7.3E+01
141-66-2	Bidrin	6.1E+00	nc	8.8E+01	nc	3.7E-01	nc	3.6E+00
82657-04-3	Biphenthrin (Talstar)	9.2E+02	nc	1.3E+04	nc	5.5E+01	nc	5.5E+02
92-52-4	1,1-Biphenyl	3.5E+02	sat	3.5E+02	sat	1.8E+02	nc	3.0E+02
111-44-4	Bis(2-chloroethyl)ether	2.1E-01	ca	6.2E-01	ca	5.8E-03	ca	9.8E-03
108-60-1	Bis(2-chloroisopropyl)ether	2.9E+00	ca	8.1E+00	ca	1.9E-01	ca	2.7E-01
542-88-1	Bis(chloromethyl)ether	1.9E-04	ca	4.4E-04	ca	3.1E-05	ca	5.2E-05
108-60-1	Bis(2-chloro-1-methylethyl)ether	2.9E+00	ca	8.1E+00	ca	1.9E-01	ca	2.7E-01

117-81-7	Bis(2-ethylhexyl)phthalate (DEHP)	3.5E+01	ca*	1.8E+02	ca	4.8E-01	ca	4.8E+00
80-05-7	Bisphenol A	3.1E+03	nc	4.4E+04	nc	1.8E+02	nc	1.8E+03
7440-42-8	Boron	5.5E+03	nc	7.9E+04	nc	2.1E+01	nc	3.3E+03
7637-07-2	Boron trifluoride					7.3E-01	nc	
108-86-1	Bromobenzene	2.8E+01	nc	9.2E+01	nc	1.0E+01	nc	2.0E+01
75-27-4	Bromodichloromethane	1.0E+00	ca	2.4E+00	ca	1.1E-01	ca	1.8E-01
75-25-2	Bromoform (tribromomethane)	6.2E+01	ca*	3.1E+02	ca*	1.7E+00	ca*	8.5E+00
74-83-9	Bromomethane (Methyl bromide)	3.9E+00	nc	1.3E+01	nc	5.2E+00	nc	8.7E+00
101-55-3	4-Bromophenyl phenyl ether							
2104-96-3	Bromophos	3.1E+02	nc	4.4E+03	nc	1.8E+01	nc	1.8E+02
1689-84-5	Bromoxynil	1.2E+03	nc	1.8E+04	nc	7.3E+01	nc	7.3E+02
1689-99-2	Bromoxynil octanoate	1.2E+03	nc	1.8E+04	nc	7.3E+01	nc	7.3E+02
106-99-0	1,3-Butadiene	3.5E-03	ca	7.6E-03	ca	3.7E-03	ca	6.2E-03
71-36-3	1-Butanol	6.1E+03	nc	8.8E+04	nc	3.7E+02	nc	3.6E+03
2008-41-5	Butylate	3.1E+03	nc	4.4E+04	nc	1.8E+02	nc	1.8E+03
104-51-8	n-Butylbenzene	1.4E+02	nc	2.4E+02	sat	3.7E+01	nc	6.1E+01
135-98-8	sec-Butylbenzene	1.1E+02	nc	2.2E+02	sat	3.7E+01	nc	6.1E+01
98-06-6	tert-Butylbenzene	1.3E+02	nc	3.9E+02	sat	3.7E+01	nc	6.1E+01
85-68-7	Butyl benzyl phthalate	1.2E+04	nc	1.0E+05	max	7.3E+02	nc	7.3E+03
85-70-1	Butylphthalyl butylglycolate	6.1E+04	nc	1.0E+05	max	3.7E+03	nc	3.6E+04

Key:

i = IRIS
h = HEAST
n = NCEA
x = WITHDRAWN
o = OTHER EPA DOCUMENTS
r = ROUTE EXTRAPOLATION
ca = CANCER PRG
nc = NONCANCER PRG
sat = SOIL SATURATION
max = CEILING LIMIT
*indicates that the noncancer PRG < = 100X the cancer PRG
**indicates that the noncancer PRG < 10X the cancer PRG
BOLD=New or revised Toxicity values

Region 9 Waste Home | Region 9 Superfund Home | Region 9 PRG Home
Region 9 Home | EPA Home | Search | Comments/Questions

Region 9 Office: 75 Hawthorne St., San Francisco, Calif., 94105
Send PRG-related comments and questions to smucker.stan@epa.gov

Updated: November 22, 2000

URL: http://www.epa.gov/region09/waste/sfund/prg/s1_01.htm

EPA United States Environmental Protection Agency

Waste Programs

Region 9

PRG Tables: Fl-Mo

PRG Home | What's New | FAQ | Other Links
R9 PRG Tables: A-Bu | Ca-De | Di-Fe | Fl-Mo | Na-Pu | Py-Zi
Soil Calculations: A-Bu | Ca-De | Di-Fe | Fl-Mo | Na-Pu | Py-Zi
Air-Water Calculations: A-Bu | Ca-De | Di-Fe | Fl-Mo | Na-Pu | Py-Zi
Toxicity Values: A-Bu | Ca-De | Di-Fe | Fl-Mo | Na-Pu | Py-Zi
Phys-Chem Data: A-Di | Ep-Tr

	CONTAMINANT	PRELIMINARY REMEDIATION GOALS (P						
CAS No.		Residential Soil (mg/kg)		Industrial Soil (mg/kg)		Ambient Air (ug/m^3)		
2164-17-2	Fluometuron	7.9E+02	nc	1.1E+04	nc	4.7E+01	nc	4.
16984-48-8	Flouride	3.7E+03	nc	5.3E+04	nc			2.
59756-60-4	Fluoridone	4.9E+03	nc	7.0E+04	nc	2.9E+02	nc	2.
56425-91-3	Flurprimidol	1.2E+03	nc	1.8E+04	nc	7.3E+01	nc	7.
66332-96-5	Flutolanil	3.7E+03	nc	5.3E+04	nc	2.2E+02	nc	2.
69409-94-5	Fluvalinate	6.1E+02	nc	8.8E+03	nc	3.7E+01	nc	3.
133-07-3	Folpet	1.4E+02	ca*	7.0E+02	ca	1.9E+00	ca	1.
72178-02-0	Fomesafen	2.6E+00	ca	1.3E+01	ca	3.5E-02	ca	3.
944-22-9	Fonofos	1.2E+02	nc	1.8E+03	nc	7.3E+00	nc	7.
50-00-0	Formaldehyde	9.2E+03	nc	1.0E+05	nc	1.5E-01	ca	5.
64-18-6	Formic Acid	1.0E+05	max	1.0E+05	max	7.3E+03	nc	7.
39148-24-8	Fosetyl-al	1.0E+05	max	1.0E+05	max	1.1E+04	nc	1.
76-13-1	Freon 113	5.6E+03	sat	5.6E+03	sat	3.1E+04	nc	5.
110-00-9	Furan	2.5E+00	nc	8.5E+00	nc	3.7E+00	nc	6.
67-45-8	Furazolidone	1.3E-01	nc	6.5E-01	nc	1.8E-03	nc	1.
98-01-1	Furfural	1.8E+02	nc	2.6E+03	nc	5.2E+01	nc	1.
531-82-8	Furium	9.7E-03	ca	4.9E-02	ca	1.3E-04	ca	1.
60568-05-0	Furmecyclox	1.6E+01	ca	8.2E+01	ca	2.2E-01	ca	2.
77182-82-2	Glufosinate-ammonium	2.4E+01	nc	3.5E+02	nc	1.5E+00	nc	1.
765-34-4	Glycidaldehyde	2.4E+01	nc	3.5E+02	nc	1.0E+00	nc	1.
1071-83-6	Glyphosate	6.1E+03	nc	8.8E+04	nc	3.7E+02	nc	3.
69806-40-2	Haloxyfop-methyl	3.1E+00	nc	4.4E+01	nc	1.8E-01	nc	1.
79277-27-3	Harmony	7.9E+02	nc	1.1E+04	nc	4.7E+01	nc	4.
76-44-8	Heptachlor	1.1E-01	ca	5.5E-01	ca	1.5E-03	ca	1.
1024-57-3	Heptachlor epoxide	5.3E-02	ca*	2.7E-01	ca*	7.4E-04	ca*	7.

87-82-1	Hexabromobenzene	1.2E+02	nc	1.8E+03	nc	7.3E+00	nc	7.
118-74-1	Hexachlorobenzene	3.0E-01	ca	1.5E+00	ca	4.2E-03	ca	4.
87-68-3	**Hexachlorobutadiene**	6.2E+00	ca**	3.2E+01	ca**	8.6E-02	ca*	8.
319-84-6	HCH (alpha)	9.0E-02	ca	5.9E-01	ca	1.1E-03	ca	1.
319-85-7	HCH (beta)	3.2E-01	ca	2.1E+00	ca	3.7E-03	ca	3.
58-89-9	HCH (gamma) Lindane	4.4E-01	ca*	2.9E+00	ca	5.2E-03	ca	5.
608-73-1	HCH-technical	3.2E-01	ca	2.1E+00	ca	3.8E-03	ca	3.
77-47-4	Hexachlorocyclopentadiene	4.2E+02	nc	5.9E+03	nc	7.3E-02	nc	2.
19408-74-3	Hexachlorodibenzo-p-dioxin mixture (HxCDD)	7.8E-05	ca	4.0E-04	ca	1.5E-06	ca	1.
67-72-1	Hexachloroethane	3.5E+01	ca**	1.8E+02	ca**	4.8E-01	ca**	4.
70-30-4	Hexachlorophene	1.8E+01	nc	2.6E+02	nc	1.1E+00	nc	1.
121-82-4	Hexahydro-1,3,5-trinitro-1,3,5-triazine	4.4E+00	ca*	2.2E+01	ca	6.1E-02	ca	6.
822-06-0	1,6-Hexamethylene diisocyanate	1.7E-01	nc	2.5E+00	nc	1.0E-02	nc	1.
110-54-3	n-Hexane	1.1E+02	sat	1.1E+02	sat	2.1E+02	nc	3.
51235-04-2	Hexazinone	2.0E+03	nc	2.9E+04	nc	1.2E+02	nc	1.
2691-41-0	HMX	3.1E+03	nc	4.4E+04	nc	1.8E+02	nc	1.
302-01-2	Hydrazine, hydrazine sulfate	1.6E-01	ca	8.2E-01	ca	3.9E-04	ca	2.
60-34-4	**Hydrazine, monomethyl**	1.6E-01	ca	8.2E-01	ca	4.0E-04	ca	2.
57-14-7	**Hydrazine, dimethyl**	1.6E-01	ca	8.2E-01	ca	4.0E-04	ca	2.
7647-01-0	Hydrogen chloride					2.1E+01	nc	
7783-06-4	Hydrogen sulfide					1.0E+00	nc	1.
123-31-9	p-Hydroquinone	2.4E+03	nc	3.5E+04	nc	1.5E+02	nc	1.
35554-44-0	Imazalil	7.9E+02	nc	1.1E+04	nc	4.7E+01	nc	4.
81335-37-7	Imazaquin	1.5E+04	nc	1.0E+05	max	9.1E+02	nc	9.
36734-19-7	Iprodione	2.4E+03	nc	3.5E+04	nc	1.5E+02	nc	1.
7439-89-6	Iron	2.3E+04	nc	1.0E+05	max			1.
78-83-1	Isobutanol	1.3E+04	nc	4.0E+04	sat	1.1E+03	nc	1.
78-59-1	Isophorone	5.1E+02	ca*	2.6E+03	ca*	7.1E+00	ca	7.
33820-53-0	Isopropalin	9.2E+02	nc	1.3E+04	nc	5.5E+01	nc	5.
1832-54-8	Isopropyl methyl phosphonic acid	6.1E+03	nc	8.8E+04	nc	4.0E+02	nc	3.
82558-50-7	Isoxaben	3.1E+03	nc	4.4E+04	nc	1.8E+02	nc	1.
143-50-0	Kepone	2.7E-02	ca	1.4E-01	ca	3.7E-04	ca	3.
77501-63-4	Lactofen	1.2E+02	nc	1.8E+03	nc	7.3E+00	nc	7.
7439-92-1	**Lead**	4.0E+02	nc	7.5E+02	nc			
78-00-2	Lead (tetraethyl)	6.1E-03	nc	8.8E-02	nc			3.
330-55-2	Linuron	1.2E+02	nc	1.8E+03	nc	7.3E+00	nc	7.
7439-93-2	Lithium	1.6E+03	nc	4.1E+04	nc			7.
83055-99-6	Londax	1.2E+04	nc	1.0E+05	max	7.3E+02	nc	7.
121-75-5	Malathion	1.2E+03	nc	1.8E+04	nc	7.3E+01	nc	7.
108-31-6	Maleic anhydride	6.1E+03	nc	8.8E+04	nc	3.7E+02	nc	3.
123-33-1	Maleic hydrazide	1.7E+03	nc	2.4E+03	sat	1.8E+03	nc	3.
109-77-3	Malononitrile	1.2E+00	nc	1.8E+01	nc	7.3E-02	nc	7.

8018-01-7	Mancozeb	1.8E+03	nc	2.6E+04	nc	1.1E+02	nc	1.
12427-38-2	Maneb	8.1E+00	ca*	4.1E+01	ca	1.1E-01	ca	1.
7439-96-5	Manganese and compounds	1.8E+03	nc	3.2E+04	nc	5.1E-02	nc	8.
950-10-7	Mephosfolan	5.5E+00	nc	7.9E+01	nc	3.3E-01	nc	3.
24307-26-4	Mepiquat	1.8E+03	nc	2.6E+04	nc	1.1E+02	nc	1.
149-30-4	2-Mercaptobenzothiazole	1.7E+01	ca	8.5E+01	ca	2.3E-01	ca	2.
7487-94-7	Mercury and compounds	2.3E+01	nc	6.1E+02	nc			1.
7439-97-6	Mercury (elemental)					3.1E-01	nc	
22967-92-6	Mercury (methyl)	6.1E+00	nc	8.8E+01	nc			3.
150-50-5	Merphos	1.8E+00	nc	2.6E+01	nc	1.1E-01	nc	1.
78-48-8	Merphos oxide	1.8E+00	nc	2.6E+01	nc	1.1E-01	nc	1.
57837-19-1	Metalaxyl	3.7E+03	nc	5.3E+04	nc	2.2E+02	nc	2.
126-98-7	Methacrylonitrile	2.1E+00	nc	8.8E+00	nc	7.3E-01	nc	1.
10265-92-6	Methamidophos	3.1E+00	nc	4.4E+01	nc	1.8E-01	nc	1.
67-56-1	Methanol	3.1E+04	nc	1.0E+05	max	1.8E+03	nc	1.
950-37-8	Methidathion	6.1E+01	nc	8.8E+02	nc	3.7E+00	nc	3.
16752-77-5	Methomyl	4.4E+01	nc	1.5E+02	nc	9.1E+01	nc	1.
72-43-5	Methoxychlor	3.1E+02	nc	4.4E+03	nc	1.8E+01	nc	1.
109-86-4	2-Methoxyethanol	6.1E+01	nc	8.8E+02	nc	2.1E+01	nc	3.
110-49-6	2-Methoxyethanol acetate	1.2E+02	nc	1.8E+03	nc	7.3E+00	nc	7.
99-59-2	2-Methoxy-5-nitroaniline	1.1E+01	ca	5.4E+01	ca	1.5E-01	ca	1.
79-20-9	Methyl acetate	2.2E+04	nc	9.6E+04	nc	3.7E+03	nc	6.
96-33-3	Methyl acrylate	7.0E+01	nc	2.3E+02	nc	1.1E+02	nc	1.
95-53-4	2-Methylaniline (o-toluidine)	2.0E+00	ca	1.0E+01	ca	2.8E-02	ca	2.
636-21-5	2-Methylaniline hydrochloride	2.7E+00	ca	1.4E+01	ca	3.7E-02	ca	3.
79-22-1	Methyl chlorocarbonate	6.1E+04	nc	1.0E+05	max	3.7E+03	nc	3.
94-74-6	2-Methyl-4-chlorophenoxyacetic acid	3.1E+01	nc	4.4E+02	nc	1.8E+00	nc	1.
94-81-5	4-(2-Methyl-4-chlorophenoxy) butyric acid	6.1E+02	nc	8.8E+03	nc	3.7E+01	nc	3.
93-65-2	2-(2-Methyl-4-chlorophenoxy) propionic acid	6.1E+01	nc	8.8E+02	nc	3.7E+00	nc	3.
16484-77-8	2-(2-Methyl-1,4-chlorophenoxy) propionic acid	6.1E+01	nc	8.8E+02	nc	3.7E+00	nc	3.
108-87-2	Methylcyclohexane	2.6E+03	nc	8.8E+03	nc	3.1E+03	nc	5.
101-77-9	4,4'-Methylenebisbenzeneamine	1.9E+00	ca	9.9E+00	ca	2.7E-02	ca	2.
101-14-4	4,4'-Methylene bis(2-chloroaniline)	3.7E+00	ca*	1.9E+01	ca*	5.2E-02	ca*	5.
101-61-1	4,4'-Methylene bis(N,N'-dimethyl)aniline	1.1E+01	ca	5.4E+01	ca	1.5E-01	ca	1.
74-95-3	Methylene bromide	6.7E+01	nc	2.4E+02	nc	3.7E+01	nc	6.
75-09-2	Methylene chloride	8.9E+00	ca	2.1E+01	ca	4.1E+00	ca	4.
101-68-8	4,4'-Methylene diphenyl diisocyanate	1.0E+01	nc	1.5E+02	nc	6.2E-01	nc	6.
78-93-3	Methyl ethyl ketone	7.3E+03	nc	2.8E+04	nc	1.0E+03	nc	1.
60-34-4	Methyl hydrazine	4.4E-01	ca	2.2E+00	ca	6.1E-03	ca	6.
108-10-1	Methyl isobutyl ketone	7.9E+02	nc	2.9E+03	nc	8.3E+01	nc	1.
74-93-1	Methyl Mercaptan	3.5E+01	nc	5.0E+02	nc	2.1E+00	nc	2.

80-62-6	Methyl methacrylate	2.2E+03	nc	2.7E+03	sat	7.3E+02	nc	1.
99-55-8	2-Methyl-5-nitroaniline	1.5E+01	ca	7.5E+01	ca	2.0E-01	ca	2.
298-00-0	Methyl parathion	1.5E+01	nc	2.2E+02	nc	9.1E-01	nc	9.
95-48-7	2-Methylphenol	3.1E+03	nc	4.4E+04	nc	1.8E+02	nc	1.
108-39-4	3-Methylphenol	3.1E+03	nc	4.4E+04	nc	1.8E+02	nc	1.
106-44-5	4-Methylphenol	3.1E+02	nc	4.4E+03	nc	1.8E+01	nc	1.
993-13-5	Methyl phosphonic acid	1.2E+03	nc	1.8E+04	nc	7.3E+01	nc	7.
25013-15-4	Methyl styrene (mixture)	1.3E+02	nc	5.6E+02	nc	4.2E+01	nc	6.
98-83-9	Methyl styrene (alpha)	6.8E+02	sat	6.8E+02	sat	2.6E+02	nc	4.
1634-04-4	Methyl tertbutyl ether (MTBE)					3.1E+03	nc	2.
	"CAL-Modified PRG"	1.7E+01	ca	3.7E+01	ca	3.7E+00	ca	6.
51218-45-2	Metolaclor (Dual)	9.2E+03	nc	1.0E+05	max	5.5E+02	nc	5.
21087-64-9	Metribuzin	1.5E+03	nc	2.2E+04	nc	9.1E+01	nc	9.
2385-85-5	Mirex	2.7E-01	ca*	1.4E+00	ca	3.7E-03	ca	3.
2212-67-1	Molinate	1.2E+02	nc	1.8E+03	nc	7.3E+00	nc	7.
7439-98-7	Molybdenum	3.9E+02	nc	1.0E+04	nc			1.
10599-90-3	Monochloramine	6.1E+03	nc	8.8E+04	nc	3.7E+02	nc	3.

Key:

i = IRIS
h = HEAST
n = NCEA
x = WITHDRAWN
o = OTHER EPA DOCUMENTS
r = ROUTE EXTRAPOLATION
ca = CANCER PRG
nc = NONCANCER PRG
sat = SOIL SATURATION
max = CEILING LIMIT
*indicates that the noncancer PRG <= 100X the cancer PRG
**indicates that the noncancer PRG < 10X the cancer PRG
BOLD=New or revised Toxicity values

Region 9 Waste Home | Region 9 Superfund Home | Region 9 PRG Home
Region 9 Home | EPA Home | Search | Comments/Questions

Region 9 Office: 75 Hawthorne St., San Francisco, Calif., 94105

Send PRG-related comments and questions to smucker.stan@epa.gov

Updated: November 22, 2000

URL: http://www.epa.gov/region09/waste/sfund/prg/s1_04.htm

de maximis, inc.

450 Montbrook Lane
Knoxville, TN 37919
(865) 691-5052
(865) 691-6485 FAX
(865) 691-9835 Acct. FAX

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SUPERFUND SECTION

November 2, 2001

John Nolen, OSC
USEPA, Region IV
Atlanta Federal Center
61 Forsyth Street
Atlanta, Georgia 30303

Reference: Monthly Progress Report for October 2001
Virginia-Carolina Chemical Company Site
Wadesboro, North Carolina

Dear Mr. Nolen:

Enclosed is the monthly progress report for October 2001 pursuant to the Administrative Order of Consent (AOC) dated December 22, 2000.

If you or your staff have questions concerning this report, please contact Michael Miller at (865) 691-5052.

Sincerely,
de maximis, inc.

John Stiles for MAM

Michael A. Miller
Project Coordinator

MAM:JS:mpl

Enclosure

cc: Geoff Germann, Blasland, Bouck & Lee
J. Kyle Harris, ExxonMobil
Dan LaMontagne, NCDENR
Michael Skinner, Michael Skinner Consulting
John Stiles, *de maximis, inc.*

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Virginia-Carolina Chemical Company Site
Wadesboro, North Carolina

Progress Report

PROJECT NAME: Virginia-Carolina Chemical Company Site
Wadesboro, North Carolina

TIME PERIOD COVERED: October 1–30, 2001

ACTIONS TAKEN TOWARD COMPLIANCE WITH ORDER:

- The Site Characterization Report was submitted on July 19, 2001.

ACTION ITEMS FOR FOLLOWING MONTH:

- It is anticipated that the Site Characterization Report will be discussed upon agency review of the report.

ANTICIPATED DELAYS/PROBLEMS:

- None.

RESULTS OF SAMPLING/TESTING/FIELD MEASUREMENTS:

- A summary of analytical data for the soil, groundwater, and sediment sampling activities for site characterization was included in the July 19, 2001 submittal of the Site Characterization Report.

PAPER

Region 4 Pollution Reports (POLREPS) for Removal and Oil Spill Sites
V.C. Chemical, Wadesboro, Anson County, SC

POLREP #4, 04/25/01-08/08/01
ACTIONS: The following actions were taken during the period of record:

1. No site activities took place during this period of record.

2. On July 19, 2001, ExxonMobil submitted a Site Characterization Report detailing the results from the April, 2001 Site Characterization sampling event.

3. The report indicated arsenic and lead contaminated soil consistent with previous sampling investigations at the site.

733-2578
Rick Zechinni

FUTURE ACTIONS
Actions to be completed during the following month:

1. EPA and NCDENR will provide comments on the Site Characterization report to ExxonMobil

2. EPA and ExxonMobil will schedule a pre-removal strategy meeting within the next month to discuss future removal strategies at the site.

POLREP #3, 05/18/01
ACTIONS: The following actions were taken during the period of record:

1. On February 9, 2001, ExxonMobil submitted a draft Site Characterization Work Plan regarding the preliminary site investigation .

2. ExxonMobil contractor (BB&L) completed demolition of the remaining concrete structures from fertilizer production facilities on February 2, 2001.

3. Contractor completed backfilling the site reservoir area with clean brick from demolition and off-site clean soils. The reservoir area is now level.

4. Contractor completed installation of the 6-foot chain link fence around the entire boundary of the Weston property on February 5, 2001 to secure the site.

5. Contractor completed off-site disposal of brick and concrete debris form the site demolition work on February 21, 2001. The brick and concrete debris was disposed of at the local Anson County/Allied Waste Industries/BFI subtitle D landfill .

6. ExxonMobil submitted the final Site Characterization Work Plan on March 28, 2001.

7. Contractor completed off-site disposal of PCB capacitors. The capacitors were shipped off-site on March 29 for incineration.

8. Contractor re-mobilized to the site on April 16, 2001 and began field work and sampling activities detailed in the Site Characterization Work Plan. Three monitoring wells were installed on April 16 and 17, and soil borings and soils and sediment sampling were completed April 16-20. Groundwater samples were collected from the three monitoring wells the following week, on April 24.

FUTURE ACTIONS
Actions to be completed during the following month: Results of the groundwater, soil, and

sediment samples analysis will be received in May. Future removal strategy will be documented in the Site Characterization report.

POLREP #2, 01/01/01-01/31/01

BACKGROUND

The V.C. Chemical (VCC) Site is located in Wadesboro, Anson County, North Carolina. The Site was owned by Virginia Carolina Chemical Company from 1908 to 1945, and was the location of a fertilizer manufacturing facility. The Site was sold to Anson County in 1945 and was not in use between 1945 and 1980. In 1964, VCC merged with Socony Mobil Oil Corporation: the company name changed in 1966 to Mobil Oil Corporation. Mobil subsequently merged with Exxon in 1999 to form ExxonMobil Corporation. The current owner of the Site, Mr. Carl Weston, purchased the property at auction from Anson County in 1975. The site has been abandoned for approximately 10 years.

The Site was discovered during a routine site investigation by the North Carolina Department of Environment and Natural Resources (NCDENR) in May 1999. A preliminary assessment and site investigation revealed magenta-colored soils with elevated levels of lead, copper and arsenic. Operational history suggested that the presence of the elevated metals in the soil was due to the process used to make super-phosphate fertilizers utilizing lead-lined acid chambers.

In October 1999, the NCDENR Division of Waste management referred the Site to the U.S. EPA's Emergency Response and Removal Branch (ERRB) for removal eligibility consideration.

On December 2, 1999, the ERRB conducted a site investigation at the Site. The investigation included a general site reconnaissance and collection of surface and subsurface samples. Sampling locations were randomly chosen to define suspect soils based on visual observation and potential source information form NCDENR. EPA's Superfund Technical Assessment and Response Team (START) contractor collected a total of eight soil samples (six surface and two subsurface). Lead was present in all of the eight samples, at concentrations ranging from 230 parts per million to 29,700 parts per million (ppm). Arsenic was detected as high as 965 ppm. As a result of these findings, EPA determined that a removal action was warranted at the Site.

On December 22, 2000, EPA entered into an Administrative Order on Consent (AOC) with ExxonMobil Corporation to conduct removal activities at the VCC site.

ACTIVITIES DURING REPORTING PERIOD The following actions were taken during the period of record:

- ExxonMobil submitted phase I work plan and phase I and II site health and safety plan. .
- ExxonMobil completed survey of property on January 2, 2001.
- ExxonMobil and contractors mobilized to the site on January 15, 2001 to begin phase I of the removal. Crews began clearing site in preparation for installation of a security fence and demolition of existing site structures.
- On January 17. 2001, representatives from the U.S. EPA, NCDENR, and ExxonMobil met at the site for removal kickoff meeting and general site walkthrough.
- ExxonMobil began demolition of brick buildings, steel tank and other site structures. Materials were sampled and segregated in preparation for offsite disposal.
- Crews discovered 14 large capacitors, labeled as containing PCBs. The contents were sampled and Exxon Mobil is awaiting analytical results.

FUTURE ACTIONS Actions to be completed during the following month:

- Complete installation of site security.
- Begin demolition of remaining concrete structures from fertilizer production.
- Determine appropriate disposal options for the capacitors containing PCB.

CERCLIS Hazardous Waste Sites

V.C. CHEMICAL-WADESBORO

Site Information

Actions | Aliases | Financial | Op Units | RODs

Site Name: V.C. CHEMICAL-WADESBORO
Street: STANBACK FERRY ROAD
City / State / Zip: WADESBORO, NC 28170

EPA ID: NCSFN0406924
EPA Region: 04
County: ANSON

NPL Status: Not on the NPL
Non-NPL Status: Status Not Specified
Federal Facility Flag: Not a Federal Facility
Incident Category:

[Back to TOP]

URL: http://www.epa.gov/superfund/sites/cursites/c3nc/s0406924.htm
This page was last updated on: July 12, 2001
Site maintained by: Office of Emergency and Remedial Response
brown.margret@epa.gov

MEMO TO FILE

February 15, 2001

TO: File

FROM: Scott Ryals, EI

SUBJECT: VCC Wadesboro Sampling Plan Comments

The following are my comments to the Draft Site Characterization Work Plan for the Former Virginia-Carolina Chemical Company Phosphate/Fertilizer Plant, Wadesboro, North Carolina submitted to the NC Superfund Section on February 13, 2001 by Blasland, Bouck & Lee Inc, on the behalf of the ExxonMobil Corporation.

1. Section 2.9.1, paragraph 2: States that no other contaminates were detected at elevated levels within the nearby potable wells. The two closest wells contained elevated sulfate and nitrate levels. The nitrate levels were 33 to 43% of the 10-ppm drinking water standard.

2. Section 3.1.2: The groundwater sampling does not include the sampling of the three potable wells closest to the site. Would like to see these wells sampled for data completeness, as well as public relations.

3. Section 3.1.4: Statement that no sediment samples have been taken is incorrect. DENR personnel collected seven sediment and overland flow pathway samples during the June 199 PA/SI sampling event. Statement needs to be removed or amended to reflect this information.

4. Section 5.3: As project manager for this site, I need to be included or listed as the primary contact individual.

5. Figure 3.1: Does not show the concrete drainage ditch and culvert that drained water from the main warehouse into the un-named creek to the west of the site. Ditch is mentioned in the text in Section 2.3.

6. Table 5.1 needs to include me as one of the contact individuals.

7. Section 7.3.2, paragraph 3: The practice of using a glass bottle to collect a metals or inorganic sample when stream depth is insufficient for the direct collection of samples is different from our SOP. Metals are known to etch glass and absorb to glass surfaces.

8. With the removal of the buildings and all vegetation, what points of reference will be used to determine the sample locations? The sample map seems to be based upon fixed reference points that are no longer there.

9. The text mentions the delineating of the surface contamination, but fails to describe how this is to be done. Are the surface soil samples one-point or composite grab samples? Will you grid off an area after receiving the results of this round of sampling? The report adequately describes what will be done for the vertical delineation of contamination but needs to address the horizontal delineation.

10. Report does not address how and where the debris (construction and vegetative) are being handled. Where is it being sent? Is it clean? I would consider it IDW.

11. Report mentions that there is an open culvert well onsite, but there is no mention as to whether this well will be sampled or sounded. This well, in conjunction with the nearby private wells could aid in the determination of the groundwater depth and direction of flow. Report indicates that these parameters are going to be determined.

12. Report states that all samples are to be analyzed for soil pH and the metals listed in the TAL. After speaking with Michael Miller and John Stiles of de maximis, I was informed that several PCB containing transformers were removed from one of the old warehouses prior to the demolishing of the warehouse. No previous sampling was conducted in this area to determine the potential contamination of PCBs. I would recommend the sample SB10 also be analyzed for PCBs.

If you have any questions or comments concerning my comments, please feel free to contact me at (919) 733-2801 ext. 316 or by e-mail at scott.ryals@ncmail.net.

City Of Raleigh

North Carolina

October 31, 2000

Denise Popeo
Bradford Environmental Services, Inc.
4817 Holly Brook Drive
Apex, NC 27502

Dear Ms. Popeo:

This letter serves to inform you of the status of your application for re-certification as a **Minority/Women-Owned Business Enterprise** as defined by the City of Raleigh. Your firm is re-certified as of this date and the certification is good through October 31, 2002. Re-certification is valid for two (2) years. At the end of this period, it will be necessary for your business to be re-certified to remain on our certified list and to remain in the active data bank.

Should there be changes in ownership and/or control of your firm at any time prior to your next re-certification date, please advise this office in writing.

Your continued interest is appreciated. Should you have any questions, please do not hesitate to contact me at (919) 890-3673.

Sincerely,

Luther R. Williams

Luther R. Williams
Business Assistance Program
Coordinator

LRW:jj

City Of Raleigh
Certificate of Eligibility

BRADFORD ENVIRONMENTAL SERVICES, INC.

This is to acknowledge that the firm identified above has been certified as a bona fide business enterprise as defined in the Business Assistance Program of the Minority and Women owned Business plan for the City of Raleigh, North Carolina.

This certificate shall remain valid for two years from date of issue. This certification may be revoked by the City of Raleigh Business Assistance Program Office upon the finding of ineligibility and said firm is subject to examination at any time and may be required to supply additional information for review notwithstanding the issuance of this certificate.

October 31, 2000
Date of Issuance

Luther R. Williams
Minority and Women Owned
Business Assistance Program Coordinator

STATE OF NORTH CAROLINA

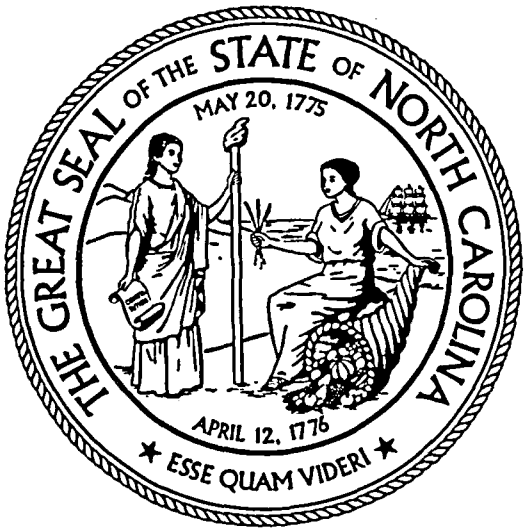
DEPARTMENT OF ADMINISTRATION
OFFICE FOR HISTORICALLY UNDERUTILIZED BUSINESSES

RECOGNIZES

BRADFORD ENVIRONMENTAL SERVICES, INC.

AS A CERTIFIED

WOMAN OWNED BUSINESS ENTERPRISE



Gwynn T. Swinson
Secretary of Administration

Bridget L. Wall
Assistant to the Secretary
for HUB Outreach

AUGUST 29, 2001
Date

VALID FOR TWO YEARS

Qualifications

Parratt Wolff, Inc.

INTRODUCTION

Parratt-Wolff, Inc. (PWI) was founded in 1969 to provide drilling services to the Northeast. Since then we have grown to a company of two offices, 40 employees and 35 major pieces of field equipment. Our growth is the result of solid management, dedicated field professionals and the repeat business of our many satisfied clients. Our current service area stretches from Maine to Florida and as far west as Michigan. As an introduction to PWI, we have prepared this statement of qualifications. Included in the qualifications are the following:

- capabilities summary
- equipment list
- description of our direct push sampling system
- quality assurance plan
- resumes of managers
- list of drillers and years of service
- partial client list
- office locations

This statement is just a brief summary of our company. If you require additional information, documentation or project references please contact us.

We look forward to working with you.

CAPABILITIES SUMMARY

Direct-push (Geoprobe) soil, groundwater and soil gas sampling

Hollow stem auger 2-1/4" I.D. to 10-1/4" I.D.

Fluid rotary 3" to 12" O.D.

Flush joint steel casing, 2-1/2" I.D. to 8" I.D.

Diamond coring in rock, 2" O.D. to 6" O.D.

Air hammer drilling, 4" O.D. to 8" O.D.

HydroPunch sampling

Depths reached by any of these methods are governed by soil and rock conditions at a particular site

Well installations, 3/4" I.D. to 12" I.D.

Packer pressure testing in rock or overburden

Well development and pumping tests

Machine dug test pits

Installation of remediation systems (designed by others)

Bottom-view downhole TV camera to 120'

EQUIPMENT LIST

2 Four-wheel drive tractor mounted direct push sampling rigs

4 Ingersoll-Rand A300 truck mounted combination direct push/hydraulic drill rigs

1 Ingersoll-Rand A200 truck mounted combination direct push/hydraulic drill rig

1 Ingersoll-Rand A300 truck mounted hydraulic drill rig

1 Mobil B-56 truck mounted hydraulic drill rig

1 Mobil B-56 truck mounted combination direct push/hydraulic drill rig

1 Mobil B-57 truck mounted hydraulic drill rig

1 Mobil B-53 crawler mounted combination direct push/hydraulic drill rig

2 CME 55 truck mounted combination direct push/hydraulic drill rigs

2 CME 75 truck mounted hydraulic drill rigs

2 CME 850 crawler mounted hydraulic drill rigs

1 Diedrich D-50 truck/skid mounted hydraulic drill rig

1 Diedrich D-50 truck mounted hydraulic drill rig

1 Acker ACE skid mounted hydraulic drill rig

2 tripod mounted drills

1 pipe mounted drill

2 John Deere 410 rubber tired backhoes

1 American 25 crawler mounted backhoe

1 Kobelco 907 crawler mounted backhoe

1 Kobelco 909 crawler mounted backhoe

1 Kobelco 912 crawler mounted backhoe

1 Caterpillar D-6 crawler dozer

1 Caterpillar D-3 crawler dozer

3 John Deere 450 crawler dozers

Various air compressors, pumping stations, grout mixers, generators, steam cleaners, floats, boats, outboard motors, tools and accessories

THE PARRATT-WOLFF DIRECT PUSH SYSTEM

When conducting a direct push sampling project, Parratt-Wolff, Inc. (PWI) uses proven tools and methods. Currently, we have available eight conventional truck-mounted drill rigs and two 4-wheel drive tractor-mounted units equipped for direct push sampling. Since 1994, our combination rigs have been used on numerous direct push sampling jobs and have also installed hundreds of monitoring wells. Their dual capability of direct push sampling and rotary drilling gives PWI the flexibility to drill with several different methods, all in one mobilization. Our tractor-mounted rigs give us additional off-road access and indoor drilling capabilities.

Multiple Rig Approach

PWI's multi-rig approach to your project includes the capability to mobilize either a tractor-mounted direct push rig or a truck-mounted combination rig, depending on your needs.

Our 4-wheel drive tractor-mounted rigs are small enough to fit in constricted areas and have a tight turning radius, making these the ideal rigs for indoor work where access is limited. In addition, the 4-wheel drive capabilities of the vehicles make them the perfect choice for rugged outdoor conditions when rotary drilling is not required.

Tractor-Mounted Direct Push Rig

Our eight truck-mounted combination rigs are fully tooled to complete direct push sampling and rotary drilling on the same job in one mobilization. Rotary drilling techniques available include hollow stem auger, down-hole hammer drilling, drive and wash casing or fluid rotary methods.

Soil Sampling

Soil samples are typically collected with conventional 2" diameter split spoons (with or without liners) that are driven with a Geoprobe hammer in 2' increments. Should field conditions prevent us from using conventional split spoons, Geoprobe's Large Bore discrete interval soil sampler can be used to collect 2' long cores. PWI also has available a 2" diameter Geoprobe Macro-Core® sampler that can be used to collect 4' long soil cores. In the event direct push methods fail, other drilling methods such as hollow stem augers, fluid rotary or down-hole hammers can be used to advance the bore hole.

Groundwater Sampling

Groundwater samples can be collected from either discrete intervals or from temporary wells. For discrete sampling, PWI uses either the HydroPunch II sampler or Geoprobe's Screen Point 15 discrete sampler. As an alternative, various diameter temporary wells, including Geoprobe's Mill Slotted Well Point can be installed. PWI can also install micro wells with a sand pack and seal. Groundwater samples are typically collected with a bailer, peristaltic or inertial lift pump.

Truck-Mounted Combination Rig

The Benefits of the PWI System:

1. Our combination direct push/hydraulic drill rigs are multi-purpose. If field conditions preclude the use of direct push drilling methods, other drilling methods are available in the same mobilization. Each rig is equipped with the drilling capabilities one would expect from a fully tooled drill rig. These rigs have been used to advance 10-1/4" ID augers, drill a 12" diameter fluid rotary bore hole, advance an 8" diameter down hole hammer, or to core rock.

2. Multiple field tasks can be performed in one mobilization without any delays and under one contract. For example, once a free product plume is delineated with direct push methods, large diameter recovery wells can be immediately installed.

3. The availability of multiple types of direct push capable rigs allows us to mobilize the right type of rig for your project. Whether you are inside or outside, on pavement or off-road, Parratt Wolff has a rig for the job.

4. Our rigs are typically operated by an experienced 2-man crew and backed by PWI's extensive drilling resources.

QUALITY ASSURANCE PLAN

The enclosed quality assurance plan (QAP) is based on proper training and the strict adherence to either accepted standards and/or the client-prepared scope of work.

Training

All field personnel are trained prior to the initiation of field tasks. New employees are assigned to tasks where they can observe first and help second in acquiring new skills. For example, a new driller's helper is first assigned to a two-man crew where he can learn his trade by observing the crew in action. As the drilling manager sees fit, the helper is included in field tasks. Only when fully competent in his/her task is the crew reduced to a driller and the new helper. Also, within the first year of employment, all new helpers attend 40-hour OSHA hazardous site worker training.

Before becoming a driller, a helper must show a full grasp of the driller's duties and demonstrate the ability and attitude necessary to assume the increased responsibility. Once working as a driller, the employee's performance is continuously monitored by the PWI management team and additional training is provided as needed. Each driller is afforded the opportunity to attend a course, school or trade show every two years. This combination of both field and classroom training keeps all employees properly trained and abreast of changes in technology and standards. Additionally, all hazardous site workers receive OSHA refresher training once a year.

Backhoe operators are hired from the construction field and have previous experience and training prior to working as operators for PWI.

License/Registration/Certification

Once promoted to driller, each employee is encouraged to seek professional recognition for his skills. PWI drillers hold individual licenses in Connecticut, Delaware, Florida, Georgia, Maryland, Massachusetts, Mississippi, New Hampshire, New Jersey and South Carolina. PWI drillers are also certified by the National Ground Water Association and the National Drilling Association. Four professional geologists are on-staff as drillers or as managers. These employees hold licenses or registration in the states of Arkansas, Georgia, North Carolina, Pennsylvania and Tennessee.

Standard and Technical Approaches

All field work is completed in adherence to either accepted standards (i.e., ASTM) or to a client's work plan. Our field crews are familiar with the ASTM standards for their particular task, whether it be test borings or monitoring well installations. Unless directed otherwise, ASTM standards guide all applicable field operations. In the case where the standards conflict with a client's requirements, the client's approach is always followed. For example, clients often specify that split spoon samplers be driven a full 2.0' rather than the ASTM standard 1.5'. In this case, the client's direction is followed.

Conclusion

All tasks performed by PWI personnel are done with consistency and integrity. All crews perform tasks in a similar fashion and according to accepted protocols. This level of consistency and emphasis on integrity affords our clients opportunity to work with any of our field crews and receive the same high quality product.

RESUMES OF MANAGERS

MICHAEL D. ELLINGWORTH
President

REGISTRATION:

Mr. Ellingworth is a licensed well driller in the states of New Jersey, Connecticut, New Hampshire and Massachusetts. He has been certified to install monitoring wells by the National Ground Water Association and is a senior driller licensed by the National Drilling Association.

SPECIAL TRAINING:

- 40-hour OSHA Health and Safety Training Course
- 8-hour OSHA Health and Safety Supervisor Course
- 8-hour OSHA Health and Safety Refresher Course

QUALIFICATIONS:

Since 1976, Mr. Ellingworth has assumed increasingly responsible positions within PWI. As President, he manages the day-to-day operations of the company. This involves all purchasing, scheduling and the assignment of equipment and crews. Mr. Ellingworth is also the New York office Health and Safety Manager. In this capacity, he is responsible for assuring our compliance with applicable OSHA regulations and our employee's health and safety training.

As a driller, Mr. Ellingworth participated in projects requiring angle borings, pressure testing, permeability testing, grouting, vane shear testing, installation of monitoring wells and piezometers, auger drilling and core drilling. He worked on such commercial projects as Love Canal, Niagara Falls, New York; Carousel Center, Syracuse, New York; Modern Landfill, Model City, New York; Kalamazoo River Project, Kalamazoo, Michigan; and GE Facility, Pittsfield, Massachusetts. Representative Department of Defense projects includes Fort Drum, Watertown, New York; Griffiss Air Force Base, Rome New York; Marine Corps Base Camp Lejeune, Jacksonville, North Carolina; and Naval Weapons Station, Yorktown, Virginia.

EXPERIENCE:

2001-Present	President, Parratt-Wolff, Inc.
1990-2001	Vice President, Parratt-Wolff, Inc.
1983-1990	Drilling Manager, Parratt-Wolff, Inc.
1976-1983	Driller, Senior Driller, Parratt-Wolff, Inc.

STEFFEN WOLFF
Vice President

EDUCATION:

B.S. - Geology, Syracuse University, 1955

AFFILIATIONS:

- Geological Society of America
- American Geological Institute
- American Society of Civil Engineers
- American Society for Testing and Materials (ASTM)

QUALIFICATIONS:

Since 1957, Mr. Wolff has managed projects and/or companies which offer construction of deep foundations and provide geotechnical services to commercial, consulting and industrial firms and government agencies. His responsibilities have included general management, preparing cost estimates, purchasing and maintenance of equipment, and preparation of reports.

Mr. Wolff has managed projects involving foundation construction and studies for dams, buildings, bridges, docks, and industrial and municipal facilities. He has also managed drilling projects, which included the installation of monitoring wells and gas vents at landfills, and test borings for large capacity production well development.

EXPERIENCE:

2001-Present	Vice President, Parratt-Wolff, Inc.
1969-2001	President, Parratt-Wolff, Inc.
1968-1969	District Manager, Geomeasurments, Inc.
1966-1968	District Manager, Resonant Pile Company, Division of Shell Oil
1963-1966	District Manager, Raymond Concrete Pile Company
1957-1963	District Manager, American Drilling Company, Inc.
1955-1957	U.S. Army

WILLIAM MORROW
Vice President - Senior Project Manager

EDUCATION:

B.S. - Geology, Bucknell University, 1985
M.A. - Geology, State University College at Oneonta, 1989

REGISTRATIONS AND/OR AFFILIATIONS:

- Licensed Professional Geologist, State of Pennsylvania: PG-002228-G
- Geological Society of America
- National Ground Water Association
- American Society for Testing and Materials (ASTM)
- Certified Well Driller with Monitoring Well Endorsement (NGWA)

SPECIAL TRAINING:

- 40-hour OSHA Health and Safety Training Course
- 8-hour OSHA Health and Safety Supervisor and Refresher Courses
- Certified 3M Respirator Training Instructor

QUALIFICATIONS:

As a Project Manager with PWI, Mr. Morrow utilizes his fifteen years of professional experience to prepare cost estimates and provide technical customer service to our many clients. Mr. Morrow also reviews PWI test boring logs and samples for accuracy and completeness.

Formerly, Mr. Morrow served as a technical lead and/or project manager on municipal water supply development projects, wellhead protection studies, site characterizations, hazardous waste remediation projects, hazardous waste characterization and disposal, and a mine fire delineation project.

EXPERIENCE:

2001-Present	Vice President - Senior Project Manager, Parratt-Wolff, Inc.
1993-2001	Senior Project Manager. Parratt-Wolff, Inc.
1991-1993	Project Hydrogeologist, ERM-Northeast, Inc.
1989-1991	Project Hydrogeologist, Stearns and Wheler, LLC
1987	Geologist, GAI Consultants, Inc.

ROBERT STEVENS
Vice President - District Manager

EDUCATION:

B.S. - Health, Marshall University, 1972

REGISTRATION:

Mr. Stevens is a licensed well driller in the states of Connecticut, Maryland, New Jersey, North Carolina and South Carolina. He has been certified to install monitoring wells by the National Ground Water Association.

SPECIAL TRAINING:

- 40-hour OSHA Health and Safety Training Course
- 8-hour OSHA Health and Safety Supervisor Course
- 8-hour OSHA Health and Safety Refresher Course
- Certified 3M Respirator Training Instructor

QUALIFICATIONS:

Since joining PWI in 1978, Mr. Stevens has been involved as a driller and supervisor on many specialized projects. Tests performed on these projects include: angle borings, pressure testing, permeability testing, grouting, vane shear testing, installation of monitoring wells and piezometers, auger drilling and core drilling.

Currently, he manages the day to day operations of the PWI office located in Hillsborough, North Carolina. This includes all marketing, cost estimates, invoices, purchasing and scheduling equipment and crews. Mr. Stevens is also the North Carolina office Health and Safety Manager. In this capacity, he is responsible for assuring our compliance with applicable OSHA regulations and our employee's health and safety training.

As a manager and/or driller, Mr. Stevens has worked on such commercial projects as: Love Canal, Niagara Falls, New York; Kingston Barrel Site, Kingston, New Hampshire; Kalamazoo River Project, Kalamazoo, Michigan; and Stauffer Chemical Site, Woburn, Massachusetts. Representative Department of Defense projects include: Fort Drum, New York; Griffiss Air Force Base, Rome, New York; Marine Corps Base Camp Lejeune, Jacksonville, North Carolina; and Camp Peary, Yorktown, Virginia.

EXPERIENCE:

2001-Present	Vice President - District Manager, Parratt-Wolff, Inc.
1996-2001	District Manager, Parratt-Wolff, Inc.
1991-1996	Drilling Supervisor / Health & Safety Manager, Parratt-Wolff, Inc.
1978-1991	Senior Driller, Parratt-Wolff, Inc.

JOEL V. PARRATT
Project Manager

EDUCATION:

B.S. - Geology, State University College at Plattsburgh, 1993

REGISTRATIONS AND/OR AFFILIATIONS:

- New York State Council of Professional Geologists
- Central New York Association of Professional Geologists

SPECIAL TRAINING:

- 40-hour OSHA Health and Safety Training Course
- 8-hour OSHA Health and Safety Supervisor and Refresher Courses

QUALIFICATIONS:

As a Project Manager with Parratt-Wolff, Mr. Parratt manages various aspects of our jobs from the preparation of proposals to the scheduling and oversight of our field crews. Mr. Parratt also reviews Parratt-Wolff test boring logs and samples for accuracy and completeness.

Formerly, Mr. Parratt served as a project manager on various types of projects including Phase I and II Environmental Site Assessments, subsurface investigations, groundwater modeling, groundwater monitoring and reporting, groundwater remediation projects, pump, slug and bail testing, redevelopment of municipal water wells, NYCRR Part 360 permitting, Spill Prevention Control and Countermeasure (SPCC) plan preparation, Oil Pollution Act Facility Response Plan (FRP) preparation, and Storm Water Pollution Prevention (SWPP) plan preparation.

EXPERIENCE:

2000 - Present	Project Manager, Parratt-Wolff, Inc.
1996 - 2000	Geologist/Project Manager, Plumley Engineering, P.C.
1994 - 1996	Technician, Plumley Engineering, P.C.

DRILLER'S EXPERIENCE

Placing an experienced driller on your site is as important to us as it is to you. This translates into a productive job for us and a project completed on schedule and on budget for you. On average, our drillers have over 16 years experience.

Driller	Number of Years Experience	Number of Years with Parratt-Wolff
Justin Abreu*	1989 – Present	1989 – Present
Ron Bush	1963 – Present	1989 – Present
Arnold Chapel*	1985 – Present	1989 – Present
Mark Eaves	1991 – Present	1991 – Present
Ian Grassie*	1992 – Present	1995 – Present
Jim Hammond	1964 – Present	1993 – Present
Glenn Lansing *	1986 – Present	1986 – Present
Jim Lansing	1988 – Present	1988 – Present
Lewis LeFever*	1988 – Present	1995 – Present
Todd Muench*	1992 – Present	1992 – Present
Richard Navatka*	1987 – Present	1987 – Present
Brad Palmer*	1985 – Present	1985 – Present
Layne Pech	1981 – Present	1995 – Present
Lee Penrod*	1983 – Present	1994 – Present
Joe Percy*	1986 – Present	1993 – Present
Bill Rice*	1978 – Present	1978 – Present
Doug Richmond*	1988 – Present	1988 – Present
Doug Thoma	1989 – Present	1989 – Present
Richard Waris	1989 – Present	1989 – Present
Brian Waters	1984 – Present	1984 – Present
Kevin White	1987 – Present	1987 – Present

*Certified Water Well Driller with Monitoring Well Endorsement by the NGWA

All drillers listed above are annually respirator fit tested, medically monitored, have completed the OSHA 40 hour training program and subsequent 8 hour refresher classes. Certifications of these tests and training are available upon request.

PARTIAL CLIENT LIST

Abscope Environmental, Inc.
Agway
Allied-Signal Corporation
ARCADIS Geraghty and Miller
Baker Environmental, Inc.
Bechtel Environmental, Inc.
Beechnut Foods
Black & Veatch
Blasland, Bouck & Lee, Inc.
C & S Engineers, Inc.
Camp, Dresser & McKee, Inc.
Carrier Corporation
C-E Environmental, Inc.
CH2M Hill
Clough Harbour Associates
CSX
Cornell University
Corning Glass Works
Crucible Steel
Earth Tech, Inc.
EA Engineering, Science & Technology, Inc.
ENSR
Environmental Resources Management Group
Foster Wheeler, Inc.
General Electric Company
Geotrans
Groundwater & Environmental Services
Haley and Aldrich, Inc.
Harding ESE Mactec, Inc.
Howard, Needles, Tammen & Bergendoff
I.B.M.
IT Corporation
Jersey Central Power and Light
Law Environmental, Inc.
Malcolm Pirnie, Inc.
Metcalf and Eddy
Mobil Oil Company
Monsanto Corporation
NASA
N.J. Dept. of Environmental Protection
N.Y.S. Dept. of Environmental Conservation
N.Y.S. Department of Transportation
N.Y.S. Electric and Gas Corporation
Niagara Mohawk Power Corporation
O'Brien and Gere Engineers, Inc.
Parsons Engineering Science
Peer Consultants, P.C.
Pennsylvania Electric Company
Roux Associates
Roy F. Weston, Inc.
Schnabel Engineering Associates
Smith & Wesson
Stearns and Wheler, LLC
John P. Stopen Engineering Partnership
Syracuse University
TAMS Consultants, Inc.
Taylor Wine Company
Tetra Tech NUS, Inc.
T.R.W.
U.S. Air Force
U.S. Army Corps of Engineers
U.S. Environmental Protection Agency
U.S. Marine Corps
Union Carbide
University of Rochester
URS Group, Inc.
Verizon
Xerox

OFFICE LOCATIONS

Main Office: P.O. Box 56
5879 Fisher Road
East Syracuse, New York 13057
Phone: 800-782-7260
Phone: 315-437-1429
Fax: 315-437-1770

Branch Office: P.O. Box 1029
501 Millstone Drive
Hillsborough, North Carolina 27278
Phone: 800-627-7920
Phone: 919-644-2814
Fax: 919-644-2817
Manager: Robert Stevens, Vice President

PWI employs approximately forty people full time. We are classified as a small business but are not disadvantaged, a W.B.E. or an M.B.E.

We are currently licensed and performing work in Connecticut, Delaware, Florida, Georgia, Maryland, Massachusetts, Michigan, Mississippi, New Hampshire, New Jersey, New York, North Carolina, Ohio, Pennsylvania, South Carolina, Virginia and West Virginia

BBL
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

RECEIVED
JUN 10 2002
SUPERFUND SECTION

Transmitted Via FedEx

June 7, 2002

Kevin Misenheimer
USEPA Region 4
61 Forsyth Street, S.W.
Atlanta, Georgia 30303-8960

Re: Analytical Laboratory Change, Wadesboro VCC Site, Wadesboro, NC
BBL Project #: 54626

Dear Mr. Misenheimer:

BBL is requesting, on behalf of Exxon Mobil Corporation, that the approved analytical laboratory for the above-referenced project be changed from STL-Savannah Laboratories to TestAmerica of Nashville, Tennessee. The reason for this change is that TestAmerica has been retained by ExxonMobil to be its primary supplier of analytical testing services for its facilities in the southeast. TestAmerica is full-service laboratory that is certified by the state of North Carolina. The laboratory address is:

TestAmerica, Inc.
2960 Foster Creighton Drive
Nashville, TN 37204
800-165-0980

In anticipation of USEPA approval of TestAmerica for use on this project I have enclosed with this letter revisions to the project Quality Assurance Project Plan (QAPP), which is included as Appendix C to the document *Site Characterization Work Plan for the Former Virginia-Carolina Chemical Company Phosphate/Fertilizer Plant, Wadesboro, North Carolina* (BBL, March 2001) (Work Plan). Please replace the following pages of the QAPP (Appendix C of the Work Plan) as described below:

1. Replace the QAPP cover with the enclosed cover;
2. Replace page 3 of the QAPP Table of Contents with the enclosed page 3; and
3. Replace Attachment A of the QAPP (including the cover page) with the enclosed Attachment A.

3700 Regency Parkway • Suite 140 • Cary, NC 27511-8574
Tel (919) 469-1952 • Fax (919) 469-5676 • www.bbl-inc.com • offices nationwide

Please contact Mr. Kyle Harris at 713/656-9059 if you have any questions or wish to discuss this request for laboratory approval.

Sincerely,

BLASLAND, BOUCK & LEE, INC.

Geoffrey G. Germann, P.E.
Manager/Senior Engineer I

GGG:gg
Enclosures: 2

cc: M. Deaton, NCDENR (2)
K. Harris, ExxonMobil (1)
C. Leonard (1)
File

BBL
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

RECEIVED
MAY 30 2002

Transmitted Via Federal Express

May 30, 2002

Kevin Misenheimer
USEPA Region 4
61 Forsyth Street, S.W.
Atlanta, Georgia 30303-8960

Re: Soil Arsenic and Lead Additional Delineation Work Plan
Wadesboro VCC Site, Wadesboro, NC
BBL Project #: 54626

Dear Mr. Misenheimer:

On behalf of Exxon Mobil Corporation, attached for your review are two copies of the document *Soil Arsenic and Lead Additional Delineation Work Plan, Wadesboro VCC Site, Wadesboro, NC.* This work plan outlines the technical approach and methods to further delineate of the magnitude and extent of soils containing arsenic and/or lead at concentrations greater than action levels at the Site.

Field activities are anticipated to begin shortly after signed Site access agreements have been received.

Please contact Mr. Kyle Harris at 713/656-9059 if you have any questions or wish to discuss this work plan.

Sincerely,

BLASLAND, BOUCK & LEE, INC.

Candace L Fer

Geoffrey G. Germann, P.E.
Manager/Senior Engineer

Cbl:cl
Enclosures: 2
cc: M. Deaton, NCDENR (2)
K. Harris, ExxonMobil (1)
C. Leonard (1)
File

3700 Regency Parkway • Suite 140 • Cary, NC 27511-8574
Tel (919) 469-1952 • Fax (919) 469-5676 • www.bbl-inc.com • offices nationwide

North Carolina
Department of Environment and Natural Resources
Division of Waste Management

Michael F. Easley, Governor
William G. Ross Jr., Secretary
Dexter R. Matthews, Director

NCDENR

May 2, 2002

Kevin Misenheimer
On-Scene Coordinator
US EPA Region 4
Waste Management Division-ERRB
61 Forsyth Street, SW
Atlanta, GA 30303

SUBJ: Comments on April 2002 Alternatives Evaluation Report
V.C. Chemical - Wadesboro
US EPA ID: NCSFN0406924
Wadesboro, Anson County, North Carolina

Dear Mr. Misenheimer:

The NC Superfund Section received the Alternatives Evaluation Report on April 4, 2002. This report was prepared on behalf of the potentially responsible parties (PRPs) by their consultant, Blasland, Bouck & Lee, Inc (BBL). BBL has proposed the following remedial alternative titled, "excavation of off-site soil and consolidation under on-site soil cover and institutional controls," as the preferred remedy for the lead and arsenic contaminated soil found at the subject site. After a review of the April 2002 Alternatives Evaluation Report, NC Superfund Section identified two ARARs not cited in this report - rules and regulations from the NC Inactive Hazardous Sites Branch (IHSB) and the NC Solid Waste Management Division. NC Superfund Section has prepared the following comments.

