US EPA RECORDS CENTER REGION 5

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SCREENING SITE INSPECTION WORK PLAN
FOR
FORD MOTOR CO. - OHIO TRUCK PLANT
AVON LAKE, OHIO
U.S. EPA ID: OHD020626669
SS ID: NONE
TDD: F05-8706-280
PAN: FOH0646GA

MAY 2, 1990

Elements of this Screening Site Inspection Work Plan are considered confidential and pre-decisional in nature. Material and information contained within this report may not be released without the approval of the United States Environmental Protection Agency Region V Pre-Remedial Unit.

ecology and environment, inc.

111 WEST JACKSON BLVD., CHICAGO, ILLINOIS 60604, TEL. 312-663-9415

International Specialists in the Environment

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WORK PLAN 1

SITE MAPS 2

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1

Cardinal

WORK PLAN

INSPECTION WORK PLAN

THIS DOCUMENT IS CONFIDENTIAL. Due to the predecisional nature of this document, this document and its attachments are not to be released without prior approval of the United States Environmental Protection Agency (U.S. EPA).

This site inspection work plan (WP) has been prepared by Ecology and Environment, Inc., or its subcontractor, C. C. Johnson and Malhotra, P.C., under the field investigation team (FIT) contract with U.S. EPA (No. 68-01-7347).

The objectives of this WP are to:

- Prepare a preliminary Hazard Ranking System (HRS) score using HRS 1 (40 CFR 300, July 16, 1982) criteria based on existing file information (Part C of WP);
- Prepare projected HRS 1 scores based on experience and professional judgment (Part C of WP);
- Identify HRS 1 score data gaps (Part E of WP); and
- Propose site inspection activities to satisfy the HRS 1 score data gaps; technical approach and estimated LOE are provided (Parts E and I, respectively).

Unless otherwise stated, QA/QC protocol for site inspection activities is documented in the Quality Assurance Project Plan Region V FIT Conducted Site Inspections - May 1, 1987.

A. GENERAL INFORMATION

CERCLIS SITE NAME: Ford Motor Co. - Ohio Truck Plant
ALSO KNOWN AS:
FORMERLY KNOWN AS:
ADDRESS: 650 Miller Road
CITY: Avon Lake
STATE: Ohio
COUNTY: Lorain
ZIP CODE: 44012
U.S. EPA ID: OHD020626669
SS ID: None
TDD: F05 8706280
PAN: FOH0646 GA

FIT USE ONLY

WORK PLAN TYPE: ✓ SCREENING SITE INSPECTION (SSI) WORK PLAN

___ OTHER: _____

PREPARED BY: Nahid Brown (FIT) DATE: March 20, 1990

REVIEWED BY: Omprakash S. Patel (FIT) DATE: April 4, 1990

APPROVED BY: [signature] (FIT) DATE: 4/11/90

U.S. EPA USE ONLY

REVIEWED BY: _____ (U.S. EPA) DATE: _____

___ WORK PLAN APPROVED. Recommend issuance of TDD to implement the Work Plan.

___ WORK PLAN APPROVED. No Further Remedial Action Planned (NFRAP).

___ WORK PLAN REJECTED.

COMMENTS: _____

B. SITE INFORMATION

This section of the WP presents current and historical information pertaining to the site, including: site operations, storage/disposal methods, site property area, site status, owners and operators, permit information, and response/enforcement activities. A site location map is shown on Figure 1, located in Section 2.

