

**PRELIMINARY SITE ASSESSMENT  
PARCEL #74, GRAHAM DIXON PROPERTY**

**BRIDGETON, CRAVEN COUNTY, NORTH CAROLINA  
NC DOT PROJECT NO.: (R-3403A)  
WBS ELEMENT: 34538.1.1**

**Weston Solutions, Inc. PROJECT # 13052.001.001.0014**

**December 28, 2004**

**Property Information:**

Land Use: Right of Way (ROW)

**Current Property**

Owner: Graham Dixon  
904 Williams Rd.  
New Bern, NC 28562

**Contact:**

North Carolina Department of Transportation (NC DOT)  
Attn: Gregory A. Smith  
GeoEnvironmental Project Manager  
Geotechnical Engineering Unit  
1589 Mail Service Center  
Raleigh, NC 27699-1589

**Subcontractor:**

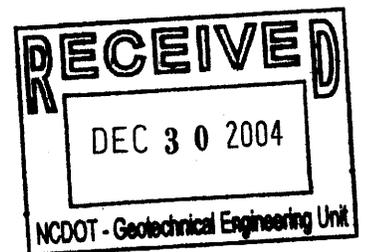
Probe Technology, Inc.  
P.O. Box 1369  
Concord, NC 28026  
(803) 548-2180

**Primary Consultant:**

Weston Solutions, Inc.  
4917 Water's Edge Dr.  
Suite 235  
Raleigh, NC 27606

**Laboratory:**

Pace Analytical Services, Inc.  
9800 Kincey Avenue  
Suite 100  
Huntersville, NC 28078  
NC Certification #: 12



WESTON SOLUTIONS, INC.



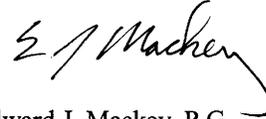
Tara Rowland  
Geoscientist



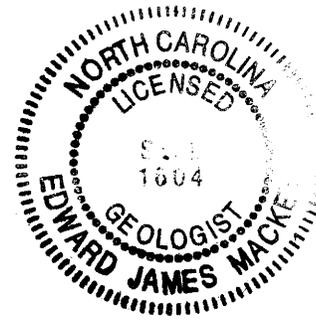
Steve L. Brown  
Project Manager



Gregory C. Ford  
Associate Geoscientist



Edward J. Mackey, P.G.  
Registered Geologist



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## SECTION 1. INTRODUCTION

The Preliminary Site Assessment (PSA) was conducted at the Graham Dixon property, which is located at 2100 US Highway 17 North, Bridgeton North Carolina, for the purposes of road construction and installation of drainage features. The location of the subject site is shown on Figure 1. The PSA was performed on the parcel to assess the type and extent of contamination potentially present in the vicinity of the proposed drainage features within the proposed Right-of-Way (ROW) and permanent drainage easement (PDE) that may be encountered during construction. This report also presents a brief description of the parcel, a discussion of the scope of work completed at this site, and the findings resulting from the analysis of soil and groundwater samples.

### ***Parcel #74, Graham Dixon Property-Known Site History***

The project location is 2100 US Highway 17 North and located northeast of the intersection with Antioch Road (Figure 2). The property contains a carport, storage shed, tattoo parlor, and a tavern approximately 40 to 50 feet from the edge of US 17. The surveyed ROW area at this site consists of gravel and grass surfaces.

## **SECTION 2. SITE GEOLOGY AND HYDROGEOLOGY**

### **2.1 REGIONAL/SITE GEOLOGY**

The Town of Bridgeton, Craven County, is in the Lower Coastal Plain of eastern North Carolina. Local Geology consists of coastal marine deposits mapped as Oligocene aged (31 million years), Beyer 1991, River Bend Formation. The River Bend formation is comprised of limestones, and calcarenite overlain by indurated sandy molluscan mold limestone.

A thin veneer of Pleistocene aged (<1.6 million years) sediments associated with glacial/interglacial sea level fluctuations was deposited in the area overlying the River Bend formation. These Pleistocene sediments likely represent marginal marine to estuarine and terrestrial depositional environments.

Bridgeton is in the Murville-Ponzer-Leon soil region. This region has soils that range from very poorly drained, organic soils to very poorly drained to somewhat excessively drained mineral soils. The Murville soils are mucky loamy sand. This soil is on broad flats and in depressions on stream terraces and uplands. Typically, the surface layer is black mucky loamy sand 10 inches thick. The subsoil is dark reddish brown weakly cemented sand to a depth of 36 inches. The underlying material to a depth of 80 inches is dark brown sand. The Ponzer soils are in depressions and on broad flats, locally known as pocosins, on stream terraces in the northwestern, central, and southeastern parts of the county. Typically, the soil is organic matter 40 inches thick. It is granular, very dark brown muck to a depth of 5 inches and has a dense root mat. To a depth of 30 inches, it is granular black muck, and below that, it is massive black muck. The underlying mineral soil to a depth of 80 inches is black mucky fine sandy loam, very dark grayish brown sandy loam, and brown loamy sand. The Leon soil is nearly level to gently sloping and poorly drained. Typically, the surface layer is black sand 7 inches thick. The subsurface layer is light brownish gray uncoated sand to a depth of 21 inches. The subsoil extends to a depth of 49 inches. It is black and very dark brown weakly cemented and brittle sand.

Soils encountered in the shallow subsurface of the site were sandy clay to sandy silt, with moderate to low plasticity, moist and stiff with some poorly sorted sand.

### **2.2 REGIONAL/SITE HYDROGEOLOGY**

Craven County is drained by the Neuse and Trent Rivers. The flow is sluggish in the rivers and their tributaries. The general slope of the county is to the southeast. According to the U.S. Geologic Survey topographic maps, elevation ranges from 63 feet (ft) above sea level at Dover to less than 5 feet in marshes and flood plains in the central and southeastern parts of the county. About 88 percent of the land is nearly level, 11 percent is gently sloping, and less than 1 percent is sloping to moderately steep. Groundwater on the site was encountered four (4) to five (5) below ground surface (bgs).

## SECTION 3. SUBSURFACE CHARACTERIZATION

### 3.1 PRELIMINARY ACTIVITIES

#### 3.1.1 HEALTH AND SAFETY PLAN

Prior to the start field work, a site specific Health and Safety Plan (HASP) was developed for the site and the associated field work prior to mobilization (Appendix A). The HASP contains potential activity specific hazard analysis, personal protective equipment requirements, description of site-specific operating procedures, information on anticipated chemical hazards, emergency procedures, and reporting requirements.

#### 3.1.2 UTILITY LOCATION

Prior to the start of any geoprobe work, NC One-Call was notified and used to identify major commercial underground utility lines present in the areas of concern for the site. Additionally, an independent, third party utility location contractor was used to detect existing underground utility lines and structures present at or near the site areas of concern.

#### 3.1.3 GEOPHYSICAL SURVEYS

Weston Solutions, Inc. (WESTON) contracted Geophysical Survey Investigations, doing business under Pyramid Environmental, to perform a geophysical survey of the site to detect the presence of any underground storage tanks (USTs). The Geophysical surveys for the Detection of metallic USTs was submitted to WESTON on December 13, 2004 and is attached in Appendix B. The survey utilized EM61 and Ground Penetrating Radar technologies to locate metallic USTs within the Right-of-Way (ROW) of this property. The majority of the survey area at the Graham W. Dixon property, which covers approximately 26,000 square feet (0.6 acres), consisted of gravel and grass surfaces. The geophysical results suggest that the surveyed portion of the ROW area at this site does not contain metallic USTs.

### 3.2 SOIL SAMPLING

#### 3.2.1 BORING & SAMPLING PROCEDURES

Continuous soil samples were collected from each soil boring using a GeoProbe® macrosampler, which is a 2 inch (in) diameter, 4 ft long, steel cylinder that is fitted with a 2 in diameter, 4 ft long Teflon liner that holds the soil sample. Soil samples were collected with the Geoprobe and placed into zip-lock bags. The soil was then screened using a Photo-Ionization Detector (PID) meter to detect the presence of organic vapors. Soil characterization and field observations were recorded on a Geolis® Borehole Logging Form. Each sample was collected from a maximum depth of 8 feet below ground surface (bgs), to conservatively encompass any area of potential excavation during road construction and shipped for laboratory analysis. If a sample had exhibited a high PID reading at a shallower interval, a sample would have been taken at that interval. Also, a sample would have been collected in the interval before groundwater was encountered. One sample per boring was sent for analysis. Each soil sample was analyzed for the following parameters: EPA Method Modified 8015 with 5030 sample preparation-Gasoline Range Organic Compounds (GRO) and EPA Method Modified 8015 with 3550 sample preparation-Diesel Range Organic Compounds (DRO) analysis by Pace Analytical Services, Inc. (Pace) of Huntersville, NC. The borings were then abandoned using bentonite chips, which were

hydrated after placement in the borehole. Asphalt surfaces at the tops of the boreholes were repaired using asphalt patch. The boring logs are presented in Appendix C.

### **3.2.2 PROPERTY SAMPLING**

On 9 December 2004, Probe Technology, Inc. of Concord, North Carolina under the supervision of WESTON, mobilized to the Dixon Property, with a direct push GeoProbe®. Eight (8) soil borings were advanced and eight (8) soil samples were collected and analyzed for GRO and DRO. While collecting samples from this property, there appeared to be no evidence of impacted soil (elevated PID readings, visual observation, odor) observed. Table 1 displays the PID readings for each soil boring. The GeoProbe® was advanced to an approximate depth of 8 ft below ground surface (bgs) at each soil boring location. Borehole logs for each boring appear in Appendix C.

### **3.3 GROUNDWATER SAMPLING**

#### **3.3.1 SAMPLING PROCEDURES**

One (1) groundwater sample was collected directly from SB-11-A using clean tubing. Samples were placed into appropriate, laboratory-supplied containers, labeled with an indelible ink pen, packed in a cooler on ice and shipped by Fed Ex to Pace Analytical Services, Inc. of Huntersville, NC, a North Carolina certified laboratory.

Analytical results were specified for five-day turnaround. Groundwater samples were analyzed for the following analytical parameters:

- EPA Method 602/601 with IPE, MTBE, EDB, and Xylenes – Volatile Organic Compounds
- EPA Method 625 plus ten peaks – Semi-Volatile Organic Compounds
- EPA Method 3030C - Total Lead
- MADEP EPH and VPH – Aliphatics and Organics

#### **3.3.2 PROPERTY SAMPLING**

On 9 December 2004, WESTON collected one (1) groundwater samples. While collecting the sample from this property, there appeared to be no evidence of impacted groundwater (odor) observed in the one (1) groundwater sample collected from soil boring, SB-11-A.

### **3.4 ANALYTICAL RESULTS FOR GRAHAM DIXON PROPERTY**

#### **3.4.1 SOIL ANALYTICAL RESULTS**

On 9 December 2004, eight (8) soil samples were collected and analyzed. The analytical results for the soil samples collected at this property were below the laboratory detection limits for GRO for the eight (8) locations.

The analytical results for the soil samples collected at this property did not exceed the laboratory detection limits for DRO at four (4) locations. There were three (3) samples, SB-11-A(0-4) at 75 mg/kg, SB-11-B(0-3) at 11 mg/kg, and SB-11-C(4-5) at 12 mg/kg, exhibited concentrations that exceeded the Applicable Action Level of 10 mg/kg. Sample, SB-11-E(0-4), exhibited a concentration of 7.3 mg/kg, which did not exceed the Applicable Action Level. All of the samples taken at this property were taken at the interval depth of zero to eight feet. The sample

locations and results are presented on Figure 3. Analytical results are presented in Table 1. The portion of the laboratory report for this parcel is presented in Appendix D.

### **3.4.2 GROUNDWATER ANALYTICAL RESULTS**

On 9 December 2004, one (1) groundwater sample was collected and analyzed. The sample, GW-11-A, was collected from SB-11-A. GW-11-A exhibited a concentration of 830 µg/l for lead, which exceeds the North Carolina Groundwater Quality Standard (GWQS) (15µg/l), but below the Gross Contamination Level (GCL) (15,000 µg/l). The sample location and results are presented on Figure 3. Analytical results are presented in Table 2. The portion of the laboratory report for this parcel is presented in Appendix D.

### **3.4.3 EXTENT OF CONTAMINATION**

The site horizontal extent of contamination appears to be adjacent to US 17. This area encompasses SB-11-A(0-4) to north of SB-11-B(0-3). The horizontal extent of contamination is approximately 1000 square feet (ft<sup>2</sup>). The vertical extent of contamination of concern is estimated to be an approximate maximum depth of 4 feet (ft) bgs in this area. The estimated volume of contaminated soil in this area is approximately 148 cubic yards (yd<sup>3</sup>). The extent of contamination is presented in Figure 3.

Sample SB-11-C(4-5) exhibited an elevated concentration of DRO at 12 mg/kg. This sample was adjacent to US 17. The estimated volume of contaminated soil in this area is approximately 74 yd<sup>3</sup>.

## **SECTION 4. CONCLUSIONS AND RECOMMENDATIONS**

### **4.1 CONCLUSIONS**

The following conclusions are made based on the results of this investigation:

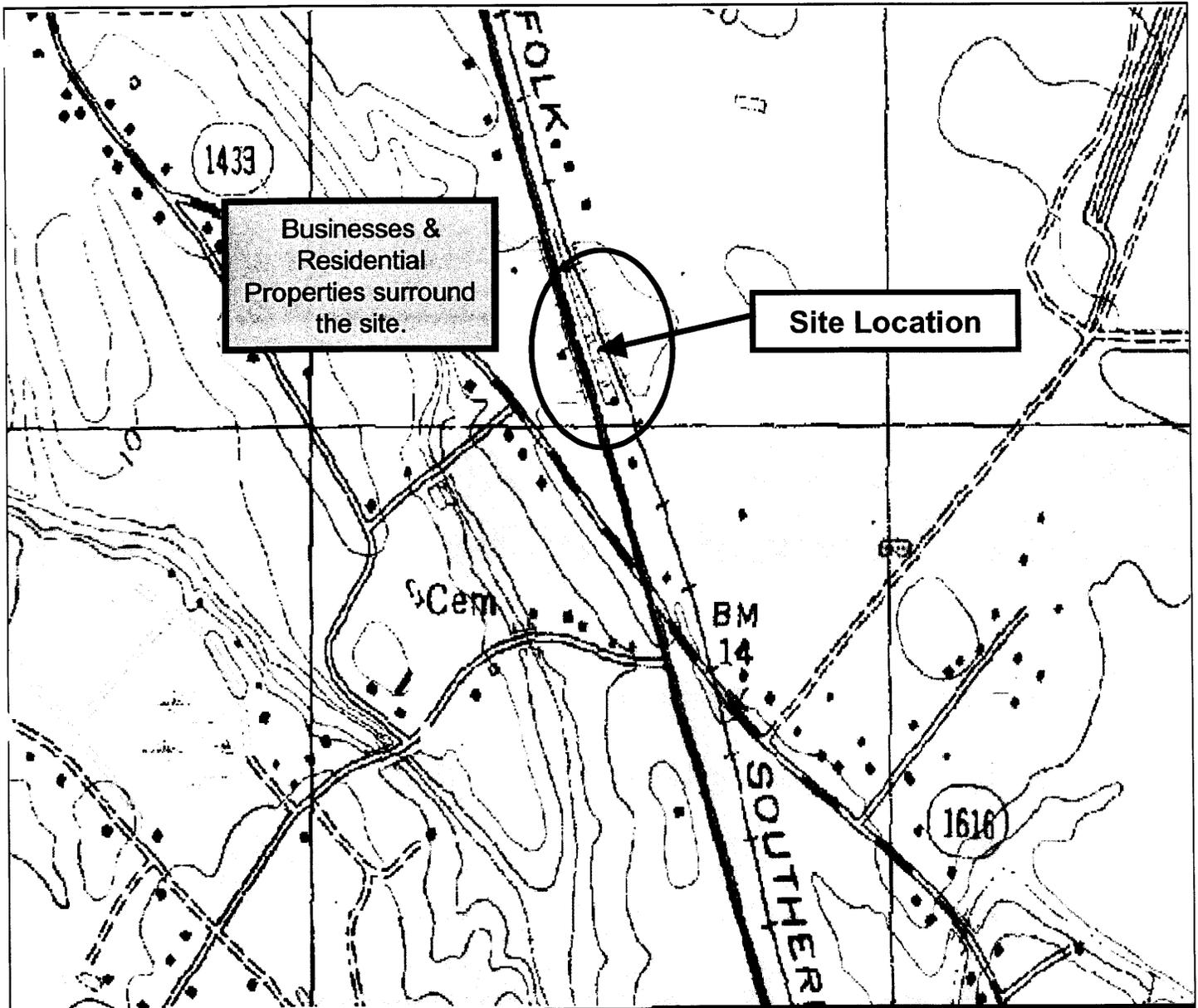
- Samples from Dixon Property, 2100 North US 17, exhibited soil concentrations that exceeded the Applicable Action Levels for DRO, but did not exceed the Applicable Action Levels for GRO.
- Samples from Dixon Property, 2100 North US 17, exhibited groundwater concentrations that exceeded the GWQS.
- Approximately 222 yd<sup>3</sup> of impacted soil is present on site.

### **4.2 RECOMMENDATIONS**

The following recommendations are made based on the findings of this investigation:

- Based on the analytical sample results, soil samples collected from the Right of Way and PDE areas of Parcel #74 exhibited soil contaminant concentrations that exceeded the Applicable Action Level for DRO; therefore, approximately 222 yd<sup>3</sup> of soil should be removed and disposed prior to road construction.
- Based on the analytical sample results, the groundwater sample collected from the Right of Way and PDE areas of Parcel #74 exhibited groundwater contaminant concentrations that exceeded the GWQS for lead; therefore, if groundwater is encountered during the installation of the proposed drainage features, further action may be warranted.

## FIGURES



Businesses & Residential Properties surround the site.

Site Location



MAP LOCATION  
SCALE 1:20,000

SOURCE: topozone.com

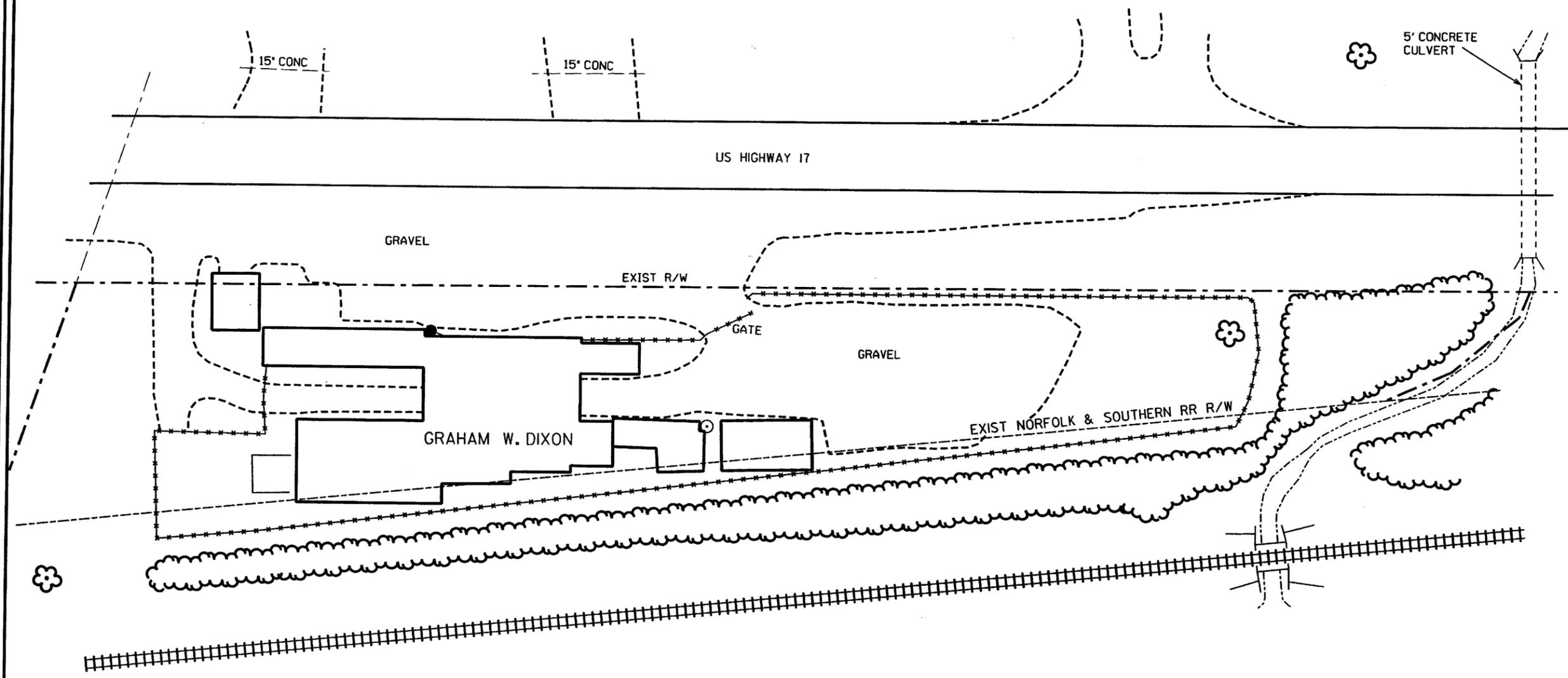


REV.	DRAWING DATE: 12/22/04	ACAD FILE:	
<b>Site Vicinity Map</b>			
CLIENT:	North Carolina Department of Transportation	PM: SLB	
LOCATION:	2100 North US 17 Bridgeton, NORTH CAROLINA	PE/RG:	
DESIGNED:	DETAILED: TR	PROJECT NO:	FIGURE: 1

**LEGEND**

- PROPERTY LINE
- EXISTING RIGHT-OF-WAY
- EXISTING DRAINAGE
- RAILROAD EASEMENT
- EDGE OF GRAVEL/SOIL DRIVEWAY OR PARKING
- EDGE OF STREAM
- POWER POLE
- SIGN

SCALE: 1" = 40'



**SITE LOCATION MAP**      **FIGURE 2**

GRAHAM W. DIXON PROPERTY  
 PARCEL #74  
 CRAVEN COUNTY, NORTH CAROLINA  
 DATE: DECEMBER 17, 2004  
 PROJECT NO.: R3404A

**LEGEND**

- PROPERTY LINE
- - - EXISTING RIGHT-OF-WAY
- - - EXISTING DRAINAGE
- - - RAILROAD EASEMENT
- - - EDGE OF GRAVEL/SOIL DRIVEWAY OR PARKING
- - - EDGE OF STREAM
- POWER POLE
- SIGN
- ⊙ SOIL BORING LOCATION

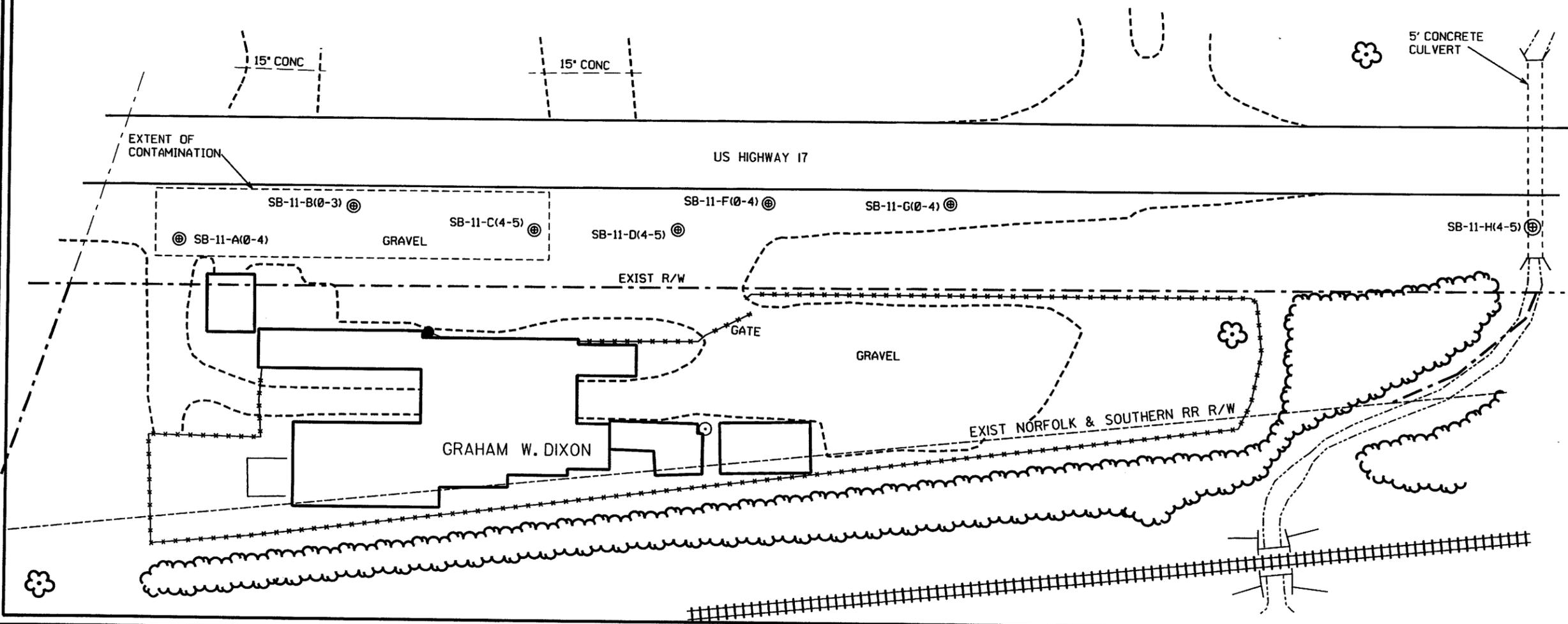
Summary of Groundwater Sampling Laboratory Analytical  
Parcel #74, Graham Dixon Property

	SAMPLE ID
	GW-11-A
Lead (ug/l)	830
Methyl-tert-butyl ether	2.2
Aliphatic (C09-C18)	430
Aliphatic (C19-C36)	110

Summary of Soil Sampling Laboratory Analytical  
Parcel #74, Graham Dixon Property

Sample ID	Depth (ft)	OVM Readings (ppm)	DRO (mg/kg)	GRO (mg/kg)
SB-11-A(0-4)	(0 - 4)	0.0	75	ND
SB-11-B(0-3)	(0 - 3)	0.0	11	ND
SB-11-C(4-5)	(4 - 5)	0.0	12	ND
SB-11-D(4-5)	(4 - 5)	0.0	ND	ND
SB-11-E(0-4)	(0 - 4)	0.0	7.3	ND
SB-11-F(0-4)	(0 - 4)	0.0	ND	ND
SB-11-G(0-4)	(0 - 4)	0.0	ND	ND
SB-11-H(4-5)	(4 - 5)	0.0	ND	ND

SCALE: 1" = 40'



**BORING LOCATIONS & ANALYSIS** **FIGURE 3**

GRAHAM W. DIXON PROPERTY  
 PARCEL #74  
 CRAVEN COUNTY, NORTH CAROLINA  
 DATE: DECEMBER 17, 2004  
 PROJECT NO.: R3404A

## TABLES

**TABLE 1**

Summary of Soil Sampling Laboratory Analytical  
Parcel #74, Graham Dixon Property  
December 9, 2004

Sample ID	Depth (ft)	OVM Readings (ppm)	DRO (mg/kg)	GRO (mg/kg)
<i>Applicable Action Levels</i>			<b>10</b>	<b>10</b>
SB-11-A(0-4)	(0 - 4)	0.0	<b>75</b>	ND
SB-11-B(0-3)	(0 - 3)	0.0	<b>11</b>	ND
SB-11-C(4-5)	(4 - 5)	0.0	<b>12</b>	ND
SB-11-D(4-5)	(4 - 5)	0.0	ND	ND
SB-11-E(0-4)	(0 - 4)	0.0	7.3	ND
SB-11-F(0-4)	(0 - 4)	0.0	ND	ND
SB-11-G(0-4)	(0 - 4)	0.0	ND	ND
SB-11-H(4-5)	(4 - 5)	0.0	ND	ND

ppm = parts per million

mg/kg = milligrams per kilograms

ND = Not Detected

**Bold** Indicates Exceedance of Standards

**TABLE 2**  
 Summary of Groundwater Sampling Laboratory Analytical  
 Parcel #74, Graham Dixon Property  
 December 9, 2004

	North Carolina Groundwater Quality Standard (GWQS)	Gross Contamination Levels for Groundwater (GCL)	SAMPLE ID
			GW-11-A
<i>Lead (ug/l)</i>	15	15,000	<b>830</b>
<b>Volatiles (ug/l)</b>			
<i>Methyl-tert-butyl ether</i>	200	20,000	2.2
<b>Semi-Volatiles (ug/l)</b>			<b>ND</b>
<b>EPH (ug/l)</b>			
<i>Aliphatic (C09-C18)</i>	4,200	--	430
<i>Aliphatic (C19-C36)</i>	42,000	--	110
<b>VPH (ug/l)</b>			<b>ND</b>

# - Considered immobile

ug/l - micrograms per liter

mg/l - milligrams per liter

**Bold** Indicates Exceedance of Standards

--' indicates there was no value available for that particular constituent

**APPENDIX A: HEALTH AND SAFETY PLAN (HASP)**

**SITE HEALTH AND SAFETY PLAN (HASP)**

**Prepared by: Greg Ford**

**W.O. Number: 13052.001.001.0014.01 Date: 11 November 2004**

**Project Identification:**

vision: **Southern**  
 Department/Office: **1150 / RAL**  
 Site Name: Craven County:  
**Benjamin F. Tompkins Property, 813 US 17;**  
**Freeman Property, 404 West Hickory Street (Parcel #8);**  
**EnCee Chemical Property, 1102 N US 17;**  
**Sawyer Property, 1305 N US 17 (Parcel #27);**  
**Ipock Property, 1503 US 17 (Parcel #42);**  
**Phillips Plating Property, 1705 US 17;**  
**Frazier Property, 1612 US 17 (Parcel #47);**  
**Register Property, 1707 US 17 (Parcel #53);**  
**Gaskins Property, 123 Antioch Road (Parcel #64);**  
**EJ Pope & Sons Property, 2020 N US 17 (Handy Mart #44);**  
**Dixon Property, 2100 N US 17 (Parcel #74).**

Client: **NC DOT**  
 Work Location Address: **US 17**  
**New Bern, NC**

**Site History:** (describe briefly)

**Site 1:** Benjamin F. Tompkins -- A previous gas station, current Furniture store.  
**Site 2:** Freeman (Parcel #8) -- A former gas station, currently inactive craft store.  
**Site 3:** EnCee Chemical -- An active chemical manufacturing company.  
**Site 4:** Sawyer (Parcel #27) -- Uncertain previous gas station, currently occupied by a cabinet shop and a church.  
**Site 5:** Ipock (Parcel #42) -- An abandoned former service station, most recently operated as Trophy Kickboxing.  
**Site #6:** Phillips Plating -- An active metal plating facility.  
**Site #7:** Frazier (Parcel #47) -- An active automotive garage and towing service.  
**Site #8:** Register (Parcel #53) -- A likely previous service station, now abandoned.  
**Site #9:** Gaskins (Parcel #64) -- Reportedly a country store where petroleum products were dispensed and sold.  
**Site #10:** EJ Pope & Sons -- An active gas station.  
**Site #11:** Dixon (Parcel #74) -- An inactive service station, currently abandoned.

**Scope of Work:** (describe briefly)

WESTON will 1) locate USTs present in the proposed right of way and/or easements and determine the size and contents of the USTs, 2) assess the type and extent of soil contamination potentially present in the vicinity of the proposed drainage features within the proposed roadway, ROW, and easements that may be encountered during construction, 3) determine potential impact to groundwater, and 4) prepare a report of findings with recommendations for action at these sites.

Site visit only; site HASP not necessary. List personnel here and sign off below:

**Regulatory Status:**

**Site regulatory status:**

<b>CERCLA/SARA</b>	<b>RCRA</b>	<b>Other Federal Agency</b>
<input type="checkbox"/> US EPA	<input type="checkbox"/> US EPA	<input type="checkbox"/> DOE
<input checked="" type="checkbox"/> State	<input type="checkbox"/> State	<input type="checkbox"/> USACE
<input type="checkbox"/> NPL Site	<b>NRC</b>	<input type="checkbox"/> Air Force
<b>OSHA</b>	<input type="checkbox"/> 10 CFR 20	<input type="checkbox"/>
<input checked="" type="checkbox"/> Hazard Communication (Req'd See Attachment "D")		
<input type="checkbox"/> 1910	<input type="checkbox"/> 1926	<input type="checkbox"/> State

Safety Officer Manual (Required to be On Site)

Based on the Hazard Assessment and Regulatory Status, determine the Standard HASP(s) applicable to this project. Indicate below which Standard HASP will be used and append the appropriate pages of this form along with the Standard Plan.

<input type="checkbox"/> Stack Test	<input type="checkbox"/>
<input type="checkbox"/> Air Emissions	<input type="checkbox"/>
<input type="checkbox"/> Asbestos	<input type="checkbox"/>
<input type="checkbox"/> Industrial Hygiene	<input type="checkbox"/>
<input type="checkbox"/> _____	<input type="checkbox"/>

**Review and Approval Documentation:**

Reviewed by:

a. P.M.	<u>Steve Brown</u>	Signature: _____	Date: _____
b. P.D.	_____	Signature: _____	Date: _____
c. O.S.M	<u>Bill Groeber</u>	Signature: 	Date: <u>11/8/04</u>

In accordance with WESTON's Personal Protective Equipment Program and 29 CFR 1910.132 at the site prior to personnel beginning work the SHCS and/or the Site Manager have evaluated conditions and verified that the personal protective equipment selection outlined within this HASP is appropriate for the hazards known or expected to exist. (Refer to Safety Officer Manual Section 2 Personal Protection Program for Guidance)

Site Manager **Steve Brown** Signature: \_\_\_\_\_ Date: \_\_\_\_\_

DGS  ECO  SHSC **Tara Rowland** Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**Project start date: 10/27/04**  
**End date: approx.: 12/27/04**

This site HASP **must be reissued/reapproved** for any activities conducted after:  
Date: 12/27/04

Amendment date(s): By:  
1.  
2.  
3.  
4.  
5.

<b>WESTON REPRESENTATIVES</b>			
<b>Organization/Branch</b>	<b>Name/Title</b>	<b>Address</b>	<b>Telephone</b>
WES / Raleigh / 1150	Steve Brown/ Program Manager	1000-E Perimeter Park. Dr., Morrisville, NC	919-462-6945
WES/Raleigh/1150	Ed Mackey/ Project Manager, P.G. & Project Geologist	1000-E Perimeter Park. Dr., Morrisville, NC	919-462-6930
WES/Raleigh/1150	Tara Rowland – Associate Geoscientist	1000-E Perimeter Park. Dr., Morrisville, NC	919-462-6942
WES/Raleigh/1150	Greg Ford – Associate Geoscientist	1000-E Perimeter Park. Dr., Morrisville, NC	919-462-6936
<b>Roles and Responsibilities:</b> Tara Rowland will be the SHSC for the site.			
<b>WESTON SUBCONTRACTORS</b>			
<b>Organization/Branch</b>	<b>Name/Title</b>	<b>Address</b>	<b>Telephone</b>
Geophysical Survey Investigations		Greensboro, NC	
Geologic, Inc.		Statesville, NC	
<b>Roles and Responsibilities:</b> Subcontractors will be under the supervision of WESTON for all work to be performed on site, but on own H&S plan. Soil Solutions will be in charge of drum removal. Geologic Exploration will proceed with well abandonment tasks.			
<b>SITE SPECIFIC HEALTH AND SAFETY PERSONNEL</b>			
<p>The Site Health and Safety Coordinator (SHSC) for activities to be conducted at this site is: <u>Tara Rowland</u></p> <p>The SHSC has total responsibility for ensuring that the provisions of this Site HASP are adequate and implemented in the field.</p> <p>Changing field conditions may require decisions to be made concerning adequate protection programs. Therefore, the personnel assigned as SHSCs are experienced and meet the additional training requirements specified by OSHA in 29 CFR 1910.120</p>			
<p><b>Qualifications:</b></p> <ul style="list-style-type: none"> <li>• OSHA 40-hr. HAZWOPER training</li> <li>• Current: annual 8-hr refresher, respirator fit test, 1<sup>st</sup> Aid, CPR, medical monitoring/annual physical</li> <li>• SHSC training req'd. for SHSC.</li> </ul>			
<p><b>Designated alternates include:</b> Ed Mackey, Steve Brown</p>			

## HEALTH AND SAFETY EVALUATION

### Hazard Assessment

**Background Review:**  Complete  Partial If partial why? The purpose will be to assess the potential environmental impact to NCDOT proposed installations at eleven installations. The full extent of contamination is not known. There are several sites that are former gasoline service stations.

**Activities Covered Under This Plan:**

No.	Task/Subtask	Description	Schedule
1	Mobilization and demobilization from the site. Conduct a preliminary Site Assessment	Drive to and from the site. Walk sites and locate USTs and connections.	11/9/04 – 11/10/04
2	Oversee geoprobe installation. Collect sub-surface soil samples and groundwater in conjunction with geoprobe advancement. Collect groundwater samples from existing monitoring wells	Using a direct push-boring rig, advance borings until groundwater table is encountered. Discrete soil sampling every four feet. Advance one boring per site into local water table and collect sample using sampling equipment contained in the boring point.	

**Types of Hazards:**

Numbers refer to one of the following hazard evaluation forms. Complete hazard evaluation forms for each appropriate hazard class.