Site-Specific Action Levels for lead

BBL has proposed a site-specific action level of 1,200 milligrams per kilogram (mg/kg) for on- and off-site soil contaminated with lead. This action level will not be acceptable. The NC IHSB Soil Remediation Goals (SRG) for lead contaminated residential soil is 400 mg/kg. Further soil remediation at the site would be required under the NC IHSB if the lead were not removed to a level of 400 mg/kg. Therefore, site-specific action levels for lead contaminated soil located off site should be at least 400 mg/kg. Due to the past industrial use and current zoning of the site, an acceptable site-specific action level for on-site lead contaminated soil is 750 mg/kg, provided that institutional controls restrict the future use of the property. This concentration is based on the USEPA Region IX Industrial Preliminary Remediation Goal (PRG) for lead.

Waste Determination

Although groundwater analytical data suggests that leaching of lead into the shallow groundwater aquifer is minimal, the NC Superfund Section recommends that before any off-site excavation and subsequent removal commences, a waste determination must be performed on the off-site contaminated soil. The NC Superfund Section recommends that a Toxicity Characteristics Leaching Procedure (TCLP) analysis be performed to determine if the contaminated soil meets the requirements as a non-hazardous material. If TCLP analysis reveals that the contaminated soil exhibits hazardous characteristics, then the contaminated soil should be remediated and disposed of properly.

ARAR Compliance: 15A NCAC 13B.0200, .0500, .0600

These ARARs require that any person who establishes a solid waste management facility, or attempts to treat, store, or dispose of solid waste on his land, must obtain approval from the NC Solid Waste Management Division. As per 15A NCAC 13B, solid waste is defined as any hazardous or non-hazardous material that is either discarded or is being accumulated, stored, or treated prior to being discarded. BBL has proposed to excavate off-site soil and consolidate under an on-site soil cover with institutional controls as the preferred remedy for the lead and arsenic contaminated soil found at the site. Therefore, requirements outlined in 15A NCAC 13B.0200 must be followed to complete the proposed remedy for the lead and arsenic contaminated soil. In addition, groundwater monitoring may be required to the extent that the Division determines to be necessary to detect the effects of the facility on groundwater in the area.

Additional Alternative Evaluation

In an effort to satisfy both the EPA and the NC Superfund Section, we request that an additional alternative be evaluated for the remedy of lead and arsenic contaminated soil. We suggest that excavation of lead and arsenic contaminated soil to site-action levels, on-site treatment to meet non-hazardous characteristics, and off site disposal to a lined, non-hazardous landfill be evaluated for this site.

If you have any questions, please call me at (919) 733-2801, extension 298 or by e-mail at mike.deaton@ncmail.net.

Sincerely,

Mike Deaton
Environmental Engineer
Site Evaluation and Removal Branch
Superfund Section

Jim Bateson, Head
Site Evaluation and Removal Branch
Superfund Section

cc: File
Charlotte Jesneck

TRIP NOTIFICATION AND AUTHORIZATION FORM

Program:

- [x] Federal
- [ ] State
- [ ] NPL/DOD
- [ ] Brownfields
- [ ] MPG
- [ ] Dry Cleaners

Site Name:	VCC-Wadesboro
ID Number:	NCSFN 0406 924
Street Address:	1.5 miles E of Wadesboro, on the N side of Rt. 1714
City:	Wadesboro
County:	Anson

Date(s) of Trip	Trip Canceled:	Trip Rescheduled (Date):
4-16 to 4-30		

Reason For Trip: Removal Oversight (Latest plan made was on 2/1/01)

(if sampling, check appropriate boxes below)

- [ ] Surface Soil
- [ ] Subsurface Soil
- [ ] Using Augers/Shovels to collect soil
- [ ] Using Little Beaver to collect soil
- [ ] Groundwater (from tap)
- [ ] Groundwater (bailers)
- [ ] Groundwater (pumps)
- [ ] Surface Water
- [ ] Sediment

Project Team Leader	Assistant	Assistant	Assistant
Scott Ryals			

Authorized By: [signature]

Industrial Hygienist Signature

Office Use Only

County Health Department Official Contact: Carol Gibson

Title: Env. Health Program Coordinator

Phone Number: (704) 694 - 4681

Health Department Official Contacted: Carol Gibson

Back Up Letter Required?: Yes _ No ✓

Notes: Notified Ms. Gibson via voice mail 4-10-01 (DBL)

TRIP NOTIFICATION AND AUTHORIZATION FORM

Program:

- [ ] Federal
- [x] State
- [ ] NPL/DOD
- [ ] Brownfields
- [ ] MPG
- [ ] Dry Cleaners

Site Name:	VCC Chemical Wadesboro
ID Number:	NCSFN 0406 924
Street Address:	
City:	Wadesboro
County:	Anson

Date(s) of Trip	Trip Canceled:	Trip Rescheduled (Date):
1/31/01 - 2/2/01		

Reason For Trip: EPA Removal Oversight

(if sampling, check appropriate boxes below)

- [ ] Surface Soil
- [ ] Subsurface Soil
- [ ] Using Augers/Shovels to collect soil
- [ ] Using Little Beaver to collect soil
- [ ] Groundwater (from tap)
- [ ] Groundwater (bailers)
- [ ] Groundwater (pumps)
- [ ] Surface Water
- [ ] Sediment

Project Team Leader	Assistant	Assistant	Assistant
Scott Ryals			

Authorized By: [signature]

Industrial Hygienist Signature

Office Use Only

County Health Department Official Contact: Carol Gibson

Title: Env. Health Program Coord.

Phone Number: (704) 694 - 4681

Health Department Official Contacted: Carol Gibson

Back Up Letter Required?: Yes _ No ✓

Notes: Notified Carol Gibson 1-30-01 (DBL)

SITE HEALTH AND SAFETY PLAN

A. General Information

Site Name VCC-Wadesboro ID # NCS FNO 406 924

Location 1.5 miles east of Wadesboro, on the north side of Route 1714, Anson Co., NC

Proposed Date of Investigation 1/17/01

Date of Briefing 1/16/01

Date of Debriefing 1/18/01

Nature of Visit (check one):

On-Ste Reconnaissance	X
Off-Site Reconnaissance	
Sampling	
Sampling Overview	
Remediation Overview	

Health Department Official Contacted Carol Gibson's voice mail

Date of Contact 1/4/01

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

Personnel	Responsibilities	Signature
Team 1 Dan LaMontagne	team leader, recon	

Plan Preparation:

Prepared By: David Lilley, Industrial Hygiene Consultant

Reviewed By: Jack Butler, Superfund Section Chief

B. SITE/WASTE CHARACTERISTICS

Waste Type(s) _____Liquid __X__Solid _____Sludge _____Gas _____Vapor

Characteristics _____Corrosive _____Ignitable _____Radioactive

_____Volatile __X__Toxic _____Reactive _____Other

List Known or Suspected Hazards (physical, chemical biological or radioactive) on Site and their toxicological effects. Also, if known, list chemical amounts

HAZARD	WARNING PROPERTIES	EXPOSURE LIMIT
Lead	Odor Threshold (OT) = no data	0.05 mg/m^3
Arsenic	OT = no data	0.01 mg/m^3
Mercury	OT = no data	0.01 mg/m^3

UNDERGROUND UTILITIES CHECKLIST

Utility	Locator/Contact Person	Phone #	Date of Location
Power	NA		
Telephone	NA		
Gas	NA		
Water	NA		
Sewer	NA		

Call made by:

ID # NCS FNO 406 924

Facility Description: Size 10.38 acres Buildings yes

Disposal Methods Being Investigated Possible spillage of materials.

Unusual Features on Site (dike integrity, power lines, terrain, etc.):
none known

History of the Site: The site was a fertilizer manufacturing facility started in the early 1900s. The property has also been used as a box manufacturing plant, and a metal fabrication facility.

C. HAZARD EVALUATION

The sites can be toured in level D protection. No sampling will be conducted at this time. Chemically resistant, steel toed work boots will be worn while touring the sites.

D. WORK PLAN INSTRUCTION

Map or Sketch Attached? yes

Perimeter Identified? no

Command Post Identified? no

Zones of Contamination Identified? no

Personal Protective Equipment/Level of Protection: ____C ___X D

Modifications

ID # NCSFN 0406 924

Surveillance Equipment:

_____	HNU	_____	Detector Tubes and Pumps
_____	OVA	_____	02 Meter
_____	Explosimeter	X	Radiation Monitor

Decontamination Procedures

_____ Level C Respirator wash, respirator removal, suit wash (if needed), suit removal, boot wash, boot removal and glove removal.

X Level D Boot wash and rinse and boot removal, suit removal, glove and goggle removal.

Modifications Dispose of trash properly, on-site if possible.

Work Schedule/Visit Objectives The purpose of this visit is to determine if the site poses a threat to the public health or environment because of releases of contaminants to soil, surface water, groundwater, or air. No sampling will be conducted at this time, sampling may take place on a later date.

EMERGENCY PRECAUTIONS

Route of Exposure	First Aid
Eyes	irrigate immediately
Skin	soap and water wash
Inhalation	fresh air and artificial respiration
Ingestion	get medical attention immediately

ID # NCS FNO 406 924

Location of Nearest Phone: unknown (nearby residences/businesses?)

Hospital (Address and Phone Number)

Anson County Hospital, 500 Morven Rd, Wadesboro, NC (704) 694-5131

Emergency Transportation Systems (Phone Numbers)

Fire 911

Ambulance 911

Rescue Squad 911

Emergency Route to Hospital Turn left on SR 1714 and travel to Wadesboro. Turn left onto Greene Street, the hospital will be on the left.

PREVAILING WEATHER CONDITIONS AND FORECAST Partly cloudy with a chance of rain, highs in the 40s.

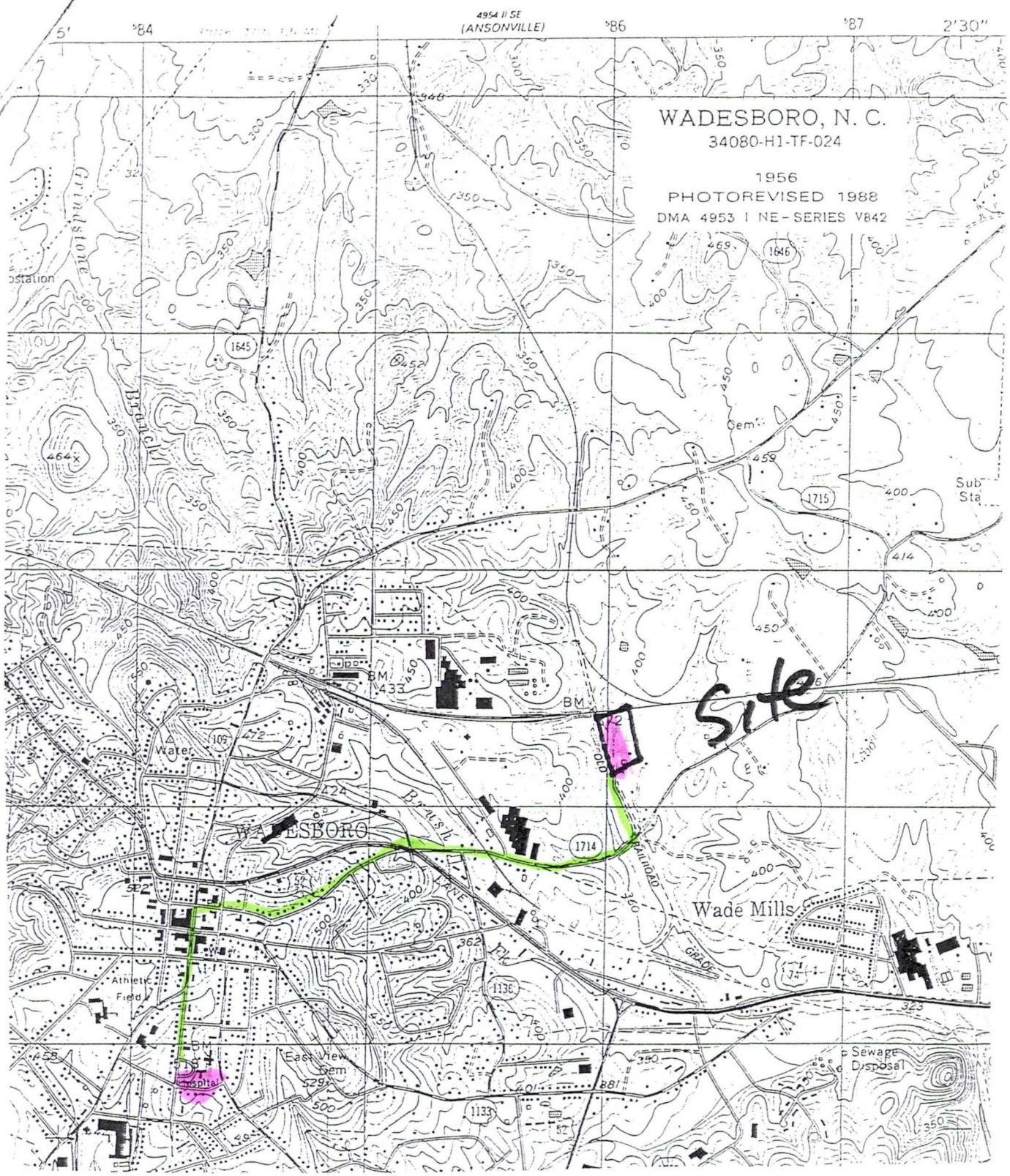
EQUIPMENT CHECKLIST

____	Air purifying respirator	X	First Aid Kit
____	Cartridges for respirator	X	3 gal. Deionized H20
____	Eye Wash Unit	X	Rain suit
____	HNU	X	Gloves (PE/PVC/nitrile/cloth)
____	OVA	X	Boots/Boot Covers
____	Explosimeter	X	Coveralls (tyvek/saranex)
X	Radiation Monitor	X	Eye Protection (goggles/shield)
X	Decontamination Materials	X	Hard Hat

STATE POISON CONTROL CENTER

1-800-848-6946

SITE NAME: VCC - Wadesboro NUMBER: _____



TOPOGRAPHIC MAP QUADRANGLE NAME: Wadesboro SCALE: 1:24,000

COORDINATES OF LOWER RIGHT-HAND CORNER OF 2.5-MINUTE GRID:

LATITUDE: 35 ° 57 ' 30 " LONGITUDE: 80 ° 2 ' 30 "

TO BE COMPLETED BY PROJECT MANAGER

PROJECT MANAGER: Dan LaMontagne PROJECT: VCC-Wadesboro

INVESTIGATION DATE: 1/17/01

RECONNAISSANCE X SAMPLING VISIT _____ REMEDIATION/SAMPLING OVERVIEW _____

Respirator Worn By

Approximate Time in Respirator

Air Monitoring Data

PID: (circle one) Mini Rae, HNU
Serial Number
Calibration Reading
Notes

OVA
Serial Number
Notes

CGI/Oxygen Meter
Serial Number
Calibration Reading
Notes

Radiation Meter
Serial Number
Notes

Were there any injuries? _____ If yes, explain:

Signature

HAZARDOUS SUBSTANCE INFORMATION FORM

Chemical Name: Lead, inorganic dusts

I. PHYSICAL/CHEMICAL PROPERTIES

	Reference
Chemical Formula Pb	1
Natural Physical State at 25°C solid	1
Vapor Pressure N/A mm Hg at 20°C	1
Melting Point 327.4°F/°C Boiling Point 1,740°F/°C	1
Flash Point (open or closed cup) N/A°C/°F	
Solubility - H_2O N/A	
Other N/A	

Physical Features: (odor, color, etc.) appearance and odor vary depending upon specific compound.

II. TOXICOLOGICAL DATA
suspected or confermed human carcinogen

Standards: .05 mg/m^3 (2) TLV 0.05 mg/m^3 (3) PEL
N/A (4) IDLH

Routes of Exposure: inhalation, ingestion, eye contact, skin contact(3)

Acute/Chronic Symptoms: Acute: lassitude, pallor, constipation, abdominal pain, gingival gum line, tremors. Target organs: GI tract, CNS, kidneys, blood.(3)

First Aid: Inhalation: artificial respiration; Ingestion: get medical attention immediately; Eye contact: irrigate immediately; Skin contact: soap and water wash immediately

Chemical Name: Lead, inorganic dusts

III. HAZARDOUS CHARACTERISTICS

Reference

A. Combustibility Yes __ No X ____
Toxic by-products _____ ____

B. Flammability LEL N/A UEL _____ ____

C. Reactivity Hazard None _____ ____

D. Corrosivity Hazard yes/no pH: ___ _____

Neutralizing agent: _____ _____

E. Radioactive Hazard Exposure Rate

Background	yes/no	_____	_____
Alpha particles	yes/no	_____	_____
Beta particles	yes/no	_____	_____
Gamma radiation	yes/no	_____	_____

IV. REFERENCES

(1) The Merck Index, 11th Edition, 1989
(2) Threshold Limit Values and Biological Exposure Indices for 1997 ACGIH.
(3) 29 CFR 1910.1025
(4) Pocket Guide to Chemical Hazards, NIOSH, 1990.

HAZARDOUS SUBSTANCE INFORMATION FORM

Chemical Name: Arsenic

I. PHYSICAL/CHEMICAL PROPERTIES

Reference

Chemical Formula As 1

Natural Physical State at 25°C metal 1

Vapor Pressure ____ mm Hg at 20°C _____

Melting Point ___°F/°C Boiling Point _____°F/°C _____

Flash Point (open or closed cup) ___°C/°F _____

Solubility - H_2O insoluble _____

Other _____ _____

Physical Features: (odor, color, etc.) grey, metallic (1)

II. TOXICOLOGICAL DATA

Standards: 0.01 mg/m3(3) TLV 0.5 mg/m3 (4) PEL
100 mg/m3 (2) IDLH

Routes of Exposure: Inhalation, skin and or eye absorption, Ingestion (2)

Acute/Chronic Symptoms: Acute: ingestion-irritation of G.I. tract, vomiting diarrhea which can produce shock leading to death: Chronic: exfoliation and pigmentation of skin, herpes, polyneuritis, altered hematopoiesis, degeneration of liver and kidneys (1).

First Aid: Inhalation: artificial respiration; Ingestion: get medical attention immediately; Eye contact: irrigate immediately; Skin contact: soap and water wash immediately

Chemical Name: Arsenic

III. HAZARDOUS CHARACTERISTICS — Reference

A. Combustibility Yes __ No X — 2

Toxic by-products _____ _____

B. Flammability LEL none UEL none — 2

C. Reactivity Hazard _____ _____

D. Corrosivity Hazard yes/no pH: _____ _____

Neutralizing agent: _____ _____

E. Radioactive Hazard Exposure Rate

Background yes/no _____ _____

Alpha particles yes/no _____ _____

Beta particles yes/no _____ _____

Gamma radiation yes/no _____ _____

IV. REFERENCES

1. The Merck Index, 11th Edition, 1989.

2. The Pocket Guide to Chemical Hazards, NIOSH, 1990.

3. Threshold Limit Values and Biological Exposure Indices for 1999 ACGIH

4. 29 CFR 1910.1000

HAZARDOUS SUBSTANCE INFORMATION FORM

Chemical Name: Mercury (inorganic)

I. PHYSICAL/CHEMICAL PROPERTIES

Reference

Chemical Formula Hg 1

Natural Physical State at 25oC liquid 2

Vapor Pressure 0.0012 mm Hg at 20°C 2

Melting Point -38 °F/°C Boiling Point 674 °F/°C 2

Flash Point (open or closed cup) None °C/°F 2

Solubility - H_2O insoluble 2
Other

Physical Features: (odor, color, etc.) Silvery, mobile odorless liquid (2)

II. TOXICOLOGICAL DATA

Standards: aykyl = 0.01 mg/m3(3) TLV 0.05 mg/10m3(4) PEL 28 mg/m3(2) IDLH

Routes of Exposure: Inhalation, skin and/or eye absorption, Ingestion (2)

Acute/Chronic Symptoms: Acute: soluble salts have violent corrosive effect on skin and mucous membranes, severe nausea, vomiting, abdominal pains, blood, diarrhea, kidney damage, death usually with 10 days; Chronic: inflammation of mouth and gums, excessive salivation, loosening of teeth, kidney damage, muscle tension, jerky gait, spasms of extremities, personality changes, depression, irritability, nervousness(1).

First Aid: Inhalation: artificial respiration; Ingestion: get medical attention immediately; Eye contact: irrigate immediately; Skin contact: soap and water wash immediately

Chemical Name: Mercury-inorganic

III. HAZARDOUS CHARACTERISTICS Reference

A. Combustibility Yes ___ No X 2

Toxic by-products _____

B. Flammability LEL none UEL none 2

C. Reactivity Hazard Incompatible with acetylenes, ammonia gases (2)

D. Corrosivity Hazard (insoluable salts) yes/no pH: _____ 1

Neutralizing agent: _____

E. Radioactive Hazard Exposure Rate

Background	yes/no	_____	_____
Alpha particles	yes/no	_____	_____
Beta particles	yes/no	_____	_____
Gamma radiation	yes/no	_____	_____

IV. REFERENCES

(1) The Merck Index, 11th Edition, 1989

(2) Pocket Guide to Chemical Hazards, NIOSH, 1990

(3) Threshold Limit Values and Biological Exposure Indices for 1997 ACGIH.

(4) 29 CFR 1910.1000

KEY RISK MANAGEMENT SERVICES, INC.
ATTN: STATE UNIT
P.O. BOX 49129
GREENSBORO, NC 27419

CompCare
NETWORK, INC.

WORKERS' COMPENSATION MEDICAL AUTHORIZATION

Name of Employee/Patient: Last	First
Date of Injury:	Social Security Number: - -
Name of Employer/Company:	STATE OF NORTH CAROLINA
Employer Authorization:	Doctor To Be Seen:

Employer: Complete this form, and give it to the injured employee before a doctor is seen.

Employee: Show this form to the doctor.

Physician: When a referral is necessary - use CompCare Physicians and call 1-800-366-1511, to let the state agency claims representative know that the patient is being referred.

SEND BILL DIRECTLY TO KEY RISK MANAGEMENT SERVICES, INC.

TRIP NOTIFICATION AND AUTHORIZATION FORM

Program:

- [x] Federal
- [ ] State
- [ ] NPL/DOD
- [ ] Brownfields
- [ ] MPG
- [ ] Dry Cleaners

Site Name:	VCC-Wadesboro
ID Number:	NCSFN 0406 924
Street Address:	Stanback Ferry Rd.
City:	Wadesboro
County:	Anson

Date(s) of Trip	Trip Canceled:	Trip Rescheduled (Date):
01/17/00		

Reason For Trip: On-Site Recon

(if sampling, check appropriate boxes below)

- [ ] Surface Soil
- [ ] Subsurface Soil
- [ ] Using Augers/Shovels to collect soil
- [ ] Using Little Beaver to collect soil
- [ ] Groundwater (from tap)
- [ ] Groundwater (bailers)
- [ ] Groundwater (pumps)
- [ ] Surface Water
- [ ] Sediment

Project Team Leader	Assistant	Assistant	Assistant
Dan LaMontagne			

Authorized By: [signature]

Industrial Hygienist Signature

Office Use Only

County Health Department Official Contact: Carol Gibson

Title: Env. Health Program Coordinator

Phone Number: ~~(828)~~ 704 694 ~~5188~~ 4681

Health Department Official Contacted: Carol Gibson

Back Up Letter Required?: Yes _ No ✓

Notes: Notified Ms. Gibson via voicemail 1-4-01 (DBL)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960
OCT 30 2000

RECEIVED
NOV 13 2000
SUPERFUND SECTION

4WD-ERRB

Mr. Jack Butler, Chief
Superfund Section
North Carolina Division of
Solid Waste Management
401 Oberline Road, Suite 150
Raleigh, North Carolina 27605

Dear Mr. Butler:

We are pleased to provide a copy of the Action Memorandum requesting and documenting the approved removal action at the V.C. Chemical Site located in Wadesboro, Anson County, North Carolina. If you have any questions or comments concerning this document, please contact the On-Scene Coordinator at the following address:

John Nolen
U.S. Environmental Protection Agency
4WD-ERRB
61 Forsyth Street, 11th Floor
Atlanta, Georgia 30303
(404) 562-8750

Sincerely,

Myron D. Lair, Chief
Emergency Response & Removal Branch

Enclosure

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

OCT 3 0 2000

4WD-ERRB

ACTION MEMORANDUM / ENFORCEMENT

SUBJECT: Request for a Removal Action at the Virginia Carolina Chemical Company (V.C. Chemical) Site in Wadesboro, Anson County, North Carolina.

FROM: John Nolen, On-Scene Coordinator
Emergency Response and Removal Branch

TO: Richard D. Green, Director
Waste Management Division

Site ID #: A42B

I. PURPOSE

The purpose of this Action Memorandum is to request and document approval of the proposed removal action described herein for the V.C. Chemical Site (the Site), located in Wadesboro, Anson County, North Carolina. The Site poses a threat to public health and the environment that meets the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) section 300.415(b) criteria for removal actions. Exxon-Mobil is the corporate successor to V.C. Chemical. This removal action is anticipated to be enforcement lead pursuant to an Administrative Order on Consent with Exxon-Mobil.

II. SITE CONDITIONS AND BACKGROUND

A. Site Description

1. Removal Site Evaluation

The Cerclis ID# for this time critical removal action is NCSFN0406924

The V.C. Chemical Site is located in Wadesboro, Anson County, North Carolina. The Site was owned by Virginia Carolina Chemical Company from 1908 to 1945, and was the location of a fertilizer manufacturing facility. The Site was sold to Anson County in 1945 and was not in use between 1945 and 1980. The current owner of the Site, Mr. Carl Weston, purchased the property at auction from Anson County in 1975.

The Site was discovered during a routine site investigation by the North Carolina Department of Environment and Natural Resources (NCDENR) in May 1999. A preliminary assessment and site investigation revealed magenta-colored soils with elevated levels of lead, copper and arsenic. Operational history suggested that the presence of the elevated metals in the soil was due to the process used to make super-phosphate fertilizers utilizing lead-lined acid chambers.

In October 1999, the NCDENR Division of Waste management referred the Site to the U.S. EPA's Emergency Response and Removal Branch (ERRB) for removal eligibility consideration.

On December 2, 1999, the ERRB conducted a site investigation at the Site. The investigation included a general site reconnaissance and collection of surface and subsurface samples. Sampling locations were randomly chosen to define suspect soils based on visual observation and potential source information form NCDENR. EPA's Superfund Technical Assessment and Response Team (START) contractor collected a total of eight soil samples (six surface and two subsurface). Lead was present in all of the eight samples, at concentrations ranging from 230 parts per million to 29,700 parts per million (ppm). Arsenic was detected as high as 965 ppm.

2. Physical Location

The Site occupies approximately 10.38 acres of woodlands adjacent to Stanback Ferry Road in Wadesboro. The surrounding area is mixed commercial and residential. Two residences border the Site to the east and one borders the Site to the south. The closest residence is within 250 feet of the Site.

3. Site Characteristics

The Site consists of two processing areas located on the central and southern portions of the Site. The central processing area is comprised of a brick building, two tanks, a fire reservoir, and a concrete pad that was once a large packaging and distribution warehouse. Two utility buildings and a large processing building comprise the southern processing area. Buildings in both areas are in various stages of collapse. The former acid chambers are located in the southern processing area. The highly contaminated magenta colored soils are located adjacent to the southern processing area.

4. Release of Threatened Release into the Environment of a Hazardous Substance, or Pollutant or Contaminant

The release or threat of release of hazardous substances at the Site may present an imminent and substantial endangerment to the public health or welfare or the environment. In order to protect the public health or welfare or the environment, it is necessary that action be taken to abate the release or threat of release of hazardous substances from the property into the environment.

Surface and subsurface soils at the Site contain elevated levels of lead and arsenic. These areas of contaminated soil contain hazardous substances as defined by section 101(14) of CERCLA. Laboratory analysis from surface and subsurface soil samples collected during the U.S. EPA investigation in 1999, revealed lead levels as high as 29,700 ppm and arsenic as high as 965 ppm.

Currently no barriers exist between the private residences and the contaminated soil. Small children live in the home located 250 feet away for the contaminated area. The adjoining property owners have complained about trespassers visiting the area at night as evidenced by the vandalized entrance gate. The area containing the highest levels of lead and arsenic is located in the south western corner of the site. This area of contaminated soil is void of vegetation and is located in a surface water drainage pathway which serves as an offsite migration pathway for storm water.

5. NPL Status

The V.C. Chemical Site is not currently on the National Priority List (NPL), nor is it a likely NPL candidate.

6. Maps, pictures and other graphic representation

Maps and pictures can be made available upon request.

A. <u>Other Actions to Date</u>

1. Previous actions

None

2. Current Actions

No other government or private activities are currently being performed.

B. State and Local Authorities' Roles

1. State and local actions to date

The NCDENR Division of Waste Management referred the Site to the EPA's ERRB to be evaluated for possible removal eligibility.

2. Potential for continued State/local response

Currently the NCDENR does not have access to resources sufficient to perform the required removal activities. The NCDENR is willing to cooperate and assist the EPA throughout the duration of the removal.

III. THREATS TO THE PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES

A. Threats to the Public Health or Welfare

The OSC has determined that this site meets the criteria for a removal action as defined under the National Contingency Plan (NCP), section 300.415 (b) (2).

(i) *Actual or threatened exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants* - there is an immediate threat to the health and safety of nearby residents and trespassers who may enter the Site. Human exposure to site related contaminants may occur via inhalation of windborne dust, inadvertent ingestion of contaminated soil, and direct contact with the contaminated surficial soils. No barriers exist between the nearby private residences and the contaminated surface soil. .

Possible routes of exposure to lead are inhalation, ingestion, and direct contact. Studies indicate exposure to lead-contaminated media can contribute to elevated blood lead levels. Elevated blood lead levels have been asssociated with adverse health effects such as development and hearing impairment, and reductions in intelligence quotient in children. When the central nervous system is affected because of exposure to large amounts of lead, the result may include severe headache, convulsions, coma, delirium and possible death. (Health risk information porvided by the Handbook of Toxic and Hazardous Chemical and Carcinogens.)

(ii) *Actual of potential contamination of drinking water supplies* - City or County water lines do not currently service the area surrounding the Site. The residences adjacent to the site utilize well water as their source of drinking water. Subsurface samples collected at the site contained elevated levels of lead and arsenic. The potential exists for the contamination to migrate into the groundwater and adversely affect the nearest potable wells.

(iii) High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface, that may migrate - The area that contains the highest levels of lead and arsenic contamination is void of vegetation and is located in and area that comes in contact with surface water drainage. Soil samples collected along the drainage pathway suggest that the contaminants are migrating along the surface water drainage pathways which could eventually adversely affect neighboring properties.

B. Threats to the Environment

The Site contains elevated levels of lead and arsenic in surficial soils. Surface water runoff migrates away from the Site and eventually enters and unamed creek. The contaminants of concern pose a threat to the terrestrial flora and fauna of the above mentioned surface water migration pathways.

Contaminants migrating through the subsurface soils present a direct threat to the groundwater.

If action is delayed, contaminants will continue to migrate off-site due to surface water runoff and may threaten to contaminate the groundwater.

IV. ENDANGERMENT DETERMINATION

Actual or threatened releases of hazardous substance from this site, if not addressed by implementing the response action selected in the Action Memorandum, may present an imminent and substantial endarngerment to public health, or welfare, or the environment.

V. PROPOSED ACTIONS AND ESTIMATED COSTS

A. Proposed actions

Proposed actions to complete the removal activities at the Site include additional sampling and analysis of the surface and subsurface soil, and subsequent transportation and disposal of all waste streams.

1. Proposed action description

The following actions are proposed for the Site:

- mobilization and site preparation

- surface and subsurface soil sampling to better define the extent of contamination.

- groundwater investigation, including the installation of groundwater monitoring wells and collection of groundwater samples.

- excavation, transportation and offsite disposal of contaminated soils to a facility operating in accordance with EPA's Offsite Rule.

- confirmation sampling of the excavated areas

- site restoration, including backfill, grading and revegetaton.

2. Contribution to remedial performance

The proposed removal activity at the Site will abate the immediate threats identified in section III of this document. The proposed removal action will aid in long term cleanup goals if further remedial actions are necessary.

3. Description of alternative technologies

A complete evaluation of alternative technologies will be made prior to the disposal/treatment phase of this removal.

4. Engineering Evaluation/Cost Analysis (EE/CA)

The proposed action is time-critical and does not require an EE/CA.

5. Applicable or Relevant and Appropriate Requirements (ARARS)

ARARs identified for this site include RCRA for determination of Land Disposal Restrictions (LDRs) for treatment, storage and disposal of hazardous waste. All ARARS will be attained for off-site transportation and disposal of hazardous materials or pollutants or contaminants. The requirements of the Off-Site Rule will also be met. The NCDENR will be contacted in a timely fashion to identify any state ARARs prior to initiation of on site activities.

6. Project schedule

Response actions will continue at the Site upon the signing of the AOC. Foregoing any unexpected delays, all actions are expected to be completed within six months of the start date.

This project will be completed in two phases:

Phase I - Site characterization, including soil and groundwater sampling.

Phase II - Treatment and/or offsite disposal of waste streams.

B. Estimated Costs

Costs not included - Enforcement lead removal action

VI. EXPECTED CHANGE IN THE SITUATION AND SITE CONDITIONS IF THE ACTION IS DELAYED OR NOT TAKEN

The situation at the Site will only worsen if a removal action is delayed or not taken. The presence of contaminated surface and subsurface soil at the Site poses a threat to the nearby population. Surface water and groundwater continue to be threatened by the existence of the highly contaminated soils.

VII. OUTSTANDING POLICY ISSUES

There are no known outstanding policy issues.

VIII. ENFORCEMENT

A Potentially Responsible Party (PRP) search was conducted in 1999. CERCLA 104(e) information request letters and notice of liability letters were issued to all of the known PRPs. Enforcement activities are ongoing, and EPA will initiate appropriate enforcement actions with identified viable PRPs. See Attachment, "Enforcement Addendum," for more detailed information.

IX. RECOMMENDATION

This decision document represents the selected removal action for the V.C. Chemical Site in Wadesboro, Anson County, North Carolina, developed in accordance with CERCLA, as amended, and not inconsistent with the NCP. This decision is based on the administrative record for the Site.

Conditions at the Site meet the NCP 40 CFR §300.415 (b) criteria for a removal action and I recommend your approval of the proposed action.

APPROVED: _____ DATE: 10/27/00

DISAPPROVED: _____ DATE: _____

Richard D. Green, Director
Waste Management Division

Attachment

Memorandum

Date: December 29, 1999

To: File

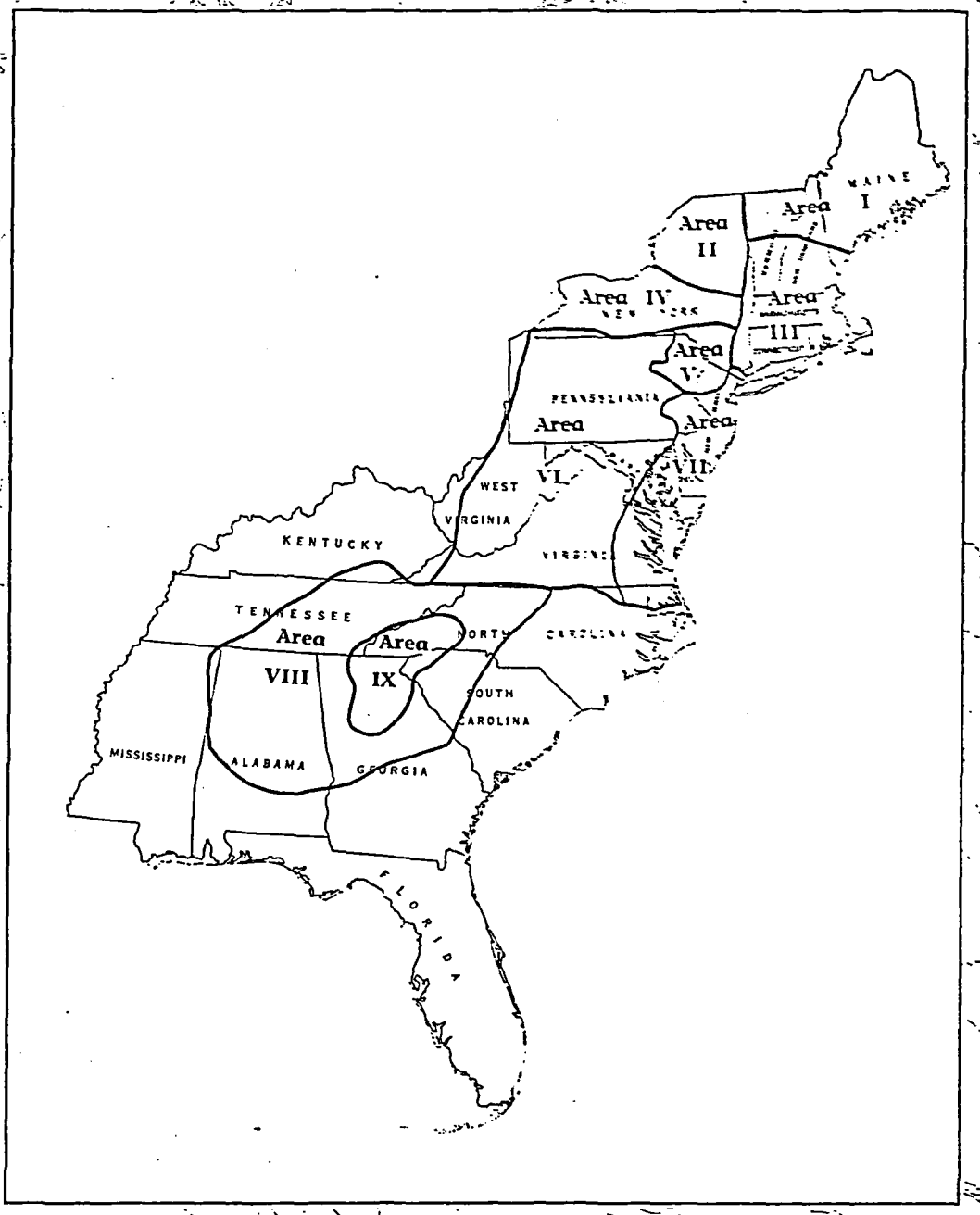
From: Scott Ryals
Environmental Chemist
NC Superfund Section

Subject: Flow Rate in Brush Fork Creek
VCC-Wadesboro
Wadesboro, Anson County, NC
US EPA ID: NCSFN 0406 924

On Wednesday, December 29, 1999, Scott Ryals and Harry Zinn of the NC Superfund Section calculated the average runoff of the drainage basin for Brush Fork Creek. Using the Wadesboro, USGS topographic map and a Planix Digital Planimeter, the area of the drainage basin was determined to be 388 acres or 0.606 square miles (See attached worksheet). Based on the equation described in the US Geological Survey, Water-Resources Investigations Report 88-4094, the runoff coefficient for the Wadesboro area is 14 inches[1] and the mean annual discharge to the Brush Fork Creek is calculated to be approximately 0.625 cubic feet per second (cfs).

[1] US Geological Survey, Water-Resources Investigations Report 88-4094. Map of the Mean Annual Runoff for the Northeastern, Southeastern and Mid-Atlantic United States, Water Years 1951-80.

MAP OF MEAN ANNUAL RUNOFF FOR THE NORTHEASTERN, SOUTHEASTERN, AND MID-ATLANTIC UNITED STATES, WATER YEARS 1951-80



Prepared in cooperation with the
U.S. Environmental Protection Agency

sions that the methods that used the area-weighted average of the drainage area or the centroid of the drainage area produced somewhat better correlations—that is, the interecept was closer to zero, the standard errors were small, and the correlation coefficients were larger. These methods have slightly greater power to predict actual runoff

Additional statistical investigation found no significant differences in reliability of the runoff estimates among the areas. No significant differences existed in the errors for stations with drainage areas of differing size.

USE OF MEAN ANNUAL RUNOFF MAP

Mean annual runoff for a site can be estimated from the runoff map by several methods. The simplest method of estimating the runoff is to locate the site on the runoff map and to identify the runoff contour nearest the site. This method, however, is less accurate than other methods. The most accurate method is to draw the drainage basin on the runoff map, and use the runoff contours to divide the basin into bands of differing runoff. The area of each of the bands within the drainage basin is then determined. The areas of the separate bands are then used to compute a weighted average runoff for the basin. For example, if 50 percent of the basin is in an area of 18 in/yr (inches per year) of runoff, 30 percent in an area of 20 in/yr of runoff and 20 percent in an area of 22 in/yr of runoff the mean annual runoff would be calculated as follows:

$$0.5 \times 18 + 0.3 \times 20 + 0.2 \times 22 = 19.4$$

Runoff estimated from the map is in inches per year, averaged over the entire drainage basin. Multiply this value by the drainage area, in square miles, and divide by 13.58 to convert to mean annual discharge, in cubic feet per second. In the above example, assume the drainage area of the site is 100 mi^2. The mean annual discharge, in cubic feet per second, would be:

$$19.4 \times 100/13.58 = 143$$

The runoff map was prepared to allow estimation of mean annual runoff at sites where no streamflow data are available. The map represents mean annual runoff for areas with natural land cover. Caution should be used in applying the map to estimate runoff for areas that are not natural land areas. The runoff map should not be used for areas, such as large urban areas, where the land cover has been altered in ways that would change the amount of runoff. The runoff map is not applicable for lakes or bays, for coastal wetlands affected by tides, for streams controlled by reservoirs large enough to influence the total annual streamflow, or for streams with substantial diversions.

Local features could cause the runoff at a particular site to differ substantially from the runoff indicated by the runoff map. The geology of the drainage basin might cause substantial amounts of water to enter or leave the basin as ground water. This could substantially increase or decrease the runoff. For example, a stream with a small drainage area that includes a large spring probably would have higher average streamflow than indicated by the runoff map.

Table 5.—Descriptive statistics of errors in estimated runoff at 93 test stations

Method	Mean absolute value	Mean	Standard error of mean	Standard deviation
		Error, in inches		
Area-weighted	2.0	−0.35	0.30	2.9
Centroid	2.2	−.71	.33	3.1
GIS	2.7	−1.74	.37	3.6
Nearest-inch	2.8	−1.77	.38	3.7
Nearest contour	2.8	−1.79	.39	3.8
		Percent error		
Area-weighted	9.0	−0.54	1.3	12.9
Centroid	9.8	−.71	1.4	13.5
GIS	12.0	−6.42	1.6	15.9
Nearest-inch	12.1	−6.20	1.6	15.6
Nearest-contour	12.2	−6.26	1.6	15.8

VIRGINIA
NORTH CAROLINA
SOUTH CAROLINA
GEORGIA
FLORIDA
Site
RALEIGH
Fayetteville
COLUMBIA
LAKE MARION
Santee
Edisto
Black
Pee Dee
Tar
Neuse
Roanoke
Savannah
Ogeechee
Altamaha
Suwannee
Withlacoochee
Ocmulgee
Oconee
Chattahoochee
Flint
Apalachicola
Tallahassee
Jacksonville
Charleston
Savannah
St Helena Sound
St Andrew Sound
Apalachee Bay
Bulls Bay
LONG BAY
80°
30°

Brush Fork Crk Anson County, NC

AREA : 388 acres

43,560 sq.ft/acre

$$\frac{43{,}560 \text{ sq.ft}}{\text{acre}} \Big| \frac{388 \text{ acres}}{} \Big| \frac{\text{mile}^2}{5280^2 \text{ sq.ft}}$$

.606 sq.mi.

Runoff: 14 inches

$$\frac{(.606)(14)}{13.58 \text{ (conversion factor)}}$$

$$\boxed{0.625 \text{ cfs}}$$

Memorandum

Date: December 28, 1999

To: File

From: Scott Ryals
Environmental Chemist
NC Superfund Section

Subject: Fishery Usage 15-Mile Surface Water Pathway
VCC-Wadesboro
Wadesboro, Anson County, NC
US EPA ID: NCSFN 0406 924

On Tuesday, December 28, 1999, Scott Ryals of the NC Superfund Section contacted Mr. Wayne Chapman, Wildlife Enforcement Officer for District 6, at (704) 982-9255. Mr. Chapman said that he did not know of any fishing in Brush Fork, Bailey or Jones Creeks, but that the Jones and Bailey Creeks were large enough to support a fish habitat. Based on this information, and the lack of further data, the nearest fishery has been determined to be located at the confluence of Brush Creek and Bailey Creek which is approximately 3.43 miles downstream of the VCC-Wadesboro site.

Memorandum

December 21, 1999

To: File

From: Scott Ryals
Environmental Chemist
NC Superfund Section

Subject: Wetlands Along 15-Mile Pathway
VCC-Wadesboro
Wadesboro, Anson County, NC
EPA ID: NCSFN 0406 924

Using an American Map Corp. Map Measurer and the 1:24000 scale USGS topographic map for the Wadesboro region, the 15-mile pathway was identified from the VCC-Wadesboro site to a point approximately 0.5 mile east of where Jones Creek passes underneath NC Hwy. 145. The pathway follows an unnamed tributary of Brush Fork Creek for approximately 0.4 miles before it merges with Brush Fork Creek. The pathway follows Brush Fork Creek for approximately 2.3 miles until it merges with Bailey Creek. Bailey Creek flows for approximately 1.9 miles before merging with Jones Creek where the pathway terminates. The first Hazard Ranking System (HRS) identifiable wetland (palustrine forested (PFO)) occurs 1.14 miles downstream of the site within Brush Fork Creek. There are 4.5 miles of PFO wetland frontage along the surface water pathway within four miles of the site. Additional wetland frontage was not determined due to the analytical results of the July 26, 1999 NC Superfund Section PA/SI sampling which indicated that there was not an observed release of the contaminates from the site to the surface water pathway.

file

NORTH CAROLINA DEPARTMENT OF
ENVIRONMENT AND NATURAL RESOURCES
DIVISION OF WASTE MANAGEMENT

NCDENR

JAMES B. HUNT JR.
GOVERNOR

WAYNE MCDEVITT
SECRETARY

WILLIAM L. MEYER
DIRECTOR

October 22, 1999

Mr. Myron D. Lair, Chief
Emergency Response and Removal Branch
US EPA Region IV Waste Division
61 Forsyth Street, 11th Floor
Atlanta, Georgia 30303

Subject: Immediate Removal Evaluation Request
V.C. Chemical – Wadesboro (VCC)
NCSFN 0406 924
Wadesboro, Anson County, NC

Dear Mr. Lair:

The NC Superfund Section requests that the EPA evaluate V.C. Chemical – Wadesboro site for a possible removal action. The site is located approximately ¼ mile off highway 74, on Stanback Ferry Road in Wadesboro, Anson County, NC (Attachment 1). The site is comprised of approximately 10.38 acres of woodlands. There are several remaining buildings in various stages of decay. The most pronounced feature is the fire pond. The geographic coordinates of the site are 34° 58' 22" north latitude by 80° 03' 26" west longitude (Attachment 2) as measured from the fire pond. The area is mixed commercial/residential.

Mr. Carl Weston (903-813-1950) currently owns the site. This site was formerly owned by the Virginia Carolina Chemical Company (1908 to 1945) who operated a fertilizer manufacturing facility utilizing lead-lined, acid chambers. An operational history of the site from 1945 to the time that Mr. Weston purchased the site at auction from Anson County in early 1980 is not available at this time. The site has been abandoned for approximately 10 years.

The site was discovered by Ms. Irene Williams of the NC Superfund Section during a routine site investigation of another property previously owned and operated by the V.C. Chemical Company. Analysis of the magenta colored soils found at that site indicated the presence of elevated lead and arsenic levels. Further investigation lead to the discovery that the lead in the soils was due to the processes used to make super-phosphate fertilizers utilizing lead-lined, acid chambers. On May 26, 1999, NC Superfund conducted a site inspection of the Wadesboro site and discovered the same magenta colored soils. On July 26, 1999, NC Superfund conducted a combined

401 OBERLIN ROAD, SUITE 150, RALEIGH, NC 27605
PHONE 919-733-4996 FAX 919-715-3605
AN EQUAL OPPORTUNITY / AFFIRMATIVE ACTION EMPLOYER - 50% RECYCLED/10% POST-CONSUMER PAPER

PA/SI sampling trip in which surface soil samples were collected from an area of discolored soil, absent of vegetation, approximately 20 feet wide by 60 feet long. The results of the sample analysis (Attachment 3) revealed elevated concentrations of lead (3361 mg/kg), arsenic (92 mg/kg) and copper (1042 mg/kg).

The site investigation indicated that the area adjacent to the magenta colored soils was being used as a dump. Local citizens who own the adjoining property have complained about the teenagers and others who were "visiting" the area during the night. The adjoining property owners erected a gate across the access road to prevent access, but it was quickly torn down. Also adjoining the site are three residences. The residence closest to the site, within 250 feet, has two small children (one and six years of age) and the mother is expecting. There are no barriers between the site and the residences and the magenta soils are visible from the closest residence.

City and County water lines do not service this area. Sampling analysis of the potable wells did not indicate the presence of any elevated metals or other compounds.

Due to the high levels of lead and arsenic detected in the surface soils at the site, the proximity of the site to neighboring homes and the evidence of public access to the site, the NC Superfund Section requests that EPA evaluate the V.C. Chemical - Wadesboro site for a removal action.

State funds for this removal are not available at this time. Please let us know if and when a field evaluation can be conducted so we may coordinate your site visit with our staff. Please feel free to contact me at (919) 733-2801 ext. 290 or Dan.LaMontagne@ncmail.net if you have any questions.

Sincerely,

Dan LaMontagne, Head
Site Evaluation and Removal Branch
NC Superfund Section

Attachments
1. Road Map to Site
2. Site Lat. / Long. Worksheet
3. Metals Analysis Results

cc: File
Scott Ryals

LATITUDE AND LONGITUDE CALCULATION WORKSHEET #2
LI USING ENGINEER'S SCALE (1/60)

SITE NAME: VC Chemical - Wadesboro CERCLIS #: NCSFN 0406 924

AKA: SSID:

ADDRESS: Starbuck Ferry Rd

CITY: Wadesboro STATE: NC ZIP CODE:

SITE REFERENCE POINT: North edge of Fire Pond

USGS QUAD MAP NAME: TOWNSHIP: ____ N/S RANGE: ____ E/W

SCALE: 1:24,000 MAP DATE: 1956/1970 SECTION: ____ 1/4 ____ 1/4 ____ 1/4

MAP DATUM: (1927) 1983 (CIRCLE ONE) MERIDIAN:

COORDINATES FROM LOWER RIGHT (SOUTHEAST) CORNER OF 7.5' MAP (attach photocopy):

LONGITUDE: 80° 00' 00" LATITUDE: 34° 52' 30"

COORDINATES FROM LOWER RIGHT (SOUTHEAST) CORNER OF 2.5' GRID CELL:

LONGITUDE: 80° 02' 30" LATITUDE: 34° 57' 30"

CALCULATIONS: LATITUDE (7.5' QUADRANGLE MAP)

A) NUMBER OF RULER GRADUATIONS FROM LATITUDE GRID LINE TO SITE REF POINT: 156

B) MULTIPLY (A) BY 0.3304 TO CONVERT TO SECONDS:

A x 0.3304 = 51.54"

C) EXPRESS IN MINUTES AND SECONDS (1' = 60"): .52"

D) ADD TO STARTING LATITUDE: 34° 57' 30" + .52 =

SITE LATITUDE: 34° 58' 22"

CALCULATIONS: LONGITUDE (7.5' QUADRANGLE MAP)

A) NUMBER OF RULER GRADUATIONS FROM RIGHT LONGITUDE LINE TO SITE REF POINT: 167

B) MULTIPLY (A) BY 0.3304 TO CONVERT TO SECONDS:

A x 0.3304 = 55.89"

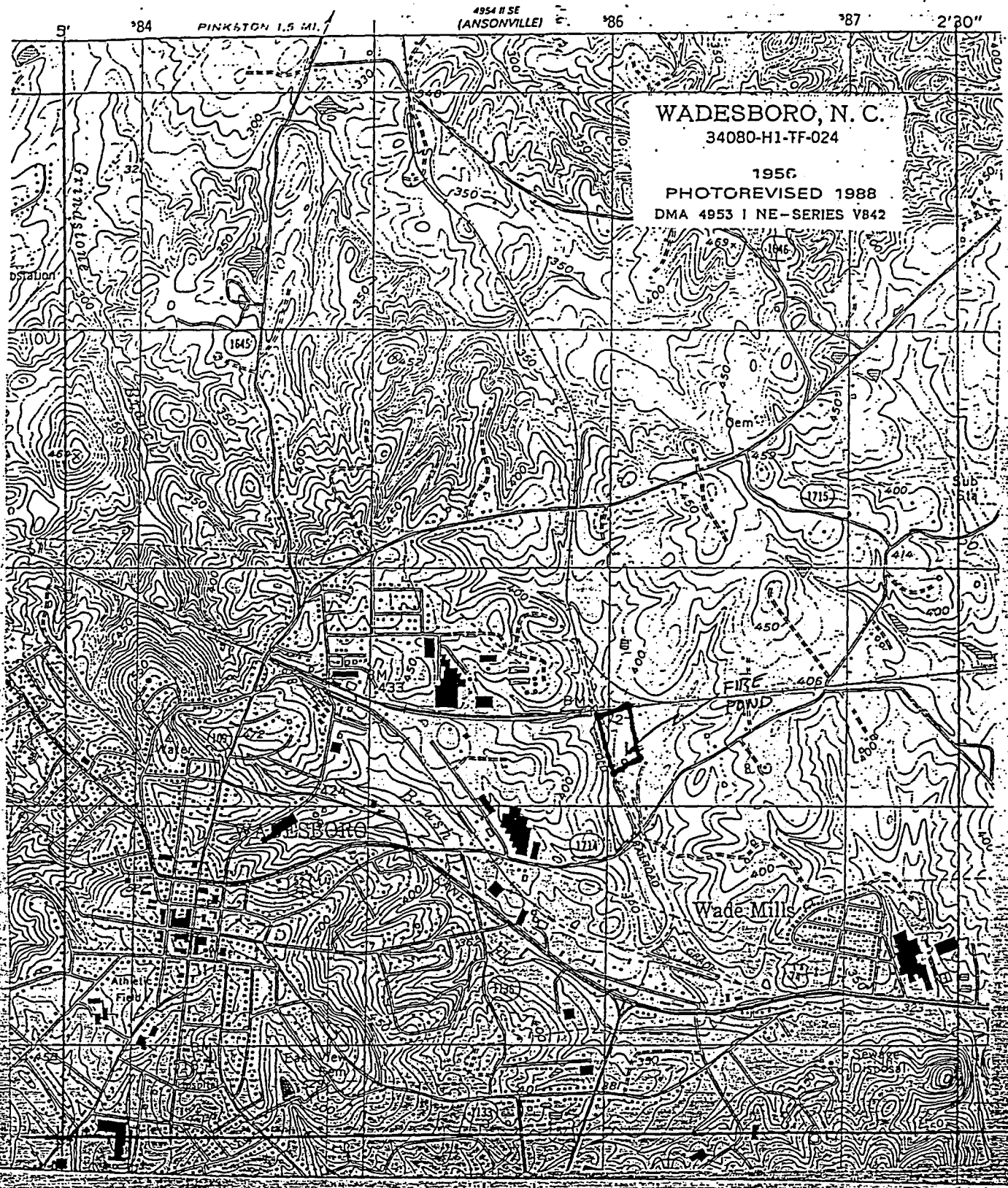
C) EXPRESS IN MINUTES AND SECONDS (1' = 60"): .56"

D) ADD TO STARTING LONGITUDE: 80° 02' 30" + .56 =

SITE LONGITUDE: 80° 03' 26"

INVESTIGATOR: Scott C. Lyle DATE: 10/20/99

SITE NAME: V Chemical-Wadesboro NUMBER: _____



TOPOGRAPHIC MAP QUADRANGLE NAME: Wadesboro SCALE: 1:24,000

COORDINATES OF LOWER RIGHT-HAND CORNER OF 2.5-MINUTE GRID:

LATITUDE: 34° 51' 30" LONGITUDE: 80° 02' 30"

Health, & Natural Resources
Solid Waste Management Division

State Laboratory of Public Health
P.O. Box 28047, 306 N. Wilmington St.
Raleigh, North Carolina 27611-8047

Site Number NCS FNO 406 924 Sample ID Number VC-001-SL 07/26/99 1220 GRAB
VC072699, NC S. RYALS

Name of Site Virginia Carolina Chemical Collected By INORG-CLP METALS Soil
VCW-27 59

Site Location Windsboro, NC Date Collected

Agency: ___ Hazardous Waste ___ Solid Waste X Superfund

Sample Type

Environmental	Concentrate	Comments
___ Ground Water (1)	___ Solid (5)	
___ Surface Water (2)	___ Liquid (6)	
✓ Soil (3)	___ Sludge (7)	Background
___ Other (4)	___ Other (8)	

TCLP Compounds

Inorganic Compounds	Results(mg/l)
___ arsenic	
___ barium	
___ cadmium	
___ chromium	
___ lead	
___ mercury	
___ selenium	
___ silver	

Organic Chemistry

Parameter	Results (mg/l)
___ P&T:GC/MS	
___ Acid:B/N Ext.	
___ 2,4-D	
___ 2,4,5-TP(Silvex)	
___ chlordane	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	

Inorganic Chemistry

Parameter	Results(mg/l)(mg/kg)
___ antimony	
✓ arsenic	<4
✓ barium	20
✓ beryllium	<6
✓ cadmium	<4
___ chloride	
✓ chromium	8
___ cobalt	
✓ copper	<10
___ fluoride	
___ iron	
✓ lead	4
___ manganese	
✓ mercury	<0.20
___ nickel	
✓ nitrate(as N)	<20
✓ selenium	<2
✓ silver	<4
✓ sulfates	<100
___ thallium	
✓ vanadium	10
___ zinc	
___ pH	
___ conductivity	
___ TDS	
___ flash point	

Organic Compounds	Results(mg/l)
___ benzene	
___ carbon tetrachloride	
___ chlordane	1
___ chlorobenzene	
___ chloroform	
___ o-cresol	
___ m-cresol	
___ p-cresol	
___ cresol	
___ 1,4-dichlorobenzene	
___ 1,2-dichloroethane	
___ 1,1-dichloroethylene	
___ 2,4-dichloroethylene	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ hexachloroethane	
___ methyl ethyl ketone	
___ nitrobenzene	
___ pentachlorophenol	
___ pyridine	
___ tetrachloroethylene	
___ trichloroethylene	
___ 2,4,5-trichlorophenol	
___ 2,4,6-trichlorophenol	
___ vinyl chloride	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	
___ 2,4-D	
___ 2,4,5-TP (Silvex)	

FOR LAB USE ONLY

Date Received

Date Extracted

Date Analyzed

Reported By DM

Date Reported 8/25/99

Lab Number 010983 JUL 27 99

DHS 3191 (Revised 12/93)

Department of Environment, Health, & Natural Resources
Solid Waste Management Division

AIR LEAD ANALYSIS REQUEST

State Laboratory of Public Health
P.O. Box 28047, 306 N. Wilmington St.
Raleigh, North Carolina 27611-8047

Site Number NCS FNO 406 924 Sample ID Number/ VC-003-SL 07/26/99 ____ GRAB
VC072699, NC S. RYALS

Name of Site Virginia Carolina Chemical Collected By

INORG-CLP METALS Soil
VCW-35 76

Site Location Mebane, NC Date Collected

Agency: ___ Hazardous Waste ___ Solid Waste X Superfund

Sample Type

Environmental	Concentrate	Comments
___ Ground Water (1)	___ Solid (5)	
___ Surface Water (2)	___ Liquid (6)	
✓ Soil (3)	___ Sludge (7)	Background
___ Other (4)	___ Other (8)	

TCLP Compounds

Inorganic Compounds	Results(mg/l)
___ arsenic	
___ barium	
___ cadmium	
___ chromium	
___ lead	
___ mercury	
___ selenium	
___ silver	

Organic Chemistry

Parameter	Results (mg/l)
___ P&T:GC/MS	
___ Acid:B/N Ext.	
___ 2,4-D	
___ 2,4,5-TP(Silvex)	
___ chlordane	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	

Inorganic Chemistry

Parameter	Results(mg/l) (mg/kg)
___ antimony	
✓ arsenic	<4
✓ barium	28
✓ beryllium	<6
✓ cadmium	<4
___ chloride	
✓ chromium	6
___ cobalt	
✓ copper	<10
___ fluoride	
___ iron	
✓ lead	12
___ manganese	
✓ mercury	<0.20
___ nickel	
✓ nitrate(as N)	<10
✓ selenium	<2
✓ silver	<4
✓ sulfates	<50
___ thallium	
✓ vanadium	10
___ zinc	
___ pH	
___ conductivity	
___ TDS	
___ flash point	