1. Site Operations (past and present; check all that apply):

✓	Aboveground storage		Mining site
✓	Belowground storage		Open dump
	Chemical manufacturer		Ore processor
	Drum recycler		Physical/chemical treatment
	Electroplater		Recycler/reclaimer
	Foundry	✓	Surface impoundment
	Incinerator		Underground injection
	Landfarm		Well field
	Landfill		Wood preserver
	Midnight dump		Other: Ohio Truck Plant assembles and paints Van bodies for Ford

References: 5, 17, 9, 19, ____

2. Storage/Disposal Methods (past and present; check all that apply):

		Waste Quantity (amount/units of measure)
✓	Drums, aboveground	Unknown
	Landfarm	
	Landfill	
	Open dump	
	Piles	
✓	Surface impoundment	≈ 300,000 gallons / lagoon
✓	Tank, aboveground	≈ 10,000 gallons
✓	Tank, belowground	≈ 14,000 Gallons
	Other:	

References: 5, 17, 9, 19, ____

3. Site Property Area: ≈ 320 (acres)

References: 4, ____, ____, ____, ____

4. Site History/Description and Unusual Features: (see following page.)

References: 5, 17, 9, 19, ____

SITE HISTORY (Continued)

Ford Motor Co. - Ohio Truck Plant is located about 0.9 miles South of Lake Erie in Avon Lake, Lorain County, Ohio. The Plant's Western property line is along the Avon Lake/Sheffield Corporate boundary, Miller Road forms the eastern boundary, and Walker Road the northern property line.

The Ohio Truck Plant assembles and paints Van bodies for Ford. They are RCRA Generator of waste paints, solvents and an F006 (waste water Treatment sludges from electroplating operations) Filter Cake that in the past was designated as F018 lagoon waste.

Ford Originally notified under RCRA 3001 as both a generator and TSD facility (Aug. 15, 1980).

On April 6, 1981, Ford applied for a RCRA part A permit on July 20, 1981, Ford requested a withdrawal of the permit application

OEPA Conducts regular inspections of the plant for Compliance with 40CFR Generator requirements.

The environmental/human health hazards that might be associated with Ford's Ohio Truck Plant are regulated by RCRA.

- History of Pollution Incidents:

1) April 24, 1979 - Minor oil Spill - ≈ 20 gallons entered the sewer system

2) July 13, 1979 - Minor resin spill - 5-10 gallons entered the sewer system Connected to Lake Erie

3) Aug. 9, 1979 - Petroleum naptha Spill - entered the sewer system.

Ford Motor Co. - Ohio Truck plant does Not have NPDES Permit.

SITE HISTORY (Continued)

• Storage / disposal Methods:

Ford Motor Co. - Ohio Truck plant has a number of above and below ground, Gasoline, Primer Paint, E-Coat, Fuel oil #6 Grade, Sulfuric Acid, Storage Tanks on-site.

There are also two cement lined lagoons (Northeast & Northwest lagoons) used for Treatment and Storage of certain electroplating Waste on-site. Based on, Mark Bergman's (DSHWM) inspection Report (April 25, 1985) these storage lagoons ~~are~~ were in violation of Generator and TSD hazardous Waste regulations.

• Site Inspection History:

2/24/1982 - Helen TaKACS - Division of Hazardous Material Management - OEPA.
RCRA Intrim Status Inspection.

4/25/1985 - Mark Bergman - Division of Hazardous Material Management - OEPA.

• Hazardous Waste Generated:

1. Waste water treatment sludges from industrial Painting (F018).
2. Paint residues from industrial Painting (F017).
3) Paint Residues from industrial painting (D002).
4) Spent non-halogenated solvents (F001, F003, F005).
5) Waste Commercial chemical Products: xylene (U239), Toluene (U22).

5. Site Status: ✓ Active _____ Inactive

References: 5 , _____ , _____ , _____ , _____

6. Owner/Operator History

Current Owner

Name: Ford Motor Company
Address: 1 Parkland Blvd.
Suite 628 W. Parklane Towers
City, State, Zip Code:
Dearborn, MI., 48126
Years of Ownership: 1973 – Present

Current Operator

Name: Ford Motor Co. – Ohio Truck Plant
Address: 650 Miller Road
City, State, Zip Code:
Avon Lake, Ohio, 44012
Type of Operation: Paints & Assembles Van bodies
Years of Operation: 1973 – Present

Previous owners
(list most recent first)

