ECOLOGY AND ENVIRONMENT, INC.
CHICAGO
FIELD EQUIPMENT CHECKLIST

US EPA RECORDS CENTER REGION 5
532214

TEAM LEADER: C. FLORCZAK
PAN: P0H0624S4
DATE OF DEPARTURE: 4-4-88
EXPECTED DATE OF RETURN: 4-9-88

1 RENTAL TRUCK
1 RENTAL CAR

935354

A) Safety Instruments
- ___ Photovac TIP ID#___
- ___ Monitox (HCN) ID#___
- X HNU, (10.2) OR 11 LAMP ID#___
- ___ OVA (organic vapor analyzer ID#___
- X Explosimeter/02 meter ID#___
- X Drager pump, specify tube type (HCN, Natural Gas, or other) ID#___
- ___ Rad-Mini ID#___
- ___ Radiation, other: ___ ID#___
- ___ Monitox (HCN) ID#___
- ___ Heat stress monitor ID#___
- ___ Noise equipment ID#___
- ___ Dust monitor-MDA system ID#___

B) First Aid Equipment (specify quantity)
- X First aid kit
- ___ Oxygen Inhaler
- X Eyewash bottle

C) Miscellaneous Safety Equipment (specify quantity)
- 4 Hard hat
- 4pr. Safety glasses
- ___ Life vests
- ___ Ice vests
- 4pr. Hearing protection

D) Respiratory Equipment (specify quantity)
- ___ Racal P.A.P.R. ID#___
- 2 Robert Shaw escape mask ID#___
- ___ MSA SCBA ID#___
- ___ Extra air cylinders ID#___

E) Respiratory Cartridges (specify quantity)
- 2 Box GMC-H
- ___ GM-P
- ___ AP-3 (for Racal)
- ___ Other

F) Protective Clothing

1. Suits (specify quantity)
- ___ Saranex, Size: M__, L__, XL__, XXL__
- ___ Splash apron
- ___ Butyl acid suits
- ___ Fully encapsulated suits
- 15 Tyvek, size: M__, L__, XL 5, XXL 10

2. Gloves (specify quantity)
- 2 Box Latex disposable, Size: M__, L__
- ___ Butyl Rubber, Size: M__, L__
- ___ Nitrile, Size: M__, L__
- 6pr. Neoprene, Size: M__, L__
- ___ Viton, Size: M__, L__
- (if cold) 4 pr Glove liners, Size: M__, L__

3. Boots (specify quantity)
- ___ Neoprene, Size:___
- 15 Latex disposable, Size: L__, XL X
- (if cold) 4pr Winter boots, ___ Size:___
- ___ Other: ___ Size___

G) Vehicles
- ___ Suburban ID#___
- ___ Cargo Van ID#___
- ___ Step Van ID#___

H) Sample Bottles (specify quantity)
- ___ 80 oz. amber glass
- ___ 1 L. amber glass
- ___ 40 mL. vial
- ___ 1 L. plastic
- 32 8 oz. glass
- 32 120 mL. glass
- ___ Dioxin Sample Kit

I) Preservatives (specify quantity)
- ___ HN03
- ___ NaOH
- ___ Other: ___

J) Decon Supplies (specify quantity)
- 2 Wash tubs
- 2 Buckets
- 2 Scrub brushes
- ___ Solvent
- 2 Detergent (Alconox)
- 4 MSA Sanitizing Solution

K) Field Equipment (specify quantity)
- ___ Conductivity meter ID#___
- ___ PH meter ID#___
- ___ Thermometer ID#___
- ___ Masterflex pump and filter apparatus ID#___
- X Camera ID#___
- ___ Compass ID#___
- ___ Water-level indicator ID#___
- ___ Split-spoon samplers ID#___
- ___ Bailers ID#___
- ___ Magnetometer ID#___
- ___ Resistivity meter ID#___
- ___ Robair pump system ID#___
- ___ PVC hand pump ID#___
- ___ Well point sampler ID#___
- ___ Air sampling pump kits ID#___
- ___ Buck calibrator ID#___
- ___ Meteorological station ID#___
- ___ Level/tripod and rod ID#___
- ___ Pitcher pump ID#___
- ___ Photovac ID#___
- ___ Thermal desorber IS#___
- ___ Other: ___ ID#___

1 BUCKET AUGER 15 FEET OF EXTENSIONS
2 - COUPLINGS - 2 PIPE WRENCHES
1 SHOVEL
2. SS BOWLS 5 SS SPOONS 3 TROWELS
6 MEDIUM COOLERS 6 BAGS VERMICULITE

(P.D. Moss, 12/87)

SITE DOSIMETER LOG

TDD# F05- 8709 -057 SITE NAME BURNS COLD FORGE

SITE SAFETY OFFICER Dirk Kaiser WEEK OF 4 - 4

NAME AND DOSIM. #	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
C. FLORCZAK							
D. Kaiser							
S SKINNER							
C ALMANZA							

To the nearest half-hour, record time spent downrange as "S" (e.q., S: 2.5 hrs), time spent in active PDS operation as "P", and any time spent downrange in rescue activity as "R".

ECOLOGY AND ENVIRONMENT, INC.
FIELD INVESTIGATION TEAM
ON-SITE SAFETY MEETING

Project BURNS COLD FORGE

Date _____ Time _____ Job No. F0H0624SA

Address _____

Specific Location _____

Type of Work _____

SAFETY TOPICS PRESENTED

Protective Clothing/Equipment _____

Chemical Hazards _____

Physical Hazards _____

Emergency Procedures _____

Hospital/Clinic ALLIANCE COMMUNITY HOSPITAL Phone 216-868-7733

Special Equipment _____

Other _____

E. EMERGENCY INFORMATION

LOCAL RESOURCES

Ambulance MINERVA AMBULANCE SERVICE 216-868-7733
Hospital Emergency Room ALLIANCE COMMUNITY HOSPITAL 216-821-1000
Poison Control Center AKRON MEDICAL CENTER 800-362-9922
Police MINERVA P.D. 216-868-4177
Fire Department MINERVA FD 216-868-4177
Airport N/A
Explosives Unit MINERVA FD 216-868-4177
EPA Contact DR. DON JOSIF 312-886-0393

SITE RESOURCES

Water Supply TO BE SUPPLIED BY FIT
Telephone TO BE DETERMINED PRIOR TO SITE ENTRY
Radio N/A
Other N/A

EMERGENCY CONTACTS

1. Dr. Raymond Harbison (University of Arkansas) .. (501) 661-5766 or 661-5767
   MED-TOX.....(501) 370-8263 (24 hours)
2. Manager of Health and Safety - Paul Moss.....(Not responsive)
3. Regional Project Manager - Rene Van Someren.....(Not responsive)
4. Chicago Office.....(312) 663-9415
5. E & E 24 Hour Call Line.....(716) 631-9530
   (24 Hours; Call Forwarding)
6. Regional Health Maintenance Program Contact .....PMI - (312) 832-8820
   8:00 a.m. - 5:00 p.m.
7. Paul Jonmaire.....(716) 631-9530 (Response
   Corporate Safety Director Center)
   (716) 632-4491 (Office)
8. Ecology and Environment, Inc. ZPMO.....(703) 522-6065

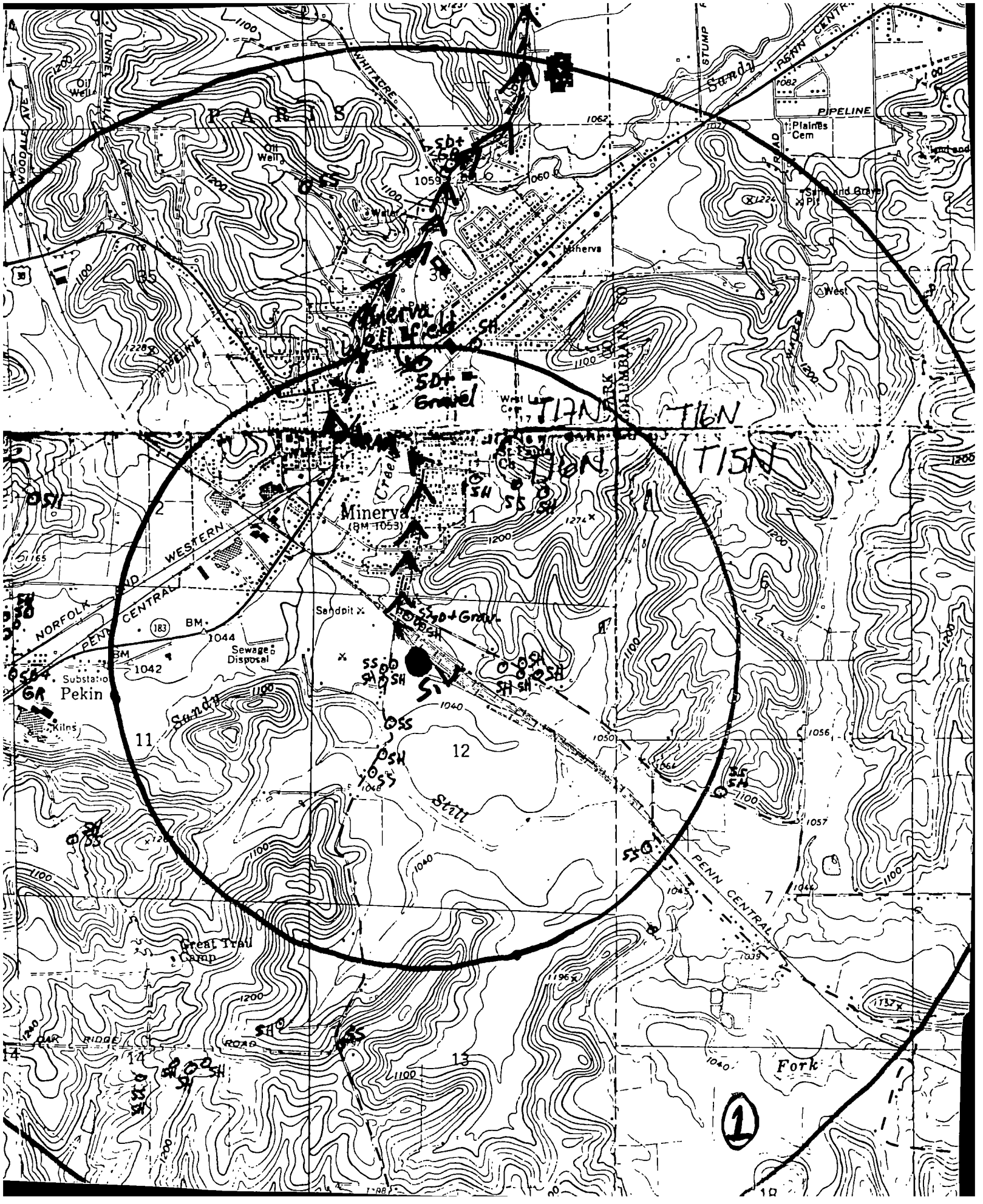
F. EMERGENCY ROUTES

(Give road or other directions; attach map)

Hospital: TAKE ARROW ROAD NORTHWEST TO RT 183 NORTH INTO ALLIANCE TO COLLEGE STREET EAST INTO ALLIANCE, OHIO TO COLLEGE STREET EAST TWO BLOCKS TO ALLIANCE COMMUNITY HOSPITAL - TOTAL DISTANCE 13 MILES.