Organic Compounds	Results(mg/l)
___ benzene	
___ carbon tetrachloride	
___ chlordane	
___ chlorobenzene	
___ chloroform	
___ o-cresol	
___ m-cresol	
___ p-cresol	
___ cresol	
___ 1,4-dichlorobenzene	
___ 1,2-dichloroethane	
___ 1,1-dichloroethylene	
___ 2,4-dichloroethylene	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ hexachloroethane	
___ methyl ethyl ketone	
___ nitrobenzene	
___ pentachlorophenol	
___ pyridine	
___ tetrachloroethylene	
___ trichloroethylene	
___ 2,4,5-trichlorophenol	
___ 2,4,6-trichlorophenol	
___ vinyl chloride	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	
___ 2,4-D	
___ 2,4,5-TP (Silvex)	

FOR LAB USE ONLY

Date Received

Date Extracted

Date Analyzed

Reported By DAM

Date Reported 8/25/99

U10986 JUL 27 99

Lab Number

DHS 3191 (Revised 12/93)

NC Department of Environment, Health, & Natural Resources
Solid Waste Management Division

SAMPLE ANALYSIS REQUEST

State Laboratory of Public Health
P.O. Box 28047, 306 N. Wilmington St.
Raleigh, North Carolina 27611-8047

Site Number NC SFN 0406924 Sample ID Number/N. VC-002-SL 07/26/99 1305 GRAB
VC072699, NC S. RYALS

Name of Site Virginia Carolina Chemical Collected By _____ INORG-CLP METALS Soil
VCW-31 67

Site Location Wadesboro, NC Date Collected _____

Agency: ___ Hazardous Waste ___ Solid Waste X Superfund

Sample Type

Environmental	Concentrate	Comments
___ Ground Water (1)	___ Solid (5)	
___ Surface Water (2)	___ Liquid (6)	
___ Soil (3)	___ Sludge (7)	
___ Other (4)	___ Other (8)	

TCLP Compounds

Inorganic Compounds	Results(mg/l)
✓ arsenic	<0.02
___ barium	
___ cadmium	
___ chromium	
✓ lead	36.6
___ mercury	
___ selenium	
___ silver	

Organic Chemistry

Parameter	Results (mg/l)
___ P&T:GC/MS	
___ Acid:B/N Ext.	
___ 2,4-D	
___ 2,4,5-TP(Silvex)	
___ chlordane	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	

Inorganic Chemistry

Parameter	Results(mg/l) (mg/kg)
___ antimony	
✓ arsenic	32
✓ barium	349
✓ beryllium	<6
✓ cadmium	<4
___ chloride	
✓ chromium	<4
___ cobalt	
✓ copper	95
___ fluoride	
___ iron	
✓ lead	3002
___ manganese	
✓ mercury	0.30
___ nickel	
✓ nitrate(as N)	<10
✓ selenium	6
✓ silver	10
✓ sulfates	559
___ thallium	
✓ vanadium	<6
___ zinc	
___ pH	
___ conductivity	
___ TDS	
___ flash point	

Organic Compounds

Organic Compounds	Results(mg/l)
___ benzene	
___ carbon tetrachloride	
___ chlordane	
___ chlorobenzene	
___ chloroform	
___ o-cresol	
___ m-cresol	
___ p-cresol	
___ cresol	
___ 1,4-dichlorobenzene	
___ 1,2-dichloroethane	
___ 1,1-dichloroethylene	
___ 2,4-dichloroethylene	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ hexachloroethane	
___ methyl ethyl ketone	
___ nitrobenzene	
___ pentachlorophenol	
___ pyridine	
___ tetrachloroethylene	
___ trichloroethylene	
___ 2,4,5-trichlorophenol	
___ 2,4,6-trichlorophenol	
___ vinyl chloride	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	
___ 2,4-D	
___ 2,4,5-TP (Silvex)	

FOR LAB USE ONLY

Date Received _____

Date Extracted _____

Date Analyzed _____

Reported By DJM

Date Reported 8/25/99

Lab Number 10984 JUL 27 99

DHS 3191 (Revised 12/93)

NC Department of Environment, Health, & Natural Resources
Solid Waste Management Division

SAMPLE ANALYSIS REQUEST

State Laboratory of Public Health
P.O. Box 28047, 306 N. Wilmington St.
Raleigh, North Carolina 27611-8047

Site Number NCS FNO 406 924 Sample ID Number/N VC-102-SL 07/26/99 1305 -GRAB
VC072699, NC S. RYALS

Name of Site Virginia Carolina Chemical Collected By

Site Location Hobgsboro, NC Date Collected

INORG-CLP METALS Soil
VCW-95 216

Agency: ___ Hazardous Waste ___ Solid Waste X Superfund

Sample Type

Environmental	Concentrate	Comments
___ Ground Water (1)	___ Solid (5)	
___ Surface Water (2)	___ Liquid (6)	
___ Soil (3)	___ Sludge (7)	
___ Other (4)	___ Other (8)	

TCLP Compounds

Inorganic Compounds	Results(mg/l)
___ arsenic	
___ barium	
___ cadmium	
___ chromium	
___ lead	
___ mercury	
___ selenium	
___ silver	

Organic Chemistry

Parameter	Results (mg/l)
___ P&T:GC/MS	
___ Acid:B/N Ext.	
___ 2,4-D	
___ 2,4,5-TP(Silvex)	
___ chlordane	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	

Inorganic Chemistry

Parameter	Results(mg/l) (mg/kg)
___ antimony	
✓ arsenic	30
✓ barium	441
✓ beryllium	<6
✓ cadmium	<4
___ chloride	
✓ chromium	<4
___ cobalt	
✓ copper	108
___ fluoride	
___ iron	
✓ lead	3361
___ manganese	
✓ mercury	0.30
___ nickel	
✓ nitrate(as N)	167
✓ selenium	4
✓ silver	10
✓ sulfates	610
___ thallium	
✓ vanadium	<6
___ zinc	
___ pH	
___ conductivity	
___ TDS	
___ flash point	

Organic Compounds

Organic Compounds	Results(mg/l)
___ benzene	
___ carbon tetrachloride	
___ chlordane	
___ chlorobenzene	
___ chloroform	
___ o-cresol	
___ m-cresol	
___ p-cresol	
___ cresol	
___ 1,4-dichlorobenzene	
___ 1,2-dichloroethane	
___ 1,1-dichloroethylene	
___ 2,4-dichloroethylene	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ hexachloroethane	
___ methyl ethyl ketone	
___ nitrobenzene	
___ pentachlorophenol	
___ pyridine	
___ tetrachloroethylene	
___ trichloroethylene	
___ 2,4,5-trichlorophenol	
___ 2,4,6-trichlorophenol	
___ vinyl chloride	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	
___ 2,4-D	
___ 2,4,5-TP (Silvex)	

FOR LAB USE ONLY

Date Received

Date Extracted

Date Analyzed

Reported By DGM

Date Reported 8/25/99

010985 JUL 2799

Lab Number

DHS 3191 (Revised 12/93)

NC Department of Environment, Health, & Natural Resources
Solid Waste Management Division

SAMPLE ANALYSIS REQUE

State Laboratory of Public Health
P.O. Box 28047, 306 N. Wilmington St.
Raleigh, North Carolina 27611-8047

Site Number NC SFN 0406924 Sample ID Number VC-006-SL 07/26/99 1318 GRAB
VC072699, NC S. RYALS

Name of Site Virginia Carolina Chemical Collected By ___ INORG-CLP METALS Soil
Site Location Wadesboro, NC Date Collected ___ VCW-47 108

Agency: ___ Hazardous Waste ___ Solid Waste X Superfund

Sample Type

Environmental	Concentrate	Comments
___ Ground Water (1)	___ Solid (5)	
___ Surface Water (2)	___ Liquid (6)	
___ Soil (3)	___ Sludge (7)	
___ Other (4)	___ Other (8)	

TCLP Compounds

Inorganic Compounds	Results(mg/l)
✓ arsenic	<0.02
___ barium	
___ cadmium	
___ chromium	
✓ lead	5.00
___ mercury	
___ selenium	
___ silver	

Organic Chemistry

Parameter	Results (mg/l)
___ P&T:GC/MS	
___ Acid:B/N Ext.	
___ 2,4-D	
___ 2,4,5-TP(Silvex)	
___ chlordane	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	

Inorganic Chemistry

Parameter	Results(mg/l)(mg/kg)
___ antimony	
✓ arsenic	12
✓ barium	134
✓ beryllium	<6
✓ cadmium	<4
___ chloride	
✓ chromium	6
___ cobalt	
✓ copper	51
___ fluoride	
___ iron	
✓ lead	591
___ manganese	
✓ mercury	<0.20
___ nickel	
✓ nitrate (as N)	<10
✓ selenium	<2
✓ silver	<4
✓ sulfates	90
___ thallium	
✓ vanadium	10
___ zinc	
___ pH	
___ conductivity	
___ TDS	
___ flash point	

Organic Compounds	Results(mg/l)
___ benzene	
___ carbon tetrachloride	
___ chlordane	
___ chlorobenzene	
___ chloroform	
___ o-cresol	
___ m-cresol	
___ p-cresol	
___ cresol	
___ 1,4-dichlorobenzene	
___ 1,2-dichloroethane	
___ 1,1-dichloroethylene	
___ 2,4-dichloroethylene	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ hexachloroethane	
___ methyl ethyl ketone	
___ nitrobenzene	
___ pentachlorophenol	
___ pyridine	
___ tetrachloroethylene	
___ trichloroethylene	
___ 2,4,5-trichlorophenol	
___ 2,4,6-trichlorophenol	
___ vinyl chloride	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	
___ 2,4-D	
___ 2,4,5-TP (Silvex)	

FOR LAB USE ONLY

Date Received ___
Date Extracted ___
Date Analyzed ___
Reported By [illegible]
Date Reported 8/25/99
010989 JUL 27 99
Lab Number ___

DHS 3191 (Revised 12/93)

NC Department of Environment, Health, & Natural Resources
Solid Waste Management Division

SAMPLE ANALYSIS REQUEST

State Laboratory of Public Health
P.O. Box 28047, 306 N. Wilmington St.
Raleigh, North Carolina 27611-8047

Site Number NC SFN 0406924 Sample ID Number/i VC-008-SL 07/26/99 1240 GRAB
VC072699, NC S. RYALS

Name of Site Virginia Carolina Chemical Collected By

INORG-CLP METALS Soil

Site Location Wadesboro, NC Date Collected VCW-51 116

Agency: ___ Hazardous Waste ___ Solid Waste X Superfund

Sample Type

Environmental	Concentrate	Comments
___ Ground Water (1)	___ Solid (5)	
___ Surface Water (2)	___ Liquid (6)	
___ Soil (3)	___ Sludge (7)	
___ Other (4)	___ Other (8)	

TCLP Compounds

Inorganic Compounds	Results(mg/l)
✓ arsenic	<0.02
___ barium	
___ cadmium	
___ chromium	
✓ lead	0.02
___ mercury	
___ selenium	
___ silver	

Organic Chemistry

Parameter	Results (mg/l)
___ P&T:GC/MS	
___ Acid:B/N Ext.	
___ 2,4-D	
___ 2,4,5-TP(Silvex)	
___ chlordane	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	

Inorganic Chemistry

Parameter	Results(mg/l) (mg/kg)
___ antimony	
✓ arsenic	92
✓ barium	371
✓ beryllium	<6
✓ cadmium	4
___ chloride	
✓ chromium	<4
___ cobalt	
✓ copper	1042
___ fluoride	
___ iron	
✓ lead	329
___ manganese	
✓ mercury	<0.20
___ nickel	
✓ nitrate (as N)	<10
✓ selenium	<2
✓ silver	4
✓ sulfates	7480
___ thallium	
✓ vanadium	6
___ zinc	
___ pH	
___ conductivity	
___ TDS	
___ flash point	

Organic Compounds

Organic Compounds	Results(mg/l)
___ benzene	
___ carbon tetrachloride	
___ chlordane	
___ chlorobenzene	
___ chloroform	
___ o-cresol	
___ m-cresol	
___ p-cresol	
___ cresol	
___ 1,4-dichlorobenzene	
___ 1,2-dichloroethane	
___ 1,1-dichloroethylene	
___ 2,4-dichloroethylene	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ hexachloroethane	
___ methyl ethyl ketone	
___ nitrobenzene	
___ pentachlorophenol	
___ pyridine	
___ tetrachloroethylene	
___ trichloroethylene	
___ 2,4,5-trichlorophenol	
___ 2,4,6-trichlorophenol	
___ vinyl chloride	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	
___ 2,4-D	
___ 2,4,5-TP (Silvex)	

FOR LAB USE ONLY

Date Received

Date Extracted

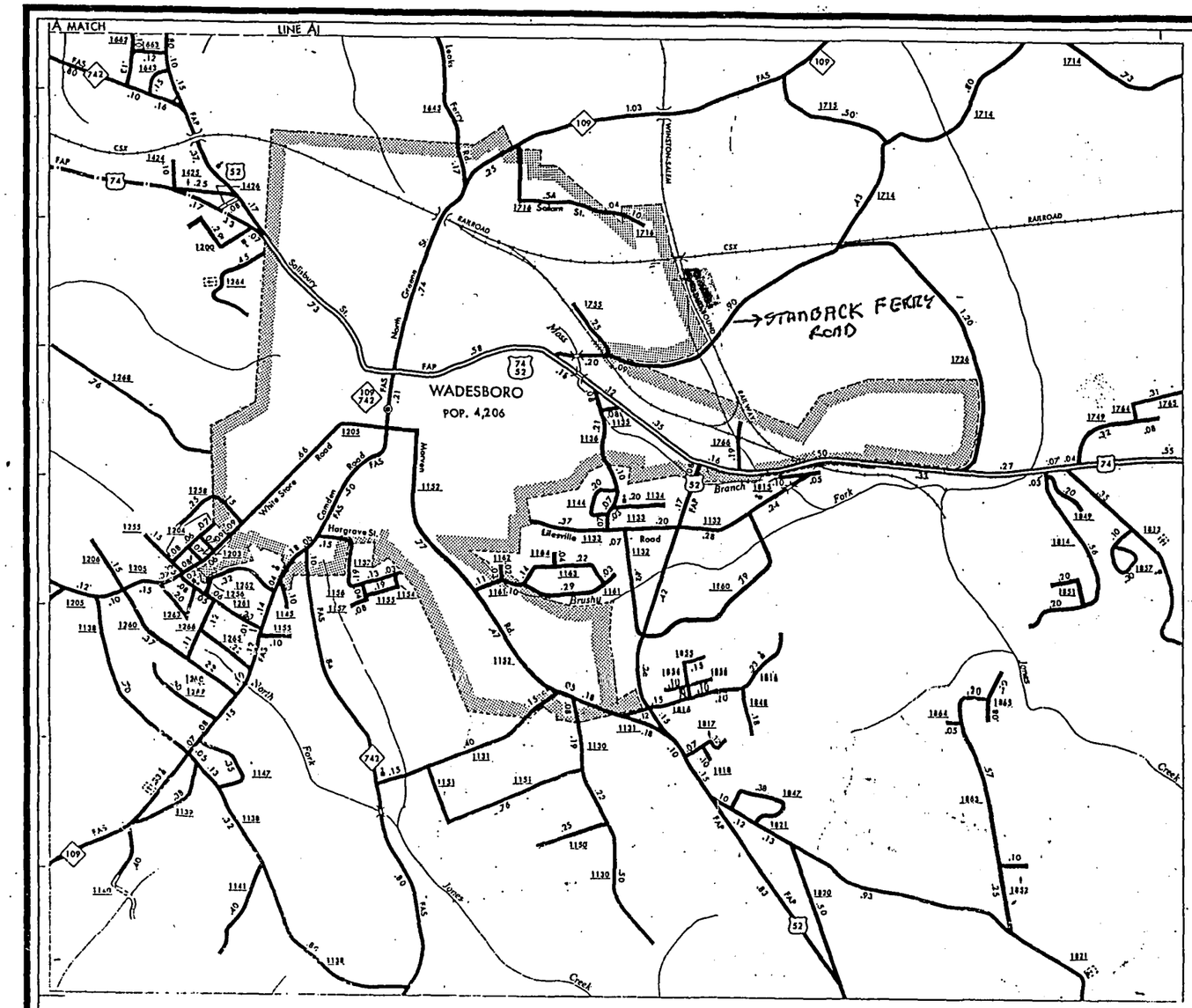
Date Analyzed

Reported By

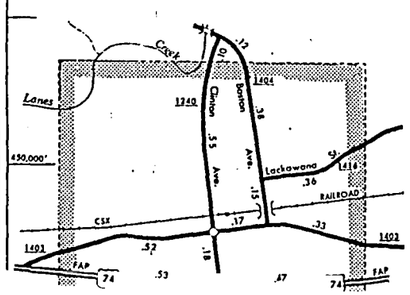
Date Reported 8/25/99

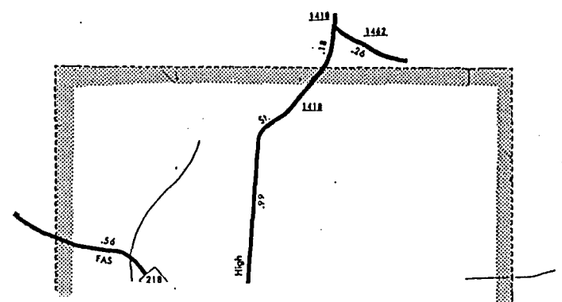
Lab Number 010990 JUL 2799

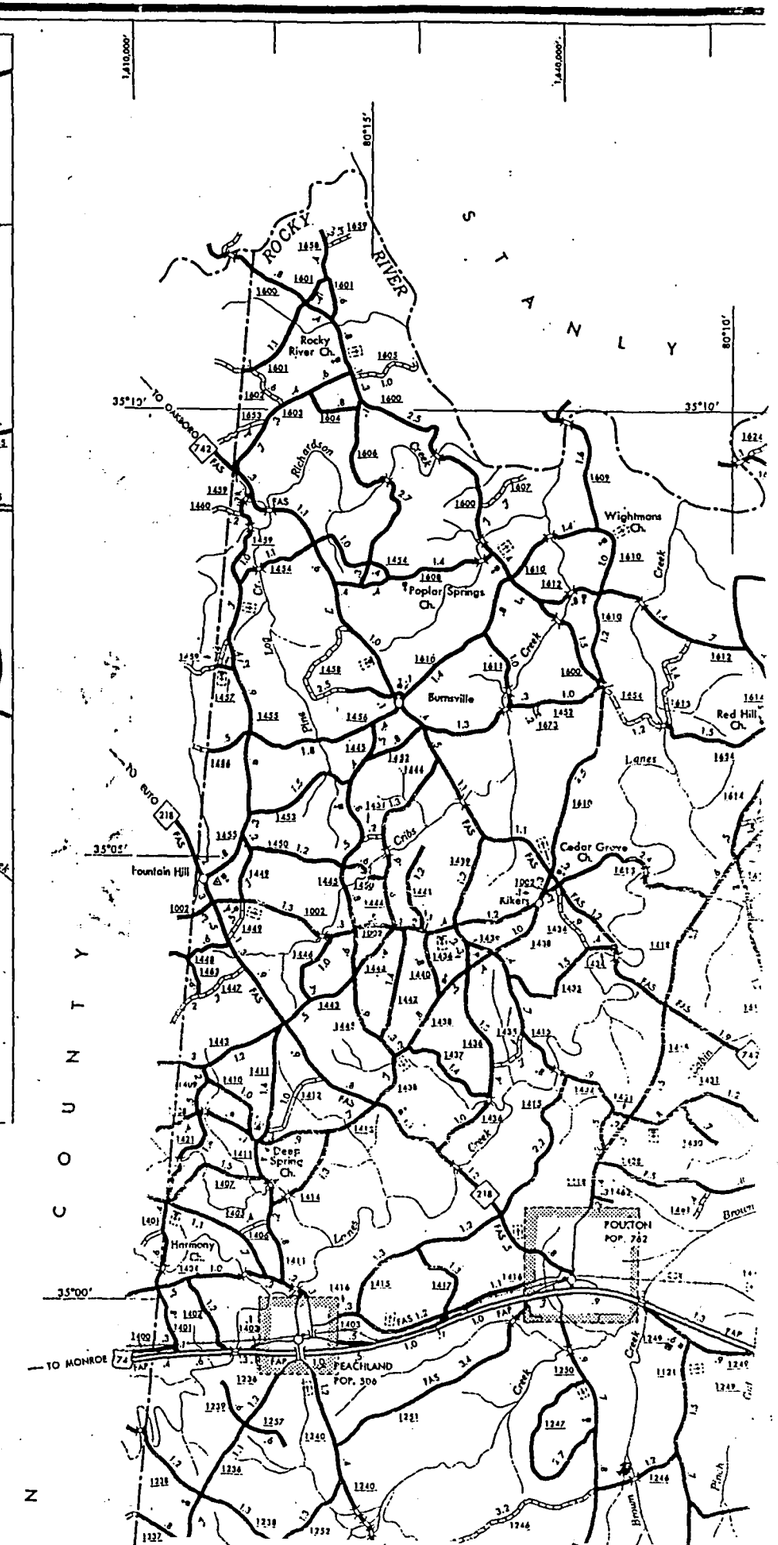
DHS 3191 (Revised 12/93)



WADESBORO AND VICINITY







September 22, 1999

MEMORANDUM

TO: Dr. Ken Rudo, Toxicologist
Occupational and Environmental Epidemiology Section

THROUGH: Jack Butler, Chief
Superfund Section

FROM: Scott Ryals, Chemist / Toxicologist
Superfund Section

SUBJECT: Health Risk Evaluation Request
VCC Chemical, NCS FNO 406 924
Wadesboro, Anson County, NC

Please find attached a copy of the laboratory analyses for well samples collected by the Superfund Section around the subject site. Since these samples were collected from drinking water wells, the Superfund Section requests a health risk evaluation and information on the continued use of these wells. This information will be provided to the affected well users. If you have any questions regarding this matter, please contact me at 733-2801 ext. 316.

Attachments

cc: File
Donna Keith

NC Department of Environment, Health, & Natural Resources
Solid Waste Management Division

SAMPLE ANALYSIS REQUEST

State Laboratory of Public Health
P.O. Box 28047, 306 N. Wilmington St.
Raleigh, North Carolina 27611-8047

Site Number NCS FNO 406 924 Sample ID Numbe VC-006-PW 07/26/99 1650 GRAB
VC072699, NC S. RYALS
POTABLE WELL
INORG-CLP METALS Ground Water
VCW-23 51

Name of Site Virginia Carolina Chemical Collected By

Site Location Hobgsboro, NC Date Collected

Agency: ___ Hazardous Waste ___ Solid Waste X Superfund

Sample Type

Environmental	Concentrate	Comments
___ Ground Water (1)	___ Solid (5)	
___ Surface Water (2)	___ Liquid (6)	
___ Soil (3)	___ Sludge (7)	1/HNO3
___ Other (4)	___ Other (8)	

TCLP Compounds

Inorganic Compounds	Results(mg/l)
___ arsenic	
___ barium	
___ cadmium	
___ chromium	
___ lead	
___ mercury	
___ selenium	
___ silver	

Organic Chemistry

Parameter	Results (mg/l)
___ P&T:GC/MS	
___ Acid:B/N Ext.	
___ 2,4-D	
___ 2,4,5-TP(Silvex)	
___ chlordane	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	

Inorganic Chemistry

Parameter	Results(mg/l)(mg/kg)
___ antimony	
✓ arsenic	<0.01
✓ barium	0.20
✓ beryllium	<0.003
✓ cadmium	<0.005
___ chloride	
✓ chromium	<0.01
___ cobalt	
✓ copper	<0.05
___ fluoride	
___ iron	
✓ lead	<0.005
___ manganese	
✓ mercury	<0.0005
___ nickel	
___ nitrate	
✓ selenium	<0.01
✓ silver	<0.01
___ sulfates	
___ thallium	
✓ vanadium	<0.01
___ zinc	
___ pH	
___ conductivity	
___ TDS	
___ flash point	

Organic Compounds

Organic Compounds	Results(mg/l)
___ benzene	
___ carbon tetrachloride	
___ chlordane	
___ chlorobenzene	
___ chloroform	
___ o-cresol	
___ m-cresol	
___ p-cresol	
___ cresol	
___ 1,4-dichlorobenzene	
___ 1,2 dichloroethane	
___ 1,1-dichloroethylene	
___ 2,4-dichloroethylene	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ hexachloroethane	
___ methyl ethyl ketone	
___ nitrobenzene	
___ pentachlorophenol	
___ pyridine	
___ tetrachloroethylene	
___ trichloroethylene	
___ 2,4,5-trichlorophenol	
___ 2,4,6-trichlorophenol	
___ vinyl chloride	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	
___ 2,4-D	
___ 2,4,5-TP (Silvex)	

FOR LAB USE ONLY

Date Received

Date Extracted

Date Analyzed

Reported By

Date Reported 8/10/99

U10969 JUL 27 99

Lab Number

DHS 3191 (Revised 12/93)

NC Department of Environment, Health, & Natural Resources
Solid Waste Management Division

SAMPLE ANALYSIS REQUEST

State Laboratory of Public Health
P.O. Box 28047, 306 N. Wilmington St.
Raleigh, North Carolina 27611-8047

Site Number NKSFN0 406 924

Sample ID Number/l VC-006-PW 07/26/99 1650 GRAB
VC072699, NC S. RYALS
POTABLE WELL
INORG-CLP NUTRIENT Ground Water
VCW-24 53

Name of Site Virginia Carolina Chemical

Collected By

Site Location Wadesboro, NC

Date Collected

Agency: ___ Hazardous Waste ___ Solid Waste X Superfund

Sample Type

Environmental	Concentrate	Comments
___ Ground Water (1)	___ Solid (5)	
___ Surface Water (2)	___ Liquid (6)	
___ Soil (3)	___ Sludge (7)	
___ Other (4)	___ Other (8)	

TCLP Compounds

Inorganic Compounds	Results(mg/l)
___ arsenic	
___ barium	
___ cadmium	
___ chromium	
___ lead	
___ mercury	
___ selenium	
___ silver	

Organic Chemistry

Parameter	Results (mg/l)
___ P&T:GC/MS	
___ Acid:B/N Ext.	
___ 2,4-D	
___ 2,4,5-TP(Silvex)	
___ chlordane	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	

Inorganic Chemistry

Parameter	Results(mg/l)(mg/kg)
___ antimony	
___ arsenic	
___ barium	
___ beryllium	
___ cadmium	
___ chloride	
___ chromium	
___ cobalt	
___ copper	
___ fluoride	
___ iron	
___ lead	
___ manganese	
___ mercury	
___ nickel	
✓ nitrate(as N)	2.16
___ selenium	
___ silver	
✓ sulfates	<5
___ thallium	
___ vanadium	
___ zinc	
___ pH	
___ conductivity	
___ TDS	
___ flash point	

Organic Compounds

Organic Compounds	Results(mg/l)
___ benzene	
___ carbon tetrachloride	
___ chlordane	
___ chlorobenzene	
___ chloroform	
___ o-cresol	
___ m-cresol	
___ p-cresol	
___ cresol	
___ 1,4-dichlorobenzene	
___ 1,2-dichloroethane	
___ 1,1-dichloroethylene	
___ 2,4-dichloroethylene	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ hexachloroethane	
___ methyl ethyl ketone	
___ nitrobenzene	
___ pentachlorophenol	
___ pyridine	
___ tetrachloroethylene	
___ trichloroethylene	
___ 2,4,5-trichlorophenol	
___ 2,4,6-trichlorophenol	
___ vinyl chloride	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	
___ 2,4-D	
___ 2,4,5-TP (Silvex)	

FOR LAB USE ONLY

Date Received

Date Extracted

Date Analyzed

Reported By DJM

Date Reported 8/10/99

Lab Number 010982 JUL 27 99

DHS 3191 (Revised 12/93)

NC Department of Environment, Health, & Natural Resources
Solid Waste Management Division

SAMPLE ANALYSIS REQUEST

State Laboratory of Public Health
P.O. Box 28047, 306 N. Wilmington St.
Raleigh, North Carolina 27611-8047

Site Number NCS FNO 406 924 Sample ID Number VC-005-PW 07/26/99 1713 GRAB
VC072699, NC S. RYALS
POTABLE WELL
INORG-CLP METALS Ground Water
VCW-19 42

Name of Site Virginia Carolina Chemical Collected By

Site Location Windsor, NC Date Collected

Agency: ___ Hazardous Waste ___ Solid Waste X Superfund

Sample Type

Environmental	Concentrate	Comments
___ Ground Water (1)	___ Solid (5)	
___ Surface Water (2)	___ Liquid (6)	✓ HNO_3
___ Soil (3)	___ Sludge (7)	
___ Other (4)	___ Other (8)	

TCLP Compounds

Inorganic Compounds	Results(mg/l)
___ arsenic	
___ barium	
___ cadmium	
___ chromium	
___ lead	
___ mercury	
___ selenium	
___ silver	
___	
___	
___	
___	

Organic Chemistry

Parameter	Results (mg/l)
___ P&T:GC/MS	
___ Acid:B/N Ext.	
___ 2,4-D	
___ 2,4,5-TP(Silvex)	
___ chlordane	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	
___	
___	
___	
___	

Inorganic Chemistry

Parameter	Results(mg/l)(mg/kg)
___ antimony	
✓ arsenic	<0.01
✓ barium	0.37
✓ beryllium	<0.003
✓ cadmium	<0.005
___ chloride	
✓ chromium	<0.01
___ cobalt	
✓ copper	<0.05
___ fluoride	
___ iron	
✓ lead	<0.005
___ manganese	
✓ mercury	<0.0005
___ nickel	
___ nitrate	
✓ selenium	<0.01
✓ silver	<0.01
___ sulfates	
___ thallium	
✓ vanadium	<0.01
___ zinc	
___ pH	
___ conductivity	
___ TDS	
___ flash point	
___	
___	
___	
___	
___	
___	

Organic Compounds	Results(mg/l)
___ benzene	
___ carbon tetrachloride	
___ chlordane	
___ chlorobenzene	
___ chloroform	
___ o-cresol	
___ m-cresol	
___ p-cresol	
___ cresol	
___ 1,4-dichlorobenzene	
___ 1,2-dichloroethane	
___ 1,1-dichloroethylene	
___ 2,4-dichloroethylene	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ hexachloroethane	
___ methyl ethyl ketone	
___ nitrobenzene	
___ pentachlorophenol	
___ pyridine	
___ tetrachloroethylene	
___ trichloroethylene	
___ 2,4,5-trichlorophenol	
___ 2,4,6-trichlorophenol	
___ vinyl chloride	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	
___ 2,4-D	
___ 2,4,5-TP (Silvex)	

FOR LAB USE ONLY

Date Received

Date Extracted

Date Analyzed

Reported By RJM

Date Reported 8/10/99

010969 JUL 27 '99

Lab Number

DHS 3191 (Revised 12/93)

NC Department of Environment, Health, & Natural Resources
Solid Waste Management Division

SAMPLE ANALYSIS REQUEST

State Laboratory of Public Health
P.O. Box 28047, 306 N. Wilmington St.
Raleigh, North Carolina 27611-8047

Site Number NKSFN0 406 924 Sample ID Number/ VC-005-PW 07/26/99 1713 GRAB
VC072699, NC S. RYALS

Name of Site Virginia Carolina Chemical Collected By POTABLE WELL
INORG-CLP NUTRIENT Ground Water

Site Location Wadesboro, NC Date Collected VCW-20 44

Agency: ___ Hazardous Waste ___ Solid Waste X Superfund

Sample Type

Environmental	Concentrate	Comments
___ Ground Water (1)	___ Solid (5)	
___ Surface Water (2)	___ Liquid (6)	
___ Soil (3)	___ Sludge (7)	
___ Other (4)	___ Other (8)	

TCLP Compounds

Inorganic Compounds	Results(mg/l)
___ arsenic	
___ barium	
___ cadmium	
___ chromium	
___ lead	
___ mercury	
___ selenium	
___ silver	

Organic Chemistry

Parameter	Results (mg/l)
___ P&T:GC/MS	
___ Acid:B/N Ext.	
___ 2,4-D	
___ 2,4,5-TP(Silvex)	
___ chlordane	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	

Inorganic Chemistry

Parameter	Results(mg/l)(mg/kg)
___ antimony	
___ arsenic	
___ barium	
___ beryllium	
___ cadmium	
___ chloride	
___ chromium	
___ cobalt	
___ copper	
___ fluoride	
___ iron	
___ lead	
___ manganese	
___ mercury	
___ nickel	
✓ nitrate (as N)	<1.00
___ selenium	
___ silver	
✓ sulfates	9
___ thallium	
___ vanadium	
___ zinc	
___ pH	
___ conductivity	
___ TDS	
___ flash point	

Organic Compounds	Results(mg/l)
___ benzene	
___ carbon tetrachloride	
___ chlordane	
___ chlorobenzene	
___ chloroform	
___ o-cresol	
___ m-cresol	
___ p-cresol	
___ cresol	
___ 1,4-dichlorobenzene	
___ 1,2-dichloroethane	
___ 1,1-dichloroethylene	
___ 2,4-dichloroethylene	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ hexachloroethane	
___ methyl ethyl ketone	
___ nitrobenzene	
___ pentachlorophenol	
___ pyridine	
___ tetrachloroethylene	
___ trichloroethylene	
___ 2,4,5-trichlorophenol	
___ 2,4,6-trichlorophenol	
___ vinyl chloride	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	
___ 2,4-D	
___ 2,4,5-TP (Silvex)	

FOR LAB USE ONLY

Date Received ___

Date Extracted ___

Date Analyzed ___

Reported By [signature]

Date Reported 8/10/99

Lab Number 010981 JUL 27 99

DHS 3191 (Revised 12/93)

Department of Environment, Health, & Natural Resources
Solid Waste Management Division

REQUEST

State Laboratory of Public Health
P.O. Box 28047, 306 N. Wilmington St.
Raleigh, North Carolina 27611-8047

Site Number NCS FNO 406 924 Sample ID Numb VC-001-PW 07/26/99 1535 GRAB
VC072699, NC S. RYALS
POTABLE WELL
Name of Site Virginia Carolina Chemical Collected By
INORG-CLP METALS Ground Water
VCW-03 6
Site Location Hillsboro, NC Date Collected

Agency: ___ Hazardous Waste ___ Solid Waste X Superfund

Sample Type

Environmental	Concentrate	Comments
___ Ground Water (1)	___ Solid (5)	
___ Surface Water (2)	___ Liquid (6)	1/HNO3
___ Soil (3)	___ Sludge (7)	
___ Other (4)	___ Other (8)	

TCLP Compounds

Inorganic Compounds	Results(mg/l)
___ arsenic	
___ barium	
___ cadmium	
___ chromium	
___ lead	
___ mercury	
___ selenium	
___ silver	

Organic Chemistry

Parameter	Results (mg/l)
___ F&T:GC/MS	
___ Acid:B/N Ext.	
___ 2,4-D	
___ 2,4,5-TP(Silvex)	
___ chlordane	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	

Inorganic Chemistry

Parameter	Results(mg/l)(mg/kg)
___ antimony	
✓ arsenic	<0.01
✓ barium	0.07
✓ beryllium	<0.003
✓ cadmium	<0.005
___ chloride	
✓ chromium	<0.01
___ cobalt	
✓ copper	<0.05
___ fluoride	
___ iron	
✓ lead	<0.005
___ manganese	
✓ mercury	<0.0005
___ nickel	
___ nitrate	
✓ selenium	<0.01
✓ silver	<0.01
___ sulfates	
___ thallium	
✓ vanadium	<0.01
___ zinc	
___ pH	
___ conductivity	
___ TDS	
___ flash point	

Organic Compounds	Results(mg/l)
___ benzene	
___ carbon tetrachloride	
___ chlordane	
___ chlorobenzene	
___ chloroform	
___ o-cresol	
___ m-cresol	
___ p-cresol	
___ cresol	
___ 1,4-dichlorobenzene	
___ 1,2-dichloroethane	
___ 1,1-dichloroethylene	
___ 2,4-dichlorophenol	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ hexachloroethane	
___ methyl ethyl ketone	
___ nitrobenzene	
___ pentachlorophenol	
___ pyridine	
___ tetrachloroethylene	
___ trichloroethylene	
___ 2,4,5-trichlorophenol	
___ 2,4,6-trichlorophenol	
___ vinyl chloride	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	
___ 2,4-D	
___ 2,4,5-TP (Silvex)	

FOR LAB USE ONLY

Date Received
Date Extracted
Date Analyzed
Reported By DGM
Date Reported 8/10/99
Lab Number 010963 JUL 27 99

DHS 3191 (Revised 12/93)

NC Department of Environment, Health, & Natural Resources
Solid Waste Management Division

SAMPLE ANALYSIS REQUEST

State Laboratory of Public Health
P.O. Box 29047, 306 N. Wilmington St.
Raleigh, North Carolina 27611-8047

Site Number NCSFN0 406 924 Sample ID No. VC-001-PW 07/26/99 1535 GRAB
VC072699, NC S. RYALS
POTABLE WELL
Name of Site Virginia Carolina Chemical Collected By INORG-CLP NUTRIENT Ground Water
VCW-04 8
Site Location Wadesboro, NC Date Collected

Agency: ___ Hazardous Waste ___ Solid Waste X Superfund

Sample Type

Environmental	Concentrate	Comments
___ Ground Water (1)	___ Solid (5)	
___ Surface Water (2)	___ Liquid (6)	
___ Soil (3)	___ Sludge (7)	
___ Other (4)	___ Other (8)	

TCLP Compounds

Inorganic Compounds	Results(mg/l)
___ arsenic	
___ barium	
___ cadmium	
___ chromium	
___ lead	
___ mercury	
___ selenium	
___ silver	

Organic Chemistry

Parameter	Results (mg/l)
___ P&T:GC/MS	
___ Acid:B/N Ext.	
___ 2,4-D	
___ 2,4,5-TP(Silvex)	
___ chlordane	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	

Inorganic Chemistry

Parameter	Results(mg/l)(mg/kg)
___ antimony	
___ arsenic	
___ barium	
___ beryllium	
___ cadmium	
___ chloride	
___ chromium	
___ cobalt	
___ copper	
___ fluoride	
___ iron	
___ lead	
___ manganese	
___ mercury	
___ nickel	
✓ nitrate(as N)	4.12
___ selenium	
___ silver	
✓ sulfates	85
___ thallium	
___ vanadium	
___ zinc	
___ pH	
___ conductivity	
___ TDS	
___ flash point	

Organic Compounds	Results(mg/l)
___ benzene	
___ carbon tetrachloride	
___ chlordane	
___ chlorobenzene	
___ chloroform	
___ o-cresol	
___ m-cresol	
___ p-cresol	
___ cresol	
___ 1,4-dichlorobenzene	
___ 1,2-dichloroethane	
___ 1,1-dichloroethylene	
___ 2,4-dichloroethylene	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ hexachloroethane	
___ methyl ethyl ketone	
___ nitrobenzene	
___ pentachlorophenol	
___ pyridine	
___ tetrachloroethylene	
___ trichloroethylene	
___ 2,4,5-trichlorophenol	
___ 2,4,6-trichlorophenol	
___ vinyl chloride	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	
___ 2,4-D	
___ 2,4,5-TP (Silvex)	

FOR LAB USE ONLY

Date Received
Date Extracted
Date Analyzed
Reported By DJM
Date Reported 8/10/99
Lab Number 010976 JUL 2799

DHS 3191 (Revised 12/93)

Health, & Natural Resources
Solid Waste Management Division

State Laboratory of Public Health
P.O. Box 28047, 306 N. Wilmington St.
Raleigh, North Carolina 27611-8047

Site Number NCS FNO 406 924 Sample ID Number/: VC-002-PW 07/26/99 1605 GRAB
VC072699, NC S. RYALS

Name of Site Virginia Carolina Chemical Collected By POTABLE WELL
INORG-CLP METALS Ground Water
VCW-07 15

Site Location Windsboro, NC Date Collected

Agency: ___ Hazardous Waste ___ Solid Waste X Superfund

Sample Type

Environmental	Concentrate	Comments
___ Ground Water (1)	___ Solid (5)	
___ Surface Water (2)	___ Liquid (6)	
___ Soil (3)	___ Sludge (7)	VHNO3
___ Other (4)	___ Other (8)	

TCLP Compounds

Inorganic Compounds	Results(mg/l)
___ arsenic	
___ barium	
___ cadmium	
___ chromium	
___ lead	
___ mercury	
___ selenium	
___ silver	

Organic Chemistry

Parameter	Results (mg/l)
___ P&T:GC/MS	
___ Acid:B/N Ext.	
___ 2,4-D	
___ 2,4,5-TP(Silvex)	
___ chlordane	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	

Inorganic Chemistry

Parameter	Results(mg/l)(mg/kg)
___ antimony	
✓ arsenic	<0.01
✓ barium	0.17
✓ beryllium	<0.003
✓ cadmium	<0.005
___ chloride	
✓ chromium	<0.01
___ cobalt	
✓ copper	<0.05
___ fluoride	
___ iron	
✓ lead	<0.005
___ manganese	
✓ mercury	<0.0005
___ nickel	
___ nitrate	
✓ selenium	<0.01
✓ silver	<0.01
___ sulfates	
___ thallium	
✓ vanadium	<0.01
___ zinc	
___ pH	
___ conductivity	
___ TDS	
___ flash point	

Organic Compounds

Organic Compounds	Results(mg/l)
___ benzene	
___ carbon tetrachloride	
___ chlordane	
___ chlorobenzene	
___ chloroform	
___ o-cresol	
___ m-cresol	
___ p-cresol	
___ cresol	
___ 1,4-dichlorobenzene	
___ 1,2-dichloroethane	
___ 1,1-dichloroethylene	
___ 2,4-dichloroethylene	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ hexachloroethane	
___ methyl ethyl ketone	
___ nitrobenzene	
___ pentachlorophenol	
___ pyridine	
___ tetrachloroethylene	
___ trichloroethylene	
___ 2,4,5-trichlorophenol	
___ 2,4,6-trichlorophenol	
___ vinyl chloride	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	
___ 2,4-D	
___ 2,4,5-TP (Silvex)	

FOR LAB USE ONLY

Date Received

Date Extracted

Date Analyzed

Reported By DJM

Date Reported 8/10/99

Lab Number U10964 JUL 27 99

DHS 3191 (Revised 12/93)

NC Department of Environment, Health, & Natural Resources
Solid Waste Management Division

SAMPLE ANALYSIS REQUEST

State Laboratory of Public Health
P.O. Box 28047, 306 N. Wilmington St.
Raleigh, North Carolina 27611-8047

Site Number NCSFN0 406 924 Sample ID Number/Nar VC-002-PW 07/26/99 1605 GRAB
VC072699, NC S. RYALS
POTABLE WELL
Name of Site Virginia Carolina Chemical Collected By INORG-CLP NUTRIENT Ground Water
VCW-08 17
Site Location Wadesboro, NC Date Collected

Agency: ___ Hazardous Waste ___ Solid Waste X Superfund

Sample Type

Environmental	Concentrate	Comments
___ Ground Water (1)	___ Solid (5)	
___ Surface Water (2)	___ Liquid (6)	
___ Soil (3)	___ Sludge (7)	
___ Other (4)	___ Other (8)	

TCLP Compounds

Inorganic Compounds	Results(mg/l)
___ arsenic	
___ barium	
___ cadmium	
___ chromium	
___ lead	
___ mercury	
___ selenium	
___ silver	
___	
___	
___	
___	

Organic Chemistry

Parameter	Results (mg/l)
___ P&T:GC/MS	
___ Acid:B/N Ext.	
___ 2,4-D	
___ 2,4,5-TP(Silvex)	
___ chlordane	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	
___	
___	
___	
___	

Inorganic Chemistry

Parameter	Results(mg/l)(mg/kg)
___ antimony	
___ arsenic	
___ barium	
___ beryllium	
___ cadmium	
___ chloride	
___ chromium	
___ cobalt	
___ copper	
___ fluoride	
___ iron	
___ lead	
___ manganese	
___ mercury	
___ nickel	
✓ nitrate(as N)	3.43
___ selenium	
___ silver	
✓ sulfates	48
___ thallium	
___ vanadium	
___ zinc	
___ pH	
___ conductivity	
___ TDS	
___ flash point	
___	
___	
___	
___	
___	
___	

Organic Compounds

Organic Compounds	Results(mg/l)
___ benzene	
___ carbon tetrachloride	
___ chlordane	
___ chlorobenzene	
___ chloroform	
___ o-cresol	
___ m-cresol	
___ p-cresol	
___ cresol	
___ 1,4-dichlorobenzene	
___ 1,2-dichloroethane	
___ 1,1-dichloroethylene	
___ 2,4-dichloroethylene	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ hexachloroethane	
___ methyl ethyl ketone	
___ nitrobenzene	
___ pentachlorophenol	
___ pyridine	
___ tetrachloroethylene	
___ trichloroethylene	
___ 2,4,5-trichlorophenol	
___ 2,4,6-trichlorophenol	
___ vinyl chloride	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	
___ 2,4-D	
___ 2,4,5-TP (Silvex)	

FOR LAB USE ONLY

Date Received
Date Extracted
Date Analyzed
Reported By
Date Reported 8/10/99
Lab Number 010977 JUL 27 99

DHS 3191 (Revised 12/93)

Department of Environment, Health, & Natural Resources
Solid Waste Management Division

ANALYSIS REQUEST

State Laboratory of Public Health
P.O. Box 28047, 306 N. Wilmington St.
Raleigh, North Carolina 27611-8047

Site Number NCS FNO 406 927 Sample ID Number/i VC-003-PW 07/26/99 1600 GRAB
VC072699, NC S. RYALS
POTABLE WELL
INORG-CLP METALS Ground Water
VCW-11 24

Name of Site Virginia Carolina Chemical Collected By

Site Location Hobbsboro, NC Date Collected

Agency: ___ Hazardous Waste ___ Solid Waste X Superfund

Sample Type

Environmental	Concentrate	Comments
___ Ground Water (1)	___ Solid (5)	
___ Surface Water (2)	___ Liquid (6)	
___ Soil (3)	___ Sludge (7)	
___ Other (4)	___ Other (8)	vHNO3

TCLP Compounds

Inorganic Compounds	Results(mg/l)
___ arsenic	
___ barium	
___ cadmium	
___ chromium	
___ lead	
___ mercury	
___ selenium	
___ silver	

Organic Chemistry

Parameter	Results (mg/l)
___ P&T:GC/MS	
___ Acid:B/N Ext.	
___ 2,4-D	
___ 2,4,5-TP(Silvex)	
___ chlordane	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	

Inorganic Chemistry

Parameter	Results(mg/l)(mg/kg)
___ antimony	
✓ arsenic	<0.01
✓ barium	0.47
✓ beryllium	<0.003
✓ cadmium	<0.005
___ chloride	
✓ chromium	<0.01
___ cobalt	
✓ copper	<0.05
___ fluoride	
___ iron	
✓ lead	<0.005
___ manganese	
✓ mercury	<0.0005
___ nickel	
___ nitrate	
✓ selenium	<0.01
✓ silver	<0.01
___ sulfates	
___ thallium	
✓ vanadium	<0.01
___ zinc	
___ pH	
___ conductivity	
___ TDS	
___ flash point	

Organic Compounds

Organic Compounds	Results(mg/l)
___ benzene	
___ carbon tetrachloride	
___ chlordane	
___ chlorobenzene	
___ chloroform	
___ o-cresol	
___ m-cresol	
___ p-cresol	
___ cresol	
___ 1,4-dichlorobenzene	
___ 1,2-dichloroethane	
___ 1,1-dichloroethylene	
___ 2,4-dichloroethylene	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ hexachloroethane	
___ methyl ethyl ketone	
___ nitrobenzene	
___ pentachlorophenol	
___ pyridine	
___ tetrachloroethylene	
___ trichloroethylene	
___ 2,4,5-trichlorophenol	
___ 2,4,6-trichlorophenol	
___ vinyl chloride	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	
___ 2,4-D	
___ 2,4,5-TP (Silvex)	

FOR LAB USE ONLY

Date Received

Date Extracted

Date Analyzed

Reported By DPH

Date Reported 8/10/99

Lab Number U10965 JUL 27 99

DHS 3191 (Revised 12/93)

NC Department of Environment, Health, & Natural Resources
Solid Waste Management Division

SAMPLE ANALYSIS REQUEST

State Laboratory of Public Health
P.O. Box 28047, 306 N. Wilmington St.
Raleigh, North Carolina 27611-8047

Site Number NCS FNO 406 924 Sample ID Number VC-103-PW 07/26/99 1600 GRAB
VC072699, NC S. RYALS

Name of Site Virginia Carolina Chemical Collected By POTABLE WELL
INORG-CLP METALS Ground Water

Site Location Hobbsboro, NC Date Collected VCW-91 208

Agency: ___ Hazardous Waste ___ Solid Waste X Superfund

Sample Type

Environmental	Concentrate	Comments
___ Ground Water (1)	___ Solid (5)	
___ Surface Water (2)	___ Liquid (6)	
___ Soil (3)	___ Sludge (7)	
___ Other (4)	___ Other (8)	1- HNO3

TCLP Compounds

Inorganic Compounds	Results(mg/l)
___ arsenic	
___ barium	
___ cadmium	
___ chromium	
___ lead	
___ mercury	
___ selenium	
___ silver	

Organic Chemistry

Parameter	Results (mg/l)
___ P&T:GC/MS	
___ Acid:B/N Ext.	
___ 2,4-D	
___ 2,4,5-TP(Silvex)	
___ chlordane	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	

Inorganic Chemistry

Parameter	Results(mg/l)(mg/kg)
___ antimony	
✓ arsenic	<0.01
✓ barium	0.46
✓ beryllium	<0.003
✓ cadmium	<0.005
___ chloride	
✓ chromium	<0.01
___ cobalt	
✓ copper	<0.05
___ fluoride	
___ iron	
✓ lead	<0.005
___ manganese	
✓ mercury	<0.0005
___ nickel	
___ nitrate	
✓ selenium	<0.01
✓ silver	<0.01
___ sulfates	
___ thallium	
✓ vanadium	<0.01
___ zinc	
___ pH	
___ conductivity	
___ TDS	
___ flash point	

Organic Compounds

Organic Compounds	Results(mg/l)
___ benzene	
___ carbon tetrachloride	
___ chlordane	
___ chlorobenzene	
___ chloroform	
___ o-cresol	
___ m-cresol	
___ p-cresol	
___ cresol	
___ 1,4-dichlorobenzene	
___ 1,2-dichloroethane	
___ 1,1-dichloroethylene	
___ 2,4-dichloroethylene	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ hexachloroethane	
___ methyl ethyl ketone	
___ nitrobenzene	
___ pentachlorophenol	
___ pyridine	
___ tetrachloroethylene	
___ trichloroethylene	
___ 2,4,5-trichlorophenol	
___ 2,4,6-trichlorophenol	
___ vinyl chloride	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	
___ 2,4-D	
___ 2,4,5-TP (Silvex)	

FOR LAB USE ONLY

Date Received ___

Date Extracted ___

Date Analyzed ___

Reported By [illegible]

Date Reported 8/10/99

Lab Number 010966 JUL 2799

DHS 3191 (Revised 12/93)

NC Department of Environment, Health, & Natural Resources
Solid Waste Management Division

SAMPLE ANALYSIS REQUEST

State Laboratory of Public Health
P.O. Box 28047, 306 N. Wilmington St.
Raleigh, North Carolina 27611-8047

Site Number NCSFND 406 924 Sample ID Number VC-003-PW 07/26/99 1600 GRAB
VC072699, NC S. RYALS

Name of Site Virginia Carolina Chemical Collected By ___ POTABLE WELL
INORG-CLP NUTRIENT Ground Water

Site Location Wadesboro, NC Date Collected ___ VCW-12 26

Agency: ___ Hazardous Waste ___ Solid Waste X Superfund

Sample Type

Environmental	Concentrate	Comments
___ Ground Water (1)	___ Solid (5)	
___ Surface Water (2)	___ Liquid (6)	
___ Soil (3)	___ Sludge (7)	
___ Other (4)	___ Other (8)	

TCLP Compounds

Inorganic Compounds	Results(mg/l)
___ arsenic	
___ barium	
___ cadmium	
___ chromium	
___ lead	
___ mercury	
___ selenium	
___ silver	
___	
___	
___	
___	

Organic Chemistry

Parameter	Results (mg/l)
___ P&T:GC/MS	
___ Acid:B/N Ext.	
___ 2,4-D	
___ 2,4,5-TP(Silvex)	
___ chlordane	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	
___	
___	
___	
___	

Inorganic Chemistry

Parameter	Results(mg/l)(mg/kg)
___ antimony	
___ arsenic	
___ barium	
___ beryllium	
___ cadmium	
___ chloride	
___ chromium	
___ cobalt	
___ copper	
___ fluoride	
___ iron	
___ lead	
___ manganese	
___ mercury	
___ nickel	
✓ nitrate(as N)	1.03
___ selenium	
___ silver	
✓ sulfates	9
___ thallium	
___ vanadium	
___ zinc	
___ pH	
___ conductivity	
___ TDS	
___ flash point	
___	
___	
___	
___	
___	
___	

Organic Compounds	Results(mg/l)
___ benzene	
___ carbon tetrachloride	
___ chlordane	
___ chlorobenzene	
___ chloroform	
___ o-cresol	
___ m-cresol	
___ p-cresol	
___ cresol	
___ 1,4-dichlorobenzene	
___ 1,2-dichloroethane	
___ 1,1-dichloroethylene	
___ 2,4-dichloroethylene	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ hexachloroethane	
___ methyl ethyl ketone	
___ nitrobenzene	
___ pentachlorophenol	
___ pyridine	
___ tetrachloroethylene	
___ trichloroethylene	
___ 2,4,5-trichlorophenol	
___ 2,4,6-trichlorophenol	
___ vinyl chloride	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	
___ 2,4-D	
___ 2,4,5-TP (Silvex)	

FOR LAB USE ONLY

Date Received ___

Date Extracted ___

Date Analyzed ___

Reported By DGM

Date Reported 8/10/99

Lab Number U10978 JUL 27 99

DHS 3191 (Revised 12/93)

NC Department of Environment, Health, & Natural Resources
Solid Waste Management Division

SAMPLE ANALYSIS REQUEST

State Laboratory of Public Health
P.O. Box 28047, 306 N. Wilmington St.
Raleigh, North Carolina 27611-8047

Site Number NCSFN0 406 924 Sample ID Number/l VC-103-PW 07/26/99 1600 GRAB
VC072699, NC S. RYALS

Name of Site Virginia Carolina Chemical Collected By POTABLE WELL
INORG-CLP NUTRIENT Ground Water

Site Location Wadesboro, NC Date Collected VCW-92 210

Agency: ___ Hazardous Waste ___ Solid Waste X Superfund

Sample Type

Environmental	Concentrate	Comments
___ Ground Water (1)	___ Solid (5)	
___ Surface Water (2)	___ Liquid (6)	
___ Soil (3)	___ Sludge (7)	
___ Other (4)	___ Other (8)	

TCLP Compounds

Inorganic Compounds	Results(mg/l)
___ arsenic	
___ barium	
___ cadmium	
___ chromium	
___ lead	
___ mercury	
___ selenium	
___ silver	
___	
___	
___	
___	

Organic Chemistry

Parameter	Results (mg/l)
___ P&T:GC/MS	
___ Acid:B/N Ext.	
___ 2,4-D	
___ 2,4,5-TP(Silvex)	
___ chlordane	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	
___	
___	
___	
___	

Inorganic Chemistry

Parameter	Results(mg/l)(mg/kg)
___ antimony	
___ arsenic	
___ barium	
___ beryllium	
___ cadmium	
___ chloride	
___ chromium	
___ cobalt	
___ copper	
___ fluoride	
___ iron	
___ lead	
___ manganese	
___ mercury	
___ nickel	
✓ nitrate (as N)	1.04
___ selenium	
___ silver	
✓ sulfates	9
___ thallium	
___ vanadium	
___ zinc	
___ pH	
___ conductivity	
___ TDS	
___ flash point	
___	
___	
___	
___	
___	
___	

Organic Compounds

Organic Compounds	Results(mg/l)
___ benzene	
___ carbon tetrachloride	
___ chlordane	
___ chlorobenzene	
___ chloroform	
___ o-cresol	
___ m-cresol	
___ p-cresol	
___ cresol	
___ 1,4-dichlorobenzene	
___ 1,2-dichloroethane	
___ 1,1-dichloroethylene	
___ 2,4-dichloroethylene	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ hexachloroethane	
___ methyl ethyl ketone	
___ nitrobenzene	
___ pentachlorophenol	
___ pyridine	
___ tetrachloroethylene	
___ trichloroethylene	
___ 2,4,5-trichlorophenol	
___ 2,4,6-trichlorophenol	
___ vinyl chloride	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	
___ 2,4-D	
___ 2,4,5-TP (Silvex)	

FOR LAB USE ONLY

Date Received ___

Date Extracted ___

Date Analyzed ___

Reported By DPM

Date Reported 8/10/99

Lab Number 010979 JUL 27 99

DHS 3191 (Revised 12/93)

NC Department of Environment, Health, & Natural Resources
Solid Waste Management Division

SAMPLE ANALYSIS REQUEST

State Laboratory of Public Health
P.O. Box 28047, 306 N. Wilmington St.
Raleigh, North Carolina 27611-8047

Site Number NCS FNO 406 924 Sample ID Number VC-004-PW 07/26/99 1646 GRAB
VC072699, NC S. RYALS
POTABLE WELL
Name of Site Virginia Carolina Chemical Collected By
INORG-CLP METALS Ground Water
Site Location Hobbsboro, NC Date Collected VCW-15 33

Agency: ___ Hazardous Waste ___ Solid Waste X Superfund

Sample Type

Environmental	Concentrate	Comments
___ Ground Water (1)	___ Solid (5)	
___ Surface Water (2)	___ Liquid (6)	
___ Soil (3)	___ Sludge (7)	
___ Other (4)	___ Other (8)	VH NO3

TCLP Compounds

Inorganic Compounds	Results(mg/l)
___ arsenic	
___ barium	
___ cadmium	
___ chromium	
___ lead	
___ mercury	
___ selenium	
___ silver	

Organic Chemistry

Parameter	Results (mg/l)
___ P&T:GC/MS	
___ Acid:B/N Ext.	
___ 2,4-D	
___ 2,4,5-TP(Silvex)	
___ chlordane	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	

Inorganic Chemistry

Parameter	Results(mg/l)(mg/kg)
___ antimony	
✓ arsenic	<0.01
✓ barium	0.48
✓ beryllium	<0.003
✓ cadmium	<0.005
___ chloride	
✓ chromium	<0.01
___ cobalt	
✓ copper	<0.05
___ fluoride	
___ iron	
✓ lead	<0.005
___ manganese	
✓ mercury	<0.0005
___ nickel	
___ nitrate	
✓ selenium	<0.01
✓ silver	<0.01
___ sulfates	
___ thallium	
✓ vanadium	<0.01
___ zinc	
___ pH	
___ conductivity	
___ TDS	
___ flash point	

Organic Compounds

Organic Compounds	Results(mg/l)
___ benzene	
___ carbon tetrachloride	
___ chlordane	
___ chlorobenzene	
___ chloroform	
___ o-cresol	
___ m-cresol	
___ p-cresol	
___ cresol	
___ 1,4-dichlorobenzene	
___ 1,2-dichloroethane	
___ 1,1-dichloroethylene	
___ 2,4-dichloroethylene	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ hexachloroethane	
___ methyl ethyl ketone	
___ nitrobenzene	
___ pentachlorophenol	
___ pyridine	
___ tetrachloroethylene	
___ trichloroethylene	
___ 2,4,5-trichlorophenol	
___ 2,4,6-trichlorophenol	
___ vinyl chloride	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	
___ 2,4-D	
___ 2,4,5-TP (Silvex)	

FOR LAB USE ONLY

Date Received

Date Extracted

Date Analyzed

Reported By DGH

Date Reported 8/10/99

Lab Number 010967 JUL 2777

DHS 3191 (Revised 12/93)