Name: Unknown
Address:
City, State, Zip Code:
Years of Ownership:

Name:
Address:
City, State, Zip Code:
Years of Ownership:

Previous operators
(list most recent first)

Name: Unknown
Address:
City, State, Zip Code:
Type of Operation:
Years of Operation:

Name:
Address:
City, State, Zip Code:
Type of Operation:
Years of Operation:

References: 5 , _____ , _____ , _____ , _____

7. Permit Information

	Effective Date	Expiration Date
___ NPDES		
___ UIC		
___ AIR		
* RCRA, ✓ PART A ___ PART B	* Applied on 4/6/81	* Withdraw the application on 7/20/81 *
___ SPCC PLAN		
___ STATE (specify):		
___ LOCAL (specify):		
___ OTHER (specify):		
✓ NONE		

References: 5 , 11 , 21 , _____ , _____

* Ford Motor Company's Permit withdrawal application was approved by OEPA (Ref # 21).

8. Response Activities (previous and current site remediation; check all that apply):

_____ Water supply closed	_____ Cutoff trenches/sump
_____ Temporary water supply provided	_____ Subsurface cutoff wall
_____ Permanent water supply provided	_____ Barrier wall constructed
_____ Spilled material removed	_____ Capping/covering
_____ Contaminated soil removed	_____ Bulk tankage repaired
_____ Waste repackaged	_____ Grout curtain constructed
_____ Waste disposed elsewhere	_____ Bottom sealed
_____ On-site burial	_____ Gas control
_____ In situ treatment	_____ Fire control
_____ Encapsulation	_____ Leachate treatment
_____ Emergency waste treatment	_____ Area evacuated
_____ Cutoff walls	_____ Access to site restricted
_____ Emergency diking/surface water diversion	_____ Population relocated

Other remedial and enforcement activities: None

References: _____ , _____ , _____ , _____ , _____

9. Documented and Alleged Target Compounds

Documented and alleged target compounds are compiled in Table 1. The documented target compounds are supported by analytical data from previous sampling projects. The alleged target compounds are based on the history of site operations and professional judgment. Documented and alleged target compound locations are shown on Figure 2, located in Section 2.

	CMPND STATUS		MATRIX (✓)							DOCUMENTED COMPOUND AND CONCENTRATION OR ALLEGED COMPOUND AND RATIONAL	REFERENCE
LOCATION	DOCU	ALLEG	SOIL	SED	GW	SW	AIR	WSTE	OTHR		
Entire		✓									5,9
site										Mercury, Xylene, Toluene, solvents, Heavy metals	
Entire site										and Paint Residues.	
" "										Caustic paint waste	5,9
" "										Halogenated & Non-halogenated solvents	5,9
Entire Site		✓								Arsenic .0039 mg/L, Barium 1.3 mg/L, Cadmium <.002	9
" "										mg/L, Chromium 2.3 mg/L, lead <.02 mg/L, Mercury <.0002	9
Entire Site										mg/L, Selenium .0065 mg/L, silver .002 mg/L Copper <.002 mg/L	9
" "										Nickle <.02 mg/L, Zinc 3.3 mg/L	9
										Assume Entire site to be contaminated	

Table 1
DOCUMENTED/ALLEGED TARGET COMPOUND LIST

C. PRELIMINARY/PROJECTED HRS SCORES

The purpose of this section is to:

- o Prepare a preliminary HRS 1 score based on existing file information; and
- o Prepare projected HRS 1 scores based on experience and professional judgment.

PRELIMINARY HRS SCORE (this score is based on existing file information that was obtained prior to the screening site inspection):

S_M = 9.76 S_{FE} = 0.00 S_{DC} = 0.00

PROJECTED HRS SCORE FOR A SCREENING SITE INSPECTION (this score is based on the expected acquisition of information from the screening site inspection):

S_M = 31.71 S_{FE} = 0.00 S_{DC} = 0.00

PROJECTED HRS SCORE FOR A LISTING SITE INSPECTION (this score is based on the expected acquisition of information from the Listing Site Inspection):

S_M = 33.44 S_{FE} = 0.00 S_{DC} = 0.00

HRS 1 score worksheets are located in Section 3.