<p><b>Physiochemical</b> <span style="float: right;">1</span></p> <p><input checked="" type="checkbox"/> Flammable</p> <p><input checked="" type="checkbox"/> Explosive</p> <p><input type="checkbox"/> Corrosive</p>	<p><b>Chemically Toxic</b> <span style="float: right;">1</span></p> <p><input checked="" type="checkbox"/> Inhalation      <input checked="" type="checkbox"/> Carcinogen</p> <p><input checked="" type="checkbox"/> Ingestion        <input type="checkbox"/> Mutagen</p> <p><input checked="" type="checkbox"/> Contact            <input type="checkbox"/> Teratogen</p> <p><input checked="" type="checkbox"/> Absorbtion</p> <hr/> <p><input type="checkbox"/> OSHA 1910.1000 Substance (Air Contaminants)</p> <hr/> <p><input checked="" type="checkbox"/> OSHA Specific Hazard Substance Standard (Refer to HASP Form 04HASP.894 for Listing.)</p>	<p><b>Radiation</b> <span style="float: right;">1</span></p> <p>Ionizing:</p> <p><input type="checkbox"/> Internal exposure</p> <p><input type="checkbox"/> External exposure</p>	<p><b>Biological</b> <span style="float: right;">2</span></p> <p><input type="checkbox"/> Etiological Agent</p> <p><input checked="" type="checkbox"/> Other (Plant, insect, animal)</p> <hr/> <p><input checked="" type="checkbox"/> Physical Hazards <span style="float: right;">2</span></p>
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### Source/Location of Contaminants and Hazardous Substances

Directly Related to Tasks	Indirectly Related to Tasks - Nearby Process(es) That Could Affect Team Members:
<input checked="" type="checkbox"/> Air <input type="checkbox"/> Other Surface <input checked="" type="checkbox"/> Groundwater <input checked="" type="checkbox"/> Soil <input type="checkbox"/> Surface Water <input type="checkbox"/> Sanitary Wastewater (suspect. sewer discharge into site creek) <input type="checkbox"/> Process Wastewater <input type="checkbox"/> Other	<input type="checkbox"/> Client Facility <input checked="" type="checkbox"/> Nearby Non-client Facility  Describe: Several of these sites contain active fueling facilities, traffic hazards.  <input type="checkbox"/> Client Briefing Arranged

## HEALTH AND SAFETY EVALUATION - CHEMICAL HAZARDS

N/A

Chemical Contaminants of Concern

Provide the data requested for chemical contaminants on HASP Form 33-HASP.894 or attach data sheets from acceptable sources such as NIOSH pocket guide, condensed chemical dictionary, ACGIH TLY booklet, etc. List chemical and concentration below and locate data sheets in Appendix A of this HASP.

N/A

Identify hazardous materials used or on-site and attach Material Safety Data Sheets (MSDS) for all reagent type chemicals, solutions, or other identified materials that in normal use in performing tasks related to this project could produce hazardous substances. Ensure that all subcontractors and other parties working nearby are informed of the presence of these chemicals and the location of MSDS's. Obtain from subcontractors and other parties lists of the hazardous materials they use or have on-site and identify location of MSDS's here. List chemicals and quantities below and locate MSDS in Appendix B of this HASP.

Chemical Name	Concentration (if known)	Chemical Name	Quantity
<b>kerosene</b>	unknown	<b>Alconox</b>	1 quart
<b>TPH-Gasoline</b>	560 mg/Kg		
<b>TPH-Diesel</b>	380 mg/Kg		
<b>Lead</b>	unknown		
<b>Xylenes</b>	unknown		
<b>MTBE</b>	unknown		
<b>EBD</b>	unknown		
<b>IPE</b>	unknown		

### OSHA SITE SPECIFIC HAZARDOUS SUBSTANCES

The following substances may require specific medical, training, or monitoring based upon concentration or evaluation of risk. See the appropriate citation listed under 29 CFR 1910 or 1926 for additional information.

- |   |  |  |  |
|---|--|--|--|
| <input type="checkbox"/> 1910.1001 Asbestos           | <input type="checkbox"/> 1910.1002 Coal tar pitch volatiles  | <input type="checkbox"/> 1910.1003 4-Nitrobiphenyl                         | <input type="checkbox"/> 1910.1004 alpha-Naphthylamine         |
| <input type="checkbox"/> 1910.1005 [Reserved]         | <input type="checkbox"/> 1910.1006 Methyl chloromethyl ether | <input type="checkbox"/> 1910.1007 3,3'-Dichlorobenzidine (and its salts). | <input type="checkbox"/> 1910.1008 bis-Chloromethyl ether      |
| <input type="checkbox"/> 1910.1009 beta-Naphthylamine | <input type="checkbox"/> 1910.1010 Benzidine                 | <input type="checkbox"/> 1910.1011 4-Aminodiphenyl                         | <input type="checkbox"/> 1910.1012 Ethyleneimine               |
| <input type="checkbox"/> 1910.1013 beta-Propiolactone | <input type="checkbox"/> 1910.1014 2-Acetylaminofluorene     | <input type="checkbox"/> 1910.1015 4-Dimethylaminoazobenzene               | <input type="checkbox"/> 1910.1016 N-Nitrosodimethylamine      |
| <input type="checkbox"/> 1910.1017 Vinyl chloride     | <input type="checkbox"/> 1910.1018 Inorganic arsenic         | <input type="checkbox"/> 1910.1025 Lead                                    | <input type="checkbox"/> 1910.1027 Cadmium                     |
| <input type="checkbox"/> 1910.1028 Benzene            | <input type="checkbox"/> 1910.1029 Coke oven emissions       | <input type="checkbox"/> 1910.1043 Cotton dust                             | <input type="checkbox"/> 1910.1044 1,2-dibromo-3-chloropropane |
| <input type="checkbox"/> 1910.1045 Acrylonitrile      | <input type="checkbox"/> 1910.1047 Ethylene oxide            | <input type="checkbox"/> 1910.1048 Formaldehyde                            | <input type="checkbox"/> 1910.1050 Methyleneedianiline         |

**HEALTH AND SAFETY EVALUATION - BIOLOGICAL HAZARDS OF CONCERN**

2

**Poisonous Plants (FLD 43)**

Location/Task No(s):

Source:  Known  Suspect

Route of Exposure:  Inhalation  Ingestion  
 Contact  Direct Penetration

Team Member(s) Allergic:  Yes  No

Immunization required:  Yes  No -

**Insects (FLD 43)**

Location/Task No(s):

Source:  Known  Suspect

Route of Exposure:  Inhalation  Ingestion  
 Contact  Direct Penetration

Team Member(s) Allergic:  Yes  No

Immunization required:  Yes  No

**Snakes, Reptiles (FLD 43)**

Location/Task No(s):

Source:  Known  Suspect

Route of Exposure:  Inhalation  Ingestion  
 Contact  Direct Penetration

Team Member(s) Allergic:  Yes  No

Immunization required:  Yes  No

**Animals (FLD 43)**

Location/Task No(s): 11621.009.004.0400

Source:  Known  Suspect

Route of Exposure:  Inhalation  Ingestion  
 Contact  Direct Penetration

Team Member(s) Allergic:  Yes  No

Immunization required:  Yes  No

FLD 43 — WESTON Biohazard Field Operating Procedures: Att. OP

**Sewage**

Location/Task No(s):

Source:  Known  Suspect

Route of Exposure:  Inhalation  Ingestion  
 Contact  Direct Penetration

Team Member(s) Allergic:  Yes  No

Immunization required:  Yes  No

Tetanus Vaccination within Past 7 yrs:  Yes  No  
 (see Note #1 below)

**Etiologic Agents (List)**

Location/Task No(s):

Source:  Known  Suspect

Route of Exposure:  Inhalation  Ingestion  
 Contact  Direct Penetration

Team Member(s) Allergic:  Yes  No

Immunization required:  Yes  No

FLD 44 — WESTON Bloodborne Pathogens Exposure Control Plan - First Aid Procedures: Att. OP

FLD 45 — WESTON Bloodborne Pathogens Exposure Control Plan – Working with Infectious Waste: Att. OP

Note #1: A tetanus injection is recommended every 10 years for employees with "normal exposure risks." However, if employees have frequent potential for exposure at "higher risk," as working with raw sewage, then a frequency of 7 years is recommended.

## HEALTH AND SAFETY EVALUATION - PHYSICAL HAZARDS OF CONCERN

4

Phy.Haz.Cond.	Physical Hazard	Att.OP	Weston OP Titles
Id noise	Hearing loss/disruption of communication	<input checked="" type="checkbox"/>	FLD01 - Noise Protection
Inclement weather	Rain/humidity/cold/ice/snow/lightning	<input checked="" type="checkbox"/>	FLD02 - Inclement Weather
Steam heat stress	Burns/displaced oxygen/wet working surfaces	<input type="checkbox"/>	FLD03 - Hot Process - Steam
Heat/Stress	Burns/hot surfaces/low pressure steam	<input type="checkbox"/>	FLD04 - Hot Process - LT3
Ambient heat stress	Heat rash/cramps/exhaustion/heat stroke	<input type="checkbox"/>	FLD05 - Heat Stress Prevention/Monitoring
Cold Stress	Hypothermia/frostbite	<input checked="" type="checkbox"/>	FLD06 - Cold Stress
Cold/wet	Trench/paddy/immersion foot/edema	<input type="checkbox"/>	FLD07 - Wet Feet
Confined spaces	Falls/burns/drowning/engulfment/electrocution	<input type="checkbox"/>	FLD08 - Confined Space Entry
Explosive vapors	Thermal burns/impaction/dismemberment	<input type="checkbox"/>	FLD09 - Hot Work
Improper lifting	Back strain/abdomen/arm/leg muscle/joint injury	<input checked="" type="checkbox"/>	FLD10 - Manual Lifting/Handling Heavy Objects
Uneven Surfaces	Vehicle accidents/slips/trips/falls	<input checked="" type="checkbox"/>	FLD11 - Rough Terrain
Poor housekeeping	Slips/trips/falls/punctures/cuts/fires	<input checked="" type="checkbox"/>	FLD12 - Housekeeping
Structural integrity	Crushing/overhead hazards/compromised floors	<input type="checkbox"/>	FLD13 - Structural Integrity
Hostile persons	Bodily injury	<input type="checkbox"/>	FLD14 - Site Security
Remote Area	Slips/trips/falls/back strain/communication	<input type="checkbox"/>	FLD15 - Remote Area
Improper Cyl.Handling	Mechanical injury/fire/explosion/suffocation	<input type="checkbox"/>	FLD16 - Pressure Systems - Compressed Gases
Water Hazards	Poor visibility/entanglement/drowning/cold stress	<input type="checkbox"/>	FLD17 - Diving
Water Hazards	Drowning/heat/cold stress/hypothermia/falls	<input type="checkbox"/>	FLD18 - Operation and Use of Boats
Water Hazards	Drowning/frostbite/hypothermia/falls/electrocution	<input type="checkbox"/>	FLD19 - Working Over Water
Vehicle Hazards	Struck by vehicle/collision	<input checked="" type="checkbox"/>	FLD20 - Traffic
Explosions	Explosion/fire/thermal burns	<input type="checkbox"/>	FLD21 - Explosives
Moving mechanical parts	Crushing/pinch points/overhead hazards	<input checked="" type="checkbox"/>	FLD22 - Heavy Equipment Operation
Moving mech.parts	Overhead hazard/electrocution	<input type="checkbox"/>	FLD23 - Cranes/Lifting Equipment Operation
Working at elevation	Overhead hazards/falls/electrocution	<input type="checkbox"/>	FLD24 - Aerial Lifts/Manlifts
Working at elevation	Overhead hazard/falls/electrocution	<input type="checkbox"/>	FLD25 - Working at Elevation
Working at elevation	Overhead hazard/falls/electrocution/slips	<input type="checkbox"/>	FLD26 - Ladders
Working at elevation	Slips/trips/falls/overhead hazards	<input type="checkbox"/>	FLD27 - Scaffolding
Trench Cave-In	Crushing/falling/overhead hazards/suffocation	<input type="checkbox"/>	FLD28 - Excavating/Trenching
Improper material handling	Back injury/crushing from load shifts	<input checked="" type="checkbox"/>	FLD29 - Materials Handling
Physiochemical	Explosions/fires from oxidizing, flam./corr.material	<input type="checkbox"/>	FLD30 - Hazardous Materials Use/Storage
Physiochemical	Fire and explosion	<input type="checkbox"/>	FLD31 - Fire Prevention/Response Plan Required
Physiochemical	Fire	<input type="checkbox"/>	FLD32 - Fire Extinguishers Required
Structural integrity	Overhead/electrocution/slips/trips/falls/fire	<input type="checkbox"/>	FLD33 - Demolition
Electrical	Electrocution/shock/thermal burns	<input checked="" type="checkbox"/>	FLD34 - Utilities
Electrical	Electrocution/shock/thermal burns	<input type="checkbox"/>	FLD35 - Electrical Safety
Burns/Fires	Heat Stress/Fires/Burns	<input type="checkbox"/>	FLD36 - Welding/Cutting/Burning
Impact/thermal	Thermal burn/high pressure impaction/heat stress	<input type="checkbox"/>	FLD37 - High Pressure Washers
Impaction/electrical	Smashing body parts/pinching/cuts/electrocution	<input checked="" type="checkbox"/>	FLD38 - Hand and Power Tools
Poor visibility	Slips/trips/falls	<input checked="" type="checkbox"/>	FLD39 - Illumination
Fire/Explosion	Burns/impaction	<input checked="" type="checkbox"/>	FLD40 - Storage Tank
Communications	Disruption of Communications	<input type="checkbox"/>	FLD41 - Std. Hand/Emergency Signals
Energy/Release	Unexpected release of energy	<input type="checkbox"/>	FLD42 - Lockout/Tagout
Drilling hazards	Electrocution/overhead hazards/pinch points	<input type="checkbox"/>	2.5 - Drilling Safety Guide

**TASK-BY-TASK RISK ASSESSMENT**  
**(Complete One Sheet for Each Task)**

**TASK DESCRIPTION**

Task 1: Mob/Demob. Perform preliminary site assessment.

**EQUIPMENT REQUIRED/USED**  
**(Be specific, e.g., hand tools, heavy equipment, instruments, PPE)**

Driving to and from site.  
 Walk sites and locate USTs , connections and utilities using ground penetrating radar, probing, and other means.

**POTENTIAL HAZARDS/RISKS**

**CHEMICAL**

Hazard Present                      Risk Level:  H  M  L

**What Justifies Risk Level?**  
 Determining content and quantity of chemicals in USTs discovered.

**PHYSICAL**

Hazard Present                      Risk Level:  H  M  L

**What Justifies Risk Level?**  
 Road traffic.

**BIOLOGICAL**

Hazard Present                      Risk Level:  H  M  L

**What Justifies Risk Level?**  
 Fire ants prevalent, dogs on some sites (confined).

**RADIOLOGICAL**

Hazard Present                      Risk Level:  H  M  L

**What Justifies Risk Level?**

**LEVELS OF PROTECTION/JUSTIFICATION**

Level D

**SAFETY PROCEDURES REQUIRED AND/OR FIELD OPS UTILIZED**

**TASK-BY-TASK RISK ASSESSMENT**  
 (Complete One Sheet for Each Task)

**TASK DESCRIPTION**

Task 2 - - Geoprobe Operations, soil sampling

**EQUIPMENT REQUIRED/USED**  
 (Be specific, e.g., hand tools, heavy equipment, instruments, PPE)

Knives, pipe wrenches, levers needed to open and collect soil samples.  
**Level D attire:** upgrade respiratory protection if necessary; protective gloves needed for handling any samples; safety vest; hardhat required for excavation op's only (not necessary for water sampling or aquifer testing).  
 Hand-held PID will be used to monitor ambient air quality at drilling sites while drilling or geoprobing.

**POTENTIAL HAZARDS/RISKS**

**CHEMICAL**

Hazard Present      Risk Level:  H  M  L

**What Justifies Risk Level?**

Residual gasoline and diesel fuel is present in site soils to be sampled. Working with decontamination solvents.

**PHYSICAL**

Hazard Present      Risk Level:  H  M  L

**What Justifies Risk Level?**

Lifting heavy sample coolers.

**BIOLOGICAL**

Hazard Present      Risk Level:  H  M  L

**What Justifies Risk Level?**

Fire ants prevalent, dogs on some sites (confined).

**RADIOLOGICAL**

Hazard Present      Risk Level:  H  M  L

**What Justifies Risk Level?**

**LEVELS OF PROTECTION/JUSTIFICATION**

Level D

**SAFETY PROCEDURES REQUIRED AND/OR FIELD OPS UTILIZED**

**PERSONNEL PROTECTION PLAN**

**Engineering Controls**

Describe Engineering Controls used as part of Personnel Protection Plan:

Task(s): **1 & 2**

**Administrative Controls**

Describe Administrative controls used as part of Personnel Protection Plan:

Task(s): ALL      Reviewing/confirming locations of underground & overhead utilities with site personnel prior to excavation. Safety briefing meetings; HASP and Weston Safety Officer Field Manual readily available; following SOPs

**Personnel Protective Equipment**

Action Levels for Changing Levels of Protection. Define Action Levels for up or down grade for each task:

Task(s) ALL      Use Level D PPE. **Use PID equipped with 10.2 eV bulb.**

**Description of Levels of Protection**

Level D	Level D Modified
<p><b>Task(s): 002</b></p> <p><input checked="" type="checkbox"/> Head      hard hat</p> <p><input checked="" type="checkbox"/> Eye and Face      safety glasses w. side shields</p> <p><input checked="" type="checkbox"/> Hearing      ear plugs</p> <p><input type="checkbox"/> Arms and Legs Only</p> <p><input checked="" type="checkbox"/> Appropriate Work Uniform      protective shirt &amp; pants; short pants may be substituted for air temperatures &gt; 85° F when not in vegetation or at risk of spilling sample or cleaning sol'ns on legs.</p> <p><input checked="" type="checkbox"/> Hand - Gloves      protective nitriles</p> <p><input checked="" type="checkbox"/> Foot - Safety Boots</p> <p><input type="checkbox"/> Fall Protection</p> <p><input type="checkbox"/> Flotation</p> <p><input checked="" type="checkbox"/> Other      Orange safety vest</p>	<p><b>Task(s): 002:</b></p> <p><input type="checkbox"/> Head</p> <p><input type="checkbox"/> Eye and Face</p> <p><input type="checkbox"/> Hearing</p> <p><input type="checkbox"/> Arms and Legs Only</p> <p><input type="checkbox"/> Whole Body</p> <p><input type="checkbox"/> Hand - Gloves</p> <p><input type="checkbox"/> Foot -</p>





**SITE AIR MONITORING PROGRAM**

**Direct Reading Air Monitoring Instruments**

**Air Monitoring Instrument:**

**Air Monitoring Frequency:**

- Periodically: during excavation
- Periodically:
- Continuously:
- Other:

**Monitoring Locations**

- Upwind/downwind of site activities —
- Near residents, etc.
- Key site activity locations:
  - Decon area
  - Staging area
  - Drilling / Excavation area
  - Field lab area
  - Storage tanks
  - Lagoons
  - Drums
- Fixed stations

**Air Monitoring Instrument:**

**Air Monitoring Frequency:**

- Periodically:
- Periodically:
- Continuously:
- Other:

**Monitoring Locations**

- Upwind/downwind of site activities
- Near residents, etc.
- Key site activity locations:
  - Decon area
  - Staging area
  - Excavation area
  - Field lab area
  - Storage tanks
  - Lagoons
  - Drums
- Fixed stations
- Other: Near on-site soil treatment unit

## SITE AIR MONITORING PROGRAM

### Action Levels

These Action Levels, if not defined by regulation, are some percent (usually 50%) of the applicable PEL/TLV/REL. That number must also be adjusted to account for instrument response factors.

	Tasks	Action Level		Action
<input type="checkbox"/> Explosive atmosphere	N/A	Ambient Air Concentration	Confined Space Concentration	
		<10% LEL	0 to 1% LEL	Work may continue. Consider toxicity potential.
		10 to 25% LEL	1 to 10% LEL	Work may continue. Increase monitoring frequency.
		>25% LEL	>10% LEL	Work must stop. Ventilate area before returning.
<input type="checkbox"/> Oxygen	N/A	Ambient Air Concentration	Confined Space Concentration	
		<19.5% O <sub>2</sub>	<19.5% O <sub>2</sub>	Leave area. Re-enter only with self-contained breathing apparatus.
		19.5% to 25% O <sub>2</sub>	19.5% to 23.5% O <sub>2</sub>	Work may continue. Investigate changes from 21%.
		>25% O <sub>2</sub>	>23.5% O <sub>2</sub>	Work must stop. Ventilate area before returning.
<input type="checkbox"/> Radiation	N/A	<p style="text-align: center;">&lt; 3 times background 3 times background to &lt; 1 mR/hour</p> <p style="text-align: center;">&gt; 1 mrem/hour</p>		<p>Continue work.</p> <p>Radiation above background levels (normally 0.01-0.02 mR/hr) signifies possible radiation source(s) present. Continue investigation with caution. Perform thorough monitoring. Consult with a Health Physicist.</p> <p>Potential radiation hazard. Evacuate site. Continue investigation only upon the advice of Health Physicist.</p>
<input checked="" type="checkbox"/> Organic gases and vapors		<p>Ambient breathing zone &gt; 50 ppmv on PID</p> <p>&gt; 1000 ppmv on PID</p>		Work must stop. Ventilate area before returning.
<input type="checkbox"/> Inorganic gases, vapors, and particulates	NA	Particulates		

## CONTINGENCIES

### Emergency Contacts and Phone Numbers

Agency	Contact	Phone Number
Local Medical Emergency Facility (LMF)	Craven Regional Medical Center	1-252-633-8190
WESTON Medical Emergency Contact	Qualysis	1-800-874-4676
WESTON Health and Safety	Project Managers – Steve Brown Ed Mackey Regional SO – Bill Groeber Jim Davis – Southern Division H&S Manager Owen Douglass – Corp. H&S Director Matt Dillon – Risk Management	919-462-6945 919-462-6930 919-462-6929 1-251-602-1898 Office OR 334-319-0380 Cell 610-701-3065 610-701-7413
Fire Department	Operator	911
Police Department	Operator	911
Onsite/ System O&M		
Site Telephone	N/A	
Nearest Telephone	WESTON cell phone	919-358-9980

### Local Medical Emergency Facility(s)

<b>Name of Hospital:</b> Craven Regional Medical Center		
<b>Address:</b> 2000 Neuse Blvd New Bern, NC 28560		<b>Phone No.:</b> 1-252-633-8190
<b>Name of Contact:</b> Emergency Room		<b>Phone No.:</b> 911
<b>Type of Service:</b> <input type="checkbox"/> Physical trauma only <input type="checkbox"/> Chemical exposure only <input type="checkbox"/> Physical trauma and chemical exposure <input checked="" type="checkbox"/> Available 24 hours	<b>Route to Hospital (written detail):</b> <b>HOSPITAL-</b> Go south on US 17 5.9 miles (becomes US 70 W/Freedom memorial Bridge). Take exit 416 toward Trent Woods. Turn right onto Pembroke Rd (becomes 1 <sup>st</sup> St). Turn left onto NC55 W/US70Br/Neuse Blvd. End at 2000 Neuse Blvd.	<b>Travel time from site:</b> <b>APPROX. 12 mins.</b>  <b>Distance to hospital:</b> <b>APPROX. 7.38 MILES</b> <b>Name/No. of 24-hr Ambulance Service:</b> 911

### Secondary or Specialty Service Provider

<b>Name of Hospital:</b> Beaufort County Hospital		
<b>Address:</b> 628 East 12 <sup>th</sup> St. Washington, NC 27889		<b>Phone No.:</b> 1-252-975-4500
<b>Name of Contact:</b> Emergency Room		<b>Phone No.:</b> 911
<b>Type of Service:</b> <input type="checkbox"/> Physical trauma only <input type="checkbox"/> Chemical exposure only <input type="checkbox"/> Physical trauma and chemical exposure <input checked="" type="checkbox"/> Available 24 hours	<b>Route to Hospital (written detail):</b> Go north on US 17 toward Blue Top Rd/NC 1429 – 11.5 mi. Turn slight right onto US 17 Bypass North and continue 19.8 mi. Turn right onto NC 92/US 264/W R Bill Roberson Jr HWY – follow NC 92/ US 264 for 0.9 mi. Turn slight left onto N Brown St for 0.2 mi. Turn right onto E 12 <sup>th</sup> St. End at 628 E 12 <sup>th</sup> St.	<b>Travel time from site:</b> <b>46 minutes</b> <b>Distance to hospital:</b> <b>32.65 miles</b>  <b>Name/No. of 24-hr Ambulance Service:</b> 911



**Directions**    [Print](#) | [E-Mail](#) | [Download to PDA](#) | [Reverse](#) | [New Directions](#) | [Revise](#)

- START**    **Phillips Plating Co** 252-638-8516  
1701 Us Highway 17 N, New Bern, NC 28560 US - [Hotel Offers](#) - [Flight Deals](#)
- END**    2000 Neuse Blvd, New Bern, NC 28560-3449 US - [Hotel Offers](#) - [Flight Deals](#)

<b>Maneuvers</b>	<b>Distance</b>	<b>Maps</b>
<b>1:</b> Start out going SOUTH on US-17 S toward LU FERRY RD/LUFERRY RD.	5.4 miles	<a href="#">Map</a>
<b>2:</b> Stay straight to go onto US-70 W/FREEDOM MEMORIAL BRIDGE.	0.5 miles	<a href="#">Map</a>
<b>3:</b> Take the PEMBROKE RD exit- EXIT 416- toward TRENT WOODS.	0.2 miles	<a href="#">Map</a>
<b>4:</b> Turn RIGHT onto PEMBROKE RD.	0.2 miles	<a href="#">Map</a>
<b>5:</b> PEMBROKE RD becomes 1ST ST.	0.3 miles	<a href="#">Map</a>
<b>6:</b> Turn LEFT onto NC-55 W/US-70 BR/NEUSE BLVD.	0.6 miles	<a href="#">Map</a>
<b>7:</b> End at 2000 NEUSE BLVD NEW BERN NC		<a href="#">Map</a>

**Total Est. Time:** 12 minutes

**Total Est. Distance:** 7.38 miles

**Need a place to stay?**

**New Bern Homes and MLS**  
View Videos & Photo Gallery  
All Homes in MLS & Local Links  
[www.WeichertOldeSouth.com](http://www.WeichertOldeSouth.com)

**New Bern Hotels**  
Hotel Photos, Info & Virtual Tours  
Find the Hotel You Want at Expedia!  
[www.Expedia.com](http://www.Expedia.com)

**New Bern Offers:**

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**New Bern Home**  
View Videos & Photo C  
All Homes in MLS & Lc  
[www.WeichertOldeS](http://www.WeichertOldeS)

**New Bern Hotel**  
Hotel Photos, Info & v  
Find the Hotel You Wa  
[www.Expedia.com](http://www.Expedia.com)

**Discount Hotel**  
Great Rooms With Gr  
Prices You'll Love!  
[www.travelocity.cor](http://www.travelocity.cor)

**ORBITZ Discou**  
Find More Options & E  
Book Hotel Rooms wit  
[www.ORBITZ.com](http://www.ORBITZ.com)

**Cheap Hotels**  
Compare Prices, View  
Low Rates Guarantee  
[www.hotels.com](http://www.hotels.com)

**Compare Hotel F**  
Quickly compare hote  
top travel sites.  
[www.BookingBuddy](http://www.BookingBuddy)

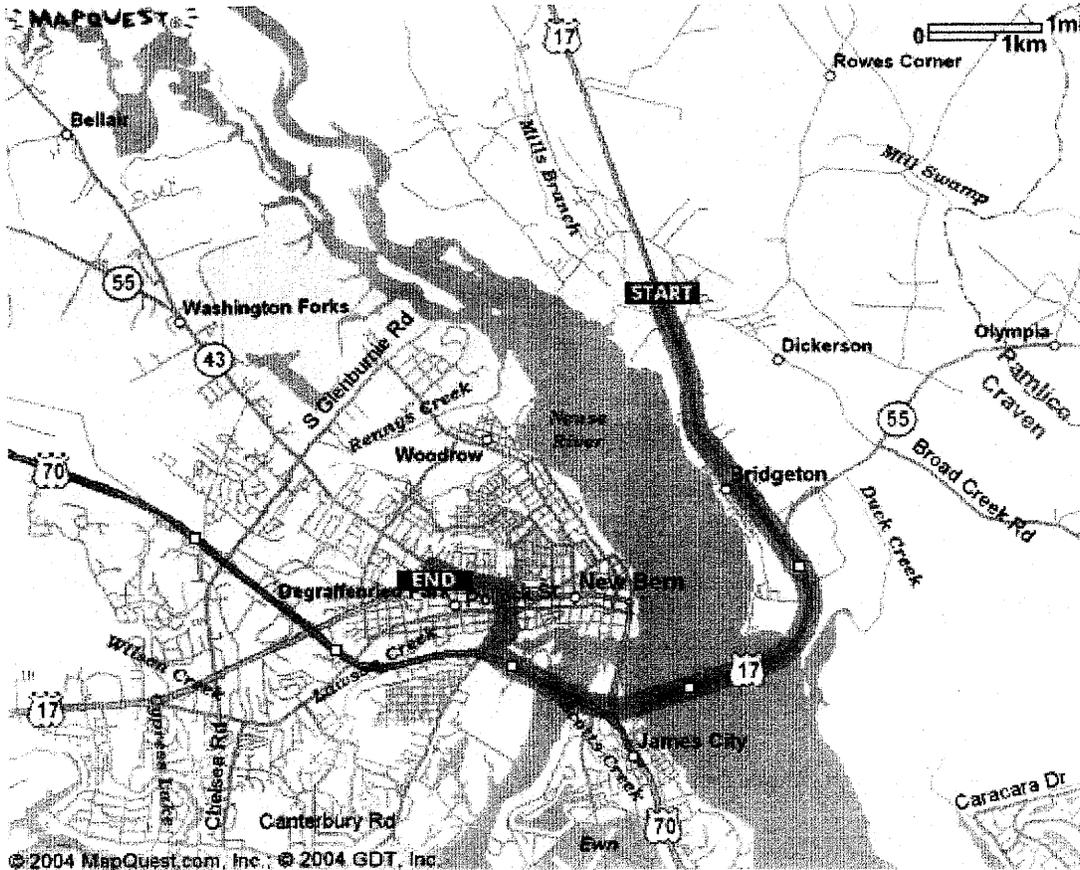
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**Phillips Plating Co** 252-638-8516  
 1701 Us Highway 17 N, New Bern, NC 28560 US - [Hotel Offers](#) - [Flight Deals](#)



628 E 12th St, Washington, NC 27889-3409 US - [Hotel Offers](#) - [Flight Deals](#)

**Maneuvers**

- 1:** Start out going NORTH on US-17 N toward BLUE TOP RD/NC-1429.
- 2:** Turn SLIGHT RIGHT onto US-17 BYP N.
- 3:** US-17 BYP N becomes US-17 N.
- 4:** Turn RIGHT onto NC-92/US-264/W R BILL ROBERSON JR HWY. Continue to follow NC-92/US-264.
- 5:** Turn SLIGHT LEFT onto N BROWN ST.
- 6:** Turn RIGHT onto E 12TH ST.
- 7:** End at 628 E 12TH ST WASHINGTON NC

**Distance** **Maps**

- 11.5 miles [Map](#)
- 3.4 miles [Map](#)
- 16.4 miles [Map](#)
- 0.9 miles [Map](#)
- 0.2 miles [Map](#)
- <0.1 miles [Map](#)
- [Map](#)

**Total Est. Time:** 46 minutes

**Total Est. Distance:** 32.65 miles

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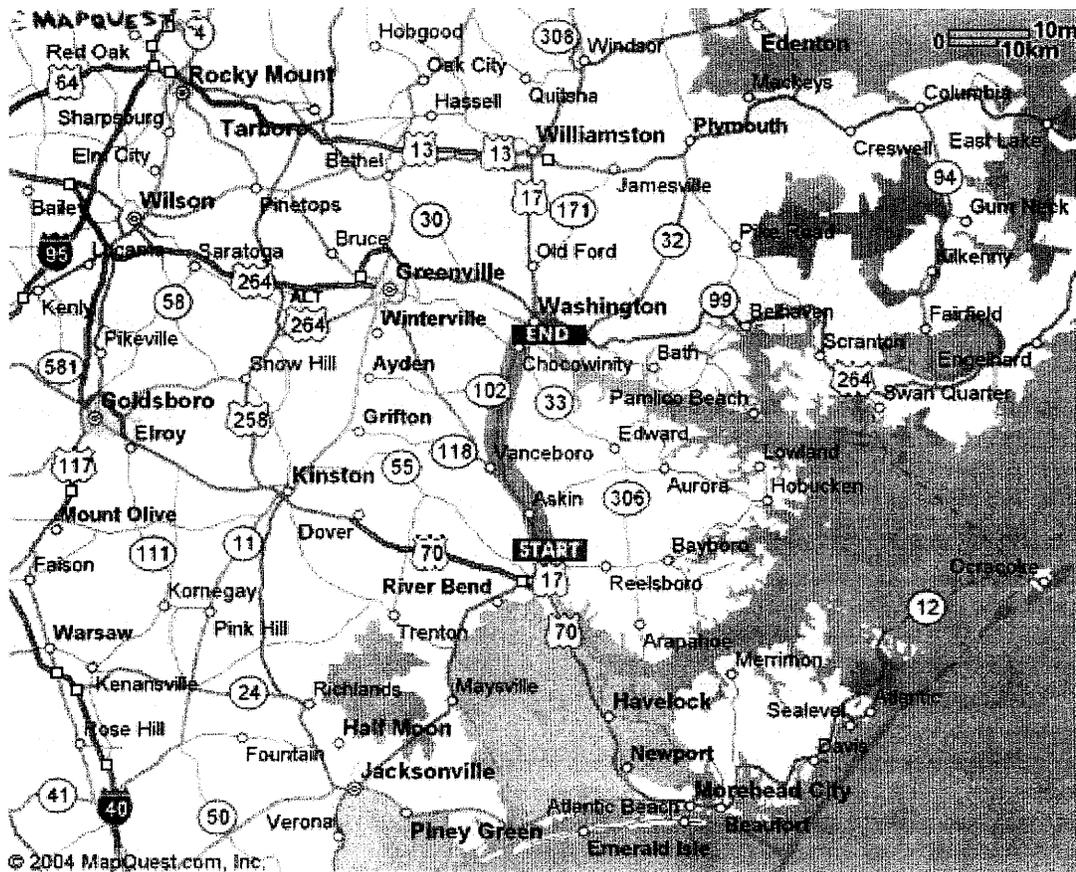
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**CONTINGENCIES**

**Response Plans**

<p>Medical - General</p> <p>Provide First Aid as trained, assess and determine need for further medical assistance, Transport or arrange for transport after appropriate decontamination</p>	<p>First Aid Kit: First Responders Kit, BBP Kit, and First Aid Travel Kit on-site.</p>	<p>Type Portable Bag</p>	<p>Location In vehicle</p>	<p>Special First Aid Procedures: Cyanides on site <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No. If yes, contact LMF. Do they have antidote kit? <input type="checkbox"/> Yes <input type="checkbox"/> No</p>
	<p>Eyewash required <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	<p>Type</p>	<p>Location</p>	<p>HF on site <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No. If yes, need neutralizing ointment for First Aid kit. Contact LMF.</p>
	<p>Shower required <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	<p>Type</p>	<p>Location</p>	

Plan for Response to Spill/Release	Plan for Response to Fire/Explosion	Fire Extinguishers
------------------------------------	-------------------------------------	--------------------

<p>In the event of a spill or release, ensure safety, assess situation and perform containment and control measures as appropriate:</p>	<p>a. Clean up per MSDS if small or; Sound Alarm, call for assistance, Notify Emergency Coordinator b. Evacuate to pre-determined safe place c. Account for personnel d. Determine if Team can respond safely e. Mobilize per Site Spill Response Plan</p>	<p>In the event of a fire or explosion, ensure personal safety, assess situation and perform containment and control measures as appropriate:</p>	<p>a. Call 911, SHSC b. Evaluate to predetermined safe location. c. Account for personnel d. Standby to alert responders e. Use extinguisher only if trained and safe.</p>	<p>Type/Location ABC-in Vehicle of Greg Ford</p>
---	--	---	--	--

Description of Spill Response Gear	Location	Description (Other Fire Response Equipment)	Location
------------------------------------	----------	---	----------

<p>Plan to Response to Security Problems</p> <p>Call local Police.</p>
--

**DECONTAMINATION PLAN**

**Personnel Decontamination**

Consistent with the levels of protection required, step-by-step procedures for personnel decontamination for each Level of Protection are attached.

**Levels of Protection Required for Decontamination Personnel**

The levels of protection required for personnel assisting with decontamination will be:

Level B

Level C

Level D

Modifications include:

**Disposition of Decontamination Wastes**

Provide a description of waste disposition including identification of storage area, hauler, and final disposal site, if applicable:

WESTON will dispose PPE on-site in on site waste dumpster or trash receptacle.

**Equipment Decontamination**

A procedure for decontamination steps required for non-sampling equipment and heavy machinery follows:

WESTON will not have any non-sampling equipment or heavy machinery on-site.

**Sampling Equipment Decontamination**

Sampling equipment will be decontaminated in accordance with the following procedure:

Sampling equipment will be rinsed with soapy water (Liqui-Nox & DI Water), then rinsed with regular DI water, and then patted dry with paper towels or be allowed to air dry.

**LEVEL D/MODIFIED LEVEL D DECONTAMINATION PLAN**

**Check indicated functions or add steps as necessary:**

Function	Description of Process, Solution, and Container
<input type="checkbox"/> Segregated equipment drop	
<input type="checkbox"/> Boot cover and glove wash	
<input type="checkbox"/> Boot cover and glove rinse	
<input type="checkbox"/> Tape removal - outer glove and boot	
<input type="checkbox"/> Boot cover removal	
<input checked="" type="checkbox"/> Outer glove removal	Discard in plastic bag. The bag will then be disposed of on-site.