NC Department of Environment, Health, & Natural Resources
Solid Waste Management Division

SAMPLE ANALYSIS REQUEST

State Laboratory of Public Health
P.O. Box 28047, 306 N. Wilmington St.
Raleigh, North Carolina 27611-8047

Site Number NCSFN0 406 924 Sample ID Number/N VC-004-PW 07/26/99 1646 GRAB
VC072699, NC S. RYALS
POTABLE WELL
Name of Site Virginia Carolina Chemical Collected By _____ INORG-CLP NUTRIENT Ground Water
VCW-16 35
Site Location Wadesboro, NC Date Collected _____

Agency: ___ Hazardous Waste ___ Solid Waste X Superfund

Sample Type

Environmental	Concentrate	Comments
___ Ground Water (1)	___ Solid (5)	
___ Surface Water (2)	___ Liquid (6)	
___ Soil (3)	___ Sludge (7)	
___ Other (4)	___ Other (8)	

TCLP Compounds

Inorganic Compounds	Results(mg/l)
___ arsenic	
___ barium	
___ cadmium	
___ chromium	
___ lead	
___ mercury	
___ selenium	
___ silver	

Organic Chemistry

Parameter	Results (mg/l)
___ P&T:GC/MS	
___ Acid:B/N Ext.	
___ 2,4-D	
___ 2,4,5-TP(Silvex)	
___ chlordane	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	

Inorganic Chemistry

Parameter	Results(mg/l)(mg/kg)
___ antimony	
___ arsenic	
___ barium	
___ beryllium	
___ cadmium	
___ chloride	
___ chromium	
___ cobalt	
___ copper	
___ fluoride	
___ iron	
___ lead	
___ manganese	
___ mercury	
___ nickel	
✓ nitrate(as N)	<1.00
___ selenium	
___ silver	
✓ sulfates	6
___ thallium	
___ vanadium	
___ zinc	
___ pH	
___ conductivity	
___ TDS	
___ flash point	

Organic Compounds	Results(mg/l)
___ benzene	
___ carbon tetrachloride	
___ chlordane	
___ chlorobenzene	
___ chloroform	
___ o-cresol	
___ m-cresol	
___ p-cresol	
___ cresol	
___ 1,4-dichlorobenzene	
___ 1,2-dichloroethane	
___ 1,1-dichloroethylene	
___ 2,4-dichloroethylene	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ hexachloroethane	
___ methyl ethyl ketone	
___ nitrobenzene	
___ pentachlorophenol	
___ pyridine	
___ tetrachloroethylene	
___ trichloroethylene	
___ 2,4,5-trichlorophenol	
___ 2,4,6-trichlorophenol	
___ vinyl chloride	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	
___ 2,4-D	
___ 2,4,5-TP (Silvex)	

FOR LAB USE ONLY

Date Received _____
Date Extracted _____
Date Analyzed _____
Reported By RDM
Date Reported 8/10/99
Lab Number 010930 JUL 27 99

DHS 3191 (Revised 12/93)

Health, & Natural Resources
Solid Waste Management Division

State Laboratory of Public Health
P.O. Box 28047, 306 N. Wilmington St.
Raleigh, North Carolina 27611-8047

Site Number NCS FNO 406 924 Sample ID Number VC-001-PB 07/27/99 1300 GRAB
VC072699, NC S. RYALS

Name of Site Virginia Carolina Chemical Collected By PRESERV. BLANK

Site Location Hillsboro, NC Date Collected INORG-CLP METALS Water
VCW-97 221

Agency: ___ Hazardous Waste ___ Solid Waste X Superfund

Sample Type

Environmental	Concentrate	Comments
___ Ground Water (1)	___ Solid (5)	
___ Surface Water (2)	___ Liquid (6)	
___ Soil (3)	___ Sludge (7)	
___ Other (4)	___ Other (8)	

TCLP Compounds

Inorganic Compounds	Results(mg/l)
___ arsenic	
___ barium	
___ cadmium	
___ chromium	
___ lead	
___ mercury	
___ selenium	
___ silver	

Organic Chemistry

Parameter	Results (mg/l)
___ P&T:GC/MS	
___ Acid:B/N Ext.	
___ 2,4-D	
___ 2,4,5-TP(Silvex)	
___ chlordane	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	

Inorganic Chemistry

Parameter	Results(mg/l)(mg/kg)
___ antimony	
✓ arsenic	<0.01
✓ barium	<0.01
✓ beryllium	<0.003
✓ cadmium	<0.005
___ chloride	
✓ chromium	<0.01
___ cobalt	
✓ copper	<0.05
___ fluoride	
___ iron	
✓ lead	<0.005
___ manganese	
✓ mercury	<0005
___ nickel	
___ nitrate	
✓ selenium	<0.005
✓ silver	<0.01
___ sulfates	
___ thallium	
✓ vanadium	<0.01
___ zinc	
___ pH	
___ conductivity	
___ TDS	
___ flash point	

Organic Compounds	Results(mg/l)
___ benzene	
___ carbon tetrachloride	
___ chlordane	
___ chlorobenzene	
___ chloroform	
___ o-cresol	
___ m-cresol	
___ p-cresol	
___ cresol	
___ 1,4-dichlorobenzene	
___ 1,2-dichloroethane	
___ 1,1-dichloroethylene	
___ 2,4-dichloroethylene	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ hexachloroethane	
___ methyl ethyl ketone	
___ nitrobenzene	
___ pentachlorophenol	
___ pyridine	
___ tetrachloroethylene	
___ trichloroethylene	
___ 2,4,5-trichlorophenol	
___ 2,4,6-trichlorophenol	
___ vinyl chloride	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	
___ 2,4-D	
___ 2,4,5-TP (Silvex)	

FOR LAB USE ONLY

Date Received ___

Date Extracted ___

Date Analyzed ___

Reported By [illegible]

Date Reported 8/10/99

010998 JUL 27 99

Lab Number ___

DHS 3191 (Revised 12/93)

NC Department of Environment, Health, & Natural Resources
Solid Waste Management Division

SAMPLE ANALYSIS REQUEST

State Laboratory of Public Health
P.O. Box 28047, 306 N. Wilmington St.
Raleigh, North Carolina 27611-8047

Site Number NCS FND 406 924 Sample ID Numbe VC-001-PW 07/26/99 1535 GRAB
VC072699, NC S. RYALS

Name of Site Virginia Carolina Chemical Collected By POTABLE WELL ORG-CLP EXT ORG Ground Water

Site Location Wadesboro, NC Date Collected VCW-02 4

Agency: ___ Hazardous Waste ___ Solid Waste X Superfund

Sample Type

Environmental	Concentrate	Comments
___ Ground Water (1)	___ Solid (5)	
___ Surface Water (2)	___ Liquid (6)	
___ Soil (3)	___ Sludge (7)	
___ Other (4)	___ Other (8)	

TCLP Compounds

Inorganic Compounds	Results(mg/l)
___ arsenic	
___ barium	
___ cadmium	
___ chromium	
___ lead	
___ mercury	
___ selenium	
___ silver	

Organic Chemistry

Parameter	Results (mg/l)
___ P&T:GC/MS	
✓ Acid:B/N Ext.	
___ 2,4-D	
___ 2,4,5-TP(Silvex)	
___ chlordane	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	

Inorganic Chemistry

Parameter	Results(mg/l)(mg/kg)
___ antimony	
___ arsenic	
___ barium	
___ beryllium	
___ cadmium	
___ chloride	
___ chromium	
___ cobalt	
___ copper	
___ fluoride	
___ iron	
___ lead	
___ manganese	
___ mercury	
___ nickel	
___ nitrate	
___ selenium	
___ silver	
___ sulfates	
___ thallium	
___ vanadium	
___ zinc	
___ pH	
___ conductivity	
___ TDS	
___ flash point	

Organic Compounds	Results(mg/l)
___ benzene	
___ carbon tetrachloride	
___ chlordane	
___ chlorobenzene	
___ chloroform	
___ o-cresol	
___ m-cresol	
___ p-cresol	
___ cresol	
___ 1,4-dichlorobenzene	
___ 1,2-dichloroethane	
___ 1,1-dichloroethylene	
___ 2,4-dichloroethylene	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ hexachloroethane	
___ methyl ethyl ketone	
___ nitrobenzene	
___ pentachlorophenol	
___ pyridine	
___ tetrachloroethylene	
___ trichloroethylene	
___ 2,4,5-trichlorophenol	
___ 2,4,6-trichlorophenol	
___ vinyl chloride	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	
___ 2,4-D	
___ 2,4,5-TP (Silvex)	

FOR LAB USE ONLY

Date Received JUL 27 1999

Date Extracted BNA 7-29-99 KM

Date Analyzed 8-2-99 BLO

Reported By

Date Reported

Lab Number 992470

DHS 3191 (Revised 12/93)

NC Department of Environment, Health, & Natural Resources
Solid Waste Management Division

SAMPLE ANALYSIS REQUEST

State Laboratory of Public Health
P.O. Box 28047, 306 N. Wilmington St.
Raleigh, North Carolina 27611-8047

Site Number NCS FNO 406 924 Sample ID Numb VC-002-PW 07/26/99 1605 GRAB
VC072699, NC S. RYALS

Name of Site Virginia Carolina Chemical Collected By POTABLE WELL ORG-CLP EXT- ORG Ground Water
VCW-06 13

Site Location Wadesboro, NC Date Collected

Agency: ___ Hazardous Waste ___ Solid Waste X Superfund

Sample Type

Environmental	Concentrate	Comments
___ Ground Water (1)	___ Solid (5)	
___ Surface Water (2)	___ Liquid (6)	
___ Soil (3)	___ Sludge (7)	
___ Other (4)	___ Other (8)	

TCLP Compounds

Inorganic Compounds	Results(mg/l)
___ arsenic	
___ barium	
___ cadmium	
___ chromium	
___ lead	
___ mercury	
___ selenium	
___ silver	

Organic Chemistry

Parameter	Results (mg/l)
___ P&T:GC/MS	
✓ Acid:B/N Ext.	
___ 2,4-D	
___ 2,4,5-TP(Silvex)	
___ chlordane	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	

Inorganic Chemistry

Parameter	Results(mg/l)(mg/kg)
___ antimony	
___ arsenic	
___ barium	
___ beryllium	
___ cadmium	
___ chloride	
___ chromium	
___ cobalt	
___ copper	
___ fluoride	
___ iron	
___ lead	
___ manganese	
___ mercury	
___ nickel	
___ nitrate	
___ selenium	
___ silver	
___ sulfates	
___ thallium	
___ vanadium	
___ zinc	
___ pH	
___ conductivity	
___ TDS	
___ flash point	

Organic Compounds	Results(mg/l)
___ benzene	
___ carbon tetrachloride	
___ chlordane	
___ chlorobenzene	
___ chloroform	
___ o-cresol	
___ m-cresol	
___ p-cresol	
___ cresol	
___ 1,4-dichlorobenzene	
___ 1,2-dichloroethane	
___ 1,1-dichloroethylene	
___ 2,4-dichloroethylene	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ hexachloroethane	
___ methyl ethyl ketone	
___ nitrobenzene	
___ pentachlorophenol	
___ pyridine	
___ tetrachloroethylene	
___ trichloroethylene	
___ 2,4,5-trichlorophenol	
___ 2,4,6-trichlorophenol	
___ vinyl chloride	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	
___ 2,4-D	
___ 2,4,5-TP (Silvex)	

FOR LAB USE ONLY

Date Received JUL 27 1999

Date Extracted BNA 7-29-99 KM

Date Analyzed 8-2-99 BO

Reported By

Date Reported

Lab Number 992471

DHS 3191 (Revised 12/93)

NC Department of Environment, Health, & Natural Resources
Solid Waste Management Division

SAMPLE ANALYSIS REQUEST

State Laboratory of Public Health
P.O. Box 28047, 306 N. Wilmington St.
Raleigh, North Carolina 27611-8047

VC-003-PW 07/26/99 1600 GRAB
VC072699, NC S. RYALS
POTABLE WELL
ORG-CLP EXT ORG Ground Water
VCW-10 22

Site Number NCS FNO 406 924 Sample ID Number/N

Name of Site Virginia Carolina Chemical Collected By

Site Location Wadesboro, NC Date Collected

Agency: ___ Hazardous Waste ___ Solid Waste X Superfund

Sample Type

Environmental	Concentrate	Comments
___ Ground Water (1)	___ Solid (5)	
___ Surface Water (2)	___ Liquid (6)	
___ Soil (3)	___ Sludge (7)	
___ Other (4)	___ Other (8)	

TCLP Compounds

Inorganic Compounds	Results(mg/l)
___ arsenic	
___ barium	
___ cadmium	
___ chromium	
___ lead	
___ mercury	
___ selenium	
___ silver	
___	
___	
___	
___	

Organic Chemistry

Parameter	Results (mg/l)
___ P&T:GC/MS	
✓ Acid:B/N Ext.	
___ 2,4-D	
___ 2,4,5-TP(Silvex)	
___ chlordane	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	
___	
___	
___	
___	

Inorganic Chemistry

Parameter	Results(mg/l)(mg/kg)
___ antimony	
___ arsenic	
___ barium	
___ beryllium	
___ cadmium	
___ chloride	
___ chromium	
___ cobalt	
___ copper	
___ fluoride	
___ iron	
___ lead	
___ manganese	
___ mercury	
___ nickel	
___ nitrate	
___ selenium	
___ silver	
___ sulfates	
___ thallium	
___ vanadium	
___ zinc	
___ pH	
___ conductivity	
___ TDS	
___ flash point	
___	
___	
___	
___	
___	
___	

Organic Compounds	Results(mg/l)
___ benzene	
___ carbon tetrachloride	
___ chlordane	
___ chlorobenzene	
___ chloroform	
___ o-cresol	
___ m-cresol	
___ p-cresol	
___ cresol	
___ 1,4-dichlorobenzene	
___ 1,2-dichloroethane	
___ 1,1-dichloroethylene	
___ 2,4-dichloroethylene	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ hexachloroethane	
___ methyl ethyl ketone	
___ nitrobenzene	
___ pentachlorophenol	
___ pyridine	
___ tetrachloroethylene	
___ trichloroethylene	
___ 2,4,5-trichlorophenol	
___ 2,4,6-trichlorophenol	
___ vinyl chloride	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	
___ 2,4-D	
___ 2,4,5-TP (Silvex)	

FOR LAB USE ONLY

Date Received JUL 27 1999

Date Extracted BNA 7-29-99 KM

Date Analyzed 8-2-99 BD

Reported By

Date Reported

Lab Number 992472

DHS 3191 (Revised 12/93)

NC Department of Environment, Health, & Natural Resources
Solid Waste Management Division

SAMPLE ANALYSIS REQUEST

State Laboratory of Public Health
P.O. Box 28047, 306 N. Wilmington St.
Raleigh, North Carolina 27611-8047

Site Number NCS FNO 406 924 Sample ID Number/N VC-103-PW 07/26/99 1600 GRAB
VC072699, NC S. RYALS
Name of Site Virginia Carolina Chemical Collected By _____ POTABLE WELL
ORG-CLP EXT ORG Ground Water
Site Location Wadesboro, NC Date Collected _____ VCW-90 206

Agency: ____ Hazardous Waste ____ Solid Waste X Superfund

Sample Type

Environmental	Concentrate	Comments
___ Ground Water (1)	___ Solid (5)	
___ Surface Water (2)	___ Liquid (6)	
___ Soil (3)	___ Sludge (7)	
___ Other (4)	___ Other (8)	

TCLP Compounds

Inorganic Compounds	Results(mg/l)
___ arsenic	
___ barium	
___ cadmium	
___ chromium	
___ lead	
___ mercury	
___ selenium	
___ silver	

Organic Chemistry

Parameter	Results (mg/l)
___ P&T:GC/MS	
✓ Acid:B/N Ext.	
___ 2,4-D	
___ 2,4,5-TP(Silvex)	
___ chlordane	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	

Inorganic Chemistry

Parameter	Results(mg/l)(mg/kg)
___ antimony	
___ arsenic	
___ barium	
___ beryllium	
___ cadmium	
___ chloride	
___ chromium	
___ cobalt	
___ copper	
___ fluoride	
___ iron	
___ lead	
___ manganese	
___ mercury	
___ nickel	
___ nitrate	
___ selenium	
___ silver	
___ sulfates	
___ thallium	
___ vanadium	
___ zinc	
___ pH	
___ conductivity	
___ TDS	
___ flash point	

Organic Compounds	Results(mg/l)
___ benzene	
___ carbon tetrachloride	
___ chlordane	
___ chlorobenzene	
___ chloroform	
___ o-cresol	
___ m-cresol	
___ p-cresol	
___ cresol	
___ 1,4-dichlorobenzene	
___ 1,2-dichloroethane	
___ 1,1-dichloroethylene	
___ 2,4-dichloroethylene	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ hexachloroethane	
___ methyl ethyl ketone	
___ nitrobenzene	
___ pentachlorophenol	
___ pyridine	
___ tetrachloroethylene	
___ trichloroethylene	
___ 2,4,5-trichlorophenol	
___ 2,4,6-trichlorophenol	
___ vinyl chloride	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	
___ 2,4-D	
___ 2,4,5-TP (Silvex)	

FOR LAB USE ONLY

Date Received JUL 27 1999
Date Extracted BNA 7-29-99 KM
Date Analyzed 8-2-99 BD
Reported By _____
Date Reported _____
Lab Number 992473

DHS 3191 (Revised 12/93)

NC Department of Environment, Health, & Natural Resources
Solid Waste Management Division

SAMPLE ANALYSIS REQUEST

State Laboratory of Public Health
P.O. Box 28047, 306 N. Wilmington St.
Raleigh, North Carolina 27611-8047

Site Number NCS FND 406 924 Sample ID Number/ VC-004-PW 07/26/99 1646 GRAB
VC072699, NC S. RYALS

Name of Site Virginia Carolina Chemical Collected By POTABLE WELL
ORG-CLP EXT ORG Ground Water
VCW-14 31

Site Location Wadesboro, NC Date Collected

Agency: ___ Hazardous Waste ___ Solid Waste X Superfund

Sample Type

Environmental	Concentrate	Comments
___ Ground Water (1)	___ Solid (5)	
___ Surface Water (2)	___ Liquid (6)	
___ Soil (3)	___ Sludge (7)	
___ Other (4)	___ Other (8)	

TCLP Compounds

Inorganic Compounds	Results(mg/l)
___ arsenic	
___ barium	
___ cadmium	
___ chromium	
___ lead	
___ mercury	
___ selenium	
___ silver	
___	
___	
___	
___	

Organic Chemistry

Parameter	Results (mg/l)
___ P&T:GC/MS	
___ Acid:B/N Ext.	
___ 2,4-D	
___ 2,4,5-TP(Silvex)	
___ chlordane	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	
___	
___	
___	
___	

Inorganic Chemistry

Parameter	Results(mg/l)(mg/kg)
___ antimony	
___ arsenic	
___ barium	
___ beryllium	
___ cadmium	
___ chloride	
___ chromium	
___ cobalt	
___ copper	
___ fluoride	
___ iron	
___ lead	
___ manganese	
___ mercury	
___ nickel	
___ nitrate	
___ selenium	
___ silver	
___ sulfates	
___ thallium	
___ vanadium	
___ zinc	
___ pH	
___ conductivity	
___ TDS	
___ flash point	
___	
___	
___	
___	
___	
___	

Organic Compounds	Results(mg/l)
___ benzene	
___ carbon tetrachloride	
___ chlordane	
___ chlorobenzene	
___ chloroform	
___ o-cresol	
___ m-cresol	
___ p-cresol	
___ cresol	
___ 1,4-dichlorobenzene	
___ 1,2-dichloroethane	
___ 1,1-dichloroethylene	
___ 2,4-dichloroethylene	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ hexachloroethane	
___ methyl ethyl ketone	
___ nitrobenzene	
___ pentachlorophenol	
___ pyridine	
___ tetrachloroethylene	
___ trichloroethylene	
___ 2,4,5-trichlorophenol	
___ 2,4,6-trichlorophenol	
___ vinyl chloride	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	
___ 2,4-D	
___ 2,4,5-TP (Silvex)	

FOR LAB USE ONLY

Date Received JUL 27 1999

Date Extracted BNA 7-29-99 WM

Date Analyzed 8-2-99 BD

Reported By

Date Reported

Lab Number 992474

DHS 3191 (Revised 12/93)

NC Department of Environment, Health, & Natural Resources
Solid Waste Management Division

SAMPLE ANALYSIS REQUEST

State Laboratory of Public Health
P.O. Box 28047, 306 N. Wilmington St.
Raleigh, North Carolina 27611-8047

Site Number NCS FNO 406 924 Sample ID Number/ VC-005-PW 07/26/99 1713 GRAB
VC072699, NC S. RYALS

Name of Site Virginia Carolina Chemical Collected By POTABLE WELL ORG-CLP EXT ORG Ground Water
VCW-18 40

Site Location Wadesboro, NC Date Collected

Agency: ___ Hazardous Waste ___ Solid Waste X Superfund

Sample Type

Environmental	Concentrate	Comments
___ Ground Water (1)	___ Solid (5)	
___ Surface Water (2)	___ Liquid (6)	
___ Soil (3)	___ Sludge (7)	
___ Other (4)	___ Other (8)	

TCLP Compounds

Inorganic Compounds	Results(mg/l)
___ arsenic	
___ barium	
___ cadmium	
___ chromium	
___ lead	
___ mercury	
___ selenium	
___ silver	
___	
___	
___	
___	

Organic Compounds	Results(mg/l)
___ benzene	
___ carbon tetrachloride	
___ chlordane	
___ chlorobenzene	
___ chloroform	
___ o-cresol	
___ m-cresol	
___ p-cresol	
___ cresol	
___ 1,4-dichlorobenzene	
___ 1,2-dichloroethane	
___ 1,1-dichloroethylene	
___ 2,4-dichloroethylene	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ hexachloroethane	
___ methyl ethyl ketone	
___ nitrobenzene	
___ pentachlorophenol	
___ pyridine	
___ tetrachloroethylene	
___ trichloroethylene	
___ 2,4,5-trichlorophenol	
___ 2,4,6-trichlorophenol	
___ vinyl chloride	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	
___ 2,4-D	
___ 2,4,5-TP (Silvex)	

Organic Chemistry

Parameter	Results (mg/l)
___ P&T:GC/MS	
✓ Acid:B/N Ext.	
___ 2,4-D	
___ 2,4,5-TP(Silvex)	
___ chlordane	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	
___	
___	
___	
___	

Inorganic Chemistry

Parameter	Results(mg/l)(mg/kg)
___ antimony	
___ arsenic	
___ barium	
___ beryllium	
___ cadmium	
___ chloride	
___ chromium	
___ cobalt	
___ copper	
___ fluoride	
___ iron	
___ lead	
___ manganese	
___ mercury	
___ nickel	
___ nitrate	
___ selenium	
___ silver	
___ sulfates	
___ thallium	
___ vanadium	
___ zinc	
___ pH	
___ conductivity	
___ TDS	
___ flash point	
___	
___	
___	
___	
___	
___	

FOR LAB USE ONLY

Date Received JUL 27 1999
Date Extracted BNA 7-29-99 KM
Date Analyzed 8-2-99 GO
Reported By
Date Reported
Lab Number 992475

DHS 3191 (Revised 12/93)

NC Department of Environment, Health, & Natural Resources
Solid Waste Management Division

SAMPLE ANALYSIS REQUEST

State Laboratory of Public Health
P.O. Box 28047, 306 N. Wilmington St.
Raleigh, North Carolina 27611-8047

Site Number NCS FNO 406 924

Sample ID Number: VC-006-PW 07/26/99 1650 GRAB
VC072699, NC S. RYALS

Name of Site Virginia Carolina Chemical

Collected By ____ POTABLE WELL ORG-CLP EXT-ORG Ground Water 49

Site Location Wadesboro, NC

Date Collected ____ VCW-22

Agency: ____ Hazardous Waste ____ Solid Waste X Superfund

Sample Type

Environmental	Concentrate	Comments
___ Ground Water (1)	___ Solid (5)	
___ Surface Water (2)	___ Liquid (6)	
___ Soil (3)	___ Sludge (7)	
___ Other (4)	___ Other (8)	

TCLP Compounds

Inorganic Compounds	Results(mg/l)
___ arsenic	
___ barium	
___ cadmium	
___ chromium	
___ lead	
___ mercury	
___ selenium	
___ silver	

Organic Chemistry

Parameter	Results (mg/l)
___ P&T:GC/MS	
✓ Acid:B/N Ext.	
___ 2,4-D	
___ 2,4,5-TP(Silvex)	
___ chlordane	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	

Inorganic Chemistry

Parameter	Results(mg/l)(mg/kg)
___ antimony	
___ arsenic	
___ barium	
___ beryllium	
___ cadmium	
___ chloride	
___ chromium	
___ cobalt	
___ copper	
___ fluoride	
___ iron	
___ lead	
___ manganese	
___ mercury	
___ nickel	
___ nitrate	
___ selenium	
___ silver	
___ sulfates	
___ thallium	
___ vanadium	
___ zinc	
___ pH	
___ conductivity	
___ TDS	
___ flash point	

Organic Compounds	Results(mg/l)
___ benzene	
___ carbon tetrachloride	
___ chlordane	
___ chlorobenzene	
___ chloroform	
___ o-cresol	
___ m-cresol	
___ p-cresol	
___ cresol	
___ 1,4-dichlorobenzene	
___ 1,2-dichloroethane	
___ 1,1-dichloroethylene	
___ 2,4-dichloroethylene	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ hexachloroethane	
___ methyl ethyl ketone	
___ nitrobenzene	
___ pentachlorophenol	
___ pyridine	
___ tetrachloroethylene	
___ trichloroethylene	
___ 2,4,5-trichlorophenol	
___ 2,4,6-trichlorophenol	
___ vinyl chloride	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	
___ 2,4-D	
___ 2,4,5-TP (Silvex)	

FOR LAB USE ONLY

Date Received JUL 27 1999

Date Extracted BNA 7-29 99 KM

Date Analyzed 8-2-99 BQ

Reported By

Date Reported

Lab Number 992476

DHS 3191 (Revised 12/93)

(1)

STATE LABORATORY OF PUBLIC HEALTH

P.O. BOX 28047 - 306 N. WILMINGTON, ST., RALEIGH, N.C. 27611

ORGANIC CHEMICAL ANALYSIS

BASE/NEUTRAL AND ACID EXTRACTABLES	LAB NO	992470	992471	992472	992473	992474	992475
	FIELD #	VC-001-PW	VC-002-PW	VC-003-PW	VC-103-PW	VC-004-PW	VC-005-PW
COMPOUND	TYPE	(1)	(1)	(1)	(1)	(1)	(1)
	UNITS	µg/l ~~µg/kg~~	µg/l ~~µg/kg~~	µg/l ~~µg/kg~~	µg/l ~~µg/kg~~	µg/l ~~µg/kg~~	µg/l ~~µg/kg~~
N-nitrosodimethylamine	10/330	U	U	U	U	U	U
bis(2-chloroethyl)ether	↓	↓	↓	↓	↓	↓	↓
2-chlorophenol	↓	↓	↓	↓	↓	↓	↓
phenol	↓	↓	↓	↓	↓	↓	↓
1,3-dichlorobenzene	↓	↓	↓	↓	↓	↓	↓
1,4-dichlorobenzene	↓	↓	↓	↓	↓	↓	↓
1,2-dichlorobenzene	↓	↓	↓	↓	↓	↓	↓
bis(2-chloroisopropyl)ether	↓	↓	↓	↓	↓	↓	↓
hexachloroethane	↓	↓	↓	↓	↓	↓	↓
N-nitroso-di-n-propylamine	↓	↓	↓	↓	↓	↓	↓
nitrobenzene	↓	↓	↓	↓	↓	↓	↓
isophorone	↓	↓	↓	↓	↓	↓	↓
2-nitrophenol	↓	↓	↓	↓	↓	↓	↓
2,4-dimethylphenol	↓	↓	↓	↓	↓	↓	↓
bis(2-chloroethoxy)methane	↓	↓	↓	↓	↓	↓	↓
2,4-dichlorophenol	↓	↓	↓	↓	↓	↓	↓
1,2,4-trichlorobenzene	↓	↓	↓	↓	↓	↓	↓
naphthalene	↓	↓	↓	↓	↓	↓	↓
hexachlorobutadiene	↓	↓	↓	↓	↓	↓	↓
4-chloro-m-cresol	↓	↓	↓	↓	↓	↓	↓
hexachlorocyclopentadiene	↓	↓	↓	↓	↓	↓	↓
2,4,6-trichlorophenol	↓	↓	↓	↓	↓	↓	↓
2-chloronaphthalene	↓	↓	↓	↓	↓	↓	↓
acenaphthylene	↓	↓	↓	↓	↓	↓	↓
dimethyl phthalate	↓	↓	↓	↓	↓	↓	↓
2,6-dinitrotoluene	↓	↓	↓	↓	↓	↓	↓
acenaphthene	↓	↓	↓	↓	↓	↓	↓
2,4-dinitrophenol	50/1650	↓	↓	↓	↓	↓	↓
2,4-dinitrotoluene	10/330	↓	↓	↓	↓	↓	↓
4-nitrophenol	50/1650	↓	↓	↓	↓	↓	↓
fluorene	10/330	↓	↓	↓	↓	↓	↓
4-chlorophenylphenylether	↓	↓	↓	↓	↓	↓	↓
diethyl phthalate	↓	↓	↓	↓	↓	↓	↓
4,6-dinitro-o-cresol	50/1650	↓	↓	↓	↓	↓	↓
diphenylamine	10/330	↓	↓	↓	↓	↓	↓
azobenzene	↓	↓	↓	↓	↓	↓	↓
4-bromophenylphenylether	↓	↓	↓	↓	↓	↓	↓
hexachlorobenzene	↓	↓	↓	↓	↓	↓	↓
pentachlorophenol	50/1650	↓	↓	↓	↓	↓	↓
phenanthrene	10/330	↓	↓	↓	↓	↓	↓
anthracene	↓	↓	↓	↓	↓	↓	↓
dibutyl phthalate	↓	↓	↓	↓	↓	↓	↓
fluoranthene	↓	↓	↓	↓	↓	↓	↓

MDL
H_2O/SOIL

J - Estimated value.
K - Actual value is known to be less than value given.
L - Actual value is known to be greater than value given.
U - Material was analyzed for but not detected. The number is the Minimum Detection Limit. MDL
NA - Not analyzed.
1/ - Tentative identification.
2/ - On NRDC List of Priority Pollutants.

(2)

STATE LABORATORY OF PUBLIC HEALTH

P.O. BOX 28047 - 306 N. WILMINGTON, ST., RALEIGH, N.C. 27611

ORGANIC CHEMICAL ANALYSIS

BASE/NEUTRAL AND ACID EXTRACTABLES	LAB NO	992470	992471	992472	992473	992474	992475
	FIELD #	VC-001-PW	VC-002-PW	VC-003-PW	VC-103-PW	VC-004-PW	VC-005-PW
COMPOUND	TYPE	(1)	(1)	(1)	(1)	(1)	(1)
	UNITS	µg/l ~~mg/kg~~	µg/l ~~mg/kg~~	µg/l ~~mg/kg~~	µg/l ~~mg/kg~~	µg/l ~~mg/kg~~	µg/l ~~mg/kg~~
pyrene	10/330	U	U	U	U	U	U
benzidine	50/1650						
butyl benzyl phthalate	10/330						
benz(a)anthracene							
chrysene							
3,3-dichlorobenzidine	50/1650						
bis(2-ethylhexyl)phthalate	10/330						
di-n-octyl phthalate	10/330						
benzo(b)fluoranthene	50/1650						
benzo(k)fluoranthene							
benzo(a)pyrene							
indeno(1,2,3-cd)pyrene							
dibenzo(a,h)anthracene							
benzo(g,h,i)perylene							
aniline	50/1650						
benzoic acid							
benzyl alcohol							
4-chloroaniline							
dibenzofuran	10/330						
2-methylnaphthalene							
2-methylphenol							
4-methylphenol							
2-nitroaniline	50/1650						
3-nitroaniline							
4-nitroaniline							
2,4,5-trichlorophenol							

MDL

H_2O/501L

J - Estimated value.
K - Actual value is known to be less than value given.
L - Actual value is known to be greater than value given.
U - Material was analyzed for but not detected. The number is the Minimum Detection Limit. MDL
NA - Not analyzed.
1/ - Tentative identification.
2/ - On NRDC List of Priority Pollutants.

STATE LABORATORY OF PUBLIC HEALTH

P.O. BOX 28047 - 306 N. WILMINGTON, ST., RALEIGH, N.C. 27611

(3)

ORGANIC CHEMICAL ANALYSIS

BASE/NEUTRAL AND ACID EXTRACTABLES	LAB NO	992476	992477	992478	992479	992480	992481
	FIELD #	VC-006-AW	VC-001-SW	VC-002-SW	VC-003-SW	VC-004-SW	VC-005-SW
COMPOUND	TYPE	(1)	(2)	(2)	(2)	(2)	(2)
	UNITS	µg/l ~~mg/kg~~	µg/l ~~mg/kg~~	µg/l ~~mg/kg~~	µg/l ~~mg/kg~~	µg/l ~~mg/kg~~	µg/l ~~mg/kg~~
N-nitrosodimethylamine	10/330	U	U	U	U	U	U
bis(2-chloroethyl)ether	↓	↓	↓	↓	↓	↓	↓
2-chlorophenol	↓	↓	↓	↓	↓	↓	↓
phenol	↓	↓	↓	↓	↓	↓	↓
1,3-dichlorobenzene	↓	↓	↓	↓	↓	↓	↓
1,4-dichlorobenzene	↓	↓	↓	↓	↓	↓	↓
1,2-dichlorobenzene	↓	↓	↓	↓	↓	↓	↓
bis(2-chloroisopropyl)ether	↓	↓	↓	↓	↓	↓	↓
hexachloroethane	↓	↓	↓	↓	↓	↓	↓
N-nitroso-di-n-propylamine	↓	↓	↓	↓	↓	↓	↓
nitrobenzene	↓	↓	↓	↓	↓	↓	↓
isophorone	↓	↓	↓	↓	↓	↓	↓
2-nitrophenol	↓	↓	↓	↓	↓	↓	↓
2,4-dimethylphenol	↓	↓	↓	↓	↓	↓	↓
bis(2-chloroethoxy)methane	↓	↓	↓	↓	↓	↓	↓
2,4-dichlorophenol	↓	↓	↓	↓	↓	↓	↓
1,2,4-trichlorobenzene	↓	↓	↓	↓	↓	↓	↓
naphthalene	↓	↓	↓	↓	↓	↓	↓
hexachlorobutadiene	↓	↓	↓	↓	↓	↓	↓
4-chloro-m-cresol	↓	↓	↓	↓	↓	↓	↓
hexachlorocyclopentadiene	↓	↓	↓	↓	↓	↓	↓
2,4,6-trichlorophenol	↓	↓	↓	↓	↓	↓	↓
2-chloronaphthalene	↓	↓	↓	↓	↓	↓	↓
acenaphthylene	↓	↓	↓	↓	↓	↓	↓
dimethyl phthalate	↓	↓	↓	↓	↓	↓	↓
2,6-dinitrotoluene	↓	↓	↓	↓	↓	↓	↓
acenaphthene	↓	↓	↓	↓	↓	↓	↓
2,4-dinitrophenol	50/1650	↓	↓	↓	↓	↓	↓
2,4-dinitrotoluene	10/330	↓	↓	↓	↓	↓	↓
4-nitrophenol	50/1650	↓	↓	↓	↓	↓	↓
fluorene	10/330	↓	↓	↓	↓	↓	↓
4-chlorophenylphenylether	↓	↓	↓	↓	↓	↓	↓
diethyl phthalate	↓	↓	↓	↓	↓	↓	↓
4,6-dinitro-o-cresol	50/1650	↓	↓	↓	↓	↓	↓
diphenylamine	10/330	↓	↓	↓	↓	↓	↓
azobenzene	↓	↓	↓	↓	↓	↓	↓
4-bromophenylphenylether	↓	↓	↓	↓	↓	↓	↓
hexachlorobenzene	↓	↓	↓	↓	↓	↓	↓
pentachlorophenol	50/1650	↓	↓	↓	↓	↓	↓
phenanthrene	10/330	↓	↓	↓	↓	↓	↓
anthracene	↓	↓	↓	↓	↓	↓	↓
dibutyl phthalate	↓	↓	↓	↓	↓	↓	↓
fluoranthene	↓	↓	↓	↓	↓	↓	↓

MDL
H_2O/SOIL

J - Estimated value.
K - Actual value is known to be less than value given.
L - Actual value is known to be greater than value given.
U - Material was analyzed for but not detected. The number is the Minimum Detection Limit. MDL
NA - Not analyzed.
1/ - Tentative identification.
2/ - On NRDC List of Priority Pollutants.

(4)

STATE LABORATORY OF PUBLIC HEALTH

P.O. BOX 28047 - 306 N. WILMINGTON, ST., RALEIGH, N.C. 27611

ORGANIC CHEMICAL ANALYSIS

BASE/NEUTRAL AND ACID EXTRACTABLES	LAB NO	992476	992477	992478	992479	992480	992481
	FIELD #	VC-006-PW	VC-001-SW	VC-002-SW	VC-003-SW	VC-004-SW	VC-005-SW
COMPOUND	TYPE	(1)	(2)	(2)	(2)	(2)	(2)
	UNITS	µg/l ~~mg/kg~~	µg/l ~~mg/kg~~	µg/l ~~mg/kg~~	µg/l ~~mg/kg~~	µg/l ~~mg/kg~~	µg/l ~~mg/kg~~
pyrene	10/330	U	U	U	U	U	U
benzidine	50/1650						
butyl benzyl phthalate	10/330						
benz(a)anthracene							
chrysene							
3,3-dichlorobenzidine	50/1650						
bis(2-ethylhexyl)phthalate	10/330						
di-n-octyl phthalate	10/330						
benzo(b)fluoranthene	50/1650						
benzo(k)fluoranthene							
benzo(a)pyrene							
indeno(1,2,3-cd)pyrene							
dibenzo(a,h)anthracene							
benzo(g,h,i)perylene							
aniline	50/1650						
benzoic acid							
benzyl alcohol							
4-chloroaniline							
dibenzofuran	10/330						
2-methylnaphthalene							
2-methylphenol							
4-methylphenol							
2-nitroaniline	50/1650						
3-nitroaniline							
4-nitroaniline							
2,4,5-trichlorophenol							

MDL

H_2O/501L

J - Estimated value.
K - Actual value is known to be less than value given.
L - Actual value is known to be greater than value given.
U - Material was analyzed for but not detected. The number is the Minimum Detection Limit. MDL
NA - Not analyzed.
1/ - Tentative identification.
2/ - On NRDC List of Priority Pollutants.

NC Department of Environment, Health, & Natural Resources
Solid Waste Management Division

SAMPLE ANALYSIS REQUEST

State Laboratory of Public Health
P.O. Box 28047, 306 N. Wilmington St.
Raleigh, North Carolina 27611-8047

Site Number NCF N0406 924 Sample ID Numbe VC-001-PW 07/26/99 1535 GRAB
VC072699, NC S. RYALS
Name of Site Virginia Carolina Chemical Collected By ___ POTABLE WELL
ORG-CLP VOA Ground Water
Site Location Wadesboro, NC Date Collected ___ VCW-01

RECEIVED
AUG 23 1999
LAB SECTION

Agency: ___ Hazardous Waste ___ Solid Waste X Superfund

Sample Type

Environmental	Concentrate	Comments
___ Ground Water (1)	___ Solid (5)	
___ Surface Water (2)	___ Liquid (6)	
___ Soil (3)	___ Sludge (7)	
___ Other (4)	___ Other (8)	

TCLP Compounds

Inorganic Compounds	Results(mg/l)
___ arsenic	
___ barium	
___ cadmium	
___ chromium	
___ lead	
___ mercury	
___ selenium	
___ silver	

Organic Chemistry

Parameter	Results (mg/l)
✓ P&T:GC/MS	
___ Acid:B/N Ext.	
___ 2,4-D	
___ 2,4,5-TP(Silvex)	
___ chlordane	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	

Inorganic Chemistry

Parameter	Results(mg/l)(mg/kg)
___ antimony	
___ arsenic	
___ barium	
___ beryllium	
___ cadmium	
___ chloride	
___ chromium	
___ cobalt	
___ copper	
___ fluoride	
___ iron	
___ lead	
___ manganese	
___ mercury	
___ nickel	
___ nitrate	
___ selenium	
___ silver	
___ sulfates	
___ thallium	
___ vanadium	
___ zinc	
___ pH	
___ conductivity	
___ TDS	
___ flash point	

Organic Compounds	Results(mg/l)
___ benzene	
___ carbon tetrachloride	
___ chlordane	
___ chlorobenzene	
___ chloroform	
___ o-cresol	
___ m-cresol	
___ p-cresol	
___ cresol	
___ 1,4-dichlorobenzene	
___ 1,2-dichloroethane	
___ 1,1-dichloroethylene	
___ 2,4-dichloroethylene	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ hexachloroethane	
___ methyl ethyl ketone	
___ nitrobenzene	
___ pentachlorophenol	
___ pyridine	
___ tetrachloroethylene	
___ trichloroethylene	
___ 2,4,5-trichlorophenol	
___ 2,4,6-trichlorophenol	
___ vinyl chloride	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	
___ 2,4-D	
___ 2,4,5-TP (Silvex)	

FOR LAB USE ONLY

Date Received JUL 27 1999 NJ
Date Extracted
Date Analyzed 8-5-99 NJ
Reported By John L. Neal
Date Reported 8-16-99
Lab Number 992441

DHS 3191 (Revised 12/93)

#992441 - 992497

NC Department of Environment, Health, & Natural Resources
Solid Waste Management Division

SAMPLE ANALYSIS REQUEST

State Laboratory of Public Health
P.O. Box 28047, 306 N. Wilmington St.
Raleigh, North Carolina 27611-8047

Site Number NCSF N0406 924 Sample ID Nu VC-002-PW 07/26/99 1605 GRAB
VC072699, NC S. RYALS
Name of Site Virginia Carolina Chemical Collected By POTABLE WELL
ORG-CLP VOA Ground Water
Site Location Wadesboro, NC Date Collected VCW-05 10

Agency: ___ Hazardous Waste ___ Solid Waste X Superfund

Sample Type

Environmental	Concentrate	Comments
___ Ground Water (1)	___ Solid (5)	
___ Surface Water (2)	___ Liquid (6)	
___ Soil (3)	___ Sludge (7)	
___ Other (4)	___ Other (8)	

TCLP Compounds

Inorganic Compounds	Results(mg/l)
___ arsenic	
___ barium	
___ cadmium	
___ chromium	
___ lead	
___ mercury	
___ selenium	
___ silver	
___	
___	
___	
___	

Organic Chemistry

Parameter	Results (mg/l)
✓ P&T:GC/MS	
___ Acid:B/N Ext.	
___ 2,4-D	
___ 2,4,5-TP(Silvex)	
___ chlordane	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	
___	
___	
___	
___	

Inorganic Chemistry

Parameter	Results(mg/l)(mg/kg)
___ antimony	
___ arsenic	
___ barium	
___ beryllium	
___ cadmium	
___ chloride	
___ chromium	
___ cobalt	
___ copper	
___ fluoride	
___ iron	
___ lead	
___ manganese	
___ mercury	
___ nickel	
___ nitrate	
___ selenium	
___ silver	
___ sulfates	
___ thallium	
___ vanadium	
___ zinc	
___ pH	
___ conductivity	
___ TDS	
___ flash point	
___	
___	
___	
___	
___	
___	

Organic Compounds	Results(mg/l)
___ benzene	
___ carbon tetrachloride	
___ chlordane	
___ chlorobenzene	
___ chloroform	
___ o-cresol	
___ m-cresol	
___ p-cresol	
___ cresol	
___ 1,4-dichlorobenzene	
___ 1,2-dichloroethane	
___ 1,1-dichloroethylene	
___ 2,4-dichloroethylene	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ hexachloroethane	
___ methyl ethyl ketone	
___ nitrobenzene	
___ pentachlorophenol	
___ pyridine	
___ tetrachloroethylene	
___ trichloroethylene	
___ 2,4,5-trichlorophenol	
___ 2,4,6-trichlorophenol	
___ vinyl chloride	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	
___ 2,4-D	
___ 2,4,5-TP (Silvex)	

FOR LAB USE ONLY

Date Received JUL 27 1999

Date Extracted

Date Analyzed 8-5-99 MJ

Reported By

Date Reported

Lab Number 992442

DHS 3191 (Revised 12/93)

NC Department of Environment, Health, & Natural Resources
Solid Waste Management Division

SAMPLE ANALYSIS REQUEST

State Laboratory of Public Health
P.O. Box 28047, 306 N. Wilmington St.
Raleigh, North Carolina 27611-8047

Site Number NCSF N0406 924 Sample ID Number: VC-003-PW 07/26/99 1600 GRAB
VC072699, NC S. RYALS

Name of Site Virginia Carolina Chemical Collected By ____ POTABLE WELL ORG-CLP VOA Ground Water

Site Location Wadesboro, NC Date Collected ____ VCW-09 19

Agency: ____ Hazardous Waste ____ Solid Waste X Superfund

Sample Type

Environmental	Concentrate	Comments
___ Ground Water (1)	___ Solid (5)	
___ Surface Water (2)	___ Liquid (6)	
___ Soil (3)	___ Sludge (7)	
___ Other (4)	___ Other (8)	

TCLP Compounds

Inorganic Compounds	Results(mg/l)
___ arsenic	
___ barium	
___ cadmium	
___ chromium	
___ lead	
___ mercury	
___ selenium	
___ silver	

Organic Chemistry

Parameter	Results (mg/l)
✓ P&T:GC/MS	
___ Acid:B/N Ext.	
___ 2,4-D	
___ 2,4,5-TP(Silvex)	
___ chlordane	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	

Inorganic Chemistry

Parameter	Results(mg/l)(mg/kg)
___ antimony	
___ arsenic	
___ barium	
___ beryllium	
___ cadmium	
___ chloride	
___ chromium	
___ cobalt	
___ copper	
___ fluoride	
___ iron	
___ lead	
___ manganese	
___ mercury	
___ nickel	
___ nitrate	
___ selenium	
___ silver	
___ sulfates	
___ thallium	
___ vanadium	
___ zinc	
___ pH	
___ conductivity	
___ TDS	
___ flash point	

Organic Compounds	Results(mg/l)
___ benzene	
___ carbon tetrachloride	
___ chlordane	
___ chlorobenzene	
___ chloroform	
___ o-cresol	
___ m-cresol	
___ p-cresol	
___ cresol	
___ 1,4-dichlorobenzene	
___ 1,2-dichloroethane	
___ 1,1-dichloroethylene	
___ 2,4-dichloroethylene	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ hexachloroethane	
___ methyl ethyl ketone	
___ nitrobenzene	
___ pentachlorophenol	
___ pyridine	
___ tetrachloroethylene	
___ trichloroethylene	
___ 2,4,5-trichlorophenol	
___ 2,4,6-trichlorophenol	
___ vinyl chloride	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	
___ 2,4-D	
___ 2,4,5-TP (Silvex)	

FOR LAB USE ONLY

Date Received JUL 27 1999

Date Extracted ____

Date Analyzed 8-5-99 mg

Reported By ____

Date Reported ____

Lab Number 992443

DHS 3191 (Revised 12/93)

NC Department of Environment, Health, & Natural Resources
Solid Waste Management Division

SAMPLE ANALYSIS REQUEST

State Laboratory of Public Health
P.O. Box 28047, 306 N. Wilmington St.
Raleigh, North Carolina 27611-8047

Site Number NCSF N0406 924 Sample ID Number/ VC-103-PW 07/26/99 1600 GRAB
VC072699, NC S. RYALS
Name of Site Virginia Carolina Chemical Collected By POTABLE WELL
ORG-CLP VOA Ground Water
Site Location Wadesboro, NC Date Collected VCW-89 203

Agency: ___ Hazardous Waste ___ Solid Waste X Superfund

Sample Type

Environmental	Concentrate	Comments
___ Ground Water (1)	___ Solid (5)	
___ Surface Water (2)	___ Liquid (6)	
___ Soil (3)	___ Sludge (7)	
___ Other (4)	___ Other (8)	

TCLP Compounds

Inorganic Compounds	Results(mg/l)
___ arsenic	
___ barium	
___ cadmium	
___ chromium	
___ lead	
___ mercury	
___ selenium	
___ silver	

Organic Chemistry

Parameter	Results (mg/l)
✓ P&T:GC/MS	
___ Acid:B/N Ext.	
___ 2,4-D	
___ 2,4,5-TP(Silvex)	
___ chlordane	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	

Inorganic Chemistry

Parameter	Results(mg/l)(mg/kg)
___ antimony	
___ arsenic	
___ barium	
___ beryllium	
___ cadmium	
___ chloride	
___ chromium	
___ cobalt	
___ copper	
___ fluoride	
___ iron	
___ lead	
___ manganese	
___ mercury	
___ nickel	
___ nitrate	
___ selenium	
___ silver	
___ sulfates	
___ thallium	
___ vanadium	
___ zinc	
___ pH	
___ conductivity	
___ TDS	
___ flash point	

Organic Compounds	Results(mg/l)
___ benzene	
___ carbon tetrachloride	
___ chlordane	
___ chlorobenzene	
___ chloroform	
___ o-cresol	
___ m-cresol	
___ p-cresol	
___ cresol	
___ 1,4-dichlorobenzene	
___ 1,2-dichloroethane	
___ 1,1-dichloroethylene	
___ 2,4-dichloroethylene	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ hexachloroethane	
___ methyl ethyl ketone	
___ nitrobenzene	
___ pentachlorophenol	
___ pyridine	
___ tetrachloroethylene	
___ trichloroethylene	
___ 2,4,5-trichlorophenol	
___ 2,4,6-trichlorophenol	
___ vinyl chloride	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	
___ 2,4-D	
___ 2,4,5-TP (Silvex)	

FOR LAB USE ONLY

Date Received JUL 27 1999
Date Extracted
Date Analyzed 8-6-99 MJ
Reported By
Date Reported
Lab Number 992444

DHS 3191 (Revised 12/93)

NC Department of Environment, Health, & Natural Resources
Solid Waste Management Division

SAMPLE ANALYSIS REQUEST

State Laboratory of Public Health
P.O. Box 28047, 306 N. Wilmington St.
Raleigh, North Carolina 27611-8047

Site Number NOSF N0406 924 Sample ID Number VC-004-PW 07/26/99 1646 GRAB
VC072699, NC S. RYALS

Name of Site Virginia Carolina Chemical Collected By POTABLE WELL
ORG-CLP VOA Ground Water

Site Location Wadesboro, NC Date Collected VCW-13 28

Agency: ___ Hazardous Waste ___ Solid Waste X Superfund

Sample Type

Environmental	Concentrate	Comments
___ Ground Water (1)	___ Solid (5)	
___ Surface Water (2)	___ Liquid (6)	
___ Soil (3)	___ Sludge (7)	
___ Other (4)	___ Other (8)	

TCLP Compounds

Inorganic Compounds	Results(mg/l)
___ arsenic	
___ barium	
___ cadmium	
___ chromium	
___ lead	
___ mercury	
___ selenium	
___ silver	
___	
___	
___	
___	

Organic Chemistry

Parameter	Results (mg/l)
✓ P&T:GC/MS	
___ Acid:B/N Ext.	
___ 2,4-D	
___ 2,4,5-TP(Silvex)	
___ chlordane	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	
___	
___	
___	
___	

Inorganic Chemistry

Parameter	Results(mg/l)(mg/kg)
___ antimony	
___ arsenic	
___ barium	
___ beryllium	
___ cadmium	
___ chloride	
___ chromium	
___ cobalt	
___ copper	
___ fluoride	
___ iron	
___ lead	
___ manganese	
___ mercury	
___ nickel	
___ nitrate	
___ selenium	
___ silver	
___ sulfates	
___ thallium	
___ vanadium	
___ zinc	
___ pH	
___ conductivity	
___ TDS	
___ flash point	
___	
___	
___	
___	
___	
___	

Organic Compounds	Results(mg/l)
___ benzene	
___ carbon tetrachloride	
___ chlordane	
___ chlorobenzene	
___ chloroform	
___ o-cresol	
___ m-cresol	
___ p-cresol	
___ cresol	
___ 1,4-dichlorobenzene	
___ 1,2-dichloroethane	
___ 1,1-dichloroethylene	
___ 2,4-dichloroethylene	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ hexachloroethane	
___ methyl ethyl ketone	
___ nitrobenzene	
___ pentachlorophenol	
___ pyridine	
___ tetrachloroethylene	
___ trichloroethylene	
___ 2,4,5-trichlorophenol	
___ 2,4,6-trichlorophenol	
___ vinyl chloride	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	
___ 2,4-D	
___ 2,4,5-TP (Silvex)	

FOR LAB USE ONLY

Date Received JUL 27 1999

Date Extracted

Date Analyzed 8-6-99 NJ

Reported By

Date Reported

Lab Number 992445

DHS 3191 (Revised 12/93)

NC Department of Environment, Health, & Natural Resources
Solid Waste Management Division

SAMPLE ANALYSIS REQUEST

State Laboratory of Public Health
P.O. Box 28047, 306 N. Wilmington St.
Raleigh, North Carolina 27611-8047

Site Number NCSF N0406 924 Sample ID Number/l VC-005-PW 07/26/99 1713 GRAB
VC072699, NC ST RYALS

Name of Site Virginia Carolina Chemical Collected By POTABLE WELL
ORG-CLP VOA Ground Water

Site Location Wadesboro, NC Date Collected VCW-17 37

Agency: ___ Hazardous Waste ___ Solid Waste X Superfund

Sample Type

Environmental	Concentrate	Comments
___ Ground Water (1)	___ Solid (5)	
___ Surface Water (2)	___ Liquid (6)	
___ Soil (3)	___ Sludge (7)	
___ Other (4)	___ Other (8)	

TCLP Compounds

Inorganic Compounds	Results(mg/l)
___ arsenic	
___ barium	
___ cadmium	
___ chromium	
___ lead	
___ mercury	
___ selenium	
___ silver	

Organic Chemistry

Parameter	Results (mg/l)
✓ P&T:GC/MS	
___ Acid:B/N Ext.	
___ 2,4-D	
___ 2,4,5-TP(Silvex)	
___ chlordane	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	

Inorganic Chemistry

Parameter	Results(mg/l)(mg/kg)
___ antimony	
___ arsenic	
___ barium	
___ beryllium	
___ cadmium	
___ chloride	
___ chromium	
___ cobalt	
___ copper	
___ fluoride	
___ iron	
___ lead	
___ manganese	
___ mercury	
___ nickel	
___ nitrate	
___ selenium	
___ silver	
___ sulfates	
___ thallium	
___ vanadium	
___ zinc	
___ pH	
___ conductivity	
___ TDS	
___ flash point	

Organic Compounds	Results(mg/l)
___ benzene	
___ carbon tetrachloride	
___ chlordane	
___ chlorobenzene	
___ chloroform	
___ o-cresol	
___ m-cresol	
___ p-cresol	
___ cresol	
___ 1,4-dichlorobenzene	
___ 1,2-dichloroethane	
___ 1,1-dichloroethylene	
___ 2,4-dichloroethylene	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ hexachloroethane	
___ methyl ethyl ketone	
___ nitrobenzene	
___ pentachlorophenol	
___ pyridine	
___ tetrachloroethylene	
___ trichloroethylene	
___ 2,4,5-trichlorophenol	
___ 2,4,6-trichlorophenol	
___ vinyl chloride	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	
___ 2,4-D	
___ 2,4,5-TP (Silvex)	

FOR LAB USE ONLY

Date Received JUL 27 1999

Date Extracted

Date Analyzed 8-6-99 TJ

Reported By

Date Reported

Lab Number 992446

DHS 3191 (Revised 12/93)

NC Department of Environment, Health, & Natural Resources
Solid Waste Management Division

SAMPLE ANALYSIS REQUEST

State Laboratory of Public Health
P.O. Box 28047, 306 N. Wilmington St.
Raleigh, North Carolina 27611-8047

Site Number NCF N0406 924 Sample ID Number/ VC-006-PW 07/26/99 1650 GRAB
VC072699, NC S. RYALS
-POTABLE WELL-
Name of Site Virginia Carolina Chemical Collected By ORG-CLP VOA Ground Water
VCW-21 46
Site Location Wadesboro, NC Date Collected

Agency: ___ Hazardous Waste ___ Solid Waste X Superfund

Sample Type

Environmental	Concentrate	Comments
___ Ground Water (1)	___ Solid (5)	
___ Surface Water (2)	___ Liquid (6)	
___ Soil (3)	___ Sludge (7)	
___ Other (4)	___ Other (8)	

TCLP Compounds

Inorganic Compounds	Results(mg/l)
___ arsenic	
___ barium	
___ cadmium	
___ chromium	
___ lead	
___ mercury	
___ selenium	
___ silver	

Organic Chemistry

Parameter	Results (mg/l)
✓ P&T:GC/MS	
___ Acid:B/N Ext.	
___ 2,4-D	
___ 2,4,5-TP(Silvex)	
___ chlordane	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	

Inorganic Chemistry

Parameter	Results(mg/l);(mg/kg)
___ antimony	
___ arsenic	
___ barium	
___ beryllium	
___ cadmium	
___ chloride	
___ chromium	
___ cobalt	
___ copper	
___ fluoride	
___ iron	
___ lead	
___ manganese	
___ mercury	
___ nickel	
___ nitrate	
___ selenium	
___ silver	
___ sulfates	
___ thallium	
___ vanadium	
___ zinc	
___ pH	
___ conductivity	
___ TDS	
___ flash point	

Organic Compounds	Results(mg/l)
___ benzene	
___ carbon tetrachloride	
___ chlordane	
___ chlorobenzene	
___ chloroform	
___ o-cresol	
___ m-cresol	
___ p-cresol	
___ cresol	
___ 1,4-dichlorobenzene	
___ 1,2-dichloroethane	
___ 1,1-dichloroethylene	
___ 2,4-dichloroethylene	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ hexachloroethane	
___ methyl ethyl ketone	
___ nitrobenzene	
___ pentachlorophenol	
___ pyridine	
___ tetrachloroethylene	
___ trichloroethylene	
___ 2,4,5-trichlorophenol	
___ 2,4,6-trichlorophenol	
___ vinyl chloride	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	
___ 2,4-D	
___ 2,4,5-TP (Silvex)	

FOR LAB USE ONLY

Date Received JUL 27 1999

Date Extracted

Date Analyzed 8-6-99 TJ

Reported By

Date Reported

Lab Number 992447

DHS 3191 (Revised 12/93)

STATE LABORATORY OF PUBLIC HEALTH
PO BOX 2[redacted]7 - 306 N. WILMINGTON ST., RALEI[redacted] NC 27611

(1)

ORGANIC CHEMICAL ANALYSIS

PURGEABLE COMPOUNDS	LAB NO	992441	992442	992443	992444	992445	992446
	FIELD NO	VCW-01	VCW-05	VCW-09	VCW-89	VCW-13	VCW-17
COMPOUND	TYPE	(I)	(I)	(I)	(I)	(I)	(I)
	↓ MDL ↓ (ppb)	ppb ppm	ppb ppm	ppb ppm	ppb ppm	ppb ppm	ppb ppm
CHLOROMETHANE	2.0	u	u	u	u	u	u
VINYL CHLORIDE	↓	↓	↓	↓	↓	↓	↓
BROMOMETHANE	↓	↓	↓	↓	↓	↓	↓
CHLOROETHANE	↓	↓	↓	↓	↓	↓	↓
TRICHLOROFLUOROMETHANE	↓	↓	↓	↓	↓	↓	↓
1,1-DICHLOROETHENE	0.5	↓	↓	↓	↓	↓	↓
ACETONE	2.0	↓	↓	↓	↓	↓	↓
IODOMETHANE	0.5	↓	↓	↓	↓	↓	↓
CARBON DISULFIDE	↓	↓	↓	↓	↓	↓	↓
METHYLENE CHLORIDE	↓	↓	↓	↓	↓	↓	↓
ACRYLONITRILE	↓	↓	↓	↓	↓	↓	↓
TRANS-1,2-DICHLOROETHENE	↓	↓	↓	↓	↓	↓	↓
METHYL-t-BUTYL-ETHER	↓	↓	↓	↓	↓	↓	↓
1,1-DICHLOROETHANE	↓	↓	↓	↓	↓	↓	↓
ISOPROPYL ETHER	↓	↓	↓	↓	↓	↓	↓
CIS-1,2-DICHLOROETHENE	↓	↓	↓	↓	↓	↓	↓
2-BUTANONE	2.0	↓	↓	↓	↓	↓	↓
TETRAHYDROFURAN	↓	↓	↓	↓	↓	↓	↓
CHLOROFORM	0.5	trace	trace	trace	trace	trace	↓
1,1,1-TRICHLOROETHANE	↓	u	u	u	u	u	↓
CARBON TETRACHLORIDE	↓	↓	↓	↓	↓	↓	↓
BENZENE	↓	↓	↓	↓	↓	↓	↓
1,2-DICHLOROETHANE	↓	↓	↓	↓	↓	↓	↓
TRICHLOROETHENE	↓	↓	↓	↓	↓	↓	↓
1,2-DICHLOROPROPANE	↓	↓	↓	↓	↓	↓	↓
DIBROMOMETHANE	↓	↓	↓	↓	↓	↓	↓

C - Possible lab contamination or background
J - Estimated value
K - Actual value is known to be less than value given.
L - Actual value is known to be greater than value given.
U - Material was analyzed for but not detected. The number is the Minimum Detection Limit.
NA - Not analyzed.
1/ - Tentative identification.
D - SAMPLE DILUTED. MDL'S DO NOT APPLY.

