PRELIMINARY SITE ASSESSMENT
PARCEL #64, W.J. GASKINS, JR. 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:	W. J. Gaskins Jr. PO BOX 866 Bridgeton, NC
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

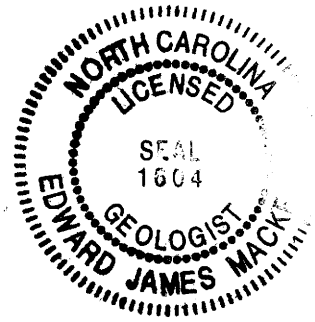
WESTON SOLUTIONS, INC.

Tara Rowland
Geoscientist

Gregory C. Ford
Associate Geoscientist

Steve L. Brown
Project Manager

Edward J. Mackey, P.G.
Registered Geologist



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SECTION 1. INTRODUCTION

The Preliminary Site Assessment (PSA) was conducted at the W.J. Gaskins, Jr. property, located at 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 samples.

W.J. Gaskins, Jr. Property-Known Site History

The project location is 123 Antioch Road, on the northwest corner of the intersection with US 17 (Figure 2). This property formerly contained a country store. Currently, an occupied mobile home is on the property. It appears that petroleum products were sold here and the USTs are believed to be still in place. The eastern portion of the ROW consists of a grass-covered, residential yard, and a cleared area long the shoulder of US 17. The western portion of the ROW area consists of wooded terrain and thick brush.

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 induarted 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 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 was encountered onsite at four (4) to five (5) feet(ft) 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

According to the "Geophysical Surveys For Detection of Metallic UST's" report submitted on December 13, 2004 by Geophysical Survey Investigations (GSI), doing business under Pyramid Environmental & Engineering, to WESTON, geophysical surveys utilizing Ground Penetrating Radar (GPR) technology were performed to locate possible underground metallic storage tanks (UST's) within the Right-of-Way (ROW) of this property. The majority of the survey area at the WJ Gaskins Property, which has an approximate length of 30,000 square feet (0.69 acres), consists primarily of a grass-covered, residential yard, and wooded terrain. The geophysical results suggest that the surveyed portion of the ROW does not contain metallic UST's. A copy of the geophysical report for the corridor is included as Appendix B.

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 bgs, to conservatively encompass any area of potential excavation during road construction, and shipped for laboratory analysis. Groundwater was encountered at approximately four (4) to five (5) below ground surface (bgs) in the borings advanced at this site. If a sample had exhibited a high PID reading at a shallower interval, a sample would have been taken at that interval. 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 B.

3.2.2 PROPERTY SAMPLING

On 9 December 2004, Probe Technology, Inc. of Concord, North Carolina under the supervision of WESTON, mobilized to the Gaskins Property, with a direct push Geoprobe. Six (6) soil borings were advanced at this site. A total of six (6) 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. Table 1 displays the PID readings for each soil boring. Borehole logs for each boring appear in Appendix B.

3.3 GROUNDWATER SAMPLING

3.3.1 SAMPLING PROCEDURES

One (1) groundwater sample was collected directly from SB-09-D using clean tubing. The sample was 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 sample from boring SB-09-D. While collecting samples from this property, there appeared to be evidence of impacted groundwater (odor) observed from the sample.

3.4 ANALYTICAL RESULTS FOR W.J. GASKINS, JR. PROPERTY

3.4.1 SOIL ANALYTICAL RESULTS

On 10 December 2004, six (6) soil samples were collected and analyzed. The analytical results for the soil samples collected at this property did not exceed the laboratory detection limits for GRO at each location. The analytical results for the soil samples collected at this property did not exceed the laboratory detection limits for DRO at five (5) locations. Sample SB-09-F(0-4) exhibited a DRO concentration at 13 mg/kg that exceeded the Applicable Action Level of 10 µg/l. 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 10 December 2004, one (1) groundwater sample was collected and analyzed. The sample GW-09-D exhibited a concentration that exceeded the North Carolina Groundwater Quality Standard (GWQS) of 15 µg/l for lead at 120 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 Carpenter Shop. This area encompass the area around SB-09-D(0-4). The horizontal extent of contamination is approximately 100 square feet (ft^2). 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 15 cubic yards (yd^3). The extent of contamination is presented in Figure 3.

Based on the file reviews, for the various properties in Bridgeton, there does not appear to be enough information about lead levels to know whether or not the lead concentration could be considered a possible background contaminant.

SECTION 4. CONCLUSIONS AND RECOMMENDATIONS

4.1 CONCLUSIONS

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

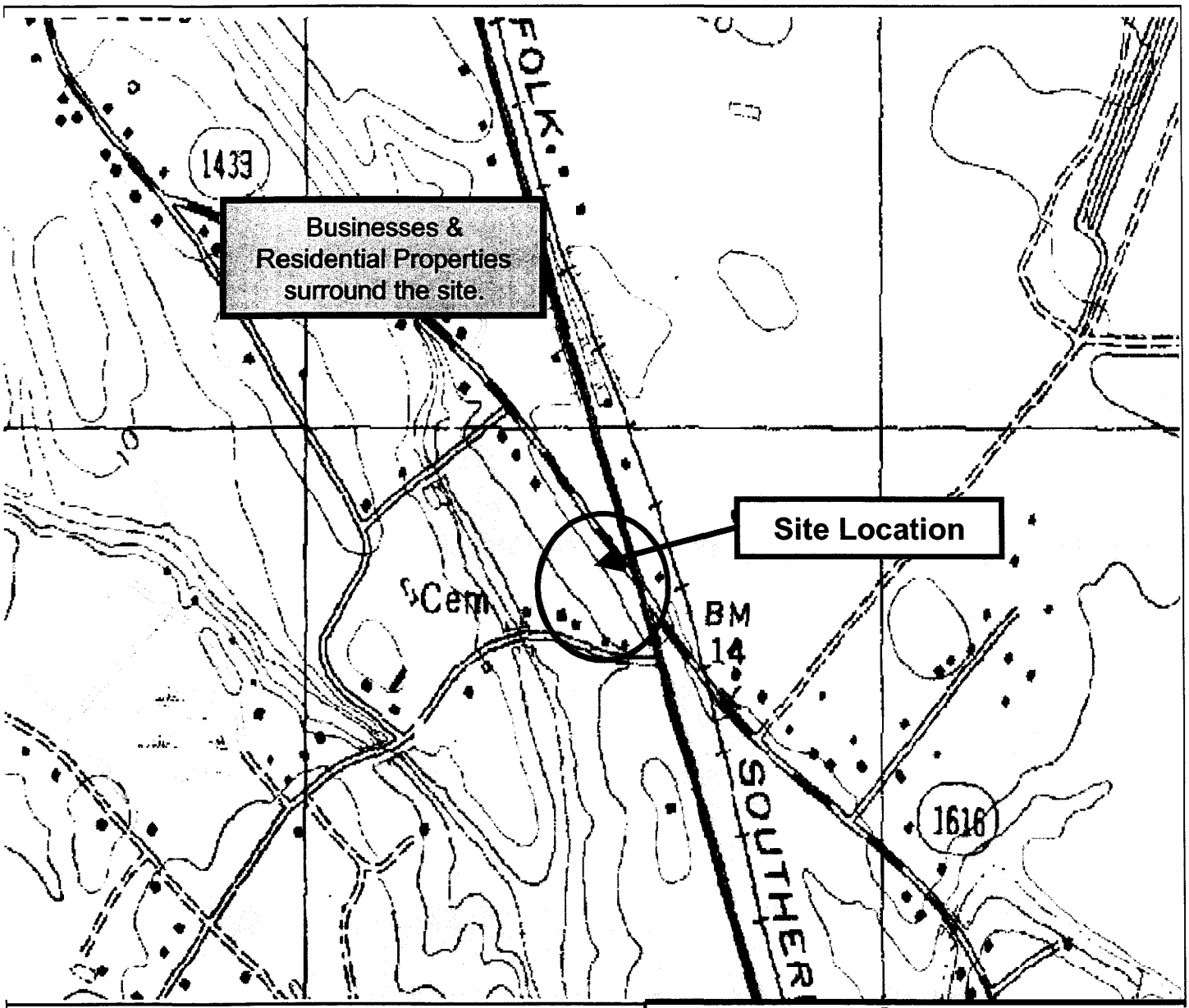
- The geophysical results suggest that the surveyed portion of the ROW does not contain metallic UST's.
- Sample results from the Gaskins Property exhibited soil concentrations that did not exceed the laboratory detection limits for DRO at all locations, but exceed GRO at one (1) location.
- Groundwater sample results from the Gaskins Property exhibited concentrations that did exceed the GWQS for lead.
- Approximately 15 yd^3 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 the WJ Gaskins Property exhibited soil contaminant concentrations that exceeded the Applicable Action Levels, therefore, approximately 15 yd^3 of soil should be removed and disposed prior to road construction.
- Based on the analytical sample results, groundwater samples, which were collected from the Right of Way and PDE areas of the WJ Gaskins Property, exhibited groundwater concentrations that exceeded the GWQS; therefore, if groundwater is encountered during the installation of the proposed drainage features, further action may be warranted.

FIGURES



MAP LOCATION

SCALE 1:20,000

SOURCE: topozone.com

N

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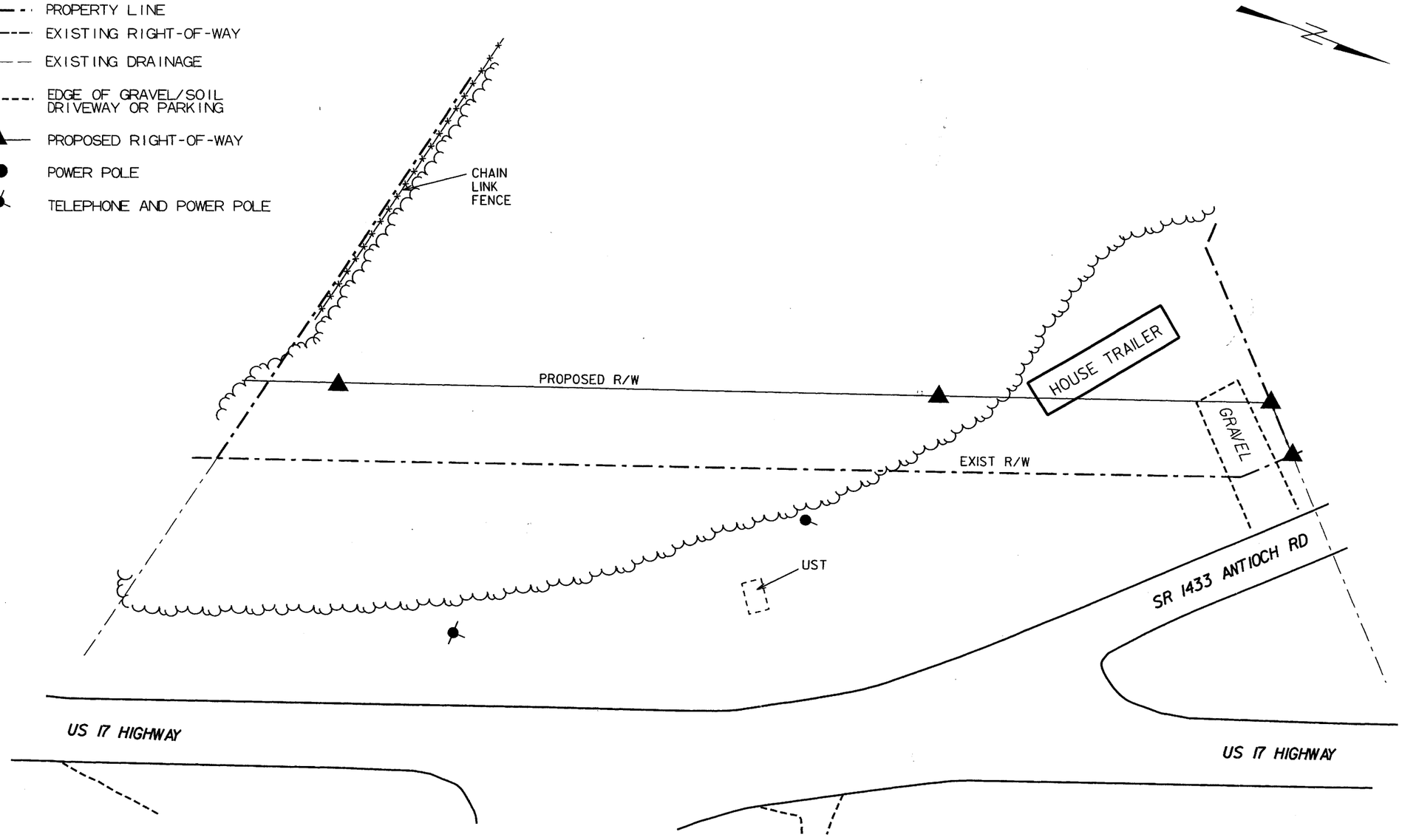
REV.	DRAWING DATE: 12/22/04	ACAD FILE:	
Site Vicnity Map			
CLIENT: North Carolina Department of Transportation			PM: SLB
LOCATION: 123 Antioch Road Bridgeton, NORTH CAROLINA			PE/RG:
DESIGNED:	DETAILED: TR	PROJECT NO:	FIGURE: 1

LEGEND

- PROPERTY LINE
- EXISTING RIGHT-OF-WAY
- EXISTING DRAINAGE
- EDGE OF GRAVEL/SOIL DRIVEWAY OR PARKING
- PROPOSED RIGHT-OF-WAY
- POWER POLE
- TELEPHONE AND POWER POLE