264 E RICE ST

ALLIANCE, OHIO 44601


PARIS
Oil Well
Oil Well
Water
Minerva
Minerva Well Field
SD+ Gravel
T17N
T16N
T15N
Minerva
(BM 1053)
Sandpit
SD+ Gravel
Sewage Disposal
Substation
Pekin
Kilns
Sandy
Still
Great Trail Camp
OAK RIDGE ROAD
Fork
PENN CENTRAL
NORFOLK AND WESTERN
PIPELINE
Plaines Cem
Sand and Gravel Pit
West
WHITACRE
STUMP
WOODALE AVE
TUNNEL HILL
COLUMBIANA
1

ECOLOGY AND ENVIRONMENT, INC.
FIELD INVESTIGATION TEAM
ON-SITE SAFETY MEETING

ATTENDEES

Name (Printed)	Signature
C. FLORCZAK	
D. Kaiser	
S. SKINNER	
C. ALMANZA	

Meeting Conducted By:

Site Safety Officer:

D. Kaiser	

Team Leader:

C. FLORCZAK	

ECOLOGY AND ENVIRONMENT, INC.
FIELD INVESTIGATION TEAM
SITE SAFETY PLAN

A. GENERAL INFORMATION

SITE: BURNS COLD FORGE TDD NO.: F05-8709 057

WSTS/ACCOUNT NO. F0H0624SA

LOCATION: 9312 ARROW Rd. NW MINERVA, OHIO 44657

PLAN PREPARED BY: CLIFF FLORCZAK DATE: 2-24-88

APPROVED BY: Anne M. Stump DATE: 3/24/88

OBJECTIVE(S): (including description of work to be performed): TO PERFORM A SITE INSPECTION INCLUDING A VISUAL SURVEY, INTERVIEWS WITH POTENTIALLY RESPONSIBLE PARTIES, PHOTOGRAPHS, AND THE COLLECTION OF FIVE SOIL/SEDIMENT SAMPLES

PROPOSED DATE OF INVESTIGATION: 4/5/88

BACKGROUND REVIEW: Complete: ___ Preliminary: X

DOCUMENTATION/SUMMARY: Overall Hazard: Serious: ___ Moderate: ___ Low: X Unknown: ___

B. SITE/WASTE CHARACTERISTICS

WASTE TYPE(S): Liquid X Solid ___ Sludge X Gas ___

CHARACTERISTIC(S): Corrosive X Ignitable ___ Radioactive ___ Volatile X Toxic X Reactive ___ Unknown ___ Other (Name) PERSISTENT

FACILITY DESCRIPTION: BURNS COLD FORGE IS AN ACTIVE MANUFACTURING FACILITY PRODUCING WARM AND COLD EXTRUDED PRODUCTS INVOLVED IN VEHICLE MANUFACTURING. PLANT AREA < 50 ACRES.

Principal Disposal Method (type and location): WASTE OILS AND ACIDS WERE ALLEGEDLY STORED IN ON SITE PITS.

Unusual Features (dike integrity, power lines, terrain, etc.): OUTFALL DISCHARGES TO STILL FORK CREEK WITH NPDES PERMIT

Status (active, inactive, unknown): THE FACILITY IS ACTIVE BUT OUR SAMPLING WILL TAKE PLACE NEAR THE INACTIVE PITS. Unknown how long the site has been active. Pits have been inactive for ~ 10 years.

ON-SITE SAFETY LOG

ECOLOGY AND ENVIRONMENT, INC.
CHICAGO

A. ON-SITE MONITORING

EQUIPMENT USED	BACKGROUND READING IN BREATHING ZONE	CALIBRATED AT	ON-SITE READING IN BREATHING ZONE
1. HnU (10.2 eV probe) + calib. gas			
2. EXPLOSIMETER + calib. gas			
3. O_2 METER			
4. RAD MINI			
5. HCN DRAEGER TUBES			

B. PROTECTIVE CLOTHING WORN: _____

C. SITE NAME: BURNS COLD FORGE PAN/JOB NUMBER: POH0624SA

DATE: _____

WEATHER CONDITIONS: _____

NAMES OF ATTENDEES AT SITE: _____

D. COMMENTS ON MONITORING OR PROTECTIVE CLOTHING: _____

	NAME	SIGNATURE
TEAM LEADER:	C. FLORCZAK	
SITE SAFETY OFFICER:	D. Kaiser	

(P.D. Moss 12/87)

History: (worker or non-worker injury; complaints from public; previous agency action): WASTE OILS WERE PREVIOUSLY STORED IN PITS OUTSIDE THE FACILITY. ALLEGATIONS WERE MADE THAT WASTE OILS AND ACIDS WERE CO-MINGLED IN THESE PITS. SINCE THE CLOSURE OF THE PITS SATURATED SOILS HAVE BEEN EXCAVATED AND LANDFILLED OFF SITE. NO RECORD OF WORKER OR NON-WORKER INJURY, COMPLAINTS FROM THE PUBLIC OR PREVIOUS AGENCY ACTION ARE ON FILE.

C. HAZARD EVALUATION

(Use Hazard Evaluation of Chemicals sheets for specific or representative chemicals present):

LEAD
CHROME
SULFURIC ACID
CUTTING + HYDRAULIC OILS

(SEE ATTACHED SHEETS)

D. SITE SAFETY WORK PLAN

PERIMETER ESTABLISHMENT: Map/Sketch Attached? NO Site Secured? UNKNOWN
Perimeter Identified? NO Zone(s) of Contamination Identified? NO

ASSUME THE ENTIRE SITE IS CONTAMINATED

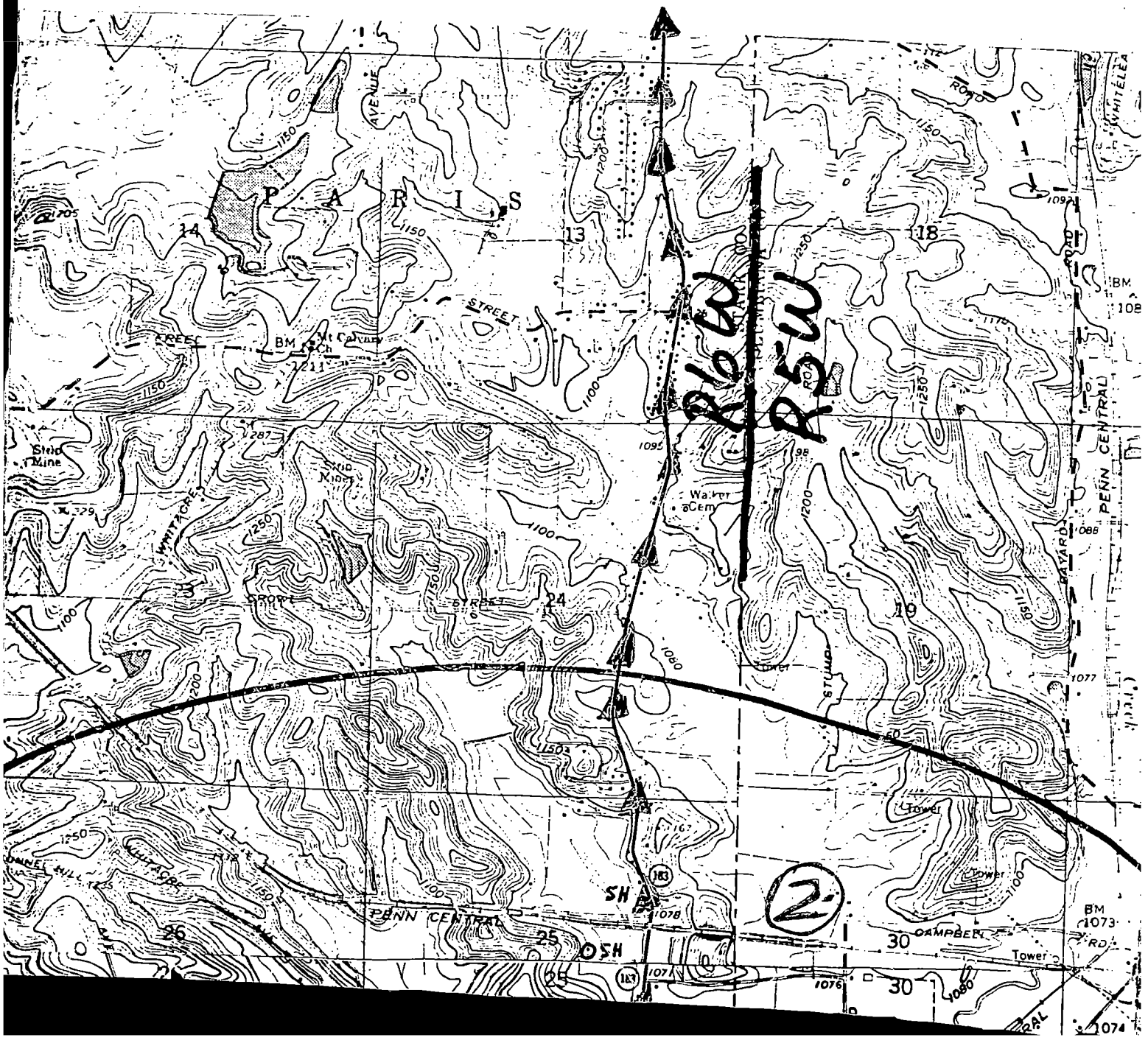
PERSONAL PROTECTION:

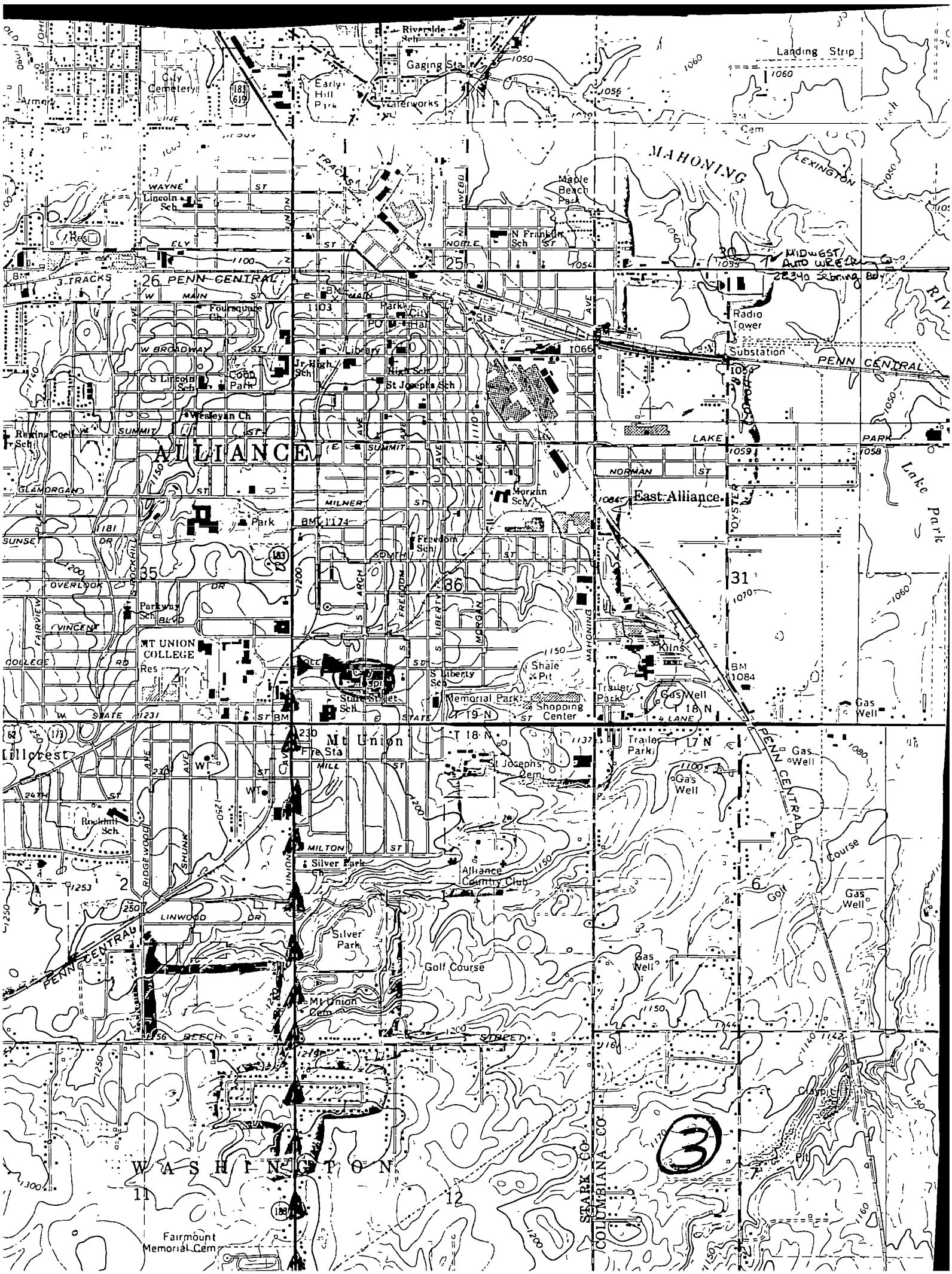
Level of Protection: A ____ B ____ C ____ D X

Modifications: SAMPLE COLLECTION TO TAKE PLACE IN LEVEL D WITH AN UPGRADE TO LEVEL C IF READINGS ON SITE ENTRY EQUIPMENT WARRANTS OR DRY, DUSTY CONDITIONS EXIST.

Surveillance Equipment and Materials: HNU w/10.2 ev probe: 0 → 1 ppm OVER BACKGROUND - LEVEL D >1 → 5 ppm OVERBACKGROUND LEVEL C ≥5 ppm OVER BACKGROUND - ABANDON SITE CONTACT RSC. RAD MINI: ANY READINGS OVER 0.1 mrem/hr. - ABANDON SITE, CONTACT RSC. OXYGEN METER: READINGS < 19.5% O_2 OR > 25% O_2 ABANDON SITE, CONTACT RSC EXPLOSIMETER: > 30% LEL - ABANDON SITE - CONTACT RSC HCN DRAEGER TUBES - ANY POSITIVE COLOR CHANGE ABANDON SITE, CONTACT RSC.

Hospital Is 11.2 miles from this point. There Is 9 miles of missing topographic maps. Continue on Rt 183 Map 3 Begins in 9 miles from this point




Riverside Sch
Gaging Sta
Landing Strip
City Cemetery
Early Hill Park
Waterworks
Armory
Cem
MAHONING
LEXINGTON
Maple Beach Park
WAYNE ST
Lincoln Sch
N Franklin Sch
ELY ST
NOBLE ST
3 TRACKS
26 PENN CENTRAL
W MAIN ST
E MAIN ST
Fourquare Ch
Park
City Hall
Sta
Radio Tower
W BROADWAY ST
Library
Jr High Sch
High Sch
Substation
PENN CENTRAL
S Lincoln Sch
Coon Park
St Joseph's Sch
Wesleyan Ch
SUMMIT ST
E SUMMIT ST
ALLIANCE
LAKE PARK
NORMAN ST
GLAMORGAN ST
MILNER ST
Morgan Sch
East Alliance
Lake Park
Park
BM 1174
SUNSET DR
Freedom Sch
SOUTH ST
OVERLOOK DR
Parkway Sch
BLVD
VINCENT
MT UNION COLLEGE
Res
COLLEGE RD
Shale Pit
Kilns
BM 1084
Trailer Park
Gas Well
Memorial Park
Shopping Center
W STATE ST
E STATE ST
19 N
18 N
LANE
Mt Union
Fire Sta
MILL ST
T 18 N
St Joseph's Cem
Trailer Park
17 N
Gas Well
Hillcrest
24TH ST
Rockhill Sch
RIDGEWOOD AVE
SHUNK AVE
MILTON ST
Silver Park Ch
Alliance Country Club
Golf Course
LINWOOD DR
Silver Park
Golf Course
Gas Well
PENN CENTRAL
Mt Union Cem
BEECH STREET
Pit
WASHINGTON
Fairmount Memorial Cem
STARK CO
COLUMBIANA CO
3

THE SIGMA-ALDRICH LIBRARY OF CHEMICAL SAFETY DATA

Explanation of Codes

ROCEDURES FOR SPILLS OR LEAKS

1 Absorb on sand or vermiculite and place in closed container for disposal.
2 Cover with dry lime, sand, or soda ash. Place in covered containers using nonsparking tools and transport outdoors.
3 Shut off all sources of ignition.
4 Evacuate area.
5 Cover with an activated carbon adsorbent, take up and place in closed container. Transport outdoors.
6 Ventilate area and wash spill site after material pickup is complete.
7 Sweep up, place in a bag and hold for waste disposal.
8 Avoid raising dust.
9 Wear self-contained breathing apparatus, rubber boots and heavy rubber gloves.
10 Wear respirator, chemical safety goggles, rubber boots and heavy rubber gloves.
11 Cover with dry lime or soda ash, pick up, keep in a closed container and hold for waste disposal.
12 Carefully sweep up and remove.
13 Flush spill area with copious amounts of water.
14 Mix with solid sodium bicarbonate.
15 Place in appropriate container.
16 Wear protective equipment.
17 Wash spill site with soap solution.
18 Please contact the Technical Services Department. Be sure to mention the name and catalog number of the material.

FIRE-EXTINGUISHING MEDIA

1 Carbon dioxide.
2 Dry chemical powder.
3 Water spray.
4 Alcohol or polymer foam.
5 Class D fire-extinguishing material only.
6 Water may be effective for cooling, but may not effect extinguishment.
7 Carbon dioxide, dry chemical powder, alcohol or polymer foam.
8 Foam and water spray are effective but may cause frothing.
9 Do not use dry chemical powder extinguisher on this material
10 Do not use carbon dioxide extinguisher on this material.
11 Noncombustible.
12 Do not use water.
13 Use extinguishing media appropriate to surrounding fire conditio

WASTE-DISPOSAL METHODS

ıe disposal methods outlined below are intended on- s guides. We do not assume responsibility for their Careful consideration must be given to the chemical physical properties of the substance. In addition, ıl laws and regulations may preclude the use of these hods which are primarily designed for small quan- s. Observe all federal, state, and local laws.

ıe disposal of some chemicals may require deactiva- or modification of the material by chemical means. mical waste-disposal reactions must be handled with same care and consideration used with synthetic :edures. Appropriate consideration must be given to :tion conditions, *i.e.*, stoichiometry, order and rate of ition, heat of reaction, evolution of gaseous products, efficiency of stirring, rate of reaction, atmospheric sitivity, etc.

hemical waste-disposal reactions should be carried in a chemical fume hood and in appropriate oratory glassware. Because these reactions are often ɔrous, protective safety equipment such as safety ıgles, respirator, gloves, face and/or safety shield and er protective equipment must be used.

ıitial reactions in a disposal sequence should be car- l out on a small scale (5-10g). The reactant concentra- ıs should not exceed 10% of the reaction volume and final reaction volume should not exceed 50% of the rking capacity of the reaction vessel, regardless of the ction scale. Larger quantities of the material should handled in several small-size reactions. To ensure npletion of reaction, the waste disposal procedure ɔuld be run for at least an additional 4 to 8 hours after materials have been mixed.

\ll reactions should be run by technically qualified sons familiar with the potential hazards of the ɔmical reactions.

Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

The material should be ignited in the presence of sodium carbonate and slaked lime (calcium hydroxide). The substance should be mixed with vermiculite and then with the dry caustics, wrapped in paper and burned in a chemical incinerator equipped with an afterburner and scrubber.

This combustible material may be burned in a chemical incinerator equipped with an afterburner and scrubber.

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable.

To a solution of the product in water, add an excess of dilute sulfuric acid. Let stand overnight. Remove any insolubles and bury in a landfill site approved for hazardous-waste disposal.

Cautiously dissolve the material in water. Neutralize immediately with sodium carbonate or, if the material does not dissolve completely, add a little hydrochloric acid followed by sodium carbonate. Add calcium chloride in excess of the amount needed to precipitate the fluoride and/or carbonate. Separate the insolubles and bury in a landfill site approved for hazardous-waste disposal.

G Under an inert atmosphere, cautiously add the material to dry butanol in an appropriate solvent. The chemical reaction may be vigorous and/or exothermic. Provisions must be made for venting of large volumes of highly flammable hydrogen and/or hydrocarbon gases. Neutralize the solution with aqueous acid. Filter off any solid residues for disposal as hazardous waste. Burn the liquid portion in a chemical incinerator equipped with an afterburner and scrubber.

H Neutralize the solution and add filtering agent (10g per 100ml). Evaporate the liquid and bag the residual solid for burial in a landfill site approved for hazardous-waste disposal.

I Dissolve the solid in (or dilute the solution with) a large volume of water. Carefully add a dilute solution of acetic acid or acetone to the mixture in a well ventilated area. Provisions should be made to vent safely the hydrogen gas given off during the decomposition. Check acidity of the solution and adjust to pH 1 if necessary. Let stand overnight. Neutralize the solution (pH 7). Evaporate the solution and bury the residue in a landfill site approved for hazardous-waste disposal.

J Cautiously acidify a 3% solution or a suspension of the material to pH 2 with sulfuric acid. Gradually add a 50% excess of aqueous sodium bisulfite with stirring at room temperature. An increase in temperature indicates that a reaction is taking place. If no reaction is observed on the addition of 10% of the sodium bisulfite solution, initiate it by cautiously adding more acid. If manganese, chromium, or molybdenum is present, adjust the pH of the solution to 7 and treat with sulfide to precipitate for burial as hazardous waste. Destroy excess sulfide, neutralize and flush solution down the drain.

K Please contact the Technical Services Department. Be sure to mention name, catalog number and quantity of the material.

L The material should be dissolved in 1) water; 2) acid solution or 3) oxidized to a water-soluble state. Precipitate the material as the sulfide, adjusting the pH of the solution to 7 to complete precipitation. Filter the insolubles and dispose of them in a hazardous-waste site. Destroy any excess sulfide with sodium hypochlorite. Neutralize the solution before flushing down the drain.