STATE LABORATORY OF PUBLIC HEALTH
PO BOX 2[illegible]7 - 306 N. WILMINGTON ST., RALEI[illegible] NC 27611

ORGANIC CHEMICAL ANALYSIS

PURGEABLE COMPOUNDS	LAB NO	992441	992442	992443	992444	992445	992446
	FIELD NO						
COMPOUND	TYPE	(I)	(I)	(I)	(I)	(I)	(I)
	MDL (ppb)	ppb ppm	ppb ppm	ppb ppm	ppb ppm	ppb ppm	ppb ppm
BROMODICHLOROMETHANE	0.5	u	u	u	u	u	u
CIS-1,3-DICHLOROPROPENE							
4-METHYL-2-PENTANONE							
TOLUENE							
TRANS-1,3-DICHLOROPROPENE							
1,1,2-TRICHLOROETHANE							
TETRACHLOROETHENE		trace					
2-HEXANONE		u					
DIBROMOCHLOROMETHANE							
ETHYLENE DIBROMIDE							
CHLOROBENZENE							
1,1,1,2-TETRACHLOROETHANE							
ETHYL BENZENE							
XYLENES							
STYRENE							
BROMOFORM							
1,1,2,2-TETRACHLOROETHANE							
1,2,3-TRICHLOROPROPANE							
1,4-DICHLOROBENZENE							
1,2-DICHLOROBENZENE							
1,2,-DIBROMO-3-CHLOROPROPANE	2.0						

C - Possible lab contamination or background.
J - Estimated value
K - Actual value is known to be less than value given.
L - Actual value is known to be greater than value given.
U - Material was analyzed for but not detected. The number is the Minimum Detection Limit.
XA - Not analyzed.
1/ - Tentative identification.
D - SAMPLE DILUTED. MDL'S DO NOT APPLY.

STATE LABORATORY OF PUBLIC HEALTH
PO BOX 2[illegible]7 - 306 N. WILMINGTON ST., RALEI[illegible] NC 27611

ORGANIC CHEMICAL ANALYSIS

PURGEABLE COMPOUNDS	LAB NO	992447	992448	992449	992450	992451	992452
	FIELD NO	VCW-21	VCW-53	VCW-56	VCW-59	VCW-62	VCW-65
COMPOUND	TYPE	(1)	(2)	(2)	(2)	(2)	(2)
	↓ MDL (ppb) ↓	ppb ppm	ppb ppm	ppb ppm	ppb ppm	ppb ppm	ppb ppm
CHLOROMETHANE	2.0	U	U	U	U	U	U
VINYL CHLORIDE	↓	↓	↓	↓	↓	↓	↓
BROMOMETHANE	↓	↓	↓	↓	↓	↓	↓
CHLOROETHANE	↓	↓	↓	↓	↓	↓	↓
TRICHLOROFLUOROMETHANE	↓	↓	↓	↓	↓	↓	↓
1,1-DICHLOROETHENE	0.5	↓	↓	↓	↓	↓	↓
ACETONE	2.0	↓	↓	↓	↓	↓	↓
IODOMETHANE	0.5	↓	↓	↓	↓	↓	↓
CARBON DISULFIDE	↓	↓	↓	↓	↓	↓	↓
METHYLENE CHLORIDE	↓	↓	↓	↓	↓	↓	↓
ACRYLONITRILE	↓	↓	↓	↓	↓	↓	↓
TRANS-1,2-DICHLOROETHENE	↓	↓	↓	↓	↓	↓	↓
METHYL-t-BUTYL-ETHER	↓	↓	↓	↓	↓	↓	↓
1,1-DICHLOROETHANE	↓	↓	↓	↓	↓	↓	↓
ISOPROPYL ETHER	↓	↓	↓	↓	↓	↓	↓
CIS-1,2-DICHLOROETHENE	↓	↓	↓	↓	↓	↓	↓
2-BUTANONE	2.0	↓	↓	↓	↓	↓	↓
TETRAHYDROFURAN	↓	↓	↓	↓	↓	↓	↓
CHLOROFORM	0.5	↓	↓	↓	↓	↓	↓
1,1,1-TRICHLOROETHANE	↓	↓	↓	↓	↓	↓	↓
CARBON TETRACHLORIDE	↓	↓	↓	↓	↓	↓	↓
BENZENE	↓	↓	↓	↓	↓	↓	↓
1,2-DICHLOROETHANE	↓	↓	↓	↓	↓	↓	↓
TRICHLOROETHENE	↓	↓	↓	↓	↓	↓	↓
1,2-DICHLOROPROPANE	↓	↓	↓	↓	↓	↓	↓
DIBROMOMETHANE	↓	↓	↓	↓	↓	↓	↓

C - Possible lab contamination or background
J - Estimated value
K - Actual value is known to be less than value given.
L - Actual value is known to be greater than value given.
U - Material was analyzed for but not detected. The number is the Minimum Detection Limit.
NA - Not analyzed.
1/ - Tentative identification.
D - SAMPLE DILUTED. MDL'S DO NOT APPLY.

STATE LABORATORY OF PUBLIC HEALTH
PO BOX 2[redacted]7 - 306 N. WILMINGTON ST., RALEI[redacted] NC 27611

ORGANIC CHEMICAL ANALYSIS

PURGEABLE COMPOUNDS	LAB NO	992447	992448	992449	992450	992451	992452
	FIELD NO						
COMPOUND	TYPE	(1)	(2)	(2)	(2)	(2)	(2)
	MDL (ppb)	ppb ppm	ppb ppm	ppb ppm	ppb ppm	ppb ppm	ppb ppm
BROMODICHLOROMETHANE	0.5	U	U	U	U	U	U
CIS-1,3-DICHLOROPROPENE							
4-METHYL-2-PENTANONE							
TOLUENE						trace	
TRANS-1,3-DICHLOROPROPENE						U	
1,1,2-TRICHLOROETHANE							
TETRACHLOROETHENE							
2-HEXANONE							
DIBROMOCHLOROMETHANE							
ETHYLENE DIBROMIDE							
CHLOROBENZENE							
1,1,1,2-TETRACHLOROETHANE							
ETHYL BENZENE							
XYLENES							
STYRENE							
BROMOFORM							
1,1,2,2-TETRACHLOROETHANE							
1,2,3-TRICHLOROPROPANE							
1,4-DICHLOROBENZENE							
1,2-DICHLOROBENZENE							
1,2,-DIBROMO-3-CHLOROPROPANE	2.0						

C - Possible lab contamination or background.
J - Estimated value
K - Actual value is known to be less than value given.
L - Actual value is known to be greater than value given.
U - Material was analyzed for but not detected. The number is the Minimum Detection Limit.
NA - Not analyzed.
1/ - Tentative identification.
D - SAMPLE DILUTED. MDL'S DO NOT APPLY.

NC Department of Environment, Health, & Natural Resources
Solid Waste Management Division

SAMPLE ANALYSIS REQUEST

State Laboratory of Public Health
P.O. Box 28047, 306 N. Wilmington St.
Raleigh, North Carolina 27611-8047

Site Number NCSF N0406 924 Sample ID Number/ VC-001-TB 07/27/99 1300 GRAB
VC072699, NC S. RYALS

Name of Site Virginia Carolina Chemical Collected By TRIP BLANK

Site Location Wadesboro, NC Date Collected ORG-CLP VOA Water
VCW-96 218

Agency: ___ Hazardous Waste ___ Solid Waste X Superfund

Sample Type

Environmental	Concentrate	Comments
___ Ground Water (1)	___ Solid (5)	
___ Surface Water (2)	___ Liquid (6)	
___ Soil (3)	___ Sludge (7)	
___ Other (4)	___ Other (8)	

TCLP Compounds

Inorganic Compounds	Results(mg/l)
___ arsenic	
___ barium	
___ cadmium	
___ chromium	
___ lead	
___ mercury	
___ selenium	
___ silver	

Organic Chemistry

Parameter	Results (mg/l)
✓ P&T:GC/MS	
___ Acid:B/N Ext.	
___ 2,4-D	
___ 2,4,5-TP(Silvex)	
___ chlordane	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	

Inorganic Chemistry

Parameter	Results(mg/l)(mg/kg)
___ antimony	
___ arsenic	
___ barium	
___ beryllium	
___ cadmium	
___ chloride	
___ chromium	
___ cobalt	
___ copper	
___ fluoride	
___ iron	
___ lead	
___ manganese	
___ mercury	
___ nickel	
___ nitrate	
___ selenium	
___ silver	
___ sulfates	
___ thallium	
___ vanadium	
___ zinc	
___ pH	
___ conductivity	
___ TDS	
___ flash point	

Organic Compounds	Results(mg/l)
___ benzene	
___ carbon tetrachloride	
___ chlordane	
___ chlorobenzene	
___ chloroform	
___ o-cresol	
___ m-cresol	
___ p-cresol	
___ cresol	
___ 1,4-dichlorobenzene	
___ 1,2-dichloroethane	
___ 1,1-dichloroethylene	
___ 2,4-dichloroethylene	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ hexachloroethane	
___ methyl ethyl ketone	
___ nitrobenzene	
___ pentachlorophenol	
___ pyridine	
___ tetrachloroethylene	
___ trichloroethylene	
___ 2,4,5-trichlorophenol	
___ 2,4,6-trichlorophenol	
___ vinyl chloride	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	
___ 2,4-D	
___ 2,4,5-TP (Silvex)	

FOR LAB USE ONLY

Date Received JUL 27 1999

Date Extracted

Date Analyzed 8-9-99 NJ

Reported By

Date Reported

Lab Number 992469

DHS 3191 (Revised 12/93)

STATE LABORATORY OF PUBLIC HEALTH
PO BOX 2[illegible]7 - 306 N. WILMINGTON ST., RALEI[illegible] NC 27611

ORGANIC CHEMICAL ANALYSIS

PURGEABLE COMPOUNDS	LAB NO	992465	992466	992467	992468	992469 (Trip Blank)	
	FIELD NO	VCW-79	VCW-82	VCW-84	VCW-87	VCW-96	
COMPOUND	TYPE	(4)	(4)	(4)	(4)	(4)	( )
	↓ MDL (ppb) ↓	ppb ppm	ppb ppm	ppb ppm	ppb ppm	ppb ppm	ppb ppm
CHLOROMETHANE	2.0	U	U	U	U	U	
VINYL CHLORIDE	↓	↓	↓	↓	↓	↓	
BROMOMETHANE	↓	↓	↓	↓	↓	↓	
CHLOROETHANE	↓	↓	↓	↓	↓	↓	
TRICHLOROFLUOROMETHANE	↓	↓	↓	1.1 C	↓	↓	
1,1-DICHLOROETHENE	0.5	↓	↓	U	↓	↓	
ACETONE	2.0	↓	↓	↓	↓	↓	
IODOMETHANE	0.5	↓	↓	↓	↓	↓	
CARBON DISULFIDE	↓	↓	↓	trace C	trace C	↓	
METHYLENE CHLORIDE	↓	↓	↓	U	U	↓	
ACRYLONITRILE	↓	↓	↓	↓	↓	↓	
TRANS-1,2-DICHLOROETHENE	↓	↓	↓	↓	↓	↓	
METHYL-t-BUTYL-ETHER	↓	↓	↓	↓	↓	↓	
1,1-DICHLOROETHANE	↓	↓	↓	↓	↓	↓	
ISOPROPYL ETHER	↓	↓	↓	↓	↓	↓	
CIS-1,2-DICHLOROETHENE	↓	↓	↓	↓	↓	↓	
2-BUTANONE	2.0	↓	↓	↓	↓	↓	
TETRAHYDROFURAN	↓	↓	↓	↓	↓	↓	
CHLOROFORM	0.5	↓	↓	↓	↓	↓	
1,1,1-TRICHLOROETHANE	↓	↓	↓	↓	↓	↓	
CARBON TETRACHLORIDE	↓	↓	↓	↓	↓	↓	
BENZENE	↓	↓	↓	↓	↓	↓	
1,2-DICHLOROETHANE	↓	↓	↓	↓	↓	↓	
TRICHLOROETHENE	↓	↓	↓	↓	↓	↓	
1,2-DICHLOROPROPANE	↓	↓	↓	↓	↓	↓	
DIBROMOMETHANE	↓	↓	↓	↓	↓	↓	

C - Possible lab contamination or background
J - Estimated value
K - Actual value is known to be less than value given.
L - Actual value is known to be greater than value given.
U - Material was analyzed for but not detected. The number is the Minimum Detection Limit.
NA - Not analyzed.
1/ - Tentative identification.
D - SAMPLE DILUTED. MDL'S DO NOT APPLY.

STATE LABORATORY OF PUBLIC HEALTH
PO BOX 28647 - 306 N. WILMINGTON ST., RALEIGH, NC 27611

(10)

ORGANIC CHEMICAL ANALYSIS

PURGEABLE COMPOUNDS	LAB NO	9924465	9924466	9924467	9924468	9924469 (Trip Blank)	
	FIELD NO						
COMPOUND	TYPE	(4)	(4)	(4)	(4)	(4)	( )
	MDL (ppb)	ppb ppm	ppb ppm	ppb ppm	ppb ppm	ppb ppm	ppb ppm
BROMODICHLOROMETHANE	0.5	U	U	U	U	U	
CIS-1,3-DICHLOROPROPENE							
4-METHYL-2-PENTANONE							
TOLUENE			trace				
TRANS-1,3-DICHLOROPROPENE			U				
1,1,2-TRICHLOROETHANE							
TETRACHLOROETHENE							
2-HEXANONE							
DIBROMOCHLOROMETHANE							
ETHYLENE DIBROMIDE							
CHLOROBENZENE							
1,1,1,2-TETRACHLOROETHANE							
ETHYL BENZENE							
XYLENES							
STYRENE							
BROMOFORM							
1,1,2,2-TETRACHLOROETHANE							
1,2,3-TRICHLOROPROPANE							
1,4-DICHLOROBENZENE							
1,2-DICHLOROBENZENE							
1,2,-DIBROMO-3-CHLOROPROPANE	2.0						

C - Possible lab contamination or background.
J - Estimated value
K - Actual value is known to be less than value given.
L - Actual value is known to be greater than value given.
U - Material was analyzed for but not detected. The number is the Minimum Detection Limit.
NA - Not analyzed.
1/ - Tentative identification.
D - SAMPLE DILUTED. MDL'S DO NOT APPLY.

September 9, 1999

MEMORANDUM

TO: Dr. Ken Rudo, Toxicologist
Occupational and Environmental Epidemiology Section

THROUGH: Jack Butler, Chief
Superfund Section

FROM: Scott Ryals, Chemist / Toxicologist
Superfund Section

SUBJECT: Health Risk Evaluation Request
VCC Chemical, NCS FNO 406 924
Wadesboro, Anson County, NC

Please find attached a copy of the laboratory analyses for well samples collected by the Superfund Section around the subject site. Since these samples were collected from drinking water wells, the Superfund Section requests a health risk evaluation and information on the continued use of these wells. This information will be provided to the affected well users. If you have any questions regarding this matter, please contact me at 733-2801 ext. 316.

Attachments

cc: File
Donna Keith

NC Department of Environment, Health, & Natural Resources
Solid Waste Management Division

SAMPLE ANALYSIS REQUEST

State Laboratory of Public Health
P.O. Box 28047, 306 N. Wilmington St.
Raleigh, North Carolina 27611-8047

Site Number NCSFN0 406 924 Sample ID No. VC-001-PW 07/26/99 1535 GRAB
VC072699, NC S. RYALS

Name of Site Virginia Carolina Chemical Collected By POTABLE WELL INORG-CLP NUTRIENT Ground Water
VCW-04 8

Site Location Wadesboro, NC Date Collected

Agency: ___ Hazardous Waste ___ Solid Waste X Superfund

Sample Type

Environmental	Concentrate	Comments
___ Ground Water (1)	___ Solid (5)	
___ Surface Water (2)	___ Liquid (6)	
___ Soil (3)	___ Sludge (7)	
___ Other (4)	___ Other (8)	

TCLP Compounds

Inorganic Compounds	Results(mg/l)
___ arsenic	
___ barium	
___ cadmium	
___ chromium	
___ lead	
___ mercury	
___ selenium	
___ silver	

Organic Chemistry

Parameter	Results (mg/l)
___ P&T:GC/MS	
___ Acid:B/N Ext.	
___ 2,4-D	
___ 2,4,5-TP(Silvex)	
___ chlordane	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	

Inorganic Chemistry

Parameter	Results(mg/l)(mg/kg)
___ antimony	
___ arsenic	
___ barium	
___ beryllium	
___ cadmium	
___ chloride	
___ chromium	
___ cobalt	
___ copper	
___ fluoride	
___ iron	
___ lead	
___ manganese	
___ mercury	
___ nickel	
✓ nitrate(as N)	4.12
___ selenium	
___ silver	
✓ sulfates	85
___ thallium	
___ vanadium	
___ zinc	
___ pH	
___ conductivity	
___ TDS	
___ flash point	

Organic Compounds

Organic Compounds	Results(mg/l)
___ benzene	
___ carbon tetrachloride	
___ chlordane	
___ chlorobenzene	
___ chloroform	
___ o-cresol	
___ m-cresol	
___ p-cresol	
___ cresol	
___ 1,4-dichlorobenzene	
___ 1,2-dichloroethane	
___ 1,1-dichloroethylene	
___ 2,4-dichloroethylene	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ hexachloroethane	
___ methyl ethyl ketone	
___ nitrobenzene	
___ pentachlorophenol	
___ pyridine	
___ tetrachloroethylene	
___ trichloroethylene	
___ 2,4,5-trichlorophenol	
___ 2,4,6-trichlorophenol	
___ vinyl chloride	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	
___ 2,4-D	
___ 2,4,5-TP (Silvex)	

FOR LAB USE ONLY

Date Received

Date Extracted

Date Analyzed

Reported By DOM

Date Reported 8/10/99

Lab Number 010978 JUL 2799

DHS 3191 (Revised 12/93)

NC Department of Environment, Health, & Natural Resources
Solid Waste Management Division

SAMPLE ANALYSIS REQUEST

State Laboratory of Public Health
P.O. Box 28047, 306 N. Wilmington St.
Raleigh, North Carolina 27611-8047

Site Number NCSFNO 406 924

Sample ID Number/Nar VC-002-PW 07/26/99 1605 GRAB
VC072699, NC S. RYALS
POTABLE WELL
INORG-CLP NUTRIENT Ground Water
VCW-08 17

Name of Site Virginia Carolina Chemical

Collected By

Site Location Wadesboro, NC

Date Collected

Agency: ___ Hazardous Waste ___ Solid Waste X Superfund

Sample Type

Environmental	Concentrate	Comments
___ Ground Water (1)	___ Solid (5)	
___ Surface Water (2)	___ Liquid (6)	
___ Soil (3)	___ Sludge (7)	
___ Other (4)	___ Other (8)	

TCLP Compounds

Inorganic Compounds	Results(mg/l)
___ arsenic	
___ barium	
___ cadmium	
___ chromium	
___ lead	
___ mercury	
___ selenium	
___ silver	

Organic Chemistry

Parameter	Results (mg/l)
___ P&T:GC/MS	
___ Acid:B/N Ext.	
___ 2,4-D	
___ 2,4,5-TP(Silvex)	
___ chlordane	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	

Inorganic Chemistry

Parameter	Results(mg/l)(mg/kg)
___ antimony	
___ arsenic	
___ barium	
___ beryllium	
___ cadmium	
___ chloride	
___ chromium	
___ cobalt	
___ copper	
___ fluoride	
___ iron	
___ lead	
___ manganese	
___ mercury	
___ nickel	
✓ nitrate(as N)	3.43
___ selenium	
___ silver	
✓ sulfates	48
___ thallium	
___ vanadium	
___ zinc	
___ pH	
___ conductivity	
___ TDS	
___ flash point	

Organic Compounds	Results(mg/l)
___ benzene	
___ carbon tetrachloride	
___ chlordane	
___ chlorobenzene	
___ chloroform	
___ o-cresol	
___ m-cresol	
___ p-cresol	
___ cresol	
___ 1,4-dichlorobenzene	
___ 1,2-dichloroethane	
___ 1,1-dichloroethylene	
___ 2,4-dichloroethylene	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ hexachloroethane	
___ methyl ethyl ketone	
___ nitrobenzene	
___ pentachlorophenol	
___ pyridine	
___ tetrachloroethylene	
___ trichloroethylene	
___ 2,4,5-trichlorophenol	
___ 2,4,6-trichlorophenol	
___ vinyl chloride	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	
___ 2,4-D	
___ 2,4,5-TP (Silvex)	

FOR LAB USE ONLY

Date Received

Date Extracted

Date Analyzed

Reported By DPM

Date Reported 8/10/99

Lab Number 015977 JUL 27 99

DHS 3191 (Revised 12/93)

NC Department of Environment, Health, & Natural Resources
Solid Waste Management Division

SAMPLE ANALYSIS REQUEST

State Laboratory of Public Health
P.O. Box 28047, 306 N. Wilmington St.
Raleigh, North Carolina 27611-8047

Site Number NCSFN0 406 924 Sample ID Number VC-003-PW 07/26/99 1600 GRAB
VC072699, NC S. RYALS

Name of Site Virginia Carolina Chemical Collected By ___ POTABLE WELL
INORG-CLP NUTRIENT Ground Water

Site Location Wadesboro, NC Date Collected ___ VCW-12 26

Agency: ___ Hazardous Waste ___ Solid Waste X Superfund

Sample Type

Environmental	Concentrate	Comments
___ Ground Water (1)	___ Solid (5)	
___ Surface Water (2)	___ Liquid (6)	
___ Soil (3)	___ Sludge (7)	
___ Other (4)	___ Other (8)	

TCLP Compounds

Inorganic Compounds	Results(mg/l)
___ arsenic	
___ barium	
___ cadmium	
___ chromium	
___ lead	
___ mercury	
___ selenium	
___ silver	
___	
___	
___	
___	

Organic Chemistry

Parameter	Results (mg/l)
___ P&T:GC/MS	
___ Acid:B/N Ext.	
___ 2,4-D	
___ 2,4,5-TP(Silvex)	
___ chlordane	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	
___	
___	
___	
___	

Inorganic Chemistry

Parameter	Results(mg/l)(mg/kg)
___ antimony	
___ arsenic	
___ barium	
___ beryllium	
___ cadmium	
___ chloride	
___ chromium	
___ cobalt	
___ copper	
___ fluoride	
___ iron	
___ lead	
___ manganese	
___ mercury	
___ nickel	
✓ nitrate(as N)	1.03
___ selenium	
___ silver	
✓ sulfates	9
___ thallium	
___ vanadium	
___ zinc	
___ pH	
___ conductivity	
___ TDS	
___ flash point	
___	
___	
___	
___	
___	
___	

Organic Compounds	Results(mg/l)
___ benzene	
___ carbon tetrachloride	
___ chlordane	
___ chlorobenzene	
___ chloroform	
___ o-cresol	
___ m-cresol	
___ p-cresol	
___ cresol	
___ 1,4-dichlorobenzene	
___ 1,2-dichloroethane	
___ 1,1-dichloroethylene	
___ 2,4-dichloroethylene	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ hexachloroethane	
___ methyl ethyl ketone	
___ nitrobenzene	
___ pentachlorophenol	
___ pyridine	
___ tetrachloroethylene	
___ trichloroethylene	
___ 2,4,5-trichlorophenol	
___ 2,4,6-trichlorophenol	
___ vinyl chloride	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	
___ 2,4-D	
___ 2,4,5-TP (Silvex)	

FOR LAB USE ONLY

Date Received ___

Date Extracted ___

Date Analyzed ___

Reported By DJM

Date Reported 8/10/99

Lab Number U10978 JUL 27 99

DHS 3191 (Revised 12/93)

NC Department of Environment, Health, & Natural Resources
Solid Waste Management Division

SAMPLE ANALYSIS REQUEST

State Laboratory of Public Health
P.O. Box 28047, 306 N. Wilmington St.
Raleigh, North Carolina 27611-8047

Site Number NCSFN0 406 924 Sample ID Number/l VC-103-PW 07/26/99 1600 GRAB
VC072699, NC S. RYALS

Name of Site Virginia Carolina Chemical Collected By POTABLE WELL
INORG-CLP NUTRIENT Ground Water

Site Location Wadesboro, NC Date Collected VCW-92 210

Agency: ___ Hazardous Waste ___ Solid Waste X Superfund

Sample Type

Environmental	Concentrate	Comments
___ Ground Water (1)	___ Solid (5)	
___ Surface Water (2)	___ Liquid (6)	
___ Soil (3)	___ Sludge (7)	
___ Other (4)	___ Other (8)	

TCLP Compounds

Inorganic Compounds	Results(mg/l)
___ arsenic	
___ barium	
___ cadmium	
___ chromium	
___ lead	
___ mercury	
___ selenium	
___ silver	

Organic Chemistry

Parameter	Results (mg/l)
___ P&T:GC/MS	
___ Acid:B/N Ext.	
___ 2,4-D	
___ 2,4,5-TP(Silvex)	
___ chlordane	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	

Inorganic Chemistry

Parameter	Results(mg/l)(mg/kg)
___ antimony	
___ arsenic	
___ barium	
___ beryllium	
___ cadmium	
___ chloride	
___ chromium	
___ cobalt	
___ copper	
___ fluoride	
___ iron	
___ lead	
___ manganese	
___ mercury	
___ nickel	
✓ nitrate (as N)	1.04
___ selenium	
___ silver	
✓ sulfates	9
___ thallium	
___ vanadium	
___ zinc	
___ pH	
___ conductivity	
___ TDS	
___ flash point	

Organic Compounds	Results(mg/l)
___ benzene	
___ carbon tetrachloride	
___ chlordane	
___ chlorobenzene	
___ chloroform	
___ o-cresol	
___ m-cresol	
___ p-cresol	
___ cresol	
___ 1,4-dichlorobenzene	
___ 1,2-dichloroethane	
___ 1,1-dichloroethylene	
___ 2,4-dichloroethylene	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ hexachloroethane	
___ methyl ethyl ketone	
___ nitrobenzene	
___ pentachlorophenol	
___ pyridine	
___ tetrachloroethylene	
___ trichloroethylene	
___ 2,4,5-trichlorophenol	
___ 2,4,6-trichlorophenol	
___ vinyl chloride	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	
___ 2,4-D	
___ 2,4,5-TP (Silvex)	

FOR LAB USE ONLY

Date Received ___

Date Extracted ___

Date Analyzed ___

Reported By DPM

Date Reported 8/10/99

Lab Number 10979 JUL 27 99

DHS 3191 (Revised 12/93)

NC Department of Environment, Health, & Natural Resources
Solid Waste Management Division

SAMPLE ANALYSIS REQUEST

State Laboratory of Public Health
P.O. Box 28047, 306 N. Wilmington St.
Raleigh, North Carolina 27611-8047

Site Number NCSFN0 406 924 Sample ID Number/N VC-004-PW 07/26/99 1646 GRAB
VC072699, NC S. RYALS
POTABLE WELL
INORG-CLP NUTRIENT Ground Water
VCW-16 35

Name of Site Virginia Carolina Chemical Collected By

Site Location Wadesboro, NC Date Collected

Agency: ___ Hazardous Waste ___ Solid Waste X Superfund

Sample Type

Environmental	Concentrate	Comments
___ Ground Water (1)	___ Solid (5)	
___ Surface Water (2)	___ Liquid (6)	
___ Soil (3)	___ Sludge (7)	
___ Other (4)	___ Other (8)	

TCLP Compounds

Inorganic Compounds	Results(mg/l)
___ arsenic	
___ barium	
___ cadmium	
___ chromium	
___ lead	
___ mercury	
___ selenium	
___ silver	

Organic Chemistry

Parameter	Results (mg/l)
___ P&T:GC/MS	
___ Acid:B/N Ext.	
___ 2,4-D	
___ 2,4,5-TP(Silvex)	
___ chlordane	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	

Inorganic Chemistry

Parameter	Results(mg/l)(mg/kg)
___ antimony	
___ arsenic	
___ barium	
___ beryllium	
___ cadmium	
___ chloride	
___ chromium	
___ cobalt	
___ copper	
___ fluoride	
___ iron	
___ lead	
___ manganese	
___ mercury	
___ nickel	
✓ nitrate(as N)	<1.00
___ selenium	
___ silver	
✓ sulfates	6
___ thallium	
___ vanadium	
___ zinc	
___ pH	
___ conductivity	
___ TDS	
___ flash point	

Organic Compounds

Organic Compounds	Results(mg/l)
___ benzene	
___ carbon tetrachloride	
___ chlordane	
___ chlorobenzene	
___ chloroform	
___ o-cresol	
___ m-cresol	
___ p-cresol	
___ cresol	
___ 1,4-dichlorobenzene	
___ 1,2-dichloroethane	
___ 1,1-dichloroethylene	
___ 2,4-dichloroethylene	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ hexachloroethane	
___ methyl ethyl ketone	
___ nitrobenzene	
___ pentachlorophenol	
___ pyridine	
___ tetrachloroethylene	
___ trichloroethylene	
___ 2,4,5-trichlorophenol	
___ 2,4,6-trichlorophenol	
___ vinyl chloride	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	
___ 2,4-D	
___ 2,4,5-TP (Silvex)	

FOR LAB USE ONLY

Date Received

Date Extracted

Date Analyzed

Reported By

Date Reported 8/10/99

Lab Number 010930 JUL 27 '99

DHS 3191 (Revised 12/93)

NC Department of Environment, Health, & Natural Resources
Solid Waste Management Division

SAMPLE ANALYSIS REQUEST

State Laboratory of Public Health
P.O. Box 28047, 306 N. Wilmington St.
Raleigh, North Carolina 27611-8047

Site Number NCSFN0 406 924 Sample ID Number/ VC-005-PW 07/26/99 1713 GRAB
VC072699, NC S. RYALS

Name of Site Virginia Carolina Chemical Collected By ____ POTABLE WELL INORG-CLP NUTRIENT Ground Water
VCW-20 44

Site Location Wadesboro, NC Date Collected ____

Agency: ____ Hazardous Waste ____ Solid Waste X Superfund

Sample Type

Environmental	Concentrate	Comments
___ Ground Water (1)	___ Solid (5)	
___ Surface Water (2)	___ Liquid (6)	
___ Soil (3)	___ Sludge (7)	
___ Other (4)	___ Other (8)	

TCLP Compounds

Inorganic Compounds	Results(mg/l)
___ arsenic	
___ barium	
___ cadmium	
___ chromium	
___ lead	
___ mercury	
___ selenium	
___ silver	

Organic Chemistry

Parameter	Results (mg/l)
___ P&T:GC/MS	
___ Acid:B/N Ext.	
___ 2,4-D	
___ 2,4,5-TP(Silvex)	
___ chlordane	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	

Inorganic Chemistry

Parameter	Results(mg/l)(mg/kg)
___ antimony	
___ arsenic	
___ barium	
___ beryllium	
___ cadmium	
___ chloride	
___ chromium	
___ cobalt	
___ copper	
___ fluoride	
___ iron	
___ lead	
___ manganese	
___ mercury	
___ nickel	
✓ nitrate (as N)	<1.00
___ selenium	
___ silver	
✓ sulfates	9
___ thallium	
___ vanadium	
___ zinc	
___ pH	
___ conductivity	
___ TDS	
___ flash point	

Organic Compounds	Results(mg/l)
___ benzene	
___ carbon tetrachloride	
___ chlordane	
___ chlorobenzene	
___ chloroform	
___ o-cresol	
___ m-cresol	
___ p-cresol	
___ cresol	
___ 1,4-dichlorobenzene	
___ 1,2-dichloroethane	
___ 1,1-dichloroethylene	
___ 2,4-dichloroethylene	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ hexachloroethane	
___ methyl ethyl ketone	
___ nitrobenzene	
___ pentachlorophenol	
___ pyridine	
___ tetrachloroethylene	
___ trichloroethylene	
___ 2,4,5-trichlorophenol	
___ 2,4,6-trichlorophenol	
___ vinyl chloride	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	
___ 2,4-D	
___ 2,4,5-TP (Silvex)	

FOR LAB USE ONLY

Date Received ____

Date Extracted ____

Date Analyzed ____

Reported By DM

Date Reported 8/10/99

Lab Number 010981 JUL 27 99

DHS 3191 (Revised 12/93)

NC Department of Environment, Health, & Natural Resources
Solid Waste Management Division

SAMPLE ANALYSIS REQUEST

State Laboratory of Public Health
P.O. Box 28047, 306 N. Wilmington St.
Raleigh, North Carolina 27611-8047

Site Number NCSFN0 406 924 Sample ID Number/l VC-006-PW 07/26/99 1650 GRAB
VC072699, NC S. RYALS
POTABLE WELL
INORG-CLP NUTRIENT Ground Water
VCW-24 53

Name of Site Virginia Carolina Chemical Collected By ____

Site Location Wadesboro, NC Date Collected ____

Agency: ___ Hazardous Waste ___ Solid Waste X Superfund

Sample Type

Environmental	Concentrate	Comments
___ Ground Water (1)	___ Solid (5)	
___ Surface Water (2)	___ Liquid (6)	
___ Soil (3)	___ Sludge (7)	
___ Other (4)	___ Other (8)	

TCLP Compounds

Inorganic Compounds	Results(mg/l)
___ arsenic	
___ barium	
___ cadmium	
___ chromium	
___ lead	
___ mercury	
___ selenium	
___ silver	

Organic Chemistry

Parameter	Results (mg/l)
___ P&T:GC/MS	
___ Acid:B/N Ext.	
___ 2,4-D	
___ 2,4,5-TP(Silvex)	
___ chlordane	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	

Inorganic Chemistry

Parameter	Results(mg/l)(mg/kg)
___ antimony	
___ arsenic	
___ barium	
___ beryllium	
___ cadmium	
___ chloride	
___ chromium	
___ cobalt	
___ copper	
___ fluoride	
___ iron	
___ lead	
___ manganese	
___ mercury	
___ nickel	
✓ nitrate(as N)	2.16
___ selenium	
___ silver	
✓ sulfates	<5
___ thallium	
___ vanadium	
___ zinc	
___ pH	
___ conductivity	
___ TDS	
___ flash point	

Organic Compounds	Results(mg/l)
___ benzene	
___ carbon tetrachloride	
___ chlordane	
___ chlorobenzene	
___ chloroform	
___ o-cresol	
___ m-cresol	
___ p-cresol	
___ cresol	
___ 1,4-dichlorobenzene	
___ 1,2-dichloroethane	
___ 1,1-dichloroethylene	
___ 2,4-dichloroethylene	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ hexachloroethane	
___ methyl ethyl ketone	
___ nitrobenzene	
___ pentachlorophenol	
___ pyridine	
___ tetrachloroethylene	
___ trichloroethylene	
___ 2,4,5-trichlorophenol	
___ 2,4,6-trichlorophenol	
___ vinyl chloride	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	
___ 2,4-D	
___ 2,4,5-TP (Silvex)	

FOR LAB USE ONLY

Date Received ____

Date Extracted ____

Date Analyzed ____

Reported By DJM

Date Reported 8/10/99

Lab Number 010982 JUL 27 99

DHS 3191 (Revised 12/93)

NC Department of Environment, Health, & Natural Resources
Solid Waste Management Division

SAMPLE ANALYSIS REQUEST

State Laboratory of Public Health
P.O. Box 28047, 306 N. Wilmington St.
Raleigh, North Carolina 27611-8047

Site Number NCS FND 406 924 Sample ID Numb VC-001-PW 07/26/99 1535 GRAB
VC072699, NC S. RYALS
POTABLE WELL
Name of Site Virginia Carolina Chemical Collected By INORG-CLP METALS Ground Water
VCW-03 6
Site Location Hillsboro, NC Date Collected

Agency: ___ Hazardous Waste ___ Solid Waste X Superfund

Sample Type

Environmental	Concentrate	Comments
___ Ground Water (1)	___ Solid (5)	
___ Surface Water (2)	___ Liquid (6)	1/HNO3
___ Soil (3)	___ Sludge (7)	
___ Other (4)	___ Other (8)	

TCLP Compounds

Inorganic Compounds	Results(mg/l)
___ arsenic	
___ barium	
___ cadmium	
___ chromium	
___ lead	
___ mercury	
___ selenium	
___ silver	

Organic Chemistry

Parameter	Results (mg/l)
___ P&T:GC/MS	
___ Acid:B/N Ext.	
___ 2,4-D	
___ 2,4,5-TP(Silvex)	
___ chlordane	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	

Inorganic Chemistry

Parameter	Results(mg/l)(mg/kg)
___ antimony	
✓ arsenic	<0.01
✓ barium	0.07
✓ beryllium	<0.003
✓ cadmium	<0.005
___ chloride	
✓ chromium	<0.01
___ cobalt	
✓ copper	<0.05
___ fluoride	
___ iron	
✓ lead	<0.005
___ manganese	
✓ mercury	<0.0005
___ nickel	
___ nitrate	
✓ selenium	<0.01
✓ silver	<0.01
___ sulfates	
___ thallium	
✓ vanadium	<0.01
___ zinc	
___ pH	
___ conductivity	
___ TDS	
___ flash point	

Organic Compounds

Organic Compounds	Results(mg/l)
___ benzene	
___ carbon tetrachloride	
___ chlordane	
___ chlorobenzene	
___ chloroform	
___ o-cresol	
___ m-cresol	
___ p-cresol	
___ cresol	
___ 1,4-dichlorobenzene	
___ 1,2-dichloroethane	
___ 1,1-dichloroethylene	
___ 2,4-dichlorophenol	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ hexachloroethane	
___ methyl ethyl ketone	
___ nitrobenzene	
___ pentachlorophenol	
___ pyridine	
___ tetrachloroethylene	
___ trichloroethylene	
___ 2,4,5-trichlorophenol	
___ 2,4,6-trichlorophenol	
___ vinyl chloride	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	
___ 2,4-D	
___ 2,4,5-TP (Silvex)	

FOR LAB USE ONLY

Date Received
Date Extracted
Date Analyzed
Reported By DJM
Date Reported 8/10/99
Lab Number 010963 JUL 27 99

DHS 3191 (Revised 12/93)

Health, & Natural Resources
Solid Waste Management Division

State Laboratory of Public Health
P.O. Box 28047, 306 N. Wilmington St.
Raleigh, North Carolina 27611-8047

Site Number NCS FNO 406 924 Sample ID Number/: VC-002-PW 07/26/99 1605 GRAB
VC072699, NC S. RYALS

Name of Site Virginia Carolina Chemical Collected By POTABLE WELL
INORG-CLP METALS Ground Water

Site Location Hillsboro, NC Date Collected VCW-07 15

Agency: ___ Hazardous Waste ___ Solid Waste X Superfund

Sample Type

Environmental	Concentrate	Comments
___ Ground Water (1)	___ Solid (5)	
___ Surface Water (2)	___ Liquid (6)	
___ Soil (3)	___ Sludge (7)	HNO_3
___ Other (4)	___ Other (8)	

TCLP Compounds

Inorganic Compounds	Results(mg/l)
___ arsenic	
___ barium	
___ cadmium	
___ chromium	
___ lead	
___ mercury	
___ selenium	
___ silver	

Organic Chemistry

Parameter	Results (mg/l)
___ P&T:GC/MS	
___ Acid:B/N Ext.	
___ 2,4-D	
___ 2,4,5-TP(Silvex)	
___ chlordane	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	

Inorganic Chemistry

Parameter	Results(mg/l)(mg/kg)
___ antimony	
✓ arsenic	<0.01
✓ barium	0.17
✓ beryllium	<0.003
✓ cadmium	<0.005
___ chloride	
✓ chromium	<0.01
___ cobalt	
✓ copper	<0.05
___ fluoride	
___ iron	
✓ lead	<0.005
___ manganese	
✓ mercury	<0.0005
___ nickel	
___ nitrate	
✓ selenium	<0.01
✓ silver	<0.01
___ sulfates	
___ thallium	
✓ vanadium	<0.01
___ zinc	
___ pH	
___ conductivity	
___ TDS	
___ flash point	

Organic Compounds

Organic Compounds	Results(mg/l)
___ benzene	
___ carbon tetrachloride	
___ chlordane	
___ chlorobenzene	
___ chloroform	
___ o-cresol	
___ m-cresol	
___ p-cresol	
___ cresol	
___ 1,4-dichlorobenzene	
___ 1,2-dichloroethane	
___ 1,1-dichloroethylene	
___ 2,4-dichloroethylene	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ hexachloroethane	
___ methyl ethyl ketone	
___ nitrobenzene	
___ pentachlorophenol	
___ pyridine	
___ tetrachloroethylene	
___ trichloroethylene	
___ 2,4,5-trichlorophenol	
___ 2,4,6-trichlorophenol	
___ vinyl chloride	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	
___ 2,4-D	
___ 2,4,5-TP (Silvex)	

FOR LAB USE ONLY

Date Received ___

Date Extracted ___

Date Analyzed ___

Reported By DJM

Date Reported 8/10/99

Lab Number U10984 JUL 2799

DHS 3191 (Revised 12/93)

Department of Environment, Health, & Natural Resources
Solid Waste Management Division

State Laboratory of Public Health
P.O. Box 28047, 306 N. Wilmington St.
Raleigh, North Carolina 27611-8047

VC-003-PW 07/26/99 1600 GRAB
VC072699, NC S. RYALS
POTABLE WELL
INORG-CLP METALS Ground Water
VCW-11 24

Site Number NCS FNO 406 924 Sample ID Number/i

Name of Site Virginia Carolina Chemical Collected By

Site Location Hobbsboro, NC Date Collected

Agency: ___ Hazardous Waste ___ Solid Waste X Superfund

Sample Type

Environmental	Concentrate	Comments
___ Ground Water (1)	___ Solid (5)	
___ Surface Water (2)	___ Liquid (6)	
___ Soil (3)	___ Sludge (7)	
___ Other (4)	___ Other (8)	✓ HNO3

TCLP Compounds

Inorganic Compounds	Results(mg/l)
___ arsenic	
___ barium	
___ cadmium	
___ chromium	
___ lead	
___ mercury	
___ selenium	
___ silver	

Organic Chemistry

Parameter	Results (mg/l)
___ P&T:GC/MS	
___ Acid:B/N Ext.	
___ 2,4-D	
___ 2,4,5-TP(Silvex)	
___ chlordane	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	

Inorganic Chemistry

Parameter	Results(mg/l)(mg/kg)
___ antimony	
✓ arsenic	<0.01
✓ barium	0.47
✓ beryllium	<0.003
✓ cadmium	<0.005
___ chloride	
✓ chromium	<0.01
___ cobalt	
✓ copper	<0.05
___ fluoride	
___ iron	
✓ lead	<0.005
___ manganese	
✓ mercury	<0.0005
___ nickel	
___ nitrate	
✓ selenium	<0.01
✓ silver	<0.01
___ sulfates	
___ thallium	
✓ vanadium	<0.01
___ zinc	
___ pH	
___ conductivity	
___ TDS	
___ flash point	

Organic Compounds

Organic Compounds	Results(mg/l)
___ benzene	
___ carbon tetrachloride	
___ chlordane	
___ chlorobenzene	
___ chloroform	
___ o-cresol	
___ m-cresol	
___ p-cresol	
___ cresol	
___ 1,4-dichlorobenzene	
___ 1,2-dichloroethane	
___ 1,1-dichloroethylene	
___ 2,4-dichloroethylene	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ hexachloroethane	
___ methyl ethyl ketone	
___ nitrobenzene	
___ pentachlorophenol	
___ pyridine	
___ tetrachloroethylene	
___ trichloroethylene	
___ 2,4,5-trichlorophenol	
___ 2,4,6-trichlorophenol	
___ vinyl chloride	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	
___ 2,4-D	
___ 2,4,5-TP (Silvex)	

FOR LAB USE ONLY

Date Received

Date Extracted

Date Analyzed

Reported By DJM

Date Reported 8/10/99

Lab Number 010965 JUL 27 99

DHS 3191 (Revised 12/93)

NC Department of Environment, Health, & Natural Resources
Solid Waste Management Division

SAMPLE ANALYSIS REQUEST

State Laboratory of Public Health
P.O. Box 28047, 306 N. Wilmington St.
Raleigh, North Carolina 27611-8047

Site Number NCS FNO 406 924 Sample ID Number VC-103-PW 07/26/99 1600 GRAB
VC072699, NC S. RYALS

Name of Site Virginia Carolina Chemical Collected By POTABLE WELL
INORG-CLP METALS Ground Water

Site Location Hillsboro, NC Date Collected VCW-91 208

Agency: ___ Hazardous Waste ___ Solid Waste X Superfund

Sample Type

Environmental	Concentrate	Comments
___ Ground Water (1)	___ Solid (5)	
___ Surface Water (2)	___ Liquid (6)	
___ Soil (3)	___ Sludge (7)	
___ Other (4)	___ Other (8)	1-HNO3

TCLP Compounds

Inorganic Compounds	Results(mg/l)
___ arsenic	
___ barium	
___ cadmium	
___ chromium	
___ lead	
___ mercury	
___ selenium	
___ silver	

Organic Chemistry

Parameter	Results (mg/l)
___ P&T:GC/MS	
___ Acid:B/N Ext.	
___ 2,4-D	
___ 2,4,5-TP(Silvex)	
___ chlordane	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	

Inorganic Chemistry

Parameter	Results(mg/l)(mg/kg)
___ antimony	
✓ arsenic	<0.01
✓ barium	0.46
✓ beryllium	<0.003
✓ cadmium	<0.005
___ chloride	
✓ chromium	<0.01
___ cobalt	
✓ copper	<0.05
___ fluoride	
___ iron	
✓ lead	<0.005
___ manganese	
✓ mercury	<0.0005
___ nickel	
___ nitrate	
✓ selenium	<0.01
✓ silver	<0.01
___ sulfates	
___ thallium	
✓ vanadium	<0.01
___ zinc	
___ pH	
___ conductivity	
___ TDS	
___ flash point	

Organic Compounds

Organic Compounds	Results(mg/l)
___ benzene	
___ carbon tetrachloride	
___ chlordane	
___ chlorobenzene	
___ chloroform	
___ o-cresol	
___ m-cresol	
___ p-cresol	
___ cresol	
___ 1,4-dichlorobenzene	
___ 1,2-dichloroethane	
___ 1,1-dichloroethylene	
___ 2,4-dichloroethylene	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ hexachloroethane	
___ methyl ethyl ketone	
___ nitrobenzene	
___ pentachlorophenol	
___ pyridine	
___ tetrachloroethylene	
___ trichloroethylene	
___ 2,4,5-trichlorophenol	
___ 2,4,6-trichlorophenol	
___ vinyl chloride	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	
___ 2,4-D	
___ 2,4,5-TP (Silvex)	

FOR LAB USE ONLY

Date Received ___

Date Extracted ___

Date Analyzed ___

Reported By DJM

Date Reported 8/10/99

Lab Number 010986 JUL 27 99

DHS 3191 (Revised 12/93)

Department of Environment, Health, & Natural Resources
Solid Waste Management Division

REQUEST

State Laboratory of Public Health
P.O. Box 28047, 306 N. Wilmington St.
Raleigh, North Carolina 27611-8047

Site Number NCS FNO 406 924 Sample ID Number VC-004-PW 07/26/99 1646 GRAB
VC072699, NC S. RYALS
POTABLE WELL

Name of Site Virginia Carolina Chemical Collected By
INORG-CLP METALS Ground Water
VCW-15 33

Site Location Hillsboro, NC Date Collected

Agency: ___ Hazardous Waste ___ Solid Waste X Superfund

Sample Type

Environmental	Concentrate	Comments
___ Ground Water (1)	___ Solid (5)	
___ Surface Water (2)	___ Liquid (6)	
___ Soil (3)	___ Sludge (7)	
___ Other (4)	___ Other (8)	VHNO3

TCLP Compounds

Inorganic Compounds	Results(mg/l)
___ arsenic	
___ barium	
___ cadmium	
___ chromium	
___ lead	
___ mercury	
___ selenium	
___ silver	

Organic Chemistry

Parameter	Results (mg/l)
___ P&T:GC/MS	
___ Acid:B/N Ext.	
___ 2,4-D	
___ 2,4,5-TP(Silvex)	
___ chlordane	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	

Inorganic Chemistry

Parameter	Results(mg/l)(mg/kg)
___ antimony	
✓ arsenic	<0.01
✓ barium	0.48
✓ beryllium	<0.003
✓ cadmium	<0.005
___ chloride	
✓ chromium	<0.01
___ cobalt	
✓ copper	<0.05
___ fluoride	
___ iron	
✓ lead	<0.005
___ manganese	
✓ mercury	<0.0005
___ nickel	
___ nitrate	
✓ selenium	<0.01
✓ silver	<0.01
___ sulfates	
___ thallium	
✓ vanadium	<0.01
___ zinc	
___ pH	
___ conductivity	
___ TDS	
___ flash point	

Organic Compounds	Results(mg/l)
___ benzene	
___ carbon tetrachloride	
___ chlordane	
___ chlorobenzene	
___ chloroform	
___ o-cresol	
___ m-cresol	
___ p-cresol	
___ cresol	
___ 1,4-dichlorobenzene	
___ 1,2-dichloroethane	
___ 1,1-dichloroethylene	
___ 2,4-dichlorophenol	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ hexachloroethane	
___ methyl ethyl ketone	
___ nitrobenzene	
___ pentachlorophenol	
___ pyridine	
___ tetrachloroethylene	
___ trichloroethylene	
___ 2,4,5-trichlorophenol	
___ 2,4,6-trichlorophenol	
___ vinyl chloride	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	
___ 2,4-D	
___ 2,4,5-TP (Silvex)	

FOR LAB USE ONLY

Date Received

Date Extracted

Date Analyzed

Reported By DPM

Date Reported 8/10/99

Lab Number 020967 JUL 2777

DHS 3191 (Revised 12/93)

Department of Environment, Health, & Natural Resources
Solid Waste Management Division

SAMPLE ANALYSIS REQUEST

State Laboratory of Public Health
P.O. Box 28047, 306 N. Wilmington St.
Raleigh, North Carolina 27611-3047

Site Number NCS FNO 406 924 Sample ID Number VC-005-PW 07/26/99 1713 GRAB
VC072699, NC S. RYALS
POTABLE WELL
Name of Site Virginia Carolina Chemical Collected By
INORG-CLP METALS Ground Water
Site Location Hubdysboro, NC Date Collected VCW-19 42

Agency: ___ Hazardous Waste ___ Solid Waste X Superfund

Sample Type

Environmental	Concentrate	Comments
___ Ground Water (1)	___ Solid (5)	
___ Surface Water (2)	___ Liquid (6)	✓ HNO_3
___ Soil (3)	___ Sludge (7)	
___ Other (4)	___ Other (8)	

TCLP Compounds

Inorganic Compounds	Results(mg/l)
___ arsenic	
___ barium	
___ cadmium	
___ chromium	
___ lead	
___ mercury	
___ selenium	
___ silver	

Organic Chemistry

Parameter	Results (mg/l)
___ P&T:GC/MS	
___ Acid:B/N Ext.	
___ 2,4-D	
___ 2,4,5-TP(Silvex)	
___ chlordane	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	

Inorganic Chemistry

Parameter	Results(mg/l)(mg/kg)
___ antimony	
✓ arsenic	<0.01
✓ barium	0.37
✓ beryllium	<0.003
✓ cadmium	<0.005
___ chloride	
✓ chromium	<0.01
___ cobalt	
✓ copper	<0.05
___ fluoride	
___ iron	
✓ lead	<0.005
___ manganese	
✓ mercury	<0.0005
___ nickel	
___ nitrate	
✓ selenium	<0.01
✓ silver	<0.01
___ sulfates	
___ thallium	
✓ vanadium	<0.01
___ zinc	
___ pH	
___ conductivity	
___ TDS	
___ flash point	

Organic Compounds

Organic Compounds	Results(mg/l)
___ benzene	
___ carbon tetrachloride	
___ chlordane	
___ chlorobenzene	
___ chloroform	
___ o-cresol	
___ m-cresol	
___ p-cresol	
___ cresol	
___ 1,4-dichlorobenzene	
___ 1,2-dichloroethane	
___ 1,1-dichloroethylene	
___ 2,4-dichloroethylene	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ hexachloroethane	
___ methyl ethyl ketone	
___ nitrobenzene	
___ pentachlorophenol	
___ pyridine	
___ tetrachloroethylene	
___ trichloroethylene	
___ 2,4,5-trichlorophenol	
___ 2,4,6-trichlorophenol	
___ vinyl chloride	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	
___ 2,4-D	
___ 2,4,5-TP (Silvex)	

FOR LAB USE ONLY

Date Received
Date Extracted
Date Analyzed
Reported By DJM
Date Reported 8/10/99
010968 JUL 27 99
Lab Number

DHS 3191 (Revised 12/93)

NC Department of Environment, Health, & Natural Resources
Solid Waste Management Division

SAM ANALYSIS REQUEST

State Laboratory of Public Health
P.O. Box 28047, 306 N. Wilmington St.
Raleigh, North Carolina 27611-8047

Site Number NCS FNO 406 924 Sample ID Numbe VC-006-PW 07/26/99 1650 GRAB
VC072699, NC S. RYALS
POTABLE WELL
INORG-CLP METALS Ground Water
VCW-23 51

Name of Site Virginia Carolina Chemical Collected By

Site Location Hobgood, NC Date Collected

Agency: ___ Hazardous Waste ___ Solid Waste X Superfund

Sample Type

Environmental	Concentrate	Comments
___ Ground Water (1)	___ Solid (5)	
___ Surface Water (2)	___ Liquid (6)	
___ Soil (3)	___ Sludge (7)	1/HNO3
___ Other (4)	___ Other (8)	

TCLP Compounds

Inorganic Compounds	Results(mg/l)
___ arsenic	
___ barium	
___ cadmium	
___ chromium	
___ lead	
___ mercury	
___ selenium	
___ silver	

Organic Chemistry

Parameter	Results (mg/l)
___ P&T:GC/MS	
___ Acid:B/N Ext.	
___ 2,4-D	
___ 2,4,5-TP(Silvex)	
___ chlordane	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	

Inorganic Chemistry

Parameter	Results(mg/l;mg/kg)
___ antimony	
✓ arsenic	<0.01
✓ barium	0.20
✓ beryllium	<0.003
✓ cadmium	<0.005
___ chloride	
✓ chromium	<0.01
___ cobalt	
✓ copper	<0.05
___ fluoride	
___ iron	
✓ lead	<0.005
___ manganese	
✓ mercury	<0.0005
___ nickel	
___ nitrate	
✓ selenium	<0.01
✓ silver	<0.01
___ sulfates	
___ thallium	
✓ vanadium	<0.01
___ zinc	
___ pH	
___ conductivity	
___ TDS	
___ flash point	

Organic Compounds

Organic Compounds	Results(mg/l)
___ benzene	
___ carbon tetrachloride	
___ chlordane	
___ chlorobenzene	
___ chloroform	
___ o-cresol	
___ m-cresol	
___ p-cresol	
___ cresol	
___ 1,4-dichlorobenzene	
___ 1,2-dichloroethane	
___ 1,1-dichloroethylene	
___ 2,4-dichloroethylene	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ hexachloroethane	
___ methyl ethyl ketone	
___ nitrobenzene	
___ pentachlorophenol	
___ pyridine	
___ tetrachloroethylene	
___ trichloroethylene	
___ 2,4,5-trichlorophenol	
___ 2,4,6-trichlorophenol	
___ vinyl chloride	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	
___ 2,4-D	
___ 2,4,5-TP (Silvex)	

FOR LAB USE ONLY

Date Received

Date Extracted

Date Analyzed

Reported By

Date Reported 8/10/99

U10969 JUL 27 99

Lab Number

DHS 3191 (Revised 12/93)

NC Department of Environment, Health, & Natural Resources
Solid Waste Management Division

SAMPLE ANALYSIS REQUEST

State Laboratory of Public Health
P.O. Box 28047, 306 N. Wilmington St.
Raleigh, North Carolina 27611-8047

Site Number NCS FNO 406 924 Sample ID Numbe VC-001-PW 07/26/99 1535 GRAB
VC072699, NC S. RYALS

Name of Site Virginia Carolina Chemical Collected By POTABLE WELL ORG-CLP EXT ORG Ground Water
VCW-02 4

Site Location Wadesboro, NC Date Collected

Agency: ___ Hazardous Waste ___ Solid Waste X Superfund

Sample Type

Environmental	Concentrate	Comments
___ Ground Water (1)	___ Solid (5)	
___ Surface Water (2)	___ Liquid (6)	
___ Soil (3)	___ Sludge (7)	
___ Other (4)	___ Other (8)	

TCLP Compounds

Inorganic Compounds	Results(mg/l)
___ arsenic	
___ barium	
___ cadmium	
___ chromium	
___ lead	
___ mercury	
___ selenium	
___ silver	
___	
___	
___	
___	

Organic Chemistry

Parameter	Results (mg/l)
___ P&T:GC/MS	
✓ Acid:B/N Ext	
___ 2,4-D	
___ 2,4,5-TP(Silvex)	
___ chlordane	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	
___	
___	
___	
___	

Inorganic Chemistry

Parameter	Results(mg/l)(mg/kg)
___ antimony	
___ arsenic	
___ barium	
___ beryllium	
___ cadmium	
___ chloride	
___ chromium	
___ cobalt	
___ copper	
___ fluoride	
___ iron	
___ lead	
___ manganese	
___ mercury	
___ nickel	
___ nitrate	
___ selenium	
___ silver	
___ sulfates	
___ thallium	
___ vanadium	
___ zinc	
___ pH	
___ conductivity	
___ TDS	
___ flash point	
___	
___	
___	
___	
___	
___	

Organic Compounds	Results(mg/l)
___ benzene	
___ carbon tetrachloride	
___ chlordane	
___ chlorobenzene	
___ chloroform	
___ o-cresol	
___ m-cresol	
___ p-cresol	
___ cresol	
___ 1,4-dichlorobenzene	
___ 1,2-dichloroethane	
___ 1,1-dichloroethylene	
___ 2,4-dichloroethylene	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ hexachloroethane	
___ methyl ethyl ketone	
___ nitrobenzene	
___ pentachlorophenol	
___ pyridine	
___ tetrachloroethylene	
___ trichloroethylene	
___ 2,4,5-trichlorophenol	
___ 2,4,6-trichlorophenol	
___ vinyl chloride	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	
___ 2,4-D	
___ 2,4,5-TP (Silvex)	

FOR LAB USE ONLY

Date Received JUL 27 1999

Date Extracted BNA 7-29-99 KM

Date Analyzed 8-2-99 BLO

Reported By

Date Reported

Lab Number 992470

DHS 3191 (Revised 12/93)

NC Department of Environment, Health, & Natural Resources
Solid Waste Management Division

SAMPLE ANALYSIS REQUEST

State Laboratory of Public Health
P.O. Box 28047, 306 N. Wilmington St.
Raleigh, North Carolina 27611-8047