**HOTLINE**

<input type="checkbox"/> Suit/safety boot wash	
<input type="checkbox"/> Suit/boot/glove rinse	
<input type="checkbox"/> Safety boot removal	
<input type="checkbox"/> Suit removal	
<input type="checkbox"/> Inner glove wash	
<input type="checkbox"/> Inner glove rinse	
<input type="checkbox"/> Inner glove removal	
<input type="checkbox"/> Inner clothing removal	

**CRC/SAFE ZONE BOUNDARY**

<input checked="" type="checkbox"/> Field wash – Wash hands prior to leaving work area. Shower ASAP.
<input type="checkbox"/> Redress

**Disposal Plan, End of Day:**

**At the end of the day, any non-liquid waste collected will be disposed of in a trash bag and then disposed of in an on-site garbage can. Any liquid waste collected during the day will be disposed of on-site.**

**Disposal Plan, End of Week:**

**At the end of the day, any non-liquid waste collected will be disposed of in a trash bag and then disposed of in an on-site garbage can. Any liquid waste collected during the day will be disposed of on-site.**

**Disposal Plan, End of Project:**

**At the end of the day, any non-liquid waste collected will be disposed of in a trash bag and then disposed of in an on-site garbage can. Any liquid waste collected during the day will be disposed of on-site.**

## LEVEL C DECONTAMINATION PLAN

Check indicated functions or add steps, as necessary:

Function	Description of Process, Solution, and Container
<input type="checkbox"/> Segregated equipment drop	
<input type="checkbox"/> Boot cover and glove wash	
<input type="checkbox"/> Boot cover and glove rinse	
<input type="checkbox"/> Tape removal - outer glove and boot	
<input type="checkbox"/> Boot cover removal	
<input type="checkbox"/> Outer glove removal	
<b>HOTLINE</b>	
<input type="checkbox"/> Suit/safety boot wash	
<input type="checkbox"/> Suit/boot/glove rinse	
<input type="checkbox"/> Safety boot removal	
<input type="checkbox"/> Suit removal	
<input type="checkbox"/> Inner glove wash	
<input type="checkbox"/> Inner glove rinse	
<input type="checkbox"/> Facepiece removal	
<input type="checkbox"/> Inner glove removal	
<input type="checkbox"/> Inner clothing removal	
<b>CONTAMINATION REDUCTION ZONE (CRZ)/SAFE ZONE BOUNDARY</b>	
<input type="checkbox"/> Field wash	
<input type="checkbox"/> Redress	
<b>Disposal Plan, End of Day:</b>	
<b>Disposal Plan, End of Week:</b>	
<b>Disposal Plan, End of Project:</b>	

**SITE PERSONNEL AND CERTIFICATION STATUS**

**WESTON**

<p><b>Name: Ed Mackey</b>  <b>Title: PM</b>  <b>Task(s): 1 and 2</b>  <b>Certification Level or Description:</b></p> <p><input checked="" type="checkbox"/> Medical Current                      <input checked="" type="checkbox"/> Training Current  <input checked="" type="checkbox"/> Fit Test Current (Qual.):              <input type="checkbox"/> Fit Test Current (Qual.):</p>	<p><b>Name: Tara Rowland</b>  <b>Title: Project Geoscientist/SHSC</b>  <b>Task(s): 1 and 2</b>  <b>Certification Level or Description:</b></p> <p><input checked="" type="checkbox"/> Medical Current                      <input checked="" type="checkbox"/> Training Current  <input checked="" type="checkbox"/> Fit Test Current (Qual.):              <input type="checkbox"/> Fit Test Current (Quant.):</p>
<p><b>Name: Greg Ford</b>  <b>Title: Geoscientist</b>  <b>Task(s): 2</b>  <b>Certification Level or Description:</b></p> <p><input checked="" type="checkbox"/> Medical Current                      <input checked="" type="checkbox"/> Training Current  <input type="checkbox"/> Fit Test Current (Qual.):              <input type="checkbox"/> Fit Test Current (Quant.):</p>	<p><b>Name: Steve Brown</b>  <b>Title: Program Manager</b>  <b>Task(s):</b>  <b>Certification Level or Description:</b></p> <p><input checked="" type="checkbox"/> Medical Current                      <input checked="" type="checkbox"/> Training Current  <input checked="" type="checkbox"/> Fit Test Current (Qual.):              <input type="checkbox"/> Fit Test Current (Quant.):</p>
<p><b>Name:</b>  <b>Title:</b>  <b>Task(s):</b>  <b>Certification Level or Description:</b></p> <p><input type="checkbox"/> Medical Current                      <input type="checkbox"/> Medical Current  <input type="checkbox"/> Fit Test Current (Qual.):              <input type="checkbox"/> Fit Test Current (Qual.):</p>	<p><b>Name:</b>  <b>Title:</b>  <b>Task(s):</b>  <b>Certification Level or Description:</b></p> <p><input type="checkbox"/> Medical Current                      <input type="checkbox"/> Training Current  <input type="checkbox"/> Fit Test Current (Qual.):              <input type="checkbox"/> Fit Test Current (Quant.):</p>
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<p><b>Name:</b>  <b>Title:</b>  <b>Task(s):</b>  <b>Certification Level or Description:</b></p> <p><input type="checkbox"/> Medical Current                      <input type="checkbox"/> Training Current  <input type="checkbox"/> Fit Test Current (Qual.):              <input type="checkbox"/> Fit Test Current (Quant.):</p>	<p><b>Name:</b>  <b>Title:</b>  <b>Task(s):</b>  <b>Certification Level or Description:</b></p> <p><input type="checkbox"/> Medical Current                      <input type="checkbox"/> Training Current  <input type="checkbox"/> Fit Test Current (Qual.):              <input type="checkbox"/> Fit Test Current (Quant.):</p>

**TRAINING CURRENT - Training:** All personnel, including visitors, entering the exclusion or contamination reduction zones must have certifications of completion of training in accordance with OSHA 29 CFR 1910, 29 CFR 1926 or 29 CFR 1910.120.

**FIT TEST CURRENT - Respirator Fit Testing:** All persons, including visitors, entering any area requiring the use or potential use of any negative pressure respirator must have had as a minimum, a qualitative fit test, administered in accordance with OSHA 29 CFR 1910.134 or ANSI within the last 12 months. If site conditions require the use of a full face negative pressure, air purifying respirator for protection from Asbestos or Lead, employees must have had a quantitative fit test, administered according to OSHA 29 CFR 1910.1001 or 1025 within the last 6 months.

**MEDICAL CURRENT - Medical Monitoring Requirements:** All personnel, including visitors, entering the exclusion or contamination reduction zones must be certified as medically fit to work, and to wear a respirator, if appropriate, in accordance with 29 CFR 1910, 29 CFR 1926/1910 or 29 CFR 1910.120.

The Site Health and Safety Coordinator is responsible for verifying all certifications and fit tests.



## TRAINING AND BRIEFING TOPICS

The following items will be covered at the site specific training meeting, daily or periodically.

<input checked="" type="checkbox"/> Site characterization and analysis, Sec. 3.0, 29 CFR 1910.120 i	<input type="checkbox"/> Level A
<input checked="" type="checkbox"/> Physical hazards, Table 3.2	<input type="checkbox"/> Level B
<input checked="" type="checkbox"/> Chemical hazards, Table 3.1	<input type="checkbox"/> Level C
<input checked="" type="checkbox"/> Animal bites, stings, and poisonous plants	<input checked="" type="checkbox"/> Level D
<input type="checkbox"/> Etiologic (infectious) agents	<input checked="" type="checkbox"/> Monitoring, Sec. 7.0; 29 CFR 1910.120 h
<input type="checkbox"/> Site control, Sec. 8.0; 29 CFR 1910.120 d	<input checked="" type="checkbox"/> Decontamination, Sec. 9.0; 29 CFR 1910.120 k
<input type="checkbox"/> Engineering controls and work practices, Sec. 8.5; 25 CFR 1910.120 g	<input type="checkbox"/> Emergency response, Sec. 10.0; 29 CFR 1910.120 l
<input checked="" type="checkbox"/> Heavy machinery	<input type="checkbox"/> Elements of an emergency response, Sec. 100; 29 CFR 1910.120 l
<input type="checkbox"/> Forklift	<input checked="" type="checkbox"/> Procedures for handling site emergency incidents, Sec. 10.0; 29 CFR 1910.120 l
<input type="checkbox"/> Backhoe	<input type="checkbox"/> Offsite emergency response, 29 CFR 1910.120 l
<input checked="" type="checkbox"/> Equipment	<input type="checkbox"/> Handling drums and containers, 29 CFR 1910.120 j
<input checked="" type="checkbox"/> Tools	<input type="checkbox"/> Opening drums and containers
<input type="checkbox"/> Ladder 29 CFR 1910.27 d	<input type="checkbox"/> Electrical material handling equipment
<input checked="" type="checkbox"/> Overhead and underground utilities	<input type="checkbox"/> Radioactive waste
<input type="checkbox"/> Scaffolds	<input type="checkbox"/> Shock sensitive waste
<input type="checkbox"/> Structural integrity	<input type="checkbox"/> Laboratory waste packs
<input type="checkbox"/> Unguarded openings - wall, floor, ceilings	<input type="checkbox"/> Sampling drums and containers
<input type="checkbox"/> Pressurized air cylinders	<input checked="" type="checkbox"/> Shipping and transport, 49 CFR 172.101
<input checked="" type="checkbox"/> Personnel protective equipment, Sec. 5.0; 25 CFR 1910.120 g; 29 CFR 1910.134	<input checked="" type="checkbox"/> Tank and vault procedures
<input checked="" type="checkbox"/> Respiratory protection, Sec. 5.8; 29 CFR 1910.120 g; Z88.2-1980	<input checked="" type="checkbox"/> Illumination, 29 CFR 1910.120 m
	<input checked="" type="checkbox"/> Sanitation, 29 CFR 1910.120 n

**ATTACHMENT A**  
**CHEMICAL CONTAMINANTS DATA SHEETS**

*(Attach completed HASP Form 25  
[H&S—1 Chemical Hazards Form]  
or attach appropriate data sheets.)*

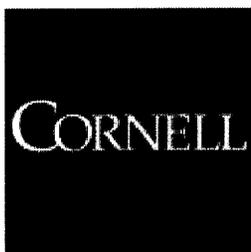
**HEALTH AND SAFETY EVALUATION — 1 CHEMICAL HAZARDS**

Hazardous Substance/Tasks	Physical Properties	Normal Physical State	State At Site/Proj. Temp.	Characteristics	Exposure Limits	Route(s) of Exposure/ Symptoms	Monitoring Instruments/ Ionization Potential + % Response
Kerosene	<input checked="" type="checkbox"/> Explosive	<input type="checkbox"/> Solid	<input type="checkbox"/> Solid	pH:	<input checked="" type="checkbox"/> CA 1000ppm / <b>150ppm</b>	<input checked="" type="checkbox"/> Inhalation	<input type="checkbox"/> HNu
Gasoline	<input checked="" type="checkbox"/> Flammable	<input checked="" type="checkbox"/> Liquid	<input checked="" type="checkbox"/> Liquid	FP: -99°F / -2°F	<input checked="" type="checkbox"/> PEL 100ppm / <b>100ppm</b>	<input type="checkbox"/> Ingestion	<input type="checkbox"/> 11.7 eV
Diesel	<input type="checkbox"/> Corrosive	<input type="checkbox"/> Gas	<input type="checkbox"/> Gas	LEL: 77°F / NA	<input type="checkbox"/> TLV _____	<input checked="" type="checkbox"/> Skin Absorption	<input type="checkbox"/> 10.2 eV
	<input type="checkbox"/> Reactive			UEL: 77°F / NA	<input type="checkbox"/> IDLH _____	<input checked="" type="checkbox"/> Contact	<input checked="" type="checkbox"/> OVM – Air Monitoring
	<input type="checkbox"/> Water Reactive			Auto. Ig.:	<input type="checkbox"/> Only toxicological data available	<input type="checkbox"/> Direct Penetration	<input type="checkbox"/> 10.0/10.6 eV
	<input type="checkbox"/> Oxidizer			BP: 189°F / 250°F	<input type="checkbox"/> Other: _____	<input type="checkbox"/> Other: _____	<input type="checkbox"/> 11.8 eV
CAS No:	<input type="checkbox"/> Radioactive	Incompatible With: Strong oxidizers		MP:			<input type="checkbox"/> CGI
Synonyms:	<input checked="" type="checkbox"/> Other			Sp. Gr.: 1.46 / 1.62			<input type="checkbox"/> OVA
	Combustible			Vap. D.:		Symptoms: Irrit eyes, skin; head	<input type="checkbox"/> _____
	<b>Noncombustible</b>			Vap. P.: 58mm / 14mm		<b>Irrit eyes, nose, throat</b>	IP:
				H <sub>2</sub> O Sol.: 77°F / 0.02%			% Response:
			Other:				

**ATTACHMENT B**

**MATERIAL SAFETY DATA SHEETS**

**(MSDSs)**



**Material Safety  
Data Sheets**

**Division of Facilities Services**

**DOD Hazardous Material Information (ANSI Format)  
For Cornell University Convenience Only**

**ALCONOX**

Section 1 - Product and Company Identification	Section 9 - Physical & Chemical Properties
Section 2 - Composition/Information on Ingredients	Section 10 - Stability & Reactivity Data
Section 3 - Hazards Identification Including Emergency Overview	Section 11 - Toxicological Information
Section 4 - First Aid Measures	Section 12 - Ecological Information
Section 5 - Fire Fighting Measures	Section 13 - Disposal Considerations
Section 6 - Accidental Release Measures	Section 14 - MSDS Transport Information
Section 7 - Handling and Storage	Section 15 - Regulatory Information
Section 8 - Exposure Controls & Personal Protection	Section 16 - Other Information

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**Section 1 - Product and Company Identification  
ALCONOX**

**Product Identification:** ALCONOX

**Date of MSDS:** 08/14/1992 **Technical Review Date:** 09/28/1992

**FSC:** 6505 **NIIN:** 00-839-8894

**Submitter:** N EN

**Status Code:** C

**MFN:** 01

**Article:** N

**Kit Part:** N

**Manufacturer's Information**

**Manufacturer's Name:** ALCONOX INC  
**Manufacturer's Address1:** 215 PARK AVE S  
**Manufacturer's Address2:** NEW YORK, NY 10003  
**Manufacturer's Country:** US  
**General Information Telephone:** 212-473-1300  
**Emergency Telephone:** 212-473-1300  
**Emergency Telephone:** 212-473-1300  
**MSDS Preparer's Name:** N/P  
**Proprietary:** N  
**Reviewed:** N  
**Published:** Y  
**CAGE:** 17534  
**Special Project Code:** N

**Item Description**

**Item Name:** DETERGENT,SURGICAL INSTRUMENT  
**Item Manager:** NK  
**Specification Number:** NK  
**Type/Grade/Class:** NK  
**Unit of Issue:** NK **Quantitative Expression:** NK  
**Unit of Issue Quantity:** NK  
**Type of Container:**

**Contractor Information**

**Contractor's Name:** ALCONOX INC  
**Contractor's Address1:** 9 EAST 40TH STREET, SUITE 200  
**Contractor's Address2:** NEW YORK, NY 10016  
**Contractor's Telephone:** 212-532-4040  
**Contractor's CAGE:** 17534

---

**Section 2 - Composition/Information on Ingredients**  
**ALCONOX**

---

**Ingredient Name:** ALCONOX  
**Ingredient CAS Number:** **Ingredient CAS Code:** X  
**RTECS Number:** **RTECS Code:** X  
**=WT:** **=WT Code:**  
**=Volume:** **=Volume Code:**  
**>WT:** **>WT Code:**  
**>Volume:** **>Volume Code:**  
**<WT:** **<WT Code:**  
**<Volume:** **<Volume Code:**  
**% Low WT:** **% Low WT Code:**  
**% High WT:** **% High WT Code:**  
**% Low Volume:** **% Low Volume Code:**  
**% High Volume:** **% High Volume Code:**  
**% Text:** N/K

**% Environmental Weight:**  
**Other REC Limits:** N/K  
**OSHA PEL:** NOT APPLICABLE **OSHA PEL Code:** M  
**OSHA STEL:** **OSHA STEL Code:**  
**ACGIH TLV:** NOT APPLICABLE **ACGIH TLV Code:** M  
**ACGIH STEL:** N/P **ACGIH STEL Code:**  
**EPA Reporting Quantity:**  
**DOT Reporting Quantity:**  
**Ozone Depleting Chemical:**

---

**Section 3 - Hazards Identification, Including Emergency Overview**  
**ALCONOX**

---

**Health Hazards Acute & Chronic:** PROLONGED EXPOSURE TO DUST MAY IRRITATE MUCOUS MEMBRANES.

**Signs & Symptoms of Overexposure:**  
SEE HEALTH HAZARDS.

**Medical Conditions Aggravated by Exposure:**  
NONE SPECIFIED BY MANUFACTURER.

**LD50 LC50 Mixture:** NONE SPECIFIED BY MANUFACTURER.

**Route of Entry Indicators:**  
**Inhalation:** YES  
**Skin:** NO  
**Ingestion:** NO

**Carcinogenicity Indicators**  
**NTP:** NO  
**IARC:** NO  
**OSHA:** NO

**Carcinogenicity Explanation:** NOT RELEVANT

---

**Section 4 - First Aid Measures**  
**ALCONOX**

---

**First Aid:**  
EYES: FLUSH WITH PLENTY OF WATER FOR AT LEAST 15 MIN. SKIN: FLUSH WITH PLENTY OF WATER. INGEST: DRINK LARGE QTY OF WATER TO DILUTE MATERIAL. GET MED ATTN FOR DISCOMFORT. INHAL: REMOVE TO FRESH AIR. SU PPORT BRTHG (GIVE O\*2/ARTF RESP) (FP N).

---

**Section 5 - Fire Fighting Measures**  
**ALCONOX**

---

**Fire Fighting Procedures:**  
WEAR NIOSH/MSHA APPROVED SCBA AND FULL PROTECTIVE EQUIPMENT (FP N).

**Unusual Fire or Explosion Hazard:**

NONE.

**Extinguishing Media:**

WATER, CARBON DIOXIDE, DRY CHEMICAL, FOAM SAND/EARTH.

**Flash Point: Flash Point Text:** NONE**Autoignition Temperature:****Autoignition Temperature Text:** N/A**Lower Limit(s):** N/A**Upper Limit(s):** N/A

---

**Section 6 - Accidental Release Measures****ALCONOX**

---

**Spill Release Procedures:**

MATERIAL FOAMS PROFUSELY, SHOVEL &amp; RECOVER AS MUCH AS POSSIBLE. RINSE REMAINDER TO SEWER. MATERIAL IS COMPLETELY BIODEGRADABLE.

---

**Section 7 - Handling and Storage****ALCONOX**

---

**Handling and Storage Precautions:****Other Precautions:**

---

**Section 8 - Exposure Controls & Personal Protection****ALCONOX**

---

**Respiratory Protection:**

NIOSH/MSHA APPROVED DUST MASK.

**Ventilation:**

LOCAL EXHAUST: NORMAL.

**Protective Gloves:**

IMPERVIOUS GLOVES (FP N).

**Eye Protection:** CHEMICAL WORKERS GOGGLES (FP N).**Other Protective Equipment:** NOT REQUIRED.**Work Hygienic Practices:** NONE SPECIFIED BY MANUFACTURER.**Supplemental Health & Safety Information:** NONE SPECIFIED BY MANUFACTURER.

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**Section 9 - Physical & Chemical Properties****ALCONOX**

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**HCC:****NRC/State License Number:****Net Property Weight for Ammo:****Boiling Point: Boiling Point Text:** N/A**Melting/Freezing Point: Melting/Freezing Text:** N/K**Decomposition Point: Decomposition Text:** N/K**Vapor Pressure: N/A Vapor Density:** N/A**Percent Volatile Organic Content:**

**Specific Gravity:** N/A

**Volatile Organic Content Pounds per Gallon:**

**pH:** N/K

**Volatile Organic Content Grams per Liter:**

**Viscosity:** N/P

**Evaporation Weight and Reference:** NOT APPLICABLE

**Solubility in Water:** APPRECIABLE

**Appearance and Odor:** WHITE POWDER INTERSPERSED W/CREAM COLORED FLAKES-  
ODORLESS

**Percent Volatiles by Volume:** N/A

**Corrosion Rate:** N/K

---

**Section 10 - Stability & Reactivity Data**  
**ALCONOX**

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**Stability Indicator:** YES

**Materials to Avoid:**

AVOID STRONG ACIDS.

**Stability Condition to Avoid:**

NONE.

**Hazardous Decomposition Products:**

MAY RELEASE CARBON DIOXIDE GAS ON BURNING.

**Hazardous Polymerization Indicator:** NO

**Conditions to Avoid Polymerization:**

NOT RELEVANT

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**Section 11 - Toxicological Information**  
**ALCONOX**

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**Toxicological Information:**

N/P

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**Section 12 - Ecological Information**  
**ALCONOX**

---

**Ecological Information:**

N/P

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**Section 13 - Disposal Considerations**  
**ALCONOX**

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**Waste Disposal Methods:**

SMALL QTY MAY BE DISPOSED OF IN SEWER. LARGE QTY SHOULD BE DISPOSED OF  
ACCORDING TO LOCAL, FEDERAL & STATE REQUIREMENTS FOR NON-HAZARDOUS  
DETERGENT.

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**Section 14 - MSDS Transport Information**  
**ALCONOX**

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**Transport Information:**

N/P

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**Section 15 - Regulatory Information**  
**ALCONOX**

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**SARA Title III Information:**

N/P

**Federal Regulatory Information:**

N/P

**State Regulatory Information:**N/P

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**Section 16 - Other Information**  
**ALCONOX**

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**Other Information:**

N/P

**HMIS Transportation Information****Product Identification:** ALCONOX**Transportation ID Number:** 88154**Responsible Party CAGE:** 17534**Date MSDS Prepared:** 08/14/1992**Date MSDS Reviewed:** 02/22/1993**MFN:** 02/22/1993**Submitter:** N TN**Status Code:** C**Container Information****Unit of Issue:** NK**Container Quantity:** NK**Type of Container:****Net Unit Weight:****Article without MSDS:** N**Technical Entry NOS Shipping Number:****Radioactivity:****Form:****Net Explosive Weight:****Coast Guard Ammunition Code:****Magnetism:** N/P**AF MMAC Code:****DOD Exemption Number:****Limited Quantity Indicator:****Multiple Kit Number:** 0**Kit Indicator:** N**Kit Part Indicator:** N**Review Indicator:** Y**Additional Data:**

NOT REGULATED FOR TRANSPORTATION

**Department of Transportation Information****DOT Proper Shipping Name:** NOT REGULATED BY THIS MODE OF TRANSPORTATION**DOT PSN Code:** ZZZ

**Symbols:** N/R  
**DOT PSN Modifier:**  
**Hazard Class:** N/R  
**UN ID Number:** N/R  
**DOT Packaging Group:** N/R  
**Label:** N/R  
**Special Provision(s):** N/R  
**Packaging Exception:** N/R  
**Non Bulk Packaging:** N/R  
**Bulk Packaging:** N/R  
**Maximum Quantity in Passenger Area:** N/R  
**Maximum Quantity in Cargo Area:** N/R  
**Stow in Vessel Requirements:** N/R  
**Requirements Water/Sp/Other:** N/R

#### **IMO Detail Information**

**IMO Proper Shipping Name:** NOT REGULATED FOR THIS MODE OF TRANSPORTATION  
**IMO PSN Code:** ZZZ  
**IMO PSN Modifier:**  
**IMDG Page Number:** N/R  
**UN Number:** N/R  
**UN Hazard Class:** N/R  
**IMO Packaging Group:** N/R  
**Subsidiary Risk Label:** N/R  
**EMS Number:** N/R  
**Medical First Aid Guide Number:** N/R

#### **IATA Detail Information**

**IATA Proper Shipping Name:** NOT REGULATED BY THIS MODE OF TRANSPORTATION  
**IATA PSN Code:** ZZZ  
**IATA PSN Modifier:**  
**IATA UN Id Number:** N/R  
**IATA UN Class:** N/R  
**Subsidiary Risk Class:** N/R  
**UN Packaging Group:** N/R  
**IATA Label:** N/R  
**Packaging Note for Passengers:** N/R  
**Maximum Quantity for Passengers:** N/R  
**Packaging Note for Cargo:** N/R  
**Maximum Quantity for Cargo:** N/R  
**Exceptions:** N/R

#### **AFI Detail Information**

**AFI Proper Shipping Name:** NOT REGULATED BY THIS MODE OF TRANSPORTATION  
**AFI Symbols:**  
**AFI PSN Code:** ZZZ  
**AFI PSN Modifier:**  
**AFI UN Id Number:** N/R  
**AFI Hazard Class:** N/R  
**AFI Packing Group:** N/R  
**AFI Label:** N/R  
**Special Provisions:** N/A  
**Back Pack Reference:** N/A

#### **HAZCOM Label Information**

**Product Identification:** ALCONOX

**CAGE:** 17534

**Assigned Individual:** N

**Company Name:** ALCONOX INC

**Company PO Box:**

**Company Street Address1:** 9 EAST 40TH STREET, SUITE 200

**Company Street Address2:** NEW YORK, NY 10016 US

**Health Emergency Telephone:** 212-473-1300

**Label Required Indicator:** Y

**Date Label Reviewed:** 09/18/1992

**Status Code:** C

**Manufacturer's Label Number:**

**Date of Label:** 09/18/1992

**Year Procured:** N/K

**Organization Code:** G

**Chronic Hazard Indicator:** N

**Eye Protection Indicator:** YES

**Skin Protection Indicator:** YES

**Respiratory Protection Indicator:** YES

**Signal Word:** CAUTION

**Health Hazard:** Slight

**Contact Hazard:** Slight

**Fire Hazard:** None

**Reactivity Hazard:** None

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**Material Safety  
Data Sheets**
**Division of Facilities Services**
**DOD Hazardous Material Information (ANSI Format)  
For Cornell University Convenience Only**


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**GASOLINE**


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<u>Section 1 - Product and Company Identification</u>	<u>Section 9 - Physical &amp; Chemical Properties</u>
<u>Section 2 - Composition/Information on Ingredients</u>	<u>Section 10 - Stability &amp; Reactivity Data</u>
<u>Section 3 - Hazards Identification Including Emergency Overview</u>	<u>Section 11 - Toxicological Information</u>
<u>Section 4 - First Aid Measures</u>	<u>Section 12 - Ecological Information</u>
<u>Section 5 - Fire Fighting Measures</u>	<u>Section 13 - Disposal Considerations</u>
<u>Section 6 - Accidental Release Measures</u>	<u>Section 14 - MSDS Transport Information</u>
<u>Section 7 - Handling and Storage</u>	<u>Section 15 - Regulatory Information</u>
<u>Section 8 - Exposure Controls &amp; Personal Protection</u>	<u>Section 16 - Other Information</u>

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**Section 1 - Product and Company Identification**  
**GASOLINE**


---

**Product Identification:** GASOLINE

**Date of MSDS:** 01/01/1987 **Technical Review Date:** 07/17/1999

**FSC:** 9130 **NIIN:** 00-148-7102

**Submitter:** D DG

**Status Code:** C

**MFN:** 01

**Article:** N

**Kit Part:** N

**Manufacturer's Information**

**Manufacturer's Name:** FRONTIER OIL AND REFINING COMPANY  
**Manufacturer's Address1:** 1600 BROADWAY  
**Manufacturer's Address2:** DENVER, CO 80202  
**Manufacturer's Country:** US  
**General Information Telephone:** 307-634-3551  
**Emergency Telephone:** 307-634-3551 CHEMTREC 800-424-9300  
**Emergency Telephone:** 307-634-3551 CHEMTREC 800-424-9300  
**MSDS Preparer's Name:** N/P  
**Proprietary:** N  
**Reviewed:** Y  
**Published:** Y  
**CAGE:** 0A0Y5  
**Special Project Code:** N

**Item Description**

**Item Name:** GASOLINE,AUTOMOTIVE  
**Item Manager:**  
**Specification Number:** ASTM D4814  
**Type/Grade/Class:** CL A,B,C,D,E,SPEC GR  
**Unit of Issue:** GL  
**Unit of Issue Quantity:** X  
**Type of Container:** UNKNOWN

**Contractor Information**

**Contractor's Name:** FRONTIER OIL AND REFINING COMPANY  
**Contractor's Address1:** 1600 BROADWAY  
**Contractor's Address2:** DENVER, CO 80202  
**Contractor's Telephone:** 307-634-3551 CHEMTREC 800-424-9300  
**Contractor's CAGE:** 0A0Y5

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**Section 2 - Compositon/Information on Ingredients**  
**GASOLINE**

---

**Ingredient Name:** BENZENE (SARA III)  
**Ingredient CAS Number:** 71-43-2 **Ingredient CAS Code:** M  
**RTECS Number:** CY1400000 **RTECS Code:** M  
**=WT: =WT Code:**  
**=Volume: =Volume Code:**  
**>WT: >WT Code:**  
**>Volume: >Volume Code:**  
**<WT: <WT Code:**  
**<Volume: <Volume Code:**  
**% Low WT: % Low WT Code:**  
**% High WT: % High WT Code:**  
**% Low Volume: % Low Volume Code:**  
**% High Volume: % High Volume Code:**  
**% Text:** N/K

**% Environmental Weight:****Other REC Limits:** NONE RECOMMENDED**OSHA PEL:** 1PPM/5STEL;1910.1028 **OSHA PEL Code:** M**OSHA STEL:** **OSHA STEL Code:****ACGIH TLV:** 10 PPM; A2; 9293 **ACGIH TLV Code:** M**ACGIH STEL:** N/P **ACGIH STEL Code:****EPA Reporting Quantity:** 10 LBS**DOT Reporting Quantity:** 10 LBS**Ozone Depleting Chemical:** N**Ingredient Name:** MIXTURE OF PETROLEUM HYDROCARBONS (AROMATIC AND PARAFFINIC HYDROCARBONS)**Ingredient CAS Number:** **Ingredient CAS Code:** X**RTECS Number:** **RTECS Code:** X**=WT:** **=WT Code:****=Volume:** **=Volume Code:****>WT:** **>WT Code:****>Volume:** **>Volume Code:****<WT:** **<WT Code:****<Volume:** **<Volume Code:****% Low WT:** **% Low WT Code:****% High WT:** **% High WT Code:****% Low Volume:** **% Low Volume Code:****% High Volume:** **% High Volume Code:****% Text:** N/K**% Environmental Weight:****Other REC Limits:** NONE RECOMMENDED**OSHA PEL:** 300 PPM TWA GASOLINE **OSHA PEL Code:** M**OSHA STEL:** **OSHA STEL Code:****ACGIH TLV:** 300 PPM TWA GASOLINE **ACGIH TLV Code:** M**ACGIH STEL:** N/P **ACGIH STEL Code:****EPA Reporting Quantity:****DOT Reporting Quantity:****Ozone Depleting Chemical:**

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**Section 3 - Hazards Identification, Including Emergency Overview**  
**GASOLINE**

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**Health Hazards Acute & Chronic:** ACUTE-INHALATION:CENTRAL NERVOUS SYSTEM DEPRESSION, NARCOSIS, UNCONSCIOUSNESS, ASPHYXIATION. EYE:IRRITATION. SKIN:DEFATING, IRRITATION. INGESTION: GI DISTURBANCES, ASPIRATION PNEUMONITIS. CHRONIC: DER MATITIS, ANEMIA, PULMONARY EDEMA, LIVERAND KIDNEY DAMAGE.**Signs & Symptoms of Overexposure:**

RESPIRATORY IRRITATION, COUGHING, DIFFICULTY IN BREATHING, NAUSEA, VOMITING, FATIGUE, BLURRED VISION, DIZZINESS, HEADACHES, UNCONSCIOUSNESS, EYE IRRITATION, REDNESS, DRY SKIN.

**Medical Conditions Aggravated by Exposure:**

SKIN AND RESPIRATORY DISORDERS.

**LD50 LC50 Mixture:** ORAL LD50 (RAT) IS UNKNOWN

**Route of Entry Indicators:**

**Inhalation:** YES

**Skin:** YES

**Ingestion:** NO

**Carcinogenicity Indicators**

**NTP:** YES

**IARC:** YES

**OSHA:** YES

**Carcinogenicity Explanation:** CONTAINS B [71-43-2] WHICH IS LISTED BY NTP AND IARC AND REGULATED BY OSHA AS A CARCINOGEN.

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**Section 4 - First Aid Measures**  
**GASOLINE**

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**First Aid:**

SKIN: REMOVE CONTAMINATED CLOTHING. WASH WITH SOAP AND WATER. GET MEDICAL ATTENTION IF IRRITATION PERSISTS. INHALATION: REMOVE TO FRESH AIR & RESTORE BREATHING IF NECESSARY. GET MEDICAL ATTENTION. EYE : IMMEDIATELY FLUSH WITH WATER FOR 15 MINUTES WHILE HOLDING EYELIDS OPEN. GET MEDICAL ATTENTION. INGESTION: GET IMMEDIATE MEDICAL ATTENTION. DO NOT INDUCE VOMITING. NOTHING BY MOUTH IF UNCONSCIOUS.

---

**Section 5 - Fire Fighting Measures**  
**GASOLINE**

---

**Fire Fighting Procedures:**

WEAR FIRE FIGHTING PROTECTIVE EQUIPMENT AND A FULL FACED SELF CONTAINED BREATHING APPARATUS. EVACUATE AREA. COOL FIRE EXPOSED CONTAINERS WITH WATER SPRAY.

**Unusual Fire or Explosion Hazard:**

VAPORS ARE HEAVIER THAN AIR AND MAY TRAVEL A CONSIDERABLE DISTANCE TO SOURCE OF IGNITION AND FLASH BACK.

**Extinguishing Media:**

USE CARBON DIOXIDE, FOAM, HALON OR DRY CHEMICAL. USE WATER FOG TO COOL SURROUNDING CONTAINERS.

**Flash Point:** Flash Point Text: -50F,-46C

**Autoignition Temperature:**

**Autoignition Temperature Text:** N/A

**Lower Limit(s):** <1%

**Upper Limit(s):** 8%

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**Section 6 - Accidental Release Measures**  
**GASOLINE**

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**Spill Release Procedures:**

MINOR: ABSORB MATERIAL WITH CLAY, VERMICULITE, OR SIMILAR ABSORBENT MATERIAL. PLACE IN DISPOSAL CONTAINERS. MAJOR: DIKE & CONTAIN SPILL. ELIMINATE SOURCES OF IGNITION. SHUT OFF LEAKS. REMOVE LIQUID BY VACUUM OR ABSORBENT.

---

**Section 7 - Handling and Storage  
GASOLINE**

---

**Handling and Storage Precautions:****Other Precautions:**

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**Section 8 - Exposure Controls & Personal Protection  
GASOLINE**

---

**Respiratory Protection:**

USE NIOSH APPROVED RESPIRATOR. AIR-SUPPLIED OR FILTERING TYPE WITH ORGANIC VAPOR CARTRIDGES ARE RECOMMENDED.

**Ventilation:**

LOCAL AND MECHANICAL EXHAUST RECOMMENDED. AVOID OPEN ELECTRICAL SOURCES NEAR PRODUCT VAPOR AREAS.

**Protective Gloves:**

NEOPRENE, NITRILE, OR POLYVINYL ALCOHOL

**Eye Protection:** USE CHEMICAL SAFETY GOGGLES & FACESHIELD

**Other Protective Equipment:** EYE WASH STATION & SAFETY SHOWER.

**Work Hygienic Practices:** DO NOT TAKE INTERNALLY. AVOID SKIN CONTACT. WASH SKIN AFTER USING PRODUCT. DO NOT EAT, DRINK OR SMOKE IN WORK AREA.

**Supplemental Health & Safety Information:** NONE

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**Section 9 - Physical & Chemical Properties  
GASOLINE**

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**HCC:** F1

**NRC/State License Number:** N/R

**Net Property Weight for Ammo:** N/R

**Boiling Point: Boiling Point Text:** 85.0F,29.4C

**Melting/Freezing Point: Melting/Freezing Text:** <-76F,<-60C

**Decomposition Point: Decomposition Text:** UNKNOWN

**Vapor Pressure: 275-475MMH Vapor Density:** >1

**Percent Volatile Organic Content:**

**Specific Gravity:** 0.70-0.77

**Volatile Organic Content Pounds per Gallon:**

**pH:** N/R

**Volatile Organic Content Grams per Liter:**

**Viscosity:** N/P

**Evaporation Weight and Reference:** <1 (ETHER=1)

**Solubility in Water:** INCOLUBLE

**Appearance and Odor:** WATER WHITE TO STRAW YELLOW LIQUID, GASOLINE ODOR.

**Percent Volatiles by Volume:** 100

**Corrosion Rate:** UNKNOWN

---

**Section 10 - Stability & Reactivity Data**  
**GASOLINE**

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**Stability Indicator:** YES

**Materials to Avoid:**

STRONG OXIDIZING AGENTS, STRRONG ACIDS & ALKALIS, AND HALOGENS.

**Stability Condition to Avoid:**

HIGH HEAT, OPEN FLAMES AND OTHER SOURCES OF IGNITION

**Hazardous Decomposition Products:**

CARBON MONOXIDE, CARBON DIOXIDE AND OTHER HYDROCARBON COMPOUNDS DURING COMBUSTION.

**Hazardous Polymerization Indicator:** NO

**Conditions to Avoid Polymerization:**

NOT APPLICABLE

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**Section 11 - Toxicological Information**  
**GASOLINE**

---

**Toxicological Information:**

N/P

---

**Section 12 - Ecological Information**  
**GASOLINE**

---

**Ecological Information:**

N/P

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**Section 13 - Disposal Considerations**  
**GASOLINE**

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**Waste Disposal Methods:**

WASTE MAY BE BURNED IN AN APPROVED INCINERATOR OR DISPOSED OF IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL LAWS AND REGULATIONS.