SCALE: 1" =40'

SITE LOCATION MAP

FIGURE 2

WILLIAM JOHN GASKINS PROPERTY

PARCEL #64

CRAVEN COUNTY, NORTH CAROLINA

DATE: DECEMBER 17, 2004

PROJECT NO.: R3404A

LEGEND

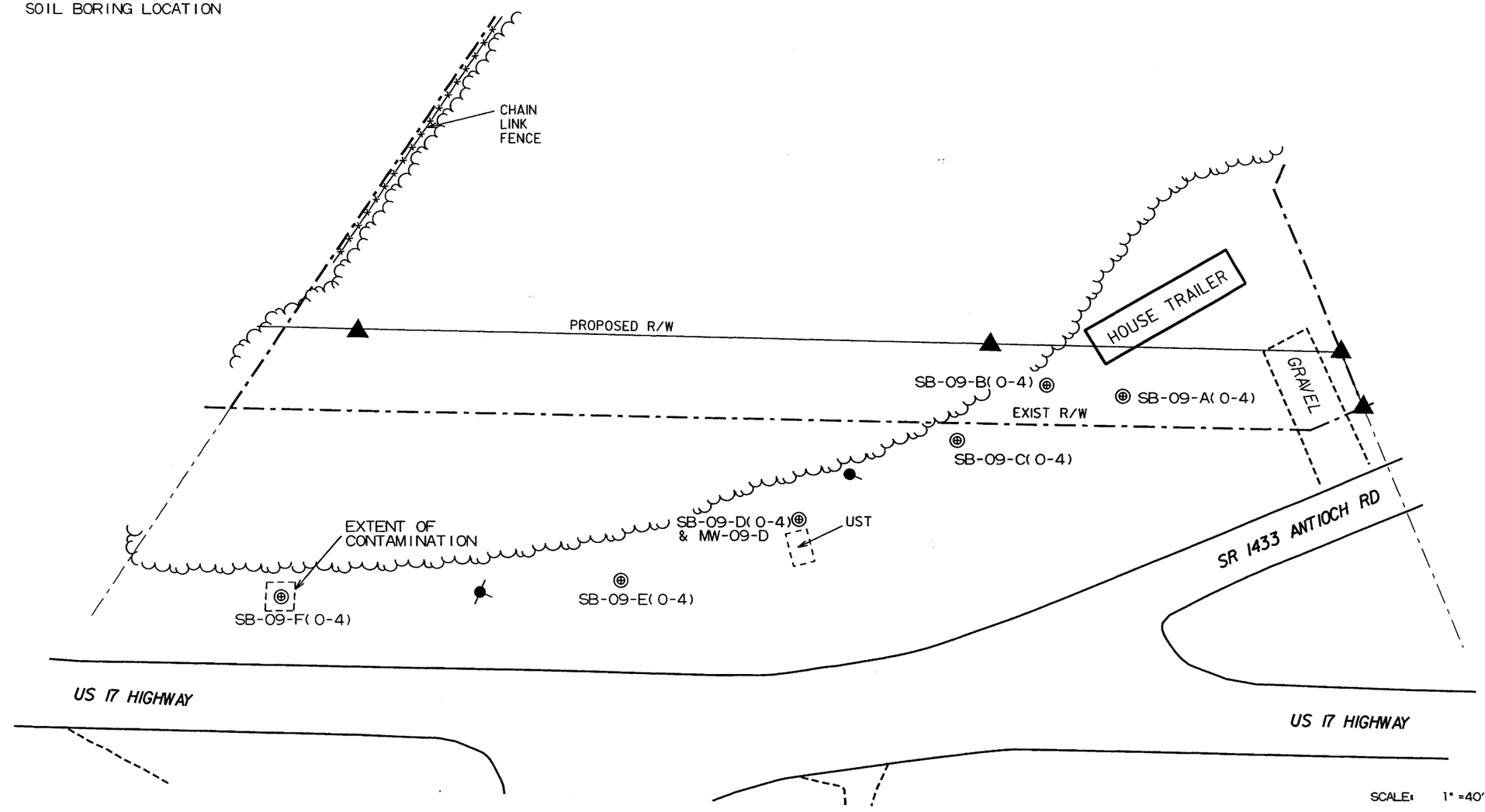
- PROPERTY LINE
- EXISTING RIGHT-OF-WAY
- EXISTING DRAINAGE
- EDGE OF GRAVEL/SOIL DRIVEWAY OR PARKING
- PROPOSED RIGHT-OF-WAY
- POWER POLE
- TELEPHONE AND POWER POLE
- SOIL BORING LOCATION

Summary of Groundwater Sampling Laboratory Analytical
Parcel #64, W.J. Gaskins, Jr. Property

	SAMPLE ID
	GW-09-D
Lead (ug/l)	120
Aliphatic (C09-C18)	240

Summary of Soil Sampling Laboratory Analytical
Parcel #63, W.J. Gaskins Jr. Property

Sample ID	Depth (ft)	OVM Readings (ppm)	DRO (mg/kg)	GRO (mg/kg)
SB-09-A(0-4)	(0 - 4)	*0.0*	ND	ND
SB-09-B(0-4)	(0 - 4)	*0.0*	ND	ND
SB-09-C(0-4)	(0 - 4)	*0.0*	6.6	ND
SB-09-D(0-4)	(0 - 4)	*0.0*	8.8	ND
SB-09-E(0-4)	(0 - 4)	*0.0*	ND	ND
SB-09-F(0-4)	(0 - 4)	*0.0*	**13**	ND



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BORING LOCATIONS & ANALYSIS FIGURE 3

WILLIAM JOHN GASKINS PROPERTY
PARCEL #64
CRAVEN COUNTY, NORTH CAROLINA
DATE: DECEMBER 17, 2004
PROJECT NO.: R3404A

TABLES

TABLE 1

Summary of Soil Sampling Laboratory Analytical
Parcel #63, W.J. Gaskins Jr. Property
December 9, 2004

Sample ID	Depth (ft)	OVM Readings (ppm)	DRO (mg/kg)	GRO (mg/kg)
Applicable Action Levels			***10***	***10***
SB-09-A(0-4)	(0 - 4)	*0.0*	ND	ND
SB-09-B(0-4)	(0 - 4)	*0.0*	ND	ND
SB-09-C(0-4)	(0 - 4)	*0.0*	6.6	ND
SB-09-D(0-4)	(0 - 4)	*0.0*	8.8	ND
SB-09-E(0-4)	(0 - 4)	*0.0*	ND	ND
SB-09-F(0-4)	(0 - 4)	*0.0*	**13**	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 #64, W.J. Gaskins, Jr. Property
December 9, 2004

	North Carolina Groundwater Quality Standard (GWQS)	Gross Contamination Levels for Groundwataer (GCL)	SAMPLE ID
			GW-09-D
Lead (ug/l)	15	15,000	**120**
Volatiles (ug/l)			ND
Semi-Volatiles (ug/l)			ND
EPH (mg/l)			
Aliphatic (C09-C18)	4,200	--	240
VPH (mg/l)			ND

- 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 constiuent

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:

Division: **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:

CERCLA/SARA	RCRA	Other Federal Agency
☐ US EPA	☐ US EPA	☐ DOE
☒ State	☐ State	☐ USACE
☐ NPL Site	**NRC**	☐ Air Force
OSHA	☐ 10 CFR 20	☐

☒ Hazard Communication (Req'd See Attachment "D")

☐ 1910 ☐ 1926 ☐ 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.

☐ Stack Test	☐
☐ Air Emissions	☐
☐ Asbestos	☐
☐ Industrial Hygiene	☐
☐ _____	☐

Review and Approval Documentation:

Reviewed by:

a. P.M. Steve Brown Signature:_____ Date:_____

b. P.D. _____ Signature:_____ Date:_____

c. O.S.M Bill Groeber Signature: W. L. Groeber Date: 11/8/04

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.

WESTON REPRESENTATIVES

Organization/Branch	Name/Title	Address	Telephone
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

Roles and Responsibilities: Tara Rowland will be the SHSC for the site.

WESTON SUBCONTRACTORS

Organization/Branch	Name/Title	Address	Telephone
Geophysical Survey Investigations		Greensboro, NC	
Geologic, Inc.		Statesville, NC	

Roles and Responsibilities: 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.**

SITE SPECIFIC HEALTH AND SAFETY PERSONNEL

The Site Health and Safety Coordinator (SHSC) for activities to be conducted at this site is: Tara Rowland

The SHSC has total responsibility for ensuring that the provisions of this Site HASP are adequate and implemented in the field.

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

Qualifications:

- **OSHA 40-hr. HAZWOPER training**
- **Current: annual 8-hr refresher, respirator fit test, 1st Aid, CPR, medical monitoring/annual physical**
- **SHSC training req'd. for SHSC.**

Designated alternates include: Ed Mackey, Steve Brown

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.

Physiochemical [1]

- ☒ Flammable
- ☒ Explosive
- ☐ Corrosive

Chemically Toxic [1]

- ☒ Inhalation
- ☒ Ingestion
- ☒ Contact
- ☒ Absorbtion
- ☒ Carcinogen
- ☐ Mutagen
- ☐ Teratogen

☐ OSHA 1910.1000 Substance (Air Contaminants)

☒ OSHA Specific Hazard Substance Standard
(Refer to HASP Form 04HASP.894 for Listing.)

Radiation ☐

Ionizing:

- ☐ Internal exposure
- ☐ External exposure

Biological [2]

- ☐ Etiological Agent
- ☒ Other (Plant, insect, animal)

☒ Physical Hazards [2]

Source/Location of Contaminants and Hazardous Substances

Directly Related to Tasks	Indirectly Related to Tasks - Nearby Process(es) That Could Affect Team Members:
☒ Air ☐ Other Surface ☒ Groundwater ☒ Soil ☐ Surface Water ☐ Sanitary Wastewater (suspect. sewer discharge into site creek) ☐ Process Wastewater ☐ Other	☐ Client Facility ☒ Nearby Non-client Facility Describe: Several of these sites contain active fueling facilities, traffic hazards. ☐ 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 33HASP.894 or attach data sheets from acceptable sources such as NIOSH pocket guide, condensed chemical dictionary, ACGIH TLV 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
kerosene	unknown	**Alconox**	1 quart
TPH-Gasoline	560 mg/Kg		
TPH-Diesel	380 mg/Kg		
Lead	unknown		
Xylenes	unknown		
MTBE	unknown		
EBD	unknown		
IPE	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.

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

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
Loud noise	Hearing loss/disruption of communication	☒	FLD01 - Noise Protection
Inclement weather	Rain/humidity/cold/ice/snow/lightning	☒	FLD02 - Inclement Weather
Steam heat stress	Burns/displaced oxygen/wet working surfaces	☐	FLD03 - Hot Process - Steam
Heat/Stress	Burns/hot surfaces/low pressure steam	☐	FLD04 - Hot Process - LT3
Ambient heat stress	Heat rash/cramps/exhaustion/heat stroke	☐	FLD05 - Heat Stress Prevention/Monitoring
Cold Stress	Hypothermia/frostbite	☒	FLD06 - Cold Stress
Cold/wet	Trench/paddy/immersion foot/edema	☐	FLD07 - Wet Feet
Confined spaces	Falls/burns/drowning/engulfment/electrocution	☐	FLD08 - Confined Space Entry
Explosive vapors	Thermal burns/impaction/dismemberment	☐	FLD09 - Hot Work
Improper lifting	Back strain/abdomen/arm/leg muscle/joint injury	☒	FLD10 - Manual Lifting/Handling Heavy Objects
Uneven Surfaces	Vehicle accidents/slips/trips/falls	☒	FLD11 - Rough Terrain
Poor housekeeping	Slips/trips/falls/punctures/cuts/fires	☒	FLD12 - Housekeeping
Structural integrity	Crushing/overhead hazards/compromised floors	☐	FLD13 - Structural Integrity
Hostile persons	Bodily injury	☐	FLD14 - Site Security
Remote Area	Slips/trips/falls/back strain/communication	☐	FLD15 - Remote Area
Improper Cyl.Handling	Mechanical injury/fire/explosion/suffocation	☐	FLD16 - Pressure Systems - Compressed Gases
Water Hazards	Poor visibility/entanglement/drowning/cold stress	☐	FLD17 - Diving
Water Hazards	Drowning/heat/cold stress/hypothermia/falls	☐	FLD18 - Operation and Use of Boats
Water Hazards	Drowning/frostbite/hypothermia/falls/electrocution	☐	FLD19 - Working Over Water
Vehicle Hazards	Struck by vehicle/collision	☒	FLD20 - Traffic
Explosions	Explosion/fire/thermal burns	☐	FLD21 - Explosives
Moving mechanical parts	Crushing/pinch points/overhead hazards	☒	FLD22 - Heavy Equipment Operation
Moving mech.parts	Overhead hazard/electrocution	☐	FLD23 - Cranes/Lifting Equipment Operation
Working at elevation	Overhead hazards/falls/electrocution	☐	FLD24 - Aerial Lifts/Manlifts
Working at elevation	Overhead hazard/falls/electrocution	☐	FLD25 - Working at Elevation
Working at elevation	Overhead hazard/falls/electrocution/slips	☐	FLD26 - Ladders
Working at elevation	Slips/trips/falls/overhead hazards	☐	FLD27 - Scaffolding
Trench Cave-I+n	Crushing/falling/overhead hazards/suffocation	☐	FLD28 - Excavating/Trenching
Improper material handling	Back injury/crushing from load shifts	☒	FLD29 - Materials Handling
Physiochemical	Explosions/fires from oxidizing, flam./corr.material	☐	FLD30 - Hazardous Materials Use/Storage
Physiochemical	Fire and explosion	☐	FLD31 - Fire Prevention/Response Plan Required
Physiochemical	Fire	☐	FLD32 - Fire Extinguishers Required
Structural integrity	Overhead/electrocution/slips/trips/falls/fire	☐	FLD33 - Demolition
Electrical	Electrocution/shock/thermal burns	☒	FLD34 - Utilities
Electrical	Electrocution/shock/thermal burns	☐	FLD35 - Electrical Safety
Burns/Fires	Heat Stress/Fires/Burns	☐	FLD36 - Welding/Cutting/Burning
Impact/thermal	Thermal burn/high pressure impaction/heat stress	☐	FLD37 - High Pressure Washers
Impaction/electrical	Smashing body parts/pinching/cuts/elecrocution	☒	FLD38 - Hand and Power Tools
Poor visibility	Slips/trips/falls	☒	FLD39 - Illumination
Fire/Explosion	Burns/impaction	☒	FLD40 - Storage Tank
Communications	Disruption of Communications	☐	FLD41 - Std. Hand/Emergency Signals
Energy/Release	Unexpected release of energy	☐	FLD42 - Lockout/Tagout
Drilling hazards	Electrocution/overhead hazards/pinch points	☐	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
Task(s): 002		**Task(s): 002:**
☒ Head	hard hat	☐ Head
☒ Eye and Face	safety glasses w. side shields	☐ Eye and Face
☒ Hearing	ear plugs	☐ Hearing
☐ Arms and Legs Only		☐ Arms and Legs Only
☒ Appropriate Work Uniform	protective shirt & pants; short pants may be substituted for air temperatures > 85° F when not in vegetation or at risk of spilling sample or cleaning sol'ns on legs.	☐ Whole Body
☒ Hand - Gloves	protective nitriles	
☒ Foot - Safety Boots		☐ Hand - Gloves
☐ Fall Protection		
☐ Flotation		
☒ Other	Orange safety vest	☐ Foot -