D. WORK SUMMARY

Based on the preliminary and projected HRS scores, a site inspection will be performed.

The objectives of the site inspection are to:

- o Provide information to satisfy HRS data gaps;
- o Develop the information base needed to permit U.S. EPA to evaluate the need for future site activities; including: immediate removal measures, additional investigation, or no further action; and
- o Characterize hazardous substances, pollutant dispersal pathways, types of receptors, facility management practices, and potentially responsible parties.

Specific tasks to be conducted during the site inspection are (check all that apply):

✓ Interview site owner(s)/representative(s)
✓ Take photographs of site and surrounding areas
✓ Screen site with safety instrumentation (i.e.,HNU, OVA, O_2 meter, explosimeter, radiation detector, cyanide detector)
✓ Collect environmental samples
✓ Assess the need for Immediate Removal Actions
____ FASP*
____ Soil gas monitoring*
____ Well point installations*
____ Geophysics*: _____ (Specify)
____ OTHER*: _____

* Rationale for these activities and their impact on HRS data gaps:

E. PROPOSED SAMPLE PLAN

The HRS data gaps are identified in this section, and a proposed sample plan is developed based on the type of information required.

1. A) HRS data gap(s): Waste characterization

B) Sampling proposed to satisfy HRS data gap(s):

√ Soil √ Sediment ____ GW ____ SW ____ Air ____ Waste

C) Sampling procedures (number and types of samples; equipment; methodology): Six Surface soil and Two Sediment samples** will be collected from the area. Trowels, Stainless steel bowls, and spoons will be used to collect these samples. All samples will be collected and packaged As per U.S. EPA Protocal. Six samples will be collected near potential migration pathways and areas of suspected contamination. Two soil samples will be potential background samples to determine the representative chemical composition of Area soil. The above samples will be collected from the unregulated points of the property.

A table of proposed sample descriptions is presented in Table 2, Section 1. A proposed sample location map is presented on Figure 3 in Section 2.

2. A) HRS data gap(s): observed release to groundwater and potential human exposure.

B) Sampling proposed to satisfy HRS data gap(s):
____ Soil ____ Sediment ____ GW ____ SW ____ Air ____ Waste

C) Sampling procedures (number and types of samples; equipment; methodology): Any release of TCL compounds and/or TAL analytes to the groundwater will be addressed at LSI stage. Groundwater samples will not be collected because ① There are no monitoring wells on site ② Residential wells are located ≈ 1.5 miles southeast of the site, i.e. there are no Residential wells within one mile of the site.

A table of proposed sample descriptions is presented in Table 2, Section 1. A proposed sample location map is presented in Figure 3, in Section 2.

Note: Sample locations and/or the number of samples may be changed or eliminated at the discretion of the site team leader in response to actual site conditions during the course of the inspection.

justification

** In order to determine the extent of contaminant's migration, Two sediment samples will be collected from the stormwater holding pond area where some of the on-site surface runoff is collected.

E. PROPOSED SAMPLE PLAN

The HRS data gaps are identified in this section, and a proposed sample plan is developed based on the type of information required.

3 A) HRS data gap(s): observed release to Surface water

B) Sampling proposed to satisfy HRS data gap(s):

____Soil ____Sediment ____GW ____SW ____Air ____Waste

C) Sampling procedures (number and types of samples; equipment; methodology): NO Surface water Samples will be collected From the stream Draining into Lake Erie, because Powder maker ditch is ≈ 0.6 miles away from the site. After determining waste characterization, if necessary Surface water Samples will be collected at LSI stage.

A table of proposed sample descriptions is presented in Table 2, Section 1. A proposed sample location map is presented on Figure 3 in Section 2.