Site Number NCS FNO 406 924 Sample ID Numb VC-002-PW 07/26/99 1605 GRAB
VC072699, NC S. RYALS

Name of Site Virginia Carolina Chemical Collected By POTABLE WELL
ORG-CLP EXT ORG Ground Water
VCW-06 13

Site Location Wadesboro, NC Date Collected

Agency: ___ Hazardous Waste ___ Solid Waste X Superfund

Sample Type

Environmental	Concentrate	Comments
___ Ground Water (1)	___ Solid (5)	
___ Surface Water (2)	___ Liquid (6)	
___ Soil (3)	___ Sludge (7)	
___ Other (4)	___ Other (8)	

TCLP Compounds

Inorganic Compounds	Results(mg/l)
___ arsenic	
___ barium	
___ cadmium	
___ chromium	
___ lead	
___ mercury	
___ selenium	
___ silver	

Organic Chemistry

Parameter	Results (mg/l)
___ P&T:GC/MS	
✓ Acid:B/N Ext.	
___ 2,4-D	
___ 2,4,5-TP(Silvex)	
___ chlordane	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	

Inorganic Chemistry

Parameter	Results(mg/l)(mg/kg)
___ antimony	
___ arsenic	
___ barium	
___ beryllium	
___ cadmium	
___ chloride	
___ chromium	
___ cobalt	
___ copper	
___ fluoride	
___ iron	
___ lead	
___ manganese	
___ mercury	
___ nickel	
___ nitrate	
___ selenium	
___ silver	
___ sulfates	
___ thallium	
___ vanadium	
___ zinc	
___ pH	
___ conductivity	
___ TDS	
___ flash point	

Organic Compounds	Results(mg/l)
___ benzene	
___ carbon tetrachloride	
___ chlordane	
___ chlorobenzene	
___ chloroform	
___ o-cresol	
___ m-cresol	
___ p-cresol	
___ cresol	
___ 1,4-dichlorobenzene	
___ 1,2-dichloroethane	
___ 1,1-dichloroethylene	
___ 2,4-dichloroethylene	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ hexachloroethane	
___ methyl ethyl ketone	
___ nitrobenzene	
___ pentachlorophenol	
___ pyridine	
___ tetrachloroethylene	
___ trichloroethylene	
___ 2,4,5-trichlorophenol	
___ 2,4,6-trichlorophenol	
___ vinyl chloride	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	
___ 2,4-D	
___ 2,4,5-TP (Silvex)	

FOR LAB USE ONLY

Date Received JUL 27 1999
Date Extracted BNA 7-29-99 Km
Date Analyzed 8-2-99 BO
Reported By
Date Reported
Lab Number 992471

DHS 3191 (Revised 12/93)

Department of Environment, Health, & Natural Resources
Solid Waste Management Division

...YSIS REQUEST

State Laboratory of Public Health
P.O. Box 28047, 306 N. Wilmington St.
Raleigh, North Carolina 27611-8047

Site Number NCS FNO 406 924

Sample ID Number/N VC-003-PW 07/26/99 1600 GRAB
VC072699, NC S. RYALS
POTABLE WELL
ORG-CLP EXT ORG Ground Water
VCW-10 22

Name of Site Virginia Carolina Chemical

Collected By _____

Site Location Wadesboro, NC

Date Collected _____

Agency: ___ Hazardous Waste ___ Solid Waste X Superfund

Sample Type

Environmental	Concentrate	Comments
___ Ground Water (1)	___ Solid (5)	
___ Surface Water (2)	___ Liquid (6)	
___ Soil (3)	___ Sludge (7)	
___ Other (4)	___ Other (8)	

TCLP Compounds

Inorganic Compounds	Results(mg/l)
___ arsenic	
___ barium	
___ cadmium	
___ chromium	
___ lead	
___ mercury	
___ selenium	
___ silver	

Organic Chemistry

Parameter	Results (mg/l)
___ P&T:GC/MS	
✓ Acid:B/N Ext.	
___ 2,4-D	
___ 2,4,5-TP(Silvex)	
___ chlordane	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	

Inorganic Chemistry

Parameter	Results(mg/l)(mg/kg)
___ antimony	
___ arsenic	
___ barium	
___ beryllium	
___ cadmium	
___ chloride	
___ chromium	
___ cobalt	
___ copper	
___ fluoride	
___ iron	
___ lead	
___ manganese	
___ mercury	
___ nickel	
___ nitrate	
___ selenium	
___ silver	
___ sulfates	
___ thallium	
___ vanadium	
___ zinc	
___ pH	
___ conductivity	
___ TDS	
___ flash point	

Organic Compounds	Results(mg/l)
___ benzene	
___ carbon tetrachloride	
___ chlordane	
___ chlorobenzene	
___ chloroform	
___ o-cresol	
___ m-cresol	
___ p-cresol	
___ cresol	
___ 1,4-dichlorobenzene	
___ 1,2-dichloroethane	
___ 1,1-dichloroethylene	
___ 2,4-dichloroethylene	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ hexachloroethane	
___ methyl ethyl ketone	
___ nitrobenzene	
___ pentachlorophenol	
___ pyridine	
___ tetrachloroethylene	
___ trichloroethylene	
___ 2,4,5-trichlorophenol	
___ 2,4,6-trichlorophenol	
___ vinyl chloride	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	
___ 2,4-D	
___ 2,4,5-TP (Silvex)	

FOR LAB USE ONLY

Date Received JUL 27 1999

Date Extracted MA 7-29-99 KM

Date Analyzed 8-2-99 BD

Reported By _____

Date Reported _____

Lab Number 992472

DHS 3191 (Revised 12/93)

NC Department of Environment, Health, & Natural Resources
Solid Waste Management Division

SAMPLE ANALYSIS REQUEST

State Laboratory of Public Health
P.O. Box 28047, 306 N. Wilmington St.
Raleigh, North Carolina 27611-8047

Site Number NCS FND 406 924

Sample ID Number/N VC-103-PW 07/26/99 1600 GRAB
VC072699, NC S. RYALS

Name of Site Virginia Carolina Chemical

Collected By _____ POTABLE WELL

Site Location Windsboro, NC

Date Collected _____ ORG-CLP EXT ORG Ground Water
VCW-90 206

Agency: ____ Hazardous Waste ____ Solid Waste X Superfund

Sample Type

Environmental	Concentrate	Comments
___ Ground Water (1)	___ Solid (5)	
___ Surface Water (2)	___ Liquid (6)	
___ Soil (3)	___ Sludge (7)	
___ Other (4)	___ Other (8)	

TCLP Compounds

Inorganic Compounds	Results (mg/l)
___ arsenic	
___ barium	
___ cadmium	
___ chromium	
___ lead	
___ mercury	
___ selenium	
___ silver	

Organic Chemistry

Parameter	Results (mg/l)
___ P&T:GC/MS	
✓ Acid:B/N Ext.	
___ 2,4-D	
___ 2,4,5-TP(Silvex)	
___ chlordane	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	

Inorganic Chemistry

Parameter	Results (mg/l) (mg/kg)
___ antimony	
___ arsenic	
___ barium	
___ beryllium	
___ cadmium	
___ chloride	
___ chromium	
___ cobalt	
___ copper	
___ fluoride	
___ iron	
___ lead	
___ manganese	
___ mercury	
___ nickel	
___ nitrate	
___ selenium	
___ silver	
___ sulfates	
___ thallium	
___ vanadium	
___ zinc	
___ pH	
___ conductivity	
___ TDS	
___ flash point	

Organic Compounds	Results (mg/l)
___ benzene	
___ carbon tetrachloride	
___ chlordane	
___ chlorobenzene	
___ chloroform	
___ o-cresol	
___ m-cresol	
___ p-cresol	
___ cresol	
___ 1,4-dichlorobenzene	
___ 1,2-dichloroethane	
___ 1,1-dichloroethylene	
___ 2,4-dichloroethylene	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ hexachloroethane	
___ methyl ethyl ketone	
___ nitrobenzene	
___ pentachlorophenol	
___ pyridine	
___ tetrachloroethylene	
___ trichloroethylene	
___ 2,4,5-trichlorophenol	
___ 2,4,6-trichlorophenol	
___ vinyl chloride	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	
___ 2,4-D	
___ 2,4,5-TP (Silvex)	

FOR LAB USE ONLY

Date Received JUL 27 1999

Date Extracted BNA 7-29-99 KM

Date Analyzed 8-2-99 BD

Reported By _____

Date Reported _____

Lab Number 992473

DHS 3191 (Revised 12/93)

NC Department of Environment, Health, & Natural Resources
Solid Waste Management Division

SAMPLE ANALYSIS REQUEST

State Laboratory of Public Health
P.O. Box 28047, 306 N. Wilmington St.
Raleigh, North Carolina 27611-8047

Site Number NCS FNO 406 924

Sample ID Number/ VC-004-PW 07/26/99 1646 GRAB
VC072699, NC S. RYALS

Name of Site Virginia Carolina Chemical

Collected By POTABLE WELL
ORG-CLP EXT ORG Ground Water
VCW-14 31

Site Location Wadesboro, NC

Date Collected

Agency: ___ Hazardous Waste ___ Solid Waste X Superfund

Sample Type

Environmental	Concentrate	Comments
___ Ground Water (1)	___ Solid (5)	
___ Surface Water (2)	___ Liquid (6)	
___ Soil (3)	___ Sludge (7)	
___ Other (4)	___ Other (8)	

TCLP Compounds

Inorganic Compounds	Results(mg/l)
___ arsenic	
___ barium	
___ cadmium	
___ chromium	
___ lead	
___ mercury	
___ selenium	
___ silver	

Organic Chemistry

Parameter	Results (mg/l)
___ P&T:GC/MS	
✓ Acid:B/N Ext.	
___ 2,4-D	
___ 2,4,5-TP(Silvex)	
___ chlordane	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	

Inorganic Chemistry

Parameter	Results(mg/l)(mg/kg)
___ antimony	
___ arsenic	
___ barium	
___ beryllium	
___ cadmium	
___ chloride	
___ chromium	
___ cobalt	
___ copper	
___ fluoride	
___ iron	
___ lead	
___ manganese	
___ mercury	
___ nickel	
___ nitrate	
___ selenium	
___ silver	
___ sulfates	
___ thallium	
___ vanadium	
___ zinc	
___ pH	
___ conductivity	
___ TDS	
___ flash point	

Organic Compounds	Results(mg/l)
___ benzene	
___ carbon tetrachloride	
___ chlordane	
___ chlorobenzene	
___ chloroform	
___ o-cresol	
___ m-cresol	
___ p-cresol	
___ cresol	
___ 1,4-dichlorobenzene	
___ 1,2-dichloroethane	
___ 1,1-dichloroethylene	
___ 2,4-dichloroethylene	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ hexachloroethane	
___ methyl ethyl ketone	
___ nitrobenzene	
___ pentachlorophenol	
___ pyridine	
___ tetrachloroethylene	
___ trichloroethylene	
___ 2,4,5-trichlorophenol	
___ 2,4,6-trichlorophenol	
___ vinyl chloride	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	
___ 2,4-D	
___ 2,4,5-TP (Silvex)	

FOR LAB USE ONLY

Date Received JUL 27 1999

Date Extracted BNA 7-29-99 WM

Date Analyzed 8-2-99 BD

Reported By

Date Reported

Lab Number 992474

DHS 3191 (Revised 12/93)

NC Department of Environment, Health, & Natural Resources
Solid Waste Management Division

SAMPLE ANALYSIS REQUEST

State Laboratory of Public Health
P.O. Box 28047, 306 N. Wilmington St.
Raleigh, North Carolina 27611-8047

Site Number NCS FNO 406 924 Sample ID Number/ VC-005-PW 07/26/99 1713 GRAB
VC072699, NC S. RYALS
POTABLE WELL
ORG-CLP EXT ORG Ground Water
VCW-18 40

Name of Site Virginia Carolina Chemical Collected By

Site Location Wadesboro, NC Date Collected

Agency: ___ Hazardous Waste ___ Solid Waste X Superfund

Sample Type

Environmental	Concentrate	Comments
___ Ground Water (1)	___ Solid (5)	
___ Surface Water (2)	___ Liquid (6)	
___ Soil (3)	___ Sludge (7)	
___ Other (4)	___ Other (8)	

TCLP Compounds

Inorganic Compounds	Results(mg/l)
___ arsenic	
___ barium	
___ cadmium	
___ chromium	
___ lead	
___ mercury	
___ selenium	
___ silver	
___	
___	
___	
___	

Organic Chemistry

Parameter	Results (mg/l)
___ P&T:GC/MS	
✓ Acid:B/N Ext.	
___ 2,4-D	
___ 2,4,5-TP(Silvex)	
___ chlordane	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	
___	
___	
___	
___	

Inorganic Chemistry

Parameter	Results(mg/l)(mg/kg)
___ antimony	
___ arsenic	
___ barium	
___ beryllium	
___ cadmium	
___ chloride	
___ chromium	
___ cobalt	
___ copper	
___ fluoride	
___ iron	
___ lead	
___ manganese	
___ mercury	
___ nickel	
___ nitrate	
___ selenium	
___ silver	
___ sulfates	
___ thallium	
___ vanadium	
___ zinc	
___ pH	
___ conductivity	
___ TDS	
___ flash point	
___	
___	
___	
___	
___	
___	
___	

Organic Compounds	Results(mg/l)
___ benzene	
___ carbon tetrachloride	
___ chlordane	
___ chlorobenzene	
___ chloroform	
___ o-cresol	
___ m-cresol	
___ p-cresol	
___ cresol	
___ 1,4-dichlorobenzene	
___ 1,2-dichloroethane	
___ 1,1-dichloroethylene	
___ 2,4-dichloroethylene	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ hexachloroethane	
___ methyl ethyl ketone	
___ nitrobenzene	
___ pentachlorophenol	
___ pyridine	
___ tetrachloroethylene	
___ trichloroethylene	
___ 2,4,5-trichlorophenol	
___ 2,4,6-trichlorophenol	
___ vinyl chloride	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	
___ 2,4-D	
___ 2,4,5-TP (Silvex)	

FOR LAB USE ONLY

Date Received JUL 27 1999

Date Extracted BNA 7-29-99 KM

Date Analyzed 8-2-99 GO

Reported By

Date Reported

Lab Number 992475

DHS 3191 (Revised 12/93)

NC Department of Environment, Health, & Natural Resources
Solid Waste Management Division

SAMPLE ANALYSIS REQUEST

State Laboratory of Public Health
P.O. Box 28047, 306 N. Wilmington St.
Raleigh, North Carolina 27611-8047

Site Number NCS FND 406 924 Sample ID Number: VC-006-PW 07/26/99 1650 GRAB
VC072699, NC S. RYALS

Name of Site Virginia Carolina Chemical Collected By POTABLE WELL ORG-CLP EXT ORG Ground Water

Site Location Wadesboro, NC Date Collected VCW-22 49

Agency: ___ Hazardous Waste ___ Solid Waste X Superfund

Sample Type

Environmental	Concentrate	Comments
___ Ground Water (1)	___ Solid (5)	
___ Surface Water (2)	___ Liquid (6)	
___ Soil (3)	___ Sludge (7)	
___ Other (4)	___ Other (8)	

TCLP Compounds

Inorganic Compounds	Results(mg/l)
___ arsenic	
___ barium	
___ cadmium	
___ chromium	
___ lead	
___ mercury	
___ selenium	
___ silver	
___	
___	
___	
___	

Organic Compounds	Results(mg/l)
___ benzene	
___ carbon tetrachloride	
___ chlordane	
___ chlorobenzene	
___ chloroform	
___ o-cresol	
___ m-cresol	
___ p-cresol	
___ cresol	
___ 1,4-dichlorobenzene	
___ 1,2-dichloroethane	
___ 1,1-dichloroethylene	
___ 2,4-dichloroethylene	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ hexachloroethane	
___ methyl ethyl ketone	
___ nitrobenzene	
___ pentachlorophenol	
___ pyridine	
___ tetrachloroethylene	
___ trichloroethylene	
___ 2,4,5-trichlorophenol	
___ 2,4,6-trichlorophenol	
___ vinyl chloride	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	
___ 2,4-D	
___ 2,4,5-TP (Silvex)	

Organic Chemistry

Parameter	Results (mg/l)
___ P&T:GC/MS	
✓ Acid:B/N Ext.	
___ 2,4-D	
___ 2,4,5-TP(Silvex)	
___ chlordane	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	
___	
___	
___	
___	

Inorganic Chemistry

Parameter	Results(mg/l)(mg/kg)
___ antimony	
___ arsenic	
___ barium	
___ beryllium	
___ cadmium	
___ chloride	
___ chromium	
___ cobalt	
___ copper	
___ fluoride	
___ iron	
___ lead	
___ manganese	
___ mercury	
___ nickel	
___ nitrate	
___ selenium	
___ silver	
___ sulfates	
___ thallium	
___ vanadium	
___ zinc	
___ pH	
___ conductivity	
___ TDS	
___ flash point	
___	
___	
___	
___	
___	
___	

FOR LAB USE ONLY

Date Received JUL 27 1999

Date Extracted BNA 7-29 99 KM

Date Analyzed 8-2-99 BQ

Reported By

Date Reported

Lab Number 992476

DHS 3191 (Revised 12/93)

(1)

STATE LABORATORY OF PUBLIC HEALTH

P.O. BOX 28047 - 306 N. WILMINGTON, ST., RALEIGH, N.C. 27611

ORGANIC CHEMICAL ANALYSIS

BASE/NEUTRAL AND ACID EXTRACTABLES	LAB NO	992470	992471	992472	992473	992474	992475
	FIELD #	VC-001-PW	VC-002-PW	VC-003-PW	VC-103-PW	VC-004-PW	VC-005-PW
COMPOUND	TYPE	(1)	(1)	(1)	(1)	(1)	(1)
	UNITS	µg/l ~~µg/kg~~	µg/l ~~µg/kg~~	µg/l ~~µg/kg~~	µg/l ~~µg/kg~~	µg/l ~~µg/kg~~	µg/l ~~µg/kg~~
N-nitrosodimethylamine	10/330	U	U	U	U	U	U
bis(2-chloroethyl)ether	↓	↓	↓	↓	↓	↓	↓
2-chlorophenol							
phenol							
1,3-dichlorobenzene							
1,4-dichlorobenzene							
1,2-dichlorobenzene							
bis(2-chloroisopropyl)ether							
hexachloroethane							
N-nitroso-di-n-propylamine							
nitrobenzene							
isophorone							
2-nitrophenol							
2,4-dimethylphenol							
bis(2-chloroethoxy)methane							
2,4-dichlorophenol							
1,2,4-trichlorobenzene							
naphthalene							
hexachlorobutadiene							
4-chloro-m-cresol							
hexachlorocyclopentadiene							
2,4,6-trichlorophenol							
2-chloronaphthalene							
acenaphthylene							
dimethyl phthalate							
2,6-dinitrotoluene							
acenaphthene	↓						
2,4-dinitrophenol	50/1650						
2,4-dinitrotoluene	10/330						
4-nitrophenol	50/1650						
fluorene	10/330						
4-chlorophenylphenylether	↓						
diethyl phthalate	↓						
4,6-dinitro-o-cresol	50/1650						
diphenylamine	10/330						
azobenzene	↓						
4-bromophenylphenylether	↓						
hexachlorobenzene	↓						
pentachlorophenol	50/1650						
phenanthrene	10/330						
anthracene	↓						
dibutyl phthalate	↓	↓	↓	↓	↓	↓	↓
fluoranthene	↓						

MDL
H_2O/50 1L

J - Estimated value.
< - Actual value is known to be less than value given.
> - Actual value is known to be greater than value given.
U - Material was analyzed for but not detected. The number is the Minimum Detection Limit. MDL
NA - Not analyzed.
? - Tentative identification.
* - On NRDC List of Priority Pollutants.

(2)

STATE LABORATORY OF PUBLIC HEALTH

P.O. BOX 28047 - 306 N. WILMINGTON, ST., RALEIGH, N.C. 27611

ORGANIC CHEMICAL ANALYSIS

BASE/NEUTRAL AND ACID EXTRACTABLES	LAB NO	992470	992471	992472	992473	992474	992475
	FIELD #	VC-001-PW	VC-002-PW	VC-003-PW	VC-103-PW	VC-004-PW	VC-005-PW
COMPOUND	TYPE	(1)	(1)	(1)	(1)	(1)	(1)
	UNITS	µg/l ~~mg/kg~~	µg/l ~~mg/kg~~	µg/l ~~mg/kg~~	µg/l ~~mg/kg~~	µg/l ~~mg/kg~~	µg/l ~~mg/kg~~
pyrene	10/330	U	U	U	U	U	U
benzidine	50/1650						
butyl benzyl phthalate	10/330						
benz(a)anthracene							
chrysene							
3,3-dichlorobenzidine	50/1650						
bis(2-ethylhexyl)phthalate	10/330						
di-n-octyl phthalate	10/330						
benzo(b)fluoranthene	50/1650						
benzo(k)fluoranthene							
benzo(a)pyrene							
indeno(1,2,3-cd)pyrene							
dibenzo(a,h)anthracene							
benzo(g,h,i)perylene							
aniline	50/1650						
benzoic acid							
benzyl alcohol							
4-chloroaniline							
dibenzofuran	10/330						
2-methylnaphthalene							
2-methylphenol							
4-methylphenol							
2-nitroaniline	50/1650						
3-nitroaniline							
4-nitroaniline							
2,4,5-trichlorophenol							

MDL

H_2O/501L

J - Estimated value.
K - Actual value is known to be less than value given.
L - Actual value is known to be greater than value given.
U - Material was analyzed for but not detected. The number is the Minimum Detection Limit. MDL
NA - Not analyzed.
1/ - Tentative identification.
2/ - On NRDC List of Priority Pollutants.

STATE LABORATORY OF PUBLIC HEALTH

P.O. BOX 28047 - 306 N. WILMINGTON, ST., RALEIGH, N.C. 27611

(3)

ORGANIC CHEMICAL ANALYSIS

BASE/NEUTRAL AND ACID EXTRACTABLES	LAB NO	992476	992477	992478	992479	992480	992481
	FIELD #	VC-006-AW	VC-001-SW	VC-002-SW	VC-003-SW	VC-004-SW	VC-005-SW
COMPOUND	TYPE	(1)	(2)	(2)	(2)	(2)	(2)
	UNITS	µg/l ~~mg/kg~~	µg/l ~~mg/kg~~	µg/l ~~mg/kg~~	µg/l ~~mg/kg~~	µg/l ~~mg/kg~~	µg/l ~~mg/kg~~
N-nitrosodimethylamine	10/330	U	U	U	U	U	U
bis(2-chloroethyl)ether							
2-chlorophenol							
phenol							
1,3-dichlorobenzene							
1,4-dichlorobenzene							
1,2-dichlorobenzene							
bis(2-chloroisopropyl)ether							
hexachloroethane							
N-nitroso-di-n-propylamine							
nitrobenzene							
isophorone							
2-nitrophenol							
2,4-dimethylphenol							
bis(2-chloroethoxy)methane							
2,4-dichlorophenol							
1,2,4-trichlorobenzene							
naphthalene							
hexachlorobutadiene							
4-chloro-m-cresol							
hexachlorocyclopentadiene							
2,4,6-trichlorophenol							
2-chloronaphthalene							
acenaphthylene							
dimethyl phthalate							
2,6-dinitrotoluene							
acenaphthene							
2,4-dinitrophenol	50/1650						
2,4-dinitrotoluene	10/330						
4-nitrophenol	50/1650						
fluorene	10/330						
4-chlorophenylphenylether							
diethyl phthalate							
4,6-dinitro-o-cresol	50/1650						
diphenylamine	10/330						
azobenzene							
4-bromophenylphenylether							
hexachlorobenzene							
pentachlorophenol	50/1650						
phenanthrene	10/330						
anthracene							
dibutyl phthalate							
fluoranthene							

MDL
H_2O/SOIL

J - Estimated value.
< - Actual value is known to be less than value given.
> - Actual value is known to be greater than value given.
U - Material was analyzed for but not detected. The number is the Minimum Detection Limit. MDL
NA - Not analyzed.
1/ - Tentative identification.
2/ - On NRDC List of Priority Pollutants.

(4)

STATE LABORATORY OF PUBLIC HEALTH

P.O. BOX 28047 - 306 N. WILMINGTON, ST., RALEIGH, N.C. 27611

ORGANIC CHEMICAL ANALYSIS

BASE/NEUTRAL AND ACID EXTRACTABLES	LAB NO	992476	992477	992478	992479	992480	992481
	FIELD #	VC-006-PW	VC-001-SW	VC-002-SW	VC-003-SW	VC-004-SW	VC-005-SW
COMPOUND	TYPE	(1)	(2)	(2)	(2)	(2)	(2)
	UNITS	µg/l ~~mg/kg~~	µg/l ~~mg/kg~~	µg/l ~~mg/kg~~	µg/l ~~mg/kg~~	µg/l ~~mg/kg~~	µg/l ~~mg/kg~~
pyrene	10/330	U	U	U	U	U	U
benzidine	50/1650						
butyl benzyl phthalate	10/330						
benz(a)anthracene							
chrysene							
3,3-dichlorobenzidine	50/1650						
bis(2-ethylhexyl)phthalate	10/330						
di-n-octyl phthalate	10/330						
benzo(b)fluoranthene	50/1650						
benzo(k)fluoranthene							
benzo(a)pyrene							
indeno(1,2,3-cd)pyrene							
dibenzo(a,h)anthracene							
benzo(g,h,i)perylene							
aniline	50/1650						
benzoic acid							
benzyl alcohol							
4-chloroaniline							
dibenzofuran	10/330						
2-methylnaphthalene							
2-methylphenol							
4-methylphenol							
2-nitroaniline	50/1650						
3-nitroaniline							
4-nitroaniline							
2,4,5-trichlorophenol							

MDL

H_2O / 501L

J - Estimated value.
K - Actual value is known to be less than value given.
L - Actual value is known to be greater than value given.
U - Material was analyzed for but not detected. The number is the Minimum Detection Limit. MDL
NA - Not analyzed.
1/ - Tentative identification.
2/ - On NRDC List of Priority Pollutants.

NC Department of Environment, Health, & Natural Resources
Solid Waste Management Division

SAMPLE ANALYSIS REQUEST

State Laboratory of Public Health
P.O. Box 28047, 306 N. Wilmington St.
Raleigh, North Carolina 27611-8047

Site Number NCSF N0406 924 Sample ID Numbi VC-001-PW 07/26/99 1535 GRAB
VC072699, NC S. RYALS
POTABLE WELL
ORG-CLP VOA Ground Water
VCW-01

Name of Site Virginia Carolina Chemical Collected By ___

Site Location Wadesboro, NC Date Collected ___

RECEIVED
AUG 23 1999
LAB SECTION

Agency: ___ Hazardous Waste ___ Solid Waste X Superfund

Sample Type

Environmental	Concentrate	Comments
___ Ground Water (1)	___ Solid (5)	
___ Surface Water (2)	___ Liquid (6)	
___ Soil (3)	___ Sludge (7)	
___ Other (4)	___ Other (8)	

TCLP Compounds

Inorganic Compounds	Results(mg/l)
___ arsenic	
___ barium	
___ cadmium	
___ chromium	
___ lead	
___ mercury	
___ selenium	
___ silver	

Organic Chemistry

Parameter	Results (mg/l)
✓ P&T:GC/MS	
___ Acid:B/N Ext.	
___ 2,4-D	
___ 2,4,5-TP(Silvex)	
___ chlordane	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	

Inorganic Chemistry

Parameter	Results(mg/l)(mg/kg)
___ antimony	
___ arsenic	
___ barium	
___ beryllium	
___ cadmium	
___ chloride	
___ chromium	
___ cobalt	
___ copper	
___ fluoride	
___ iron	
___ lead	
___ manganese	
___ mercury	
___ nickel	
___ nitrate	
___ selenium	
___ silver	
___ sulfates	
___ thallium	
___ vanadium	
___ zinc	
___ pH	
___ conductivity	
___ TDS	
___ flash point	

Organic Compounds	Results(mg/l)
___ benzene	
___ carbon tetrachloride	
___ chlordane	
___ chlorobenzene	
___ chloroform	
___ o-cresol	
___ m-cresol	
___ p-cresol	
___ cresol	
___ 1,4-dichlorobenzene	
___ 1,2-dichloroethane	
___ 1,1-dichloroethylene	
___ 2,4-dichloroethylene	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ hexachloroethane	
___ methyl ethyl ketone	
___ nitrobenzene	
___ pentachlorophenol	
___ pyridine	
___ tetrachloroethylene	
___ trichloroethylene	
___ 2,4,5-trichlorophenol	
___ 2,4,6-trichlorophenol	
___ vinyl chloride	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	
___ 2,4-D	
___ 2,4,5-TP (Silvex)	

FOR LAB USE ONLY

Date Received JUL 27 1999 NJ

Date Extracted

Date Analyzed 8-5-99 NJ

Reported By John L. Neal

Date Reported 8-16-99

Lab Number 992441

DHS 3191 (Revised 12/93)

#992441 – 992497

Environment, Health, & Natural Resources
Solid Waste Management Division

REQUEST

State Laboratory of Public Health
P.O. Box 28047, 306 N. Wilmington St.
Raleigh, North Carolina 27611-8047

Site Number NCSF N0406 924

Sample ID Nu VC-002-PW 07/26/99 1605 GRAB
VC072699, NC S. RYALS

Name of Site Virginia Carolina Chemical

Collected By POTABLE WELL
ORG-CLP VOA Ground Water
VCW-05 10

Site Location Wadesboro, NC

Date Collected

Agency: ___ Hazardous Waste ___ Solid Waste X Superfund

Sample Type

Environmental	Concentrate	Comments
___ Ground Water (1)	___ Solid (5)	
___ Surface Water (2)	___ Liquid (6)	
___ Soil (3)	___ Sludge (7)	
___ Other (4)	___ Other (8)	

TCLP Compounds

Inorganic Compounds	Results(mg/l)
___ arsenic	
___ barium	
___ cadmium	
___ chromium	
___ lead	
___ mercury	
___ selenium	
___ silver	
___	
___	
___	
___	

Organic Chemistry

Parameter	Results (mg/l)
✓ P&T:GC/MS	
___ Acid:B/N Ext.	
___ 2,4-D	
___ 2,4,5-TP(Silvex)	
___ chlordane	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	
___	
___	
___	
___	

Inorganic Chemistry

Parameter	Results(mg/l)(mg/kg)
___ antimony	
___ arsenic	
___ barium	
___ beryllium	
___ cadmium	
___ chloride	
___ chromium	
___ cobalt	
___ copper	
___ fluoride	
___ iron	
___ lead	
___ manganese	
___ mercury	
___ nickel	
___ nitrate	
___ selenium	
___ silver	
___ sulfates	
___ thallium	
___ vanadium	
___ zinc	
___ pH	
___ conductivity	
___ TDS	
___ flash point	
___	
___	
___	
___	
___	
___	

Organic Compounds	Results(mg/l)
___ benzene	
___ carbon tetrachloride	
___ chlordane	
___ chlorobenzene	
___ chloroform	
___ o-cresol	
___ m-cresol	
___ p-cresol	
___ cresol	
___ 1,4-dichlorobenzene	
___ 1,2-dichloroethane	
___ 1,1-dichloroethylene	
___ 2,4-dichloroethylene	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ hexachloroethane	
___ methyl ethyl ketone	
___ nitrobenzene	
___ pentachlorophenol	
___ pyridine	
___ tetrachloroethylene	
___ trichloroethylene	
___ 2,4,5-trichlorophenol	
___ 2,4,6-trichlorophenol	
___ vinyl chloride	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	
___ 2,4-D	
___ 2,4,5-TP (Silvex)	

FOR LAB USE ONLY

Date Received JUL 27 1999

Date Extracted

Date Analyzed 8-5-99 MJ

Reported By

Date Reported

Lab Number 992442

DHS 3191 (Revised 12/93)

NC Department of Environment, Health, & Natural Resources
Solid Waste Management Division

SAMPLE ANALYSIS REQUEST

State Laboratory of Public Health
P.O. Box 28047, 306 N. Wilmington St.
Raleigh, North Carolina 27611-8047

Site Number NOSF N0406 924

Sample ID Number VC-003-PW 07/26/99 1600 GRAB
VC072699, NC S. RYALS

Name of Site Virginia Carolina Chemical

Collected By ____ POTABLE WELL
ORG-CLP VOA Ground Water
VCW-09 19

Site Location Wadesboro, NC

Date Collected ____

Agency: ____ Hazardous Waste ____ Solid Waste X Superfund

Sample Type

Environmental	Concentrate	Comments
___ Ground Water (1)	___ Solid (5)	
___ Surface Water (2)	___ Liquid (6)	
___ Soil (3)	___ Sludge (7)	
___ Other (4)	___ Other (8)	

TCLP Compounds

Inorganic Compounds	Results(mg/l)
___ arsenic	
___ barium	
___ cadmium	
___ chromium	
___ lead	
___ mercury	
___ selenium	
___ silver	

Organic Chemistry

Parameter	Results (mg/l)
✓ P&T:GC/MS	
___ Acid:B/N Ext.	
___ 2,4-D	
___ 2,4,5-TP(Silvex)	
___ chlordane	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	

Inorganic Chemistry

Parameter	Results(mg/l)(mg/kg)
___ antimony	
___ arsenic	
___ barium	
___ beryllium	
___ cadmium	
___ chloride	
___ chromium	
___ cobalt	
___ copper	
___ fluoride	
___ iron	
___ lead	
___ manganese	
___ mercury	
___ nickel	
___ nitrate	
___ selenium	
___ silver	
___ sulfates	
___ thallium	
___ vanadium	
___ zinc	
___ pH	
___ conductivity	
___ TDS	
___ flash point	

Organic Compounds	Results(mg/l)
___ benzene	
___ carbon tetrachloride	
___ chlordane	
___ chlorobenzene	
___ chloroform	
___ o-cresol	
___ m-cresol	
___ p-cresol	
___ cresol	
___ 1,4-dichlorobenzene	
___ 1,2-dichloroethane	
___ 1,1-dichloroethylene	
___ 2,4-dichloroethylene	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ hexachloroethane	
___ methyl ethyl kerone	
___ nitrobenzene	
___ pentachlorophenol	
___ pyridine	
___ tetrachloroethylene	
___ trichloroethylene	
___ 2,4,5-trichlorophenol	
___ 2,4,6-trichlorophenol	
___ vinyl chloride	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	
___ 2,4-D	
___ 2,4,5-TP (Silvex)	

FOR LAB USE ONLY

Date Received JUL 27 1999

Date Extracted ____

Date Analyzed 8-5-99 mg

Reported By ____

Date Reported ____

Lab Number 992443

DHS 3191 (Revised 12/93)

Environment, Health, & Natural Resources
Solid Waste Management Division

State Laboratory of Public Health
P.O. Box 28047, 306 N. Wilmington St.
Raleigh, North Carolina 27611-8047

Site Number NCSF N0406 924

Sample ID Number/ VC-103-PW 07/26/99 1600 GRAB
VC072699, NC S. RYALS

Name of Site Virginia Carolina Chemical

Collected By POTABLE WELL

Site Location Wadesboro, NC

Date Collected ORG-CLP VOA Ground Water
VCW-89 203

Agency: ___ Hazardous Waste ___ Solid Waste X Superfund

Sample Type

Environmental	Concentrate	Comments
___ Ground Water (1)	___ Solid (5)	
___ Surface Water (2)	___ Liquid (6)	
___ Soil (3)	___ Sludge (7)	
___ Other (4)	___ Other (8)	

TCLP Compounds

Inorganic Compounds	Results(mg/l)
___ arsenic	
___ barium	
___ cadmium	
___ chromium	
___ lead	
___ mercury	
___ selenium	
___ silver	

Organic Chemistry

Parameter	Results (mg/l)
✓ P&T:GC/MS	
___ Acid:B/N Ext.	
___ 2,4-D	
___ 2,4,5-TP(Silvex)	
___ chlordane	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	

Inorganic Chemistry

Parameter	Results(mg/l)(mg/kg)
___ antimony	
___ arsenic	
___ barium	
___ beryllium	
___ cadmium	
___ chloride	
___ chromium	
___ cobalt	
___ copper	
___ fluoride	
___ iron	
___ lead	
___ manganese	
___ mercury	
___ nickel	
___ nitrate	
___ selenium	
___ silver	
___ sulfates	
___ thallium	
___ vanadium	
___ zinc	
___ pH	
___ conductivity	
___ TDS	
___ flash point	

Organic Compounds	Results(mg/l)
___ benzene	
___ carbon tetrachloride	
___ chlordane	
___ chlorobenzene	
___ chloroform	
___ o-cresol	
___ m-cresol	
___ p-cresol	
___ cresol	
___ 1,4-dichlorobenzene	
___ 1,2-dichloroethane	
___ 1,1-dichloroethylene	
___ 2,4-dichloroethylene	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ hexachloroethane	
___ methyl ethyl ketone	
___ nitrobenzene	
___ pentachlorophenol	
___ pyridine	
___ tetrachloroethylene	
___ trichloroethylene	
___ 2,4,5-trichlorophenol	
___ 2,4,6-trichlorophenol	
___ vinyl chloride	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	
___ 2,4-D	
___ 2,4,5-TP (Silvex)	

FOR LAB USE ONLY

Date Received JUL 27 1999

Date Extracted

Date Analyzed 8-6-99 MG

Reported By

Date Reported

Lab Number 992444

DHS 3191 (Revised 12/93)

NC Department of Environment, Health, & Natural Resources
Solid Waste Management Division

SAMPLE ANALYSIS REQUEST

State Laboratory of Public Health
P.O. Box 28047, 306 N. Wilmington St.
Raleigh, North Carolina 27611-8047

Site Number NCSF N0406 924

Sample ID Number VC-004-PW 07/26/99 1646 GRAB
VC072699, NC S. RYALS

Name of Site Virginia Carolina Chemical

Collected By POTABLE WELL
ORG-CLP VOA Ground Water
VCW-13 28

Site Location Wadesboro, NC

Date Collected

Agency: ___ Hazardous Waste ___ Solid Waste X Superfund

Sample Type

Environmental	Concentrate	Comments
___ Ground Water (1)	___ Solid (5)	
___ Surface Water (2)	___ Liquid (6)	
___ Soil (3)	___ Sludge (7)	
___ Other (4)	___ Other (8)	

TCLP Compounds

Inorganic Compounds	Results(mg/l)
___ arsenic	
___ barium	
___ cadmium	
___ chromium	
___ lead	
___ mercury	
___ selenium	
___ silver	
___	
___	
___	
___	

Organic Chemistry

Parameter	Results (mg/l)
✓ P&T:GC/MS	
___ Acid:B/N Ext.	
___ 2,4-D	
___ 2,4,5-TP(Silvex)	
___ chlordane	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	
___	
___	
___	
___	

Inorganic Chemistry

Parameter	Results(mg/l)(mg/kg)
___ antimony	
___ arsenic	
___ barium	
___ beryllium	
___ cadmium	
___ chloride	
___ chromium	
___ cobalt	
___ copper	
___ fluoride	
___ iron	
___ lead	
___ manganese	
___ mercury	
___ nickel	
___ nitrate	
___ selenium	
___ silver	
___ sulfates	
___ thallium	
___ vanadium	
___ zinc	
___ pH	
___ conductivity	
___ TDS	
___ flash point	
___	
___	
___	
___	
___	
___	

Organic Compounds	Results(mg/l)
___ benzene	
___ carbon tetrachloride	
___ chlordane	
___ chlorobenzene	
___ chloroform	
___ o-cresol	
___ m-cresol	
___ p-cresol	
___ cresol	
___ 1,4-dichlorobenzene	
___ 1,2-dichloroethane	
___ 1,1-dichloroethylene	
___ 2,4-dichloroethylene	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ hexachloroethane	
___ methyl ethyl ketone	
___ nitrobenzene	
___ pentachlorophenol	
___ pyridine	
___ tetrachloroethylene	
___ trichloroethylene	
___ 2,4,5-trichlorophenol	
___ 2,4,6-trichlorophenol	
___ vinyl chloride	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	
___ 2,4-D	
___ 2,4,5-TP (Silvex)	

FOR LAB USE ONLY

Date Received JUL 27 1999

Date Extracted

Date Analyzed 8-6-99 NJ

Reported By

Date Reported

Lab Number 992445

DHS 3191 (Revised 12/93)

NC Department of Environment, Health, & Natural Resources
Solid Waste Management Division

SAMPLE ANALYSIS REQUEST

State Laboratory of Public Health
P.O. Box 28047, 306 N. Wilmington St.
Raleigh, North Carolina 27611-8047

Site Number NCSF N0406 924

Sample ID Number/l VC-005-PW 07/26/99 1713 GRAB
VC072699, NC S. RYALS
POTABLE WELL
ORG-CLP VOA Ground Water
VCW-17 37

Name of Site Virginia Carolina Chemical

Collected By

Site Location Wadesboro, NC

Date Collected

Agency: ___ Hazardous Waste ___ Solid Waste X Superfund

Sample Type

Environmental	Concentrate	Comments
___ Ground Water (1)	___ Solid (5)	
___ Surface Water (2)	___ Liquid (6)	
___ Soil (3)	___ Sludge (7)	
___ Other (4)	___ Other (8)	

TCLP Compounds

Inorganic Compounds	Results(mg/l)
___ arsenic	
___ barium	
___ cadmium	
___ chromium	
___ lead	
___ mercury	
___ selenium	
___ silver	

Organic Chemistry

Parameter	Results (mg/l)
✓ P&T:GC/MS	
___ Acid:B/N Ext.	
___ 2,4-D	
___ 2,4,5-TP(Silvex)	
___ chlordane	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	

Inorganic Chemistry

Parameter	Results(mg/l)(mg/kg)
___ antimony	
___ arsenic	
___ barium	
___ beryllium	
___ cadmium	
___ chloride	
___ chromium	
___ cobalt	
___ copper	
___ fluoride	
___ iron	
___ lead	
___ manganese	
___ mercury	
___ nickel	
___ nitrate	
___ selenium	
___ silver	
___ sulfates	
___ thallium	
___ vanadium	
___ zinc	
___ pH	
___ conductivity	
___ TDS	
___ flash point	

Organic Compounds	Results(mg/l)
___ benzene	
___ carbon tetrachloride	
___ chlordane	
___ chlorobenzene	
___ chloroform	
___ o-cresol	
___ m-cresol	
___ p-cresol	
___ cresol	
___ 1,4-dichlorobenzene	
___ 1,2-dichloroethane	
___ 1,1-dichloroethylene	
___ 2,4-dichloroethylene	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ hexachloroethane	
___ methyl ethyl ketone	
___ nitrobenzene	
___ pentachlorophenol	
___ pyridine	
___ tetrachloroethylene	
___ trichloroethylene	
___ 2,4,5-trichlorophenol	
___ 2,4,6-trichlorophenol	
___ vinyl chloride	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	
___ 2,4-D	
___ 2,4,5-TP (Silvex)	

FOR LAB USE ONLY

Date Received JUL 27 1999

Date Extracted

Date Analyzed 8-6-99 ng

Reported By

Date Reported

Lab Number 992446

DHS 3191 (Revised 12/93)

Department of Environment, Health, & Natural Resources
Solid Waste Management Division

ANALYSIS REQUEST

State Laboratory of Public Health
P.O. Box 28047, 306 N. Wilmington St.
Raleigh, North Carolina 27611-8047

Site Number NCF N0406 924

Sample ID Number/N VC-006-PW 07/26/99 1650 GRAB
VC072699, NC S. RYALS
POTABLE WELL
ORG-CLP VOA Ground Water
VCW-21 46

Name of Site Virginia Carolina Chemical

Collected By

Site Location Wadesboro, NC

Date Collected

Agency: ___ Hazardous Waste ___ Solid Waste X Superfund

Sample Type

Environmental	Concentrate	Comments
___ Ground Water (1)	___ Solid (5)	
___ Surface Water (2)	___ Liquid (6)	
___ Soil (3)	___ Sludge (7)	
___ Other (4)	___ Other (8)	

TCLP Compounds

Inorganic Compounds	Results(mg/l)
___ arsenic	
___ barium	
___ cadmium	
___ chromium	
___ lead	
___ mercury	
___ selenium	
___ silver	

Organic Chemistry

Parameter	Results (mg/l)
✓ P&T:GC/MS	
___ Acid:B/N Ext.	
___ 2,4-D	
___ 2,4,5-TP(Silvex)	
___ chlordane	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	

Inorganic Chemistry

Parameter	Results(mg/l)(mg/kg)
___ antimony	
___ arsenic	
___ barium	
___ beryllium	
___ cadmium	
___ chloride	
___ chromium	
___ cobalt	
___ copper	
___ fluoride	
___ iron	
___ lead	
___ manganese	
___ mercury	
___ nickel	
___ nitrate	
___ selenium	
___ silver	
___ sulfates	
___ thallium	
___ vanadium	
___ zinc	
___ pH	
___ conductivity	
___ TDS	
___ flash point	

Organic Compounds	Results(mg/l)
___ benzene	
___ carbon tetrachloride	
___ chlordane	
___ chlorobenzene	
___ chloroform	
___ o-cresol	
___ m-cresol	
___ p-cresol	
___ cresol	
___ 1,4-dichlorobenzene	
___ 1,2-dichloroethane	
___ 1,1-dichloroethylene	
___ 2,4-dichloroethylene	
___ heptachlor	
___ hexachlorobenzene	
___ hexachlorobutadiene	
___ hexachloroethane	
___ methyl ethyl ketone	
___ nitrobenzene	
___ pentachlorophenol	
___ pyridine	
___ tetrachloroethylene	
___ trichloroethylene	
___ 2,4,5-trichlorophenol	
___ 2,4,6-trichlorophenol	
___ vinyl chloride	
___ endrin	
___ lindane	
___ methoxychlor	
___ toxaphene	
___ 2,4-D	
___ 2,4,5-TP (Silvex)	

FOR LAB USE ONLY

Date Received JUL 27 1999

Date Extracted

Date Analyzed 8-6-99 TJ

Reported By

Date Reported

Lab Number 992447

DHS 3191 (Revised 12/93)

STATE LABORATORY OF PUBLIC HEALTH
PO BOX 28[illegible]7 - 306 N. WILMINGTON ST., RALEIG[illegible] NC 27611

(1)

ORGANIC CHEMICAL ANALYSIS

PURGEABLE COMPOUNDS	LAB NO	992441	992442	992443	992444	992445	992446
	FIELD NO	VCW-01	VCW-05	VCW-09	VCW-89	VCW-13	VCW-17
COMPOUND	TYPE	(|)	(|)	(|)	(|)	(|)	(|)
	↓ MDL ↓ (ppb)	ppb ppm	ppb ppm	ppb ppm	ppb ppm	ppb ppm	ppb ppm
CHLOROMETHANE	2.0	u	u	u	u	u	u
VINYL CHLORIDE	↓	↓	↓	↓	↓	↓	↓
BROMOMETHANE	↓	↓	↓	↓	↓	↓	↓
CHLOROETHANE	↓	↓	↓	↓	↓	↓	↓
TRICHLOROFLUOROMETHANE	↓	↓	↓	↓	↓	↓	↓
1.1-DICHLOROETHENE	0.5	↓	↓	↓	↓	↓	↓
ACETONE	2.0	↓	↓	↓	↓	↓	↓
IODOMETHANE	0.5	↓	↓	↓	↓	↓	↓
CARBON DISULFIDE	↓	↓	↓	↓	↓	↓	↓
METHYLENE CHLORIDE	↓	↓	↓	↓	↓	↓	↓
ACRYLONITRILE	↓	↓	↓	↓	↓	↓	↓
TRANS-1.2-DICHLOROETHENE	↓	↓	↓	↓	↓	↓	↓
METHYL-t-BUTYL-ETHER	↓	↓	↓	↓	↓	↓	↓
1.1-DICHLOROETHANE	↓	↓	↓	↓	↓	↓	↓
ISOPROPYL ETHER	↓	↓	↓	↓	↓	↓	↓
CIS-1.2-DICHLOROETHENE	↓	↓	↓	↓	↓	↓	↓
2-BUTANONE	2.0	↓	↓	↓	↓	↓	↓
TETRAHYDROFURAN	↓	↓	↓	↓	↓	↓	↓
CHLOROFORM	0.5	trace	trace	trace	trace	trace	↓
1.1.1-TRICHLOROETHANE	↓	u	u	u	u	u	↓
CARBON TETRACHLORIDE	↓	↓	↓	↓	↓	↓	↓
BENZENE	↓	↓	↓	↓	↓	↓	↓
1.2-DICHLOROETHANE	↓	↓	↓	↓	↓	↓	↓
TRICHLOROETHENE	↓	↓	↓	↓	↓	↓	↓
1.2-DICHLOROPROPANE	↓	↓	↓	↓	↓	↓	↓
DIBROMOMETHANE	↓	↓	↓	↓	↓	↓	↓

C - Possible lab contamination or background
J - Estimated value
K - Actual value is known to be less than value given.
L - Actual value is known to be greater than value given.
U - Material was analyzed for but not detected. The number is the Minimum Detection Limit.
NA - Not analyzed.
1/ - Tentative identification.
D - SAMPLE DILUTED. MDL'S DO NOT APPLY.

STATE LABORATORY OF PUBLIC HEALTH
PO BOX 28047 - 306 N. WILMINGTON ST., RALEIGH, NC 27611

(2)

ORGANIC CHEMICAL ANALYSIS

PURGEABLE COMPOUNDS	LAB NO	992441	992442	992443	992444	992445	992446
	FIELD NO						
COMPOUND	TYPE	( )	( )	( )	( )	( )	( )
	MDL (ppb)	ppb ppm	ppb ppm	ppb ppm	ppb ppm	ppb ppm	ppb ppm
BROMODICHLOROMETHANE	0.5	u	u	u	u	u	u
CIS-1,3-DICHLOROPROPENE							
4-METHYL-2-PENTANONE							
TOLUENE							
TRANS-1,3-DICHLOROPROPENE							
1,1,2-TRICHLOROETHANE		↓					
TETRACHLOROETHENE		trace					
2-HEXANONE		u					
DIBROMOCHLOROMETHANE							
ETHYLENE DIBROMIDE							
CHLOROBENZENE							
1,1,1,2-TETRACHLOROETHANE							
ETHYL BENZENE							
XYLENES							
STYRENE							
BROMOFORM							
1,1,2,2-TETRACHLOROETHANE							
1,2,3-TRICHLOROPROPANE							
1,4-DICHLOROBENZENE							
1,2-DICHLOROBENZENE	↓						
1,2,-DIBROMO-3-CHLOROPROPANE	2.0	↓	↓	↓	↓	↓	↓

C - Possible lab contamination or background.
J - Estimated value
K - Actual value is known to be less than value given.
L - Actual value is known to be greater than value given.
U - Material was analyzed for but not detected. The number is the Minimum Detection Limit.
NA - Not analyzed.
1/ - Tentative identification.
D - SAMPLE DILUTED. MDL'S DO NOT APPLY.

STATE LABORATORY OF PUBLIC HEALTH
PO BOX 28047 - 306 N. WILMINGTON ST., RALEIGH, NC 27611

(3)

ORGANIC CHEMICAL ANALYSIS

PURGEABLE COMPOUNDS	LAB NO	992447	992448	992449	992450	992451	992452
	FIELD NO	VCW-21	VCW-53	VCW-56	VCW-59	VCW-62	VCW-65
COMPOUND	TYPE	(1)	(2)	(2)	(2)	(2)	(2)
	↓ MDL (ppb) ↓	ppb ppm	ppb ppm	ppb ppm	ppb ppm	ppb ppm	ppb ppm
CHLOROMETHANE	2.0	U	U	U	U	U	U
VINYL CHLORIDE	↓	↓	↓	↓	↓	↓	↓
BROMOMETHANE	↓	↓	↓	↓	↓	↓	↓
CHLOROETHANE	↓	↓	↓	↓	↓	↓	↓
TRICHLOROFLUOROMETHANE	↓	↓	↓	↓	↓	↓	↓
1,1-DICHLOROETHENE	0.5	↓	↓	↓	↓	↓	↓
ACETONE	2.0	↓	↓	↓	↓	↓	↓
IODOMETHANE	0.5	↓	↓	↓	↓	↓	↓
CARBON DISULFIDE	↓	↓	↓	↓	↓	↓	↓
METHYLENE CHLORIDE	↓	↓	↓	↓	↓	↓	↓
ACRYLONITRILE	↓	↓	↓	↓	↓	↓	↓
TRANS-1,2-DICHLOROETHENE	↓	↓	↓	↓	↓	↓	↓
METHYL-t-BUTYL-ETHER	↓	↓	↓	↓	↓	↓	↓
1,1-DICHLOROETHANE	↓	↓	↓	↓	↓	↓	↓
ISOPROPYL ETHER	↓	↓	↓	↓	↓	↓	↓
CIS-1,2-DICHLOROETHENE	↓	↓	↓	↓	↓	↓	↓
2-BUTANONE	2.0	↓	↓	↓	↓	↓	↓
TETRAHYDROFURAN	↓	↓	↓	↓	↓	↓	↓
CHLOROFORM	0.5	↓	↓	↓	↓	↓	↓
1,1,1-TRICHLOROETHANE	↓	↓	↓	↓	↓	↓	↓
CARBON TETRACHLORIDE	↓	↓	↓	↓	↓	↓	↓
BENZENE	↓	↓	↓	↓	↓	↓	↓
1,2-DICHLOROETHANE	↓	↓	↓	↓	↓	↓	↓
TRICHLOROETHENE	↓	↓	↓	↓	↓	↓	↓
1,2-DICHLOROPROPANE	↓	↓	↓	↓	↓	↓	↓
DIBROMOMETHANE	↓	↓	↓	↓	↓	↓	↓

C - Possible lab contamination or background
J - Estimated value
K - Actual value is known to be less than value given.
L - Actual value is known to be greater than value given.
U - Material was analyzed for but not detected. The number is the Minimum Detection Limit.
NA - Not analyzed.
1/ - Tentative identification.
D - SAMPLE DILUTED. MDL'S DO NOT APPLY.

STATE LABORATORY OF PUBLIC HEALTH
PO BOX 28047 - 306 N. WILMINGTON ST., RALEIGH, NC 27611

ORGANIC CHEMICAL ANALYSIS

PURGEABLE COMPOUNDS	LAB NO	992447	992448	992449	992450	992451	992452
	FIELD NO						
COMPOUND	TYPE	(1)	(2)	(2)	(2)	(2)	(2)
	MDL (ppb)	ppb ppm	ppb ppm	ppb ppm	ppb ppm	ppb ppm	ppb ppm
BROMODICHLOROMETHANE	0.5	U	U	U	U	U	U
CIS-1,3-DICHLOROPROPENE							
4-METHYL-2-PENTANONE							
TOLUENE						trace	
TRANS-1,3-DICHLOROPROPENE						U	
1,1,2-TRICHLOROETHANE							
TETRACHLOROETHENE							
2-HEXANONE							
DIBROMOCHLOROMETHANE							
ETHYLENE DIBROMIDE							
CHLOROBENZENE							
1,1,1,2-TETRACHLOROETHANE							
ETHYL BENZENE							
XYLENES							
STYRENE							
BROMOFORM							
1,1,2,2-TETRACHLOROETHANE							
1,2,3-TRICHLOROPROPANE							
1,4-DICHLOROBENZENE							
1,2-DICHLOROBENZENE							
1,2,-DIBROMO-3-CHLOROPROPANE	2.0						

C - Possible lab contamination or background.
J - Estimated value
K - Actual value is known to be less than value given.
L - Actual value is known to be greater than value given.
U - Material was analyzed for but not detected. The number is the Minimum Detection Limit.
NA - Not analyzed.
1/ - Tentative identification.
D - SAMPLE DILUTED. MDL'S DO NOT APPLY.

Federal
Trip Notification & Authorization

Prepared by: Scott Ryals

Today's Date: 7/8/99

*Use Black Ink or Typewriter only-Staff to fill out first 2 blocks only.

Site Trip

Date of Trip: 7/26 & 27/99

If trip date changed or cancelled note below:
Trip Date Changed To: _____ Cancelled: ___

NCD#: NCS FN0406924 Site Name: VCC Wadesboro
City: Wadesboro County: Anson

Reason for Trip: SI Sampling

Name of Hotel (Overnight Trip): Days Inn Hotel Telephone Number: (704) 694-7070

Authorized by: [signature]
Industrial Hygienist

Project Team Leader: Scott Ryals

Assistants: Jeanette Stanley, Harry Zinn, Doug Rumford

Attach To Notification Form: 1 copy each:
Submit to the
Industrial Hygienist

Preliminary Assessment Form (First page only)
Site Map
PA Transmittal Letter

(Please list appropriate County Health Department contact person to call to advise of trip)
Environmental Supervisor or Health Director to call: Carol Gibson Title: Env. Health Program Coordinator
(Note if Dr., M.P., etc.)
Telephone Number: (704) 694-5188

Notes: Health Department Official Contacted: Carol Gibson
Back Up Letter Required: Yes ___ No ✓
Notified Ms. Gibson via voice mail on 7/8/99 (DBL)

Note: Signed original to Data Manager

NORTH CAROLINA DEPARTMENT OF
ENVIRONMENT AND NATURAL RESOURCES
DIVISION OF WASTE MANAGEMENT

NCDENR

JAMES B. HUNT JR.
GOVERNOR

WAYNE MCDEVITT
SECRETARY

WILLIAM L. MEYER
DIRECTOR

June 29, 1999

Ms. Jennifer Wendel
NC Site Management Section
US EPA Region IV Waste Division
61 Forsythe Street, 11th Floor
Atlanta, Georgia 30303

Subject: Virginia Carolina Chemical Company
Wadesboro, Anson County, NC
NCS FN0 406 924
Combined PA/SI Sampling
Date: July 15-16, 1999

Dear Ms. Wendel:

The following is a summary of proposed PA/SI sampling at the former Virginia Carolina Chemical Company (VCC) site on Stanback Ferry Road in Wadesboro, Anson County, NC. This sampling plan is based on PA research in progress, on-site and off-site reconnaissance and a historical investigation of the processes used at this site and others operated by the same company within NC by the NC Division of Solid Waste Superfund Section.

Site Background:

The VCC site is located approximately ½ miles west of the town of Wadesboro, NC on Stanback Ferry Road in Anson County, NC. The site was a former fertilizer manufacturing facility that operated from 1911 through the end of World War II and occupies approximately 10.38 acres of land (See figure 1). The site remained inactive until it was purchased from the county in action by Mr. Carl Weston in 1980. Mr. Weston did not develop the site. The land is heavily overgrown and surrounded by woodlands, few of the original structures remain (See Figure 2) and apart from the gate on the access road, there are no access controls at the site.

Based on investigations at other fertilizer manufacturing facilities throughout NC, the potential contaminants include lead (Pb) from the large lead lined acid mixing chambers, other metal contaminants from the pyrite and phosphate ores used in the production of the fertilizer, potential chlorinated and phosphate fertilizers manufactured on-site and nutrients (sulfates and nitrates).

401 OBERLIN ROAD, SUITE 150, RALEIGH, NC 27605
PHONE 919-733-4996 FAX 919-715-3605
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Groundwater Pathway:

The site is located in a rural area surrounded by woodlands and small agricultural fields. There are three residences served by drinking water wells that are adjacent to the property and three additional residences and a small auto repair business that lie down gradient from and in close proximity to the overland flow pathway. All residences are within a ¼ mile of the facility. According to both county and city officials, there are no water lines serving these residences. The city public water supply, which serves approximately 3,800 people, is not threatened by the site. Table 1 lists the groundwater samples to be collected. Samples will be collected at each well for metals, volatiles, semi-volatiles and nutrients.