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**Section 14 - MSDS Transport Information**  
**GASOLINE**

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**Transport Information:**

N/P

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**Section 15 - Regulatory Information**  
**GASOLINE**

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**SARA Title III Information:**

N/P

**Federal Regulatory Information:**

N/P

**State Regulatory Information:**

N/P

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**Section 16 - Other Information**  
**GASOLINE**

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**Other Information:**

N/P

**HMIS Transportation Information****Product Identification:** GASOLINE**Transportation ID Number:** 50955**Responsible Party CAGE:** 0A0Y5**Date MSDS Prepared:** 01/01/1987**Date MSDS Reviewed:** 06/23/1993**MFN:** 06/23/1993**Submitter:** D DG**Status Code:** C**Container Information****Unit of Issue:** GL**Container Quantity:** X**Type of Container:** UNKNOWN**Net Unit Weight:****Article without MSDS:** N**Technical Entry NOS Shipping Number:****Radioactivity:****Form:****Net Explosive Weight:****Coast Guard Ammunition Code:****Magnetism:** N/P**AF MMAC Code:****DOD Exemption Number:****Limited Quantity Indicator:****Multiple Kit Number:** 0**Kit Indicator:** N**Kit Part Indicator:** N**Review Indicator:** Y**Additional Data:****Department of Transportation Information****DOT Proper Shipping Name:** GASOLINE**DOT PSN Code:** GTN**Symbols:****DOT PSN Modifier:****Hazard Class:** 3**UN ID Number:** UN1203**DOT Packaging Group:** II**Label:** FLAMMABLE LIQUID**Special Provision(s):** B33,B101,T8**Packaging Exception:****Non Bulk Packaging:** 202

**Bulk Packaging:** 242  
**Maximum Quantity in Passenger Area:** 5 L  
**Maximum Quantity in Cargo Area:** 60 L  
**Stow in Vessel Requirements:** E  
**Requirements Water/Sp/Other:**

**IMO Detail Information**

**IMO Proper Shipping Name:** GASOLINE  
**IMO PSN Code:** HRV  
**IMO PSN Modifier:**  
**IMDG Page Number:** 3141  
**UN Number:** 1203  
**UN Hazard Class:** 3.1  
**IMO Packaging Group:** II  
**Subsidiary Risk Label:** -  
**EMS Number:** 3-07  
**Medical First Aid Guide Number:** 311

**IATA Detail Information**

**IATA Proper Shipping Name:** GASOLINE  
**IATA PSN Code:** MUC  
**IATA PSN Modifier:**  
**IATA UN Id Number:** 1203  
**IATA UN Class:** 3  
**Subsidiary Risk Class:**  
**UN Packaging Group:** II  
**IATA Label:** FLAMMABLE LIQUID  
**Packaging Note for Passengers:** 305  
**Maximum Quantity for Passengers:** 5L  
**Packaging Note for Cargo:** 307  
**Maximum Quantity for Cargo:** 60L  
**Exceptions:** A100

**AFI Detail Information**

**AFI Proper Shipping Name:** GASOLINE  
**AFI Symbols:**  
**AFI PSN Code:** MUC  
**AFI PSN Modifier:**  
**AFI UN Id Number:** UN1203  
**AFI Hazard Class:** 3  
**AFI Packing Group:** II  
**AFI Label:**  
**Special Provisions:** P5  
**Back Pack Reference:** A7.3

**HAZCOM Label Information**

**Product Identification:** GASOLINE  
**CAGE:** 0A0Y5  
**Assigned Individual:** N  
**Company Name:** FRONTIER OIL AND REFINING COMPANY  
**Company PO Box:**  
**Company Street Address1:** 1600 BROADWAY  
**Company Street Address2:** DENVER, CO 80202 US  
**Health Emergency Telephone:** 307-634-3551 CHEMTREC 800-424-9300  
**Label Required Indicator:** Y

**Date Label Reviewed:** 06/23/1993  
**Status Code:** C  
**Manufacturer's Label Number:** N/K  
**Date of Label:** 06/23/1993  
**Year Procured:** N/K  
**Organization Code:** F  
**Chronic Hazard Indicator:** Y  
**Eye Protection Indicator:** YES  
**Skin Protection Indicator:** YES  
**Respiratory Protection Indicator:** YES  
**Signal Word:** DANGER  
**Health Hazard:** Moderate  
**Contact Hazard:** Moderate  
**Fire Hazard:** Severe  
**Reactivity Hazard:** None

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**Material Safety  
Data Sheets**

**Division of Facilities Services**

**DOD Hazardous Material Information (ANSI Format)  
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**NO. 2 DIESEL FUEL/FURNACE OIL/DIESEL FUEL L**

Section 1 - Product and Company Identification	Section 9 - Physical & Chemical Properties
Section 2 - Compositon/Information on Ingredients	Section 10 - Stability & Reactivity Data
Section 3 - Hazards Identification Including Emergency Overview	Section 11 - Toxicological Information
Section 4 - First Aid Measures	Section 12 - Ecological Information
Section 5 - Fire Fighting Measures	Section 13 - Disposal Considerations
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**Section 1 - Product and Company Identification  
NO. 2 DIESEL FUEL/FURNACE OIL/DIESEL FUEL L**

**Product Identification:** NO. 2 DIESEL FUEL/FURNACE OIL/DIESEL FUEL L

**Date of MSDS:** 10/01/1990 **Technical Review Date:** 11/27/1992

**FSC:** 9140 **NIIN:** 00-286-5294

**Submitter:** D DG

**Status Code:** C

**MFN:** 01

**Article:** N

**Kit Part:** N

**Manufacturer's Information**

**Manufacturer's Name:** CONOCO INC.  
**Post Office Box:** 2197  
**Manufacturer's Address1:**  
**Manufacturer's Address2:** HOUSTON, TX 77252  
**Manufacturer's Country:** US  
**General Information Telephone:** 713-293-5550  
**Emergency Telephone:** 800-441-3637  
**Emergency Telephone:** 800-441-3637  
**MSDS Preparer's Name:** N/P  
**Proprietary:** N  
**Reviewed:** Y  
**Published:** Y  
**CAGE:** DO839  
**Special Project Code:** N

**Item Description**

**Item Name:** DIESEL FUEL  
**Item Manager:**  
**Specification Number:** VV-F-800  
**Type/Grade/Class:** GRADE DF-2  
**Unit of Issue:** GL  
**Unit of Issue Quantity:** X  
**Type of Container:** BULK

**Contractor Information**

**Contractor's Name:** CONOCO INC  
**Post Office Box:** 2197  
**Contractor's Address1:**  
**Contractor's Address2:** HOUSTON, TX 77252  
**Contractor's Telephone:** 713-293-5550PRODUCT/ 800-4413637MED  
**Contractor's CAGE:** 5R396

**Contractor Information**

**Contractor's Name:** CONOCO INC.  
**Post Office Box:** 1267  
**Contractor's Address1:** N/K  
**Contractor's Address2:** PONCA CITY, OK 74603  
**Contractor's Telephone:** 405767-6000  
**Contractor's CAGE:** DO839

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**Section 2 - Composition/Information on Ingredients**  
**NO. 2 DIESEL FUEL/FURNACE OIL/DIESEL FUEL L**

---

**Ingredient Name:** HYDROCARBONS (ALIPHATIC AND AROMATIC)  
**Ingredient CAS Number:** **Ingredient CAS Code:** X  
**RTECS Number:** **RTECS Code:** X

**=WT: =WT Code:**  
**=Volume: =Volume Code:**  
**>WT: >WT Code:**  
**>Volume: >Volume Code:**  
**<WT: <WT Code:**  
**<Volume: <Volume Code:**  
**% Low WT: % Low WT Code:**  
**% High WT: % High WT Code:**  
**% Low Volume: % Low Volume Code:**  
**% High Volume: % High Volume Code:**  
**% Text: >90**  
**% Enviromental Weight:**  
**Other REC Limits: 400 PPM**  
**OSHA PEL: UNKNOWN OSHA PEL Code: M**  
**OSHA STEL: OSHA STEL Code:**  
**ACGIH TLV: UNKNOWN ACGIH TLV Code: M**  
**ACGIH STEL: N/P ACGIH STEL Code:**  
**EPA Reporting Quantity:**  
**DOT Reporting Quantity:**  
**Ozone Depleting Chemical:**

**Ingredient Name: NAPHTHALENE (SARA III)**  
**Ingredient CAS Number: 91-20-3 Ingredient CAS Code: M**  
**RTECS Number: QJ0525000 RTECS Code: M**  
**=WT: =WT Code:**  
**=Volume: =Volume Code:**  
**>WT: >WT Code:**  
**>Volume: >Volume Code:**  
**<WT: <WT Code:**  
**<Volume: <Volume Code:**  
**% Low WT: % Low WT Code:**  
**% High WT: % High WT Code:**  
**% Low Volume: % Low Volume Code:**  
**% High Volume: % High Volume Code:**  
**% Text: 3.0**  
**% Enviromental Weight:**  
**Other REC Limits: NONE RECOMMENDED**  
**OSHA PEL: 10 PPM/15 STEL OSHA PEL Code: M**  
**OSHA STEL: OSHA STEL Code:**  
**ACGIH TLV: 10 PPM/15 STEL; 9293 ACGIH TLV Code: M**  
**ACGIH STEL: N/P ACGIH STEL Code:**  
**EPA Reporting Quantity: 100 LBS**  
**DOT Reporting Quantity: 100 LBS**  
**Ozone Depleting Chemical: N**

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**Section 3 - Hazards Identification, Including Emergency Overview**  
**NO. 2 DIESEL FUEL/FURNACE OIL/DIESEL FUEL L**

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**Health Hazards Acute & Chronic: EYES:IRRITATION. SKIN:SKIN IRRITANT.**  
**INHALATION:LUNG IRRITATION, CNS EFFECTS. INGESTION:PRACTICALLY NON-TOXIC**

TO INTERNAL ORGANS. HOWEVER, IF ASPIRATED INTO LUNGS IT MAY CAUSE CHEMICAL PNEUMONITIS WHICH CAN BE FATAL. CHRONIC:MIDDLE DISTILLATE HAS CAUSED SKIN CANCER WHEN REPEATEDLY APPLIED TO MICE OVER LIFETIME,KIDNEY.

**Signs & Symptoms of Overexposure:**

SKIN:IRRITATION, DRYING EFFECT. INHALATION: HEADACHE, DIZZINESS, LOSS OF APPETITE, WEAKNESS AND LOSS OF COORDINATION.

**Medical Conditions Aggravated by Exposure:**

NONE SPECIFIED BY MANUFACTURER.

**LD50 LC50 Mixture:** UNKNOWN

**Route of Entry Indicators:**

**Inhalation:** YES

**Skin:** YES

**Ingestion:** YES

**Carcinogenicity Indicators**

**NTP:** NO

**IARC:** NO

**OSHA:** NO

**Carcinogenicity Explanation:** WHOLE DIESEL ENGINE EXHAUST IS LISTED AS A PROBABLE CARCINOGEN BY IARC AND NIOSH.

---

**Section 4 - First Aid Measures**

**NO. 2 DIESEL FUEL/FURNACE OIL/DIESEL FUEL L**

---

**First Aid:**

EYES:FLUSH WITH FRESH WATER FOR 15 MINUTES. SKIN: REMOVE CONTAMINATED CLOTHING. WASH SKIN THOROUGHLY WITH SOAP AND WATER. SEE A DOCTOR IF SYMPTOMS DEVELOP. INHALATION: REMOVE TO FRESH AIR. INGESTION: GIVE WATER OR MILK TO DRINK AND GET IMMEDIATE MEDICAL ATTENTION. DO NOT MAKE PERSON VOMIT UNLESS DIRECTED TO DO SO BY MEDICAL PERSONNEL.

---

**Section 5 - Fire Fighting Measures**

**NO. 2 DIESEL FUEL/FURNACE OIL/DIESEL FUEL L**

---

**Fire Fighting Procedures:**

WEAR FIRE FIGHTING PROTECTIVE EQUIPMENT AND A FULL FACED SELF CONTAINED BREATHING APPARATUS. EVACUATE AREA. COOL FIRE EXPOSED CONTAINERS WITH WATER SPRAY.

**Unusual Fire or Explosion Hazard:**

COMBUSTION OR HEAT OF FIRE MAY PRODUCE HAZARDOUS DECOMPOSITION PRODUCTS AND VAPORS. LIQUID EVAPORATES AND FORMS VAPORS WHICH CAN CATCH FIRE WITH VIOLENT BURNING

**Extinguishing Media:**

USE WATER FOG, CARBON DIOXIDE, FOAM, OR DRY CHEMICAL.

**Flash Point:** **Flash Point Text:** 130F,54C

**Autoignition Temperature:****Autoignition Temperature Text:** N/K**Lower Limit(s):** 0.4**Upper Limit(s):** 6

---

**Section 6 - Accidental Release Measures**  
**NO. 2 DIESEL FUEL/FURNACE OIL/DIESEL FUEL L**

---

**Spill Release Procedures:**

THIS MATERIAL IS CONSIDERED TO BE A WATER POLLUTANT AND RELEASES OF THIS PRODUCT SHOULD BE PREVENTED. ELIMINATE ALL OPEN FLAMES. STOP SOURCE OF THE LEAK. CONTAIN LIQUID. CLEAN UP SPILL USING APPROPRIATE TECHNIQUES SUCH AS ABSORBENT MATERIALS.

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**Section 7 - Handling and Storage**  
**NO. 2 DIESEL FUEL/FURNACE OIL/DIESEL FUEL L**

---

**Handling and Storage Precautions:****Other Precautions:**

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**Section 8 - Exposure Controls & Personal Protection**  
**NO. 2 DIESEL FUEL/FURNACE OIL/DIESEL FUEL L**

---

**Respiratory Protection:**

NONE NORMALLY REQUIRED. USE NIOSH APPROVED SELF-CONTAINED BREATHING APPARATUS IF TLV IS EXCEEDED OR WHEN SPRAYING OR USING IN CONFINED SPACES.

**Ventilation:**

USE THIS MATERIAL ONLY IN WELL VENTILATED AREAS.

**Protective Gloves:**

PVC

**Eye Protection:** GOGGLES

**Other Protective Equipment:** WEAR PROTECTIVE CLOTHINGS.

**Work Hygienic Practices:** WASH HANDS THOROUGHLY AFTER HANDLING THIS PRODUCT.

**Supplemental Health & Safety Information:** NONE

---

**Section 9 - Physical & Chemical Properties**  
**NO. 2 DIESEL FUEL/FURNACE OIL/DIESEL FUEL L**

---

**HCC:** F4

**NRC/State License Number:**

**Net Property Weight for Ammo:**

**Boiling Point: Boiling Point Text:** 350F,177C

**Melting/Freezing Point: Melting/Freezing Text:** N/A

**Decomposition Point: Decomposition Text:** UNKNOWN

**Vapor Pressure:** 1 **Vapor Density:** >1

**Percent Volatile Organic Content:**

**Specific Gravity:** 0.85-0.93

**Volatile Organic Content Pounds per Gallon:**

**pH:** N/A

**Volatile Organic Content Grams per Liter:**

Viscosity: 1.9 CST

Evaporation Weight and Reference: N/K

Solubility in Water: INSOLUBLE

Appearance and Odor: CLEAR OR LIGHT YELLOW LIQUID, AROMATIC ODOR

Percent Volatiles by Volume: NIL

Corrosion Rate: UNKNOWN

---

**Section 10 - Stability & Reactivity Data**  
**NO. 2 DIESEL FUEL/FURNACE OIL/DIESEL FUEL L**

---

Stability Indicator: YES

**Materials to Avoid:**

STRONG OXIDIZING AGENTS

**Stability Condition to Avoid:**

HIGH HEAT, OPEN FLAMES AND OTHER SOURCES OF IGNITION

**Hazardous Decomposition Products:**

TOXIC CARBON MONOXIDE AND CARBON DIOXIDE, AND SULFUR DIOXIDE.

**Hazardous Polymerization Indicator:** NO**Conditions to Avoid Polymerization:**

NOT APPLICABLE

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**Section 11 - Toxicological Information**  
**NO. 2 DIESEL FUEL/FURNACE OIL/DIESEL FUEL L**

---

**Toxicological Information:**

N/P

---

**Section 12 - Ecological Information**  
**NO. 2 DIESEL FUEL/FURNACE OIL/DIESEL FUEL L**

---

**Ecological Information:**

N/P

---

**Section 13 - Disposal Considerations**  
**NO. 2 DIESEL FUEL/FURNACE OIL/DIESEL FUEL L**

---

**Waste Disposal Methods:**

PLACE CONTAMINATED MATERIALS IN DISPOSABLE CONTAINERS AND DISPOSE OF IN A MANNER CONSISTENT WITH APPLICABLE REGULATIONS. CONTACT LOCAL ENVIRONMENTAL OR HEALTH AUTHORITIES FOR APPROVED DISPOSAL OF THIS MATERIAL.

---

**Section 14 - MSDS Transport Information**  
**NO. 2 DIESEL FUEL/FURNACE OIL/DIESEL FUEL L**

---

**Transport Information:**

N/P

---

**Section 15 - Regulatory Information**  
**NO. 2 DIESEL FUEL/FURNACE OIL/DIESEL FUEL L**

---

**SARA Title III Information:**

N/P

**Federal Regulatory Information:**

N/P

**State Regulatory Information:**

N/P

---

**Section 16 - Other Information**  
**NO. 2 DIESEL FUEL/FURNACE OIL/DIESEL FUEL L**

---

**Other Information:**

N/P

**HMIS Transportation Information****Product Identification:** NO. 2 DIESEL FUEL/FURNACE OIL/DIESEL FUEL L**Transportation ID Number:** 66870**Responsible Party CAGE:** D0839**Date MSDS Prepared:** 10/01/1990**Date MSDS Reviewed:** 11/27/1992**MFN:** 11/27/1992**Submitter:** D DG**Status Code:** C**Container Information****Unit of Issue:** GL**Container Quantity:** X**Type of Container:** BULK**Net Unit Weight:****Article without MSDS:** N**Technical Entry NOS Shipping Number:** HYDROCARBONS(ALIPHATIC AND AROMATIC), NAPHTHALENE.**Radioactivity:****Form:****Net Explosive Weight:****Coast Guard Ammunition Code:****Magnetism:** N/P**AF MMAC Code:****DOD Exemption Number:****Limited Quantity Indicator:****Multiple Kit Number:** 0**Kit Indicator:** N**Kit Part Indicator:** N**Review Indicator:** Y**Additional Data:**

NONE

**Department of Transportation Information****DOT Proper Shipping Name:** GAS OIL OR DIESEL FUEL OR HEATING OIL, LIGHT**DOT PSN Code:** GTF**Symbols:****DOT PSN Modifier:**

**Hazard Class:** 3  
**UN ID Number:** UN1202  
**DOT Packaging Group:** III  
**Label:** FLAMMABLE LIQUID  
**Special Provision(s):** B1,T7,T30  
**Packaging Exception:** 150  
**Non Bulk Packaging:** 203  
**Bulk Packaging:** 242  
**Maximum Quantity in Passenger Area:** 60 L  
**Maximum Quantity in Cargo Area:** 220 L  
**Stow in Vessel Requirements:** A  
**Requirements Water/Sp/Other:**

**IMO Detail Information**

**IMO Proper Shipping Name:** GAS OIL  
**IMO PSN Code:** HRR  
**IMO PSN Modifier:**  
**IMDG Page Number:** 3375  
**UN Number:** 1202  
**UN Hazard Class:** 3.3  
**IMO Packaging Group:** III  
**Subsidiary Risk Label:** -  
**EMS Number:** 3-07  
**Medical First Aid Guide Number:** 311

**IATA Detail Information**

**IATA Proper Shipping Name:** GAS OIL  
**IATA PSN Code:** MTX  
**IATA PSN Modifier:**  
**IATA UN Id Number:** 1202  
**IATA UN Class:** 3  
**Subsidiary Risk Class:**  
**UN Packaging Group:** III  
**IATA Label:** FLAMMABLE LIQUID  
**Packaging Note for Passengers:** 309  
**Maximum Quantity for Passengers:** 60L  
**Packaging Note for Cargo:** 310  
**Maximum Quantity for Cargo:** 220L  
**Exceptions:** A3

**AFI Detail Information**

**AFI Proper Shipping Name:** GAS OIL OR DIESEL FUEL OR HEATING OIL, LIGHT  
**AFI Symbols:**  
**AFI PSN Code:** MTX  
**AFI PSN Modifier:**  
**AFI UN Id Number:** UN1202  
**AFI Hazard Class:** 3  
**AFI Packing Group:** III  
**AFI Label:**  
**Special Provisions:** P5  
**Back Pack Reference:** A7.3

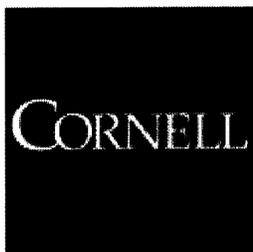
**HAZCOM Label Information**

**Product Identification:** NO. 2 DIESEL FUEL/FURNACE OIL/DIESEL FUEL L  
**CAGE:** D0839

**Assigned Individual:** Y  
**Company Name:** CONOCO INC.  
**Company PO Box:** 1267  
**Company Street Address1:** N/K  
**Company Street Address2:** PONCA CITY, OK 74603 US  
**Health Emergency Telephone:** 800-441-3637  
**Label Required Indicator:** Y  
**Date Label Reviewed:** 11/27/1992  
**Status Code:** C  
**Manufacturer's Label Number:** NONE  
**Date of Label:** 11/27/1992  
**Year Procured:** 1992  
**Organization Code:** F  
**Chronic Hazard Indicator:** Y  
**Eye Protection Indicator:** YES  
**Skin Protection Indicator:** YES  
**Respiratory Protection Indicator:** YES  
**Signal Word:** WARNING  
**Health Hazard:** Slight  
**Contact Hazard:** Slight  
**Fire Hazard:** Moderate  
**Reactivity Hazard:** None

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**Material Safety  
Data Sheets**

**Division of Facilities Services**

**DOD Hazardous Material Information (ANSI Format)  
For Cornell University Convenience Only**

**KEROSENE**

Section 1 - Product and Company Identification	Section 9 - Physical & Chemical Properties
Section 2 - Composition/Information on Ingredients	Section 10 - Stability & Reactivity Data
Section 3 - Hazards Identification Including Emergency Overview	Section 11 - Toxicological Information
Section 4 - First Aid Measures	Section 12 - Ecological Information
Section 5 - Fire Fighting Measures	Section 13 - Disposal Considerations
Section 6 - Accidental Release Measures	Section 14 - MSDS Transport Information
Section 7 - Handling and Storage	Section 15 - Regulatory Information
Section 8 - Exposure Controls & Personal Protection	Section 16 - Other Information

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**Section 1 - Product and Company Identification  
KEROSENE**

**Product Identification:** KEROSENE

**Date of MSDS:** 11/20/1985 **Technical Review Date:** 02/22/1995

**FSC:** 9140 **NIIN:** LIIN: 00F038305

**Submitter:** F BT

**Status Code:** C

**MFN:** 01

**Article:** N

**Kit Part:** N

**Manufacturer's Information**

**Manufacturer's Name:** BEACON OIL CO  
**Post Office Box:** 466  
**Manufacturer's Address1:** 525 W THIRD ST  
**Manufacturer's Address2:** HANFORD, CA 93230-5016  
**Manufacturer's Country:** US  
**General Information Telephone:** 209-582-0241  
**Emergency Telephone:** 209-582-0241  
**Emergency Telephone:** 209-582-0241  
**MSDS Preparer's Name:** N/P  
**Proprietary:** N  
**Reviewed:** Y  
**Published:** Y  
**CAGE:** 4E189  
**Special Project Code:** N

**Preparer Information**

**Preparer's Name:** BEACON OIL CO  
**Preparer's Address1:** 525 W THIRD ST  
**Preparer's Address2:** HANFORD, CA 93230-5016  
**Preparer's CAGE:** 4E189  
**Assigned Individual:** N

**Contractor Information**

**Contractor's Name:** BEACON OIL CO  
**Contractor's Address1:** 525 W THIRD ST  
**Contractor's Address2:** HANFORD, CA 93230-5016  
**Contractor's Telephone:** 209-583-3304  
**Contractor's CAGE:** 4E189

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**Section 2 - Composition/Information on Ingredients****KEROSENE**

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**Ingredient Name:** KEROSENE, KEROSINE (SUSPECTED ANIMAL CARC BY IARC) \*95-1\*  
**Ingredient CAS Number:** 8008-20-6 **Ingredient CAS Code:** M  
**RTECS Number:** OA5500000 **RTECS Code:** M  
**=WT: =WT Code:**  
**=Volume: =Volume Code:**  
**>WT: >WT Code:**  
**>Volume: >Volume Code:**  
**<WT: <WT Code:**  
**<Volume: <Volume Code:**  
**% Low WT: % Low WT Code:**  
**% High WT: % High WT Code:**  
**% Low Volume: % Low Volume Code:**  
**% High Volume: % High Volume Code:**  
**% Text:** 99.8  
**% Environmental Weight:**

**Other REC Limits:** 100 MG/CUM NIOSH  
**OSHA PEL:** N/K **OSHA PEL Code:** M  
**OSHA STEL:** **OSHA STEL Code:**  
**ACGIH TLV:** N/K **ACGIH TLV Code:** M  
**ACGIH STEL:** N/P **ACGIH STEL Code:**  
**EPA Reporting Quantity:**  
**DOT Reporting Quantity:**  
**Ozone Depleting Chemical:** N

---

**Section 3 - Hazards Identification, Including Emergency Overview**  
**KEROSENE**

---

**Health Hazards Acute & Chronic:** INHALATION: IRRITATION TO THE NOSE, THROAT & LUNGS, CNS DEPRESSION & DEATH. SKIN/EYES: IRRITATION. INGESTION: IRRITATION OF MOUTH, THROAT & GI TRACT, CNS DEPRESSION.

**Signs & Symptoms of Overexposure:**  
IRRITATION, DIZZINESS, DROWSINESS, LOSS OF COORDINATION, COMA, REDNESS, BURNING, TEARING, NAUSEA, VOMITING, DIARRHEA, RESTLESSNESS

**Medical Conditions Aggravated by Exposure:**  
N/K

**LD50 LC50 Mixture:** N/P

**Route of Entry Indicators:**  
**Inhalation:** YES  
**Skin:** NO  
**Ingestion:** YES

**Carcinogenicity Indicators**  
**NTP:** NO  
**IARC:** NO  
**OSHA:** NO

**Carcinogenicity Explanation:** NONE

---

**Section 4 - First Aid Measures**  
**KEROSENE**

---

**First Aid:**  
INHALATION: MOVE TO FRESH AIR. GIVE AIR, OXYGEN/CPR IF NECESSARY. EYES: FLUSH W/CLEAN WATER FOR 15 MINS. SKIN: WIPE FREE OF EXCESS LIQUIDS W/CLOTH. WASH W/SOAP & WATER. INGESTION: ASPIRATION HAZARD. DO NOT INDUCE VOMITING. ASPIRATION HAZARD. OBTAIN MEDICAL ATTENTION IN ALL CASES.

---

**Section 5 - Fire Fighting Measures**  
**KEROSENE**

---

**Fire Fighting Procedures:**

USE WATER FOG/SPRAY IN COOLING TANKS & CONTAINERS. DON'T ENTER ENCLOSED/CONFINED FIRE SPACE W/OUT PROPER PROTECTIVE EQUIPMENT. USE SCBA DOWNWIND OF FIRE.

**Unusual Fire or Explosion Hazard:**

COMBUSTIBLE LIQUID. MATERIAL MAY BE IGNITED BY HEAT, SPARKS, OPEN FLAME. KEROSENE FLOATS ON WATER & MAY CREATE AN EXPLOSION/FIRE/ENVIRONMENTAL HAZARD.

**Extinguishing Media:**

FOAM, DRY CHEMICAL, CO2, HALON

**Flash Point:** Flash Point Text: 110-162F

**Autoignition Temperature:**

**Autoignition Temperature Text:** N/A

**Lower Limit(s):** 0.7

**Upper Limit(s):** 5

---

**Section 6 - Accidental Release Measures**

**KEROSENE**

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**Spill Release Procedures:**

CONTAIN/REMOVE IGNITION SOURCES/SAFELY STOP FLOW. SMALL: REMOVE W/ABSORBENT MATERIAL/TRANSFER TO SAFE CONTAINER/STORE IN WELL VENTILATED FIRE SAFE STORAGE AREA UNTIL DISPOSAL. LARGE: EVACUATE PERSONNEL. USE PROPER PROTECTION EQUIPMENT. (SEE SUPP)

---

**Section 7 - Handling and Storage**

**KEROSENE**

---

**Handling and Storage Precautions:**

**Other Precautions:**

---

**Section 8 - Exposure Controls & Personal Protection**

**KEROSENE**

---

**Respiratory Protection:**

USE NIOSH/MSHA APPROVED RESPIRATOR WHEN VAPOR LEVELS EXCEED EXPOSURE LIMITS.

**Ventilation:**

REQUIRED TO KEEP VAPOR CONCENTRATIONS BELOW OCCUPATIONAL EXPOSURE LIMITS.

**Protective Gloves:**

IMPERVIOUS

**Eye Protection:** REQUIRED WHEN SPLASHING/SPRAYING LIQUID.

**Other Protective Equipment:** IMPERVIOUS PROTECTIVE CLOTHING, APRON, BOOTS, FACIAL PROTECTION

**Work Hygienic Practices:** REMOVE/LAUNDER CONTAMINATED CLOTHING BEFORE REUSE. REMOVE/DISCARD CONTAMINATED LEATHER SHOES/GLOVES. WASH AFTER HANDLING

**Supplemental Health & Safety Information:** SPILL PROC CONT'D: BLANKET W/FOAM/USE WATER FOG TO DISPERSE VAPORS. DIKE AREA TO PREVENT SPREADING. PUMP CONTAMINATED WATER & HYDROCARBON LIQUID TO SALVAGE TANK. REMAINING MATERIAL CAN BE TAKEN UP W/A BSORBENT & PLACED IN CONTAINERS.

---

**Section 9 - Physical & Chemical Properties**  
**KEROSENE**

---

**HCC:**

**NRC/State License Number:**

**Net Property Weight for Ammo:**

**Boiling Point: Boiling Point Text:** 350-513F

**Melting/Freezing Point: Melting/Freezing Text:** N/K

**Decomposition Point: Decomposition Text:** N/K

**Vapor Pressure: 0 Vapor Density:** N/K

**Percent Volatile Organic Content:**

**Specific Gravity:** 0.81-0.83

**Volatile Organic Content Pounds per Gallon:**

**pH:** N/K

**Volatile Organic Content Grams per Liter:**

**Viscosity:** N/P

**Evaporation Weight and Reference:** N/K

**Solubility in Water:** NEGLIGIBLE

**Appearance and Odor:** LIGHT YELLOW W/KEROSENE ODOR.

**Percent Volatiles by Volume:** N/K

**Corrosion Rate:** N/K

---

**Section 10 - Stability & Reactivity Data**  
**KEROSENE**

---

**Stability Indicator:** YES

**Materials to Avoid:**

STRONG OXIDIZING AGENTS, STRONG ACIDS

**Stability Condition to Avoid:**

HEAT, SPARKS, OPEN FLAME & IGNITION SOURCES

**Hazardous Decomposition Products:**

CO, CO<sub>2</sub>, VARIOUS HYDROCARBON & SULFUR COMPOUNDS

**Hazardous Polymerization Indicator:** NO

**Conditions to Avoid Polymerization:**

N/K

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**Section 11 - Toxicological Information**  
**KEROSENE**

---

**Toxicological Information:**

N/P

---

**Section 12 - Ecological Information**  
**KEROSENE**

---

**Ecological Information:**

N/P

---

---

**Section 13 - Disposal Considerations**  
**KEROSENE**

---

**Waste Disposal Methods:**

MAXIMIZE PRODUCT RECOVERY FOR REUSE/DISPOSE OF PRODUCT & CONTAMINATED MATERIALS IN ACCORDANCE W/LOCAL, STATE & FEDERAL REGULATIONS. IGNITABLE HAZARDOUS WASTE # (D001). COMBUSTIBLE LIQUID UN 1223.

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**Section 14 - MSDS Transport Information**  
**KEROSENE**

---

**Transport Information:**

N/P

---

**Section 15 - Regulatory Information**  
**KEROSENE**

---

**SARA Title III Information:**

N/P

**Federal Regulatory Information:**

N/P

**State Regulatory Information:**

N/P

---

**Section 16 - Other Information**  
**KEROSENE**

---

**Other Information:**

N/P

**HAZCOM Label Information**

**Product Identification:** KEROSENE

**CAGE:** 4E189

**Assigned Individual:** N

**Company Name:** BEACON OIL CO

**Company PO Box:**

**Company Street Address1:** 525 W THIRD ST

**Company Street Address2:** HANFORD, CA 93230-5016 US

**Health Emergency Telephone:** 209-582-0241

**Label Required Indicator:** Y

**Date Label Reviewed:** 12/16/1998

**Status Code:** C

**Manufacturer's Label Number:**

**Date of Label:** 12/16/1998

**Year Procured:** N/K

**Organization Code:** G

**Chronic Hazard Indicator:** N/P

**Eye Protection Indicator:** N/P

**Skin Protection Indicator:** N/P

**Respiratory Protection Indicator:** N/P

**Signal Word:** N/P

**Health Hazard:**

**Contact Hazard:**  
**Fire Hazard:**  
**Reactivity Hazard:**

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**Material Safety  
Data Sheets**

**Division of Facilities Services**

**DOD Hazardous Material Information (ANSI Format)  
For Cornell University Convenience Only**

**METHYL-TERT-BUTYL ETHER**

Section 1 - Product and Company Identification	Section 9 - Physical & Chemical Properties
Section 2 - Compositon/Information on Ingredients	Section 10 - Stability & Reactivity Data
Section 3 - Hazards Identification Including Emergency Overview	Section 11 - Toxicological Information
Section 4 - First Aid Measures	Section 12 - Ecological Information
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**Section 1 - Product and Company Identification  
METHYL-TERT-BUTYL ETHER**

**Product Identification:** METHYL-TERT-BUTYL ETHER

**Date of MSDS:** 03/24/1993 **Technical Review Date:** 06/17/1994

**FSC:** 6810 **NIIN:** LIIN: 00D010038

**Submitter:** D DG

**Status Code:** C

**MFN:** 01

**Article:** N

**Kit Part:** N

**Manufacturer's Information**

**Manufacturer's Name:** FISHER SCIENTIFIC CO CHEMICAL DIV.  
**Manufacturer's Address1:** 1 REAGENT LANE  
**Manufacturer's Address2:** FAIR LAWN, NJ 07410  
**Manufacturer's Country:** US  
**General Information Telephone:** 201-796-7100/ FAX 201-796-7523  
**Emergency Telephone:** 201-796-7100  
**Emergency Telephone:** 201-796-7100  
**MSDS Preparer's Name:** N/P  
**Proprietary:** N  
**Reviewed:** Y  
**Published:** Y  
**CAGE:** 1B464  
**Special Project Code:** N

**Contractor Information**

**Contractor's Name:** FISHER SCIENTIFIC CO. CHEMICAL MFG DIV  
**Contractor's Address1:** 1 REAGENT LANE  
**Contractor's Address2:** FAIR LAWN, NJ 07410-2802  
**Contractor's Telephone:** 201-796-7100  
**Contractor's CAGE:** 1B464

---

**Section 2 - Compositon/Information on Ingredients**  
**METHYL-TERT-BUTYL ETHER**

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**Ingredient Name:** METHYL TERT-BUTYL ETHER (SARA III)  
**Ingredient CAS Number:** 1634-04-4 **Ingredient CAS Code:** M  
**RTECS Number:** KN5250000 **RTECS Code:** M  
**=WT: =WT Code:**  
**=Volume: =Volume Code:**  
**>WT: >WT Code:**  
**>Volume: >Volume Code:**  
**<WT: <WT Code:**  
**<Volume: <Volume Code:**  
**% Low WT: % Low WT Code:**  
**% High WT: % High WT Code:**  
**% Low Volume: % Low Volume Code:**  
**% High Volume: % High Volume Code:**  
**% Text:** 100  
**% Enviromental Weight:**  
**Other REC Limits:** NONE RECOMMENDED  
**OSHA PEL:** NOT ESTABLISHED **OSHA PEL Code:** M  
**OSHA STEL:** OSHA STEL Code:  
**ACGIH TLV:** NOT ESTABLISHED **ACGIH TLV Code:** M  
**ACGIH STEL:** N/P **ACGIH STEL Code:**  
**EPA Reporting Quantity:** 1 LB  
**DOT Reporting Quantity:** 1 LB  
**Ozone Depleting Chemical:** N

---

**Section 3 - Hazards Identification, Including Emergency Overview**  
**METHYL-TERT-BUTYL ETHER**

---

**Health Hazards Acute & Chronic:** ACUTE: INHALATION/INGESTION/SKIN ABSORPTION MAY CAUSE CNS DEPRESSION. EXPOSURE MAY ALSO CAUSE EYE, SKIN & RESPIRATORY TRACT IRRITATION. INGESTION MAY CAUSE GI TRACT IRRITATION. CHRONIC: PROLONGED OR REPEATED EXPOSURE MAY CAUSE DERMATITIS, EYE DAMAGE, CNS DEPRESSION, IRRITATION OF NASAL PASSAGES.

**Signs & Symptoms of Overexposure:**

CNS DEPRESSION:

DIZZINESS, DROWSINESS, HEADACHE, STUPOR, WEAKNESS, ANESTHETIC EFFECTS.

INHALED: COUGHING, WHEEZING, SHORTNESS OF BREATH. EYES: REDNESS, BURNING SENSATION, PAIN/DISCOMFORT. SKIN: REDNESS, SWELLING, DISCOMFORT. INGESTED: NAUSEA, VOMITING, DIARRHEA.

**Medical Conditions Aggravated by Exposure:**

PERSONS WITH PRE-EXISTING SKIN DISORDERS, EYE PROBLEMS OR IMPAIRED RESPIRATORY FUNCTION.

**LD50 LC50 Mixture:** LC50 (INHALATION-RAT) IS 85 MG/L

**Route of Entry Indicators:**

**Inhalation:** YES

**Skin:** YES

**Ingestion:** YES

**Carcinogenicity Indicators**

**NTP:** NO

**IARC:** NO

**OSHA:** NO

**Carcinogenicity Explanation:** METHYL-TERT-BUTYL-ETHER IS NOT LISTED AS A CARCINOGEN BY NTP OR IARC; NOR REGULATED AS SUCH BY OSHA.

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**Section 4 - First Aid Measures**  
**METHYL-TERT-BUTYL ETHER**

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**First Aid:**

INHALED: REMOVE TO FRESH AIR. GIVE ARTIFICIAL RESPIRATION IF BREATHING STOPPED; OXYGEN IF DIFFICULT. GET MEDICAL ATTENTION. EYES: FLUSH WITH LOTS OF WATER FOR 15 MINUTES, HOLD LIDS OPEN. GET IMMEDIATE MEDICAL ATTENTION. SKIN: IF CONSCIOUS, INDUCE VOMITING BY GIVING SYRUP OF IPECAC. KEEP HEAD BELOW HIPS TO PREVENT ASPIRATION. GET IMMEDIATE MEDICAL ATTENTION.

---

**Section 5 - Fire Fighting Measures**  
**METHYL-TERT-BUTYL ETHER**

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**Fire Fighting Procedures:**

MOVE CONTAINER FROM FIRE AREA IF CAN BE DONE AT NO RISK. COOL FIRE EXPOSED

CONTAINERS WITH WATER SPRAY. STAY AWAY FROM ENDS OF ATNK.

**Unusual Fire or Explosion Hazard:**

DANGEROUS FIRE & EXPLOSION HAZARD WHEN EXPOSED TO HEAT OR FLAME. VAPOR-AIR MIXTURES ARE EXPLOSIVE ABOVE FLASH POINT. VAPORS HEAVIER THAN AIR, GO FAR & FLASHBACK.

**Extinguishing Media:**

DRY CHEMICAL, CARBON DIOXIDE, WATER SPRAY, ALCOHOL RESISTENT FOAM.

**Flash Point:** **Flash Point Text:** 14F,-10C

**Autoignition Temperature:**

**Autoignition Temperature Text:** N/A

**Lower Limit(s):** UNKNOWN

**Upper Limit(s):** UNKNOWN

---

**Section 6 - Accidental Release Measures**  
**METHYL-TERT-BUTYL ETHER**

**Spill Release Procedures:**

ELIMINATE ALL SOURCES OF IGNITION. STOP LEAK IF CAN DO SO AT NO RISK. USE WATER TO REDUCE VAPORS. TAKE UP WITH SAND OR OTHER ABSORBENT MATERIAL AND PLACE IN A CONTAINER FOR LATER DISPOSAL.

---

**Section 7 - Handling and Storage**  
**METHYL-TERT-BUTYL ETHER**

**Handling and Storage Precautions:**

**Other Precautions:**

---

**Section 8 - Exposure Controls & Personal Protection**  
**METHYL-TERT-BUTYL ETHER**

**Respiratory Protection:**

IF ENGINEERING CONTROLS FAIL OR NON-ROUTINE USE OR EMERGENCY OCCURS; USE NIOSH/MSHA APPROVED RESPIRATOR OR SUPPLIED AIR RESPIRATOR OR SCBA, AS REQUIRED. USE IAW 29 CFR 1910.134.

**Ventilation:**

PROVIDE EXPLOSION-PROOF LOCAL EXHAUST VENTILATION TO MAINTAIN EXPOSURE BELOW TLV.