4 A) HRS data gap(s): Observed release to Air and human exposure

B) Sampling proposed to satisfy HRS data gap(s):
____Soil ____Sediment ____GW ____SW ____Air ____Waste

C) Sampling procedures (number and types of samples; equipment; methodology): Any Potential release of TCL Compounds and/or TAL analytes to the Environment will be addressed at the LSI Stage.

A table of proposed sample descriptions is presented in Table 2, Section 1. A proposed sample location map is presented in Figure 3, in Section 2.

Note: Sample locations and/or the number of samples may be changed or eliminated at the discretion of the site team leader in response to actual site conditions during the course of the inspection.

LOCATION	MATRIX (✓) SOIL	SED	GW	SW	AIR	WSTE	OTHR	RATIONALE FOR DETERMINING SAMPLE LOCATION	PARAMETERS[1] A/B/N	Pest/PCB	VOA	METAL	CN^-	OTHER
S1	✓							Background Soil Sample	✓	✓	✓	✓	✓	
S2	✓							Background Soil Sample	✓	✓	✓	✓	✓	
S3	✓							waste characterization	✓	✓	✓	✓	✓	
S4	✓							waste characterization	✓	✓	✓	✓	✓	
S5	✓							waste characterization	✓	✓	✓	✓	✓	
S6		✓						waste characterization	✓	✓	✓	✓	✓	
S7		✓						waste characterization	✓	✓	✓	✓	✓	
S8	✓							" "	✓	✓	✓	✓	✓	
TOTALS	6	2	0	0	0	0	0		8	8	8	8	8	

[1]Target Compound List Attached

Table 2

PROPOSED SAMPLE DESCRIPTIONS

(INCLUDING ALL LABORATORY BLANKS AND DUPLICATES)

F. COMMENTS

None

G. HEALTH AND SAFETY

Proposed E & E Health and Safety protocol to be followed during site inspection.

1. Anticipated level of protection: ____ A ____ B ____ C ✓ D

2. Level of protection modifications: The level of protection will be upgraded in accordance with the readings registered by the site monitoring Equipment.

3. Work limitations (time of day, etc.): Work will be limited to daylight hours. Team members will be monitored for both heat and/or cold stress. The buddy system will be observed at all time.

H. TYPE OF DELIVERABLE

Proposed report format to be submitted to U.S. EPA.

1. ✓ SSI Report including U.S. EPA 2070-13 Form
2. ___ Letter Report
3. ___ Other_____

SUBTASK CODE	General Non-Specific	File Search/Review	Work Plan	Safety Plan	QAPP	Mobilization/Demobilization	Travel	Non-Sampling Field Work	Sample Management	Field Sampling	Screening/Analytical	Subcontract	Meteorologic/Air Sampling Studies	Geophysical Work	Hydrogeological Work	Data Processing/Modelling	Data Validation	Draft Final Deliverable	Internal QA Review	Final Deliverable	Respond To Comments	TOTAL
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	
TEAM LEADER	25			2		6	21	4		8								90		20		176
SAFETY OFFICER	1			8		6	21	4		8												48
SAMPLER	2					2	21	4	24													53
TEAM MEMBER	1					2	21	4		8												36
TEAM MEMBER	1					2	21	4		8												36
Equipment/ Warehouse						6																6
QA				4					6								10	20	30			70
TOTALS FOR PROJECT	30			14		24	105	20	30	32							10	110	30	20		425

SUBTASK

I. ESTIMATED LOE HOURS

SUMMARY OF PROJECTED HOURS NEEDED TO IMPLEMENT SITE INSPECTION AND COMPLETE SITE INSPECTION REPORT.