SITE OR PROJECT HAZARD MONITORING PROGRAM

Direct Reading Air Monitoring Instruments

Instrument Selection and Initial Check Record

Reporting Format: ☒ Field Notebook ☒ Field Data Sheets ☐ Air Monitoring Log ☐ Trip Report ☐ Other

Instrument	Task No.(s)	Number Required	Number Received	Checked Upon Receipt	Comment	Initials
☐ CGI				☐		
☐ O_2				☐		
☐ CGI/O_2				☐		
☐ CGI/O_2/tox-PPM, H_2S,H_2S/CO				☐		
☐ RAD-GM				☐		
☐ NaI				☐		
☐ ZnS				☐		
☐ Other				☐		
☒ PID				☐		
☐ HNU 10.2				☐		
☐ HNU 11.7				☐		
☒ Photovac, TMA	2			☐		
☐ OVM				☐	Methane & Zero Gas	
☐ Other				☐		
☐ FID				☐		
☐ FOX 128				☐		
☐ Heath, AID, Other				☐		
☐ RAM, Mini-RAM, Other				☐		
☐ Monotox				☐		
☐ H_2S				☐		
☐ COCL				☐		
☐ SO_2				☐		
☐ HCN				☐		
☐ Other CO, CH4				☐		
☐ Bio-Aerosol Monitor				☐		
☐ Detector Tubes				☐		
☐ Pump - MSA, Dräeger, Sensidyne				☐		
☐ Tubes/type: NO_X				☐		
☐ Tubes/type: sulfide				☐		

SITE OR PROJECT HAZARD MONITORING PROGRAM

Direct Reading Air Monitoring Instruments Calibration Record

Instrument, Mfg., Model, Equip. ID No.	Date	Time	Calib. Material	Calib. Method Mfg.'s	Other	Initial Setting and Reading	Final Setting and Reading	Calibrator's Initials

SITE AIR MONITORING PROGRAM

Direct Reading Air Monitoring Instruments

Air Monitoring Instrument:

Air Monitoring Frequency:

- [x] 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
☐ **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.
☐ **Oxygen**	N/A	Ambient Air Concentration	Confined Space Concentration	
		<19.5% O_2	<19.5% O_2	Leave area. Re-enter only with self-contained breathing apparatus.
		19.5% to 25% O_2	19.5% to 23.5% O_2	Work may continue. Investigate changes from 21%.
		>25% O_2	>23.5% O_2	Work must stop. Ventilate area before returning.
☐ **Radiation**	N/A	< 3 times background		Continue work.
		3 times background to < 1 mR/hour		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.
		> 1 mrem/hour		Potential radiation hazard. Evacuate site. Continue investigation only upon the advice of Health Physicist.
☒ **Organic gases and vapors**		Ambient breathing zone > 50 ppmv on PID		
		> 1000 ppmv on PID		Work must stop. Ventilate area before returning.
☐ **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	919-462-6945
	Ed Mackey	919-462-6930
	Regional SO – Bill Groeber	919-462-6929
	Jim Davis – Southern Division H&S Manager	1-251-602-1898Office OR 334-319-0380 Cell
	Owen Douglass – Corp. H&S Director	610-701-3065
	Matt Dillon – Risk Management	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)

Name of Hospital: Craven Regional Medical Center

Address: 2000 Neuse Blvd New Bern, NC 28560		**Phone No.:** 1-252-633-8190
Name of Contact: Emergency Room		**Phone No.: 911**
Type of Service: ☐ Physical trauma only ☐ Chemical exposure only ☐ Physical trauma and chemical exposure ☒ Available 24 hours	**Route to Hospital (written detail):** **HOSPITAL-** 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 1st St). Turn left onto NC55 W/US70Br/Neuse Blvd. End at 2000 Neuse Blvd.	Travel time from site: **APPROX. 12 mins.** Distance to hospital: **APPROX. 7.38 MILES** **Name/No. of 24-hr Ambulance Service:** 911

Secondary or Specialty Service Provider

Name of Hospital: Beaufort County Hospital

Address: 628 East 12th St. Washington, NC 27889		**Phone No.: 1-252-975-4500**
Name of Contact: Emergency Room		**Phone No.: 911**
Type of Service: ☐ Physical trauma only ☐ Chemical exposure only ☐ Physical trauma and chemical exposure ☒ Available 24 hours	**Route to Hospital (written detail):** 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 12th St. End at 628 E 12th St.	**Travel time from site:** **46 minutes** **Distance to hospital:** **32.65 miles** **Name/No. of 24-hr Ambulance Service:** 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

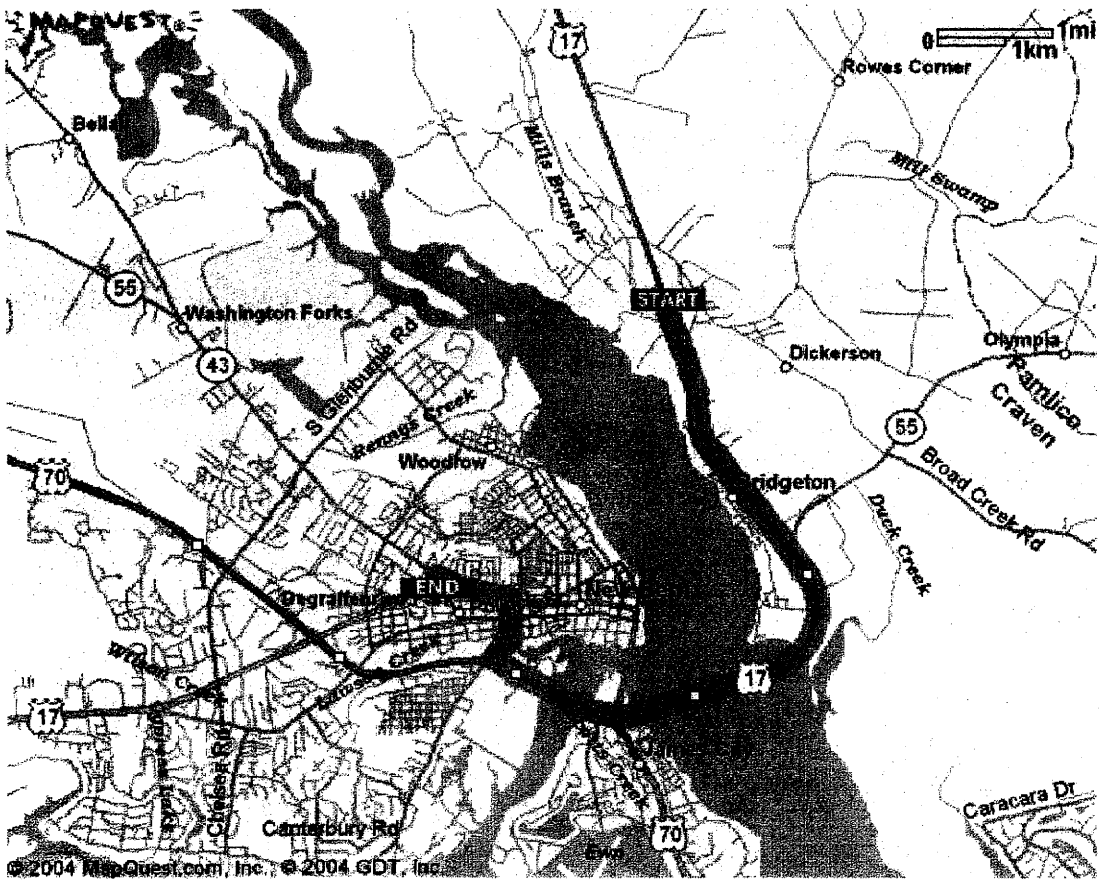
Maneuvers	Distance	Maps
1: Start out going SOUTH on US-17 S toward LU FERRY RD/LUFERRY RD.	5.4 miles	Map
2: Stay straight to go onto US-70 W/FREEDOM MEMORIAL BRIDGE.	0.5 miles	Map
3: Take the PEMBROKE RD exit- EXIT 416- toward TRENT WOODS.	0.2 miles	Map
4: Turn RIGHT onto PEMBROKE RD.	0.2 miles	Map
5: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

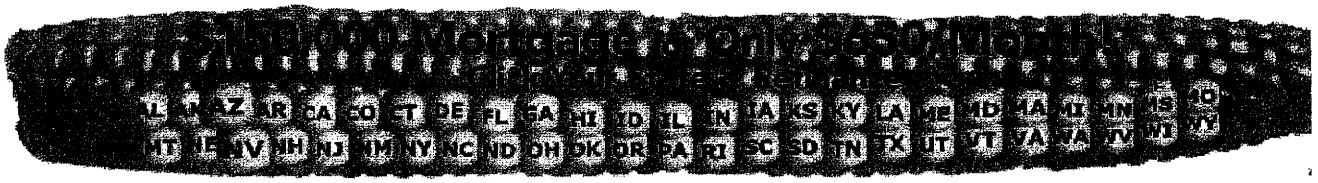
Total Est. Time: 12 minutes **Total Est. Distance:** 7.38 miles

Need a place to stay?

Route Overview Map

Make this map interactive





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

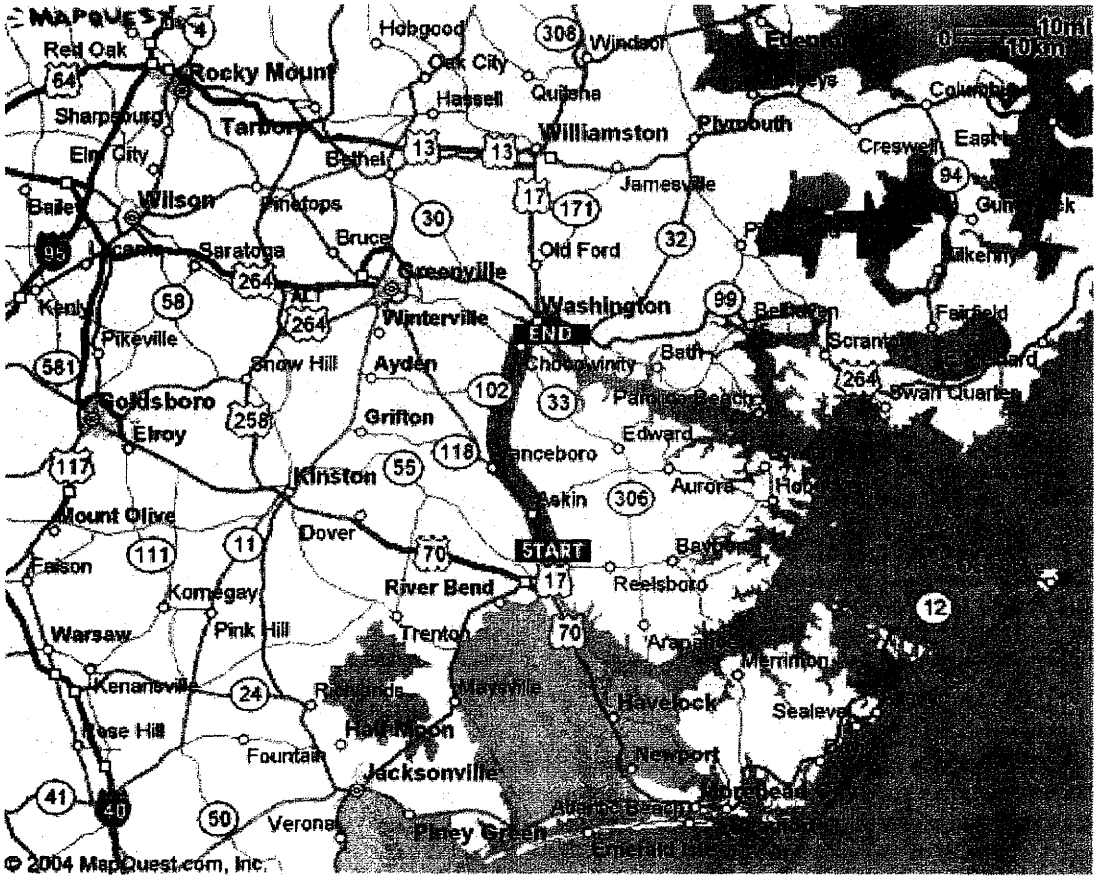
END 628 E 12th St, Washington, NC 27889-3409 US - Hotel Offers - Flight Deals

Maneuvers		Distance	Maps
1:	Start out going NORTH on US-17 N toward BLUE TOP RD/NC-1429.	11.5 miles	Map
2:	Turn SLIGHT RIGHT onto US-17 BYP N.	3.4 miles	Map
3:	US-17 BYP N becomes US-17 N.	16.4 miles	Map
4:	Turn RIGHT onto NC-92/US-264/W R BILL ROBERSON JR HWY. Continue to follow NC-92/US-264.	0.9 miles	Map
5:	Turn SLIGHT LEFT onto N BROWN ST.	0.2 miles	Map
6:	Turn RIGHT onto E 12TH ST.	<0.1 miles	Map
7:	End at 628 E 12TH ST WASHINGTON NC		Map

Total Est. Time: 46 minutes **Total Est. Distance:** 32.65 miles

Need a place to stay?