M A slurry of the arenediazonium salt with water can be disposed of by adding it gradually to a stirred solution of 5-10% excess 2-naphthol in 3% aqueous sodium hydroxide at 0-20°C. After 12 hours, the resulting azo dye is filtered and either incinerated or buried in a landfill site approved for hazardous-waste disposal. Neutralize the remaining solution before disposal.

N For small quantities: cautiously add to a large stirred excess of water. Adust the pH to neutral, separate any insoluble solids or liquids and package them for hazardous-waste disposal. Flush the aqueous solution down the drain with plenty of water. The hydrolysis and neutralization reactions may generate heat and fumes which can be controlled by the rate of addition.

O Bury in a landfill site approved for the disposal of chemical and hazardous waste.

P Material in the elemental state should be recovered for reuse or recycling.

Q Cautiously make a 5% solution of the material in water or dilute acid. There may be a vigorous, exothermic reaction and fumes may be generated due to the hydrolysis of the material. Control any reaction by cooling and by the rate of addition of the material. Gradually add dilute ammonium hydroxide to pH 10. Filter off any precipitate for disposal in a chemical landfill. If there is no precipitation, gradually adjust the pH from 10 to 6, stopping when precipitation occurs.

R Catalysts and expensive metals should be recovered for reuse or recycling.

S Treat a dilute basic solution (pH 10-11) of the material with a 50% excess of commercial laundry bleach. Control the temperature by the addition rate of bleach and adjust pH if necessary. Let stand overnight. Cautiously adjust solution to pH 7. Vigorous evolution of gas may occur. Filter any solids for burial in a chemical landfill. Precipitate any heavy metals by addition of sulfide and isolate for burial. Additional equivalents of hypochlorite may be needed if the metal can be oxidized to a higher valence state. For metal carbonyls, the reaction should be carried out under nitrogen.

T Cautiously make a 5% solution of the product in water; vent because of possible vigorous evolution of flammable hydrogen gas. Acidify the solution to pH 1 by adding 1*M* sulfuric acid dropwise. Acidification will cause vigorous evolution of hydrogen gas. Allow the solution to stand overnight. Evaporate the solution to dryness and bury the residue in a landfill site approved for hazardous-waste disposal.

U Take the material (or a solution) and make a 5% solution in tetrahydrofuran. Cautiously add the solution dropwise to an ice-cooled, stirred basic solution of commercial bleach. Oxidation may release flammable hydrocarbon gases which must be vented. Let stand overnight. Adjust the pH to 7 and destroy excess hypochlorite with sodium bisulfite before disposal of the solution.

V Under an inert atmosphere cautiously add dry butanol or a mixture of dry butanol in an appropriate solvent, to a solution of the material in tetrahydrofuran. The chemical reaction may be vigorous and/or exothermic. Provisions must be made for the venting of a large volume of flammable hydrogen gas. When gas evolution ceases, cautiously add a basic hypochlorite solution dropwise to the reaction solution. Let stand overnight. Neutralize the solution and treat with sodium bisulfite to destroy any excess hypochlorite. Filter any solids for burial in a landfill site approved for hazardous-waste disposal.

Ecology and Environment, Inc.
Hazard Evaluation of Chemicals
Region V - Chicago

Chemical Name Chromium (metal) Date w/o 4-4

DOT Classification _____ Job Number FOHO624 SA

CAS Number 7440-47-3

REFERENCES CONSULTED (circle; also include MSDS if approprate.)
NIOSH/OSHA Pocket Guide Merck Index Hazardline Chris(vol.III)
ACGIH TLV Booklet Toxic & Hazardous Safety Manual SAX Aldrich
RTECS other: Sittig

CHEMICAL PROPERTIES: (Synonyms: Chromiun metal, insoluble salts)
Chemical Formula Cr MW 52 Ionization Potential N/A
Physical State variable Boiling Point 4842°F Freezing Point 3339°F
Flash Point variable Flammable Limits LEL-.23% Vapor Pressure variable
Specific Gravity/Density 7.2@82°F Odor/Odor Threshold none

Solubility-water: Insoluble Solubility-other: _____
Incompatabilities & Reactivity: strong oxiders, powdered metal is explosive

TOXICOLOGICAL PROPERTIES:
Exposure Limits: TLV-TWA (ACGIH) 0.5 mg/m³ PEL (OSHA) 1.0 mg/m³
STEL none est. Ceiling Limits none est. IDLH 500 mg/m³
Toxicity Data: (Indicate duration of study)
Human; IHL _____ Dermal _____ Oral _____
Rat/Mouse; IHL _____ Dermal _____ Oral _____
Aquatic: _____ Other: _____
Carcinogen N/A Mutagen N/A Reproductive Toxin N/A
Route(s) of exposure - (circle all that apply): Inhalation Ingestion
Dermal Contact Eye(ocular) Dermal Absorption Other _____

HANDLING RECOMMENDATIONS: (personal protective measures)
Respirators: 5 mg/m³ - SCBA
Protective Clothing: Prevent skin/eye contact.
Special Equipment: Wear impervious clothing.

DISPOSAL, FIRE and SPILLS: (Use numbered codes; see attached sheets for explanation.)
Disposal P,O Fire 13 Leaks&Spills 3,4,6,7,8,9
Decomposition Products: _____

FIRST AID:
ING: Large amounts of water, induce vomiting, medical attent. immed.
IHL: Move to fresh air, artificial resp. if necessary, medical atten.
Eye/Skin: Irrigate/rinse with large amounts of water. Wash skin thoroughly with soap & water.

SYMPTOMS:
acute(immediate) exposure effects: Contact dermatitis, ulceration of skin & nasal mucosa, irritation of eyes & mucous membranes.

chronic(long term) exposure effects: Not often encountered with the 3+ state since chromium compounds in this state are of a lower order toxicity.

reproductive effects: None specified for humans.

Ecology and Environment, Inc.
Hazard Evaluation of Chemicals
Region V - Chicago

Chemical Name Chromium (hexavalent) **Date** W104-4

DOT Classification _____ **Job Number** R0H0624SA

CAS Number 7440-47-3

REFERENCES CONSULTED (circle; also include MSDS if approprate.)
NIOSH/OSHA Pocket Guide Merck Index Hazardline Chris(vol.III)
ACGIH TLV Booklet Toxic & Hazardous Safety Manual SAX Aldrich
RTECS other: Sittig

CHEMICAL PROPERTIES: (Synonyms: Chromic oxide, soluble chromic salts)
Chemical Formula Cr (CrO3) MW 52 Ionization Potential N/A
Physical State variable Boiling Point vari. Freezing Point vari.
Flash Point variable Flammable Limits vari. Vapor Pressure vari.
Specific Gravity/Density variable Odor/Odor Threshold variable
Solubility-water: Insoluble Solubility-other: _____
Incompatabilities & Reactivity: Strong oxidizers, water

TOXICOLOGICAL PROPERTIES:
Exposure Limits: TLV-TWA (ACGIH) .05mg/m³ PEL (OSHA) .5mg/m³
STEL none est. Ceiling Limits none est. IDLH 250mg/m³
Toxicity Data: (Indicate duration of study)
Human; IHL _____ Dermal _____ Oral _____
Rat/Mouse; IHL _____ Dermal _____ Oral _____
Aquatic: _____ Other: _____
Carcinogen pos-anim Mutagen exp. Reproductive Toxin exper. teratogen
Route(s) of exposure - (circle all that apply): Inhalation Ingestion
Dermal Contact Eye(ocular) Dermal Absorption Other _____

HANDLING RECOMMENDATIONS: (personal protective measures)
Respirators: > any detectable limit - SCBA.
Protective Clothing: good-viton, vinyl, poor; neoprene.
Special Equipment: Prevent skin/eye contact.

DISPOSAL, FIRE and SPILLS: (Use numbered codes; see attached sheets for explanation.)
Disposal P,O Fire 13 Leaks&Spills 3,4,6,7,8,9
Decomposition Products: toxic fumes

FIRST AID:
ING: Large amounts of water, induce vomiting, medical attention immed.
IHL: Move to fresh air, artifical resp. if necessary, medical attent.
Eye/Skin: Irrigate/rinse with large amounts of water, wash skin throughly with soap & Water

SYMPTOMS:
acute(immediate) exposure effects: Contact dermatitis, irritation of mucous membranes/upper respiratory tract, coughing, wheezing, headache, fever, weight loss, ulceration of nasal septum, nausea, vomiting,

chronic(long term) exposure effects: carcinogen, liver and/or kidney damage, bronchitis, ulceration of skin, lung cancer.

Reproductive effects: None specified for humans.

Ecology and Environment, Inc.
Hazard Evaluation of Chemicals
Region V - Chicago

Chemical Name Lead Date 4/0 4-4

DOT Classification _____ Job Number B0H0624SA

CAS Number 7439-92-1

REFERENCES CONSULTED (circle; also include MSDS if appropriate.)
NIOSH/OSHA Pocket Guide Merck Index Hazardline Chris(vol.III)
ACGIH TLV Booklet Toxic & Hazardous Safety Manual SAX Aldrich
RTECS other: Sittig

CHEMICAL PROPERTIES: (Synonyms: White lead, plumbum)
Chemical Formula Pb MW 207 Ionization Potential N/A
Physical State Variable Boiling Point 3164°F Freezing Point _____
Flash Point Incombust. Flammable Limits Incombus Vapor Pressure variable
Specific Gravity/Density 11.3 @61°F Odor/ Odor Threshold None
Solubility-water: Insoluble Solubility-other: _____
Incompatabilities & Reactivity: Strong oxidizers, perioxides, active metals

TOXICOLOGICAL PROPERTIES:
Exposure Limits: TLV-TWA (ACGIH) .15 mg/m³ PEL (OSHA) 50ug/m³
STEL None est. Ceiling Limits None est. IDLH Variable
Toxicity Data: (Indicate duration of study)
Human; IHL _____ Dermal _____ Oral Td10 450mg/kg/6Y
Rat/Mouse; IHL _____ Dermal _____ Oral Tdlo 790mg/kg
Aquatic: Unknown Other: Toxicity varies with lead cpds.
Carcinogen Indef. Mutagen Indef Reproductive Toxin exp. teratogen
Route(s) of exposure - (circle all that apply): Inhalation Ingestion
Dermal Contact Eye(ocular) Dermal Absorption Other _____

HANDLING RECOMMENDATIONS: (personal protective measures)
Respirators: 5mg/m3 high efficiency particulate respirator, other concentrations - SCBA.
Protective Clothing: Avoid skin and eye contact
Special Equipment: None

DISPOSAL, FIRE and SPILLS: (Use numbered codes; see attached sheets for explanation.)
Disposal P Fire 13 Leaks&Spills 7,8,10
Decomposition Products: Toxic fumes of lead

FIRST AID:
ING: Give water, induce vomiting, medical attention immed.
IHL: Move to fresh air, artifical resp. if necessary, medical attent.
Eye/Skin: Irrigate/wash with water. Wash skin thoroughly with soap & water.