**Protective Gloves:**

BUTYL, PVA

**Eye Protection:** SAFETY GLASSES/CHEMICAL SPLASH GOGGLES

**Other Protective Equipment:** EYE WASH STATION & SAFETY SHOWER.

**Work Hygienic Practices:** WASH HANDS AFTER USE AND BEFORE EATING, DRINKING, OR SMOKING. LAUNDRY CONTAMINATED CLOTHES BEFORE REUSE.

**Supplemental Health & Safety Information:** N/P

---

**Section 9 - Physical & Chemical Properties**  
**METHYL-TERT-BUTYL ETHER**

**HCC:** F3  
**NRC/State License Number:** N/R  
**Net Property Weight for Ammo:** N/R  
**Boiling Point: Boiling Point Text:** 131F,55C  
**Melting/Freezing Point: Melting/Freezing Text:** -164F,-109C  
**Decomposition Point: Decomposition Text:** UNKNOWN  
**Vapor Pressure: UNKNOWN Vapor Density:** UNKNOWN  
**Percent Volatile Organic Content:**  
**Specific Gravity:** 0.7405  
**Volatile Organic Content Pounds per Gallon:**  
**pH:** N/K  
**Volatile Organic Content Grams per Liter:**  
**Viscosity:** N/R  
**Evaporation Weight and Reference:** UNKNOWN  
**Solubility in Water:** MODERATE (4%)  
**Appearance and Odor:** COLORLESS LIQUID  
**Percent Volatiles by Volume:** N/K  
**Corrosion Rate:** UNKNOWN

---

**Section 10 - Stability & Reactivity Data**  
**METHYL-TERT-BUTYL ETHER**

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**Stability Indicator:** YES  
**Materials to Avoid:**  
STRONG MINERAL ACIDS, STRONG ALKALIS.  
**Stability Condition to Avoid:**  
MAY REACT WITH AIR OVER TIME, FORMS UNSTABLE PEROXIDES.  
**Hazardous Decomposition Products:**  
THERMAL DECOMPOSITION MAY RELEASE TOXIC AND/OR HAZARDOUS GASES.  
**Hazardous Polymerization Indicator:** NO  
**Conditions to Avoid Polymerization:**  
NONE

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**Section 11 - Toxicological Information**  
**METHYL-TERT-BUTYL ETHER**

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**Toxicological Information:**  
N/P

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**Section 12 - Ecological Information**  
**METHYL-TERT-BUTYL ETHER**

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**Ecological Information:**  
N/P

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**Section 13 - Disposal Considerations**  
**METHYL-TERT-BUTYL ETHER**

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**Waste Disposal Methods:**  
DISPOSAL MUST BE IN ACCORDANCE WITH STANDARDS APPLICABLE TO GENERATORS OF HAZARDOUS WASTE, 40 CFR 262. EPA/RCRA WASTE NUMBER D001 MAY APPLY TO UNCONTAMINATED/UNUSED MATERIAL. 100 POUND CERCLA SECTION 103

REPORTABLE QUANTITY.

---

**Section 14 - MSDS Transport Information**  
**METHYL-TERT-BUTYL ETHER**

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**Transport Information:**

N/P

---

**Section 15 - Regulatory Information**  
**METHYL-TERT-BUTYL ETHER**

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**SARA Title III Information:**

N/P

**Federal Regulatory Information:**

N/P

**State Regulatory Information:**

N/P

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**Section 16 - Other Information**  
**METHYL-TERT-BUTYL ETHER**

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**Other Information:**

N/P

**HMIS Transportation Information**

**Product Identification:** METHYL-TERT-BUTYL ETHER

**Transportation ID Number:** 7884

**Responsible Party CAGE:** 1B464

**Date MSDS Prepared:** 03/24/1993

**Date MSDS Reviewed:** 06/17/1994

**MFN:** 06/17/1994

**Submitter:** D DG

**Status Code:** C

**Container Information**

**Unit of Issue:** NK

**Container Quantity:** NK

**Type of Container:**

**Net Unit Weight:** UNKNOWN

**Article without MSDS:** N

**Technical Entry NOS Shipping Number:**

**Radioactivity:** N/R

**Form:**

**Net Explosive Weight:** N/R

**Coast Guard Ammunition Code:** N/R

**Magnetism:** N/P

**AF MMAC Code:**

**DOD Exemption Number:** N/R

**Limited Quantity Indicator:**

**Multiple Kit Number:** 0

**Kit Indicator:** N

**Kit Part Indicator:** N  
**Review Indicator:** Y  
**Additional Data:**

**Department of Transportation Information**

**DOT Proper Shipping Name:** METHYL TERT-BUTYL ETHER  
**DOT PSN Code:** JIH  
**Symbols:**  
**DOT PSN Modifier:**  
**Hazard Class:** 3  
**UN ID Number:** UN2398  
**DOT Packaging Group:** II  
**Label:** FLAMMABLE LIQUID  
**Special Provision(s):** B101,T14  
**Packaging Exception:** 150  
**Non Bulk Packaging:** 202  
**Bulk Packaging:** 242  
**Maximum Quantity in Passenger Area:** 5 L  
**Maximum Quantity in Cargo Area:** 60 L  
**Stow in Vessel Requirements:** E  
**Requirements Water/Sp/Other:**

**IMO Detail Information**

**IMO Proper Shipping Name:** METHYL-TERTIARY-BUTYL ETHER  
**IMO PSN Code:** JJT  
**IMO PSN Modifier:**  
**IMDG Page Number:** 3136  
**UN Number:** 2398  
**UN Hazard Class:** 3.1  
**IMO Packaging Group:** II  
**Subsidiary Risk Label:** -  
**EMS Number:** 3-07  
**Medical First Aid Guide Number:** 330

**IATA Detail Information**

**IATA Proper Shipping Name:** METHYL-TERT-BUTYL ETHER  
**IATA PSN Code:** QPS  
**IATA PSN Modifier:**  
**IATA UN Id Number:** 2398  
**IATA UN Class:** 3  
**Subsidiary Risk Class:**  
**UN Packaging Group:** II  
**IATA Label:** FLAMMABLE LIQUID  
**Packaging Note for Passengers:** 305  
**Maximum Quantity for Passengers:** 5L  
**Packaging Note for Cargo:** 307  
**Maximum Quantity for Cargo:** 60L  
**Exceptions:**

**AFI Detail Information**

**AFI Proper Shipping Name:** METHYL-TERT-BUTYL ETHER  
**AFI Symbols:**  
**AFI PSN Code:** QPS

**AFI PSN Modifier:**  
**AFI UN Id Number:** UN2398  
**AFI Hazard Class:** 3  
**AFI Packing Group:** II  
**AFI Label:**  
**Special Provisions:** P5  
**Back Pack Reference:** A7.3

**HAZCOM Label Information**

**Product Identification:** METHYL-TERT-BUTYL ETHER  
**CAGE:** 1B464  
**Assigned Individual:** N  
**Company Name:** FISHER SCIENTIFIC CO. CHEMICAL MFG DIV  
**Company PO Box:**  
**Company Street Address1:** 1 REAGENT LANE  
**Company Street Address2:** FAIR LAWN, NJ 07410-2802 US  
**Health Emergency Telephone:** 201-796-7100  
**Label Required Indicator:** Y  
**Date Label Reviewed:** 06/17/1994  
**Status Code:** C  
**Manufacturer's Label Number:** N/R  
**Date of Label:** 06/17/1994  
**Year Procured:** N/K  
**Organization Code:** F  
**Chronic Hazard Indicator:** Y  
**Eye Protection Indicator:** YES  
**Skin Protection Indicator:** YES  
**Respiratory Protection Indicator:** YES  
**Signal Word:** DANGER  
**Health Hazard:** Moderate  
**Contact Hazard:** Slight  
**Fire Hazard:** Severe  
**Reactivity Hazard:** None

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**Material Safety  
Data Sheets**
**Division of Facilities Services**

## DOD Hazardous Material Information (ANSI Format) For Cornell University Convenience Only

### ISOPROPYL ETHER

Section 1 - Product and Company Identification	Section 9 - Physical & Chemical Properties
Section 2 - Compositon/Information on Ingredients	Section 10 - Stability & Reactivity Data
Section 3 - Hazards Identification Including Emergency Overview	Section 11 - Toxicological Information
Section 4 - First Aid Measures	Section 12 - Ecological Information
Section 5 - Fire Fighting Measures	Section 13 - Disposal Considerations
Section 6 - Accidental Release Measures	Section 14 - MSDS Transport Information
Section 7 - Handling and Storage	Section 15 - Regulatory Information
Section 8 - Exposure Controls & Personal Protection	Section 16 - Other Information

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Cornell University does not in any way warrant or imply the applicability, viability or use of this information to any person or for use in any situation.

### Section 1 - Product and Company Identification ISOPROPYL ETHER

**Product Identification:** ISOPROPYL ETHER

**Date of MSDS:** 11/09/1993 **Technical Review Date:** 10/05/1994

**FSC:** 6810 **NIIN:** 00-990-8910

**Submitter:** F BT

**Status Code:** C

**MFN:** 01

**Article:** N

**Kit Part:** N

**Manufacturer's Information**

**Manufacturer's Name:** FISHER SCIENTIFIC CHEMICAL DIV  
**Post Office Box:** 375  
**Manufacturer's Address1:** 1 REAGENT LN  
**Manufacturer's Address2:** FAIR LAWN, NJ 07410-5000  
**Manufacturer's Country:** US  
**General Information Telephone:** 201-796-7100/201-796-7523  
**Emergency Telephone:** 201-796-7100/201-796-7523  
**Emergency Telephone:** 201-796-7100/201-796-7523  
**MSDS Preparer's Name:** N/P  
**Proprietary:** N  
**Reviewed:** Y  
**Published:** Y  
**CAGE:** 1B464  
**Special Project Code:** N

**Item Description**

**Item Name:** N/A  
**Item Manager:** NK  
**Specification Number:** NK  
**Type/Grade/Class:** NK  
**Unit of Issue:** NK **Quantitative Expression:** NK  
**Unit of Issue Quantity:** NK  
**Type of Container:**

**Preparer Information**

**Preparer's Name:** FISHER SCIENTIFIC CO. CHEMICAL MFG DIV  
**Preparer's Address1:** 1 REAGENT LANE  
**Preparer's Address2:** FAIR LAWN, NJ 07410-2802  
**Preparer's CAGE:** 1B464  
**Assigned Individual:** N

**Contractor Information**

**Contractor's Name:** FISHER SCIENTIFIC CO. CHEMICAL MFG DIV  
**Contractor's Address1:** 1 REAGENT LANE  
**Contractor's Address2:** FAIR LAWN, NJ 07410-2802  
**Contractor's Telephone:** 201-796-7100  
**Contractor's CAGE:** 1B464

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**Section 2 - Compositon/Information on Ingredients**  
**ISOPROPYL ETHER**

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**Ingredient Name:** HYDROQUINONE; 1,4-DIHYDROXYBENZENE; 1,4-BENZENEDIOL  
**Ingredient CAS Number:** 123-31-9 **Ingredient CAS Code:** M  
**RTECS Number:** MX3500000 **RTECS Code:** M  
**=WT: =WT Code:**  
**=Volume: =Volume Code:**

>WT: >WT Code:  
>Volume: >Volume Code:  
<WT: <WT Code:  
<Volume: <Volume Code:  
% Low WT: % Low WT Code:  
% High WT: % High WT Code:  
% Low Volume: % Low Volume Code:  
% High Volume: % High Volume Code:  
% Text: 94  
% Environmental Weight:  
Other REC Limits: N/K  
OSHA PEL: 2 MG/CUM OSHA PEL Code: M  
OSHA STEL: OSHA STEL Code:  
ACGIH TLV: 2 MG/CUM ACGIH TLV Code: M  
ACGIH STEL: N/P ACGIH STEL Code:  
EPA Reporting Quantity: 1 LB  
DOT Reporting Quantity: 1 LB  
Ozone Depleting Chemical: N

**Ingredient Name:** ISOPROPYL ETHER  
**Ingredient CAS Number:** 108-20-3 **Ingredient CAS Code:** M  
**RTECS Number:** TZ5425000 **RTECS Code:** M

=WT: =WT Code:  
=Volume: =Volume Code:  
>WT: >WT Code:  
>Volume: >Volume Code:  
<WT: <WT Code:  
<Volume: <Volume Code:  
% Low WT: % Low WT Code:  
% High WT: % High WT Code:  
% Low Volume: % Low Volume Code:  
% High Volume: % High Volume Code:  
% Text: N/K  
% Environmental Weight:  
Other REC Limits: 250 PPM  
OSHA PEL: N/K OSHA PEL Code: M  
OSHA STEL: OSHA STEL Code:  
ACGIH TLV: 1040 MG/CUM ACGIH TLV Code: M  
ACGIH STEL: N/P ACGIH STEL Code:  
EPA Reporting Quantity:  
DOT Reporting Quantity:  
Ozone Depleting Chemical: N

---

**Section 3 - Hazards Identification, Including Emergency Overview**  
**ISOPROPYL ETHER**

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**Health Hazards Acute & Chronic:** INHALATION: NARCOTIC. 10,000 PPM IMMEDIATELY DANGEROUS TO LIFE/HEALTH. MAY CAUSE IRRITATION. SKIN: MAY CAUSE IRRITATION, BURNS. EYES: MAY CAUSE IRRITATION.

**Signs & Symptoms of Overexposure:**

IRRITATION, SORE THROAT, COUGHING, SHORTNESS OF BREATH, CONJUNCTIVITIS, DEFATTING, DERMATITIS, HEADACHE, VERTIGO, DEPRESSED APPETITE, NAUSEA, VOMITING, NARCOSIS, REDNESS, DEGREASING OF SKIN, PAIN, ABD OMINAL PAIN.

**Medical Conditions Aggravated by Exposure:**

N/K

**LD50 LC50 Mixture:** ORAL LD50 (RAT): 470 MG/KG

**Route of Entry Indicators:**

**Inhalation:** YES

**Skin:** NO

**Ingestion:** YES

**Carcenogenicity Indicators**

**NTP:** NO

**IARC:** NO

**OSHA:** NO

**Carcinogenicity Explanation:** NONE

---

**Section 4 - First Aid Measures**  
**ISOPROPYL ETHER**

---

**First Aid:**

INHALATION: REMOVE TO FRESH AIR/GIVE CPR IF BREATHING HAS STOPPED/KEEP WARM/AT REST. SKIN: WASH W/SOAP/MILD DETERGENT & LARGE AMOUNTS OF WATER FOR 15-20 MINS. EYES: WASH IMMEDIATELY W/LARGE AMOUNTS OF WATER/NORMAL SALINE FOR 15-20 MINS. INGESTION: IF VOMITING OCCURS KEEP HEAD LOWER THAN HIPS TO PREVENT ASPIRATION. TREAT SYMPTOMATTICALLY/SUPPORTIVELY. OBTAIN MEDICAL ATTENTION IN ALL CASES.

---

**Section 5 - Fire Fighting Measures**  
**ISOPROPYL ETHER**

---

**Fire Fighting Procedures:**

WATER MAY BE INEFFECTIVE. MOVE CONTAINER FROM AREA IF POSSIBLE W/O RISK. STAY AWAY FROM ENDS OF TANKS. COOL CONTAINERS W/FLOODING WATER FROM FAR DISTANCE.(SUPP)

**Unusual Fire or Explosion Hazard:**

VAPORS ARE HEAVIER THAN AIR, MAY TRAVEL TO DISTANT IGNITION SOURCE & FLASH BACK. VAPOR-AIR MIXTURES ARE EXPLOSIVE. CONTAINERS MAY RUPTURE VIOLENTLY.

**Extinguishing Media:**

DRY CHEMICAL, CO2, WATER SPRAY, ALCOHOL-RESISTANT FOAM. LARGE: WATER SPRAY/FOG, ALCOHOL RESISTANT FOAM.

**Flash Point:** **Flash Point Text:** -33F

**Autoignition Temperature:**

**Autoignition Temperature Text:** N/A

**Lower Limit(s):** 1.4

**Upper Limit(s):** 21

---

**Section 6 - Accidental Release Measures  
ISOPROPYL ETHER**

---

**Spill Release Procedures:**

SHUT OFF IGNITION SOURCES. STOP LEAK IF POSSIBLE W/O RISK. USE WATER SPRAY TO REDUCE VAPORS. SMALL: TAKE UP W/SAND/OTHER ABSORBENT MATERIAL & PLACE INTO CONTAINERS FOR LATER DISPOSAL. LARGE: DIKE FAR AHEAD FOR LATER DISPOSAL. (SEE SUPP)

---

**Section 7 - Handling and Storage  
ISOPROPYL ETHER**

---

**Handling and Storage Precautions:**

**Other Precautions:**

---

**Section 8 - Exposure Controls & Personal Protection  
ISOPROPYL ETHER**

---

**Respiratory Protection:**

SPECIFIC RESPIRATOR SELECTED MUST BE BASED ON CONTAMINATION LEVELS FOUND IN WORK PLACE, MUST NOT EXCEED WORKING LIMITS OF RESPIRATOR, BE JOINTLY APPROVED BY NIOSH & MSHA.

**Ventilation:**

LOCAL EXHAUST. EQUIPMENT MUST BE EXPLOSION PROOF.

**Protective Gloves:**

APPROPRIATE

**Eye Protection:** SPLASH PROOF SAFETY GOGGLES

**Other Protective Equipment:** DUST RESISTANT SAFETY GOGGLES, IMPERVIOUS CLOTHING, EMERGENCY EYE WASH.

**Work Hygienic Practices:** REMOVE/LAUNDER CONTAMINATED CLOTHING & SHOES BEFORE REUSE.

**Supplemental Health & Safety Information:** MELTING POINT: -125F TO -76F. SPILL PROCEDURES CONT'D: NO SMOKING/FLAMES/FLARES IN HAZARD AREA.

EVACUATE/ISOLATE AREA. SPECIAL FIRE CONT'D: USE UNMANNED HOSE HOLDER/MONITOR NOZZLES FOR MASSIVE FIRE IN CARGO AREA. ISOLATE AREA FOR 1/2 MILE IN ALL DIRECTIONS IF TANK/RAIL CAR/TANK TRUCK IS INVOLVED IN FIRE. KEEP UPWIND.

---

**Section 9 - Physical & Chemical Properties  
ISOPROPYL ETHER**

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**HCC:**

**NRC/State License Number:**

**Net Property Weight for Ammo:**

**Boiling Point: Boiling Point Text:** 154-156F

**Melting/Freezing Point: Melting/Freezing Text:** (SEE SUPP)

**Decomposition Point: Decomposition Text:** N/K  
**Vapor Pressure:** 119-130 **Vapor Density:** 3.52  
**Percent Volatile Organic Content:**  
**Specific Gravity:** 0.7241-0.7258  
**Volatile Organic Content Pounds per Gallon:**  
**pH:** N/K  
**Volatile Organic Content Grams per Liter:**  
**Viscosity:** N/P  
**Evaporation Weight and Reference:** (BU AC=1): 8  
**Solubility in Water:** 0.2%  
**Appearance and Odor:** CLEAR, COLORLESS, VOLATILE LIQUID W/A SHARP/SWEET  
ETHEREAL ODOR  
**Percent Volatiles by Volume:** 100  
**Corrosion Rate:** N/K

---

**Section 10 - Stability & Reactivity Data**  
**ISOPROPYL ETHER**

---

**Stability Indicator:** YES  
**Materials to Avoid:**  
ACIDS, CHLOROSULFONIC ACID, NITRIC ACID, STRONG OXIDIZERS & PROPIONYL  
CHLORIDE.  
**Stability Condition to Avoid:**  
HEAT, SPARKS, FLAMES, OTHER SOURCES OF IGNITION, LIGHT.  
**Hazardous Decomposition Products:**  
TOXIC OXIDES OF CARBON.  
**Hazardous Polymerization Indicator:** NO  
**Conditions to Avoid Polymerization:**  
N/K

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**Section 11 - Toxicological Information**  
**ISOPROPYL ETHER**

---

**Toxicological Information:**  
N/P

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**Section 12 - Ecological Information**  
**ISOPROPYL ETHER**

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**Ecological Information:**  
N/P

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**Section 13 - Disposal Considerations**  
**ISOPROPYL ETHER**

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**Waste Disposal Methods:**  
DISPOSE OF IAW/FEDERAL, STATE & LOCAL REGULATIONS.EPA HAZARDOUS WASTE  
NUMBER D001, D003.

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**Section 14 - MSDS Transport Information**  
**ISOPROPYL ETHER**

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**Transport Information:**

N/P

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**Section 15 - Regulatory Information**  
**ISOPROPYL ETHER**

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**SARA Title III Information:**

N/P

**Federal Regulatory Information:**

N/P

**State Regulatory Information:**

N/P

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**Section 16 - Other Information**  
**ISOPROPYL ETHER**

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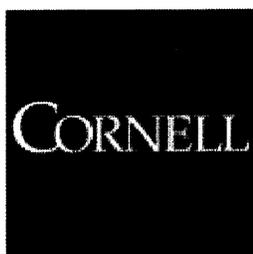
**Other Information:**

N/P

**HAZCOM Label Information****Product Identification:** ISOPROPYL ETHER**CAGE:** 1B464**Assigned Individual:** N**Company Name:** FISHER SCIENTIFIC CO. CHEMICAL MFG DIV**Company PO Box:****Company Street Address1:** 1 REAGENT LANE**Company Street Address2:** FAIR LAWN, NJ 07410-2802 US**Health Emergency Telephone:** 201-796-7100/201-796-7523**Label Required Indicator:** Y**Date Label Reviewed:** 12/16/1998**Status Code:** C**Manufacturer's Label Number:****Date of Label:** 12/16/1998**Year Procured:** N/K**Organization Code:** G**Chronic Hazard Indicator:** N/P**Eye Protection Indicator:** N/P**Skin Protection Indicator:** N/P**Respiratory Protection Indicator:** N/P**Signal Word:** N/P**Health Hazard:****Contact Hazard:****Fire Hazard:****Reactivity Hazard:**

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**Material Safety  
Data Sheets**

**Division of Facilities Services**

**DOD Hazardous Material Information (ANSI Format)  
For Cornell University Convenience Only**

**ETHYLENE BROMIDE, E173I 500**

<u>Section 1 - Product and Company Identification</u>	<u>Section 9 - Physical &amp; Chemical Properties</u>
<u>Section 2 - Composition/Information on Ingredients</u>	<u>Section 10 - Stability &amp; Reactivity Data</u>
<u>Section 3 - Hazards Identification Including Emergency Overview</u>	<u>Section 11 - Toxicological Information</u>
<u>Section 4 - First Aid Measures</u>	<u>Section 12 - Ecological Information</u>
<u>Section 5 - Fire Fighting Measures</u>	<u>Section 13 - Disposal Considerations</u>
<u>Section 6 - Accidental Release Measures</u>	<u>Section 14 - MSDS Transport Information</u>
<u>Section 7 - Handling and Storage</u>	<u>Section 15 - Regulatory Information</u>
<u>Section 8 - Exposure Controls &amp; Personal Protection</u>	<u>Section 16 - Other Information</u>

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**Section 1 - Product and Company Identification  
ETHYLENE BROMIDE, E173I 500**

**Product Identification:** ETHYLENE BROMIDE, E173I 500

**Date of MSDS:** 05/13/1995 **Technical Review Date:** 02/09/1998

**FSC:** 6810 **NIIN:** LIIN: 00N082767

**Submitter:** N EN

**Status Code:** C

**MFN:** 01

**Article:** N

**Kit Part:** N

**Manufacturer's Information**

**Manufacturer's Name:** FISHER SCIENTIFIC  
**Manufacturer's Address1:** 1 REAGENT LANE  
**Manufacturer's Address2:** FAIR LAWN, NJ 07410  
**Manufacturer's Country:** US  
**General Information Telephone:** 201-796-7100  
**Emergency Telephone:** 201-796-7100;800-424-9300(CHEMTREC)  
**Emergency Telephone:** 201-796-7100;800-424-9300(CHEMTREC)  
**MSDS Preparer's Name:** N/P  
**Proprietary:** N  
**Reviewed:** N  
**Published:** Y  
**CAGE:** 1B464  
**Special Project Code:** N

**Contractor Information**

**Contractor's Name:** FISHER SCIENTIFIC CO. CHEMICAL MFG DIV  
**Contractor's Address1:** 1 REAGENT LANE  
**Contractor's Address2:** FAIR LAWN, NJ 07410-2802  
**Contractor's Telephone:** 201-796-7100  
**Contractor's CAGE:** 1B464

---

**Section 2 - Compositon/Information on Ingredients**  
**ETHYLENE BROMIDE, E173I 500**

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**Ingredient Name:** ETHANE, 1,2-DIBROMO-; (ETHYLENE DIBROMIDE) (SARA 313) (CERCLA)  
**Ingredient CAS Number:** 106-93-4 **Ingredient CAS Code:** M  
**RTECS Number:** KH9275000 **RTECS Code:** M  
**=WT: =WT Code:**  
**=Volume: =Volume Code:**  
**>WT: >WT Code:**  
**>Volume: >Volume Code:**  
**<WT: <WT Code:**  
**<Volume: <Volume Code:**  
**% Low WT: % Low WT Code:**  
**% High WT: % High WT Code:**  
**% Low Volume: % Low Volume Code:**  
**% High Volume: % High Volume Code:**  
**% Text:** 100  
**% Enviromental Weight:**  
**Other REC Limits:** N/K  
**OSHA PEL:** 20 PPM; Z-2 **OSHA PEL Code:** M  
**OSHA STEL: OSHA STEL Code:**  
**ACGIH TLV:** S; A2; 9495 **ACGIH TLV Code:** M  
**ACGIH STEL: N/P ACGIH STEL Code:**  
**EPA Reporting Quantity:** 1 LB  
**DOT Reporting Quantity:** 1 LB  
**Ozone Depleting Chemical:** N

---

**Section 3 - Hazards Identification, Including Emergency Overview**  
**ETHYLENE BROMIDE, E173I 500**

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**Health Hazards Acute & Chronic:** EYE: CAUSES SEV EYE IRRIT. MAY RSLT IN CORNEAL INJURY. SKIN: CAUSES SEV SKIN IRRIT. HARMFUL IF ABSORBED THRU SKIN. MAY CAUSE SKIN BURNS. INGEST: HARMFUL IF SWALLOWED. CAUSES GI IRRIT W/NAUS, VOMIT & D IARR. MAY CAUSE SYSTEMIC TOX W/ACIDOSIS. MAY CAUSE EFTS SIMILAR TO THOSE FOR INHAL EXPOS. INHAL: (EFTS OF OVEREXP)

**Signs & Symptoms of Overexposure:**

HLTH HAZ: EFTS MAY BE DELAYED. INHAL OF HIGH CONCS MAY CAUSE CNS EFTS CHARACTERIZED BY HDCH, DIZZ, UNCONSCIOUSNESS & COMA. IRRIT MAY LEAD TO CHEM PNEUMIT & PULM EDEMA. MAY CAUSE LIVER & KIDNEY DMG. MA Y CAUSE HEART DISTURB, POSSIBLY LEADINGTO CARDIAC ARREST & DEATH. MAY CAUSE LUNG DMG. CHRONIC: MAY CAUSE (SUPDAT)

**Medical Conditions Aggravated by Exposure:**

NONE SPECIFIED BY MANUFACTURER.

**LD50 LC50 Mixture:** LD50 (ORAL, RAT): 108 MG/KG

**Route of Entry Indicators:**

**Inhalation:** YES

**Skin:** YES

**Ingestion:** YES

**Carcenogenicity Indicators**

**NTP:** YES

**IARC:** YES

**OSHA:** YES

**Carcinogenicity Explanation:** ETHYLENE DIBROMIDE:IARC MONO, SUPP, VOL 7, PG 204, 1987:GRP 2A. NTP 7TH ANNUAL RPT ON CARCINS 1994:ANTIC TO BE CARCIN.

---

**Section 4 - First Aid Measures**  
**ETHYLENE BROMIDE, E173I 500**

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**First Aid:**

EYES:IMMED FLUSH W/PLENTY OF H\*2O FOR AT LEAST 15 MIN, OCCAS LIFTING THE UPPER & LOWER LIDS. GET MED AID IMMED. SKIN:GET MED AID. IMMED FLUSH SKIN W/PLENTY OF SOAP & H\*2O FOR AT LEAST 15 MIN WHILE REM OIVING CONTAM CLTHG & SHOES. INGEST:IF VICTIM IS CONSCIOUS & ALERT, GIVE 2-4 CUPFULS OF MILD/H\*2O. GET MED AID IMMED. INDUCE VOMIT BY GIVING ONE TEASPOON OF SYRUP OF IPECAC. INHAL: (SUPDAT)

---

**Section 5 - Fire Fighting Measures**  
**ETHYLENE BROMIDE, E173I 500**

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**Fire Fighting Procedures:**

USE NIOSH APPROVED SCBA & FULL PROTECTIVE EQUIPMENT (FP N). SUBSTANCE IS

NONCOMBUSTIBLE.

**Unusual Fire or Explosion Hazard:**

NONE SPECIFIED BY MANUFACTURER.

**Extinguishing Media:**

USE EXTINGUISHING MEDIA MOST APPROPRIATE FOR THE SURROUNDING FIRE.

**Flash Point: Flash Point Text:** NOT APPLICABLE

**Autoignition Temperature:**

**Autoignition Temperature Text:** N/A

**Lower Limit(s):** N/K

**Upper Limit(s):** N/K

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**Section 6 - Accidental Release Measures**  
**ETHYLENE BROMIDE, E173I 500**

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**Spill Release Procedures:**

WEAR A SELF CONTAINED BREATHING APPARATUS AND APPROPRIATE PERSONAL PROTECTION (SEE EXPOSURE CONTROLS, PERSONAL PROTECTION SECTION). ABSORB SPILL USING AN ABSORBENT, NON-COMBUSTIBLE MATERIAL SUCH AS EARTH, SAND, OR VERMICULITE. CAREFULLY SCOOP.

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**Section 7 - Handling and Storage**  
**ETHYLENE BROMIDE, E173I 500**

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**Handling and Storage Precautions:**

**Other Precautions:**

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**Section 8 - Exposure Controls & Personal Protection**  
**ETHYLENE BROMIDE, E173I 500**

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**Respiratory Protection:**

FOLLOW THE OSHA RESPIRATOR REGULATIONS FOUND IN 29CFR 1010.134. ALWAYS USE A NIOSH-APPROVED RESPIRATOR WHEN NECESSARY.

**Ventilation:**

USE ADEQUATE GENERAL OR LOCAL EXHAUST VENTILATION TO KEEP AIRBORNE CONCENTRATIONS BELOW THE PERMISSIBLE EXPOSURE LIMITS.

**Protective Gloves:**

IMPERVIOUS GLOVES (FP N).

**Eye Protection:** ANSI APPROVED CHEM WORKERS GOGGLES (FP N).

**Other Protective Equipment:** ANSI APPROVED EMER EYE WASH & DELUGE SHOWER (FP N). WEAR APPROPRIATE PROTECTIVE CLOTHING TO PREVENT SKIN EXPOSURE.

**Work Hygienic Practices:** WASH THOROUGHLY AFTER HANDLING. REMOVE CONTAMINATED CLOTHING AND WASH BEFORE REUSE.

**Supplemental Health & Safety Information:** MATLS TO AVOID: LIQUID AMMONIA, LIGHT. EFTS OF OVEREXP: FETAL EFTS. MAY CAUSE CANCER IN HUMANS. TARGET ORGANS: KIDNEYS, HEART, CNS, LIVER, RESP SYS. FIRST AID PROC: REMOVE FROM EXPOS TO FRESH AIR IMMED. IF NOT BRTHG, GIVE ARTF RESP. GET MED AID. NOTES TO MD: TREAT SYMPTOMATICALLY & SUPPORTIVELY. NO SPECIFIC ANTIDOTE EXISTS.

---

**Section 9 - Physical & Chemical Properties**  
**ETHYLENE BROMIDE, E173I 500**

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**HCC:****NRC/State License Number:****Net Property Weight for Ammo:****Boiling Point: Boiling Point Text:** 268F,131C**Melting/Freezing Point: Melting/Freezing Text:** 48.4F,9.1C**Decomposition Point: Decomposition Text:** N/K**Vapor Pressure: 11 @ 20C Vapor Density:** 6.5**Percent Volatile Organic Content:****Specific Gravity:** 2.17 (H\*2O = 1)**Volatile Organic Content Pounds per Gallon:****pH:** N/K**Volatile Organic Content Grams per Liter:****Viscosity:** N/P**Evaporation Weight and Reference:** 1.0 (BUTYL ACETATE = 1)**Solubility in Water:** 4 G/L (20C) IN WATER**Appearance and Odor:** CLEAR, COLORLESS, VISCOUS LIQUID; SWEET, CHLOROFORM-LIKE ODOR.**Percent Volatiles by Volume:** N/K**Corrosion Rate:** N/K

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**Section 10 - Stability & Reactivity Data**  
**ETHYLENE BROMIDE, E173I 500**

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**Stability Indicator:** YES**Materials to Avoid:**

METALS (ALUMINUM, MAGNESIUM, ZINC, CALCIUM, SODIUM, &amp; POTASSIUM), STRONG ALKALIS, STRONG OXIDIZING AGENTS, (SUPDAT)

**Stability Condition to Avoid:**

INCOMPATIBLE MATERIALS, EXPOSURE TO LIGHT AND/OR HEAT IN THE PRESENCE OR WATER (INCLUDING MOIST AIR).

**Hazardous Decomposition Products:**

CARBON MONOXIDE, CARBON DIOXIDE, HYDROGEN BROMIDE.

**Hazardous Polymerization Indicator:** NO**Conditions to Avoid Polymerization:**NOT RELEVANT.

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**Section 11 - Toxicological Information**  
**ETHYLENE BROMIDE, E173I 500**

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**Toxicological Information:**N/P

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**Section 12 - Ecological Information**  
**ETHYLENE BROMIDE, E173I 500**

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**Ecological Information:**N/P

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**Section 13 - Disposal Considerations**  
**ETHYLENE BROMIDE, E173I 500**

---

**Waste Disposal Methods:**

DISPOSAL MUST BE IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL REGULATIONS (FP N).

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**Section 14 - MSDS Transport Information**  
**ETHYLENE BROMIDE, E173I 500**

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**Transport Information:**

N/P

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**Section 15 - Regulatory Information**  
**ETHYLENE BROMIDE, E173I 500**

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**SARA Title III Information:**

N/P

**Federal Regulatory Information:**

N/P

**State Regulatory Information:**

N/P

---

**Section 16 - Other Information**  
**ETHYLENE BROMIDE, E173I 500**

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**Other Information:**

N/P

**HAZCOM Label Information**

**Product Identification:** ETHYLENE BROMIDE, E173I 500

**CAGE:** 1B464

**Assigned Individual:** N

**Company Name:** FISHER SCIENTIFIC CO. CHEMICAL MFG DIV

**Company PO Box:**

**Company Street Address1:** 1 REAGENT LANE

**Company Street Address2:** FAIR LAWN, NJ 07410-2802 US

**Health Emergency Telephone:** 201-796-7100;800-424-9300(CHEMTREC)

**Label Required Indicator:** Y

**Date Label Reviewed:** 02/10/1998

**Status Code:** C

**Manufacturer's Label Number:**

**Date of Label:** 02/10/1998

**Year Procured:** N/K

**Organization Code:** G

**Chronic Hazard Indicator:** Y

**Eye Protection Indicator:** YES

**Skin Protection Indicator:** YES

**Respiratory Protection Indicator:** YES

**Signal Word:** DANGER

**Health Hazard:** Severe

**Contact Hazard:** Severe

**Fire Hazard:** Slight

**Reactivity Hazard:** None

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**Material Safety  
Data Sheets**

Division of Facilities Services

## DOD Hazardous Material Information (ANSI Format) For Cornell University Convenience Only

### XYLENES

Section 1 - Product and Company Identification	Section 9 - Physical & Chemical Properties
Section 2 - Composition/Information on Ingredients	Section 10 - Stability & Reactivity Data
Section 3 - Hazards Identification Including Emergency Overview	Section 11 - Toxicological Information
Section 4 - First Aid Measures	Section 12 - Ecological Information
Section 5 - Fire Fighting Measures	Section 13 - Disposal Considerations
Section 6 - Accidental Release Measures	Section 14 - MSDS Transport Information
Section 7 - Handling and Storage	Section 15 - Regulatory Information
Section 8 - Exposure Controls & Personal Protection	Section 16 - Other Information

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### Section 1 - Product and Company Identification XYLENES

**Product Identification:** XYLENES

**Date of MSDS:** 02/27/1997 **Technical Review Date:** 10/26/1998

**FSC:** 6810 **NIIN:** 01-169-7800

**Submitter:** D DG

**Status Code:** A

**MFN:** 01

**Article:** N

**Kit Part:** N

**Manufacturer's Information**

**Manufacturer's Name:** FISHER SCIENTIFIC, CHEMICAL DIV.  
**Manufacturer's Address1:** 1 REAGENT LANE  
**Manufacturer's Address2:** FAIR LAWN, NJ 07410  
**Manufacturer's Country:** US  
**General Information Telephone:** 201-796-7100 OR 201-796-7523  
**Emergency Telephone:** 201-796-7100/800-424-9300(CHEMTREC)  
**Emergency Telephone:** 201-796-7100/800-424-9300(CHEMTREC)  
**MSDS Preparer's Name:** N/P  
**Proprietary:** N  
**Reviewed:** Y  
**Published:** Y  
**CAGE:** 1B464  
**Special Project Code:** N

**Item Description**

**Item Name:** XYLENE,ACS  
**Item Manager:**  
**Specification Number:** N/R  
**Type/Grade/Class:** N/R  
**Unit of Issue:**  
**Unit of Issue Quantity:**  
**Type of Container:** BOTTLE

**Contractor Information**

**Contractor's Name:** FISHER SCIENTIFIC CO. CHEMICAL MFG DIV  
**Contractor's Address1:** 1 REAGENT LANE  
**Contractor's Address2:** FAIR LAWN, NJ 07410-2802  
**Contractor's Telephone:** 201-796-7100  
**Contractor's CAGE:** 1B464

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**Section 2 - Composition/Information on Ingredients**  
**XYLENES**

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**Ingredient Name:** XYLENES (O-,M-,P- ISOMERS) (SARA 313) (CERCLA)  
**Ingredient CAS Number:** 1330-20-7 **Ingredient CAS Code:** M  
**RTECS Number:** ZE2100000 **RTECS Code:** M  
**=WT: =WT Code:**  
**=Volume: =Volume Code:**  
**>WT: >WT Code:**  
**>Volume: >Volume Code:**  
**<WT: <WT Code:**  
**<Volume: <Volume Code:**  
**% Low WT: % Low WT Code:**  
**% High WT: % High WT Code:**  
**% Low Volume: % Low Volume Code:**  
**% High Volume: % High Volume Code:**  
**% Text:** 100

**% Environmental Weight:****Other REC Limits:** NONE RECOMMENDED**OSHA PEL:** 100 PPM **OSHA PEL Code:** M**OSHA STEL:** **OSHA STEL Code:****ACGIH TLV:** 100 PPM/150STEL;9596 **ACGIH TLV Code:** M**ACGIH STEL:** N/P **ACGIH STEL Code:****EPA Reporting Quantity:** 1000 LBS**DOT Reporting Quantity:** 1000 LBS**Ozone Depleting Chemical:** N

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**Section 3 - Hazards Identification, Including Emergency Overview**  
**XYLENES**

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**Health Hazards Acute & Chronic:** EYE-CAUSES SEVERE EYE IRRITATION. SKIN-MAY CAUSE IRRITATION. INGESTION-MAY CAUSE CENTRAL NERVOUS SYSTEM EFFECTS. INHALATION-INHALATION OF HIGH CONCENTRATIONS MAY CAUSE CENTRAL NERVOUS SYSTEM EFFECTS. CHRONIC: PERMANENT BRAIN AND NERVOUS SYSTEM DAMAGE.