Route Overview Map Make this map interactive



CONTINGENCIES

Response Plans

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

Plan for Response to Spill/Release		Plan for Response to Fire/Explosion		Fire Extinguishers
In the event of a spill or release, ensure safety, assess situation and perform containment and control measures as appropriate:	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	In the event of a fire or explosion, ensure personal safety, assess situation and perform containment and control measures as appropriate:	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.	Type/Location ABC-In Vehicle of Greg Ford
Description of Spill Response Gear	Location	Description (Other Fire Response Equipment)		Location

Plan to Response to Security Problems

Call local Police.

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
☐ Segregated equipment drop	
☐ Boot cover and glove wash	
☐ Boot cover and glove rinse	
☐ Tape removal - outer glove and boot	
☐ Boot cover removal	
☒ Outer glove removal	Discard in plastic bag. The bag will then be disposed of on-site.
HOTLINE	
☐ Suit/safety boot wash	
☐ Suit/boot/glove rinse	
☐ Safety boot removal	
☐ Suit removal	
☐ Inner glove wash	
☐ Inner glove rinse	
☐ Inner glove removal	
☐ Inner clothing removal	
CRC/SAFE ZONE BOUNDARY	
☒ Field wash – Wash hands prior to leaving work area. Shower ASAP.	
☐ 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**
☐Segregated equipment drop	
☐Boot cover and glove wash	
☐Boot cover and glove rinse	
☐Tape removal - outer glove and boot	
☐Boot cover removal	
☐Outer glove removal	
HOTLINE	
☐Suit/safety boot wash	
☐Suit/boot/glove rinse	
☐Safety boot removal	
☐Suit removal	
☐Inner glove wash	
☐Inner glove rinse	
☐Facepiece removal	
☐Inner glove removal	
☐Inner clothing removal	
CONTAMINATION REDUCTION ZONE (CRZ)/SAFE ZONE BOUNDARY	
☐Field wash	
☐Redress	
Disposal Plan, End of Day:	
Disposal Plan, End of Week:	
Disposal Plan, End of Project:	

SITE PERSONNEL AND CERTIFICATION STATUS

WESTON

Name: Ed Mackey **Title: PM** **Task(s): 1 and 2** **Certification Level or Description:** ☒ Medical Current ☒ Training Current ☒ Fit Test Current (Qual.): ☐ Fit Test Current (Qual.):	**Name: Tara Rowland** **Title: Project Geoscientist/SHSC** **Task(s): 1 and 2** **Certification Level or Description:** ☒ Medical Current ☒ Training Current ☒ Fit Test Current (Qual.): ☐ Fit Test Current (Quant.)
Name: Greg Ford **Title: Geoscientist** **Task(s): 2** **Certification Level or Description:** ☒ Medical Current ☒ Training Current ☐ Fit Test Current (Qual.) ☐ Fit Test Current (Quant.)	**Name: Steve Brown** **Title: Program Manager** **Task(s):** **Certification Level or Description:** ☒ Medical Current ☒ Training Current ☒ Fit Test Current (Qual.) ☐ Fit Test Current (Quant.)
Name: **Title:** **Task(s):** **Certification Level or Description:** ☐ Medical Current ☐ Medical Current ☐ Fit Test Current (Qual.) ☐ Fit Test Current (Qual.)	**Name:** **Title:** **Task(s):** **Certification Level or Description:** ☐ Medical Current ☐ Training Current ☐ Fit Test Current (Qual.) ☐ Fit Test Current (Quant.)
Name: **Title:** **Task(s):** **Certification Level or Description:** ☐ Medical Current ☐ Medical Current ☐ Fit Test Current (Qual.) ☐ Fit Test Current (Qual.)	**Name:** **Title:** **Task(s):** **Certification Level or Description:** ☐ Medical Current ☐ Training Current ☐ Fit Test Current (Qual.) ☐ Fit Test Current (Quant.)
Name: **Title:** **Task(s):** **Certification Level or Description:** ☐ Medical Current ☐ Training Current ☐ Fit Test Current (Qual.) ☐ Fit Test Current (Quant.)	**Name:** **Title:** **Task(s):** **Certification Level or Description:** ☐ Medical Current ☐ Training Current ☐ Fit Test Current (Qual.) ☐ Fit Test Current (Quant.)
Name: **Title:** **Task(s):** **Certification Level or Description:** ☐ Medical Current ☐ Training Current ☐ Fit Test Current (Qual.) ☐ Fit Test Current (Quant.)	**Name:** **Title:** **Task(s):** **Certification Level or Description:** ☐ Medical Current ☐ Training Current ☐ Fit Test Current (Qual.) ☐ Fit Test Current (Quant.)

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.

HEALTH AND SAFETY PLAN APPROVAL/SIGNOFF FORM

Site Name: Rowan County (Parcels - #4, #5, # 15, #50, #52, #63, #64) **WO# 13502.001.001.007**

Address: Statesville, Blvd. Cleveland, NC

I understand, agree to and will conform with the information set forth in this Health and Safety Plan (and attachments) and discussed in the Personnel Health and Safety briefing(s).

Print Name / Company	Signature	Date
Gregory C. Ford / Weston Solutions		11/08/04
Tara Rowland / Weston		12/06/04

TRAINING AND BRIEFING TOPICS	
The following items will be covered at the site specific training meeting, daily or periodically.	
☒ Site characterization and analysis, Sec. 3.0, 29 CFR 1910.120 i	☐ Level A
☒ Physical hazards, Table 3.2	☐ Level B
☒ Chemical hazards, Table 3.1	☐ Level C
☒ Animal bites, stings, and poisonous plants	☒ Level D
☐ Etiologic (infectious) agents	☒ Monitoring, Sec. 7.0; 29 CFR 1910.120 h
☐ Site control, Sec. 8.0; 29 CFR 1910.120 d	☒ Decontamination, Sec. 9.0; 29 CFR 1910.120 k
☐ Engineering controls and work practices, Sec. 8.5; 25 CFR 1910.120 g	☐ Emergency response, Sec. 10.0; 29 CFR 1910.120 l
☒ Heavy machinery	☐ Elements of an emergency response, Sec. 100; 29 CFR 1910.120 l
☐ Forklift	☒ Procedures for handling site emergency incidents, Sec. 10.0; 29 CFR 1910.120 l
☐ Backhoe	☐ Offsite emergency response, 29 CFR 1910.120 l
☒ Equipment	☐ Handling drums and containers, 29 CFR 1910.120 j
☒ Tools	☐ Opening drums and containers
☐ Ladder 29 CFR 1910.27 d	☐ Electrical material handling equipment
☒ Overhead and underground utilities	☐ Radioactive waste
☐ Scaffolds	☐ Shock sensitive waste
☐ Structural integrity	☐ Laboratory waste packs
☐ Unguarded openings - wall, floor, ceilings	☐ Sampling drums and containers
☐ Pressurized air cylinders	☒ Shipping and transport, 49 CFR 172.101
☒ Personnel protective equipment, Sec. 5.0; 25 CFR 1910.120 g; 29 CFR 1910.134	☒ Tank and vault procedures
☒ Respiratory protection, Sec. 5.8; 29 CFR 1910.120 g; Z88.2-1980	☒ Illumination, 29 CFR 1910.120 m
	☒ 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 Gasoline Diesel	☒ Explosive ☒ Flammable ☐ Corrosive ☐ Reactive ☐ Water Reactive ☐ Oxidizer	☐ Solid ☒ Liquid ☐ Gas	☐ Solid ☒ Liquid ☐ Gas	pH: FP: -99°F/ - **2°F** LEL: 77°F/ **NA** UEL: 77°F/ **NA** Auto. Ig.: BP: 189°F / **250°F**	☒ CA 1000ppm / **150ppm** ☒ PEL 100ppm / **100ppm** ☐ TLV ____ ☐ IDLH ____ ☐ Only toxicological data available ☐ Other:	☒ Inhalation ☐ Ingestion ☒ Skin Absorption ☒ Contact ☐ Direct Penetration ☐ Other: ____	☐ HNu ☐ 11.7 eV ☐ 10.2 eV ☒ OVM – Air Monitoring ☐ 10.0/10.6 eV ☐ 11.8 eV ☐ CGI ☐ OVA ☐ ____
CAS No:	☐ Radioactive ☒ Other	Incompatible With: Strong oxidizers		MP: Sp. Gr.: 1.46 / **1.62**			
Synonyms: ,	Combustible **Noncombustible**			Vap. D.: Vap. P.: 58mm / **14mm** H_2O Sol.: 77°F / **0.02%** Other:		Symptoms: Irrit eyes, skin; head **Irrit eyes, nose, throat**	IP: % Response:

ATTACHMENT B

MATERIAL SAFETY DATA SHEETS

(MSDSs)

CORNELL

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
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 - Compositon/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

% Enviromental 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

Carcenogenicity 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 & 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

Repiratory 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 Hygenic Practices: NONE SPECIFIED BY MANUFACTURER.
Supplemental Health & Safety Information: NONE SPECIFIED BY MANUFACTURER.

Section 9 - Physical & Chemical Properties
ALCONOX

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

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

Section 11 - Toxicological Information
ALCONOX

Toxicological Information:
N/P

Section 12 - Ecological Information
ALCONOX

Ecological Information:
N/P

Section 13 - Disposal Considerations
ALCONOX

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.

Section 14 - MSDS Transport Information
ALCONOX

Transport Information:
N/P

Section 15 - Regulatory Information
ALCONOX

SARA Title III Information:
N/P
Federal Regulatory Information:
N/P
State Regulatory Information:
N/P

Section 16 - Other Information
ALCONOX

Other Information:
N/P

HMIS Transportation Information

Product Identification: ALCONOX
Transporation 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
Maximimum Quanity in Passenger Area: N/R
Maximimum Quanity 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

8/8/2002 12:40:10 AM

CORNELL

Material Safety Data Sheets

Division of Facilities Services

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

GASOLINE

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

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

% Enviromental 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
% Enviromental 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:

Section 3 - Hazards Identification, Including Emergency Overview
GASOLINE

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

Carcenogenicity 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.

Section 4 - First Aid Measures
GASOLINE

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 SRROUNDING CONTAINERS.
Flash Point: Flash Point Text: -50F,-46C

Autoignition Temperature:
Autoignition Temperature Text: N/A
Lower Limit(s): <1%
Upper Limit(s): 8%

Section 6 - Accidental Release Measures
GASOLINE

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:

Section 8 - Exposure Controls & Personal Protection
GASOLINE

Repiratory 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 Hygenic 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

Section 9 - Physical & Chemical Properties
GASOLINE

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: O.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

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

Section 11 - Toxicological Information
GASOLINE

Toxicological Information:
N/P

Section 12 - Ecological Information
GASOLINE

Ecological Information:
N/P

Section 13 - Disposal Considerations
GASOLINE

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.

Section 14 - MSDS Transport Information
GASOLINE

Transport Information:
N/P

Section 15 - Regulatory Information
GASOLINE

SARA Title III Information:
N/P
Federal Regulatory Information:
N/P
State Regulatory Information:
N/P

Section 16 - Other Information
GASOLINE

Other Information:
N/P

HMIS Transportation Information

Product Identification: GASOLINE
Transporation 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
Maximimum Quanity in Passenger Area: 5 L
Maximimum Quanity 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)
For Cornell University Convenience Only

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

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

Section 2 - Compositon/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

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

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 WHI CH CAN BE FATAL. CHRONIC:MIDDLE DISTILLATE HAS CAUSED SKIN CANCER WHEN REPEATEDLY APPLIED TO MICE OVER LIFETIME,KIDNEY.

Signs & Symptoms of Overexposure:
SKIN:IRRITAION, 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

Carcenogenicity 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 APPROPRIA TE TECHNIQUES SUCH AS ABSORBENT MATERIALS.