SYMPTOMS:
acute(immediate) exposure effects: Cumulative neurotoxin-commonly occurs from prolonged exposure. Symptoms include stomach distress, vomiting, diarrhea, black stools, anemia, nervous system effects.
chronic(long term) exposure effects: 3 clinical types: a-ailmentary-abominal pain, discomfort, constipation or diarrhea, metallic taste, lead line on gum headache. b-nueromuscular, muscle weakness, joint/muscle pain, dizziness, insomnia, paralysis c-encephalic: brain involvement, stupor, coma, death, rare.
reproductive effects: Human epid. studies have concluded that lead is a poison to male & female germ cells; increased incidence of miscarriages, stillbirths, sterility in females; sperm depression & decreased motiltiy in males

W04-4

OILS, MISCELLANEOUS: COAL TAR

PO H0624SA

OCT

Common Synonyms	Liquid	Colorless to yellow	Pleasant odor
Light oil	Floats on water. Flammable, irritating vapor is produced.		

Stop discharge if possible. Keep people away.
Shut off ignition sources and call fire department.
Stay upwind and use water spray to "knock down" vapor.
Avoid contact with liquid and vapor.
Isolate and remove discharged material.
Notify local health and pollution control agencies.

Fire

FLAMMABLE.
Flashback along vapor trail may occur.
Vapor may explode if ignited in an enclosed area.
Extinguish with dry chemical, foam or carbon dioxide.
Water may be ineffective on fire.
Cool exposed containers with water.

Exposure

CALL FOR MEDICAL AID.

VAPOR
Irritating to eyes, nose and throat.
Move to fresh air.

LIQUID
Irritating to skin and eyes.
Harmful if swallowed.
Remove contaminated clothing and shoes.
Flush affected areas with plenty of water.
IF IN EYES, hold eyelids open and flush with plenty of water.
IF SWALLOWED and victim is CONSCIOUS, have victim drink water or milk.
DO NOT INDUCE VOMITING.

Water Pollution

Effect of low concentrations on aquatic life is unknown.
Fouling to shoreline.
May be dangerous if it enters water intakes.

Notify local health and wildlife officials.
Notify operators of nearby water intakes.

1. RESPONSE TO DISCHARGE

(See Response Methods Handbook)

Issue warning-high flammability
Evacuate area

2. LABEL

2.1 **Category:** Flammable liquid
2.2 **Class:** 3

3. CHEMICAL DESIGNATIONS

3.1 **CG Compatibility Class:** Miscellaneous Hydrocarbon Mixtures
3.2 **Formula:** Not applicable
3.3 **IMO/UN Designation:** 3.2/1136
3.4 **DOT ID No.:** 1136
3.5 **CAS Registry No.:** Data not available

4. OBSERVABLE CHARACTERISTICS

4.1 **Physical State (as shipped):** Liquid
4.2 **Color:** Colorless to yellow
4.3 **Odor:** Aromatic; like benzene; pleasant

5. HEALTH HAZARDS

5.1 **Personal Protective Equipment:** Protective gloves; goggles or face shield.
5.2 **Symptoms Following Exposure:** Vapor causes slight irritation of nose and throat, smarting of eyes. Liquid may irritate skin on prolonged contact.
5.3 **Treatment of Exposure:** INGESTION: have victim drink water or milk; do NOT induce vomiting. EYES: flush with water for at least 15 min. SKIN: wipe off and wash with soap and water.
5.4 **Threshold Limit Value:** Data not available
5.5 **Short Term Inhalation Limits:** Data not available
5.6 **Toxicity by Ingestion:** Data not available
5.7 **Late Toxicity:** Data not available
5.8 **Vapor (Gas) Irritant Characteristics:** Vapors cause a slight smarting of the eyes or respiratory system if present in high concentrations. The effect is temporary.
5.9 **Liquid or Solid Irritant Characteristics:** Minimum hazard. If spilled on clothing and allowed to remain, may cause smarting and reddening of the skin.
5.10 **Odor Threshold:** Data not available
5.11 **IDLH Value:** Data not available

6. FIRE HAZARDS

6.1 **Flash Point:** 60°-77°F C.C.
6.2 **Flammable Limits in Air:** 1.3%-6%
6.3 **Fire Extinguishing Agents:** Dry chemical, foam, or carbon dioxide
6.4 **Fire Extinguishing Agents Not to be Used:** Water may be ineffective.
6.5 **Special Hazards of Combustion Products:** Not pertinent
6.6 **Behavior in Fire:** Not pertinent
6.7 **Ignition Temperature:** Data not available
6.8 **Electrical Hazard:** Not pertinent
6.9 **Burning Rate:** 4 mm/min.
6.10 **Adiabatic Flame Temperature:** Data not available
6.11 **Stoichiometric Air to Fuel Ratio:** Data not available
6.12 **Flame Temperature:** Data not available

7. CHEMICAL REACTIVITY

7.1 **Reactivity With Water:** No reaction
7.2 **Reactivity with Common Materials:** No reaction
7.3 **Stability During Transport:** Stable
7.4 **Neutralizing Agents for Acids and Caustics:** Not pertinent
7.5 **Polymerization:** Not pertinent
7.6 **Inhibitor of Polymerization:** Not pertinent
7.7 **Molar Ratio (Reactant to Product):** Data not available
7.8 **Reactivity Group:** 33

8. WATER POLLUTION

8.1 **Aquatic Toxicity:** Data not available
8.2 **Waterfowl Toxicity:** Data not available
8.3 **Biological Oxygen Demand (BOD):** Data not available
8.4 **Food Chain Concentration Potential:** None

9. SHIPPING INFORMATION

9.1 **Grades of Purity:** Various compositions, depending on type of coal used and boiling range taken.
9.2 **Storage Temperature:** Ambient
9.3 **Inert Atmosphere:** No requirement
9.4 **Venting:** Open (flame arrester) or pressure-vacuum

10. HAZARD ASSESSMENT CODE

(See Hazard Assessment Handbook)

A-T-U

11. HAZARD CLASSIFICATIONS

11.1 **Code of Federal Regulations:** Flammable liquid
11.2 **NAS Hazard Rating for Bulk Water Transportation:**

Category	Rating
Fire	3
Health	
Vapor Irritant	1
Liquid or Solid Irritant	1
Poisons	2
Water Polution	
Human Toxicity	2
Aquatic Toxicity	2
Aesthetic Effect	4
Reactivity	
Other Chemicals	2
Water	0
Self Reaction	0

11.3 **NFPA Hazard Classification:**

Category	Classification
Health Hazard (Blue)	2
Flammability (Red)	3
Reactivity (Yellow)	0

12. PHYSICAL AND CHEMICAL PROPERTIES

12.1 **Physical State at 15°C and 1 atm:** Liquid
12.2 **Molecular Weight:** Not pertinent
12.3 **Boiling Point at 1 atm:** 223—333°F = 106—167°C = 379—440°K
12.4 **Freezing Point:** Not pertinent
12.5 **Critical Temperature:** Not pertinent
12.6 **Critical Pressure:** Not pertinent
12.7 **Specific Gravity:** (est.) 0.90 at 20°C (liquid)
12.8 **Liquid Surface Tension:** (est.) 25 dynes/cm = 0.025 N/m at 20°C
12.9 **Liquid Water Interfacial Tension:** Data not available
12.10 **Vapor (Gas) Specific Gravity:** Not pertinent
12.11 **Ratio of Specific Heats of Vapor (Gas):** (est.) 1.071
12.12 **Latent Heat of Vaporization:** (est.) 107 Btu/lb = 59.8 cal/g = 2.5×10^5 J/kg
12.13 **Heat of Combustion:** —17,440 Btu/lb = —9,690 cal/g = -405.7×10^3 J/kg
12.14 **Heat of Decomposition:** Not pertinent
12.15 **Heat of Solution:** Not pertinent
12.16 **Heat of Polymerization:** Not pertinent
12.25 **Heat of Fusion:** Data not available
12.26 **Limiting Value:** Data not available
12.27 **Reid Vapor Pressure:** Data not available

NOTES

CHRIS
VOL III

OCT	W104-4	OILS, MISCELLANEOUS: COAL TAR	PO H0624SA

12.17 SATURATED LIQUID DENSITY		12.18 LIQUID HEAT CAPACITY		12.19 LIQUID THERMAL CONDUCTIVITY		12.20 LIQUID VISCOSITY	
Temperature (degrees F)	Pounds per cubic foot (estimate)	Temperature (degrees F)	British thermal unit per pound-F (estimate)	Temperature (degrees F)	British thermal unit-inch per hour-square foot-F (estimate)	Temperature (degrees F)	Centipoise (estimate)
50	56.180	50	.344	35	.920	50	9.343
52	56.180	52	.344	40	.919	52	8.841
54	56.180	54	.344	45	.918	54	8.370
56	56.180	56	.344	50	.917	56	7.927
58	56.180	58	.344	55	.916	58	7.511
60	56.180	60	.344	60	.915	60	7.119
62	56.180	62	.344	65	.914	62	6.751
64	56.180	64	.344	70	.913	64	6.404
66	56.180	66	.344	75	.912	66	6.078
68	56.180	68	.344	80	.911	68	5.770
70	56.180	70	.344	85	.910	70	5.481
72	56.180	72	.344	90	.909	72	5.207
74	56.180	74	.344	95	.908	74	4.950
76	56.180	76	.344	100	.907	76	4.707
78	56.180	78	.344	105	.906	78	4.477
80	56.180	80	.344	110	.905	80	4.260
82	56.180	82	.344	115	.904	82	4.056
84	56.180	84	.344	120	.903	84	3.862
		86	.344				
		88	.344				
		90	.344				
		92	.344				
		94	.344				
		96	.344				
		98	.344				
		100	.344				

12.21 SOLUBILITY IN WATER		12.22 SATURATED VAPOR PRESSURE		12.23 SATURATED VAPOR DENSITY		12.24 IDEAL GAS HEAT CAPACITY	
Temperature (degrees F)	Pounds per 100 pounds of water	Temperature (degrees F)	Pounds per square inch (estimate)	Temperature (degrees F)	Pounds per cubic foot	Temperature (degrees F)	British thermal unit per pound-F
	I	70	.042		N		D
	N	75	.049		O		A
	S	80	.057		T		T
	O	85	.065				A
	L	90	.076		P		
	U	95	.087		E		N
	B	100	.100		R		O
	L	105	.114		T		T
	E	110	.131		I		
		115	.149		N		A
		120	.170		E		V
		125	.193		N		A
		130	.218		T		I
		135	.247				L
		140	.279				A
		145	.314				B
		150	.352				L
		155	.395				E
		160	.443				
		165	.495				
		170	.552				
		175	.615				
		180	.683				
		185	.758				
		190	.841				
		195	.930				

WO 4-4

OILS, MISCELLANEOUS: PENETRATING

F0H062454

OPT

Common Synonyms	Oily liquid	Yellow	Motor oil-like odor
Preservative oil Water displacing oil	Floats on water.		

Stop discharge if possible.
Call fire department.
Avoid contact with liquid.
Isolate and remove discharged material.
Notify local health and pollution control agencies.

Fire

Combustible.
Extinguish with foam, dry chemical, or carbon dioxide.
Water may be ineffective on fire.