2

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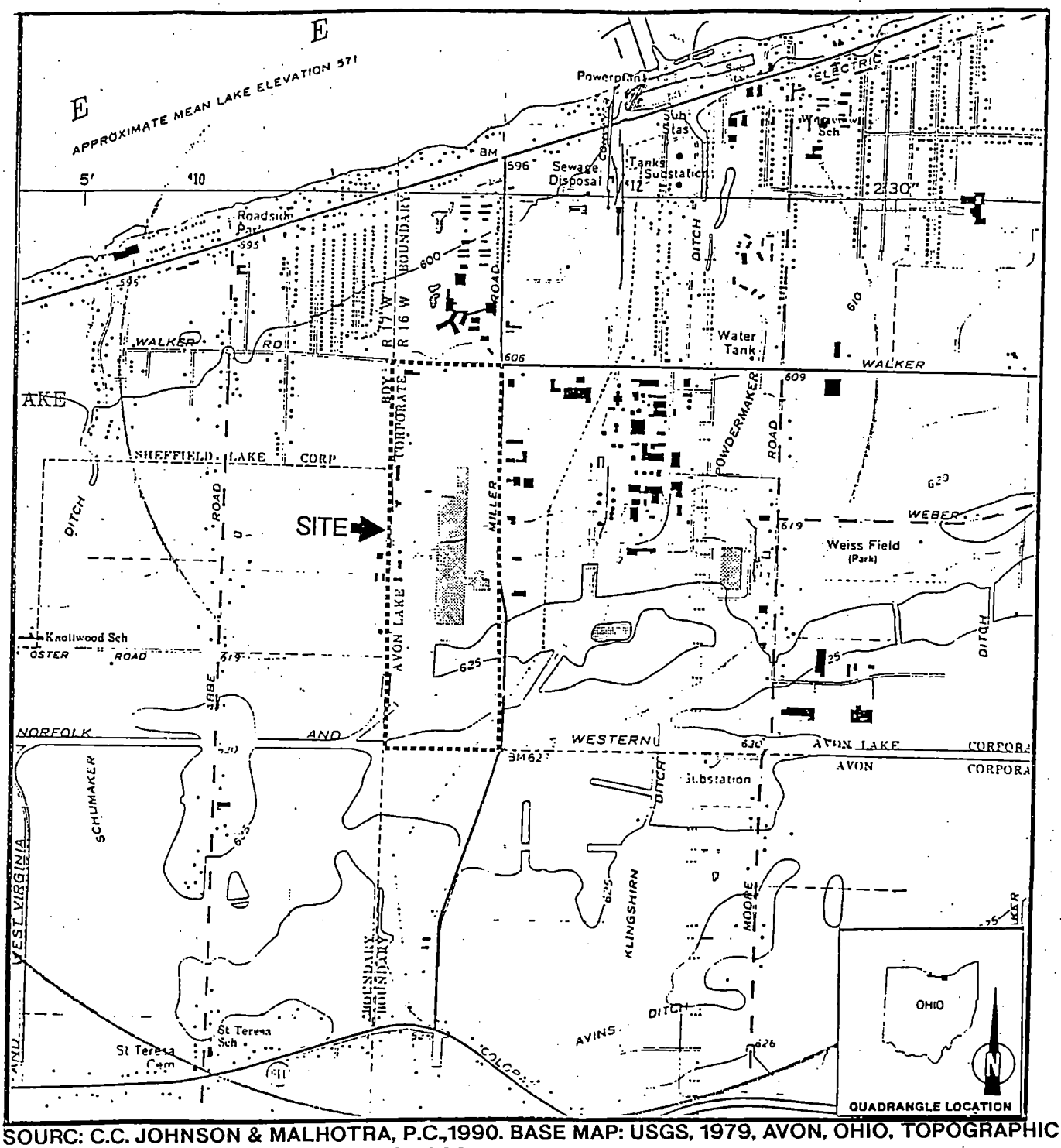
SITE MAPS