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

Handling and Storage Precautions:

Other Precautions:

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

Repiratory 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 Hygenic 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

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. CANTACT 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
Transporation ID Number: 66870
Responsible Party CAGE: DO839
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
Maximimum Quanity in Passenger Area: 60 L
Maximimum Quanity 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: DO839

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
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

Section 2 - Compositon/Information on Ingredients
KEROSENE

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
% Enviromental 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

Carcenogenicity 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. INGSTION: ASPIRATION HAZARD. DO N'T 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

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 PERSONNE L. 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

Repiratory 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 Hygenic 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, CO2, VARIOUS HYDROCARBON & SULFUR COMPOUNDS
Hazardous Polymerization Indicator: NO
Conditions to Avoid Polymerization:
N/K

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). COMBSUTIBLE LIQUID UN 1223.

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
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

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 R EPEATED 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, SW ELLING, 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

Carcenogenicity 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.

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

First Aid:
INHALED: REMOVE TO FRESH AIR. GIVE ARTIFICIAL RESPIRATION IF BREATHING STOPPED; OXYGEN IF DIFICULT. 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

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

Repiratory 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 Hygenic Practices: WASH HANDS AFTER USE AND BEFORE EATING, DRINKING, OR SMOKING. LAUNDER CONTAMINATED CLOTHES BE FORE 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

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

Section 11 - Toxicological Information
METHYL-TERT-BUTYL ETHER

Toxicological Information:
N/P

Section 12 - Ecological Information
METHYL-TERT-BUTYL ETHER

Ecological Information:
N/P

Section 13 - Disposal Considerations
METHYL-TERT-BUTYL ETHER

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

Transport Information:
N/P

Section 15 - Regulatory Information
METHYL-TERT-BUTYL ETHER

SARA Title III Information:
N/P
Federal Regulatory Information:
N/P
State Regulatory Information:
N/P

Section 16 - Other Information
METHYL-TERT-BUTYL ETHER

Other Information:
N/P

HMIS Transportation Information

Product Identification: METHYL-TERT-BUTYL ETHER
Transporation 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
Maximimum Quanity in Passenger Area: 5 L
Maximimum Quanity 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
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

Section 2 - Compositon/Information on Ingredients
ISOPROPYL ETHER

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
% Enviromental 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
% Enviromental 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

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

Repiratory 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 Hygenic 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

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

Section 11 - Toxicological Information
ISOPROPYL ETHER

Toxicological Information:
N/P

Section 12 - Ecological Information
ISOPROPYL ETHER

Ecological Information:
N/P

Section 13 - Disposal Considerations
ISOPROPYL ETHER

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

Section 14 - MSDS Transport Information
ISOPROPYL ETHER

Transport Information:
N/P

Section 15 - Regulatory Information
ISOPROPYL ETHER

SARA Title III Information:
N/P
Federal Regulatory Information:
N/P
State Regulatory Information:
N/P

Section 16 - Other Information
ISOPROPYL ETHER

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

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

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

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

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 OVING 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

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

Section 6 - Accidental Release Measures
ETHYLENE BROMIDE, E173I 500

Spill Release Procedures:
WEAR A SELF CONTAINED BREATHING APPARATUS AND APPROPRIATE PERSONAL PROTECTION (SEE EXPLOSURE CONTROLS, PERSONAL PROTECTION SECTION). ABSORB SPILL USING AN ABSORBENT, NON-COMBUSTIBLE MATERIAL SUCH AS E ARTH, SAND, OR VERMICULITE. CAREFULLY SCOOP.

Section 7 - Handling and Storage
ETHYLENE BROMIDE, E173I 500

Handling and Storage Precautions:

Other Precautions:

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

Repiratory 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 GOGGS (FP N).
Other Protective Equipment: ANSI APPRVD EMER EYE WASH & DELUGE SHOWER (FP N). WEAR APPROPRIATE PROTECTIVE CLOTHING TO PREVENT SKIN EXPOSURE.
Work Hygenic 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. I F 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

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

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

Stability Indicator: YES
Materials to Avoid:
METALS (ALUMINUM, MAGNESIUM, ZINC, CALCIUM, SODIUM, & 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.

Section 11 - Toxicological Information
ETHYLENE BROMIDE, E173I 500

Toxicological Information:
N/P

Section 12 - Ecological Information
ETHYLENE BROMIDE, E173I 500

Ecological Information:
N/P

Section 13 - Disposal Considerations
ETHYLENE BROMIDE, E173I 500

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

Section 14 - MSDS Transport Information
ETHYLENE BROMIDE, E173I 500

Transport Information:
N/P

Section 15 - Regulatory Information
ETHYLENE BROMIDE, E173I 500

SARA Title III Information:
N/P
Federal Regulatory Information:
N/P
State Regulatory Information:
N/P

Section 16 - Other Information
ETHYLENE BROMIDE, E173I 500

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
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

Section 2 - Compositon/Information on Ingredients
XYLENES

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

% Enviromental 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

Section 3 - Hazards Identification, Including Emergency Overview
XYLENES

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

Carcenogenicity Indicators
NTP: NO
IARC: NO
OSHA: NO

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

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 OFMILK OR WATER. GET MEDICAL AID. INHALATIONGET MEDICAL AID

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

Section 5 - Fire Fighting Measures
XYLENES

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

Section 6 - Accidental Release Measures
XYLENES

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

Section 7 - Handling and Storage
XYLENES

Handling and Storage Precautions:

Other Precautions:

Section 8 - Exposure Controls & Personal Protection
XYLENES

Repiratory 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 APPROPIATE 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

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.

Section 11 - Toxicological Information
XYLENES

Toxicological Information:
N/P

Section 12 - Ecological Information
XYLENES

Ecological Information:
N/P

Section 13 - Disposal Considerations
XYLENES

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

Section 14 - MSDS Transport Information
XYLENES

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

Section 16 - Other Information
XYLENES

Other Information:
N/P

HMIS Transportation Information

Product Identification: XYLENES
Transporation 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
Maximimum Quanity in Passenger Area: 60 L
Maximimum Quanity 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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CORNELL

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
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

Section 2 - Compositon/Information on Ingredients
LEAD METAL

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

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 IRRITABILI TY 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-MUS CLE 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

Carcenogenicity 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 WA TER 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

Repiratory 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 Hygenic 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.ABSORP TION 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

Toxicological Information:
N/P

Section 12 - Ecological Information
LEAD METAL

Ecological Information:
N/P

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

Section 16 - Other Information
LEAD METAL

Other Information:
N/P

HMIS Transportation Information

Product Identification: LEAD METAL
Transporation 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
Maximimum Quanity in Passenger Area: N/R
Maximimum Quanity 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:

8/8/2002 5:47:20 PM

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_2	PID (units)	FID (units)	Aerosol Monitor (mg/m³)	GM: Shield Probe/ Thin Window		NaI (uR/hr)	ZnS (cpm)
					mR/hr	cpm		
Monitox (ppm)				Detector Tube(s)				
Sound Levels (dBA)		Illumination	pH	Other	Other	Other	Other	Other

Location:

% LEL	% O_2	PID (units)	FID (units)	Aerosol Monitor (mg/m³)	GM: Shield Probe/ Thin Window		NaI (uR/hr)	ZnS (cpm)
					mR/hr	cpm		
Monitox (ppm)				Detector Tube(s)				
Sound Levels (dBA)		Illumination	pH	Other	Other	Other	Other	Other

AIR MONITORING/SAMPLING DATA LOG

Client:	**W.O. No.:**	**Sample No.:**
Address:	**Sampled By:**	**Date:**

Employee and Location Information

Employee Name:	**Employee No.:**	**Job Title:**

Respirator ☐ APR ☐ ½ Mask ☐ Full Face
☐ PAPR ☐ ½ Mask ☐ Full Face ☐ Hood
☐ SAR ☐ ½ Mask ☐ Full Face ☐ Hood
☐ SCBA

Manufacturer:

Cartridge Type:

PPE: ☐ Hard Hat ☐ HPD ☐ Gloves ☐ Safety Shoes ☐ Coveralls ☐ Other:

Sampling Data

Sampling Type: ☐ Personal
☐ TWA ☐ STEL ☐ Area ☐ Source
☐ Full Shift ☐ Partial Shift ☐ Grab

Media:

Pump Type/Serial No.:
/

Calibrator/Serial No.:
/

Pre-Calibration:
1.
2.
3.
avg-pre:

Post-Calibration:
1.
2.
3.
avg-post:

Start Time:	**Restart Time:**	**Restart Time:**	**Avg. Flowrate:**	**% Change:**
1st Stop Time:	**2nd Stop Time:**	**3rd Stop Time:**	**Total Time:**	**Volume:**

Multiple Samples for this TWA: ☐ Yes ☐ No

Multiple Chemical Exposures: ☐ Yes ☐ No

Exposure Time: ☐ Normal ☐ Worst Case

Sampling Conditions

Weather Conditions: Temp: R.H: B.P.: Other:

Engineering Controls:

Substances Evaluated

Substance	Result	Substance	Result	Substance	Result

Observations and Comments

QA by: **Date:**

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: Steve Brown/Bill Groeber Project: NC DOT Project Number: 13052.001.001.0014 Date: 1 November 2004 Location: RAL	Task Description: Soil borings utilizing Geo Probe. Collect soil samples and groundwater samples. Perform Slug test	Task Team (name or reference via daily sign-in sheet) Steve Brown, Ed Mackey, Lori Skidmore, Ethan Caldwell, Tara Rowland, Greg Ford

OK

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

GEOPHYSICAL SURVEY INVESTIGATIONS

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

TABLE OF CONTENTS

FIGURES

FIGURES (continued)

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 know 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 Dixion 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 Dixion property. The geophysical results suggest that the ROW portion of the Pope property does not contain metallic UST's.

3.11 Graham W. Dixion Property

As previously mentioned, the Dixion property lies immediately north and contingent to the Pope property. The Dixion 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.

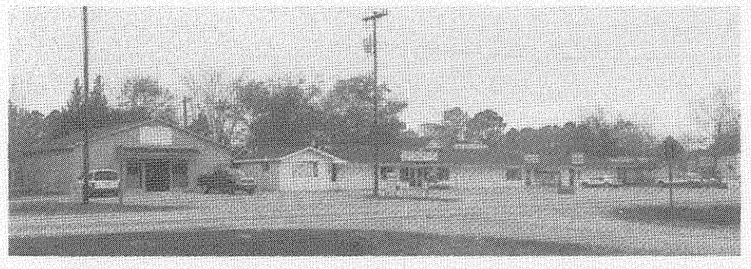
- Remaining Properties: The geophysical investigations suggest that the surveyed portions of the ROW areas at the following sites do not contain metallic UST's.

Charles Freeman Property (Parcel 8)
Encee 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)

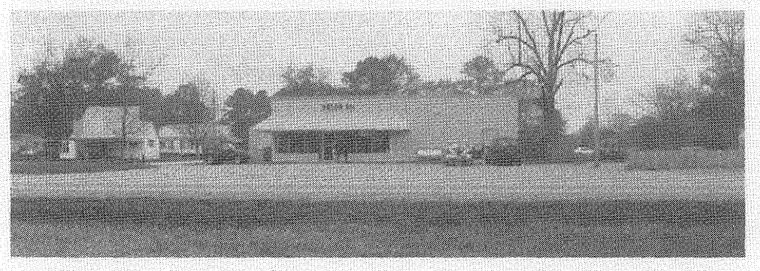
5.0 LIMITATIONS

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.

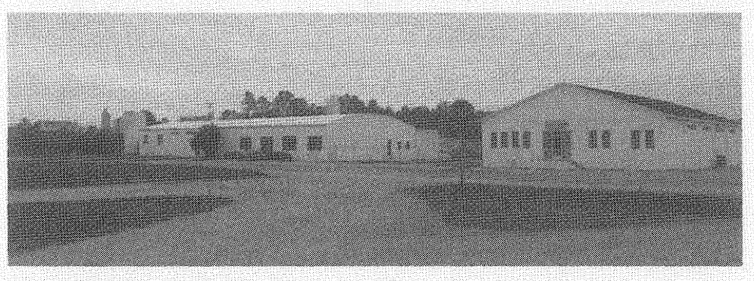
FIGURES



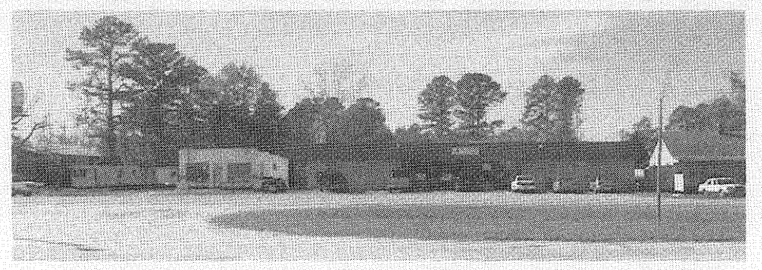
Benjamin F. Tompkins Property



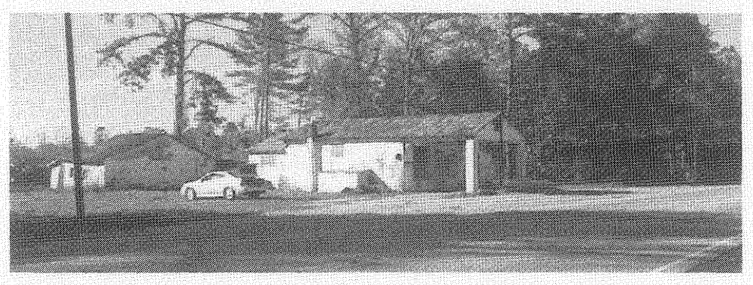
Charles Freeman Property (Parcel 8)