Exposure

CALL FOR MEDICAL AID.

LIQUID
Irritating to skin and eyes.
Harmful if swallowed.
Remove contaminated clothing and shoes.
Flush affected areas with plenty of water.
IF IN EYES, hold eyelids open and flush with plenty of water.
IF SWALLOWED and victim is CONSCIOUS, have victim drink water or milk.
DO NOT INDUCE VOMITING.

Water Pollution

Effect of low concentrations on aquatic life is unknown.
Fouling to shoreline.
May be dangerous if it enters water intakes.

Notify local health and wildlife officials.
Notify operators of nearby water intakes.

1. RESPONSE TO DISCHARGE

(See Response Methods Handbook)

Mechanical containment
Should be removed
Chemical and physical treatment

2. LABEL

2.1 **Category:** None
2.2 **Class:** Not pertinent

3. CHEMICAL DESIGNATIONS

3.1 **CG Compatibility Class:** Miscellaneous Hydrocarbon Mixtures
3.2 **Formula:** Not applicable
3.3 **IMO/UN Designation:** 3.3/1270
3.4 **DOT ID No.:** 1270
3.5 **CAS Registry No.:** Data not available

4. OBSERVABLE CHARACTERISTICS

4.1 **Physical State (as shipped):** Liquid
4.2 **Color:** Yellowish
4.3 **Odor:** Like motor oil

5. HEALTH HAZARDS

5.1 **Personal Protective Equipment:** Protective gloves; goggles or face shield.
5.2 **Symptoms Following Exposure:** Liquid may irritate stomach and increase frequency of bowel movements.
5.3 **Treatment of Exposure:** INGESTION: have victim drink water or milk; do NOT induce vomiting. ASPIRATION: check for delayed development of pulmonary irritation by serial x-rays. EYES: wash with copious amounts of water. SKIN: wipe off, wash with soap and water.
5.4 **Threshold Limit Value:** Data not available
5.5 **Short Term Inhalation Limits:** Data not available
5.6 **Toxicity by Ingestion:** Grade 1; LD_{50} = 5 to 15 g/kg
5.7 **Late Toxicity:** Data not available
5.8 **Vapor (Gas) Irritant Characteristics:** Vapors cause a slight smarting of the eyes or respiratory system if present in high concentrations. The effect is temporary.
5.9 **Liquid or Solid Irritant Characteristics:** Minimum hazard. If spilled on clothing and allowed to remain, may cause smarting and reddening of skin.
5.10 **Odor Threshold:** Data not available
5.11 **IDLH Value:** Data not available

6. FIRE HAZARDS

6.1 **Flash Point:** 295°F
6.2 **Flammable Limits in Air:** Data not available
6.3 **Fire Extinguishing Agents:** Foam, dry chemical, or carbon dioxide
6.4 **Fire Extinguishing Agents Not to be Used:** Water or foam may cause frothing.
6.5 **Special Hazards of Combustion Products:** Not pertinent
6.6 **Behavior in Fire:** Not pertinent
6.7 **Ignition Temperature:** Data not available
6.8 **Electrical Hazard:** Not pertinent
6.9 **Burning Rate:** Data not available
6.10 **Adiabatic Flame Temperature:** Data not available
6.11 **Stoichiometric Air to Fuel Ratio:** Data not available
6.12 **Flame Temperature:** Data not available

7. CHEMICAL REACTIVITY

7.1 **Reactivity With Water:** No reaction
7.2 **Reactivity with Common Materials:** No reaction
7.3 **Stability During Transport:** Stable
7.4 **Neutralizing Agents for Acids and Caustics:** Not pertinent
7.5 **Polymerization:** Not pertinent
7.6 **Inhibitor of Polymerization:** Not pertinent
7.7 **Molar Ratio (Reactant to Product):** Data not available
7.8 **Reactivity Group:** 33

8. WATER POLLUTION

8.1 **Aquatic Toxicity:** Data not available
8.2 **Waterfowl Toxicity:** Data not available
8.3 **Biological Oxygen Demand (BOD):** Data not available
8.4 **Food Chain Concentration Potential:** None

9. SHIPPING INFORMATION

9.1 **Grades of Purity:** Commercial
9.2 **Storage Temperature:** Ambient
9.3 **Inert Atmosphere:** No requirement
9.4 **Venting:** Open (flame arrester)

10. HAZARD ASSESSMENT CODE

(See Hazard Assessment Handbook)

A-T-U

11. HAZARD CLASSIFICATIONS

11.1 **Code of Federal Regulations:** Not listed
11.2 **NAS Hazard Rating for Bulk Water Transportation:** Not listed
11.3 **NFPA Hazard Classification:** Not listed

12. PHYSICAL AND CHEMICAL PROPERTIES

12.1 **Physical State at 15°C and 1 atm:** Liquid
12.2 **Molecular Weight:** Not pertinent
12.3 **Boiling Point at 1 atm:** Very high
12.4 **Freezing Point:** Not pertinent
12.5 **Critical Temperature:** Not pertinent
12.6 **Critical Pressure:** Not pertinent
12.7 **Specific Gravity:** 0.8961 at 20°C (liquid)
12.8 **Liquid Surface Tension:** 29.8 dynes/cm = 0.0298 N/m at 24°C
12.9 **Liquid Water Interfacial Tension:** 5.5 dynes/cm = 0.0055 N/m at 22°C
12.10 **Vapor (Gas) Specific Gravity:** Not pertinent
12.11 **Ratio of Specific Heats of Vapor (Gas):** Not pertinent
12.12 **Latent Heat of Vaporization:** Not pertinent
12.13 **Heat of Combustion: (est.)** —18,000 Btu/lb = —10,000 cal/g = —420 X 10^3 J/kg
12.14 **Heat of Decomposition:** Not pertinent
12.15 **Heat of Solution:** Not pertinent
12.16 **Heat of Polymerization:** Not pertinent
12.25 **Heat of Fusion:** Data not available
12.26 **Limiting Value:** Data not available
12.27 **Reid Vapor Pressure:** Data not available

NOTES

CHRIS VOL III

OPT	w/o 4-4	OILS, MISCELLANEOUS: PENETRATING	PO H0624SA

12.17 SATURATED LIQUID DENSITY		12.18 LIQUID HEAT CAPACITY		12.19 LIQUID THERMAL CONDUCTIVITY		12.20 LIQUID VISCOSITY	
Temperature (degrees F)	Pounds per cubic foot	Temperature (degrees F)	British thermal unit per pound-F	Temperature (degrees F)	British thermal unit-inch per hour-square foot-F (estimate)	Temperature (degrees F)	Centipoise
45	56.350	85	.420	35	.920	46	45.490
50	56.240	90	.431	40	.919	48	43.080
55	56.130	95	.442	45	.918	50	40.810
60	56.020	100	.453	50	.917	52	38.680
65	55.910	105	.464	55	.916	54	36.680
70	55.800	110	.474	60	.915	56	34.790
75	55.680	115	.485	65	.914	58	33.020
80	55.570	120	.496	70	.913	60	31.340
85	55.460	125	.507	75	.912	62	29.770
90	55.350	130	.518	80	.911	64	28.280
95	55.230	135	.529	85	.910	66	26.880
100	55.120	140	.539	90	.909	68	25.560
105	55.010	145	.550	95	.908	70	24.310
110	54.890	150	.561	100	.907	72	23.140
115	54.780			105	.906	74	22.020
				110	.905	76	20.970
				115	.904	78	19.980
				120	.903	80	19.040
						82	18.150
						84	17.310
						86	16.510
						88	15.760
						90	15.040
						92	14.360
						94	13.720
						96	13.110

12.21 SOLUBILITY IN WATER		12.22 SATURATED VAPOR PRESSURE		12.23 SATURATED VAPOR DENSITY		12.24 IDEAL GAS HEAT CAPACITY	
Temperature (degrees F)	Pounds per 100 pounds of water	Temperature (degrees F)	Pounds per square inch	Temperature (degrees F)	Pounds per cubic foot	Temperature (degrees F)	British thermal unit per pound-F
	I	55	.434		N		N
	N	60	.464		O		O
	S	65	.496		T		T
	O	70	.529				
	L	75	.564		P		P
	U	80	.601		E		E
	B	85	.639		R		R
	L	90	.679		T		T
	E	95	.721		I		I
		100	.764		N		N
		105	.810		E		E
		110	.857		N		N
		115	.906		T		T
		120	.956				
		125	1.009				
		130	1.063				

W/O 4-4

OILS, MISCELLANEOUS: SPINDLE

PO HO 6245A

OSD

Common Synonyms	Oily liquid	Light brown	Weak kerosene-like odor
High speed bearing oil Bearing oil	Floats on water.		

Stop discharge if possible.
Call fire department.
Avoid contact with liquid.
Isolate and remove discharged material.
Notify local health and pollution control agencies.

Fire

Combustible.
Extinguish with foam, dry chemical, or carbon dioxide.
Water may be ineffective on fire.

Exposure

CALL FOR MEDICAL AID.

LIQUID
Irritating to skin and eyes.
Harmful if swallowed.
Remove contaminated clothing and shoes.
Flush affected areas with plenty of water.
IF IN EYES, hold eyelids open and flush with plenty of water.
IF SWALLOWED and victim is CONSCIOUS, have victim drink water or milk.
DO NOT INDUCE VOMITING.

Water Pollution

Dangerous to aquatic life in high concentrations.
Fouling to shoreline.
May be dangerous if it enters water intakes.

Notify local health and wildlife officials.
Notify operators of nearby water intakes.