Table 1: VCC Wadesboro Groundwater Sampling Locations

Sample Number	Location	Analytes	Comments
VCC-01-PW, N	Figure 2	Metals, V, SV, N	Private well
VCC-02-PW, N	Figure 2	Metals, V, SV, N	Private well
VCC-03-PW, N	Figure 2	Metals, V, SV, N	Private well closest to lead stained soil.
VCC-04-PW, N	Figure 2	Metals, V, SV, N	Not shown on figure, but there is a small business and home. Shares well with #5.
VCC-05-PW, N	Figure 2	Metals, V, SV, N	Private well directly across Stanback Ferry Rd from #5.
VCC-06-PW, N	Figure 2	Metals, V, SV, N	To be Determined, Bkgd
Trip Blank	Figure 2	V, N	Organic QA/QC
Pre-Preservative Blk	Figure 2	Metals	Inorganic QA/QC
Post-Preservative Blk	Figure 2	Metals	Inorganic QA/QC

PW = Groundwater Well
V = Volatile organic compounds
SV = Semi-volatile organic compounds
N = Nutrients

Soil / Source Exposure Pathways:

Based on our on-site reconnaissance and limited operational history of the site, six potential source areas have been identified for sampling. These include a large area of magenta stained soils that are believed to be from the lead-lined acid mixing chambers, an area of soil from a former pole treatment and storage facility, soil from the pyrite and phosphate storage area, soil from the acid mixing area, soil from the fertilizer mixing and bagging operations area and a surface water sample from the on-site water reservoir. There is evidence that the nearby area has been used for clandestine gatherings and potentially as a recreational area for the nearby children. Table 2 lists the soil / source samples to be collected.

Table 2: VCC Wadesboro Soil / Source Area Sampling Locations

Sample Number	Location	Analytes	Comments
VCC-01-SL	See Figure 2	Metals, V, SV, N	Background #1
VCC-02-SL	See Figure 2	Metals, V, SV, N	Source 1. Stained soil source, composite sample
VCC-03-SL	See Figure 2	Metals, V, SV, N	Background #2
VCC-04-SL	See Figure 2	Metals, V, SV, N	Source 2. Near auto repair shop
VCC-05-SL	See Figure 2	Metals, V, SV, N	Overland flow southern PPE
VCC-06-SL	See Figure 2	Metals, V, SV, N	Source 3. Pyrite storage area
VCC-07-SL	See Figure 2	Metals, V, SV, N	Source 4. Acid-mixing area
VCC-08-SL	See Figure 2	Metals, V, SV, N	Source 5. Fertilizer mixing area
VCC-09-SW	See Figure 2	Metals, V, SV, N	Source 6. On-site reservoir

V = Volatile organic compounds
SV = Semi-volatile organic compounds
N = Nutrients
SL = Soil

Surface Water Pathway:

There are two probable points of entry (PPE) to the surface water at two points in an unnamed tributary to Brush Fork. The northern PPE (PPE 1 on Figure 3) is approximately 100 feet west of the site. The southern PPE (PPE 2 on Figure 3) that receives runoff from the potentially contaminated soil area is approximately 750 feet south of the site. The wetland inventory map shows the nearest wetland to be located approximately 1.5 miles downstream of the southern PPE; however, vegetation observed during the site visit and the topography of the area adjacent to the stream bed approximately 100 feet below the southern PPE indicates the potential for a wetland area much closer to the site. Table 3 lists the sediment and surface water samples to be collected.

Table 3: VCC Wadesboro Surface Water and Sediment Sampling Locations

Sample Number	Location	Analytes	Comments
VCC-01-SD, SW	See Figure 2	Metals, V, SV	Background, northern PPE
VCC-02-SD, SW	See Figure 2	Metals, V, SV	Northern PPE
VCC-03-SD, SW	See Figure 2	Metals, V, SV	Upstream of roadbed, below northern PPE
VCC-04-SD, SW	See Figure 2	Metals, V, SV	Background of southern PPE
VCC-05-SD, SW	See Figure 2	Metals, V, SV	Southern PPE
VCC-06-SD, SW	See Figure 2	Metals, V, SV	Upstream of roadbed, above southern PPE
VCC-07-SD, SW	See Figure 2	Metals, V, SV	Downstream of roadbed, above southern PPE
VCC-08-SD, SW	See Figure 2	Metals, V, SV	Background of creek between residences and site
VCC-09-SD, SW	See Figure 2	Metals, V, SV	Creek between residences and site

V = Volatile organic compounds
SV = Semi-volatile organic compounds
N = Nutrients
SD = Surface Sediment
SW = Surface Water

Please fell free to contact me at (919) 733-2801 ext. 316 or ryalssc@wastenot.enr.state.nc.us if you have any questions.

Thank you.

Scott C. Ryals
Environmental Chemist / Toxicologist
NC Superfund

Attachments

cc: File

Approved: _____ Date: _____
Jennifer Wendel
NC Site Management Section

United States Environmental Protection Agency
Region IV
61 Forsyth Street
Atlanta, GA 30303

EPA

Facsimile Cover Sheet

TO: Scott Ryals-NCDENR

FAX No: 919-733-4811

From: Jennifer Wendel-U.S. EPA

Office phone: (404)-562-8799
FAX: (404)-562-8788

Office code: 11th fl

Date: July 7, 1999

Number of pages, including cover:

2

MESSAGE: **Approval page for VC Chem/Wadesboro sample plan**

919 956-4410

Please fell free to contact me at (919) 733-2801 ext. 316 or ryalssc@wastenot.enr.state.nc.us if you have any questions.

Thank you.

Scott C. Ryals
Environmental Chemist / Toxicologist
NC Superfund

Attachments

cc: File

Approved: _____ Date: 7/6/99

Jennifer Wendel
NC Site Management Section

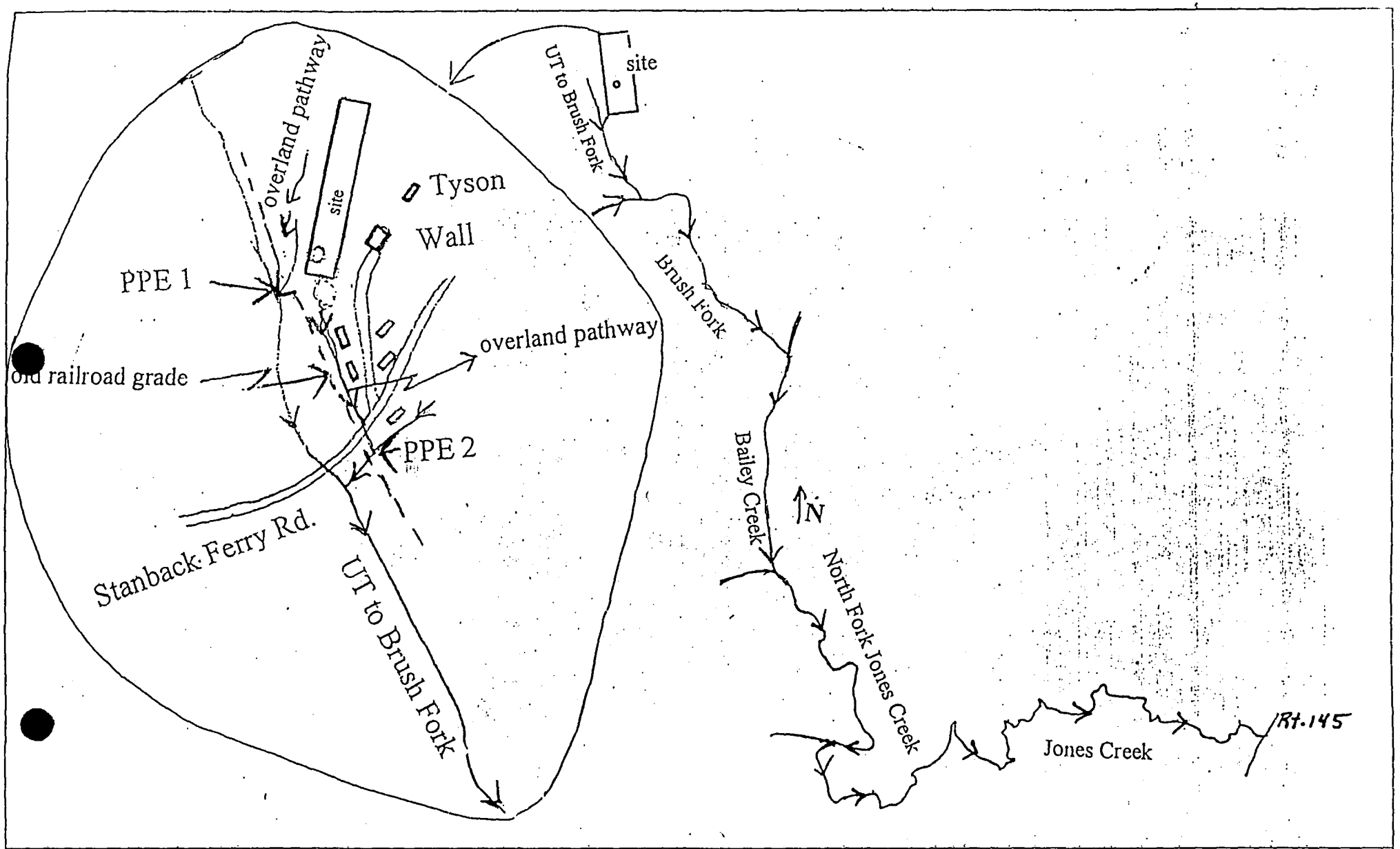

Fig. No: 3	Title: Surface Water Pathway		
North Carolina Division of Waste Management Superfund Section	Scale:	Date: September 1998	Drawn By: J. Stanley
	Site Name: VCC -- Wadesboro		NCD

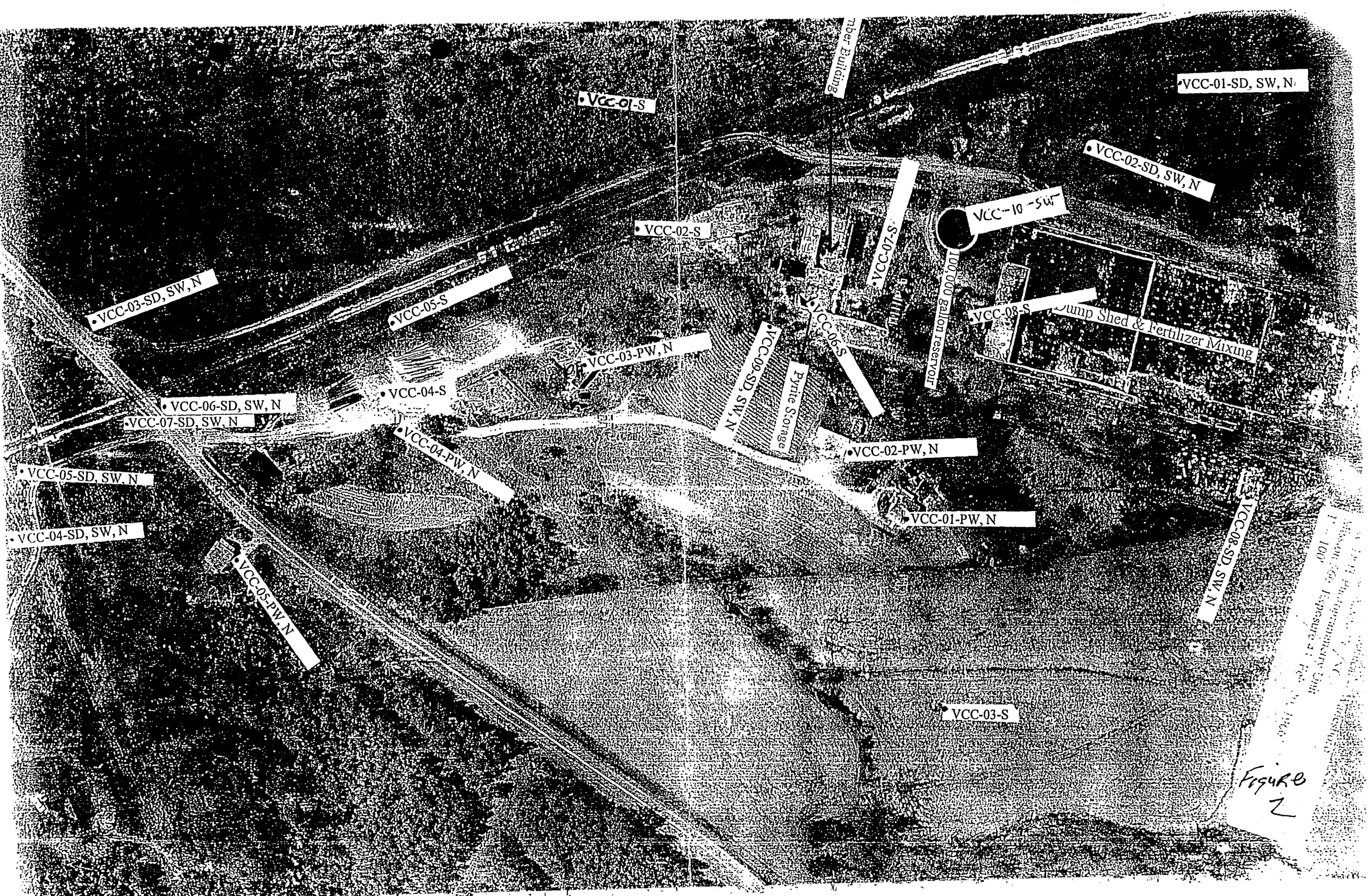
VCC-01-S
VCC-01-SD, SW, N
VCC-02-SD, SW, N
VCC-10-SW
VCC-02-S
VCC-07-S
100,000 gallon reservoir
VCC-03-SD, SW, N
VCC-05-S
VCC-08-S
Pump Shed & Fertilizer Mixing
VCC-06-S
VCC-03-PW, N
VCC-09-SD, SW, N
Pyrite Storage
VCC-04-S
VCC-06-SD, SW, N
VCC-07-SD, SW, N
VCC-04-PW, N
VCC-02-PW, N
VCC-05-SD, SW, N
VCC-01-PW, N
VCC-04-SD, SW, N
VCC-08-SD, SW, N
VCC-05-PW, N
VCC-03-S

FIGURE 2

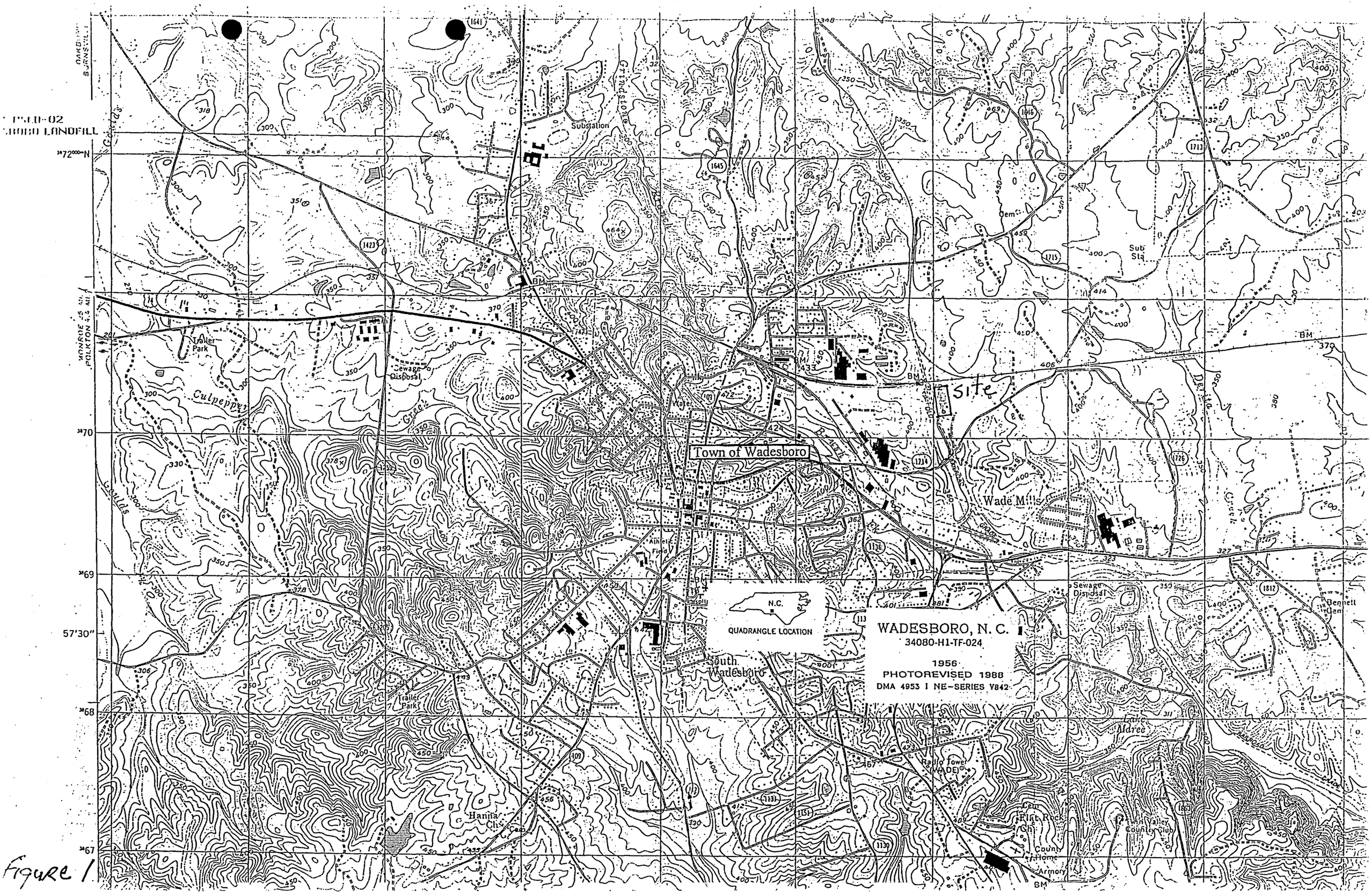
WADESBORO, N. C.
34080-H1-TF-024
1956
PHOTOREVISED 1988
DMA 4953 I NE-SERIES V842
QUADRANGLE LOCATION
N.C.
Town of Wadesboro
Wade Mills
South Wadesboro
Site
Substation
Sewage Disposal
Trailer Park
Athletic Field
Hospital
Water
Radio Tower
WADEJO
Hanna Ch
Flat Rock Ch
County Home
Armory
Valley Country Club
Sub Sta
Culpepper
Gaulds
Cottingham
Deal
Creek
Bennett Cem
Mdree
57'30"

Figure 1

NORTH CAROLINA DEPARTMENT OF
ENVIRONMENT AND NATURAL RESOURCES
DIVISION OF WASTE MANAGEMENT

NCDENR

JAMES B. HUNT JR.
GOVERNOR

WAYNE MCDEVITT
SECRETARY

WILLIAM L. MEYER
DIRECTOR

May 20, 1999

Mr. Carl A. Weston
552 East King Street
Sherman, Texas 75090

Subject: Site Reconnaissance
Former Virginia Chemical Company Site
Stanback Ferry Road
Wadesboro, Anson County, North Carolina

Dear Mr. Weston,

I have recently joined the North Carolina Superfund Section and have been assigned the former Virginia Chemical Company's fertilizer plant in Wadesboro, NC that you currently own. I would like to ask permission to enter your property for a visual inspection in preparation for the collection of soil and water samples.

On November 30, 1998, you were contacted by Ms. Jeanette Stanley of the North Carolina Division of Waste Management Superfund Section concerning a visit to your property for a visual site inspection. At that time, you informed Ms. Stanley that you did not have any objections to her entering the property.

Because of the high probability of lead contaminated soil on the site and the proximity of residences served by drinking water wells, we have planned to collect soil and drinking water samples from the site and the nearby wells. As part of the planning for this event, I would like to request your permission to again enter your property to conduct a visual inspection so that I might be able to familiarize myself with the site layout and location of the nearby residences and their wells and as well as the subsequent sampling event. I have planned for Ms. Stanley and myself to conduct a visual inspection of the property on May 27, 1999 with a subsequent sampling trip scheduled for early July of this year.

I have attempted to contact you a number of times by phone at 903-813-1950 to get permission to access the property but I have been unsuccessful. This letter will serve as notice that we will be conducting a site reconnaissance on May 27, 1999 and collecting samples in July of 1999. We will proceed with the reconnaissance and sample collection unless we hear otherwise from you. There will be no expense for you for this reconnaissance or sample collection. However, if you would like to have samples collected for yourself for analysis at the same time that we are collecting ours, then you will need to provide us with the appropriate containers and have either yourself or a representative of yours present to receive and preserve the samples. We are not capable of shipping the samples to you. You will be sent a copy of the results

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of the collected samples. If you have any questions or comments, please feel free to contact me at 919-733-2801 ext. 316 or via e-mail at ryalssc@wastenot.enr.state.nc.us.

Sincerely,

Scott C. Ryals
Environmental Chemist
Site Evaluation and Removal Branch
North Carolina Superfund Section

cc: Pat DeRossa
Jeanette Stanley
File

Federal
Trip Notification & Authorization

Prepared by: Scott Ryals

Today's Date: 5/14/99

*Use Black Ink or Typewriter only-Staff to fill out first 2 blocks only.

Site Trip

Date of Trip: May 27th

If trip date changed or cancelled note below:
Trip Date Changed To: _____ Cancelled: ___

NCD#: TBA Site Name: Virginia Chemical Co.
City: Wadesboro County: Anson

Reason for Trip: Preliminary Assessment: On-Site Reconnaissance

Name of Hotel (Overnight Trip): ——— Hotel Telephone Number: ( ) ___ - ____

Authorized by: [signature]
Industrial Hygienist

Project Team Leader: Scott Ryals

Assistants: Jeanette Stanley, Harry Zinn, _____

Attach To Notification Form: 1 copy each:
Submit to the
Industrial Hygienist

Preliminary Assessment Form (First page only)
Site Map
PA Transmittal Letter

(Please list appropriate County Health Department contact person to call to advise of trip)
Environmental Supervisor or Health Director to call: Ms. Carol Gibson Title: Program Coordinator Env. Health
(Note if Dr., M.P., etc.)
Telephone Number: (704) 694 - 5188

Notes: Health Department Official Contacted: Carol Gibson
Back Up Letter Required: Yes ___ No ✓

Notified Carol Gibson via voice mail on 5-14-99 (DBL)

Note: Signed original to Data Manager

SITE HEALTH AND SAFETY PLAN

A. General Information

Site Name V. C. Chemical - Almont Works ID # NCO 002 178 580

Location About 0.25 miles north of the intersection of US Highway 421 and Flemington Road, New Hanover County, NC

Proposed Date of Investigation March 30, 1999

Date of Briefing March 29, 1999

Date of Debriefing March 31, 1999

Nature of Visit (check one):

On-Site Reconnaissance	X
Off-Site Reconnaissance	
Sampling	
Sampling Overview	
Remediation Overview	

Health Department Official Contacted Dianne Harvell's voice mail

Date of Contact March 26, 1999

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

	Personnel	Responsibilities	Signature
Team 1	Jeanette Stanley	team leader, recon	Jeanette Stanley
Team 1			
Team 2			
Team 2			

Plan Preparation:

Prepared By: David Lilley, Industrial Hygiene Consultant

Reviewed By: Jack Butler, Superfund Section Chief

Jack Butler

B. SITE/WASTE CHARACTERISTICS

Waste Type(s) __X__ Liquid __X__ Solid __X__ Sludge _____ Gas _____ Vapor

Characteristics __X__ Corrosive _____ Ignitable _____ Radioactive

_____ Volatile __X__ Toxic _____ Reactive _____ Other

List Known or Suspected Hazards (physical, chemical biological or radioactive) on Site and their toxicological effects. Also, if known, list chemical amounts

HAZARD	WARNING PROPERTIES	EXPOSURE LIMIT
Lead	Odor Threshold (OT) = no data	0.5 mg/m^3
Sulfuric Acid	OT = 0.6 - 2.4 mg/m^3	1 mg/m^3
Arsenic	OT = no data	0.01 mg/m^3

UNDERGROUND UTILITIES CHECKLIST

Utility	Locator/Contact Person	Phone #	Date of Location
Power	NA		
Telephone	NA		
Gas	NA		
Water	NA		
Sewer	NA		

Call made by:

ID # NCO 002 178 580

Facility Description: Size unknown Buildings unknown

Disposal Methods Being Investigated Potential spillage, wash water from lead chambers was potentially released onto the ground.

Unusual Features on Site (dike integrity, power lines, terrain, etc.):

none known

History of the Site: The Virginia Carolina Chemical Company (VCC) operated a fertilizer and sulfuric acid plant at the site in the late 1800's and early 1900's. Lead acid chambers and iron pyrite furnaces were located on the site. Iron pyrites were processed at the site to produce sulfuric acid and triphosphate fertilizers.

C. HAZARD EVALUATION

The site can be toured in level D protection. Chemically resistant knee length boots will be worn on site. A tyvek or poly coated tyvek suit is recommended to keep clothing clean.

D. WORK PLAN INSTRUCTION

Map or Sketch Attached? yes

Perimeter Identified? no

Command Post Identified? no

Zones of Contamination Identified? no

Personal Protective Equipment/Level of Protection: _____C X D

Modifications

ID # NCO 002 178 580

Surveillance Equipment:

_____ HNU + Mini Rae	_____ Detector Tubes and Pumps
_____ OVA	_____ 02 Meter
_____ Explosimeter	_____ Radiation Monitor

Decontamination Procedures

_____Level C Respirator wash, respirator removal, suit wash (if needed), suit removal, boot wash, boot removal and glove removal.

___X____Level D Boot wash and rinse and boot removal, suit removal, glove and goggle removal.

Modifications Dispose of trash properly, on-site if possible.

Work Schedule/Visit Objectives The purpose of this visit is to determine if the site poses a threat to the public health or environment because of releases of contaminants to soil, surface water, groundwater, or air. Superfund personnel will not be taking samples during this visit.

EMERGENCY PRECAUTIONS

Route of Exposure	First Aid
Eyes	irrigate immediately
Skin	soap and water wash
Inhalation	fresh air and artificial respiration
Ingestion	get medical attention immediately

ID # NCO 002 178 580

Location of Nearest Phone: unknown (nearby residences/businesses)

Hospital (Address and Phone Number)

New Hanover Memorial Hospital, 2131 S. 17th Street, Wilmington, NC

(919) 343-7000

Emergency Transportation Systems (Phone Numbers)

Fire 911

Ambulance 911

Rescue Squad 911

Emergency Route to Hospital Turn left onto 421, go to 17/76 and turn left. Turn right onto 16th street. The hospital is about 6 miles from the site.

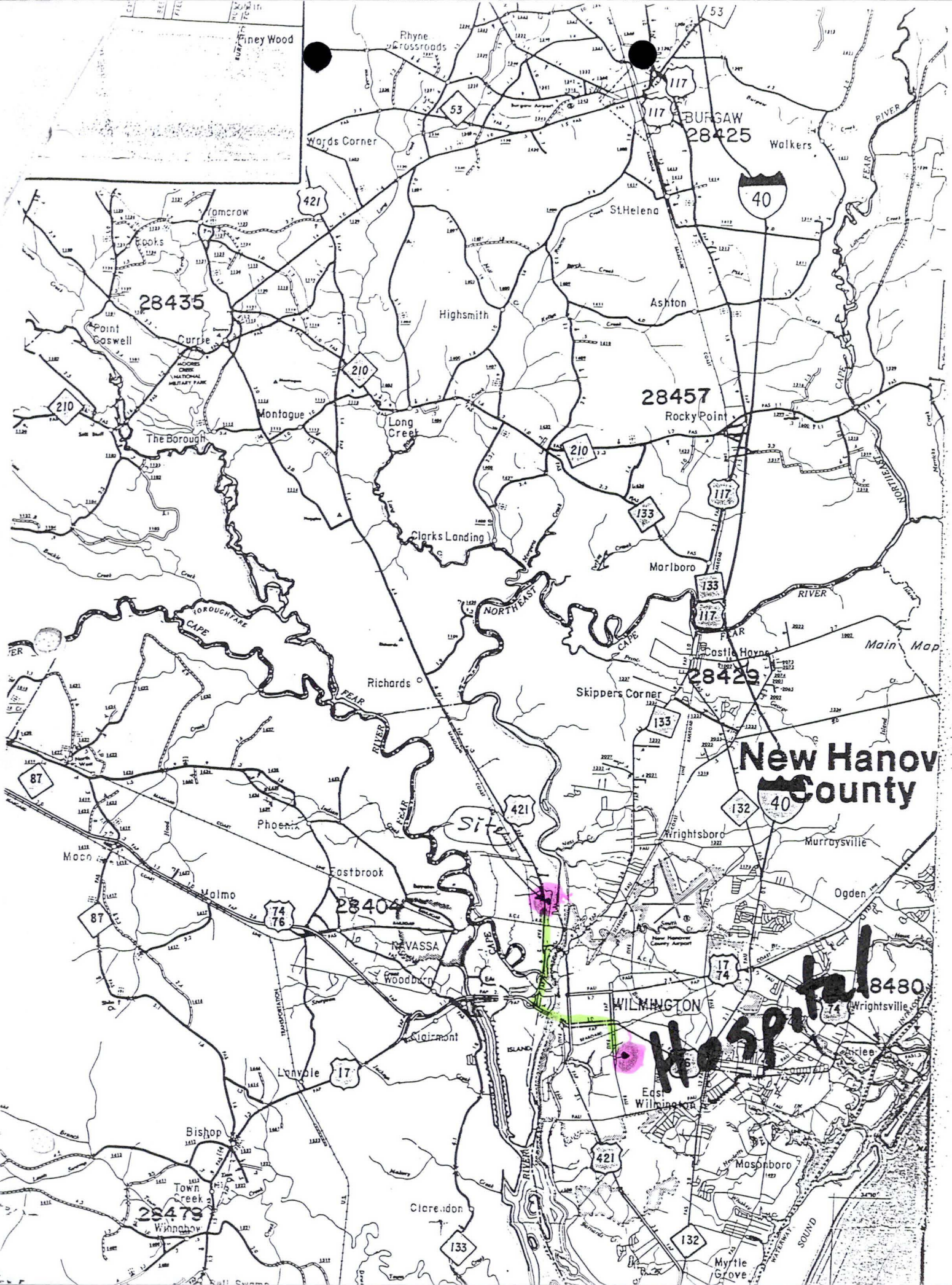
PREVAILING WEATHER CONDITIONS AND FORECAST Partly cloudy with a high of about 76.

EQUIPMENT CHECKLIST

____	Air purifying respirator	X	First Aid Kit
____	Cartridges for respirator	X	3 gal. Deionized H20
____	Eye Wash Unit	X	Rain suit
____	HNU + Mini Rae	X	Gloves (PE/PVC/nitrile/cloth)
____	OVA	X	Boots/Boot Covers
____	Explosimeter	X	Coveralls (tyvek/saranex)
____	Radiation Monitor	X	Eye Protection (goggles/shield)
X	Decontamination Materials	X	Hard Hat

Poison Control Center - State Coordinator
Duke University Medical Center
Telephone: 1-800-672-1697
Box 3024
Durham, NC 27710

ASHEVILLE 704-255-4490	Western NC Poison Control Center Memorial Mission Hosp. 509 Biltmore Ave. 28801	HENDERSONVILLE 704-693-6522 Ext. 555,556	Margaret R. Pardee Memorial Hospital Fleming St., 28739
CHARLOTTE 704-379-5827	Mercy Hospital 2001 Vail Ave, 28207	HICKORY 704-322-6649	Catawba Mem. Hosp. Fairgrove Chur. Rd 28601
DURHAM 1-800-672-1697	Duke Univ. Med. Center Box 3007, 27710	JACKSONVILLE 919-577-2555	Onslow Mem. Hospital Western Blvd. 28540
GREENSBORO 919-379-4105	Moses Cone Hospital 1200 N. Elm St. 27420	WILMINGTON 919-343-7046	New Hanover Mem. Hospital 2131 S. 17th St. 28401


Piney Wood
Rhyne Crossroads
Words Corner
BURGAW
28425
Walkers
St.Helena
Tomcrow
Cooks
28435
Point Caswell
Currie
Highsmith
Ashton
Montague
The Borough
Long Creek
28457
Rocky Point
Clarks Landing
Marlboro
Castle Hayne
28429
Skippers Corner
Main Map
New Hanover County
Richards
Site
Phoenix
Wrightsboro
Murraysville
Moco
Eastbrook
Malmo
28404
Ogden
NAVASSA
Woodburn
WILMINGTON
Hospital
8480
Wrightsville
Sidmont
Leonvale
Ardlee
East Wilmington
Bishop
Masonboro
Town Creek
28478
Winnabow
Clarendon
Myrtle Grove
CAPE FEAR RIVER
NORTHEAST
THOROUGHFARE
SOUND

TO BE COMPLETED BY PROJECT MANAGER

PROJECT MANAGER: Jeanette Stanley PROJECT: VC Chemical

INVESTIGATION DATE: March 30, 1999

RECONNAISSANCE X SAMPLING VISIT _____ REMEDIATION/SAMPLING OVERVIEW ____

Respirator Worn By	Approximate Time in Respirator

Air Monitoring Data (Include Calibration Reading)

HNU: _____

OVA: _____

Explosimeter: _____

Radiation Meter: _____

Were there any injuries? _____ If yes, explain: _____

If the maximum personal protective equipment as outlined in the Hazard Evaluation Section was not used, please justify:

Visitors Present	Organization Represented

Signature

HAZARDOUS SUBSTANCE INFORMATION FORM

Chemical Name: Lead, inorganic dusts

I. PHYSICAL/CHEMICAL PROPERTIES

	Reference
Chemical Formula Pb	1
Natural Physical State at 25°C solid	1
Vapor Pressure N/A mm Hg at 20°C	1
Melting Point 327.4°F/°C Boiling Point 1,740°F/°C	1
Flash Point (open or closed cup) N/A°C/°F	
Solubility - H_2O N/A	
Other N/A	

Physical Features: (odor, color, etc.) appearance and odor vary depending upon specific compound.

II. TOXICOLOGICAL DATA
suspected or confermed human carcinogen
Standards: .05 mg/m^3 (2) TLV 0.05 mg/m^3 (3) PEL
N/A (4) IDLH

Routes of Exposure: inhalation, ingestion, eye contact, skin contact(3)

Acute/Chronic Symptoms: Acute: lassitude, pallor, constipation, abdominal pain, gingival gum line, tremors. Target organs: GI tract, CNS, kidneys, blood.(3)

First Aid: Inhalation: artificial respiration; Ingestion: get medical attention immediately; Eye contact: irrigate immediately; Skin contact: soap and water wash immediately

Chemical Name: Lead, inorganic dusts

III. HAZARDOUS CHARACTERISTICS

Reference

A. Combustibility Yes __ No X ____
Toxic by-products _____ ____

B. Flammability LEL N/A UEL _____ ____

C. Reactivity Hazard None _____

D. Corrosivity Hazard yes/no pH: ___ _____

Neutralizing agent: _____ _____

E. Radioactive Hazard Exposure Rate
Background yes/no _____ _____
Alpha particles yes/no _____ _____
Beta particles yes/no _____ _____
Gamma radiation yes/no _____ _____

IV. REFERENCES

(1) The Merck Index, 11th Edition, 1989
(2) Threshold Limit Values and Biological Exposure Indices for 1997 ACGIH.
(3) 29 CFR 1910.1025
(4) Pocket Guide to Chemical Hazards, NIOSH, 1990.

HAZARDOUS SUBSTANCE INFORMATION FORM

Chemical Name: Sulfuric acid

I. PHYSICAL/CHEMICAL PROPERTIES

Reference

Chemical Formula H2 S 04 _____ 1

Natural Physical State at 25oC oily liquid _____ 2

Vapor Pressure 1 mm Hg at 295°F 2

Melting Point 51 °F°C Boiling Point 554 °F/°C 2

Flash Point (open or closed cup) _____ °C/°F

Solubility - H_2O miscible 2

Other _____ _____

Physical Features: (odor, color, etc.) Colorless to dark brown, oily liquid, odorless (2)

II. TOXICOLOGICAL DATA

Standards: 1 mg/m3(3) TLV 1 mg/m3(4) PEL 80 mg/m3(2) IDLH

Routes of Exposure: Inhalation, Ingestion, skin or/or eye contact (2)

Acute/Chronic Symptoms: Eye, nose, and throat irritation, swelling of lungs,conjunctivitis, stomatitis, dental erosion, skin and eye burns(2)

First Aid: Inhalation: artificial respiration; Ingestion: get medical attention immediately; Eye contact: irrigate immediately; Skin contact: soap and water wash immediately

Chemical Name: Sulfuric acid

III. HAZARDOUS CHARACTERISTICS Reference

A. Combustibility Yes ___ No X 2

Toxic by-products _____

B. Flammability LEL _____ UEL _____

C. Reactivity Hazard incompatible with organics, chlorates, carbides, fulminates, picrates, metals 2

D. Corrosivity Hazard yes/no pH: _____ 1

Neutralizing agent: _____

E. Radioactive Hazard

		Exposure Rate	
Background	yes/no	_____	
Alpha particles	yes/no	_____	
Beta particles	yes/no	_____	
Gamma radiation	yes/no	_____	

IV. REFERENCES

(1) The Merck Index, 11th Edition, 1989

(2) Pocket Guide to Chemical Hazards, NIOSH, 1990

(3) Threshold Limit Values and Biological Exposure Indices for 1997 ACGIH

(4) 29 CFR 1910.1000

HAZARDOUS SUBSTANCE INFORMATION FORM

Chemical Name: Arsenic

I. PHYSICAL/CHEMICAL PROPERTIES

	Reference
Chemical Formula As	1
Natural Physical State at 25°C metal	1
Vapor Pressure ____ mm Hg at 20°C	
Melting Point ___°F/°C Boiling Point ____°F/°C	
Flash Point (open or closed cup) ___°C/°F	
Solubility - H_2O insoluble	
Other _____	

Physical Features: (odor, color, etc.) grey, metallic (1)

II. TOXICOLOGICAL DATA

Standards: 0.01 mg/m3(3) TLV 0.5 mg/m3 (4) PEL 100 mg/m3 (2) IDLH

Routes of Exposure: Inhalation, skin and or eye absorption, Ingestion (2)

Acute/Chronic Symptoms: Acute: ingestion-irritation of G.I. tract, vomiting diarrhea which can produce shock leading to death: Chronic: exfoliation and pigmentation of skin, herpes, polyneuritis, altered hematopoiesis, degeneration of liver and kidneys (1).

First Aid: Inhalation: artificial respiration; Ingestion: get medical attention immediately; Eye contact: irrigate immediately; Skin contact: soap and water wash immediately

Chemical Name: Arsenic

III. HAZARDOUS CHARACTERISTICS — Reference

A. Combustibility Yes __ No X — 2

Toxic by-products _____ ____

B. Flammability LEL none UEL none — 2

C. Reactivity Hazard _____ ____

D. Corrosivity Hazard yes/no pH: _____ ____

Neutralizing agent: _____ ____

E. Radioactive Hazard — Exposure Rate

Background yes/no _____ ____

Alpha particles yes/no _____ ____

Beta particles yes/no _____ ____

Gamma radiation yes/no _____ ____

IV. REFERENCES

1. The Merck Index, 11th Edition, 1989.
2. The Pocket Guide to Chemical Hazards, NIOSH, 1990.
3. Threshold Limit Values and Biological Exposure Indices for 1997 ACGIH
4. 29 CFR 1910.1000

KEY RISK MANAGEMENT SERVICES, INC.
ATTN: STATE UNIT
P.O. BOX 49129
GREENSBORO, NC 27419

CompCare NETWORK, INC.

WORKERS' COMPENSATION MEDICAL AUTHORIZATION

Name of Employee/Patient: Last	First
Date of Injury:	Social Security Number: - -
Name of Employer/Company: STATE OF NORTH CAROLINA	DEHNR
Employer Authorization:	Doctor To Be Seen:

Employer: Complete this form, and give it to the injured employee before a doctor is seen.

Employee: Show this form to the doctor.

Physician: When a referral is necessary - use CompCare Physicians and call 1-800-366-1511, to let the state agency claims representative know that the patient is being referred.

SEND BILL DIRECTLY TO KEY RISK MANAGEMENT SERVICES, INC.

Federal
Trip Notification & Authorization

Prepared by: J. Stanley

Today's Date: 3/25/99

*Use Black Ink or Typewriter only-Staff to fill out first 2 blocks only.

Site Trip

Date of Trip: 3/30/99

If trip date changed or cancelled note below:
Trip Date Changed To: _____ Cancelled: ___

NCD#: 002178580 **Site Name:** VC Chemical Almont Works
City: Wilmington **County:** New Hanover

Reason for Trip: Removal Evaluation: Site Visit.

Name of Hotel (Overnight Trip): NA Hotel Telephone Number: ( ) ___ - _____

Authorized by: [signature]
Industrial Hygienist

Project Team Leader: Jeanette Stanley

Assistants: _____, _____, _____

Attach To Notification Form: 1 copy each:
Submit to the Industrial Hygienist

Preliminary Assessment Form (First page only)
Site Map
PA Transmittal Letter

(Please list appropriate County Health Department contact person to call to advise of trip)
Environmental Supervisor or Health Director to call: Dianne Harvell Title: Env. Health Director
(Note if Dr., M.P., etc.)
Telephone Number: (910) 343-6667

Notes: Health Department Official Contacted: Dianne Harvell's voice mail
Back Up Letter Required: Yes ___ No ___
Notified Ms. Harvell via voice mail on 3-26-99 (DBL)

Note: Signed original to Data Manager

NORTH CAROLINA DEPARTMENT OF
ENVIRONMENT AND NATURAL RESOURCES
DIVISION OF WASTE MANAGEMENT

February 24, 1999

NCDENR

JAMES B. HUNT JR.
GOVERNOR

WAYNE MCDEVITT
SECRETARY

WILLIAM L. MEYER
DIRECTOR

Ms. Jennifer Wendel
NC Site Management Section
US EPA Region IV Waste Division
Atlanta Federal Building
61 Forsyth St., 11th Floor
Atlanta, GA 30303-3104

Subject: CERCLIS Site Addition Letter
(Pre-CERCLIS Site Screening)
VC Chemical -- Wadesboro
Stanback Ferry Road
Wadesboro, Anson Co., NC

Dear Ms. Wendel:

Due to recently obtained information regarding historical operations on former fertilizer manufacturing facilities, this site was pre-screened for potential listing under CERCLA. A file review and site visit have been conducted. From the findings of this pre-screening, it is recommended that the subject site be listed for investigation under CERCLA.

1. The VC Chemical -- Wadesboro site is a former fertilizer manufacturer. It is located approximately ½ mile west of the town of Wadesboro, NC on Stanback Ferry Road in Anson Co., NC. The coordinates of the site are 34° 58' 22" north latitude and 80° 03' 26" west longitude.

2. The 10.38-acre site operated as a fertilizer facility from approximately 1908 to 1945. A 1930 Sanborn map of this site shows that lead chambers were used to manufacture sulfuric acid. Ownership history between 1945 and the 1980s is unclear at this time and little else is known about the operational history of the site. There is no record of any environmental investigation on the property. The current owner, Mr. Carl Weston, purchased the property from Anson County in the early 1980s.

3. Representatives of the NC Superfund Section visited the site on December 17, 1998. The property is vacant and unused. The property is unfenced and there are no signs of recreation. There is an uninhabitable house trailer on the property and an old well. Mr. Weston lived on the property at one time and used the on-site well for drinking. Near the well and trailer is a 100,000-gallon fire protection reservoir containing water. Some of the railroad beds appear to have been filled in with a white, granular substance. Several small brick buildings remain on the site as does the support structure for the old lead chambers. Magenta-colored soil, characteristic of lead contamination, was noted in the vicinity of and downgradient from the chamber area. This discolored soil is on the Weston property, but within 200' of a drinking water well serving a residential property. At the time of the site visit, this nearest residence was uninhabited, but it has reportedly since been inhabited.

401 OBERLIN ROAD, SUITE 150, RALEIGH, NC 27605
PHONE 919-733-4996 FAX 919-715-3605
AN EQUAL OPPORTUNITY / AFFIRMATIVE ACTION EMPLOYER - 50% RECYCLED/10% POST-CONSUMER PAPER

4. There are three residences served by drinking water wells on property adjacent to the facility. Another three residences and a small business, all served by drinking water wells lie downgradient from and in close proximity to the overland pathway leading from the site. All residences within ½ mile appear to be served by drinking water wells. The site is about ½ mile from the town limits of Wadesboro, population 3,820. A public water supply (from a surface water intake unthreatened by the site) provides drinking water for town residents. The nearest water lines are located ½ mile from the site.

5. There are two probable points of entry (PPE) to surface water at two points in an unnamed tributary to Brush Fork. The northern PPE is about 100' west of the site. The southern PPE that receives runoff from the magenta-colored soil area is about 750' south of the site. The wetland inventory map shows the nearest wetland about 1 ½ miles downstream of the PPE; however, vegetation observed during the site visit and the topography of the area adjacent to the stream bed approximately 100' below the southern PPE indicates the potential for a wetland area much closer to the site.

6. While it is unknown if organic phosphate and chlorinated hydrocarbon pesticides were formulated on the property, these chemicals have been observed at similar sites and should be included on the list of analytes when this site is investigated.

Based on the potential for this site to release contaminants to six residential drinking water wells and wetlands and documented contamination at similar sites, we recommend that the site be added to CERCLIS so that we may initiate a combined PA/SI at the site. Attached are Sanborn maps, latitude/longitude worksheets, a USGS topographic map showing the site location, and the CERCLIS Site Discovery Form. Please contact me with your decision on the CERCLIS site addition so that I may prepare necessary work schedule revisions. If you have any questions, please contact me or Jeanette Stanley, NC Superfund Section at (919) 733-2801, ext. 290 or 318, respectively.

Sincerely,

Pat DeRosa, Head
Site Evaluation and Removal Branch
Superfund Section

attachments
cc: Scott Ross, file
Jeanette Stanley
cc: (letter only)
Charlotte Jesneck
Doug Holyfield
Larry Perry
Flint Worrell

Approved by:_____ Date:_____
Jennifer Wendel, NC Site Management Section

SITE DISCOVERY FORM

Part I: Information necessary to add a site to CERCLIS

ACTION: A

EPA ID:

SITE NAME: VC Chemical -- Wadesboro SOURCE: T (R=EPA, T=STATE)

STREET: Stanback Ferry Road CONG DIST: 8

CITY: Wadesboro ZIP: 28170

CNTY NAME: Anson Co. CNTY CODE: 4

LATITUDE: 34° /58' /22" LONGITUDE: 80° /03' /26"

INVENTORY IND: Y REMEDIAL IND: Y REMOVAL IND: N FED FAC IND: N

RPM NAME: RPM PHONE: - - (EPA Project Officer)

SITE DESCRIPTION: The 10.38-acre site operated as a fertilizer facility from approximately 1908 to 1945. A 1930 Sanborn map of this site shows that lead chambers were used to manufacture sulfuric acid. The current owner, Mr. Carl Weston, purchased the property from Anson County in the early 1980s. The site is about ½ mile from the town limits of Wadesboro, population 3,820. The nearest water lines are located ½ mile from the site.

The property is vacant, unused, and unfenced with no signs of recreation. There is uninhabitable house trailer on the property and an old well. Near the well is a 100,000-gallon fire protection reservoir containing water. Some of the railroad beds contain a white, granular substance. Several small brick buildings and the support structure for the old lead chambers remain on the site. There is magenta-colored soil, characteristic of lead contamination, in the vicinity of and downgradient from the chamber area. This discolored soil is on the site property but within 200' of a drinking water well serving an uninhabited residential property.

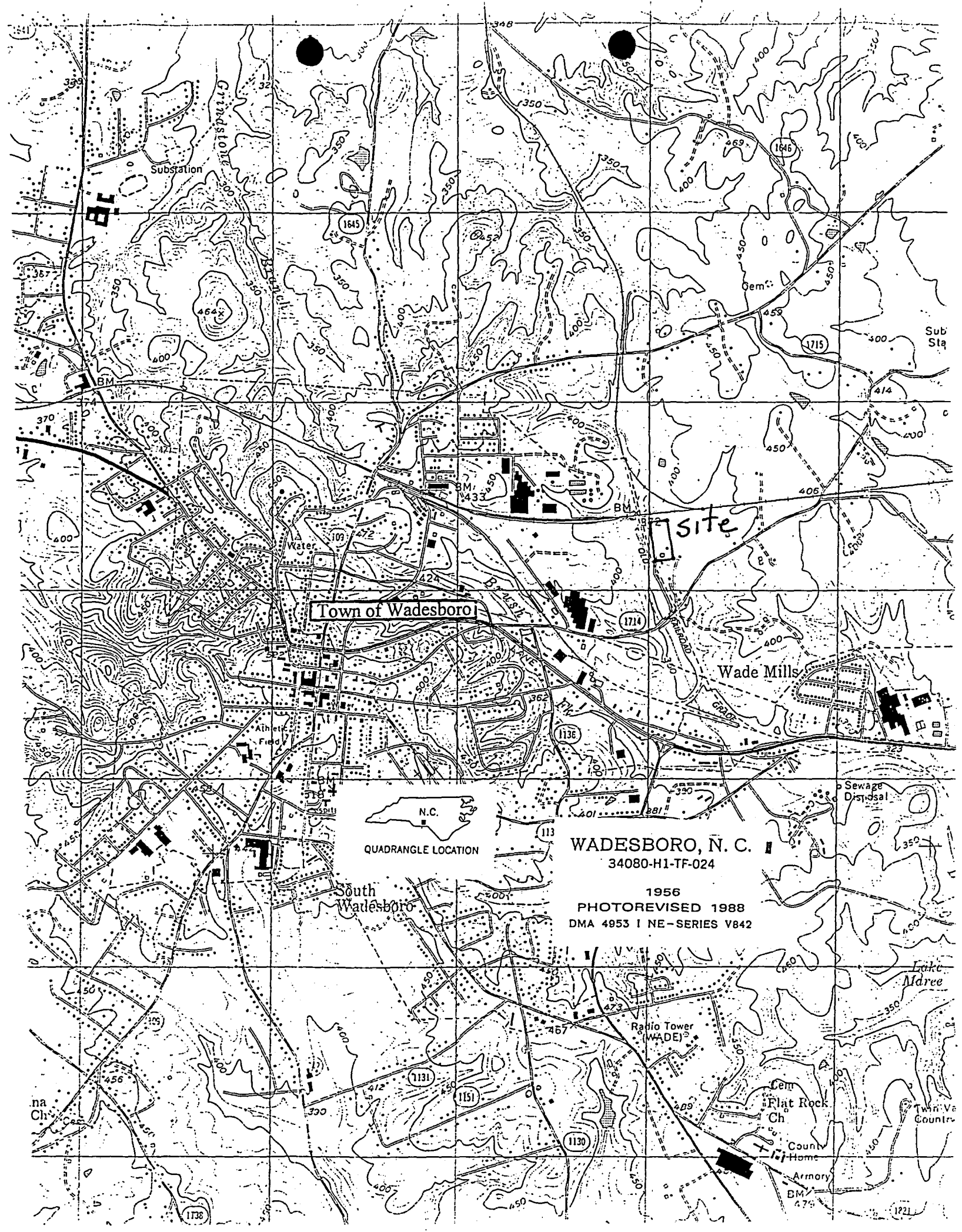
There are three residences served by drinking water wells on property adjacent to the facility. Another three residences and a small business, all served by drinking water wells, lie downgradient from and in close proximity to the overland pathway leading from the site. All residences within ½ mile appear to be served by drinking water wells.

There are two probable points of entry (PPE) to surface water at two points in an unnamed tributary to Brush Fork. The northern PPE is about 100' west of the site. The southern PPE that receives runoff from the magenta-colored soil area is about 750' south of the site. The wetland inventory map shows the nearest wetland about 1 ½ miles downstream of the PPE; however, vegetation observed during the site visit and the topography of the area adjacent to the stream bed approximately 100' below the southern PPE indicates the potential for a wetland area much closer to the site.

Part 2: Other site information

DATE SITE FIRST REPORTED: / / REPORTED BY: State (NC Superfund Section)

REASON FOR LISTING: Based on the potential for this site ~~has a potential~~ to release lead and other contaminants to six residential drinking water wells and wetlands.


Substation
Grandstand
Brush
Cem
Sub Sta
BM
Water
Town of Wadesboro
Brush
Site
Wade Mills
Athletic Field
Sewage Disposal
N.C.
QUADRANGLE LOCATION
WADESBORO, N. C.
34080-H1-TF-024
1956
PHOTOREVISED 1988
DMA 4953 I NE-SERIES V842
South Wadesboro
Lake Mdree
Radio Tower (WADE)
Cem
Flat Rock Ch
Twin Va Countr
County Home
Armory
BM

LATITUDE AND LONGITUDE CALCULATION WORKSHEET #2
LI USING ENGINEER'S SCALE (1/60)

SITE NAME: VC Chemical - Wadesboro CERCLIS #: _____

AKA: _____ SSID: _____

ADDRESS: Stanback Ferry Rd.

CITY: Wadesboro STATE: NC ZIP CODE: 27

SITE REFERENCE POINT: North edge of Fire Pond

USGS QUAD MAP NAME: _____ TOWNSHIP: ____ N/S RANGE: ____ E/W

SCALE: 1:24,000 MAP DATE: 1956/PR 1988 SECTION: ____1/4 ____1/4 ____1/4

MAP DATUM: (1927) 1983 (CIRCLE ONE) MERIDIAN: _____

COORDINATES FROM LOWER RIGHT (SOUTHEAST) CORNER OF 7.5' MAP (attach photocopy):

LONGITUDE: 80 ° 00 ' ___ " LATITUDE: 34 ° 52 ' 30 "

COORDINATES FROM LOWER RIGHT (SOUTHEAST) CORNER OF 2.5' GRID CELL:

LONGITUDE: 80 ° 02 ' 30 " LATITUDE: 34 ° 57 ' 30 "

CALCULATIONS: LATITUDE (7.5' QUADRANGLE MAP)

A) NUMBER OF RULER GRADUATIONS FROM LATITUDE GRID LINE TO SITE REF POINT: 156

B) MULTIPLY (A) BY 0.3304 TO CONVERT TO SECONDS:

A x 0.3304 = 51.54 "

C) EXPRESS IN MINUTES AND SECONDS (1'= 60"): ___ ' 52. ___ "

D) ADD TO STARTING LATITUDE: 34 ° 57 ' 30. ___ " + ___ ' 52. ___ =

SITE LATITUDE: 34 ° 58 ' 22. ___ "

CALCULATIONS: LONGITUDE (7.5' QUADRANGLE MAP)

A) NUMBER OF RULER GRADUATIONS FROM RIGHT LONGITUDE LINE TO SITE REF POINT: 169

B) MULTIPLY (A) BY 0.3304 TO CONVERT TO SECONDS:

A x 0.3304 = 55.84 "

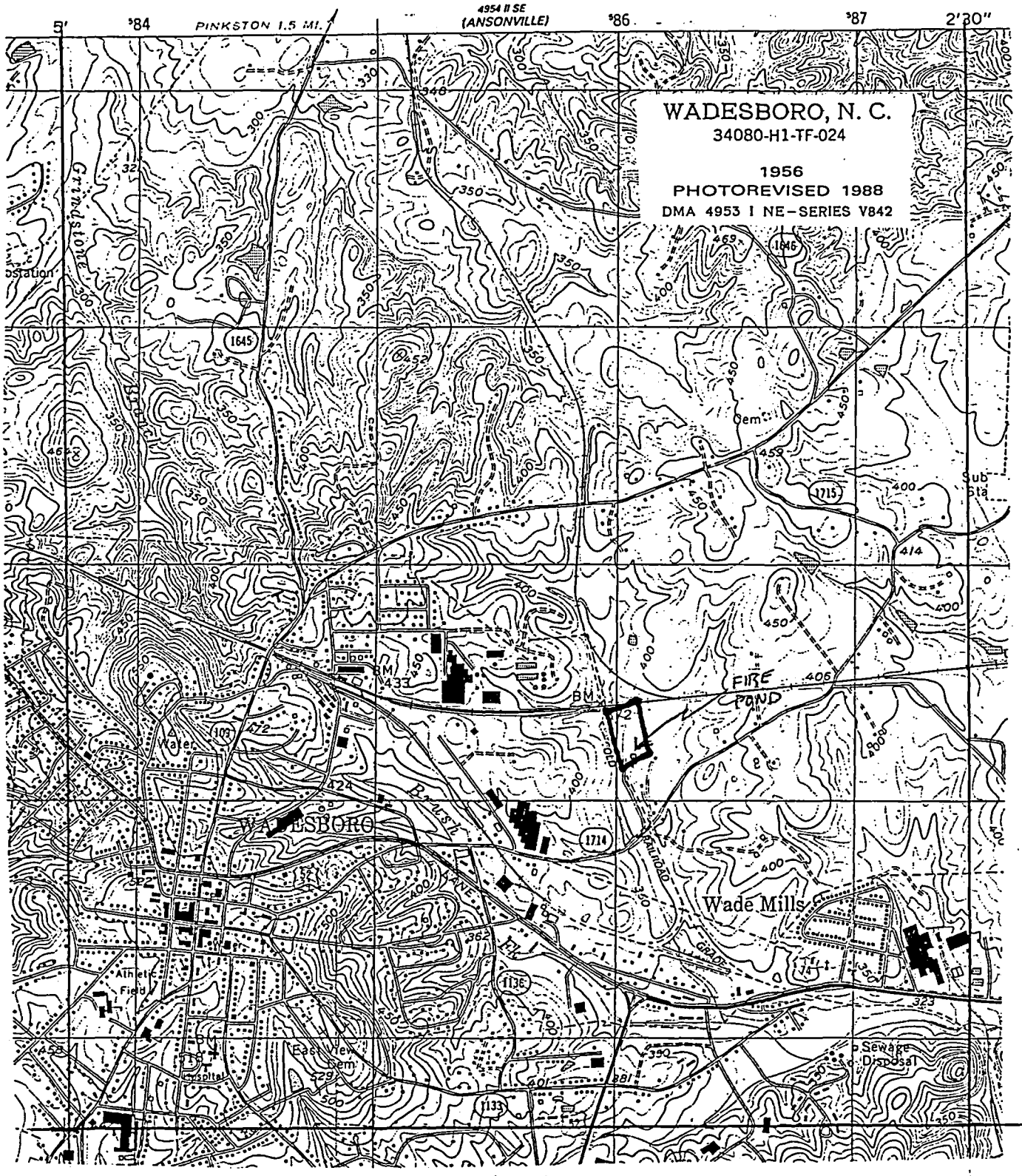
C) EXPRESS IN MINUTES AND SECONDS (1'= 60"): ___ ' 56. ___ "

D) ADD TO STARTING LONGITUDE: 80 ° 02 ' 30. ___ " + ___ ' 56. ___ =

SITE LONGITUDE: 80 ° 03 ' 26. ___ "

INVESTIGATOR: Jeanette Stanley DATE: 2/23/99

SITE NAME: VC Chemical-Wadesboro NUMBER: _____



TOPOGRAPHIC MAP QUADRANGLE NAME: Wadesboro SCALE: 1:24,000

COORDINATES OF LOWER RIGHT-HAND CORNER OF 2.5-MINUTE GRID:

LATITUDE: 34° 51' 30" LONGITUDE: 80° 02' 30"

MEMO

DATE: January 13, 1999
TO: File
FROM: Jeanette Stanley
Environmental Chemist
NC Superfund Section
RE: VC Chemical -- Wadesboro
Wadesboro, Anson Co., NC

Jeanette Stanley

On December 17, 1998, Serafino Franch, Environmental Chemist, and I visited the VC Chemical Wadesboro site. This site was originally recommended for investigation by Irene Williams, NC Superfund Section. We obtained a key to the gate from Al Scarborough at Scarborough Hardware. The property was posted and inaccessible by vehicle. Mr. Scarborough said he owned adjacent property and had found it necessary to restrict access due to trash dumping and wild parties. Mr. Scarborough said that the current property owner, Mr. Weston, had lived in the on-site house trailer at one time.

As we entered the property, we walked near the former lead acid chamber area (as indicated on the Sanborn maps) and noted the characteristic magenta-colored soil (indicating lead contamination) in the vicinity. We noticed that there were nearby residents and that one resident was in her yard. We walked to her yard and introduced ourselves. She gave us her name and address:

Mrs. William T. Wall
Rt. 2 Box 9
Wadesboro, NC 28170 (704) 694-3560

Mrs. Wall said that her husband was recovering from a recent stroke. She said that her neighbor, Reverend Leon Tyson was also recovering from a stroke. The other house close to the site was vacant at the time of our site visit, but Mrs. Wall said she anticipated that someone would be moving into the home. I called today and she said that the home was now rented and it appeared as if the residents were still moving. She did not know if the new residents have children. All three homes use groundwater wells for drinking. Mrs. Wall said that another neighbor closer to Stanback Ferry Road was named Robert "Patchie" Clark. She said that the three homes that were occupied during our site visit housed two residents each, all elderly couples. Mrs. Wall said that she did not know of anyone who ever entered the former fertilizer property. She had never been on the adjacent property. We noted a vegetable garden between the Wall home and the nearby vacant home. We then began out tour of the site, taking a number of photographs:

Photo #1	Looking north toward former acid chambers
Photo #2	Characteristic magenta-colored soil and sulfur. Area within 200' of garden and closest drinking water well.
Photo #3	Outfall of old terra cotta pipe, vacant residence in background
Photo #4	Note well house to left of house.
Photo #5	Acid Chamber area, looking west from yard of vacant home. Note corner of concrete wall.