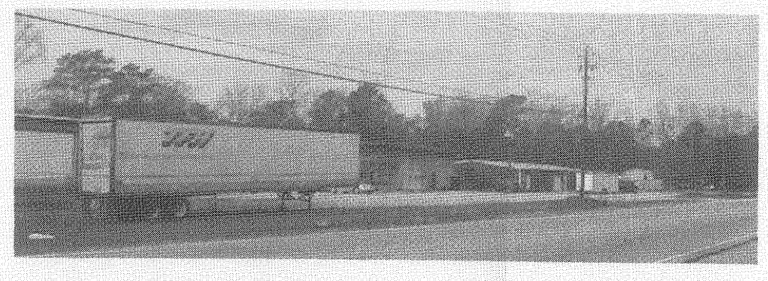
Encee Chemical Sales Property



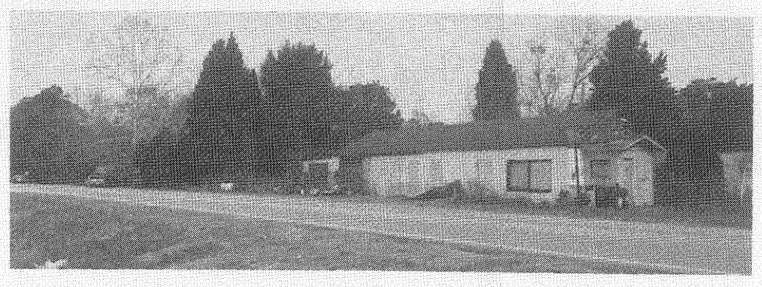
Jimmie & Joyce Sawyer Property (Parcel 27)



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)

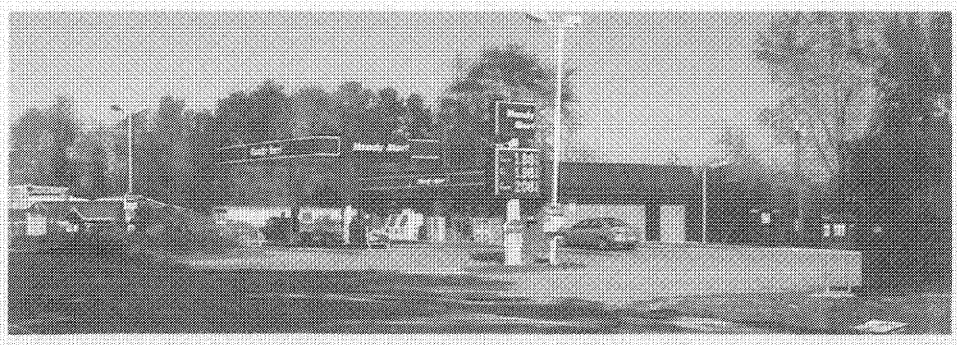
GEOPHYSICAL SURVEY INVESTIGATIONS

Weston Solutions, Inc.

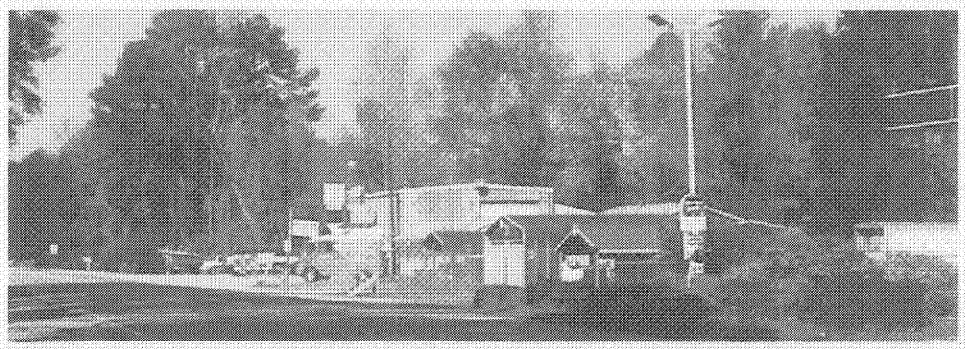
Bridgeton, North Carolina Sites

SITE PHOTOS

FIGURE 1



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



Graham W. Dixion Property (Parcel 74)

GEOPHYSICAL SURVEY INVESTIGATIONS

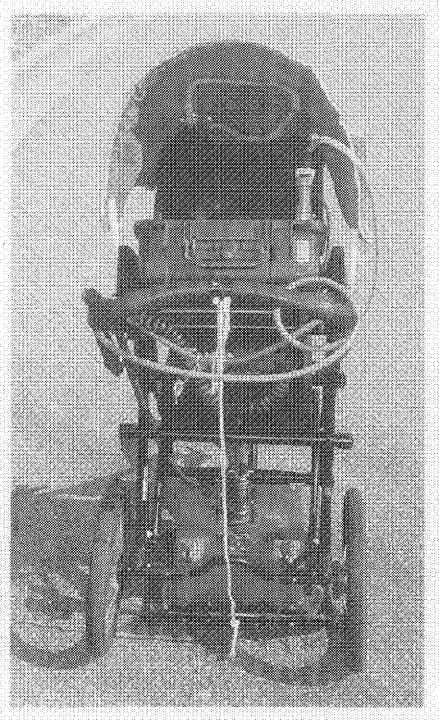
Weston Solutions, Inc.

Bridgeton, North Carolina Sites

SITE PHOTOS

FIGURE 2

The Geonics EM61 metal detector was used to conducted 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.

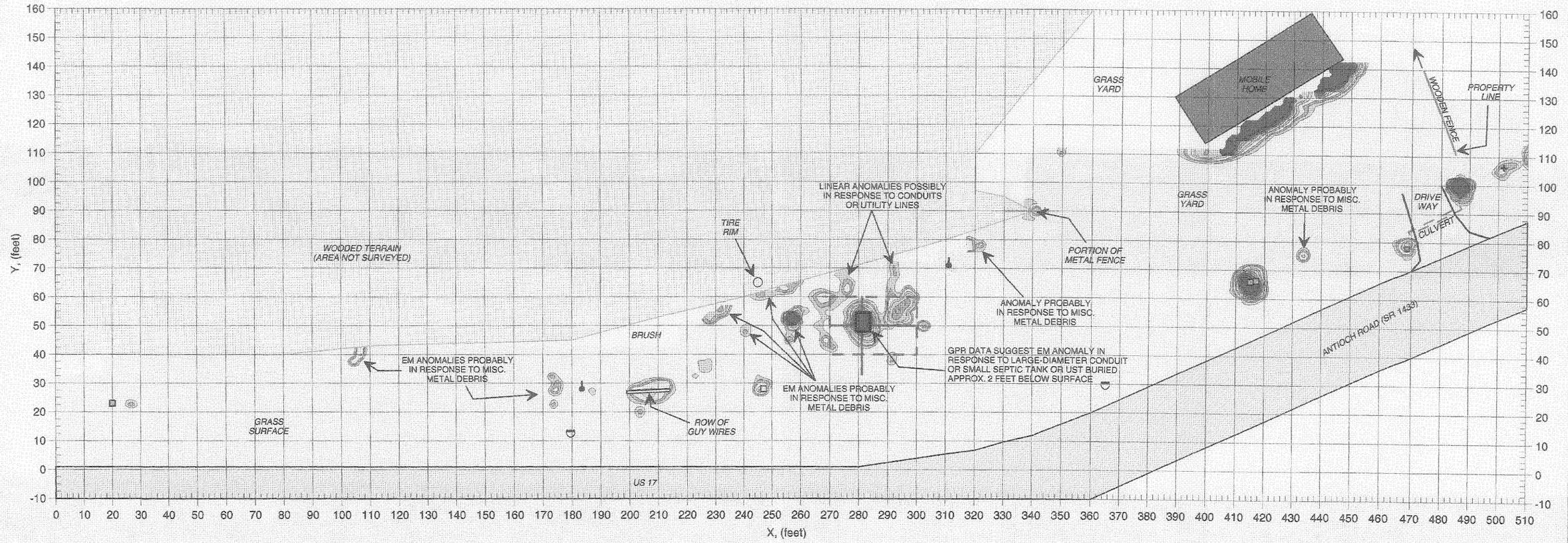
GEOPHYSICAL SURVEY INVESTIGATIONS

Weston Solutions, Inc.

Bridgeton, North Carolina Sites

GEOPHYSICAL EQUIPMENT

FIGURE 3



LEGEND

- EM61 SURVEY AREA: EM DATA ACQUIRED ALONG NORTHWEST-SOUTHEAST TRENDING, PARALLEL LINES SPACED 2.5 FEET APART
- MOBILE HOME
- UTILITY POLE
- WATER METER COVER
- CONCRETE ABUTMENT
- GUY WIRE
- ROAD SIGN
- UNDERGROUND CABLE BOX
- MAIL BOX
- GPR SURVEY AREA: DATA COLLECTED ALONG X AND/OR Y LINES SPACED 2 TO 5 FEET APART
- GPR IMAGES SHOWN IN FIGURE 28
- APPROXIMATE LOCATION OF POSSIBLE CONDUIT, SEPTIC TANK OR UST

APPROXIMATE NORTH

EM61 BOTTOM COIL RESPONSE (MILLIVOLTS)

-5000 -400 -200 -100 -40 20 50 75 100 150 200 300 400 500 750 1000

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 16, 2004 using a Geonics EM61 instrument. Ground penetrating radar (GPR) data were acquired on December 3, 2004 using a Geophysical Survey Systems SIR 2000 instrument with a 400 MHz antenna.

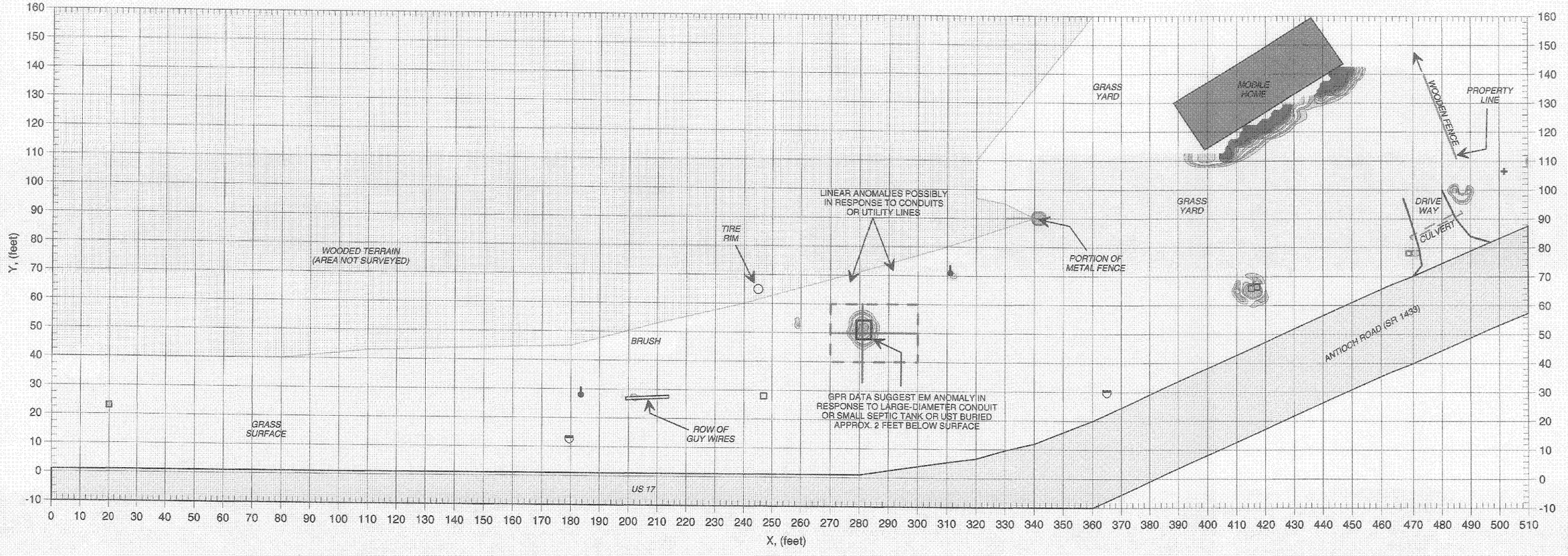
GEOPHYSICAL SURVEY INVESTIGATIONS

Weston Solutions, Inc.

W. J. Gaskins, Jr. Property (Parcel 64)
Bridgeton, North Carolina

EM61
BOTTOM COIL
RESULTS

FIGURE 26



LEGEND

- EM61 SURVEY AREA: EM DATA ACQUIRED ALONG NORTHWEST-SOUTHEAST TRENDING, PARALLEL LINES SPACED 2.5 FEET APART
- MOBILE HOME
- UTILITY POLE
- WATER METER COVER
- CONCRETE ABUTMENT
- GUY WIRE
- ROAD SIGN
- UNDERGROUND CABLE BOX
- MAIL BOX
- GPR SURVEY AREA: DATA COLLECTED ALONG X AND/OR Y LINES SPACED 2 TO 5 FEET APART
- GPR IMAGES SHOWN IN FIGURE 28
- APPROXIMATE LOCATION OF POSSIBLE CONDUIT, SEPTIC TANK OR UST

APPROXIMATE NORTH

EM61 DIFFERENTIAL RESPONSE (MILLIVOLTS)

-5000 -400 -200 -100 -40 20 50 75 100 150 200 300 400 500 750 1000

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 16, 2004 using a Geonics EM61 instrument. Ground penetrating radar (GPR) data were acquired on December 3, 2004 using a Geophysical Survey Systems SIR 2000 instrument with a 400 MHz antenna.