1. RESPONSE TO DISCHARGE

(See Response Methods Handbook)
Mechanical containment
Should be removed
Chemical and physical treatment

2. LABEL

2.1 **Category:** None
2.2 **Class:** Not pertinent

3. CHEMICAL DESIGNATIONS

3.1 **CG Compatibility Class:** Miscellaneous Hydrocarbon Mixtures
3.2 **Formula:** Not applicable
3.3 **IMO/UN Designation:** 3.3/1270
3.4 **DOT ID No.:** 1270
3.5 **CAS Registry No.:** Data not available

4. OBSERVABLE CHARACTERISTICS

4.1 **Physical State (as shipped):** Liquid
4.2 **Color:** Light brown
4.3 **Odor:** Weak, like kerosene

5. HEALTH HAZARDS

5.1 **Personal Protective Equipment:** Protective gloves; goggles or face shield.
5.2 **Symptoms Following Exposure:** Vapor causes slight irritation of eyes and nose. Liquid irritates stomach; *if taken into lungs, causes coughing, distress, and rapidly developing pulmonary edema.*
5.3 **Treatment of Exposure:** ASPIRATION: enforce bed rest; administer oxygen; call a doctor. INGESTION: do NOT induce vomiting; call a doctor. EYES: wash with copious amounts of water. SKIN: wipe off and wash with soap and water.
5.4 **Threshold Limit Value:** Data not available
5.5 **Short Term Inhalation Limits:** Data not available
5.6 **Toxicity by Ingestion:** Grade 1; LD_{50} = 5 to 15 g/kg
5.7 **Late Toxicity:** Data not available
5.8 **Vapor (Gas) Irritant Characteristics:** Vapors cause a slight smarting of eyes or respiratory system if present in high concentrations. The effect istemporary.
5.9 **Liquid or Solid Irritant Characteristics:** Minimum hazard. If spilled on clothing and allowed to remain, may cause smarting and reddening of skin.
5.10 **Odor Threshold:** Data not available
5.11 **IDLH Value:** Data not available

6. FIRE HAZARDS

6.1 **Flash Point:** 169°F C.C.
6.2 **Flammable Limits in Air:** Data not available
6.3 **Fire Extinguishing Agents:** *Foam, dry chemical, or carbon dioxide*
6.4 **Fire Extinguishing Agents Not to be Used:** Water may be ineffective.
6.5 **Special Hazards of Combustion Products:** Not pertinent
6.6 **Behavior in Fire:** Not pertinent
6.7 **Ignition Temperature:** 478°F
6.8 **Electrical Hazard:** Not pertinent
6.9 **Burning Rate:** Data not available
6.10 **Adiabatic Flame Temperature:** Data not available
6.11 **Stoichiometric Air to Fuel Ratio:** Data not available
6.12 **Flame Temperature:** *Data not available*

7. CHEMICAL REACTIVITY

7.1 **Reactivity With Water:** No reaction
7.2 **Reactivity with Common Materials:** No reaction
7.3 **Stability During Transport:** Stable
7.4 **Neutralizing Agents for Acids and Caustics:** Not pertinent
7.5 **Polymerization:** Not pertinent
7.6 **Inhibitor of Polymerization:** Not pertinent
7.7 **Molar Ratio (Reactant to Product):** Data not available
7.8 **Reactivity Group:** 33

8. WATER POLLUTION

8.1 **Aquatic Toxicity:** 2990 ppm/24 hr/bluegill/TL_m/fresh water
8.2 **Waterfowl Toxicity:** Data not available
8.3 **Biological Oxygen Demand (BOD):** 53%, 5 days
8.4 **Food Chain Concentration Potential:** None

9. SHIPPING INFORMATION

9.1 **Grades of Purity:** Several grades, all with same hazard assessment.
9.2 **Storage Temperature:** Ambient
9.3 **Inert Atmosphere:** No requirement
9.4 **Venting:** Open (flame arrester)

10. HAZARD ASSESSMENT CODE

(See Hazard Assessment Handbook)
A-T-U

11. HAZARD CLASSIFICATIONS

11.1 **Code of Federal Regulations:** *Combustible liquid*
11.2 **NAS Hazard Rating for Bulk Water Transportation:** Not listed
11.3 **NFPA Hazard Classification:**

Category	Classification
Health Hazard (Blue)	0
Flammability (Red)	2
Reactivity (Yellow)	0

12. PHYSICAL AND CHEMICAL PROPERTIES

12.1 **Physical State at 15°C and 1 atm:** Liquid
12.2 **Molecular Weight:** Not pertinent
12.3 **Boiling Point at 1 atm:** Very high
12.4 **Freezing Point:** Not pertinent
12.5 **Critical Temperature:** Not pertinent
12.6 **Critical Pressure:** Not pertinent
12.7 **Specific Gravity:** 0.881 at 15°C (liquid)
12.8 **Liquid Surface Tension:** Data not available
12.9 **Liquid Water Interfacial Tension:** Data not available
12.10 **Vapor (Gas) Specific Gravity:** Not pertinent
12.11 **Ratio of Specific Heats of Vapor (Gas):** Not pertinent
12.12 **Latent Heat of Vaporization:** Not pertinent
12.13 **Heat of Combustion:** Data not available
12.14 **Heat of Decomposition:** Not pertinent
12.15 **Heat of Solution:** Not pertinent
12.16 **Heat of Polymerization:** Not pertinent
12.25 **Heat of Fusion:** Data not available
12.26 **Limiting Value:** Data not available
12.27 **Reid Vapor Pressure:** Data not available

NOTES

CHRIS
VOL. III

OSD	OILS, MISCELLANEOUS: SPINDLE FOHO 6245A

12.17 SATURATED LIQUID DENSITY		12.18 LIQUID HEAT CAPACITY		12.19 LIQUID THERMAL CONDUCTIVITY		12.20 LIQUID VISCOSITY	
Temperature (degrees F)	Pounds per cubic foot (estimate)	Temperature (degrees F)	British thermal unit per pound-F	Temperature (degrees F)	British thermal unit-inch per hour-square foot-F	Temperature (degrees F)	Centipoise
50	54.930	10	.417	65	.977	100.42	25.850
52	54.930	15	.419	70	.977		
54	54.930	20	.422	75	.977		
56	54.930	25	.424	80	.977		
58	54.930	30	.426	85	.977		
60	54.930	35	.429	90	.977		
62	54.930	40	.431	95	.977		
64	54.930	45	.434	100	.977		
66	54.930	50	.436	105	.977		
68	54.930	55	.438	110	.977		
70	54.930	60	.441	115	.977		
72	54.930	65	.443	120	.977		
74	54.930	70	.445	125	.977		
76	54.930	75	.448	130	.977		
78	54.930	80	.450	135	.977		
80	54.930	85	.453	140	.977		
82	54.930	90	.455	145	.977		
84	54.930	95	.457	150	.977		
		100	.460	155	.977		
		105	.462	160	.977		
				165	.977		
				170	.977		
				175	.977		
				180	.977		
				185	.977		
				190	.977		

12.21 SOLUBILITY IN WATER		12.22 SATURATED VAPOR PRESSURE		12.23 SATURATED VAPOR DENSITY		12.24 IDEAL GAS HEAT CAPACITY	
Temperature (degrees F)	Pounds per 100 pounds of water	Temperature (degrees F)	Pounds per square inch (estimate)	Temperature (degrees F)	Pounds per cubic foot	Temperature (degrees F)	British thermal unit per pound-F
	I	70	.042		N		N
	N	75	.049		O		O
	S	80	.057		T		T
	O	85	.065				
	L	90	.076		P		P
	U	95	.087		E		E
	B	100	.100		R		R
	L	105	.114		T		T
	E	110	.131		I		I
		115	.149		N		N
		120	.170		E		E
		125	.193		N		N
		130	.218		T		T
		135	.247				
		140	.279				
		145	.314				
		150	.352				
		155	.395				
		160	.443				
		165	.495				
		170	.552				
		175	.615				
		180	.683				
		185	.758				
		190	.841				
		195	.930				

CHRIS

VOL III

w/o 4-4

SULFURIC ACID, SPENT

F0H0624SA

SAC

Common Synonyms	Oily liquid	Colorless to dark brown	Odorless
Dilute sulfuric acid	Sinks and mixes with water.		

AVOID CONTACT WITH LIQUID. Keep people away.
Wear goggles, and rubber overclothing (including gloves).
Stop discharge if possible.
Isolate and remove discharged material.
Notify local health and pollution control agencies.

Fire

Not flammable.
Poisonous gas may be produced in fire.
Flammable gas may be produced on contact with metals.
Wear goggles, self-contained breathing apparatus, and rubber overclothing.
Extinguish adjacent fires with dry chemical or carbon dioxide.

Exposure

CALL FOR MEDICAL AID.

LIQUID
Will burn skin and eyes.
Harmful if swallowed.

Remove contaminated clothing and shoes.
Flush affected areas with plenty of water.
IF IN EYES, hold eyelids open and flush with plenty of water.
IF SWALLOWED and victim is CONSCIOUS, have victim drink water or milk.
DO NOT INDUCE VOMITING.

Water Pollution

HARMFUL TO AQUATIC LIFE IN VERY LOW CONCENTRATIONS.
May be dangerous if it enters water intakes.

Notify local health and wildlife officials.
Notify operators of nearby water intakes.

1. RESPONSE TO DISCHARGE

(See Response Methods Handbook)

Issue warning-corrosive
Restrict access
Disperse and flush

2. LABEL

2.1 **Category:** Corrosive
2.2 **Class:** 8

3. CHEMICAL DESIGNATIONS

3.1 **CG Compatibility Class:** Sulfuric acid
3.2 **Formula:** H_2SO_4-H_2O
3.3 **IMO/UN Designation:** 8.0/1832
3.4 **DOT ID No.:** 1832
3.5 **CAS Registry No.:** Data not available

4. OBSERVABLE CHARACTERISTICS

4.1 **Physical State (as shipped):** Liquid
4.2 **Color:** Colorless to dark brown
4.3 **Odor:** Odorless

5. HEALTH HAZARDS

5.1 **Personal Protective Equipment:** Chemical safety goggles and face shield; rubber gloves, boots, and apron.
5.2 **Symptoms Following Exposure:** Contact with eyes or skin causes severe burns, the severity depending on the strength of the acid. Ingestion can cause severe irritation of mouth and stomach.
5.3 **Treatment of Exposure:** Call a doctor. INGESTION: do NOT induce vomiting. SKIN OR EYES: flush affected parts with large amounts of water for at least 15 min.; do NOT use oils or ointments in eyes; treat burns.
5.4 **Threshold Limit Value:** Data not available
5.5 **Short Term Inhalation Limits:** Not pertinent
5.6 **Toxicity by Ingestion:** No effects except those stemming from tissue damage.
5.7 **Late Toxicity:** None
5.8 **Vapor (Gas) Irritant Characteristics:** Non-volatile
5.9 **Liquid or Solid Irritant Characteristics:** Severe skin irritant. Causes second-and third-degree burns on short contact and is very injurious to the eyes.
5.10 **Odor Threshold:** Not pertinent
5.11 **IDLH Value:** Data not available

6. FIRE HAZARDS

6.1 **Flash Point:** Not flammable
6.2 **Flammable Limits in Air:** Not flammable
6.3 **Fire Extinguishing Agents:** Not pertinent
6.4 **Fire Extinguishing Agents Not to be Used:** Not pertinent
6.5 **Special Hazards of Combustion Products:** Not pertinent
6.6 **Behavior in Fire:** Not pertinent
6.7 **Ignition Temperature:** Not flammable
6.8 **Electrical Hazard:** Not pertinent
6.9 **Burning Rate:** Not flammable
6.10 **Adiabatic Flame Temperature:** Data not available
6.11 **Stoichiometric Air to Fuel Ratio:** Data not available
6.12 **Flame Temperature:** Data not available

7. CHEMICAL REACTIVITY

7.1 **Reactivity With Water:** None, unless strength is above 80-90%, in which case heat is liberated.
7.2 **Reactivity with Common Materials:** Attacks many metals, releasing flammable hydrogen gas.
7.3 **Stability During Transport:** Stable
7.4 **Neutralizing Agents for Acids and Caustics:** Limestone, lime, or soda ash.
7.5 **Polymerization:** Not pertinent
7.6 **Inhibitor of Polymerization:** Not pertinent
7.7 **Molar Ratio (Reactant to Product):** Data not available
7.8 **Reactivity Group:** 2

8. WATER POLLUTION

8.1 **Aquatic Toxicity:**
24.5 ppm/24 hr/bluegill/lethal/fresh water
42.5 ppm/48 hr/prawn/LC_{50}/salt water
8.2 **Waterfowl Toxicity:** Data not available
8.3 **Biological Oxygen Demand (BOD):** None
8.4 **Food Chain Concentration Potential:** None