**Signs & Symptoms of Overexposure:**

SKIN-REDNESS, DRYNESS & INFLAMMATION. INGESTION-HEADACHE, EXCITEMENT, FATIGUE, NAUSEA, VOMITING, STUPOR & COMA. INHALATION-HEADACHE, DIZZINESS, UNCONSCIOUSNESS & COMA.

**Medical Conditions Aggravated by Exposure:**

NONE SPECIFIED BY MANUFACTURER.

**LD50 LC50 Mixture:** ORAL LD50 (RAT) IS 13 MG/L/24HRS

**Route of Entry Indicators:****Inhalation:** YES**Skin:** YES**Ingestion:** YES**Carcinogenicity Indicators****NTP:** NO**IARC:** NO**OSHA:** NO

**Carcinogenicity Explanation:** THIS SUBSTANCE HAS CAUSED ADVERSE REPRODUCTIVE & FETAL EFFECTS IN ANIMALS.

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**Section 4 - First Aid Measures**  
**XYLENES**

---

**First Aid:**

EYES-IMMEDIATELY FLUSH WITH PLENTY OF WATER FOR 15 MIN, GET MEDICAL AID. SKIN-IMMEDIATELY FLUSH SKIN WITH PLENTY OF SOAP & WATER. GET MEDICAL AID IF IRRITATION DEVELOPS. INGEST-DO NOT INDUCE VOMITING. IF CONSCIOUS & ALERT, GIVE 2-4 CUPS OF MILK OR WATER. GET MEDICAL AID. INHALATION-GET MEDICAL AID

IMMEDIATELY. REMOVE FROM EXPOSURE TO FRESH AIR. PERFORM CPR OR GIVE OXYGEN IF BREATHING IS DIFFICULT.

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### Section 5 - Fire Fighting Measures XYLENES

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**Fire Fighting Procedures:**

AS IN ANY FIRE, WEAR A SELF-CONTAINED BREATHING APPARATUS IN PRESSURE-DEMAND. MSHA/NIOSH & FULL PROTECTIVE GEAR.

**Unusual Fire or Explosion Hazard:**

VAPORS MAY TRAVEL TO A SOURCE OF IGNITION AND FLASH BACK.

**Extinguishing Media:**

FOR SMALL FIRES, USE DRY CHEMICAL, CARBON DIOXIDE, WATER SPRAY OR ALCOHOL-RESISTANT FOAM. USE WATER TO COOL EXPOSED CONT

**Flash Point:** Flash Point Text: 76.0F,24.4C

**Autoignition Temperature:**

Autoignition Temperature Text: 527C

Lower Limit(s): 1.0

Upper Limit(s): 7.0

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### Section 6 - Accidental Release Measures XYLENES

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**Spill Release Procedures:**

ABSORB SPILL WITH INERT MATERIAL, THEN PLACE INTO A CHEMICAL WASTE CONTAINER. REMOVE ALL SOURCES OF IGNITION.

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### Section 7 - Handling and Storage XYLENES

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**Handling and Storage Precautions:**

**Other Precautions:**

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### Section 8 - Exposure Controls & Personal Protection XYLENES

---

**Respiratory Protection:**

A NIOSH/MSHA APPROVED AIR PURIFYING RESPIRATOR WITH AN ORGANIC VAPOR CARTRIDGE OR CANISTER MAY BE PERMISSIBLE UNDER CERTAIN CIRCUMSTANCES WHERE AIRBORNE CONCENTRATIONS ARE EXPECTED.

**Ventilation:**

USE ADEQUATE GENERAL OR LOCAL EXHUAST VENTILATION TO KEEP AIRBORNE CONCENTRATIONS BELOW THE PERMISSIBLE EXPOSURE LIMITS.

**Protective Gloves:**

WEAR PROTECTIVE GLOVES.

**Eye Protection:** WEAR SAFETY GLASSES/CHEMICAL GOGGLES.

**Other Protective Equipment:** WEAR APPROPRIATE PROTECTIVE CLOTHING TO MINIMIZE CONTACT WITH SKIN.

**Work Hygenic Practices:** WASH THOROUGHLY AFTER HANDLING.  
**Supplemental Health & Safety Information:** N/P

---

**Section 9 - Physical & Chemical Properties**  
**XYLENES**

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**HCC:** F4  
**NRC/State License Number:** N/R  
**Net Property Weight for Ammo:** N/R  
**Boiling Point: Boiling Point Text:** 282-288F  
**Melting/Freezing Point: Melting/Freezing Text:** -53F,-47C  
**Decomposition Point: Decomposition Text:** N/K  
**Vapor Pressure:** 21 MMHG **Vapor Density:** 3.66  
**Percent Volatile Organic Content:**  
**Specific Gravity:** 0.864  
**Volatile Organic Content Pounds per Gallon:**  
**pH:** N/K  
**Volatile Organic Content Grams per Liter:**  
**Viscosity:** N/R6 SUS  
**Evaporation Weight and Reference:** 0.6  
**Solubility in Water:** INSOLUBLE  
**Appearance and Odor:** LIQUID. COLORLESS. AROMATIC ODOR.  
**Percent Volatiles by Volume:** N/K  
**Corrosion Rate:** N/K

---

**Section 10 - Stability & Reactivity Data**  
**XYLENES**

---

**Stability Indicator:** YES  
**Materials to Avoid:**  
STRONG ACIDS, STRONG OXIDIZERS AND 1,3-DICHLORO-5,5-DIMETHYL-2,4-  
IMIDAZOLIDINDIONE.  
**Stability Condition to Avoid:**  
HIGH TEMPERATURES, INCOMPATIBLE MATERIALS, IGNITION SOURCES.  
**Hazardous Decomposition Products:**  
CARBON MONOXIDE, CARBON DIOXIDE.  
**Hazardous Polymerization Indicator:** NO  
**Conditions to Avoid Polymerization:**  
NONE.

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**Section 11 - Toxicological Information**  
**XYLENES**

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**Toxicological Information:**  
N/P

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**Section 12 - Ecological Information**  
**XYLENES**

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**Ecological Information:**  
N/P

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**Section 13 - Disposal Considerations**  
**XYLENES**

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**Waste Disposal Methods:**

DISPOSE OF IN A MANNER CONSISTENT WITH LOCAL, STATE AND FEDERAL REGULATIONS. DOT: XYLENES, 3, UN 1307.

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**Section 14 - MSDS Transport Information**  
**XYLENES**

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**Transport Information:**

N/P

---

**Section 15 - Regulatory Information**  
**XYLENES**

---

**SARA Title III Information:**

N/P

**Federal Regulatory Information:**

N/P

**State Regulatory Information:**

N/P

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**Section 16 - Other Information**  
**XYLENES**

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**Other Information:**

N/P

**HMIS Transportation Information**

**Product Identification:** XYLENES

**Transportation ID Number:** 112761

**Responsible Party CAGE:** 1B464

**Date MSDS Prepared:** 02/27/1997

**Date MSDS Reviewed:** 10/26/1998

**MFN:** 10/26/1998

**Submitter:** D DG

**Status Code:** A

**Container Information**

**Unit of Issue:**

**Container Quantity:**

**Type of Container:** BOTTLE

**Net Unit Weight:** 1 LBS

**Article without MSDS:** N

**Technical Entry NOS Shipping Number:**

**Radioactivity:** N/R

**Form:**

**Net Explosive Weight:** N/R

**Coast Guard Ammunition Code:** N/R

**Magnetism:** N/P

**AF MMAC Code:** NR  
**DOD Exemption Number:** N/R  
**Limited Quantity Indicator:**  
**Multiple Kit Number:** 0  
**Kit Indicator:** N  
**Kit Part Indicator:** N  
**Review Indicator:** Y  
**Additional Data:**

#### **Department of Transportation Information**

**DOT Proper Shipping Name:** XYLENES  
**DOT PSN Code:** PWS  
**Symbols:**  
**DOT PSN Modifier:**  
**Hazard Class:** 3  
**UN ID Number:** UN1307  
**DOT Packaging Group:** III  
**Label:** FLAMMABLE LIQUID  
**Special Provision(s):** B1,T1  
**Packaging Exception:** 150  
**Non Bulk Packaging:** 203  
**Bulk Packaging:** 242  
**Maximum Quantity in Passenger Area:** 60 L  
**Maximum Quantity in Cargo Area:** 220 L  
**Stow in Vessel Requirements:** A  
**Requirements Water/Sp/Other:**

#### **IMO Detail Information**

**IMO Proper Shipping Name:** XYLENES  
**IMO PSN Code:** PPF  
**IMO PSN Modifier:**  
**IMDG Page Number:** 3394  
**UN Number:** 1307  
**UN Hazard Class:** 3.3  
**IMO Packaging Group:** III  
**Subsidiary Risk Label:** -  
**EMS Number:** 3-07  
**Medical First Aid Guide Number:** 310

#### **IATA Detail Information**

**IATA Proper Shipping Name:** XYLENES  
**IATA PSN Code:** ZPL  
**IATA PSN Modifier:**  
**IATA UN Id Number:** 1307  
**IATA UN Class:** 3  
**Subsidiary Risk Class:**  
**UN Packaging Group:** III  
**IATA Label:** FLAMMABLE LIQUID  
**Packaging Note for Passengers:** 309  
**Maximum Quantity for Passengers:** 60L  
**Packaging Note for Cargo:** 310  
**Maximum Quantity for Cargo:** 220L

**Exceptions:****AFI Detail Information****AFI Proper Shipping Name:** XYLENES**AFI Symbols:****AFI PSN Code:** ZPL**AFI PSN Modifier:****AFI UN Id Number:** UN1307**AFI Hazard Class:** 3**AFI Packing Group:** III**AFI Label:****Special Provisions:** P5**Back Pack Reference:** A7.3**HAZCOM Label Information****Product Identification:** XYLENES**CAGE:** 1B464**Assigned Individual:** N**Company Name:** FISHER SCIENTIFIC CO. CHEMICAL MFG DIV**Company PO Box:****Company Street Address1:** 1 REAGENT LANE**Company Street Address2:** FAIR LAWN, NJ 07410-2802 US**Health Emergency Telephone:** 201-796-7100/800-424-9300(CHEMTREC)**Label Required Indicator:** Y**Date Label Reviewed:** 10/26/1998**Status Code:** C**Manufacturer's Label Number:** N/R**Date of Label:** 10/26/1998**Year Procured:** N/K**Organization Code:** F**Chronic Hazard Indicator:** Y**Eye Protection Indicator:** YES**Skin Protection Indicator:** YES**Respiratory Protection Indicator:** YES**Signal Word:** DANGER**Health Hazard:** Severe**Contact Hazard:** Slight**Fire Hazard:** Moderate**Reactivity Hazard:** None

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**Material Safety  
Data Sheets**

Division of Facilities Services

**DOD Hazardous Material Information (ANSI Format)  
For Cornell University Convenience Only**

**LEAD METAL**

Section 1 - Product and Company Identification	Section 9 - Physical & Chemical Properties
Section 2 - Composition/Information on Ingredients	Section 10 - Stability & Reactivity Data
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**Section 1 - Product and Company Identification  
LEAD METAL**

**Product Identification:** LEAD METAL

**Date of MSDS:** 08/08/1985 **Technical Review Date:** 10/31/1988

**FSC:** 6810 NIIN: LIIN: 00N010366

**Submitter:** N EN

**Status Code:** C

**MFN:** 01

**Article:** N

**Kit Part:** N

**Manufacturer's Information**

**Manufacturer's Name:** MALLINCKRODT INC,SCIENCE PRODUCTS DIVISION  
**Post Office Box:** M  
**Manufacturer's Address1:**  
**Manufacturer's Address2:** PARIS, KY 40361  
**Manufacturer's Country:** NK  
**General Information Telephone:** 314-982-5000  
**Emergency Telephone:** 314-982-5000  
**Emergency Telephone:** 314-982-5000  
**MSDS Preparer's Name:** N/P  
**Proprietary:** N  
**Reviewed:** Y  
**Published:** Y  
**CAGE:** 62910  
**Special Project Code:** N

**Contractor Information**

**Contractor's Name:** MALLINCKRODT SPECIALTY CHEMICALS CO  
**Contractor's Address1:** 222 RED SCHOOL LANE  
**Contractor's Address2:** PHILLIPSBURG, NJ 08865  
**Contractor's Telephone:** 908-859-2151  
**Contractor's CAGE:** 62910

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**Section 2 - Compositon/Information on Ingredients**  
**LEAD METAL**

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**Ingredient Name:** LEAD (SARA III)  
**Ingredient CAS Number:** 7439-92-1 **Ingredient CAS Code:** M  
**RTECS Number:** OF7525000 **RTECS Code:** M  
**=WT: =WT Code:**  
**=Volume: =Volume Code:**  
**>WT: >WT Code:**  
**>Volume: >Volume Code:**  
**<WT: <WT Code:**  
**<Volume: <Volume Code:**  
**% Low WT: % Low WT Code:**  
**% High WT: % High WT Code:**  
**% Low Volume: % Low Volume Code:**  
**% High Volume: % High Volume Code:**  
**% Text:** N/K  
**% Enviromental Weight:**  
**Other REC Limits:** N/K (FP N/ORNL)  
**OSHA PEL:** 0.05 MG/M3;1910.1025 **OSHA PEL Code:** M  
**OSHA STEL: OSHA STEL Code:**  
**ACGIH TLV:** 0.15 MG/M3;DUST 9192 **ACGIH TLV Code:** M  
**ACGIH STEL: N/P ACGIH STEL Code:**  
**EPA Reporting Quantity:** 1 LB  
**DOT Reporting Quantity:** 1 LB  
**Ozone Depleting Chemical:** N

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**Section 3 - Hazards Identification, Including Emergency Overview**  
**LEAD METAL**

---

**Health Hazards Acute & Chronic:** LEAD IS A CUMULATIVE POISON & EXPOSURE EVEN TO SMALL AMOUNTS CAN RAISE THE BODY'S CONTENT TO TOXIC LEVELS.SYMPTOMS OF CHRONIC EXPOSURE ARE LIKE THOSE OF INGESTION POISONING;RESTLESSNESS AND IRRITABILITY MAY ALSO BE NOTED.

**Signs & Symptoms of Overexposure:**

EYES:IRRIT & ABRASION.ABSORPTION THROUGH EYE IS POSS.SKIN:IRRIT & REDNESS.MAY BE ABSORBED ON PROLONGED EXPOS CAUSING SYMP LIKE INGEST.INGEST:ABDOM PAIN & SPASMS,NAUSEA,VOM,HEADACHE.ACUTE POISONING-MUSCLE WEAK,"LEAD LINE" ON GUMS,METALLIC TASTE,LOSS OF APPETITE,INSOMNIA,DIZZ,HIGH LEAD LEVELS IN BLOOD & URINE, (SEE SUPP)

**Medical Conditions Aggravated by Exposure:**

PERSONS WITH PRE-EXISTING NERVE OR CIRCULATORY DISORDERS OR WITH SKIN OR EYE PROBLEMS MAY BE MORE SUSCEPTIBLE TO THE EFFECTS OF THIS DISEASE.

**LD50 LC50 Mixture:** N/K

**Route of Entry Indicators:**

**Inhalation:** N/P

**Skin:** N/P

**Ingestion:** N/P

**Carcinogenicity Indicators**

**NTP:** NO

**IARC:** YES

**OSHA:** NO

**Carcinogenicity Explanation:** INORGANIC LEAD & LEAD COMPOUNDS:INAD EVID FOR CARCIN IN HUM;SUFF EVID FOR CARCIN IN ANIM (IARC 1987).

---

**Section 4 - First Aid Measures**  
**LEAD METAL**

---

**First Aid:**

EYES:WASH WITH PLENTY OF WATER FOR AT LEAST 15 MIN.CALL MD.SKIN:WASH EXPOSED AREA WITH SOAP AND WATER. GET MEDICAL ADVICE IF IRRIT DEVELOPS.INGEST:INDUCE VOMITING IMMEDIATELY BY GIVING 2 GLASSES OF WATER AND STICKING FINGER DOWN THROAT.CALL MD IMMEDIATELY.NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON.INHALATION:REMOVE TO FRESH AIR.GET MEDICAL ATTENTION FOR ANY BREATHING DIFFICULTY.

---

**Section 5 - Fire Fighting Measures**  
**LEAD METAL**

---

**Fire Fighting Procedures:**

USE NIOSH/MSHA APPROVED SCBA AND FULL PROTECTIVE EQUIPMENT (FP N).

**Unusual Fire or Explosion Hazard:**

NOT CONSIDERED TO BE A FIRE OR EXPLOSION HAZARD. HAZ DECOMP PROD: CAN PRODUCE TOXIC LEAD FUMES AND LEAD OXIDE FUMES AT ELEVATED TEMPERATURES.

**Extinguishing Media:**

USE ANY MEANS SUITABLE FOR EXTINGUISHING SURROUNDING FIRE.

**Flash Point:** Flash Point Text: N/K (FP N/ORNL)

**Autoignition Temperature:**

**Autoignition Temperature Text:** N/A

**Lower Limit(s):** N/K (FP N)

**Upper Limit(s):** N/K (FP N)

---

**Section 6 - Accidental Release Measures**  
**LEAD METAL**

---

**Spill Release Procedures:**

CLEAN-UP PERSONNEL NEED PROT CLOTHING AND RESP EQUIP FOR DUSTS. SWEEP, SCOOP, OR PICK UP MATL. VACUUMING/WET SWEEPING MAY AVOID DUST DISPERSAL. PACKAGE FOR RECLAMATION OR RECOVERY. PACKAGE UNRECLAIMABLE MAT L FOR DISPOSAL IN RCRA APPROVED WASTE FACILITY.

---

**Section 7 - Handling and Storage**  
**LEAD METAL**

---

**Handling and Storage Precautions:**

**Other Precautions:**

---

**Section 8 - Exposure Controls & Personal Protection**  
**LEAD METAL**

---

**Respiratory Protection:**

NIOSH/MSHA APPROVED RESPIRATOR APPROPRIATE FOR EXPOSURE OF CONCERN (FP N).

**Ventilation:**

LOCAL AND GENERAL VENTILATION NECESSARY TO KEEP AIR CONCENTRATION BELOW TLV (FP N/ORNL).

**Protective Gloves:**

WEAR IMPERVIOUS GLOVES.

**Eye Protection:** CHEMICAL WORKERS GOGGLES (FP N).

**Other Protective Equipment:** WEAR IMPERVIOUS PROTECTIVE CLOTHING, INCLUDING BOOTS, LAB COAT, APRON OR COVERALLS TO PREVENT SKIN CONTACT.

**Work Hygienic Practices:** WASH THOROUGHLY AFTER HANDLING.

**Supplemental Health & Safety Information:** VP: 1.77 MMHG @ 1000C (1832F). SIGNS & SYMP: WITH SHOCK, COMA, & DEATH IN EXTREME CASES. INHAL: IRRIT OF BRONCHI & LUNGS. ACUTE EXPOS-METALLIC TASTE, CHEST & ABDOMINAL PAIN, & INCREASED LEAD BLOOD LEVELS. ABSORPTION THROUGH RESPIRATORY SYSTEM IS

POSSIBLE. OTHER PREC: TO SUCH AREAS SHOULD BE LIMITED TO AUTHORIZED PERSONS.

---

**Section 9 - Physical & Chemical Properties**  
**LEAD METAL**

---

**HCC:**

**NRC/State License Number:**

**Net Property Weight for Ammo:**

**Boiling Point: Boiling Point Text:** 1740C

**Melting/Freezing Point: Melting/Freezing Text:** 327.5C

**Decomposition Point: Decomposition Text:** N/K (FP N)

**Vapor Pressure: SEE SUPP Vapor Density:** N/K

**Percent Volatile Organic Content:**

**Specific Gravity:** 11.34 (WATER=1)

**Volatile Organic Content Pounds per Gallon:**

**pH:** N/K

**Volatile Organic Content Grams per Liter:**

**Viscosity:** N/P

**Evaporation Weight and Reference:** N/K

**Solubility in Water:** INSOLUBLE

**Appearance and Odor:** SMALL, BLUE-GRAY, ODORLESS GRANULES.

**Percent Volatiles by Volume:** N/K

**Corrosion Rate:** N/K

---

**Section 10 - Stability & Reactivity Data**  
**LEAD METAL**

---

**Stability Indicator:** YES

**Materials to Avoid:**

AMMONIUM NITRATE, CHLORINE TRIFLUORIDE, HYDROGEN PEROXIDE.

**Stability Condition to Avoid:**

STABLE UNDER ORDINARY CONDITIONS OF USE AND STORAGE.

**Hazardous Decomposition Products:**

DOES NOT DECOMPOSE BUT TOXIC LEAD OR LEAD OXIDE FUMES MAY FORM AT ELEVATED TEMPERATURES.

**Hazardous Polymerization Indicator:** NO

**Conditions to Avoid Polymerization:**

WILL NOT OCCUR.

---

**Section 11 - Toxicological Information**  
**LEAD METAL**

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**Toxicological Information:**

N/P

---

**Section 12 - Ecological Information**  
**LEAD METAL**

---

**Ecological Information:**

N/P

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**Section 13 - Disposal Considerations**  
**LEAD METAL**

---

**Waste Disposal Methods:**

DISPOSAL MUST BE IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL REGULATIONS (FP N).

---

**Section 14 - MSDS Transport Information**  
**LEAD METAL**

---

**Transport Information:**

N/P

---

**Section 15 - Regulatory Information**  
**LEAD METAL**

---

**SARA Title III Information:**

N/P

**Federal Regulatory Information:**

N/P

**State Regulatory Information:**

N/P

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**Section 16 - Other Information**  
**LEAD METAL**

---

**Other Information:**

N/P

**HMIS Transportation Information**

**Product Identification:** LEAD METAL

**Transportation ID Number:** 16978

**Responsible Party CAGE:** 62910

**Date MSDS Prepared:** 08/08/1985

**Date MSDS Reviewed:** 08/29/1989

**MFN:** 08/29/1989

**Submitter:** N TN

**Status Code:** C

**Container Information**

**Unit of Issue:** NK

**Container Quantity:** NK

**Type of Container:**

**Net Unit Weight:**

**Article without MSDS:** N

**Technical Entry NOS Shipping Number:**

**Radioactivity:**

**Form:**

**Net Explosive Weight:**

**Coast Guard Ammunition Code:**

**Magnetism:** N/P

**AF MMAC Code:**  
**DOD Exemption Number:** N/R  
**Limited Quantity Indicator:**  
**Multiple Kit Number:** 0  
**Kit Indicator:** N  
**Kit Part Indicator:** N  
**Review Indicator:** Y  
**Additional Data:**  
NOT REGULATED FOR SHIPMENT.

#### **Department of Transportation Information**

**DOT Proper Shipping Name:** NOT REGULATED BY THIS MODE OF TRANSPORTATION  
**DOT PSN Code:** ZZZ  
**Symbols:** N/R  
**DOT PSN Modifier:**  
**Hazard Class:** N/R  
**UN ID Number:** N/R  
**DOT Packaging Group:** N/R  
**Label:** N/R  
**Special Provision(s):** N/R  
**Packaging Exception:** N/R  
**Non Bulk Packaging:** N/R  
**Bulk Packaging:** N/R  
**Maximum Quantity in Passenger Area:** N/R  
**Maximum Quantity in Cargo Area:** N/R  
**Stow in Vessel Requirements:** N/R  
**Requirements Water/Sp/Other:** N/R

#### **IMO Detail Information**

**IMO Proper Shipping Name:** NOT REGULATED FOR THIS MODE OF TRANSPORTATION  
**IMO PSN Code:** ZZZ  
**IMO PSN Modifier:**  
**IMDG Page Number:** N/R  
**UN Number:** N/R  
**UN Hazard Class:** N/R  
**IMO Packaging Group:** N/R  
**Subsidiary Risk Label:** N/R  
**EMS Number:** N/R  
**Medical First Aid Guide Number:** N/R

#### **IATA Detail Information**

**IATA Proper Shipping Name:** NOT REGULATED BY THIS MODE OF TRANSPORTATION  
**IATA PSN Code:** ZZZ  
**IATA PSN Modifier:**  
**IATA UN Id Number:** N/R  
**IATA UN Class:** N/R  
**Subsidiary Risk Class:** N/R  
**UN Packaging Group:** N/R  
**IATA Label:** N/R  
**Packaging Note for Passengers:** N/R  
**Maximum Quantity for Passengers:** N/R  
**Packaging Note for Cargo:** N/R  
**Maximum Quantity for Cargo:** N/R

**Exceptions:** N/R

**AFI Detail Information**

**AFI Proper Shipping Name:** NOT REGULATED BY THIS MODE OF TRANSPORTATION

**AFI Symbols:**

**AFI PSN Code:** ZZZ

**AFI PSN Modifier:**

**AFI UN Id Number:** N/R

**AFI Hazard Class:** N/R

**AFI Packing Group:** N/R

**AFI Label:** N/R

**Special Provisions:** N/A

**Back Pack Reference:** N/A

**HAZCOM Label Information**

**Product Identification:** LEAD METAL

**CAGE:** 62910

**Assigned Individual:** N

**Company Name:** MALLINCKRODT SPECIALTY CHEMICALS CO

**Company PO Box:**

**Company Street Address1:** 222 RED SCHOOL LANE

**Company Street Address2:** PHILLIPSBURG, NJ 08865 US

**Health Emergency Telephone:** 314-982-5000

**Label Required Indicator:** Y

**Date Label Reviewed:** 12/16/1998

**Status Code:** C

**Manufacturer's Label Number:**

**Date of Label:** 12/16/1998

**Year Procured:** N/K

**Organization Code:** G

**Chronic Hazard Indicator:** N/P

**Eye Protection Indicator:** N/P

**Skin Protection Indicator:** N/P

**Respiratory Protection Indicator:** N/P

**Signal Word:** N/P

**Health Hazard:**

**Contact Hazard:**

**Fire Hazard:**

**Reactivity Hazard:**

---

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**ATTACHMENT C**

**SAFETY PROCEDURES/FIELD OPERATING PROCEDURES**

**(FLD OPs)**

**PLEASE SEE THE SAFETY OFFICER FIELD MANUAL ON-SITE, IF  
ADDITIONAL OPERATING PROCEDURES ARE NEEDED.**

## **ATTACHMENT D**

### **SITE-SPECIFIC HAZARD COMMUNICATION PROGRAM**

# SITE-SPECIFIC HAZARD COMMUNICATION PROGRAM

## Location-Specific Hazard Communication Program/Checklist

To ensure an understanding of and compliance with the Hazard Communication Standard, WESTON will use this checklist/document (or similar document) in conjunction with the WESTON Written Hazard Communication Program as a means of meeting site- or location-specific requirements.

While responsibility for activities within this document reference the WESTON Safety Officer (SO), it is the responsibility of all personnel to effect compliance. Responsibilities under various conditions can be found within the WESTON Written Hazard Communication Program.

To ensure that information about the dangers of all hazardous chemicals used by WESTON are known by all affected employees, the following Hazard Communication Program has been established. All affected personnel will participate in the Hazard Communication Program. This written program, as well as WESTON's Corporate Hazard Communication Program, will be available for review by any employee, employee representative, representative of OSHA, NIOSH, or any affected employer/employee on a multi-employer site.

- Site or other location name/address: Benjamin F. Tompkins Property, Parcel #8, Encee Chemical Property, Parcel #27, Parcel #42, Phillips Plating Property, Parcel #47, Parcel #53, Parcel #64, EJ Pope & Sons Property, Parcel #74
- Site/Project/Location Manager: Steve Brown
- Site/Location Safety Officer: Tara Rowland
- List of chemicals compiled, format:  HASP  Other: \_\_\_\_\_
- Location of MSDS files: Attachment B of HASP
- Training conducted by: Name: \_\_\_\_\_ Date: \_\_\_\_\_
- Indicate format of training documentation:  Field Log:  Other: \_\_\_\_\_
- Client briefing conducted regarding hazard communication: \_\_\_\_\_
- If multi-employer site (client, subcontractor, agency, etc.), indicate name of affected companies: \_\_\_\_\_
- Other employer(s) notified of chemicals, labeling, and MSDS information: \_\_\_\_\_
- Has WESTON been notified of other employer's or client's hazard communication program(s), as necessary?  Yes  No

## List of Hazardous Chemicals

A list of known hazardous chemicals used by WESTON personnel must be prepared and attached to this document or placed in a centrally identified location with the MSDSs. Further information on each chemical may be obtained by reviewing the appropriate MSDS. The list will be arranged to enable cross-reference with the MSDS file and the label on the container. The SO or Location Manager is responsible for ensuring the chemical listing remains up-to-date.

## Container Labeling

The WESTON SO will verify that all containers received from the chemical manufacturer, importer, or distributor for use on-site are clearly labeled.

The SO is responsible for ensuring that labels are placed where required and for comparing MSDSs and other information with label information to ensure correctness.

### ***Material Safety Data Sheets (MSDSs)***

The SO is responsible for establishing and monitoring WESTON's MSDS program for the location. The SO will ensure that procedures are developed to obtain the necessary MSDSs and will review incoming MSDSs for new or significant health and safety information. He/she will see that any new information is passed on to the affected employees. If an MSDS is not received at the time of initial shipment, the SO will call the manufacturer and have an MSDS delivered for that product in accordance with the requirements of WESTON's Written Hazard Communication Program.

A log for, and copies of, MSDSs for all hazardous chemicals in use will be kept in the MSDS folder at a location known to all site workers. MSDSs will be readily available to all employees during each work shift. If an MSDS is not available, immediately contact the WESTON SO or the designated alternate. When a revised MSDS is received, the SO will immediately replace the old MSDS.

### ***Employee Training and Information***

The SO is responsible for the WESTON site-specific personnel training program. The SO will ensure that all program elements specified below are supplied to all affected employees.

At the time of initial assignment for employees to the work site, or whenever a new hazard is introduced into the work area, employees will attend a health and safety meeting or briefing that includes the information indicated below.

- Hazardous chemicals present at the work site.
- Physical and health risks of the hazardous chemicals.
- The signs and symptoms of overexposure.
- Procedures to follow if employees are overexposed to hazardous chemicals.
- Location of the MSDS file and Written Hazard Communication Program.
- How to determine the presence or release of hazardous chemicals in the employee's work area.
- How to read labels and review MSDSs to obtain hazard information.
- Steps WESTON has taken to reduce or prevent exposure to hazardous chemicals.
- How to reduce or prevent exposure to hazardous chemicals through the use of controls procedures, work practices, and personal protective equipment.
- Hazardous, nonroutine tasks to be performed (if any).
- Chemicals within unlabeled piping (if any).

### ***Hazardous Nonroutine Tasks***

When employees are required to perform hazardous nonroutine tasks, the affected employee(s) will be given information by the SO about the hazardous chemicals he or she may use during such activity. This information will include specific chemical hazards, protective and safety measures the employee can use, and steps WESTON is using to reduce the hazards. These steps include, but are not limited to, ventilation, respirators, presence of another employee, and emergency procedures.

### ***Chemicals in Unlabeled Pipes***

Work activities may be performed by employees in areas where chemicals are transferred through unlabeled pipes. Prior to starting work in these areas, the employee will contact the SO, at which time information as to the chemical(s) in the pipes, potential hazards of the chemicals or the process involved, and the safety precautions that should be taken will be determined and presented.

### ***Multi-Employer Work Sites***

It is the responsibility of the SO to provide other employers with information about hazardous chemicals imported by WESTON to which their employees may be exposed, along with suggested safety precautions. It is also the responsibility of the SO and the Site Manager to obtain information about hazardous chemicals used by other employers to which WESTON employees may be exposed. WESTON's chemical listing will be made available to other employers, as requested. MSDSs will be available for viewing, as necessary.

The location, format, and/or procedures for accessing MSDS information must be relayed to affected employees.

**ATTACHMENT E**

**AIR SAMPLING PROGRAM DATA SHEETS**

**SITE AIR MONITORING PROGRAM**

**Field Data Sheets**

**Location:**

% LEL	% O <sub>2</sub>	PID (units)	FID (units)	Aerosol Monitor (mg/m <sup>3</sup> )	GM: Shield Probe/Thin Window		Nal (uR/hr)	ZnS (cpm)
					mR/hr	cpm		
<b>Monitox (ppm)</b>				<b>Detector Tube(s)</b>				
<b>Sound Levels (dBA)</b>	<b>Illumination</b>	<b>pH</b>	<b>Other</b>	<b>Other</b>	<b>Other</b>	<b>Other</b>	<b>Other</b>	<b>Other</b>

**Location:**

% LEL	% O <sub>2</sub>	PID (units)	FID (units)	Aerosol Monitor (mg/m <sup>3</sup> )	GM: Shield Probe/Thin Window		Nal (uR/hr)	ZnS (cpm)
					mR/hr	cpm		
<b>Monitox (ppm)</b>				<b>Detector Tube(s)</b>				
<b>Sound Levels (dBA)</b>	<b>Illumination</b>	<b>pH</b>	<b>Other</b>	<b>Other</b>	<b>Other</b>	<b>Other</b>	<b>Other</b>	<b>Other</b>



## **ATTACHMENT F**

## **EHS CHECKLIST**

**EHS ANALYSIS CHECKLIST-WESTON FIELD OPERATIONS**

This form is to be completed prior to task implementation (and modified during implementation if significant changes occur) to verify that hazards have been identified and that appropriate protection is determined and utilized. This form is additionally to be used as a daily and as necessary training tool. This form (or a copy of same) is to be posted for workers to observe and then filed upon completion of task.

Site Manager/EHS Officer: <b>Steve Brown/Bill Groeber</b> Project: <b>NC DOT</b> Project Number: <b>13052.001.001.0014</b> Date: <b>1 November 2004</b> Location: <b>RAL</b>	Task Description: <b>Soil borings utilizing Geo Probe. Collect soil samples and groundwater samples. Perform Slug test</b>	Task Team (name or reference via daily sign-in sheet) <b>Steve Brown, Ed Mackey, Lori Skidmore, Ethan Caldwell, Tara Rowland, Greg Ford</b>
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Comments: This project requires no or limited site visits.

HAZARDS IDENTIFIED (check those applicable)						
	Chemical	Biological	Physical	Aerial lifts	Remote Areas	
✓	Flammable/combustible	Insects	Noise	Man. Material Handling	Materials handling	
	Corrosive	Animals	Heat	Demolition	High Pressure Washers	
	Oxidizer	Plants	Cold	Excavation	Hand and Power Tools	
	Reactive	Mold/Fungus	Inclement Weather	Pile Driving	Low Illumination	
✓	Toxic	Viral/Bacterial	Hot Work	Welding/Cutting/Burn	Drilling & Boring	
✓	Inhalation		Confined Spaces	Hot Surfaces	Striking against/Struck-by	
✓	Eyes/Skin	<b>Radiological</b>	Stored hazardous Energy	Hot Materials	Caught-in/Caught between	
	Pesticides	Ultra-Violet	Elevation	Rough Terrain	Pushing/pulling	
✓	Carcinogen	Sunlight	Utilities	Compressed Gases	Falls at same level	
	Asbestos	Infrared	Machinery	Hazardous Mat. Storage	Falls from elevation	
	Lead	Lasers	Mobile equipment	Diving	Repetitive motion	
	UXO/OE/CWM	XRF	Cranes	Operation and Use of Boats	High (>110v) Electricity	
	Process Safety	Density Gauges	Manual Material Handling	Working Over Water	Slippery surface Ice/Snow	
	Applying Paint/Coatings	Isotopes	Ladders	Traffic		
			Scaffolding	Site Security		

REQUIRED PROTECTION (check those applicable)						
	Engineering Controls	Trained/Certified	Air Purifying Respirator	Level A	Diving/SCUBA	
	Guard Rails	Hot Work Permit	Hard Hat	CWM	Diving/Surface Supplied	
	Machine Guards	CSE Permit	Ear Plugs	Safety Shoes/Boots	Reflection vests	
	Sound Barriers	Lockout/Tag Out	Ear Muffs	Rubber Boots	Contingency	
	Enclosure	Work Permit	Safety Glasses	Gloves	Emergency Signal Known	
	Elevation	Dig Safe Permit	Goggles	Gloves	Eye wash/shower Location	
	Isolation	Contingency Plan	Chemical Goggles	Gloves	First Aid Kit Location	
	GFCI	Critical Lift Plans	Face Shield	Cooling Suits	Fire Extinguisher Location	
	Assured Ground Program	Equip. Inspection Sheets	Thermal Shield	Ice Vests	Spill Kit Location	
	Apply Anti-slip/skid Mat		Welding Mask	Radiant heat Suits	Severe weather shelter	
	Administrative Control	<b>PPE</b>	Cutting Glasses	Fall Arrest	Evacuation Routes	
	Qualified for task	Air Supplying Respirator	Cotton Coverall	PFD		
✓		SCBA	Tyvek Coveralls	Electrical insulation		
			Coated Coveralls	Welding Leathers		

Any Modification to Tasks (list) \_\_\_\_\_ Other tasks or activities that may affect my activity \_\_\_\_\_ Reasons for any changes indicated above \_\_\_\_\_

**EHS ANALYSIS CHECKLIST-WESTON FIELD OPERATIONS**

This form is to be completed prior to task implementation (and modified during implementation if significant changes occur) to verify that hazards have been identified and that appropriate protection is determined and utilized. This form is additionally to be used as a daily and as necessary training tool. This form (or a copy of same) is to be posted for workers to observe and then filed upon completion of task.