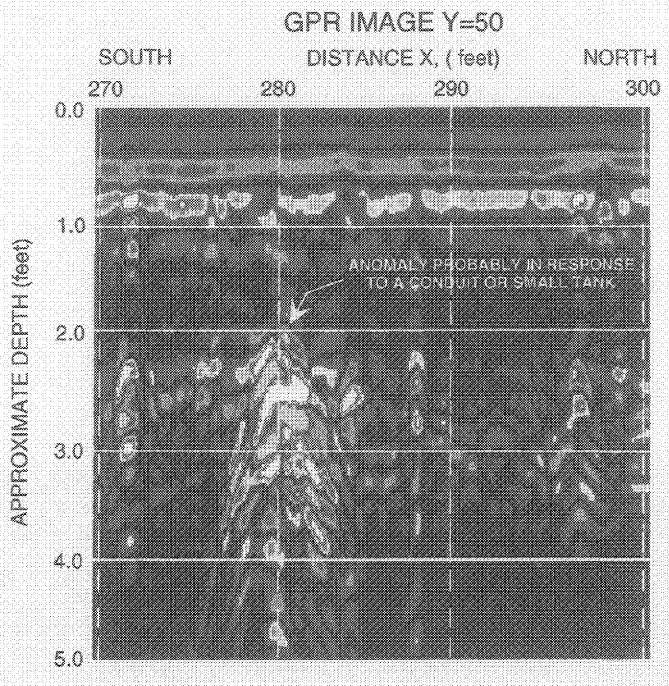
GEOPHYSICAL SURVEY & INVESTIGATIONS

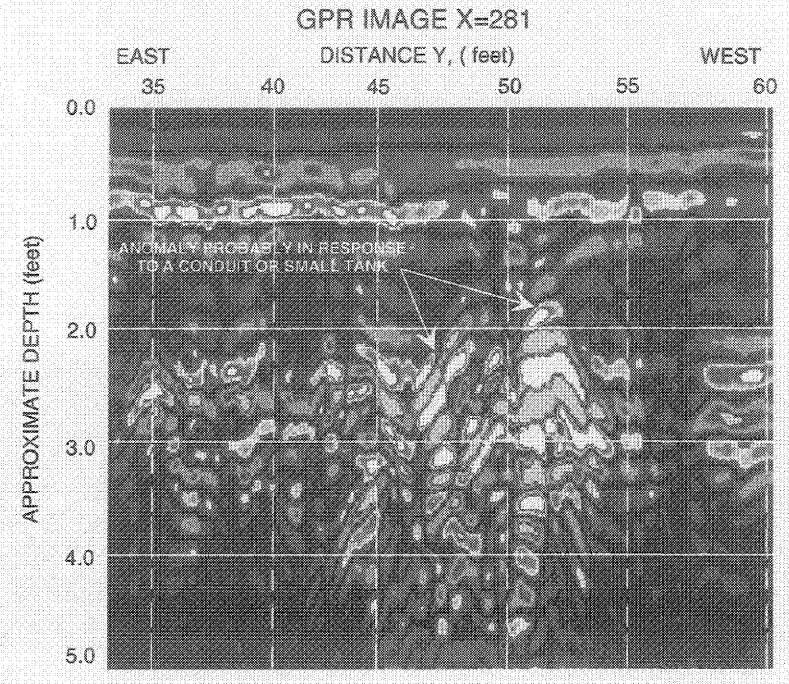
Weston Solutions, Inc.

W. J. Gaskins, Jr. Property (Parcel 64)
Bridgeton, North Carolina

EM61
DIFFERENTIAL
RESULTS

FIGURE 27





The GPR image of Line Y=50 shows an anomaly centered near X=280 that is probably in response to a large diameter conduit or possibly a small septic tank or UST. The object is buried approximately 2 feet below surface. GPR image of Line X=281 is located along the axis of the probable conduit or tank. The anomaly that runs from approximately Y=46 to Y=53 is probably in response to the probable conduit or tank. Refer to Figures 26 & 27 for GPR line locations.

GEOPHYSICAL SURVEY INVESTIGATIONS	Weston Solutions, Inc. W. J. Gaskins, Jr. Property (Parcel 64) Bridgeton, North Carolina	GPR IMAGES OF LINES Y=50 & X=281 FIGURE 28

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-09-A
Project: New Bern, Craven County		Well Construction Data	
Date Started: 12/9/04	Date Completed: 12/9/04	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	
		0.0		SB-09-A			silty Sand, 2.5y 5/6, light olive brown, moist, 0, 90, 10, 0		
		0.0					As above, wet		
5								5	

BORING WL_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-09-B
Project: New Bern, Craven County		Well Construction Data	
Date Started: 12/9/04	Date Completed: 12/9/04	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	
		0.0		SB-09-B			silty Sand, 2.5y 6/4, light yellowish brown, moist, 0, 90, 10, 0		
		0.0					As above, saturated		
5								5	

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-09-C
Project: New Bern, Craven County		Well Construction Data	
Date Started: 12/9/04	Date Completed: 12/9/04	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	
		0.0		SB-09-C			silty Sand, 2.5y 6/4, light yellowish brown, moist, 0, 90, 10, 0		
		0.0					As above, saturated		
5								5	

BORING_WE...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-09-D
Project: New Bern, Craven County		Well Construction Data	
Date Started: 12/9/04	Date Completed: 12/9/04	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	
		0.0		SB-09-D			silty Sand, 2.5y 6/4, light yellowish brown, moist, 0, 90, 10, 0		
		0.0					As above, saturated		
5								5	

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-09-E
Project: New Bern, Craven County		Well Construction Data	
Date Started: 12/9/04	Date Completed: 12/9/04	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	
		0.0		SB-09-E			silty Sand, 2.5y 6/4, light yellowish brown, moist, 0, 90, 10, 0		
		0.0					sandy Clay, 2.5y 6/4, light yellowish brown, moist, 0, 40, 10, 50		
5							silty Sand, 2.5y 6/4, light yellowish brown, moist, 0, 90, 10, 0	5	

BORING W... 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-09-F
Project: New Bern, Craven County		Well Construction Data	
Date Started: 12/9/04	Date Completed: 12/9/04	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				SB-09-F			Sand, 2.5y 2.5/1, black, wet, 0, 95, 5, 0	0	
		0.0							
		0.0					Sand, 10yr 3/6, dark yellowish brown, wet, 0, 95, 0, 5		
5								5	

APPENDIX D: LABORATORY REPORTS

Pace Analytical®
www.pacelabs.com

Pace Analytical Services, Inc.
9800 Kincey Avenue, Suite 100
Huntersville, NC 28078
Phone: 704.875.9092
Fax: 704.875.9091

Lab Project Number: 9283567
Client Project ID: NCDOT 34538.1.1 Newbern

Lab Sample No: 925070559 Project Sample Number: 9283567-010 Date Collected: 12/09/04 11:00
Client Sample ID: SB-09-A(0-4) Matrix: Soil Date Received: 12/10/04 09:30

Parameters	Results	Units	Report Limit	DF	Analyzed	By	CAS No.	Qual	RegLmt
Wet Chemistry									
Percent Moisture	Method: % Moisture								
Percent Moisture	11.7	%		1.0	12/11/04 10:54	TSE			
GC Semivolatiles									
TPH in Soil by 3545/8015	Prep/Method: EPA 3545 / EPA 8015								
Diesel Fuel	ND	mg/kg	5.7	1.1	12/17/04 16:05	KBS	68334-30-5		
n-Pentacosane (S)	99	%		1.0	12/17/04 16:05	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	2.8	0.6	12/15/04 17:28	PPM			
4-Bromofluorobenzene (S)	91	%		1.0	12/15/04 17:28	PPM	460-00-4		

REPORT OF LABORATORY ANALYSIS

Asheville Certification IDs
NC Wastewater 40
NC Drinking Water 37712
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Lab Project Number: 9283567
Client Project ID: NCDOT 34538.1.1 Newbern

Lab Sample No: 925070567 Project Sample Number: 9283567-011 Date Collected: 12/09/04 11:10
Client Sample ID: SB-09-B(0-4) Matrix: Soil Date Received: 12/10/04 09:30

Parameters	Results	Units	Report Limit	DF	Analyzed	By	CAS No.	Qual	RegLmt
Wet Chemistry									
Percent Moisture	Method: % Moisture								
Percent Moisture	7.1	%		1.0	12/11/04 10:54	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 14:14	KBS	68334-30-5		
n-Pentacosane (S)	113	%		1.0	12/17/04 14:14	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	3.5	0.7	12/15/04 18:26	PPM			
4-Bromofluorobenzene (S)	91	%		1.0	12/15/04 18:26	PPM	460-00-4		

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Lab Project Number: 9283567
Client Project ID: NCDOT 34538.1.1 Newbern

Lab Sample No: 925070575 Project Sample Number: 9283567-012 Date Collected: 12/09/04 11:15
Client Sample ID: SB-09-C(0-4) Matrix: Soil Date Received: 12/10/04 09:30

Parameters	Results	Units	Report Limit	DF	Analyzed	By	CAS No.	Qual	RegLmt
Wet Chemistry									
Percent Moisture	Method: % Moisture								
Percent Moisture	7.3	%		1.0	12/11/04 10:54	TSE			
GC Semivolatiles									
TPH in Soil by 3545/8015	Prep/Method: EPA 3545 / EPA 8015								
Diesel Fuel	6.6	mg/kg	5.4	1.1	12/17/04 16:32	KBS	68334-30-5		
n-Pentacosane (S)	108	%		1.0	12/17/04 16:32	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	2.1	0.4	12/15/04 18:54	PPM			
4-Bromofluorobenzene (S)	87	%		1.0	12/15/04 18:54	PPM	460-00-4		

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Lab Project Number: 9283567
Client Project ID: NCDOT 34538.1.1 Newbern

Lab Sample No: 925070591 Project Sample Number: 9283567-013 Date Collected: 12/09/04 11:20
Client Sample ID: SB-09-D(0-4) Matrix: Soil Date Received: 12/10/04 09:30

Parameters	Results	Units	Report Limit	DF	Analyzed	By	CAS No.	Qual	RegLmt
Wet Chemistry									
Percent Moisture	Method: % Moisture								
Percent Moisture	7.4	%		1.0	12/13/04 09:08	DHW			
GC Semivolatiles									
TPH in Soil by 3545/8015	Prep/Method: EPA 3545 / EPA 8015								
Diesel Fuel	8.8	mg/kg	5.4	1.1	12/20/04 13:14	KBS	68334-30-5		
n-Pentacosane (S)	125	%		1.0	12/20/04 13:14	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	3.2	0.6	12/15/04 19:22	PPM			
4-Bromofluorobenzene (S)	88	%		1.0	12/15/04 19:22	PPM	460-00-4		

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Lab Project Number: 9283567
Client Project ID: NCDOT 34538.1.1 Newbern

Lab Sample No: 925070609 Project Sample Number: 9283567-014 Date Collected: 12/09/04 11:40
Client Sample ID: SB-09-E(0-4) Matrix: Soil Date Received: 12/10/04 09:30

Parameters	Results	Units	Report Limit	DF	Analyzed	By	CAS No.	Qual	RegLmt
Wet Chemistry									
Percent Moisture	Method: % Moisture								
Percent Moisture	11.4	%		1.0	12/13/04 09:08	DHW			
GC Semivolatiles									
TPH in Soil by 3545/8015	Prep/Method: EPA 3545 / EPA 8015								
Diesel Fuel	ND	mg/kg	5.6	1.1	12/17/04 14:41	KBS	68334-30-5		
n-Pentacosane (S)	114	%		1.0	12/17/04 14:41	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	2.8	0.6	12/15/04 19:51	PPM			
4-Bromofluorobenzene (S)	103	%		1.0	12/15/04 19:51	PPM	460-00-4		

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Lab Project Number: 9283567
Client Project ID: NCDOT 34538.1.1 Newbern

Lab Sample No: 925070617 Project Sample Number: 9283567-015 Date Collected: 12/09/04 11:45
Client Sample ID: SB-09-F(0-4) Matrix: Soil Date Received: 12/10/04 09:30

Parameters	Results	Units	Report Limit	DF	Analyzed	By	CAS No.	Qual	RegLmt
Wet Chemistry									
Percent Moisture	Method: % Moisture								
Percent Moisture	19.9	%		1.0	12/13/04 09:09	DHW			
GC Semivolatiles									
TPH in Soil by 3545/8015	Prep/Method: EPA 3545 / EPA 8015								
Diesel Fuel	13.	mg/kg	6.2	1.2	12/17/04 11:33	KBS	68334-30-5		
n-Pentacosane (S)	119	%		1.0	12/17/04 11:33	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	3.0	0.6	12/15/04 20:19	PPM			
4-Bromofluorobenzene (S)	93	%		1.0	12/15/04 20:19	PPM	460-00-4		

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Lab Project Number: 9283567
Client Project ID: NCDOT 34538.1.1 Newbern

Lab Sample No: 925070633 Project Sample Number: 9283567-016 Date Collected: 12/09/04 11:30
Client Sample ID: GW-09-D Matrix: Water Date Received: 12/10/04 09:30