9. SHIPPING INFORMATION

9.1 **Grades of Purity:** Purity depends on the process in which the original acid is used. The strength (in water) is probably below 80%, and the solution may contain a wide variety of metals and organic compounds in solution.
9.2 **Storage Temperature:** Ambient
9.3 **Inert Atmosphere:** No requirement
9.4 **Venting:** Open

10. HAZARD ASSESSMENT CODE

(See Hazard Assessment Handbook)

A-P

11. HAZARD CLASSIFICATIONS

11.1 **Code of Federal Regulations:** Corrosive material
11.2 **NAS Hazard Rating for Bulk Water Transportation:** Not listed
11.3 **NFPA Hazard Classification:**

Category	Classification
Health Hazard (Blue)	3
Flammability (Red)	0
Reactivity (Yellow)	2
	W

12. PHYSICAL AND CHEMICAL PROPERTIES

12.1 **Physical State at 15°C and 1 atm:** Liquid
12.2 **Molecular Weight:** Not pertinent
12.3 **Boiling Point at 1 atm:** 212°F = 100°C = 373°K
12.4 **Freezing Point:** Not pertinent
12.5 **Critical Temperature:** Not pertinent
12.6 **Critical Pressure:** Not pertinent
12.7 **Specific Gravity:** 1.39 at 20°C (liquid)
12.8 **Liquid Surface Tension:** Not pertinent
12.9 **Liquid Water Interfacial Tension:** Not pertinent
12.10 **Vapor (Gas) Specific Gravity:** Not pertinent
12.11 **Ratio of Specific Heats of Vapor (Gas):** Not pertinent
12.12 **Latent Heat of Vaporization:** Not pertinent
12.13 **Heat of Combustion:** Not pertinent
12.14 **Heat of Decomposition:** Not pertinent
12.15 **Heat of Solution:** <—416 Btu/lb = <—232 cal/g = <9.71×10^8 J/kg
12.16 **Heat of Polymerization:** Not pertinent
12.25 **Heat of Fusion:** Data not available
12.26 **Limiting Value:** Data not available
12.27 **Reid Vapor Pressure:** Data not available

NOTES

CHRIS
VOL III

SAC	SULFURIC ACID, SPENT

12.17 SATURATED LIQUID DENSITY		12.18 LIQUID HEAT CAPACITY		12.19 LIQUID THERMAL CONDUCTIVITY		12.20 LIQUID VISCOSITY	
Temperature (degrees F)	Pounds per cubic foot	Temperature (degrees F)	British thermal unit per pound-F	Temperature (degrees F)	British thermal unit-inch per hour-square foot-F	Temperature (degrees F)	Centipoise
40	87.820	52	.580		N		N
50	87.580	54	.580		O		O
60	87.339	56	.580		T		T
70	87.089	58	.580				
80	86.849	60	.580		P		P
90	86.610	62	.580		E		E
100	86.360	64	.580		R		R
110	86.120	66	.580		T		T
120	85.879	68	.580		I		I
130	85.639	70	.580		N		N
140	85.389	72	.580		E		E
150	85.150	74	.580		N		N
160	84.910	76	.580		T		T
170	84.669	78	.580				
180	84.419	80	.580				
190	84.179	82	.580				
200	83.940	84	.580				
210	83.690	86	.580				
		88	.580				
		90	.580				
		92	.580				
		94	.580				
		96	.580				
		98	.580				
		100	.580				
		102	.580				

12.21 SOLUBILITY IN WATER		12.22 SATURATED VAPOR PRESSURE		12.23 SATURATED VAPOR DENSITY		12.24 IDEAL GAS HEAT CAPACITY	
Temperature (degrees F)	Pounds per 100 pounds of water	Temperature (degrees F)	Pounds per square inch	Temperature (degrees F)	Pounds per cubic foot	Temperature (degrees F)	British thermal unit per pound-F
	M		N		N		N
	I		O		O		O
	S		T		T		T
	C						
	I		P		P		P
	B		E		E		E
	L		R		R		R
	E		T		T		T
			I		I		I
			N		N		N
			E		E		E
			N		N		N
			T		T		T

Medtox Hotline

1. Twenty-four hour answering service - (501) 370-8263

   What to Report:

   - o State: "This is an emergency."
   - o Your name, region, and site
   - o Telephone number to reach you
   - o Name of person injured or exposed
   - o Nature of emergency
   - o Action taken

2. One of three toxicologists (Drs. Raymond Harbison, Richard Freeman, or Robert James) will contact you. Repeat the information given to the answering service.

3. If a toxicologist does not return your call within 15 minutes, call the following persons, in order, until contact is made:

   E & E Corporate Headquarters (EST 0830-1700) - (716) 632-4491

   a. Twenty-four hour line - (716) 631-9530

   b. Corporate Safety Director - Paul Jonmaire (office)(716) 632-4491

   c. Assistant Corporate Safety Officer - Steve Sherman (home) Not responsive Not responsive

   d. Manager of Health and Safety - Paul Moss (Home) Not responsive

---

Chicago Regional Office

Office Phone Number: (312) 663-9415

	Name	Home
Office Manager	Rene' Van Someren	Not responsive
Manager of Health and Safety	Paul Moss	Not responsive

PROCEDURES TO FOLLOW WHEN INVOLVED IN A VEHICULAR ACCIDENT ON COMPANY TIME

1. Determine if there are any injuries. If so, call for police and medical assistance immediately.

2. Then call the office as soon as possible and ask to speak to the following people in order they appear here: Mary Ann Spidalette, Kathy Getty, Rene' Van Someren, Jerry Oskvarek, Tim McDermott, Mary Jane Ripp or Mike Miller. If there are injuries to any E & E personnel or if there are serious injuries to the other party, try to reach any of these people at home. Try to have as much information as possible about any injuries sustained.

3. If there are no injuries, call the police and then call the office as soon as possible.

You will be asked to provide the following information when you call in to the office. Obtain as much information as possible before calling.

1. Name(s) of the owner(s) of the other vehicle(s) involved and any occupants.

2. Insurance carrier(s) of the other party(ies).

3. License plate and vehicle registration numbers of the other vehicle(s) involved. In addition, note the make, model and year of the car(s).

4. Name(s) of our driver and any occupants.

5. License plate and serial numbers of our vehicle as well as the make, model and year. If our vehicle is a rental car, also state the rental agency and location.

6. Location and time of the accident.

7. Description of the accident itself. Include circumstances such as the weather and physical surroundings. Upon return to the office, you will be asked to provide a sketch of the accident so you should rough draft the sketch at the scene.

8. Obtain at least one copy of the police report. This will be submitted to Buffalo with a memo and the sketch.

9. Description of damage done to our vehicle and any other involved vehicles. If you have a camera, take pictures of the damage done and any other informative or contributing conditions.

10. If the vehicle is ours and not a rental, you will need to obtain 3 estimates for repair. Depending on the degree of damage, this may be done in the field or back in Chicago.

When completing the police report, you may need the following information if you were driving one of our vehicles:

1. Our vehicles are owned by the U.S. Government; Environmental Protection Agency; c/o Ecology and Environment, Inc., Hans Neumaier, Director of Administrative Services.

2. Our insurance is with Fireman's Fund, c/o E & E, Hans Neumaier, Director of Administrative Services.

3. Buffalo's address is:

   195 Holtz
   Buffalo, NY 14225

91Q:1X

ECOLOGY & ENVIRONMENT, INC.
REGION V EMERGENCY INFORMATION

Revised 10/37
PDM

NAME	EMERGENCY CONTACTS	BLOOD TYPE	DOCTOR/HOSPITAL PREFERENCES	SPECIAL MEDICAL INFORMATION

Not responsive

res

ns

ECOLOGY & ENVIRONMENT, INC.
REGION V EMERGENCY INFORMATION

Revised 10/8
PDM

NAME	EMERGENCY CONTACTS	BLOOD TYPE	DOCTOR/HOSPITAL PREFERENCES	SPECIAL MEDICAL INFORMATION

Not responsive

ECOLOGY & ENVIRONMENT, INC.
REGION V EMERGENCY INFORMATION

Revised 10/87
PDM

NAME	EMERGENCY CONTACTS	BLOOD TYPE	DOCTOR/HOSPITAL PREFERENCES	SPECIAL MEDICAL INFORMATION

Not responsive

ECOLOGY & ENVIRONMENT, INC.
REGION V EMERGENCY INFORMATION

Revised 10/87
PDM

NAME	EMERGENCY CONTACTS	BLOOD TYPE	DOCTOR/HOSPITAL PREFERENCES	SPECIAL MEDICAL INFORMATION

Not responsive

ECOLOGY & ENVIRONMENT, INC.
REGION V EMERGENCY INFORMATION

Revised 10/87
PDM

NAME	EMERGENCY CONTACTS	BLOOD TYPE	DOCTOR/HOSPITAL PREFERENCES	SPECIAL MEDICAL INFORMATION

Not responsive

ECOLOGY & ENVIRONMENT, INC.
REGION V EMERGENCY INFORMATION

Revised 10/87
PDM

NAME	EMERGENCY CONTACTS	BLOOD TYPE	DOCTOR/HOSPITAL PREFERENCES	SPECIAL MEDICAL INFORMATION

Not responsive

ECOLOGY & ENVIRONMENT, INC.
REGION V EMERGENCY INFORMATION

Revised 10/87
PDM

NAME	EMERGENCY CONTACTS	BLOOD TYPE	DOCTOR/HOSPITAL PREFERENCES	SPECIAL MEDICAL INFORMATION

Not responsive

DECONTAMINATION PROCEDURES: ALL CONTAMINATED EQUIPMENT WILL BE WASHED WITH AL CONOX AND RINSED WITH DISTILLED WATER. ALL WASH AND RINSE WATER WILL BE LEFT ON SITE WITH PRIOR PERMISSION.

Special Equipment, Facilities, or Procedures: IF AND WHEN A POWER AUGER IS USED OPERATORS WILL WEAR HEARING PROTECTION. SAFETY GLASSES WILL BE WORN DURING THE COLLECTION OF SOIL / SEDIMENT SAMPLES + Safety glasses worn with power auger use.

SITE ENTRY PROCEDURES: PERMISSION WILL BE OBTAINED PRIOR TO SITE ENTRY. OBSERVE "BUDDY SYSTEM" AT ALL TIMES. IF POSSIBLE STAY UPWIND OF CONTAMINATION - WATCH FOR UNEVEN TERRAIN + STEEP INCLINES Locate all exits prior to site entry.

Team Member	Responsibility
Cliff FLORCZAK	TEAM LEADER
Dirk Kaiser	SAFETY OFFICER
Steve SKINNER	SAMPLER
Craig AL MANZA	TEAM MEMBER

WORK LIMITATIONS (Time of day, etc.): WORK DAY LIGHT HOURS ONLY - MONITOR FOR HEAT / COLD STRESS.

INVESTIGATION-DERIVED MATERIAL DISPOSAL: ALL INVESTIGATION DERIVED MATERIALS WILL BE DOUBLE BAGGED, LABELED AS POTENTIALLY HAZARDOUS AND LEFT ON SITE WITH PRIOR PERMISSION OF OWNER.