***Environmental Compliance Considerations:***

No	Generation of Hazardous Waste*	* = Environmental Compliance/Waste Management Plan Required
No	Generation of Investigation Derived Waste*	
No	Treatment, Storage, or Disposal of Hazardous Waste*	
No	Contingency to prevent or contain hazardous materials or oil spills or discharges to drains, body of water, soil*	
No	Disturbing of Asbestos Containing Materials (ACM)*	
No	Application of Pesticides or Herbicides*	
No	Work on Above or Under-ground Storage Tanks*	
No	Transportation, Storage or Disposal of Radioactive Material*	
No	Activities producing or generating Air Emissions (or fugitive "fence-line" emissions) requiring either monitoring and/or permit*	
YES	Excavations, Drilling, Probing or other activities that could impact underground utilities, pipelines, sewer or treatment systems.	Contacted One-Call. Will hand auger 3 feet at each location
No	Shipment of Hazardous Waste off-site* Shipment of Samples in accordance with DOT/IATA	

CSM\_Steve Brown \_\_\_\_\_ Date \_\_\_\_\_  
 Print Name Signature

## **APPENDIX B: GEOPHYSICAL REPORT**

**Weston Solutions, Inc.**

**GEOPHYSICAL SURVEYS  
FOR THE  
DETECTION OF METALLIC UST'S**

**US 17 From Mills Street to SR1433  
Craven County  
Bridgeton, North Carolina**

**TIP No. R-3403A  
WBS Element 34538.1.1**

December 13, 2004  
Geophysical Survey Investigations Project No. 2004-276



**Weston Solutions, Inc.**  
**GEOPHYSICAL SURVEYS FOR THE DETECTION OF METALLIC UST'S**  
**Craven County, Bridgeton, North Carolina**

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## **1.0 INTRODUCTION**

Geophysical Survey Investigations (GSI) conducted geophysical investigations for Weston Solutions, Inc. on November 15-17, and December 3-4, 2004, within the Right-of-Way (ROW) areas at 11 sites in Bridgeton, North Carolina. The work was done under the North Carolina Department of Transportation (NCDOT) reference numbers TIP No. R-34031 and WBS Element No. 34538. The sites are located along the eastern and western sides of US 17, from Mills Street to one-eight mile north of Antioch Street (SR 1433). The geophysical surveys were conducted to determine if unknown metallic underground storage tanks (UST's) were present beneath the ROW area of each site.

Weston Solution's representative Mr. Steven Brown, provided site maps to GSI during the week of November 3, 2004 that outlined the geophysical survey areas of each site. Geophysical surveys were conducted at the following 11 sites:

- Benjamin F. Tompkins Property
- Charles Freeman Property (Parcel 8)
- Encee Chemical Sales Property
- Jimmie and Joyce Sawyer Property (Parcel 27)
- Joselyn Ipock Property (Parcel 42)
- Phillips Plating Property
- Dewey Frazier Property (Parcel 47)
- William and Juanita Register Property (Parcel 53)
- W. J. Gaskins Jr. Property (Parcel 64)
- E.J. Pope & Sons Property (Handy Mart No. 44)
- Graham Dixion Property (Parcel 74)

Photos of each site are shown in Figures 1 and 2. Prior to conducting the geophysical investigations, a 10-foot by 10-foot survey grid was established across the ROW area of the 11 sites on November 8-10, 2004, using water-based marking paint. These marks were used as X-Y coordinates for location control when collecting the geophysical data and establishing base maps for the geophysical results.

## **2.0 FIELD METHODOLOGY**

The geophysical investigations were conducted by GSI geophysicist, Mr. Mark Denil, P.G., and consisted of electromagnetic (EM) induction-metal detection surveys and ground penetrating radar (GPR) surveys. The EM surveys were performed on November 15-17, 2004 using a Geonics EM61-MK1 metal detection instrument. According to the manufactures specifications, the EM61 can detect a metal drum down to a maximum depth of approximately 8 feet. Much of the EM61 data were digitally collected at each site along northwest-southeast trending (parallel to US 17) survey lines spaced 2.5 feet apart. The data were downloaded to a computer and reviewed in the office using the Geonics DAT61W and Surfer for Windows Version 7.0 software programs.

Contour plots of the EM61 bottom coil results and the differential results for each site are included in this report. The bottom coil results represent the most sensitive component of the EM61 instrument and detect metal objects regardless of size. The bottom coil response can be used to delineate metal conduits or lines, small, isolated metal objects, and areas containing insignificant metal debris.

The differential results are obtained from the difference between the top and bottom coils of the EM61 instrument. The differential results focus on the larger metal objects such as drums and UST's and ignore the smaller insignificant metal objects.

GPR surveys were conducted across selected EM61 differential anomalies, using a GSSI SIR-2000 unit equipped with a 400 MHz antenna. Surveys were also performed across several areas where parked vehicles that obstructed the EM61 survey had since been removed. GPR data were digitally collected in a continuous mode along X and/or Y survey lines, spaced two to five feet apart using a vertical scan of 512 samples, at a rate of 16 scans per second. A 110 MHz high pass filter and an 800 MHz low pass filter were used during data acquisition with the 400 MHz antenna. GPR data were collected down to a maximum depth of approximately eight feet, based on an estimated two-way travel time of 6 nanoseconds per foot. Calibration of the two-way travel time was conducted across two of the probable UST's located within the ROW area of the Register property.

The GPR data were downloaded to a field computer and later reviewed in the office using Radan for Windows Version 5.0 software. The GPR survey areas are shown as dashed, purple rectangles or dashed, purple lines in each of the contour plots. Photos of the EM61 and GPR instruments are shown in Figure 3. The perimeters of possible UST's and septic tanks, based on the geophysical results, were marked and labeled in the field using orange, water-based marking paint and pin flags.

On November 29, 2004, preliminary contour plots of the EM61 bottom coil and the differential results were emailed to Mr. Steven Brown and Ms. Tara Rowland. A second set of preliminary plots of the sites that may contain UST's within the ROW areas, based upon the GPR results, were sent to Mr. Brown and Ms. Rowland on December 6, 2004.

### **3.0 DISCUSSION OF RESULTS**

#### **3.1 Benjamin F. Tompkins Property**

The Tompkins property is located at 813 US 17 and contains several businesses including the Sisters Two Draperies Store, Hairmaster Barber Shop and the Furniture Emporium. The ROW area at this site consists primarily of an asphalt-covered parking area. The geophysical investigation was also conducted within the ROW area of the grass-covered lot that lies between the Furniture Emporium building and West Hickory Street.

EM61 data were collected along 28 northwest-southeast trending survey lines having a maximum length of 330 feet and covering approximately 23,100 square feet (0.53 acres). The bottom coil results and the differential results are presented in Figures 4 and 5, respectively. The majority of EM61 anomalies shown in the plots are probably in response to known cultural features such as the remediation and monitoring wells, cable boxes and signs.

GPR surveys conducted across the EM differential anomaly centered near X=55 Y=60, suggest the presence of three UST's buried approximately 2.5 feet below surface. The probable UST's appear to be approximately 10 feet long and 4.5 feet wide and orientated in a northerly-southerly direction.

GPR image of Line X=56, which intersects the three UST's and a photo showing the approximate location of the probable UST's are shown in Figure 6.

GPR surveys conducted across the EM differential anomaly centered near X=100 Y=55, suggest the presence of four UST's buried within the depth interval of 1.3 to 2.5 feet below surface. The probable UST's appear to have dimensions of approximately 10 to 12 feet by 4.5 feet and aligned in an easterly-westerly orientation. GPR image of Line Y=60, which intersects the two eastern UST is presented in Figure 6.

The differential anomaly centered near X=65 Y=45, may be in response to conduits, product lines or utility lines. The remaining portion of the ROW at the Tompkins property does not appear to contain metallic UST's.

### **3.2 Charles Freeman Property (Parcel 8)**

The Freeman property is located northwest of the Tompkins property and along the northwest corner of the US 17 and West Hickory Road intersection, at 404 West Hickory Street. The Salon 901 shop operates on this parcel in which the ROW area consists primarily of an asphalt-covered parking lot. A grass yard lies in the northern portion of the property.

EM61 data were collected along 25 northwest-southeast trending survey lines having a maximum length of 160 feet and covering approximately 9,600 square feet (0.22 acres). The bottom coil results and the differential results are presented in Figures 7 and 8, respectively. The majority of EM anomalies are probably in response to monitoring wells and other known cultural features. The linear anomaly intersecting coordinates X=480 Y=25, is probably in response to a portion of a utility line or culvert.

GPR surveys conducted across the EM differential anomalies centered near X=398 Y=38, suggest the anomalies may be in response to conduits and miscellaneous metal debris. The geophysical results suggest that the ROW area at the Freeman property does not contain metallic UST's.

### **3.3 Encee Chemical Sales Property**

The Encee Chemical property is located along the east side of US 17 at 1102 North US 17 and manufactures products for concrete and agricultural uses. The ROW area consists primarily of gravel and asphalt surfaces along the southern portion of the property and a grass yard along the northern portion of the property.

EM61 data were collected along 35 northwest-southeast trending survey lines having a maximum length of 465 feet and covering approximately 41,850 square feet (0.96 acres). The bottom coil results and the differential results are presented in Figures 9 and 10, respectively. The bottom coil results suggest the presence of randomly scattered, miscellaneous, metal debris across the central portion of the survey area. Similarly, the large bottom coil anomalies located around the concrete sidewalk that runs along X=311, may also be in response to miscellaneous metal objects and debris.

GPR surveys conducted across the linear differential anomaly intersecting X=380 Y=90, suggest that the large anomaly is possibly in response to a conduit(s), utility line(s) and/or miscellaneous metal debris. GPR images of Lines Y=115 and Y=80, which intersect the linear EM anomaly, are shown in Figure 11. The geophysical results suggest that the surveyed portion of the ROW area at the Encee Chemical Sales property does not contain metallic UST's.

### **3.4 Jimmie and Joyce Sawyer Property (Parcel 27)**

The Sawyer property is located along the west side of US 17 at 1305 N. US 17. The property contains two vacant mobile homes, a carpenter shop, a Mom-e & Mee Thrift store, and a residence located in the southern, central and northern portions of the property, respectively. The ROW area consists primarily of a gravel surface along US 17 and grass yards along the side and back portions of the property. A known UST is centered near coordinates X=253 Y=134, and is partially beneath a metal carport. Due to the carport and boat position over the UST, geophysical surveys could not be conducted to determine the orientation, depth, and size of the known UST.

EM61 data were collected along northwest-southeast and northeast-southwest trending survey lines of varying lengths that covered an area of approximately 34,500 square feet (0.79 acres). The bottom coil results and the differential results are presented in Figures 12 and 13, respectively. The majority of EM anomalies are probably in response to the buildings, mobile homes, vehicles and other cultural features.

GPR surveys conducted across the EM differential anomaly centered near grid coordinates X=111 Y=120, suggest the anomaly is probably in response to a septic tank or possibly a UST. The probable septic tank or UST is approximately 11 feet long and 4 to 5 feet wide and is buried less than one foot below surface. GPR images of Lines Y=121 and X=111, which run across the EM anomaly, are presented in Figure 14. GPR data also suggest that several conduits buried approximately one foot below surface may lie adjacent to the tank or UST.

GPR surveys across the EM differential anomaly centered near X=199 Y=125, (adjacent to the air condition unit) may be in response to another septic tank having similar dimensions and burial depth as the aforementioned septic tank. The linear EM anomaly that runs westward from the probable septic tank may be in response to a conduit or drain line. Initial field evaluation of the GPR data across this anomaly was inconclusive and the approximate perimeter of the possible tank was not marked in the field.

GPR data collected across the EM differential anomaly centered near X=289 Y=76, suggest the presence of a septic tank buried less than 0.5 feet below surface. The probable septic tank appears to be approximately 11 feet long and 5 feet wide. With the exception of the known UST beneath the carport and the aforementioned probable septic tanks or UST's, the geophysical results suggest that the remaining portion of the ROW at the Sawyer property does not appear to contain metallic UST's.

### **3.5 Joselyn Ipock Property (Parcel 42)**

The Ipock property is located along the west side of US 17 at 1503 US 17 and consists of an abandoned business building with a former pump island area in front of the building. Asphalt

pavement covers the eastern portion of the property along US 17 and a grass yard encompasses the sides and back portions of the property.

EM61 data were collected along 42 northwest-southeast trending survey lines having a maximum length of 230 feet and covering approximately 20,600 square feet (0.47 acres). The linear bottom coil results and the differential results are presented in Figures 15 and 16, respectively. The linear bottom coil anomalies intersecting coordinates X=93 Y=95, X=112 Y=96, and X=126 Y=97, are probably in response to buried septic-related conduits. The two linear anomalies intersecting the pump island area may be in response to buried conduits, portions of product lines, and/or utility lines.

GPR data acquired across the differential anomalies located beneath the canopy did not suggest the presence of metallic UST's. The geophysical results suggest that the ROW area at the Ipock property does not contain metallic UST's.

### **3.6 Phillips Plating Property**

The Phillips Plating property is an active metal plating facility located along the west side of US 17 at 1705 US 17. Gravel and grass surfaces cover nearly all of the ROW area and an occupied mobile home lies in the southern portion of the property. EM61 data were collected along 48 northwest-southeast trending survey lines, having a maximum length of 530 feet and covering approximately 55,500 square feet (1.27 acres). Due to the large survey area, the contour plots for this site are presented in a southern portion and a northern portion format. The bottom coil results for the southern and northern portions are presented in Figures 17 and 19, respectively. The differential results are shown in Figures 18 and 20.

GPR data collected across the differential anomalies centered near X=315 Y=100, and X=505 Y=88, are probably in response to steel reinforced concrete. GPR surveys across the linear anomaly intersecting grid coordinates X=310 Y=16, suggest the EM anomaly is in response to buried conduits and/or a portion of the culvert. The geophysical results suggest that the surveyed portion of the ROW at the Phillips Plating property does not contain metallic UST's.

### **3.7 Dewey Frazier Property (Parcel 47)**

The Dewey Frazier property is located along the east side of US 17 at 1616 US 17 and lies directly across the street from the Phillips Plating property. Two mobile homes, two garages, a house and a metal carport, surrounded by abundant miscellaneous items, vehicles, and debris occupy the parcel. The mobile home and the garage located in the southern portion of the property appear to be abandoned. Due to the abundant scattered items and debris, the geophysical survey area was restricted to the western portion of the ROW area that runs along US 17.

EM61 data were collected along 18 northwest-southeast trending survey lines, having lengths ranging from 80 to 460 feet and covering approximately 27,000 square feet (0.62 acres). The bottom coil results and the differential results are presented in Figures 21 and 22, respectively. Because the Frazier property lies directly across US 17 from the Phillips Plating property, the X-coordinate values at the Frazier property are aligned with the equivalent X-coordinate values that were assigned at the Phillips Plating property.

The linear bottom coil anomalies running along  $Y=82$ , are probably in response to buried conduits and/or utility lines. GPR surveys conducted across the linear differential anomaly intersecting coordinates  $X=185$   $Y=81$ , suggest the anomaly is probably in response to a buried conduit or utility line. The geophysical results suggest that the surveyed portion of the ROW area at the Frazier property does not contain metallic UST's.

### **3.8 William & Juanita Register Property (Parcel 53)**

The Register property is located along the west side of US 17 at 1707 US 17 and consists of a grass and wooded parcel containing the remains of a building foundation and pump island. A mobile home court and a residence border the western and southern perimeters of the property, respectively.

EM61 data were collected along 43 northwest-southeast trending survey lines having a maximum length of 260 feet and covering approximately 28,600 square feet (0.66 acres). The bottom coil results and the differential results are presented in Figures 23 and 24, respectively. GPR data collected across the differential anomaly centered near  $X=104$   $Y=105$ , suggest the presence of a

septic tank buried approximately one foot below surface. The probable septic tank is approximately 11 feet long and 6 feet wide.

GPR surveys across the differential anomaly centered near grid coordinates X=160 Y=53, suggest the presence of a UST buried approximately 2.3 feet below surface. The probable UST is located immediately south of the pump island and is approximately 18 feet long and 5 feet wide. The GPR image of Line X=160, is presented in Figure 25 and shows the GPR anomaly that is probably in response to the UST. The axis of the probable UST is oriented in a northerly-southerly direction. EM61 and GPR data also suggest the presence of a smaller UST located near the center of the pump island area and centered near grid coordinates X=180 Y=56. This probable UST is buried approximately 2 feet below surface and appears to be approximately 10 feet long and 5 feet wide. The axis of the probable UST is in an easterly-westerly direction.

GPR investigation of the EM differential anomaly centered near X=205 Y=56, suggest the presence of two or possibly three UST's, orientated in a southerly-northerly direction and located immediately north of the pump island. The probable UST's are buried approximately 2 to 2.5 feet below surface. GPR image of Line Y=51, shown in Figure 25, suggests the possible presence of two separate UST's. The northern UST, centered near coordinates X=205 Y=54, appears to be approximately 12 feet long and 5 feet wide. The southern UST, centered near coordinates X=194 Y=54, appears to be approximately 6.5 feet long and 5 feet wide. However, the suggested two tanks may really be just one long tank of approximately 18 to 20 feet in length. The western UST, centered near coordinates X=205 Y=60.5, appears to be approximately 19 feet long and 5 feet wide.

GPR surveys across the linear, bottom coil anomalies intersecting grid coordinates X=125 Y=75, X=133 Y=105, X=143 Y=70, and X=160 Y=94, suggest that the EM anomalies are in response to buried conduits, product lines, and/or utility lines. Similarly, the EM anomalies centered near X=228 Y=83, are probably in response to a buried conduit or utility line.

### **3.9 W. J. Gaskins Jr. Property (Parcel 64)**

The Gaskin Jr. property is located southwest of the US 17 and Antioch Road intersection at 123

Antioch Road. This property was formerly a county store, which now houses an occupied mobile home. The eastern portion of the ROW area consists of a grass-covered, residential yard and a cleared area along the shoulder of US 17. The western portion of the ROW area consists of wooded terrain and thick brush where the geophysical investigation could not be conducted.

EM61 data were collected in the eastern portion of the ROW area along 56 northwest-southeast trending survey lines having lengths ranging from 30 to 400 feet and covering approximately 30,000 square feet (0.69 acres). The bottom coil results and the differential results are presented in Figures 26 and 27, respectively.

The bottom coil results show two linear anomalies intersecting grid coordinates X=268 Y=60, and X=292 Y=65, that are probably in response to conduits or utility lines. GPR surveys conducted across the differential anomaly centered near X=281 Y=52, suggest the presence of a large-diameter pipe or possibly a small septic tank. The GPR images of Y=50 and X=281, suggest the metal object is approximately 2 feet below surface. However, intrusive probing around this location encountered a hard object(s) less than one foot below surface. The results of the probing suggest that miscellaneous objects may also be present next to the probable conduit or tank at this location.

The remaining EM anomalies are probably in response to known cultural features and/or miscellaneous metal debris. Excluding the metal object(s) at X=281 Y=52, the geophysical results suggest that the surveyed portion of the ROW does not contain metallic UST's.

### **3.10 E. J. Pope & Sons Property (Handy Mart No. 44)**

The E. J. Pope & Sons property is located along the east side of US 17 at 2020 N. US 17, and approximately 300 yards north of the Gaskins Property. The Handy Mart No. 44 gas station and store operates on this site. The ROW portion of the property consists of asphalt pavement with a landscaped island located between the active gas pumps and US 17.

Because the Graham Dixon property lies north and contingent to the Pope property, the EM61 survey was conducted across both properties contemporaneously. For the Pope property, EM61 data

were collected along 20 northwest-southeast lines spaced 2.5 feet apart and having a maximum length of 160 feet. The surveyed portion of the ROW at the Pope property covered approximately 8,000 square feet (0.18 acres).

The bottom coil results and the differential results are presented in Figures 29 and 30, respectively. These contour plots also include the geophysical results for the southern portion of the Graham Dixon property. The geophysical results suggest that the ROW portion of the Pope property does not contain metallic UST's.

### **3.11 Graham W. Dixon Property**

As previously mentioned, the Dixon property lies immediately north and contingent to the Pope property. The Dixon property contains a carport, storage shed, tattoo parlor, and a tavern approximately 40 to 50 feet from the edge of US 17. The surveyed portion of the ROW area at this site consisted of gravel and grass surfaces.

EM61 data were collected along 24 northwest-southeast trending survey lines having lengths ranging from 190 feet to 500 feet and covering approximately 26,000 square feet (0.6 acres). The bottom coil results and the differential results of the southern portion of the property are presented in Figures 29 and 30, respectively. The bottom coil results and the differential results of the northern portion of the property are presented in Figures 31 and 32, respectively.

The geophysical results suggest that the surveyed portion of the ROW area at this site does not contain metallic UST's.

## **4.0 SUMMARY & CONCLUSIONS**

Our evaluation of the EM61 and GPR data collected across the ROW areas at the 11 sites in Bridgeton, North Carolina provides the following summary and conclusions:

- The EM61 and GPR surveys provided reliable results for the detection of metallic UST's within the surveyed portion of the ROW areas of each site.
- GPR surveys were conducted across selected EM61 differential anomalies at each site and at several areas where parked vehicles that obstructed the EM61 survey had since been removed.
- Tompkins Property: Geophysical results suggest the presence of three UST's centered near grid coordinates X=55 Y=60, and buried approximately 2 feet below surface. GPR surveys conducted across the EM differential anomaly centered near X=100 Y=55, suggest the presence of four UST's buried within the depth interval of 1.3 to 2.5 feet below surface.
- Sawyer Property: GPR surveys suggest the presence of septic tanks or possible UST's centered near grid coordinates X=111 Y=120, and X=199 Y=125. A septic tank is also located at grid coordinates X=289 Y=76. All three probable tanks are buried less than one foot below surface.
- Register Property: Geophysical results suggest the presence of four or possibly five UST's located around the former pump island area. The probable UST's are centered near grid coordinates X=160 Y=53, X=180 Y=56, X=195 Y=54, X=205 Y=54, and X=205 Y=60.5. The probable tanks are buried approximately 2 to 2.5 feet below surface. A septic tank may also be present near grid coordinates X=104 Y=105. The linear EM anomalies located west-southwest of the pump island area are probably in response to utility lines, product lines, and/or conduits.
- Gaskins Property: GPR surveys conducted across the differential anomaly centered near X=281 Y=52, suggest the presence of a large-diameter pipe or possibly a small septic tank buried approximately 2 feet below surface. However, intrusive probing suggests that other objects may surround the metal pipe or possible tank.

- Remaining Properties: The geophysical investigations suggest that the surveyed portions of the ROW areas at the following sites do not contain metallic UST's.

Charles Freeman Property (Parcel 8)

Eence Chemical Sales Property

Joselyn Ipock Property (Parcel 42)

Phillips Plating Property

Dewey Frazier Property (Parcel 47)

E.J. Pope & Sons Property (Handy Mart #44)

Graham Dixion Property (Parcel 74)

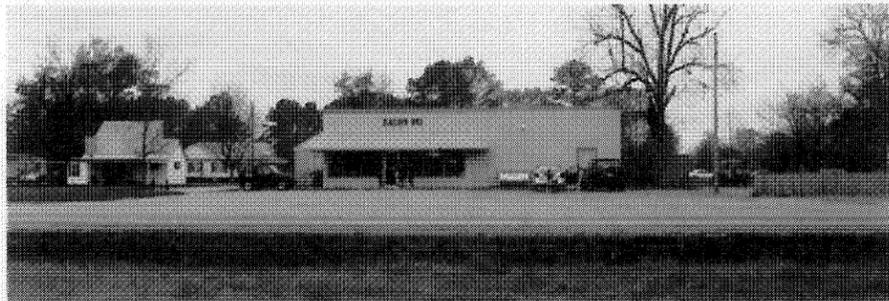
## **5.0 LIMITATIONS**

EM61 and GPR surveys have been performed and this report prepared for Weston Solutions Inc. in accordance with generally accepted guidelines for EM61 and GPR surveys. It is generally recognized that the results of the EM61 and GPR are non-unique and may not represent actual subsurface conditions. The EM61 and GPR results obtained for this project do not conclusively define the locations of all metallic UST's but only suggest where some of the metallic UST's may be present. The EM61 and GPR anomalies, interpreted as possible UST's or tanks, may be attributed to other surface or subsurface conditions or cultural interference.

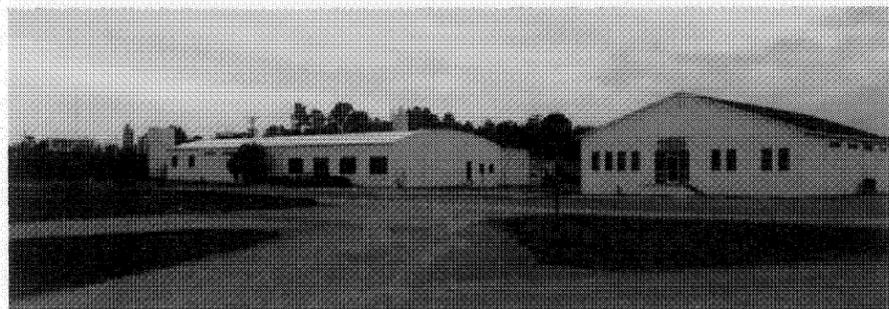
## **FIGURES**



Benjamin F. Tompkins Property



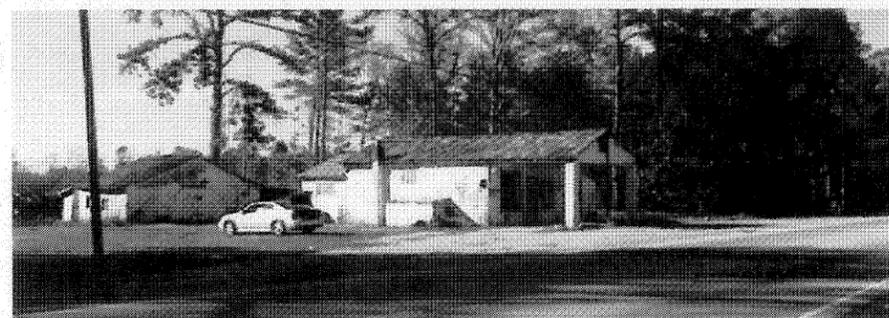
Charles Freeman Property (Parcel 8)



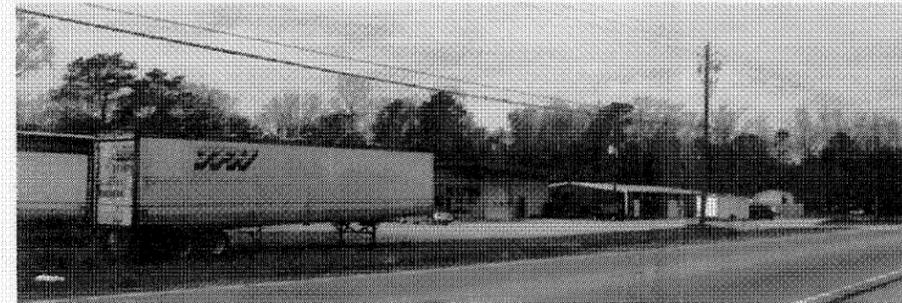
Encee Chemical Sales Property



Jimmie & Joyce Sawyer Property (Parcel 27)



Joselyn Ipock Property (Parcel 42)



Phillips Plating Property



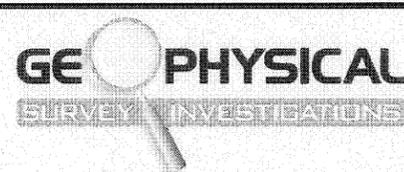
Dewey Frazier Property (Parcel 47)



William & Juanita Register Property (Parcel 53)



W. J. Gaskins, Jr. Property (Parcel 64)

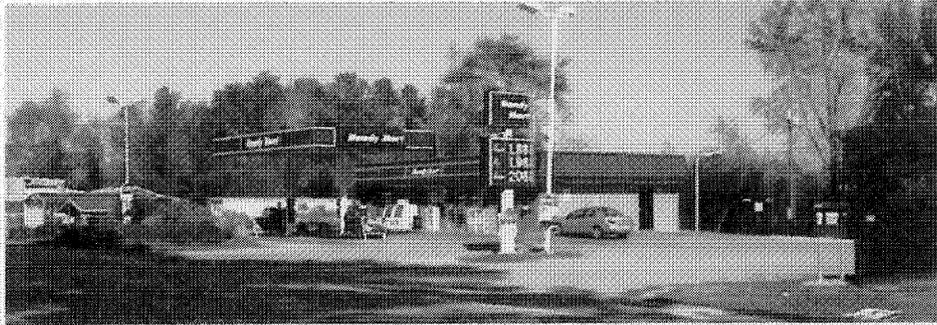


Weston Solutions, Inc.

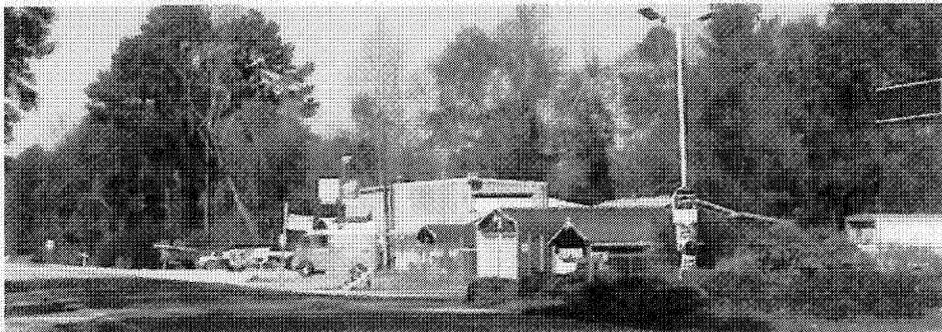
Bridgeton, North Carolina Sites

SITE PHOTOS

FIGURE 1



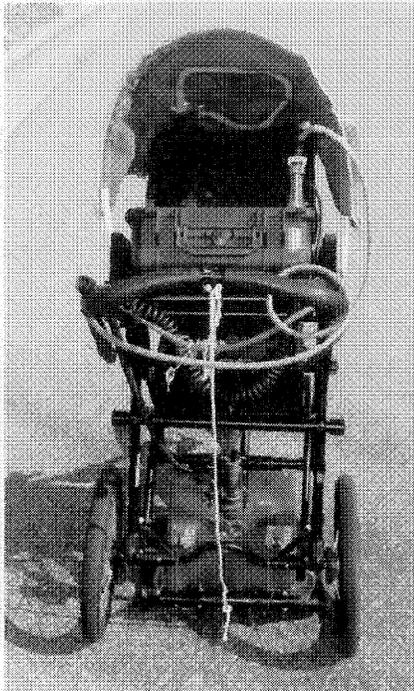
E. J. Pope & Sons Property (Handy Mart No. 44)



Graham W. Dixon Property (Parcel 74)

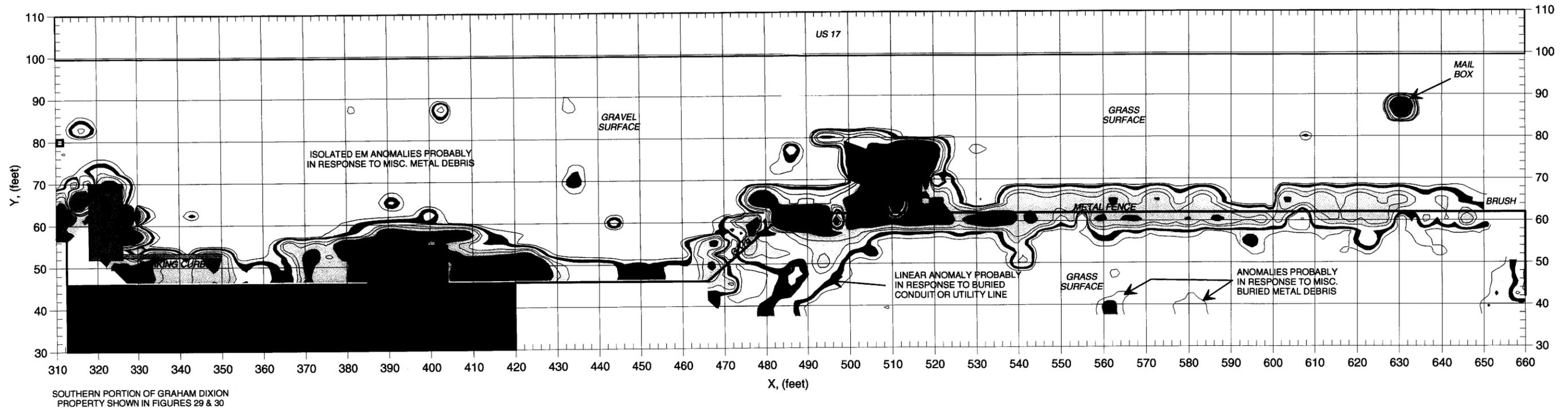


The Geonics EM61 metal detector was used to conduct the metal detection surveys at the Bridgeton, North Carolina sites on November 15-17, 2004.

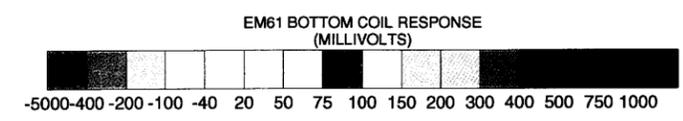


The SIR-2000 GPR system equipped with a 400 MHz antenna that was used at the Bridgeton, North Carolina sites on December 3-4, 2004.

NORTHERN PORTION OF GRAHAM DIXION PROPERTY



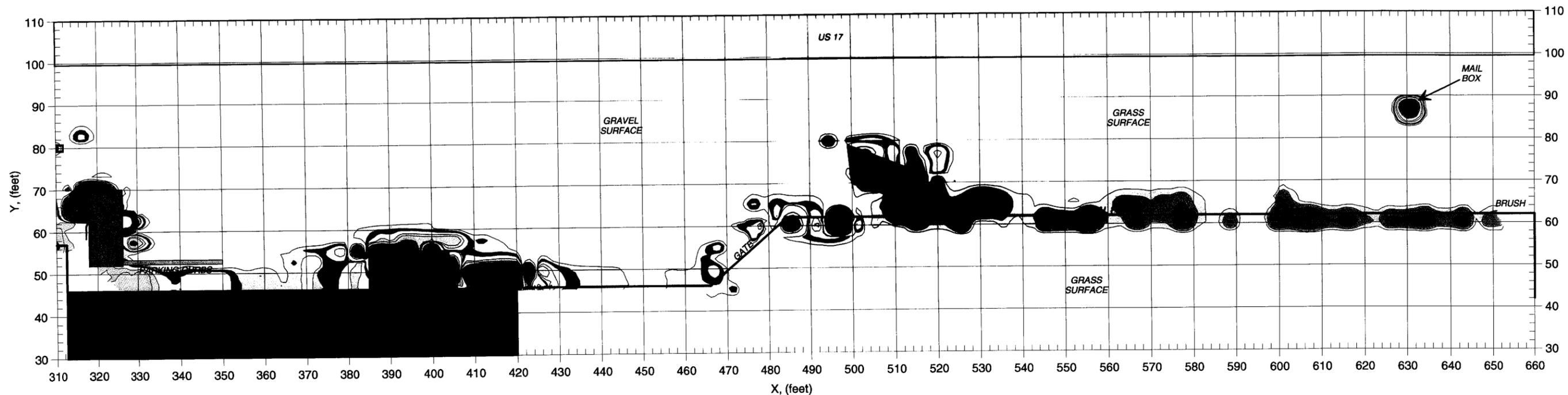
LEGEND	
	EM61 SURVEY AREA: EM DATA ACQUIRED ALONG EASTERLY-WESTERLY OR NORTHERLY-SOUTHERLY TRENDING, PARALLEL LINES SPACED 2.5 FEET APART
	VEHICLE OR BOAT
	BUILDING OR CANOPY
	UTILITY POLE
	WATER METER COVER
	FIRE HYDRANT
	STORE SIGN
	DRAIN GRATE
	MAIL BOX
	UNDERGROUND CABLE BOX
	METAL SIGN POLE



Note: The contour plot shows the bottom coil (most sensitive) response of the EM61 instrument in millivolts (mV). The bottom coil response shows buried metallic objects regardless of size. The EM metal detection data were collected on November 17, 2004 using a Geonics EM61 instrument. Ground penetrating radar (GPR) surveys were not conducted on this portion of the Dixon property.

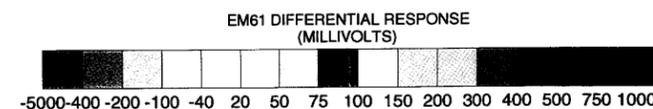
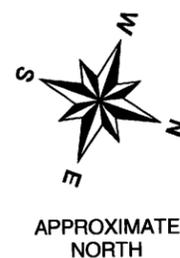
	Weston Solutions, Inc.	EM61 BOTTOM COIL RESULTS FIGURE 31
	Graham Dixon Property (Parcel 74) Bridgeton, North Carolina	

NORTHERN PORTION OF GRAHAM DIXION PROPERTY



SOUTHERN PORTION OF GRAHAM DIXION PROPERTY SHOWN IN FIGURES 29 & 30

LEGEND	
EM61 SURVEY AREA: EM DATA ACQUIRED ALONG EASTERLY-WESTERLY OR NORTHERLY-SOUTHERLY TRENDING, PARALLEL LINES SPACED 2.5 FEET APART	FIRE HYDRANT
VEHICLE OR BOAT	STORE SIGN
BUILDING OR CANOPY	DRAIN GRATE
UTILITY POLE	MAIL BOX
WATER METER COVER	UNDERGROUND CABLE BOX
	METAL SIGN POLE



Note: The contour plot shows the differential response between the bottom and top coils of the EM61 instrument in millivolts (mV). The differential response focuses on larger, buried metallic objects such as drums and UST's and ignores smaller miscellaneous, buried, metal debris. The EM61 data were collected on November 17, 2004 using a Geonics EM61 instrument. Ground penetrating radar (GPR) surveys were not conducted on this portion of the Dixon property.