Parameters	Results	Units	Report Limit	DF	Analyzed	By	CAS No.	Qual	RegLmt
Metals									
3030C Metals, ICP, Trace	Prep/Method: SM 3030C / EPA 200.7								
Lead, 3030C	0.12	mg/l	0.0050	1.0	12/15/04 20:08	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								
Acenaphthene	ND	ug/l	5.1	1.0	12/17/04 08:04	BET	83-32-9		
Acenaphthylene	ND	ug/l	5.1	1.0	12/17/04 08:04	BET	208-96-8		
Anthracene	ND	ug/l	5.1	1.0	12/17/04 08:04	BET	120-12-7		
Benzidine	ND	ug/l	51.	1.0	12/17/04 08:04	BET	92-87-5		
Benzo(k)fluoranthene	ND	ug/l	5.1	1.0	12/17/04 08:04	BET	207-08-9		
Benzo(b)fluoranthene	ND	ug/l	5.1	1.0	12/17/04 08:04	BET	205-99-2		
Benzo(a)anthracene	ND	ug/l	5.1	1.0	12/17/04 08:04	BET	56-55-3		
Benzo(g,h,i)perylene	ND	ug/l	5.1	1.0	12/17/04 08:04	BET	191-24-2		
Benzo(a)pyrene	ND	ug/l	5.1	1.0	12/17/04 08:04	BET	50-32-8		
4-Bromophenylphenyl ether	ND	ug/l	5.1	1.0	12/17/04 08:04	BET	101-55-3		
Butylbenzylphthalate	ND	ug/l	5.1	1.0	12/17/04 08:04	BET	85-68-7		
4-Chloro-3-methylphenol	ND	ug/l	5.1	1.0	12/17/04 08:04	BET	59-50-7		
bis(2-Chloroethoxy)methane	ND	ug/l	5.1	1.0	12/17/04 08:04	BET	111-91-1		
bis(2-Chloroethyl) ether	ND	ug/l	5.1	1.0	12/17/04 08:04	BET	111-44-4		
bis(2-Chloroisopropyl) ether	ND	ug/l	5.1	1.0	12/17/04 08:04	BET	39638-32-9		
2-Chloronaphthalene	ND	ug/l	5.1	1.0	12/17/04 08:04	BET	91-58-7		
2-Chlorophenol	ND	ug/l	5.1	1.0	12/17/04 08:04	BET	95-57-8		
4-Chlorophenylphenyl ether	ND	ug/l	5.1	1.0	12/17/04 08:04	BET	7005-72-3		
Chrysene	ND	ug/l	5.1	1.0	12/17/04 08:04	BET	218-01-9		
Dibenz(a,h)anthracene	ND	ug/l	5.1	1.0	12/17/04 08:04	BET	53-70-3		
1,2-Dichlorobenzene	ND	ug/l	5.1	1.0	12/17/04 08:04	BET	95-50-1		
1,3-Dichlorobenzene	ND	ug/l	5.1	1.0	12/17/04 08:04	BET	541-73-1		
1,4-Dichlorobenzene	ND	ug/l	5.1	1.0	12/17/04 08:04	BET	106-46-7		
3,3'-Dichlorobenzidine	ND	ug/l	10.	1.0	12/17/04 08:04	BET	91-94-1		
2,4-Dichlorophenol	ND	ug/l	5.1	1.0	12/17/04 08:04	BET	120-83-2		
Diethylphthalate	ND	ug/l	5.1	1.0	12/17/04 08:04	BET	84-66-2		
2,4-Dimethylphenol	ND	ug/l	5.1	1.0	12/17/04 08:04	BET	105-67-9		
Dimethylphthalate	ND	ug/l	5.1	1.0	12/17/04 08:04	BET	131-11-3		
Di-n-butylphthalate	ND	ug/l	5.1	1.0	12/17/04 08:04	BET	84-74-2		
4,6-Dinitro-2-methylphenol	ND	ug/l	26.	1.0	12/17/04 08:04	BET	534-52-1		
2,4-Dinitrophenol	ND	ug/l	26.	1.0	12/17/04 08:04	BET	51-28-5		
2,4-Dinitrotoluene	ND	ug/l	5.1	1.0	12/17/04 08:04	BET	121-14-2		

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Lab Project Number: 9283567
Client Project ID: NCDOT 34538.1.1 Newbern

Lab Sample No: 925070633 Project Sample Number: 9283567-016 Date Collected: 12/09/04 11:30
Client Sample ID: GW-09-D 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	5.1	1.0	12/17/04 08:04	BET	606-20-2		
Di-n-octylphthalate	ND	ug/l	5.1	1.0	12/17/04 08:04	BET	117-84-0		
bis(2-Ethylhexyl)phthalate	ND	ug/l	5.1	1.0	12/17/04 08:04	BET	117-81-7		
Fluoranthene	ND	ug/l	5.1	1.0	12/17/04 08:04	BET	206-44-0		
Fluorene	ND	ug/l	5.1	1.0	12/17/04 08:04	BET	86-73-7		
Hexachloro-1,3-butadiene	ND	ug/l	5.1	1.0	12/17/04 08:04	BET	87-68-3		
Hexachlorobenzene	ND	ug/l	5.1	1.0	12/17/04 08:04	BET	118-74-1		
Hexachlorocyclopentadiene	ND	ug/l	10.	1.0	12/17/04 08:04	BET	77-47-4		
Hexachloroethane	ND	ug/l	5.1	1.0	12/17/04 08:04	BET	67-72-1		
Indeno(1,2,3-cd)pyrene	ND	ug/l	5.1	1.0	12/17/04 08:04	BET	193-39-5		
Isophorone	ND	ug/l	5.1	1.0	12/17/04 08:04	BET	78-59-1		
Naphthalene	ND	ug/l	5.1	1.0	12/17/04 08:04	BET	91-20-3		
Nitrobenzene	ND	ug/l	5.1	1.0	12/17/04 08:04	BET	98-95-3		
2-Nitrophenol	ND	ug/l	5.1	1.0	12/17/04 08:04	BET	88-75-5		
4-Nitrophenol	ND	ug/l	26.	1.0	12/17/04 08:04	BET	100-02-7		
N-Nitrosodimethylamine	ND	ug/l	5.1	1.0	12/17/04 08:04	BET	62-75-9		
N-Nitroso-di-n-propylamine	ND	ug/l	5.1	1.0	12/17/04 08:04	BET	621-64-7		
N-Nitrosodiphenylamine	ND	ug/l	5.1	1.0	12/17/04 08:04	BET	86-30-6		
Pentachlorophenol	ND	ug/l	26.	1.0	12/17/04 08:04	BET	87-86-5		
Phenanthrene	ND	ug/l	5.1	1.0	12/17/04 08:04	BET	85-01-8		
Phenol	ND	ug/l	5.1	1.0	12/17/04 08:04	BET	108-95-2		
Pyrene	ND	ug/l	5.1	1.0	12/17/04 08:04	BET	129-00-0		
1,2,4-Trichlorobenzene	ND	ug/l	5.1	1.0	12/17/04 08:04	BET	120-82-1		
2,4,6-Trichlorophenol	ND	ug/l	5.1	1.0	12/17/04 08:04	BET	88-06-2		
Nitrobenzene-d5 (S)	71	%		1.0	12/17/04 08:04	BET	4165-60-0		
2-Fluorobiphenyl (S)	70	%		1.0	12/17/04 08:04	BET	321-60-8		
Terphenyl-d14 (S)	91	%		1.0	12/17/04 08:04	BET	1718-51-0		
Phenol-d5 (S)	34	%		1.0	12/17/04 08:04	BET	4165-62-2		
2-Fluorophenol (S)	50	%		1.0	12/17/04 08:04	BET	367-12-4		
2,4,6-Tribromophenol (S)	82	%		1.0	12/17/04 08:04	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)	240	ug/l	100	1.0	12/17/04 19:28	KBS			
Aliphatic (C19-C36)	ND	ug/l	100	1.0	12/17/04 19:28	KBS			
Aromatic (C11-22)	ND	ug/l	100	1.0	12/17/04 19:28	KBS			
2-Fluorobiphenyl (S)	74	%		1.0	12/17/04 19:28	KBS	321-60-8		
2-Bromonaphthalene (S)	129	%		1.0	12/17/04 19:28	KBS	580-13-2		

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Lab Sample No: 925070633 Project Sample Number: 9283567-016 Date Collected: 12/09/04 11:30
Client Sample ID: GW-09-D Matrix: Water Date Received: 12/10/04 09:30

Parameters	Results	Units	Report Limit	DF	Analyzed	By	CAS No.	Qual	RegLmt
Nonatriacontane (S)	74	%		1.0	12/17/04 19:28	KBS	7194-86-7		
o-Terphenyl (S)	50	%		1.0	12/17/04 19:28	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 13:53	PPM	71-43-2		
Bromodichloromethane	ND	ug/l	1.0	1.0	12/16/04 13:53	PPM	75-27-4		
Bromoform	ND	ug/l	1.0	1.0	12/16/04 13:53	PPM	75-25-2		
Bromomethane	ND	ug/l	1.0	1.0	12/16/04 13:53	PPM	74-83-9		
Carbon tetrachloride	ND	ug/l	1.0	1.0	12/16/04 13:53	PPM	56-23-5		
Chlorobenzene	ND	ug/l	1.0	1.0	12/16/04 13:53	PPM	108-90-7		
Chloroethane	ND	ug/l	1.0	1.0	12/16/04 13:53	PPM	75-00-3		
Chloroform	ND	ug/l	1.0	1.0	12/16/04 13:53	PPM	67-66-3		
Chloromethane	ND	ug/l	2.0	1.0	12/16/04 13:53	PPM	74-87-3		
Dibromochloromethane	ND	ug/l	1.0	1.0	12/16/04 13:53	PPM	124-48-1		
1,2-Dichlorobenzene	ND	ug/l	1.0	1.0	12/16/04 13:53	PPM	95-50-1		
1,3-Dichlorobenzene	ND	ug/l	1.0	1.0	12/16/04 13:53	PPM	541-73-1		
1,4-Dichlorobenzene	ND	ug/l	1.0	1.0	12/16/04 13:53	PPM	106-46-7		
Dichlorodifluoromethane	ND	ug/l	1.0	1.0	12/16/04 13:53	PPM	75-71-8		
1,1-Dichloroethane	ND	ug/l	1.0	1.0	12/16/04 13:53	PPM	75-34-3		
1,2-Dichloroethane	ND	ug/l	1.0	1.0	12/16/04 13:53	PPM	107-06-2		
1,1-Dichloroethene	ND	ug/l	1.0	1.0	12/16/04 13:53	PPM	75-35-4		
trans-1,2-Dichloroethene	ND	ug/l	1.0	1.0	12/16/04 13:53	PPM	156-60-5		
1,2-Dichloropropane	ND	ug/l	1.0	1.0	12/16/04 13:53	PPM	78-87-5		
cis-1,3-Dichloropropene	ND	ug/l	1.0	1.0	12/16/04 13:53	PPM	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/l	1.0	1.0	12/16/04 13:53	PPM	10061-02-6		
Diisopropyl ether	ND	ug/l	1.0	1.0	12/16/04 13:53	PPM	108-20-3		
Ethylbenzene	ND	ug/l	1.0	1.0	12/16/04 13:53	PPM	100-41-4		
Methylene chloride	ND	ug/l	2.0	1.0	12/16/04 13:53	PPM	75-09-2		
Methyl-tert-butyl ether	ND	ug/l	1.0	1.0	12/16/04 13:53	PPM	1634-04-4		
1,1,2,2-Tetrachloroethane	ND	ug/l	1.0	1.0	12/16/04 13:53	PPM	79-34-5		
Tetrachloroethene	ND	ug/l	1.0	1.0	12/16/04 13:53	PPM	127-18-4		
Toluene	ND	ug/l	1.0	1.0	12/16/04 13:53	PPM	108-88-3		
1,1,1-Trichloroethane	ND	ug/l	1.0	1.0	12/16/04 13:53	PPM	71-55-6		
1,1,2-Trichloroethane	ND	ug/l	1.0	1.0	12/16/04 13:53	PPM	79-00-5		
Trichloroethene	ND	ug/l	1.0	1.0	12/16/04 13:53	PPM	79-01-6		
Trichlorofluoromethane	ND	ug/l	1.0	1.0	12/16/04 13:53	PPM	75-69-4		
Vinyl chloride	ND	ug/l	1.0	1.0	12/16/04 13:53	PPM	75-01-4		

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Pace Analytical Services, Inc.
9800 Kincey Avenue, Suite 100
Huntersville, NC 28078
Phone: 704.875.9092
Fax: 704.875.9091

Lab Project Number: 9283567
Client Project ID: NCDOT 34538.1.1 Newbern

Lab Sample No: 925070633 Project Sample Number: 9283567-016 Date Collected: 12/09/04 11:30
Client Sample ID: GW-09-D 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 13:53	PPM	1330-20-7		
m&p-Xylene	ND	ug/l	2.0	1.0	12/16/04 13:53	PPM			
o-Xylene	ND	ug/l	1.0	1.0	12/16/04 13:53	PPM	95-47-6		
1-Chloro-3-fluorobenzene (S)	123	%		1.0	12/16/04 13:53	PPM	625-98-9		
VPH in Water by Mass. Method	Method: VPH								
Aliphatic (C05-C08)	ND	ug/l	100	1.0	12/14/04 16:04	KBS			
Aliphatic (C09-C12)	ND	ug/l	100	1.0	12/14/04 16:04	KBS			
Aromatic (C09-C10)	ND	ug/l	100	1.0	12/14/04 16:04	KBS			
2,5-Dibromotoluene (FID)(S)	102	%		1.0	12/14/04 16:04	KBS			
2,5-Dibromotoluene (PID)(S)	119	%		1.0	12/14/04 16:04	KBS			

REPORT OF LABORATORY ANALYSIS

Asheville Certification IDs
NC Wastewater 40
NC Drinking Water 37712
SC Environmental 99030

Charlotte Certification IDs
NC Wastewater 12
NC Drinking Water 37706
SC 99006
FL NELAP E87627