Photo #6	Small Brick buildings to the South of the former acid chambers building
Photo #7	Small Brick buildings to the South of the former acid chambers building
Photo #8	Small Brick buildings to the South of the former acid chambers building

We then walked up the berm on the east side of the facility and found that the facility included a concrete wall that had been constructed to support a two-story- high bank of dirt which supported a former railroad track. Photo #9 was taken looking west from the top of the berm toward the edge of wall. We then walked down the northern end of the berm and toward center of the property. We noted a vacant, uninhabitable house trailer, Photo #10. We then walked to the front of the trailer and photographed the old reservoir and water tank in background (Photos #11 & 12). A well was noted about 15' northwest of the reservoir. The well had a short concrete culvert as housing with no top. (During a telephone conversation, Mr. Weston said that he had used this well for drinking when he lived on the property.) There was no visible tap or labeling on the well. Proceeding northward along the western perimeter of the former facility, we noted a white, granular substance that looked like old fertilizer (Photos #13 & #1 (roll 2)) filling the former railroad bed.

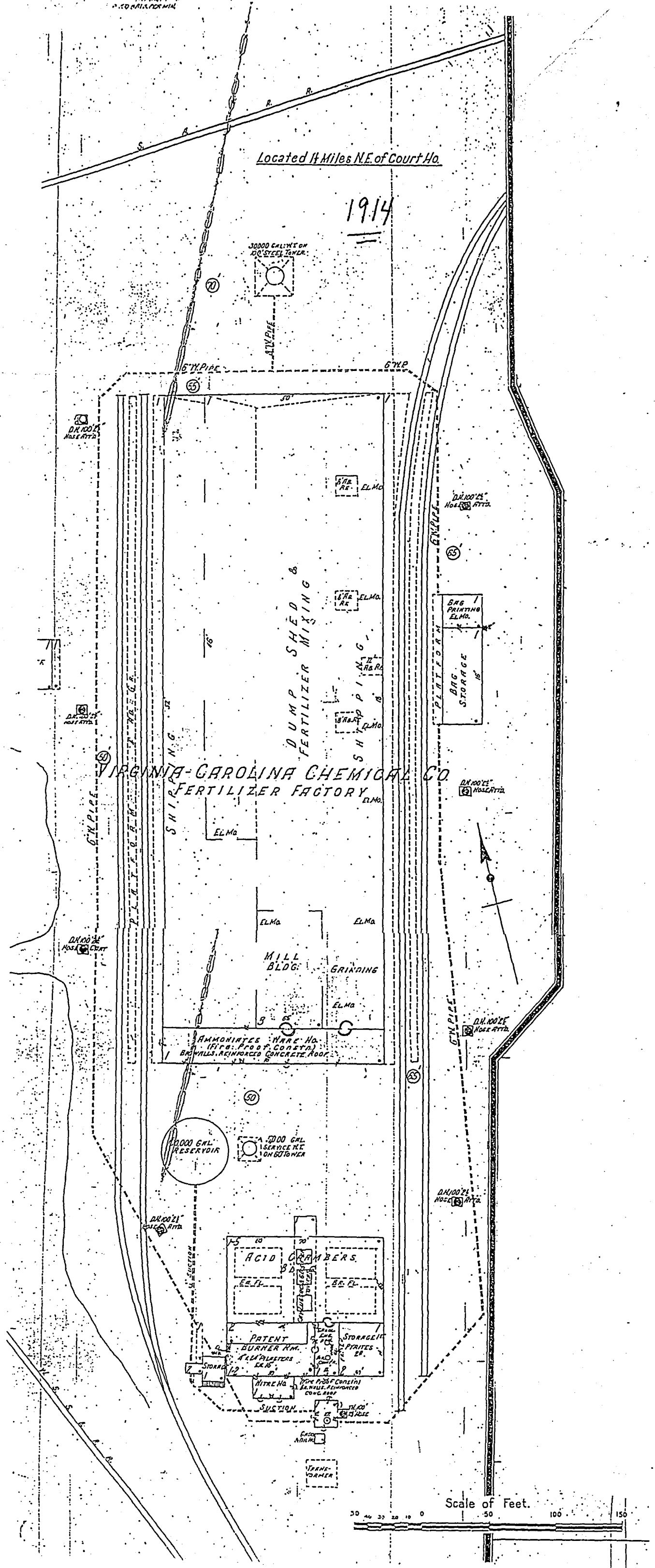
The area was very thick with briers and undergrowth. We found an opening and, in a northeasterly direction, crossed over the concrete pad of the former dump shed and fertilizer mixing building. Small trees and other vegetation were growing in the cracks of the pad throughout. There was standing water in some areas of the pad. There were signs of past "recreational use" of the property such as beer cans, but no signs of recent use.

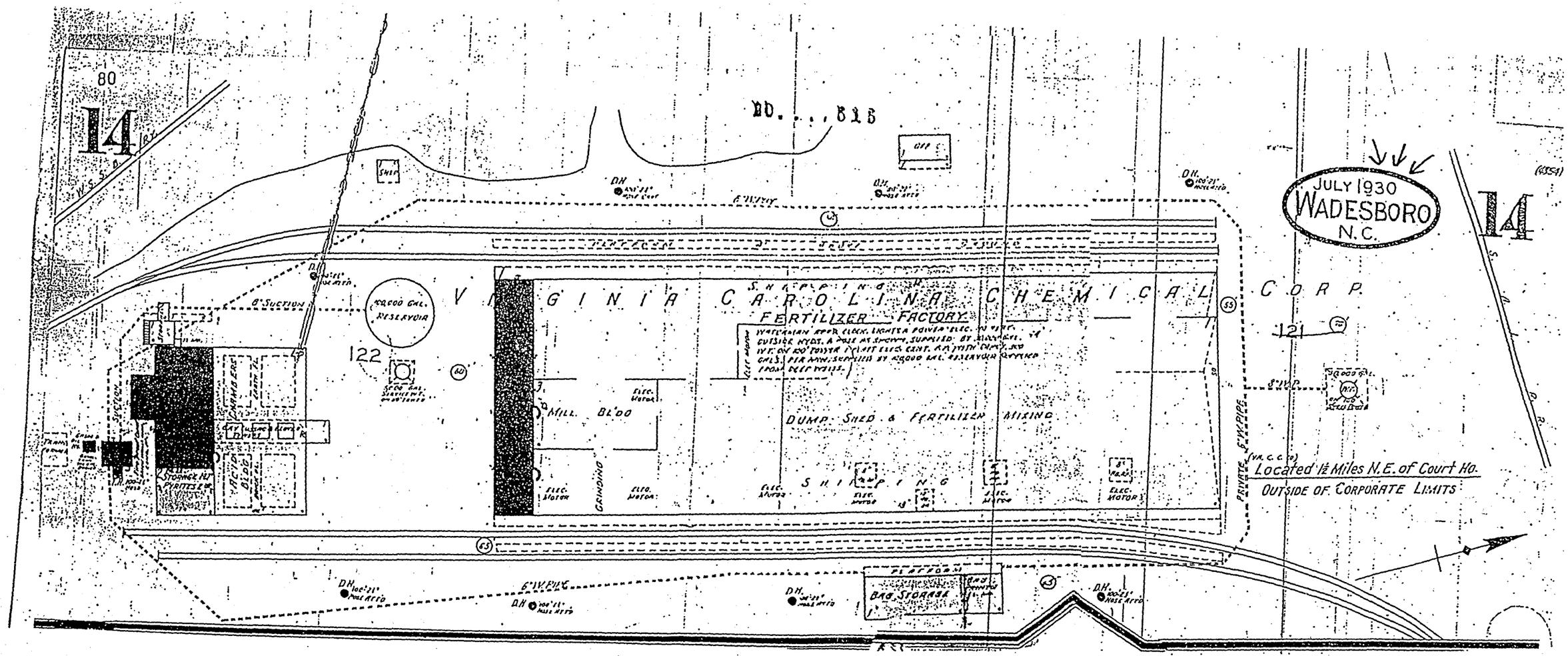
Photo #2 (roll 2) was taken from the rear of the former building, standing in the former road bed and looking south toward the degraded pad. Photo #3 (roll 2) was taken of the ditch draining the rear (north) or the building. Photos #4, #5 & #6 (roll 2) were taken of the former railroad bed and loading platform at the northwest corner of the facility. Proceeding along the western perimeter of the property, we attempted to locate a surface water outfall. Serafino located a culvert under the former railroad bed and the outfall into the unnamed tributary (UT) to Brush Fork. Photos #7 & #8 (roll 2) were taken of the stream the receives the overland flow from the northern half of the property.

We had then essentially circled the property. We located the magenta-colored soil again (Photo #9 (roll 2)), and then followed the overland pathway from this area of soil. We noted a large dog running loose and decided to return to the vehicle and attempt to locate the PPE for the southern half of the property from the vehicle. We determined that there were no additional culverts under the former railroad bed on the north side of Stanback Ferry Road. The overland pathway follows a ditch to the west of the nearby homes and to the east of the former railroad bed and then enters a culvert under the road. On the south side of Stanback Ferry Road, the overland pathway follows a low area along the perimeter of a residential property and then enters a flowing stream at the rear of the home. This stream flows in a westerly direction, through a culvert under the former railroad bed and into the UT to Brush Fork.

While investigating the overland pathway, we noted a "backyard garage" facility that was operating and an additional home on the north site of Stanback Ferry Road not discussed by Mrs. Wall, making a total of five homes and a garage on the north side of Stanback Ferry Road. The one home on the south side of Stanback Ferry home near the site would makes a total of six homes, three homes within 200' of the facility and another three homes and a garage in close proximity to the overland pathway and downgradient from the site. All homes use wells for drinking.

I called Mrs. Wall today and she said that one of the two homes close to Stanback Ferry Road on the north side is unoccupied. The other home is occupied by Mr. and Mrs. Robert Clark. The brick home on the south side of Stanback Ferry Road is occupied by "Boot" Clark, a relative of Mr. Robert Clark's. Mrs. Wall said that Mr. Robert Clark operates the garage.


Located 1¼ Miles N.E. of Court Ho.
1914
30000 GAL. H.T. ON 100' STEEL TOWER
6" W.P. PIPE
6" W.P.
D.H. 100' 2½" HOSE ATTD.
DUMP, SHED & FERTILIZER MIXING
SHIPPING PLATFORM
BAG PRINTING EL. MO.
BAG STORAGE
PLATFORM
VIRGINIA-CAROLINA CHEMICAL CO.
FERTILIZER FACTORY
MILL BLDG.
GRINDING
AMMONIATED WARE HO.
(FIRE PROOF CONSTN.)
BRICK WALLS, REINFORCED CONCRETE ROOF
10,000 GAL. RESERVOIR
7000 GAL. SERVICE H.T. ON 60' TOWER
ACID CHAMBERS
PATENT BURNER RM.
STORAGE
PYRITES
NITRE HO.
SUCTION
TRANSFORMER
Scale of Feet.


80
14
W. S. D.
NO. 515
OFF
SHED
D.H.
RIVER
JULY 1930
WADESBORO
N.C.
14
VIRGINIA CAROLINA CHEMICAL CORP.
SHIPPING
FERTILIZER FACTORY
WATER MAIN 8" PER CLOCK. LIGHTS & POWER ELEC. IN BLDG.
OUTSIDE HYDT. A POLE AS SHOWN, SUPPLIED BY MOORE ELE. CO.
1 V.T. ON 80' POLE & 1 PLAIT ELEC. CENT. FOR POWER & LIGHTS, 80 GALS. PER MIN. SUPPLIED BY 40,000 GAL. RESERVOIR OUTSIDE FROM DEEP WELLS.
121
122
40,000 GAL. RESERVOIR
8" SUCTION
SUCTION
STORAGE HT. PARTITES & M.
VICTO BLDG.
MILL BLDG
ELEC. MOTOR
GRINDING
DUMP SHED & FERTILIZER MIXING
SHIPPING
8" IV.P.
PRIVATE 8" IV. PIPE
(V.C.C.C.)
Located 1½ Miles N.E. of Court Ho.
OUTSIDE OF CORPORATE LIMITS
PLATFORM
BAG STORAGE
8" IV.P.
D.H.
RAILROAD

MEMO

DATE: December 1, 1998

TO: File

FROM: Jeanette Stanley
Environmental Chemist
NC Superfund Section

RE: Virginia Carolina Chemical -- Wadesboro
Wadesboro, Anson Co., NC

Last evening, November 30, 1998, I contacted Mr. Carl A. Weston at his home in Sherman, Texas at (903) 813-1950. He said that he had received the letter that I had sent and that the address was correct. He had not had time to prepare a response to my letter.

Mr. Weston said that he did not have the funds to consult an attorney. He said that he personally did not have any objections to my entering his property to inspect it but he was concerned about his personal liability. I informed Mr. Weston that whether or not he granted permission for me to inspect his property would not impact his liability, should any be incurred. I told Mr. Weston that I hoped to inspect his property sometime during the week of December 14, and he said that would be fine. He did not need to know the exact date.

Mr. Weston said that he bought the property from Anson County about 10 - 15 years ago. Mr. Weston is a mechanical engineer and a metallurgist. He had intended to use the property for a metal fabricator but the business had been unsuccessful. A fire has subsequently destroyed the building. He confirmed that this is the old Virginia Carolina Chemical property, and he recalled that the facility operated from around 1908 to 1945.

Mr. Weston said that there was a well on the property that he drank out of while he was on the facility. It is cased to bedrock at 40' but the well is between 200' - 300' deep. There is an old, vacant house trailer in front of the water reservoir. The fire protection reservoir was filled by the well. Mr. Weston cautioned me about some old concrete columns supporting a partial roof remaining from a former building. He was concerned that they may collapse.

Mr. Weston described the property as once having railroad tracks on two sides. He said that Anson Wood Products, owned by Bobby Jordan, is near the former VC Chemical site. He said that the nearest residence is upgradient from the facility. Overland flow washes to the nearby creek.

He informed me that either Al or Landon Scarborough, owners of Scarborough Hardware on Highway 74 in the Winn Dixie shopping center, can help with directions to and history of the facility. He gave me directions heading east from Wadesboro on Stanback Ferry Road. At the top of the hill, cross an old railroad track then proceed down the hill. At the bottom of the hill is another old railroad bed (tracks possibly now removed). Take a left on the old, once-paved road.

MEMO

DATE: November 30, 1998

TO: File

FROM: Jeanette Stanley
Environmental Chemist
NC Superfund Section

RE: Virginia Carolina Chemical -- Wadesboro
Wadesboro, Anson Co., NC

I reviewed the plat maps and determined that the property on which the former facility operated is now owned by Carl A. Weston, Jr., P. O. Box 382, Wadesboro, NC 28170. There is no Wadesboro telephone listing for Mr. Weston. The property adjacent to the north and west of the site is the former Seaboard Coastline Railroad. To the east of the site is a 27-acre parcel owned by Mr. Fred Tew. The 1966 aerial photograph shows that the property was used for agriculture at that time. Several small properties border the southern edge of the site, and the 1966 aerial photograph shows at least some residential use.

I subsequently wrote a letter to Mr. Weston at this address and it was returned. I accessed the Internet and looked for "Carl A. Weston" nationwide. After three telephone calls, I located the ex-wife of Mr. Weston, who subsequently gave me her son's telephone number in McLean, VA. I then obtained Mr. Weston's home telephone number in Sherman, Texas. It is (903) 813-1950 and his work address is 532 E. King St., Sherman Texas 75090.

NCDENR

JAMES B. HUNT JR.
GOVERNOR

WAYNE MCDEVITT
SECRETARY

WILLIAM L. MEYER
DIRECTOR

NORTH CAROLINA DEPARTMENT OF
ENVIRONMENT AND NATURAL RESOURCES
DIVISION OF WASTE MANAGEMENT

October 21, 1998

Mr. Carl A. Weston, Jr.
532 E. King St.
Sherman, Texas 75090

SUBJECT: Former VCC Fertilizer Facility
Wadesboro, Anson Co., NC

Dear Mr. Weston:

I am attempting to determine the location of a former fertilizer plant in Wadesboro, NC. From my review of old Sanborn Fire Insurance maps, USGS topographic maps, aerial photographs, and Anson County tax maps, I believe that your 10.38-acre property, Map 6484, Block 36, Lot 4869 is either the site of this former plant or is at least close to this old plant. This property is about 1 ½ miles east of Wadesboro, on the north side Route 1714 (Stanback Ferry Rd.).

Old maps show a factory that has apparently been demolished sometime since 1962. I believe that the most recent use of this former facility was as a box manufacturing plant. One distinguishing feature that I believe would still be present on the land since the early 1900s is an old 50' diameter, 100,000 gallon circular firepond, possibly with concrete walls.

It has recently come to our attention that similar fertilizer facilities used a process in the early 1900s that could have resulted in the deposition of lead on soil near the former acid chambers. While neither the precise location of this former facility nor the presence of lead has been confirmed, I am writing this letter to you to request your permission to enter your property to investigate.

Please contact me at your earliest convenience. You may contact me by telephone at (919) 733-2801 ext. 336, email me at stanleyjs@wastenot.enr.state.nc.us, or write to me at 401 Oberlin Road, Suite 150, Raleigh, NC 27605.

Sincerely,

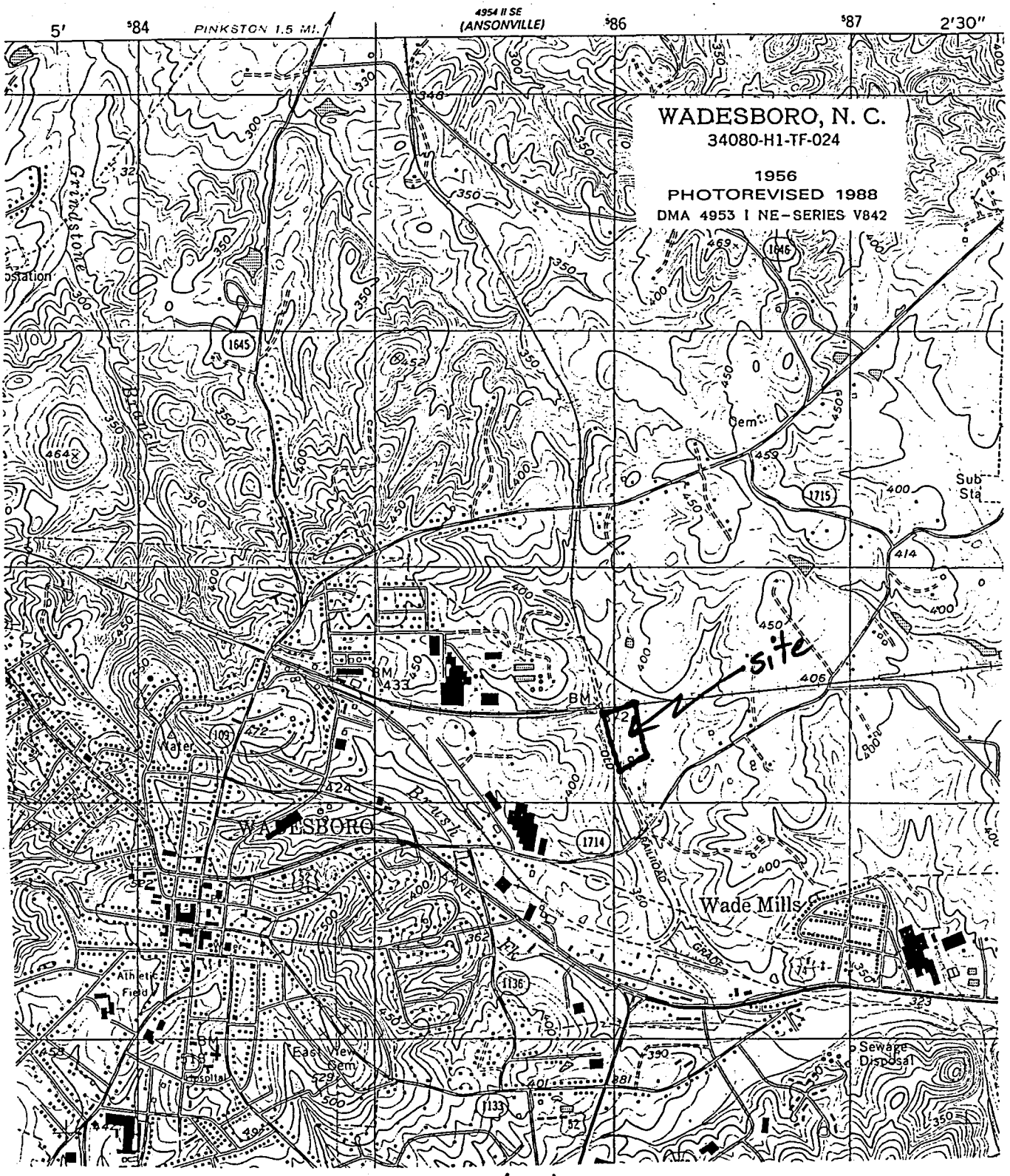
Jeanette Stanley

Jeanette Stanley
Environmental Chemist
NC Superfund Section

cc: file

401 OBERLIN ROAD, SUITE 150, RALEIGH, NC 27605
PHONE 919-733-4996 FAX 919-715-3605
AN EQUAL OPPORTUNITY / AFFIRMATIVE ACTION EMPLOYER - 50% RECYCLED/10% POST-CONSUMER PAPER

SITE NAME: VCC - Wadesboro NUMBER: _____



TOPOGRAPHIC MAP QUADRANGLE NAME: Wadesboro SCALE: 1:24,000

COORDINATES OF LOWER RIGHT-HAND CORNER OF 2.5-MINUTE GRID:

LATITUDE: 35 ° 57 ' 30 " LONGITUDE: 80 ° 2 ' 30 "

NCDENR

JAMES B. HUNT JR.
GOVERNOR

WAYNE MCDEVITT
SECRETARY

WILLIAM L. MEYER
DIRECTOR

NORTH CAROLINA DEPARTMENT OF
ENVIRONMENT AND NATURAL RESOURCES
DIVISION OF WASTE MANAGEMENT

September 15, 1998

Mr. Carl A. Weston, Jr.
P. O. Box 382
Wadesboro, NC 28170

SUBJECT: Former VCC Fertilizer Facility
Wadesboro, Anson Co., NC

Dear Mr. Weston:

I am attempting to determine the location of a former fertilizer plant in Wadesboro, NC. From my review of old Sanborn Fire Insurance maps, USGS topographic maps, aerial photographs, and Anson County tax maps, I believe that your 10.38-acre property, Map 6484, Block 36, Lot 4869 is either the site of this former plant or is at least close to this old plant. This property is about 1 ½ miles east of Wadesboro, on the north side Route 1714 (Stanback Ferry Rd.).

Old maps show a factory that has apparently been demolished sometime since 1962. I believe that the most recent use of this former facility was as a box manufacturing plant. One distinguishing feature that I believe would still be present on the land since the early 1900s is an old 50' diameter, 100,000 gallon circular firepond, possibly with concrete walls.

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Sincerely,

Jeanette Stanley

Jeanette Stanley
Environmental Chemist
NC Superfund Section

cc: file

401 OBERLIN ROAD, SUITE 150, RALEIGH, NC 27605
PHONE 919-733-4996 FAX 919-715-3605
AN EQUAL OPPORTUNITY / AFFIRMATIVE ACTION EMPLOYER - 50% RECYCLED/10% POST-CONSUMER PAPER

File

SITE HEALTH AND SAFETY PLAN

A. General Information

Site Name VCC-Wadesboro ID # NCD NA

Location 1.5 miles easte of Wadesboro, on the north side of Route 1714, Anson Co., NC

Proposed Date of Investigation December 17, 1998

Date of Briefing December 16, 1998

Date of Debriefing December 8, 1998

Nature of Visit (check one):

On-Site Reconnaissance	X
Off-Site Reconnaissance	
Sampling	
Sampling Overview	
Remediation Overview	

Health Department Official Contacted Carol Gibson's voice mail

Date of Contact December 16, 1998

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

	Personnel	Responsibilities	Signature
Team 1	Jeanette Stanley	team leader, recon	Jeanette Stanley
Team 1	Serafino Franch	reconnaissance	Serafino Franch
Team 2			
Team 2			

Plan Preparation:

Prepared By: David Lilley, Industrial Hygiene Consultant

Reviewed By: Jack Butler, Superfund Section Chief

Jack Butler

B. SITE/WASTE CHARACTERISTICS

Waste Type(s) _____Liquid __X__Solid _____Sludge _____Gas _____Vapor

Characteristics _____Corrosive _____Ignitable _____Radioactive

_____Volatile __X__Toxic _____Reactive _____Other

List Known or Suspected Hazards (physical, chemical biological or radioactive) on Site and their toxicological effects. Also, if known, list chemical amounts

HAZARD	WARNING PROPERTIES	EXPOSURE LIMIT
Lead	Odor Threshold (OT) = no data	0.05 mg/m^3

UNDERGROUND UTILITIES CHECKLIST

Utility	Locator/Contact Person	Phone #	Date of Location
Power	NA		
Telephone	NA		
Gas	NA		
Water	NA		
Sewer	NA		

Call made by:

ID # NCD NA

Facility Description: Size 10.38 acres Buildings yes

Disposal Methods Being Investigated Possible spillage of materials.

Unusual Features on Site (dike integrity, power lines, terrain, etc.):
none known

History of the Site: The site was a fertilizer manufacturing facility started in the early 1900s. The property has also been used as a box manufacturing plant, and a metal fabrication facility.

C. HAZARD EVALUATION

The sites can be toured in level D protection. No sampling will be conducted at this time. Chemically resistant, steel toed work boots will be worn while touring the sites.

D. WORK PLAN INSTRUCTION

Map or Sketch Attached? yes

Perimeter Identified? no

Command Post Identified? no

Zones of Contamination Identified? no

Personal Protective Equipment/Level of Protection: ____C ___X__D

Modifications

ID # NCD NA

Surveillance Equipment:

_____ HNU	_____ Detector Tubes and Pumps
_____ OVA	_____ 02 Meter
_____ Explosimeter	_____ Radiation Monitor

Decontamination Procedures

_____Level C Respirator wash, respirator removal, suit wash (if needed), suit removal, boot wash, boot removal and glove removal.

___X___Level D Boot wash and rinse and boot removal, suit removal, glove and goggle removal.

Modifications Dispose of trash properly, on-site if possible.

Work Schedule/Visit Objectives The purpose of this visit is to determine if the site poses a threat to the public health or environment because of releases of contaminants to soil, surface water, groundwater, or air. No sampling will be conducted at this time, sampling may take place on a later date.

EMERGENCY PRECAUTIONS

Route of Exposure	First Aid
Eyes	irrigate immediately
Skin	soap and water wash
Inhalation	fresh air and artificial respiration
Ingestion	get medical attention immediately

ID # NCD NA

Location of Nearest Phone: unknown (nearby residences/businesses?)

Hospital (Address and Phone Number)

Anson County Hospital, 500 Morven Rd, Wadesboro, NC (704) 694-5131

Emergency Transportation Systems (Phone Numbers)

Fire 911

Ambulance 911

Rescue Squad 911

Emergency Route to Hospital Turn left on SR 1714 and travel to Wadesboro. Turn left onto Greene Street, the hospital will be on the left.

PREVAILING WEATHER CONDITIONS AND FORECAST Partly cloudy, high of 55.

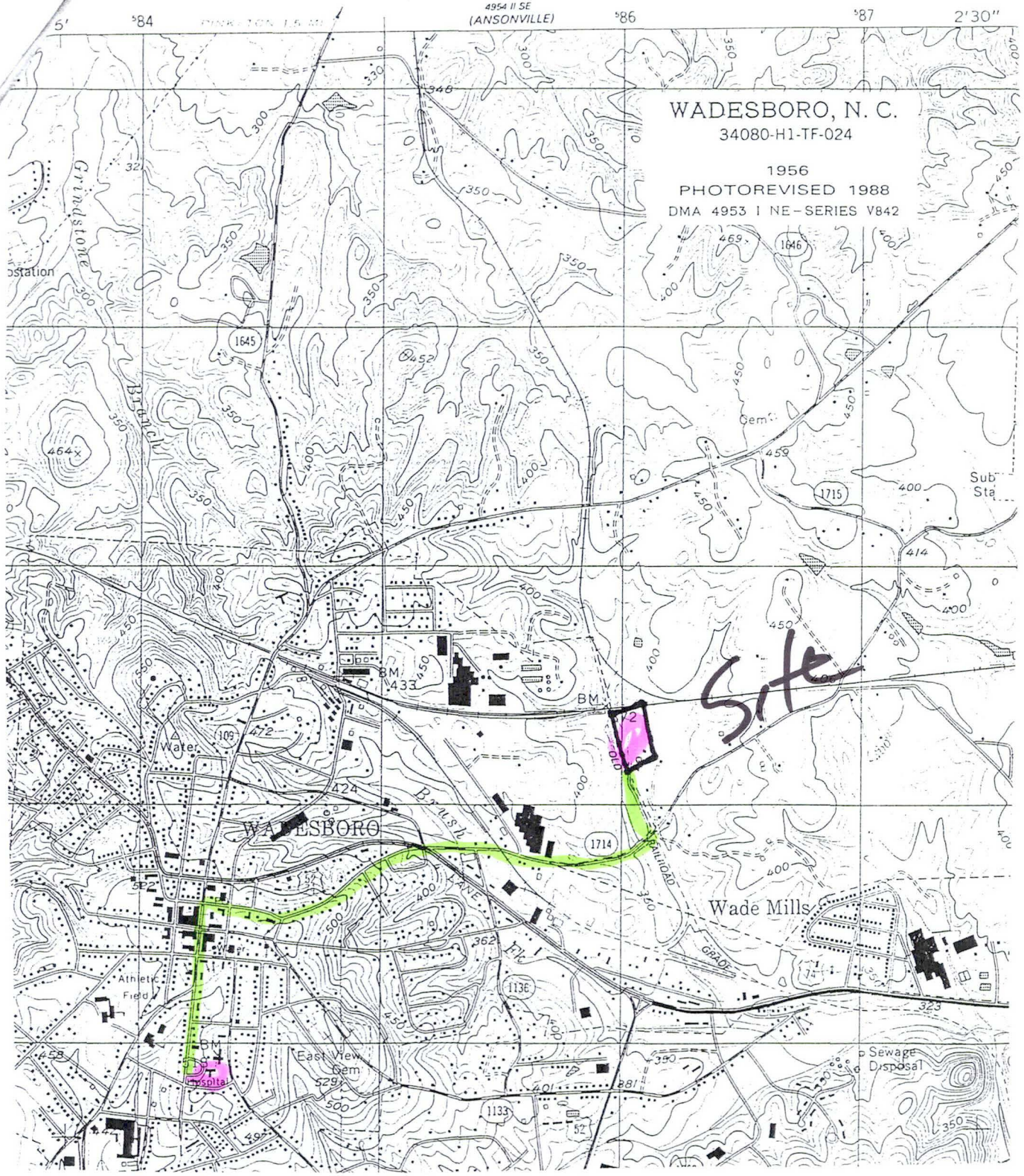
EQUIPMENT CHECKLIST

	Air purifying respirator	X	First Aid Kit
	Cartridges for respirator	X	3 gal. Deionized H20
	Eye Wash Unit	X	Rain suit
	HNU	X	Gloves (PE/PVC/nitrile/cloth)
	OVA	X	Boots/Boot Covers
	Explosimeter	X	Coveralls (tyvek/saranex)
	Radiation Monitor	X	Eye Protection (goggles/shield)
X	Decontamination Materials	X	Hard Hat

Poison Control Center - State Coordinator
Duke University Medical Center
Telephone: 1-800-672-1697
Box 3024
Durham, NC 27710

ASHEVILLE 704-255-4490	Western NC Poison Control Center Memorial Mission Hosp. 509 Biltmore Ave. 28801	HENDERSONVILLE 704-693-6522 Ext. 555,556	Margaret R. Pardee Memorial Hospital Fleming St., 28739
CHARLOTTE 704-379-5827	Mercy Hospital 2001 Vail Ave, 28207	HICKORY 704-322-6649	Catawba Mem. Hosp. Fairgrove Chur. Rd 28601
DURHAM 1-800-672-1697	Duke Univ. Med. Center Box 3007, 27710	JACKSONVILLE 919-577-2555	Onslow Mem. Hospital Western Blvd. 28540
GREENSBORO 919-379-4105	Moses Cone Hospital 1200 N. Elm St. 27420	WILMINGTON 919-343-7046	New Hanover Mem. Hospital 2131 S. 17th St. 28401

SITE NAME: VCC - Wadesboro NUMBER: _____



TOPOGRAPHIC MAP QUADRANGLE NAME: Wadesboro SCALE: 1:24,000

COORDINATES OF LOWER RIGHT-HAND CORNER OF 2.5-MINUTE GRID:

LATITUDE: 35 ° 57 ' 30 " LONGITUDE: 80 ° 2 ' 30 "

TO BE COMPLETED BY PROJECT MANAGER

PROJECT MANAGER: Jeanette Stanley PROJECT: VCC-Wadesboro

INVESTIGATION DATE: 12/17/98

RECONNAISSANCE X SAMPLING VISIT _____ REMEDIATION/SAMPLING OVERVIEW ____

Respirator Worn By	Approximate Time in Respirator

Air Monitoring Data (Include Calibration Reading)

HNU: _____

OVA: _____

Explosimeter: _____

Radiation Meter: _____

Were there any injuries? _____ If yes, explain: _____

If the maximum personal protective equipment as outlined in the Hazard Evaluation Section was not used, please justify:

Visitors Present	Organization Represented

Signature

Chemical Name: Lead, inorganic dusts

I. PHYSICAL/CHEMICAL PROPERTIES

	Reference
Chemical Formula Pb	1
Natural Physical State at 25°C solid	1
Vapor Pressure N/A mm Hg at 20°C	1
Melting Point 327.4°F/°C Boiling Point 1,740°F/°C	1
Flash Point (open or closed cup) N/A°C/°F	
Solubility - H_2O N/A	
Other N/A	

Physical Features: (odor, color, etc.) appearance and odor vary depending upon specific compound.

II. TOXICOLOGICAL DATA
suspected or confermed human carcinogen
Standards: .05 mg/m^3 (2) TLV 0.05 mg/m^3 (3) PEL
N/A (4) IDLH

Routes of Exposure: inhalation, ingestion, eye contact, skin contact(3)

Acute/Chronic Symptoms: Acute: lassitude, pallor, constipation, abdominal pain, gingival gum line, tremors. Target organs: GI tract, CNS, kidneys, blood.(3)

First Aid: Inhalation: artificial respiration; Ingestion: get medical attention immediately; Eye contact: irrigate immediately; Skin contact: soap and water wash immediately

Chemical Name: Lead, inorganic dusts

III. HAZARDOUS CHARACTERISTICS

		Reference
A.	Combustibility Yes ___ No X	____
	Toxic by-products _____	____
B.	Flammability LEL N/A UEL _____	____
C.	Reactivity Hazard None	_____
D.	Corrosivity Hazard yes/no pH: ___	_____
	Neutralizing agent: _____	_____

E.	Radioactive Hazard		Exposure Rate	
	Background	yes/no	_____	_____
	Alpha particles	yes/no	_____	_____
	Beta particles	yes/no	_____	_____
	Gamma radiation	yes/no	_____	_____

IV. REFERENCES

(1) The Merck Index, 11th Edition, 1989

(2) Threshold Limit Values and Biological Exposure Indices for 1997 ACGIH.

(3) 29 CFR 1910.1025

(4) Pocket Guide to Chemical Hazards, NIOSH, 1990.

KEY RISK MANAGEMENT SERVICES, INC.
ATTN: STATE UN
P.O. BOX 49129
GREENSBORO, NC 27419

CompCare NETWORK, INC.

WORKERS' COMPENSATION MEDICAL AUTHORIZATION

Name of Employee/Patient: Last	First
Date of Injury:	Social Security Number: - -
Name of Employer/Company:	STATE OF NORTH CAROLINA DEHNR
Employer Authorization:	Doctor To Be Seen:

Employer: Complete this form, and give it to the injured employee before a doctor is seen.

Employee: Show this form to the doctor.

Physician: When a referral is necessary - use CompCare Physicians and call 1-800-366-1511, to let the state agency claims representative know that the patient is being referred.

SEND BILL DIRECTLY TO KEY RISK MANAGEMENT SERVICES, INC.

State of North Carolina
Department of Environment
and Natural Resources
Division of Waste Management
P.O. Box 29603
Raleigh, NC 27611-9603

9/17/98 RALEIGH NC 27604

SF 1760-2840-7633-0312

RETURN SERVICE
REQUESTED

RECEIVED
FIRST CLASS

RALEIGH
SEP 18 '98
N.C.

U.S. POSTAGE
00.254
PB METER 5503161

MR. CARL A. WESTON, JR.
P.O. BOX 382
WADESBORO, NC 28170

UNDELIVERABLE AS ADDRESSED
FORWARDING ORDER EXPIRED

UNDELIVERABLE AS ADDRESSED
FORWARDING ORDER EXPIRED

27611/3603

August 12, 1998

TO: Pat DeRosa
Bruce Nicholson

FROM: Irene Williams, Environmental Chemist Irene Williams
N.C. Superfund Section

RE: Potential site in Wadesboro

In the process of investigating the acid wash area of the Gurley Pesticide Burial site at Selma, NC, ERRB OSC Christopher Militscher noticed highly colored contaminated soil that resembled soils at a similar former Virginia Carolina Chemical Company (VCC) site in Alabama. Mobil Corporation now owns VCC properties and has performed removals in Alabama and at the Gurley site. OSC Militscher mentioned the likelihood that there might be other similar sites within NC.

At these sites iron pyrites were processed to produce sulfuric acid and, subsequently, triphosphate fertilizers. At the Gurley site, wash water from lead chambers used in the sulfuric acid production were released onto the ground. This resulted in an area of highly acidic soils contaminated with arsenic, lead, and other metals. Waste pyrites were also left on the ground at the Gurley site.

A survey of old manufacturing directories for North Carolina revealed several former VCC fertilizer facilities in the state including one in Wadesboro. Attached are photocopies made from Sanborn fire insurance maps of Wadesboro dated 1914, 1922, and 1930. These three maps show a VCC facility with acid chambers and pyrite storage. Maps from 1885, 1902, and 1908 did not include the VCC facility.

Because the history of this site is so similar to the Gurley Pesticide Burial site acid wash area, it is likely to involve soils contaminated with lead and other metals. Therefore, I recommend that this site be screened for possible addition to CERCLIS for investigation and possible remedial or removal activity. There are currently no other CERCLIS sites in this area.

It is difficult to pinpoint a precise location of the site from the attached sections of Sanborn maps, although the 1930 map indicates that it was located out Lee Avenue about one mile northeast of the 1930 city limits. The investigator might do well to review the Sanborn maps in further detail and/or to check old aerial photographs if available.

Attachments

SITE DISCOVERY FORM

Part I: Information necessary to add a site to CERCLIS

ACTION: A

EPA ID:

SITE NAME: VC Chemical -- Wadesboro SOURCE: T (R=EPA, T=STATE)

STREET: Stanback Ferry Road CONG DIST: 8

CITY: Wadesboro ZIP: 28170

CNTY NAME: Anson Co. CNTY CODE: 4

LATITUDE: 34° /58' /22" LONGITUDE: 80° /03' /26"

INVENTORY IND: Y REMEDIAL IND: Y REMOVAL IND: N FED FAC IND: N

RPM NAME: RPM PHONE: - - (EPA Project Officer)

SITE DESCRIPTION: The 10.38-acre site operated as a fertilizer facility from approximately 1908 to 1945. A 1930 Sanborn map of this site shows that lead chambers were used to manufacture sulfuric acid. The current owner, Mr. Carl Weston, purchased the property from Anson County in the early 1980s. The site is about ½ mile from the town limits of Wadesboro, population 3,820. The nearest water lines are located ½ mile from the site.

The property is vacant, unused, and unfenced with no signs of recreation. There is uninhabitable house trailer on the property and an old well. Near the well is a 100,000-gallon fire protection reservoir containing water. Some of the railroad beds contain a white, granular substance. Several small brick buildings and the support structure for the old lead chambers remain on the site. There is magenta-colored soil, characteristic of lead contamination, in the vicinity of and downgradient from the chamber area. This discolored soil is on the site property but within 200' of a drinking water well serving an uninhabited residential property.

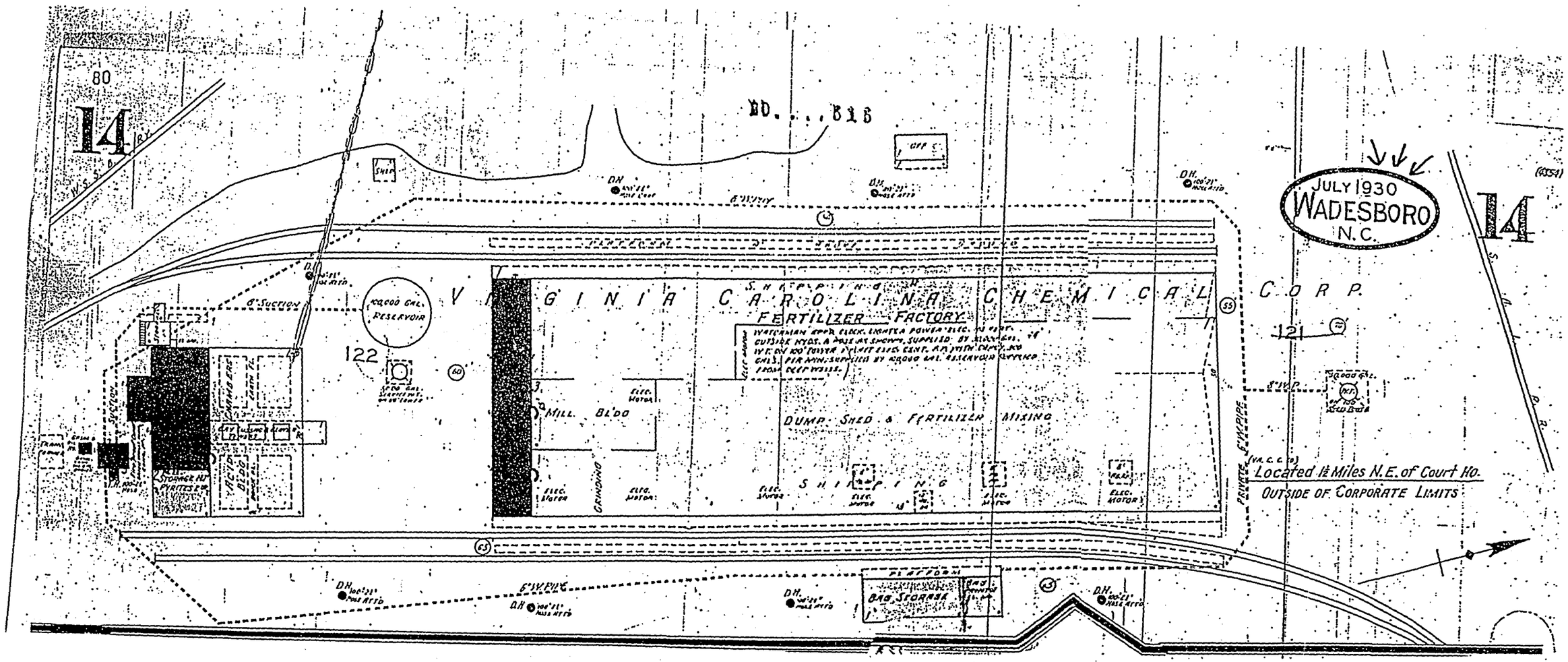
There are three residences served by drinking water wells on property adjacent to the facility. Another three residences and a small business, all served by drinking water wells, lie downgradient from and in close proximity to the overland pathway leading from the site. All residences within ½ mile appear to be served by drinking water wells.

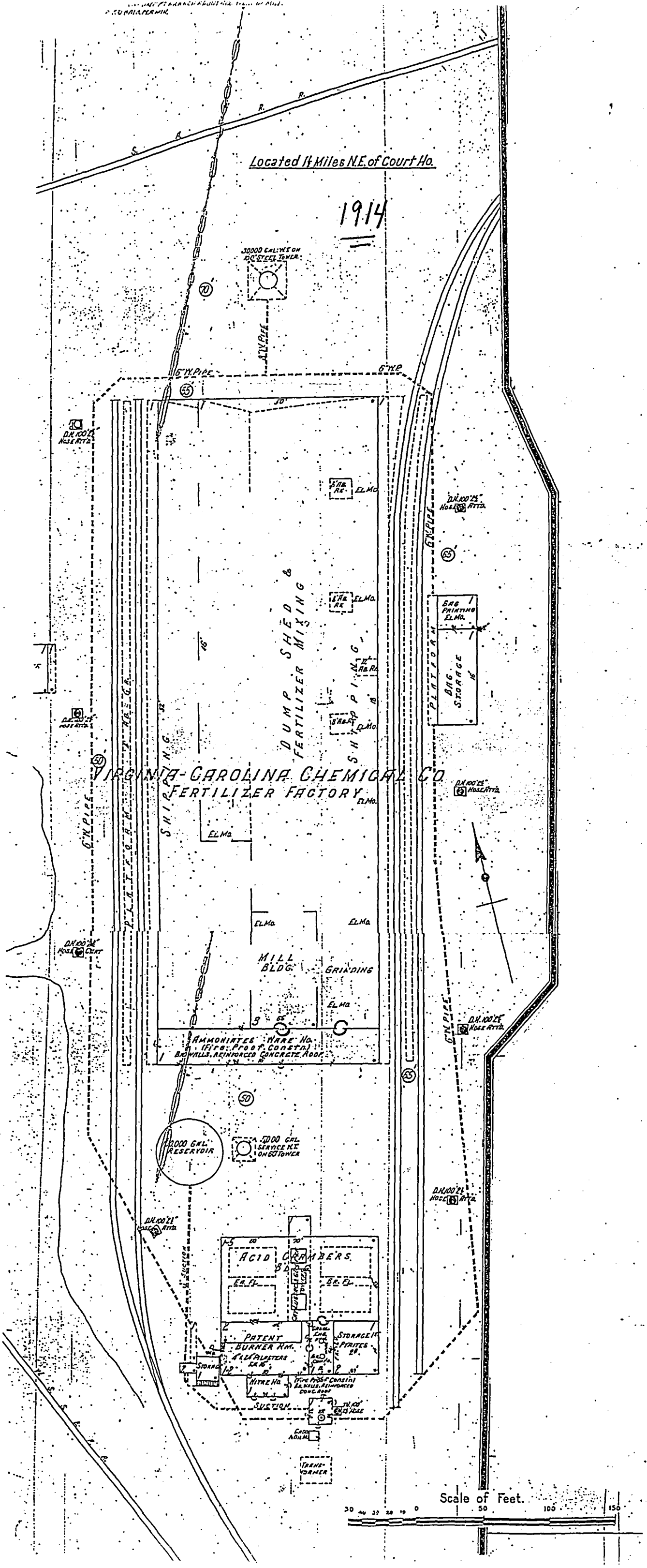
There are two probable points of entry (PPE) to surface water at two points in an unnamed tributary to Brush Fork. The northern PPE is about 100' west of the site. The southern PPE that receives runoff from the magenta-colored soil area is about 750' south of the site. The wetland inventory map shows the nearest wetland about 1 ½ miles downstream of the PPE; however, vegetation observed during the site visit and the topography of the area adjacent to the stream bed approximately 100' below the southern PPE indicates the potential for a wetland area much closer to the site.

Part 2: Other site information

DATE SITE FIRST REPORTED: / / REPORTED BY: State (NC Superfund Section)

REASON FOR LISTING: Based on the potential for this site has a potential to release lead and other contaminants to six residential drinking water wells and wetlands.


80
14
RD. . . . 816
JULY 1930
WADESBORO
N.C.
14
VIRGINIA CAROLINA CHEMICAL CORP.
FERTILIZER FACTORY
122
121
RESERVOIR
MILL BLDG
DUMP SHED & FERTILIZER MIXING
SHIPPING
GRINDING
PLATFORM
BAG STORAGE
Located 1½ Miles N.E. of Court Ho.
OUTSIDE OF CORPORATE LIMITS


Located 1¼ Miles N.E. of Court Ho.
1914
30000 GAL. WTR ON 100' STEEL TOWER
6" W. PIPE
6" W.P.
D.H. 100' 2½" HOSE ATTA.
DUMP SHED & FERTILIZER MIXING
SHIPPING PLATFORM
BAG PRINTING EL. MO.
BAG STORAGE
VIRGINIA-CAROLINA CHEMICAL CO.
FERTILIZER FACTORY
MILL BLDG.
GRINDING
AMMONIATES WARE HO.
(Fire Proof Constn.)
BRICK WALLS, REINFORCED CONCRETE ROOF
12000 GAL. RESERVOIR
7000 GAL. SERVICE TK. ON 60' TOWER
ACID CHAMBERS
PATENT BURNER RM.
STORAGE IT PYRITES
NITRE HO.
SUCTION
TRANSFORMER
Scale of Feet.

NORTH CAROLINA DEPARTMENT OF
ENVIRONMENT AND NATURAL RESOURCES
DIVISION OF WASTE MANAGEMENT

NCDENR

JAMES B. HUNT JR.
GOVERNOR

WAYNE MCDEVITT
SECRETARY

WILLIAM L. MEYER
DIRECTOR

December 15, 1998

Mr. Phil Vorsatz, Chief
NC Site Management Section
US EPA Region IV Waste Division
Atlanta Federal Building
61 Forsyth St., 11th Floor
Atlanta, GA 30303-3104

SUBJECT: Sampling Plan
VC Chemical - Almont Works
NCO 002 178 580
New Hanover County, NC

Dear Mr. Vorsatz:

This letter contains the proposed sampling locations that will determine whether or not this site is an NPL-caliber site. We understand that you plan to include this site in a "Fast Track" study wherein several issues will be addressed within one sampling event. These proposed sample locations include the minimal number required to support HRS concerns. I understand that a number of other samples will be added to this plan to address other environmental and human health concerns. Please allow us to review the study plan prior to implementation as we may require the addition of some duplicates to address QA/QC concerns.

Given the data from a previous investigation, it is very likely that this is an NPL-caliber site. If it can be documented that there is lead and mercury on the site and lead in the fishery sediment, the site will qualify as an NPL-caliber site. Since this site is located in an important estuary with extensive wetlands, this proposed list of samples also will serve to document an observed release to wetlands and to determine if any water quality standards have been exceeded. This proposed plan also discusses the minimal number of source samples required. Background samples are crucial to proving any of these parameters, and these samples are also included in this proposed plan.

The Fishery sample (VC-001-SW & SD) should be collected within the area typically fished, which we believe is most of the shore. It is not necessary to go very far from the shore. The fishery sample will also serve to document an observed release to surface water.

401 OBERLIN ROAD, SUITE 150, RALEIGH, NC 27605
PHONE 919-733-4996 FAX 919-715-3605
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Two sample locations (VC-002-SW & SD and VC-003-SW & SD) should be selected slightly downstream of more than 0.1 mile of wetland frontage along the river. In order to document that HRS-qualified wetlands have been contaminated, it is first necessary to document the presence of wetlands. On the wetland inventory map (attached) in the vicinity of the site, the Northeast Cape Fear River is classified as a "R1UB3V", meaning a permanently tidal river with an unconsolidated mud bottom. This type of wetland is generally not an HRS-qualified wetland. The nearest HRS-qualified wetland shown on the wetland inventory map is approximately 3,000' downstream from the site. Adjacent to the site, there is vegetation along the shoreline of this tidal river indicative of an HRS-wetland; however, a US Army Corps of Engineers wetlands expert should view the area either prior to or during the sampling trip in order to determine the presence and extent of these wetlands.

Wetland frontage is additive under the HRS, so it is not necessary to document a contiguous wetland, just total river frontage. If the US Army Corps of Engineers expert cannot document wetlands nearer to the site than the wetlands shown on the map at 3,000' downstream of the site, the wetland samples should be collected in this downstream wetland, slightly more than 0.1 mile downstream from the beginning of the wetland area.

In case logistics are a problem, it is not essential for the purposes of this study to determine the extent of wetlands below this point. If the US Army Corps of Engineers wetlands expert can readily determine wetlands further downstream, this data would be useful to document potential to release to additional wetlands.

Because tidal reversal is a twice-daily occurrence along this river, the same logic in selecting upstream sampling locations (VC-004-SW & SD and VC-005-SW & SD) should be used. The nearest HRS-qualified wetland shown on the wetland inventory map is approximately 2,000' upstream from the site.

It is difficult to determine how far upstream to go in order to determine a true background, particularly since there is other industry in the area. The Northeast Cape Fear River is tidally influenced up to 50 miles upstream from its mouth. The site lies about 4 miles upstream from the river mouth. The hydrology of the river shows that the general downstream movement and the freshest water occurs along the bank nearest to the site. The opposite bank, or eastern bank of the river would be more quickly influenced by tidal reversals and would therefore tend to be slightly saltier. Nonetheless, since tide reversals range from 3 - 6 miles, several background samples should be collected to determine influences from other facilities in the area and to determine what natural, non-industrial levels would be expected.

One background sample (VC-006-SW & SD) could be acquired by accessing the power transmission line right- of-way that crosses over Rt. 421 north of the site, following that to the river and collecting the sample just upstream of this transmission line. Another background sample could be collected just upstream of Cowpen Landing off Rt. 1109 (VC-007 SW & SD). This sample location would be 5 ½ miles upstream from the site. Another large facility along the river, Hercofina, 4 miles upstream from the site is undergoing a cleanup action under the authority of the Inactive Hazardous Sites Branch and the Division of Water Quality. Known contamination at this site does not include metals.

Other sample data required to determine if this is an NPL-caliber site include documentation of a source area. The minimal amount of source samples is three soil samples (VC-008, 9, & 10) showing contamination (in order to triangulate to show an area of soil) and two background soil samples (VC-011 & 012).

All water, sediment, and onsite soil samples should be tested for volatiles, semi-volatile organics, and all eight RCRA metals, including lead, arsenic, mercury, cadmium, chromium, and a non-RCRA metal, copper. The attached table more clearly identifies the samples and the rationale for taking these samples. A map of the proposed sampling locations is attached. For background purposes, I have attached our April 27, 1998 Immediate Removal Evaluation Request.

Please allow us to review the final study plan prior to implementation. If you have any questions, please call me at (919) 733-2801 ext. 318.

Sincerely,

Jeanette Stanley

Jeanette Stanley
Environmental Chemist
NC Superfund Section

cc: Pat DeRosa, Head, Site Evaluation and Removal Branch
Bruce Nicholson, Head, Special Remediation Branch

VC Chemical - Almont Works
NCD 002 178 580
New Hanover County, NC

All water, sediment, and onsite soil samples should be tested for volatiles, semi-volatile organics, and all eight RCRA metals, including lead, arsenic, mercury, cadmium, chromium, and a non-RCRA metal, copper. In order to qualify as a source under the HRS, on-site soil samples must show levels of contamination greater than three times background, so background soil samples should also be collected and analyzed for the same constituents. A minimum of three on-site soil sample should be collected in order to document a source area. Because a number of other samples will be added to this study, it is uncertain at this time whether our QA/QC needs will require that we add duplicates. Please allow us to review the study plan prior to implementation to ensure that all HRS issues have been addressed.

sample ID	Rationale
VC-001-SW VC-001-SD	Surface water and sediment in fishery. To document observed release to surface water and fishery.
VC-002-SW VC-002-SD	Surface water and sediment in wetland. Document observed release to wetland
VC-003-SW VC-003-SD	Surface water and sediment in wetland. Document observed release to wetland
VC-004-SW VC-004-SD	Surface water and sediment in wetland. Document observed release to wetland
VC-005-SW VC-005-SD	Surface water and sediment in wetland. Document observed release to wetland
VC-006-SW VC-006-SD	Background
VC-007-SW VC-007-SD	Background
VC-008-SL	Document source area of onsite soil
VC-009-SL	Document source area of onsite soil
VC-0010-SL	Document source area of onsite soil
VC-0011-SL	Background
VC-0012-SL	Background

NORTH CAROLINA DEPARTMENT OF
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DIVISION OF WASTE MANAGEMENT

NCDENR

JAMES B. HUNT JR.
GOVERNOR

WAYNE MCDEVITT
SECRETARY

WILLIAM L. MEYER
DIRECTOR

October 28, 1998

Mr. Michael Norman
U.S. E.P.A. Region IV
Emergency Response and Removal Branch
61 Forsyth Street, SW, 11th Floor
Atlanta, GA 30303

FILE COPY

SUBJECT: Site Location Map and Historical Use Reference
V. C. Chemical - Almont Works, NC0 002 178 580
2500 U.S. Highway 421 North
Wilmington, NC 28401

Dear Mr. Norman:

As per our recent conference call about the subject site, enclosed are four copies of a site location map pertinent to the V. C. Chemical - Almont Works (VCCA) site. Please forward one copy to Phil Vorsatz. The map consists of Sanborn Fire Insurance Maps and Index showing historical use of the Norris Flowers property (which houses the Eagle Island Fruit and Seafood store) along with adjacent properties to the north (Koch Sulfur Products Company) and south (Royster Clark Fertilizer Company).

After fitting these Sanborn maps together it is apparent that the VCCA site extends well south of the Flowers property. It appears that the old VCCA building shown on the Sanborn map is presently Royster Clark Fertilizer Company. The property due north of the Flowers property was formerly called Swift and Company Sulphuric Acid and Fertilizer Factory on a 1921 Sanborn Fire Insurance map (see the attached figure). The property has changed hands several times and at one time was listed in CERCLIS as NE Chemical Company (NCD 053 530 234). The property now houses Koch Sulfur Products Company.

Both VCCA and Swift (NE Chemical) had similar pyrite roasting acid plants. As shown by the ERRB Removal Assessment map on the attached figure, the Removal Assessment samples were all taken on the Flowers property. From the Removal Assessment sampling data received from Ted Walden, and from the earlier NC Superfund sampling of a waste pile on the Flowers property, it seems that one or both of these adjacent acid plants contributed to the contaminants on the Flowers property. [At one time, what is now the Flowers property was part of one or both the VCCA or Swift and Company facilities. The former property line between them is not known.] It is likely that similar contamination to that found in the Flowers property will be found on the former acid plants to the north and south. Indeed, Koch Sulfur Products has already found lead contamination on their own property during various construction activities.

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The VCCA property is remarkably similar to the acid wash area of the Gurley Pesticide Burial site in Selma, Johnston County, North Carolina (NCD 986 172 526). Both sites were owned and operated as fertilizer and sulfuric acid manufacturing plants by Virginia Carolina Chemical Company. In the late 1800's and early 1900's, perhaps as recently as the 1940's, iron pyrites were processed at such sites to produce sulfuric acid and triphosphate fertilizers.

All three of the aforementioned properties (Koch, Flowers, Royster Clark) are likely to have heavy metals contamination from pyrites, pyrite wastes, and washout water from lead acid chambers. Please consider the entire shoreline of the North East Cape River shown in the "Area of Concern" indicated on the Sanborn large scale map index from 1915 as worthy of investigation.

The river in this area is tidally influenced. The area of shoreline sampled by ERRB during their Removal Assessment identified sediments in the tidal wetland areas contaminated with lead, arsenic, mercury, and other analytes. The NC Superfund Section Preliminary Assessment and Removal Oversight investigations reports indicate that the shoreline to the north of the Flowers property have the same appearance. Because of wetland vegetative cover it is difficult to determine the appearance of the shoreline south of the Flowers property.

If you have any questions, please call me at (919) 733-2801, extension 353.

Sincerely,

Bruce Nicholson, Head
Special Remediation Branch
NC Superfund Section

Attachments

cc w/attachments: Phil Vorsatz
File

cc wo/attachments: Pat DeRosa