Weston Solutions, Inc.  
 Graham Dixon Property (Parcel 74)  
 Bridgeton, North Carolina

EM61  
 DIFFERENTIAL  
 RESULTS  
 FIGURE 32

## **APPENDIX C: BORING LOGS**



Weston Solutions  
 4917 Water's Edge Dr.  
 Suite 235  
 Raleigh, North Carolina 27616  
 919-424-2200 · Fax 919-424-2201

# BORING/WELL CONSTRUCTION LOG

Client: NORTH CAROLINA DEPARTMENT OF TRANSPORTATION		Job No.: 13052.01.001.0014	Boring/Well: SB-11-A
Project: New Bern, Craven County		Well Construction Data	
Date Started: 12/8/04	Date Completed: 12/8/04	Screen: 	From: - To:
Logged By: GCF	Checked By: TAR	Pack: 	From: - To:
Drilling Co.: Probe Technology, Inc.	Driller:	Seal: 	From: - To:
Method: Direct Push	Equipment: Truck Mounted GeoProbe	Grout: 	From: - To:
Total Depth: 8.0	Ground Surface Elevation:	Inner Casing:	
Initial GW Level: 5.0 ∓	Measuring Point Elevation:	Outer Casing/Stick Up:	

Depth	Sample Number	PID (ppm)	Blow Counts	Sample	Lithology	USCS	Description	Notes	Well Construction
0				SB-11-A			Sand, 5y 4/1, dark gray, moist, 0, 95, 5, 0		
		0.0					Sand, 5y 2.5/1, black, moist, 0, 95, 5, 0		
5		0.0					clayey Sand, 5y 6/1, gray, moist, 0, 80, 0, 20		

BORING\_WELL\_CONSTRUCTION-ORG\_NEW\_BERN.GPJ WESTON1.GDT 12/28/04



Weston Solutions  
 4917 Water's Edge Dr.  
 Suite 235  
 Raleigh, North Carolina 27616  
 919-424-2200 · Fax 919-424-2201

# BORING/WELL CONSTRUCTION LOG

Client: NORTH CAROLINA DEPARTMENT OF TRANSPORTATION		Job No.:	13052.01.001.0014	Boring/Well:	SB-11-B
Project: New Bern, Craven County		Well Construction Data			
Date Started:	12/8/04	Date Completed:	12/8/04	Screen:	 From: - To:
Logged By:	GCF	Checked By:	TAR	Pack:	 From: - To:
Drilling Co.:	Probe Technology, Inc.	Driller:		Seal:	 From: - To:
Method:	Direct Push	Equipment:	Truck Mounted GeoProbe	Grout:	 From: - To:
Total Depth:	8.0	Ground Surface Elevation:		Inner Casing:	
Initial GW Level:	5.0 ∇	Measuring Point Elevation:		Outer Casing/Stick Up:	

Depth	Sample Number	PID (ppm)	Blow Counts	Sample	Lithology	USCS	Description	Notes	Well Construction
0				SB-11-B			Sand, 10yr 4/1, dark gray, moist, 0, 90, 5, 5		
		0.0					Sand, 10yr 2/1, black, moist, 0, 90, 5, 5		
5							clayey Sand, 2.5y 7/1, light gray, moist, 0, 80, 5, 15		
		0.0							

BORING WELL CONSTRUCTION-ORG NEW BERN.GPJ WESTON1.GDT 12/28/04



Weston Solutions  
 4917 Water's Edge Dr.  
 Suite 235  
 Raleigh, North Carolina 27616  
 919-424-2200 · Fax 919-424-2201

# BORING/WELL CONSTRUCTION LOG

Client: NORTH CAROLINA DEPARTMENT OF TRANSPORTATION		Job No.: 13052.01.001.0014	Boring/Well: SB-11-C
Project: New Bern, Craven County		Well Construction Data	
Date Started: 12/8/04	Date Completed: 12/8/04	Screen:	From: - To:
Logged By: GCF	Checked By: TAR	Pack:	From: - To:
Drilling Co.: Probe Technology, Inc.	Driller:	Seal:	From: - To:
Method: Direct Push	Equipment: Truck Mounted GeoProbe	Grout:	From: - To:
Total Depth: 8.0	Ground Surface Elevation:	Inner Casing:	
Initial GW Level: 5.0 ∇	Measuring Point Elevation:	Outer Casing/Stick Up:	

Depth	Sample Number	PID (ppm)	Blow Counts	Sample	Lithology	USCS	Description	Notes	Well Construction
0							Sand, 2.5y 3/3, dark olive brown, moist, 0, 95, 5, 0		
		0.0							
				SB-11-C			Sand, 2.5y 7/2, light gray, moist, 0, 100, 0, 0		
5		0.0					As above, saturated		

BORING\_WELL\_CONSTRUCTION-ORG\_NEW\_BERN.GPJ WESTON1.GDT 12/28/04



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 Suite 235  
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 919-424-2200 · Fax 919-424-2201

# BORING/WELL CONSTRUCTION LOG

Client: NORTH CAROLINA DEPARTMENT OF TRANSPORTATION		Job No.: 13052.01.001.0014	Boring/Well: SB-11-D
Project: New Bern, Craven County		Well Construction Data	
Date Started: 12/8/04	Date Completed: 12/8/04	Screen: 	From: - To:
Logged By: GCF	Checked By: TAR	Pack: 	From: - To:
Drilling Co.: Probe Technology, Inc.	Driller:	Seal: 	From: - To:
Method: Direct Push	Equipment: Truck Mounted GeoProbe	Grout: 	From: - To:
Total Depth: 8.0	Ground Surface Elevation:	Inner Casing:	
Initial GW Level: 4.0 ∇	Measuring Point Elevation:	Outer Casing/Stick Up:	

Depth	Sample Number	PID (ppm)	Blow Counts	Sample	Lithology	USCS	Description	Notes	Well Construction
0									
		0.0					Sand, 10yr 4/3, brown, moist, 0, 95, 5, 0		0
		0.0		SB-11-D			Sand, 7.5yr 8/1, white, saturated, 0, 95, 5, 0		5
5									

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# BORING/WELL CONSTRUCTION LOG

Client: NORTH CAROLINA DEPARTMENT OF TRANSPORTATION		Job No.: 13052.01.001.0014	Boring/Well: SB-11-E
Project: New Bern, Craven County		Well Construction Data	
Date Started: 12/8/04	Date Completed: 12/8/04	Screen:	From: - To:
Logged By: GCF	Checked By: TAR	Pack:	From: - To:
Drilling Co.: Probe Technology, Inc.	Driller:	Seal:	From: - To:
Method: Direct Push	Equipment: Truck Mounted GeoProbe	Grout:	From: - To:
Total Depth: 8.0	Ground Surface Elevation:	Inner Casing:	
Initial GW Level: 5.0 ∇	Measuring Point Elevation:	Outer Casing/Stick Up:	

Depth	Sample Number	PID (ppm)	Blow Counts	Sample	Lithology	USCS	Description	Notes	Well Construction
0				SB-11-E	[Dotted Pattern]		Sand, 10yr 4/4, dark yellowish brown, moist, 0, 100, 0, 0		0
		0.0					Sand, 2.5y 7/3, pale yellow, moist, 0, 95, 5, 0		
5		0.0					As above, saturated		5

BORING WELL CONSTRUCTION-ORG NEW BERN.GPJ WESTON1.GDT 12/28/04



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 Raleigh, North Carolina 27616  
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# BORING/WELL CONSTRUCTION LOG

Client: NORTH CAROLINA DEPARTMENT OF TRANSPORTATION		Job No.: 13052.01.001.0014	Boring/Well: SB-11-F
Project: New Bern, Craven County		Well Construction Data	
Date Started: 12/8/04	Date Completed: 12/8/04	Screen:	 From: - To:
Logged By: GCF	Checked By: TAR	Pack:	 From: - To:
Drilling Co.: Probe Technology, Inc.	Driller:	Seal:	 From: - To:
Method: Direct Push	Equipment: Truck Mounted GeoProbe	Grout:	 From: - To:
Total Depth: 8.0	Ground Surface Elevation:	Inner Casing:	
Initial GW Level: 5.0 ∇	Measuring Point Elevation:	Outer Casing/Stick Up:	

Depth	Sample Number	PID (ppm)	Blow Counts	Sample	Lithology	USCS	Description	Notes	Well Construction
0				SB-11-F			Sand, 10yr 4/4, dark yellowish brown, moist, 0, 95, 5, 0		
		0.0							
5							Sand, 2.5y 8/2, pale yellow, moist, 0, 100, 0, 0		
		0.0					As Above, saturated		

BORING\_WELL\_CONSTRUCTION-ORG\_NEW\_BERN.GPJ\_WESTON1.GDT 12/28/04



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 Raleigh, North Carolina 27616  
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# BORING/WELL CONSTRUCTION LOG

Client: NORTH CAROLINA DEPARTMENT OF TRANSPORTATION		Job No.: 13052.01.001.0014	Boring/Well: SB-11-G
Project: New Bern, Craven County		Well Construction Data	
Date Started: 12/8/04	Date Completed: 12/8/04	Screen:	 From: - To:
Logged By: GCF	Checked By: TAR	Pack:	 From: - To:
Drilling Co.: Probe Technology, Inc.	Driller:	Seal:	 From: - To:
Method: Direct Push	Equipment: Truck Mounted GeoProbe	Grout:	 From: - To:
Total Depth: 8.0	Ground Surface Elevation:	Inner Casing:	
Initial GW Level: 5.0 ∇	Measuring Point Elevation:	Outer Casing/Stick Up:	

Depth	Sample Number	PID (ppm)	Blow Counts	Sample	Lithology	USCS	Description	Notes	Well Construction
0				SB-11-G			Sand, 2.5y 6/3, light yellowish brown, moist, 0, 95, 5, 0		
		0.0							
5							Sand, 2.5y 7/2, light gray, moist, 0, 95, 5, 0		
		0.0					As above, saturated		

BORING\_WELL\_CONSTRUCTION-ORG\_NEW\_BERN.GPJ\_WESTON1.GDT\_12/28/04



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# BORING/WELL CONSTRUCTION LOG

Client: NORTH CAROLINA DEPARTMENT OF TRANSPORTATION		Job No.: 13052.01.001.0014	Boring/Well: SB-11-H
Project: New Bern, Craven County		Well Construction Data	
Date Started: 12/8/04	Date Completed: 12/8/04	Screen:	 From: - To:
Logged By: GCF	Checked By: TAR	Pack:	 From: - To:
Drilling Co.: Probe Technology, Inc.	Driller:	Seal:	 From: - To:
Method: Direct Push	Equipment: Truck Mounted GeoProbe	Grout:	 From: - To:
Total Depth: 8.0	Ground Surface Elevation:	Inner Casing:	
Initial GW Level: 5.0 ∇	Measuring Point Elevation:	Outer Casing/Stick Up:	

Depth	Sample Number	PID (ppm)	Blow Counts	Sample	Lithology	USCS	Description	Notes	Well Construction
0							Sand, 7.5yr 4/2, brown, moist, 0, 95, 5, 0		
		0.0							
				SB-11-H					
5							Sand, 7.5yr 5/6, strong brown, moist, 0, 95, 5, 0		
		0.0					clayey Sand, 2.5y 7/1, light gray, saturated, 0, 80, 0, 20		

BORING\_WELL\_CONSTRUCTION-ORG\_NEW\_BERN.GPJ WESTON1.GDT 12/28/04

## **APPENDIX D: LABORATORY REPORTS**



**Pace Analytical Services, Inc.**  
9800 Kinsey Avenue, Suite 100  
Huntersville, NC 28078  
Phone: 704.875.9092  
Fax: 704.875.9091

December 20, 2004

Ms. Tara Rowland  
Weston Solutions  
1000 Perimeter Park Drive  
Suite E  
Morrisville, NC 27560

RE: Lab Project Number: 9283567  
Client Project ID: NCDOT 34538.1.1 Newbern

Dear Ms. Rowland:

Enclosed are the analytical results for sample(s) received by the laboratory on December 10, 2004. Results reported herein conform to the most current NELAP standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report please feel free to contact me.

Sincerely,

Bonnie McKee  
Bonnie.McKee@pacelabs.com  
Project Manager

Enclosures

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
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### Asheville Certification IDs

NC Wastewater 40  
NC Drinking Water 37712  
SC Environmental 99030  
FLORIDA 507010



### Charlotte Certification IDs

NC Wastewater 12  
NC Drinking Water 37706  
SC 99006  
FLORIDA 507010

Lab Project Number: 9283567  
Client Project ID: NCDOT 34538.1.1 Newbern

Solid results are reported on a dry weight basis

Lab Sample No: 925070369      Project Sample Number: 9283567-001      Date Collected: 12/09/04 09:45  
Client Sample ID: SB-11-A(0-4)      Matrix: Soil      Date Received: 12/10/04 09:30

Parameters	Results	Units	Report Limit	DF	Analyzed	By	CAS No.	Qual	RegLmt
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**Wet Chemistry**

Percent Moisture	Method: % Moisture								
Percent Moisture	13.1	%			1.0 12/11/04 10:51	TSE			

**GC Semivolatiles**

TPH in Soil by 3545/8015	Prep/Method: EPA 3545 / EPA 8015								
Diesel Fuel	75.	mg/kg	5.8		1.1 12/16/04 01:16	KBS	68334-30-5		
n-Pentacosane (S)	155	%			1.0 12/16/04 01:16	KBS	629-99-2	1	
Date Extracted	12/14/04				12/14/04				

**GC Volatiles**

GAS, Soil, North Carolina	Method: EPA 8015								
Gasoline	ND	mg/kg	2.8		0.6 12/15/04 07:46	KBS			
4-Bromofluorobenzene (S)	86	%			1.0 12/15/04 07:46	KBS	460-00-4		

**REPORT OF LABORATORY ANALYSIS**

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NC Drinking Water 37712  
SC Environmental 99030  
FL MFLAD 507640



Charlotte Certification IDs

NC Wastewater 12  
NC Drinking Water 37706  
SC 99006  
FL MFLAD 507640

Lab Project Number: 9283567  
Client Project ID: NCDOT 34538.1.1 Newbern

Lab Sample No: 925070377      Project Sample Number: 9283567-002      Date Collected: 12/09/04 09:35  
Client Sample ID: SB-11-B(0-3)      Matrix: Soil      Date Received: 12/10/04 09:30

Parameters	Results	Units	Report Limit	DF	Analyzed	By	CAS No.	Qual	RegLmt
<b>Wet Chemistry</b>									
Percent Moisture	Method: % Moisture								
Percent Moisture	21.1	%			1.0 12/11/04 10:51	TSE			
<b>GC Semivolatiles</b>									
TPH in Soil by 3545/8015	Prep/Method: EPA 3545 / EPA 8015								
Diesel Fuel	11.	mg/kg	6.3		1.3 12/16/04 01:42	KBS	68334-30-5		
n-Pentacosane (S)	151	%			1.0 12/16/04 01:42	KBS	629-99-2	1	
Date Extracted	12/14/04				12/14/04				
<b>GC Volatiles</b>									
GAS, Soil, North Carolina	Method: EPA 8015								
Gasoline	ND	mg/kg	3.2		0.6 12/15/04 08:15	KBS			
4-Bromofluorobenzene (S)	87	%			1.0 12/15/04 08:15	KBS	460-00-4		

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NC Drinking Water 37712  
SC Environmental 99030  
EPA Method 8070A



Charlotte Certification IDs

NC Wastewater 12  
NC Drinking Water 37706  
SC Environmental 99006  
EPA Method 8070A

Lab Project Number: 9283567  
Client Project ID: NCDOT 34538.1.1 Newbern

Lab Sample No: 925070385      Project Sample Number: 9283567-003      Date Collected: 12/09/04 09:30  
Client Sample ID: SB-11-C(4-5)      Matrix: Soil      Date Received: 12/10/04 09:30

Parameters	Results	Units	Report Limit	DF	Analyzed	By	CAS No.	Qual	RegLmt
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**Wet Chemistry**

Percent Moisture	Method: % Moisture								
Percent Moisture	10.0	%		1.0	12/11/04 10:52	TSE			

**GC Semivolatiles**

TPH in Soil by 3545/8015	Prep/Method: EPA 3545 / EPA 8015								
Diesel Fuel	12.	mg/kg	5.6	1.1	12/16/04 02:09	KBS	68334-30-5		
n-Pentacosane (S)	138	%		1.0	12/16/04 02:09	KBS	629-99-2		
Date Extracted	12/14/04				12/14/04				

**GC Volatiles**

GAS, Soil, North Carolina	Method: EPA 8015								
Gasoline	ND	mg/kg	2.7	0.5	12/15/04 08:43	KBS			
4-Bromofluorobenzene (S)	85	%		1.0	12/15/04 08:43	KBS	460-00-4		

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NC Drinking Water 37712  
SC Environmental 99030  
FL MFLAD 507610



Charlotte Certification IDs

NC Wastewater 12  
NC Drinking Water 37706  
SC 99006  
FL MFLAD 507610

Lab Project Number: 9283567  
Client Project ID: NCDOT 34538.1.1 Newbern

Lab Sample No: 925070393      Project Sample Number: 9283567-004      Date Collected: 12/09/04 09:20  
Client Sample ID: SB-11-D(4-5)      Matrix: Soil      Date Received: 12/10/04 09:30

Parameters	Results	Units	Report Limit	DF	Analyzed	By	CAS No.	Qual	RegLmt
<b>Wet Chemistry</b>									
Percent Moisture	Method: % Moisture								
Percent Moisture	7.9	%			1.0 12/11/04 10:52	TSE			
<b>GC Semivolatiles</b>									
TPH in Soil by 3545/8015	Prep/Method: EPA 3545 / EPA 8015								
Diesel Fuel	ND	mg/kg	5.4		1.1 12/16/04 02:35	KBS	68334-30-5		
n-Pentacosane (S)	129	%			1.0 12/16/04 02:35	KBS	629-99-2		
Date Extracted	12/14/04				12/14/04				
<b>GC Volatiles</b>									
GAS, Soil, North Carolina	Method: EPA 8015								
Gasoline	ND	mg/kg	2.5		0.5 12/15/04 09:12	KBS			
4-Bromofluorobenzene (S)	84	%			1.0 12/15/04 09:12	KBS	460-00-4		

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SC Environmental 99030  
FLORIDA 507040



### Charlotte Certification IDs

NC Wastewater 12  
NC Drinking Water 37706  
SC 99006  
FLORIDA 507040

Lab Project Number: 9283567  
Client Project ID: NCDOT 34538.1.1 Newbern

Lab Sample No: 925070401      Project Sample Number: 9283567-005      Date Collected: 12/09/04 09:10  
Client Sample ID: SB-11-E(4-5)      Matrix: Soil      Date Received: 12/10/04 09:30

Parameters	Results	Units	Report Limit	DF	Analyzed	By	CAS No.	Qual	RegLmt
<b>Wet Chemistry</b>									
Percent Moisture	Method: % Moisture								
Percent Moisture	4.1	%			1.0 12/11/04 10:53	TSE			
<b>GC Semivolatiles</b>									
TPH in Soil by 3545/8015	Prep/Method: EPA 3545 / EPA 8015								
Diesel Fuel	7.3	mg/kg	5.2		1.0 12/16/04 03:02	KBS	68334-30-5		
n-Pentacosane (S)	130	%			1.0 12/16/04 03:02	KBS	629-99-2		
Date Extracted	12/14/04				12/14/04				
<b>GC Volatiles</b>									
GAS, Soil, North Carolina	Method: EPA 8015								
Gasoline	ND	mg/kg	2.5		0.5 12/15/04 09:41	KBS			
4-Bromofluorobenzene (S)	86	%			1.0 12/15/04 09:41	KBS	460-00-4		

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NC Wastewater 40  
NC Drinking Water 37712  
SC Environmental 99030  
E1 MEI AD E97619



Charlotte Certification IDs

NC Wastewater 12  
NC Drinking Water 37706  
SC 99006  
E1 MEI AD E97619

Lab Project Number: 9283567

Client Project ID: NCDOT 34538.1.1 Newbern

Lab Sample No: 925070419      Project Sample Number: 9283567-006      Date Collected: 12/09/04 09:00  
Client Sample ID: SB-11-F(0-4)      Matrix: Soil      Date Received: 12/10/04 09:30

Parameters	Results	Units	Report Limit	DF	Analyzed	By	CAS No.	Qual	RegLmt
<b>Wet Chemistry</b>									
Percent Moisture	Method: % Moisture								
Percent Moisture	7.0	%			1.0 12/11/04 10:53	TSE			
<b>GC Semivolatiles</b>									
TPH in Soil by 3545/8015	Prep/Method: EPA 3545 / EPA 8015								
Diesel Fuel	ND	mg/kg	5.4		1.1 12/17/04 12:53	KBS	68334-30-5		
n-Pentacosane (S)	117	%			1.0 12/17/04 12:53	KBS	629-99-2		
Date Extracted	12/15/04				12/15/04				
<b>GC Volatiles</b>									
GAS, Soil, North Carolina	Method: EPA 8015								
Gasoline	ND	mg/kg	2.3		0.5 12/15/04 10:08	KBS			
4-Bromofluorobenzene (S)	84	%			1.0 12/15/04 10:08	KBS	460-00-4		

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SC Environmental 99030  
FLA 50704

Charlotte Certification IDs

NC Wastewater 12  
NC Drinking Water 37706  
SC 99006



Lab Project Number: 9283567  
Client Project ID: NCDOT 34538.1.1 Newbern

Lab Sample No: 925070427      Project Sample Number: 9283567-007      Date Collected: 12/09/04 08:50  
Client Sample ID: SB-11-G(0-4)      Matrix: Soil      Date Received: 12/10/04 09:30

Parameters	Results	Units	Report Limit	DF	Analyzed	By	CAS No.	Qual	RegLmt
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**Wet Chemistry**

Percent Moisture	Method: % Moisture								
Percent Moisture	7.8	%			1.0 12/11/04 10:53	TSE			

**GC Semivolatiles**

TPH in Soil by 3545/8015	Prep/Method: EPA 3545 / EPA 8015								
Diesel Fuel	ND	mg/kg	5.4		1.1 12/17/04 13:20	KBS	68334-30-5		
n-Pentacosane (S)	143	%			1.0 12/17/04 13:20	KBS	629-99-2		
Date Extracted	12/15/04				12/15/04				

**GC Volatiles**

GAS, Soil, North Carolina	Method: EPA 8015								
Gasoline	ND	mg/kg	2.2		0.4 12/15/04 10:37	KBS			
4-Bromofluorobenzene (S)	86	%			1.0 12/15/04 10:37	KBS	460-00-4		

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Lab Project Number: 9283567  
Client Project ID: NCDOT 34538.1.1 Newbern

Lab Sample No: 925070443      Project Sample Number: 9283567-008      Date Collected: 12/09/04 08:40  
Client Sample ID: SB-11-H(4-5)      Matrix: Soil      Date Received: 12/10/04 09:30

Parameters	Results	Units	Report Limit	DF	Analyzed	By	CAS No.	Qual	RegLmt
<b>Wet Chemistry</b>									
Percent Moisture	Method: % Moisture								
Percent Moisture	9.5	%			1.0 12/11/04 10:53	TSE			
<b>GC Semivolatiles</b>									
TPH in Soil by 3545/8015	Prep/Method: EPA 3545 / EPA 8015								
Diesel Fuel	ND	mg/kg	5.5		1.1 12/17/04 13:47	KBS	68334-30-5		
n-Pentacosane (S)	108	%			1.0 12/17/04 13:47	KBS	629-99-2		
Date Extracted	12/15/04				12/15/04				
<b>GC Volatiles</b>									
GAS, Soil, North Carolina	Method: EPA 8015								
Gasoline	ND	mg/kg	2.9		0.6 12/15/04 16:32	PPM			
4-Bromofluorobenzene (S)	90	%			1.0 12/15/04 16:32	PPM	460-00-4		

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SC Environmental 99030  
FL MFLAD 587648



Charlotte Certification IDs

NC Wastewater 12  
NC Drinking Water 37706  
SC 99006  
FL MFLAD 587648

Lab Project Number: 9283567  
Client Project ID: NCDOT 34538.1.1 Newbern

Lab Sample No: 925070518 Project Sample Number: 9283567-009 Date Collected: 12/09/04 09:50  
Client Sample ID: GW-11-A Matrix: Water Date Received: 12/10/04 09:30

Parameters	Results	Units	Report Limit	DF	Analyzed	By	CAS No.	Qual	RegLmt
<b>Metals</b>									
3030C Metals, ICP, Trace	Prep/Method: SM 3030C / EPA 200.7								
Lead, 3030C	0.83	mg/l	0.0050	1.0	12/15/04 20:04	ALV	7439-92-1		
Date Digested	12/10/04 12:20				12/10/04 12:20				

**GC/MS Semivolatiles**

Extractables in Water by 625	Prep/Method: EPA 625 SF / EPA 625	Results	Units	Report Limit	DF	Analyzed	By	CAS No.	Qual	RegLmt
Acenaphthene		ND	ug/l	5.4	1.1	12/17/04 07:26	BET	83-32-9		
Acenaphthylene		ND	ug/l	5.4	1.1	12/17/04 07:26	BET	208-96-8		
Anthracene		ND	ug/l	5.4	1.1	12/17/04 07:26	BET	120-12-7		
Benzidine		ND	ug/l	54.	1.1	12/17/04 07:26	BET	92-87-5		
Benzo(k)fluoranthene		ND	ug/l	5.4	1.1	12/17/04 07:26	BET	207-08-9		
Benzo(b)fluoranthene		ND	ug/l	5.4	1.1	12/17/04 07:26	BET	205-99-2		
Benzo(a)anthracene		ND	ug/l	5.4	1.1	12/17/04 07:26	BET	56-55-3		
Benzo(g,h,i)perylene		ND	ug/l	5.4	1.1	12/17/04 07:26	BET	191-24-2		
Benzo(a)pyrene		ND	ug/l	5.4	1.1	12/17/04 07:26	BET	50-32-8		
4-Bromophenylphenyl ether		ND	ug/l	5.4	1.1	12/17/04 07:26	BET	101-55-3		
Butylbenzylphthalate		ND	ug/l	5.4	1.1	12/17/04 07:26	BET	85-68-7		
4-Chloro-3-methylphenol		ND	ug/l	5.4	1.1	12/17/04 07:26	BET	59-50-7		
bis(2-Chloroethoxy)methane		ND	ug/l	5.4	1.1	12/17/04 07:26	BET	111-91-1		
bis(2-Chloroethyl) ether		ND	ug/l	5.4	1.1	12/17/04 07:26	BET	111-44-4		
bis(2-Chloroisopropyl) ether		ND	ug/l	5.4	1.1	12/17/04 07:26	BET	39638-32-9		
2-Chloronaphthalene		ND	ug/l	5.4	1.1	12/17/04 07:26	BET	91-58-7		
2-Chlorophenol		ND	ug/l	5.4	1.1	12/17/04 07:26	BET	95-57-8		
4-Chlorophenylphenyl ether		ND	ug/l	5.4	1.1	12/17/04 07:26	BET	7005-72-3		
Chrysene		ND	ug/l	5.4	1.1	12/17/04 07:26	BET	218-01-9		
Dibenz(a,h)anthracene		ND	ug/l	5.4	1.1	12/17/04 07:26	BET	53-70-3		
1,2-Dichlorobenzene		ND	ug/l	5.4	1.1	12/17/04 07:26	BET	95-50-1		
1,3-Dichlorobenzene		ND	ug/l	5.4	1.1	12/17/04 07:26	BET	541-73-1		
1,4-Dichlorobenzene		ND	ug/l	5.4	1.1	12/17/04 07:26	BET	106-46-7		
3,3'-Dichlorobenzidine		ND	ug/l	11.	1.1	12/17/04 07:26	BET	91-94-1		
2,4-Dichlorophenol		ND	ug/l	5.4	1.1	12/17/04 07:26	BET	120-83-2		
Diethylphthalate		ND	ug/l	5.4	1.1	12/17/04 07:26	BET	84-66-2		
2,4-Dimethylphenol		ND	ug/l	5.4	1.1	12/17/04 07:26	BET	105-67-9		
Dimethylphthalate		ND	ug/l	5.4	1.1	12/17/04 07:26	BET	131-11-3		
Di-n-butylphthalate		ND	ug/l	5.4	1.1	12/17/04 07:26	BET	84-74-2		
4,6-Dinitro-2-methylphenol		ND	ug/l	27.	1.1	12/17/04 07:26	BET	534-52-1		
2,4-Dinitrophenol		ND	ug/l	27.	1.1	12/17/04 07:26	BET	51-28-5		
2,4-Dinitrotoluene		ND	ug/l	5.4	1.1	12/17/04 07:26	BET	121-14-2		

**REPORT OF LABORATORY ANALYSIS**

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Lab Project Number: 9283567

Client Project ID: NCDOT 34538.1.1 Newbern

Lab Sample No: 925070518      Project Sample Number: 9283567-009      Date Collected: 12/09/04 09:50  
Client Sample ID: GW-11-A      Matrix: Water      Date Received: 12/10/04 09:30

Parameters	Results	Units	Report Limit	DF	Analyzed	By	CAS No.	Qual	RegLmt
2,6-Dinitrotoluene	ND	ug/l	5.4	1.1	12/17/04 07:26	BET	606-20-2		
Di-n-octylphthalate	ND	ug/l	5.4	1.1	12/17/04 07:26	BET	117-84-0		
bis(2-Ethylhexyl)phthalate	ND	ug/l	5.4	1.1	12/17/04 07:26	BET	117-81-7		
Fluoranthene	ND	ug/l	5.4	1.1	12/17/04 07:26	BET	206-44-0		
Fluorene	ND	ug/l	5.4	1.1	12/17/04 07:26	BET	86-73-7		
Hexachloro-1,3-butadiene	ND	ug/l	5.4	1.1	12/17/04 07:26	BET	87-68-3		
Hexachlorobenzene	ND	ug/l	5.4	1.1	12/17/04 07:26	BET	118-74-1		
Hexachlorocyclopentadiene	ND	ug/l	11.	1.1	12/17/04 07:26	BET	77-47-4		
Hexachloroethane	ND	ug/l	5.4	1.1	12/17/04 07:26	BET	67-72-1		
Indeno(1,2,3-cd)pyrene	ND	ug/l	5.4	1.1	12/17/04 07:26	BET	193-39-5		
Isophorone	ND	ug/l	5.4	1.1	12/17/04 07:26	BET	78-59-1		
Naphthalene	ND	ug/l	5.4	1.1	12/17/04 07:26	BET	91-20-3		
Nitrobenzene	ND	ug/l	5.4	1.1	12/17/04 07:26	BET	98-95-3		
2-Nitrophenol	ND	ug/l	5.4	1.1	12/17/04 07:26	BET	88-75-5		
4-Nitrophenol	ND	ug/l	27.	1.1	12/17/04 07:26	BET	100-02-7		
N-Nitrosodimethylamine	ND	ug/l	5.4	1.1	12/17/04 07:26	BET	62-75-9		
N-Nitroso-di-n-propylamine	ND	ug/l	5.4	1.1	12/17/04 07:26	BET	621-64-7		
N-Nitrosodiphenylamine	ND	ug/l	5.4	1.1	12/17/04 07:26	BET	86-30-6		
Pentachlorophenol	ND	ug/l	27.	1.1	12/17/04 07:26	BET	87-86-5		
Phenanthrene	ND	ug/l	5.4	1.1	12/17/04 07:26	BET	85-01-8		
Phenol	ND	ug/l	5.4	1.1	12/17/04 07:26	BET	108-95-2		
Pyrene	ND	ug/l	5.4	1.1	12/17/04 07:26	BET	129-00-0		
1,2,4-Trichlorobenzene	ND	ug/l	5.4	1.1	12/17/04 07:26	BET	120-82-1		
2,4,6-Trichlorophenol	ND	ug/l	5.4	1.1	12/17/04 07:26	BET	88-06-2		
Nitrobenzene-d5 (S)	41	%		1.0	12/17/04 07:26	BET	4165-60-0		
2-Fluorobiphenyl (S)	40	%		1.0	12/17/04 07:26	BET	321-60-8		
Terphenyl-d14 (S)	80	%		1.0	12/17/04 07:26	BET	1718-51-0		
Phenol-d5 (S)	19	%		1.0	12/17/04 07:26	BET	4165-62-2		
2-Fluorophenol (S)	24	%		1.0	12/17/04 07:26	BET	367-12-4		
2,4,6-Tribromophenol (S)	55	%		1.0	12/17/04 07:26	BET			
Date Extracted	12/15/04				12/15/04				

**GC Semivolatiles**

EPH in Water by Mass. Method      Prep/Method: EPA 3510 / EPH

Aliphatic (C09-C18)	430	ug/l	110	1.1	12/17/04 18:46	KBS			
Aliphatic (C19-C36)	110	ug/l	110	1.1	12/17/04 18:46	KBS			
Aromatic (C11-22)	ND	ug/l	110	1.1	12/17/04 18:46	KBS			
2-Fluorobiphenyl (S)	62	%		1.0	12/17/04 18:46	KBS	321-60-8		
2-Bromonaphthalene (S)	115	%		1.0	12/17/04 18:46	KBS	580-13-2		

Date: 12/20/04

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Asheville Certification IDs

NC Wastewater 40  
NC Drinking Water 37712  
SC Environmental 99030  
EPA Method 8260A



Charlotte Certification IDs

NC Wastewater 12  
NC Drinking Water 37706  
SC 99006  
EPA Method 8260A

Lab Project Number: 9283567  
Client Project ID: NCDOT 34538.1.1 Newbern

Lab Sample No: 925070518      Project Sample Number: 9283567-009      Date Collected: 12/09/04 09:50  
Client Sample ID: GW-11-A      Matrix: Water      Date Received: 12/10/04 09:30

Parameters	Results	Units	Report Limit	DF	Analyzed	By	CAS No.	Qual	RegLmt
Nonatriacontane (S)	98	%		1.0	12/17/04 18:46	KBS	7194-86-7		
o-Terphenyl (S)	45	%		1.0	12/17/04 18:46	KBS	84-15-1		
Date Extracted	12/15/04				12/15/04				

**GC Volatiles**

Halogen. & Aromatic Vol. Orgs. Method: EPA 601/602

Benzene	ND	ug/l	1.0	1.0	12/16/04 13:11	PPM	71-43-2		
Bromodichloromethane	ND	ug/l	1.0	1.0	12/16/04 13:11	PPM	75-27-4		
Bromoform	ND	ug/l	1.0	1.0	12/16/04 13:11	PPM	75-25-2		
Bromomethane	ND	ug/l	1.0	1.0	12/16/04 13:11	PPM	74-83-9		
Carbon tetrachloride	ND	ug/l	1.0	1.0	12/16/04 13:11	PPM	56-23-5		
Chlorobenzene	ND	ug/l	1.0	1.0	12/16/04 13:11	PPM	108-90-7		
Chloroethane	ND	ug/l	1.0	1.0	12/16/04 13:11	PPM	75-00-3		
Chloroform	ND	ug/l	1.0	1.0	12/16/04 13:11	PPM	67-66-3		
Chloromethane	ND	ug/l	2.0	1.0	12/16/04 13:11	PPM	74-87-3		
Dibromochloromethane	ND	ug/l	1.0	1.0	12/16/04 13:11	PPM	124-48-1		
1,2-Dichlorobenzene	ND	ug/l	1.0	1.0	12/16/04 13:11	PPM	95-50-1		
1,3-Dichlorobenzene	ND	ug/l	1.0	1.0	12/16/04 13:11	PPM	541-73-1		
1,4-Dichlorobenzene	ND	ug/l	1.0	1.0	12/16/04 13:11	PPM	106-46-7		
Dichlorodifluoromethane	ND	ug/l	1.0	1.0	12/16/04 13:11	PPM	75-71-8		
1,1-Dichloroethane	ND	ug/l	1.0	1.0	12/16/04 13:11	PPM	75-34-3		
1,2-Dichloroethane	ND	ug/l	1.0	1.0	12/16/04 13:11	PPM	107-06-2		
1,1-Dichloroethene	ND	ug/l	1.0	1.0	12/16/04 13:11	PPM	75-35-4		
trans-1,2-Dichloroethene	ND	ug/l	1.0	1.0	12/16/04 13:11	PPM	156-60-5		
1,2-Dichloropropane	ND	ug/l	1.0	1.0	12/16/04 13:11	PPM	78-87-5		
cis-1,3-Dichloropropene	ND	ug/l	1.0	1.0	12/16/04 13:11	PPM	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/l	1.0	1.0	12/16/04 13:11	PPM	10061-02-6		
Diisopropyl ether	ND	ug/l	1.0	1.0	12/16/04 13:11	PPM	108-20-3		
Ethylbenzene	ND	ug/l	1.0	1.0	12/16/04 13:11	PPM	100-41-4		
Methylene chloride	ND	ug/l	2.0	1.0	12/16/04 13:11	PPM	75-09-2		
Methyl-tert-butyl ether	2.2	ug/l	1.0	1.0	12/16/04 13:11	PPM	1634-04-4		
1,1,2,2-Tetrachloroethane	ND	ug/l	1.0	1.0	12/16/04 13:11	PPM	79-34-5		
Tetrachloroethene	ND	ug/l	1.0	1.0	12/16/04 13:11	PPM	127-18-4		
Toluene	ND	ug/l	1.0	1.0	12/16/04 13:11	PPM	108-88-3		
1,1,1-Trichloroethane	ND	ug/l	1.0	1.0	12/16/04 13:11	PPM	71-55-6		
1,1,2-Trichloroethane	ND	ug/l	1.0	1.0	12/16/04 13:11	PPM	79-00-5		
Trichloroethene	ND	ug/l	1.0	1.0	12/16/04 13:11	PPM	79-01-6		
Trichlorofluoromethane	ND	ug/l	1.0	1.0	12/16/04 13:11	PPM	75-69-4		
Vinyl chloride	ND	ug/l	1.0	1.0	12/16/04 13:11	PPM	75-01-4		

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NC Drinking Water 37712  
SC Environmental 99030  
EPA Method 8210-G

Charlotte Certification IDs

NC Wastewater 12  
NC Drinking Water 37706  
SC 99006  
EPA Method 8210-G



Lab Project Number: 9283567

Client Project ID: NCDOT 34538.1.1 Newbern

Lab Sample No: 925070518      Project Sample Number: 9283567-009      Date Collected: 12/09/04 09:50  
Client Sample ID: GW-11-A      Matrix: Water      Date Received: 12/10/04 09:30

Parameters	Results	Units	Report Limit	DF	Analyzed	By	CAS No.	Qual	RegLmt
Xylene (Total)	ND	ug/l	1.0	1.0	12/16/04 13:11	PPM	1330-20-7		
m&p-Xylene	ND	ug/l	2.0	1.0	12/16/04 13:11	PPM			
o-Xylene	ND	ug/l	1.0	1.0	12/16/04 13:11	PPM	95-47-6		
1-Chloro-3-fluorobenzene (S)	115	%		1.0	12/16/04 13:11	PPM	625-98-9		
VPH in Water by Mass. Method      Method: VPH									
Aliphatic (C05-C08)	ND	ug/l	100	1.0	12/14/04 19:02	KBS			
Aliphatic (C09-C12)	ND	ug/l	100	1.0	12/14/04 19:02	KBS			
Aromatic (C09-C10)	ND	ug/l	100	1.0	12/14/04 19:02	KBS			
2,5-Dibromotoluene (FID)(S)	128	%		1.0	12/14/04 19:02	KBS			
2,5-Dibromotoluene (PID)(S)	146	%		1.0	12/14/04 19:02	KBS		2	

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Asheville Certification IDs

NC Wastewater 40  
NC Drinking Water 37712  
SC Environmental 99030  
FL MFLAD 587648



Charlotte Certification IDs

NC Wastewater 12  
NC Drinking Water 37706  
SC 99006  
FL MFLAD 587648