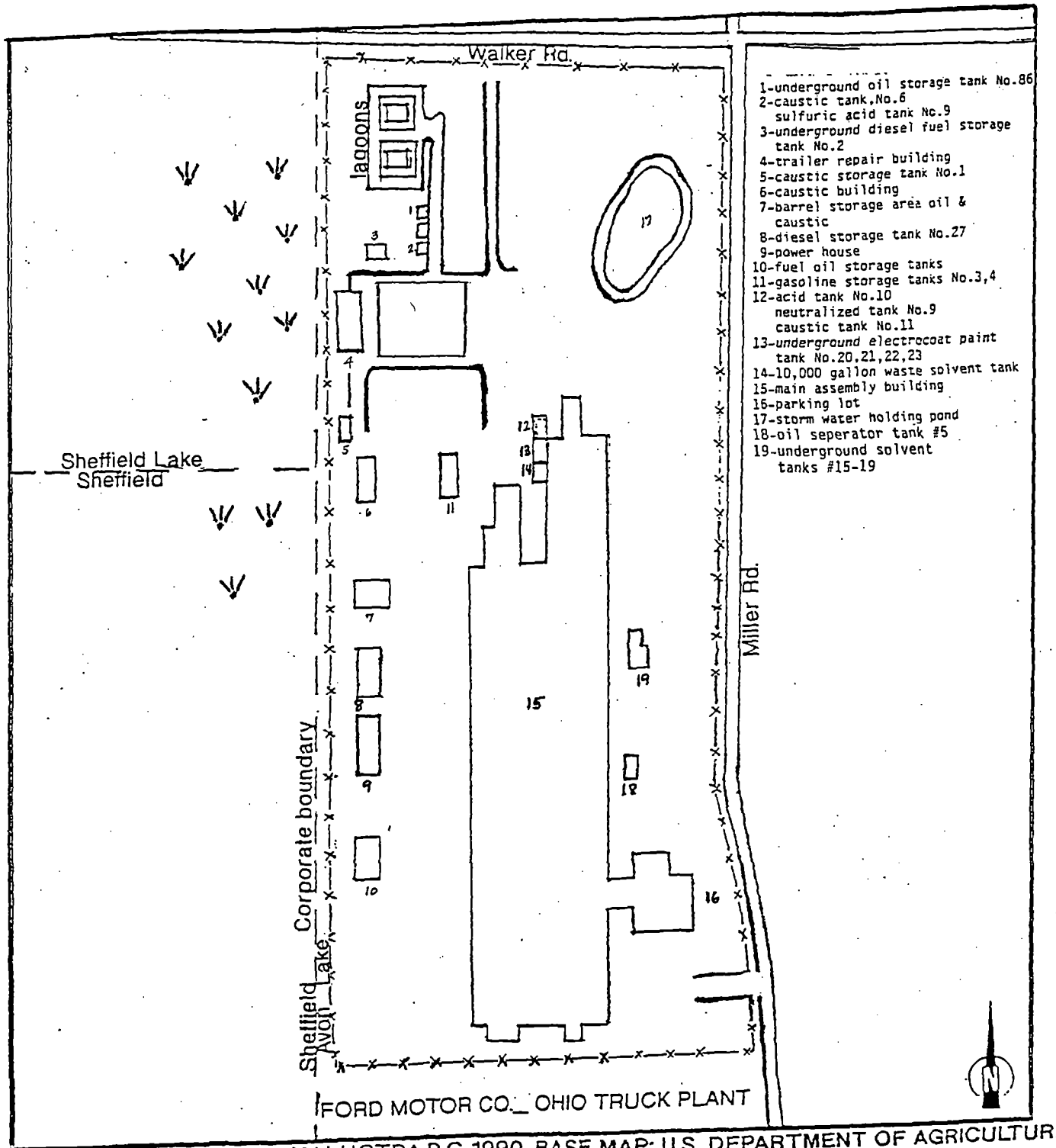


SOURC: C.C. JOHNSON & MALHOTRA, P.C.,1990. BASE MAP: USGS, 1979, AVON, OHIO, TOPOGRAPHIC QUADRANGLE, 7.5 MINUTE SERIES, 1:24,000.

SCALE

0 ½ 1 MILE

FIGUER 1- SITE LOCATION



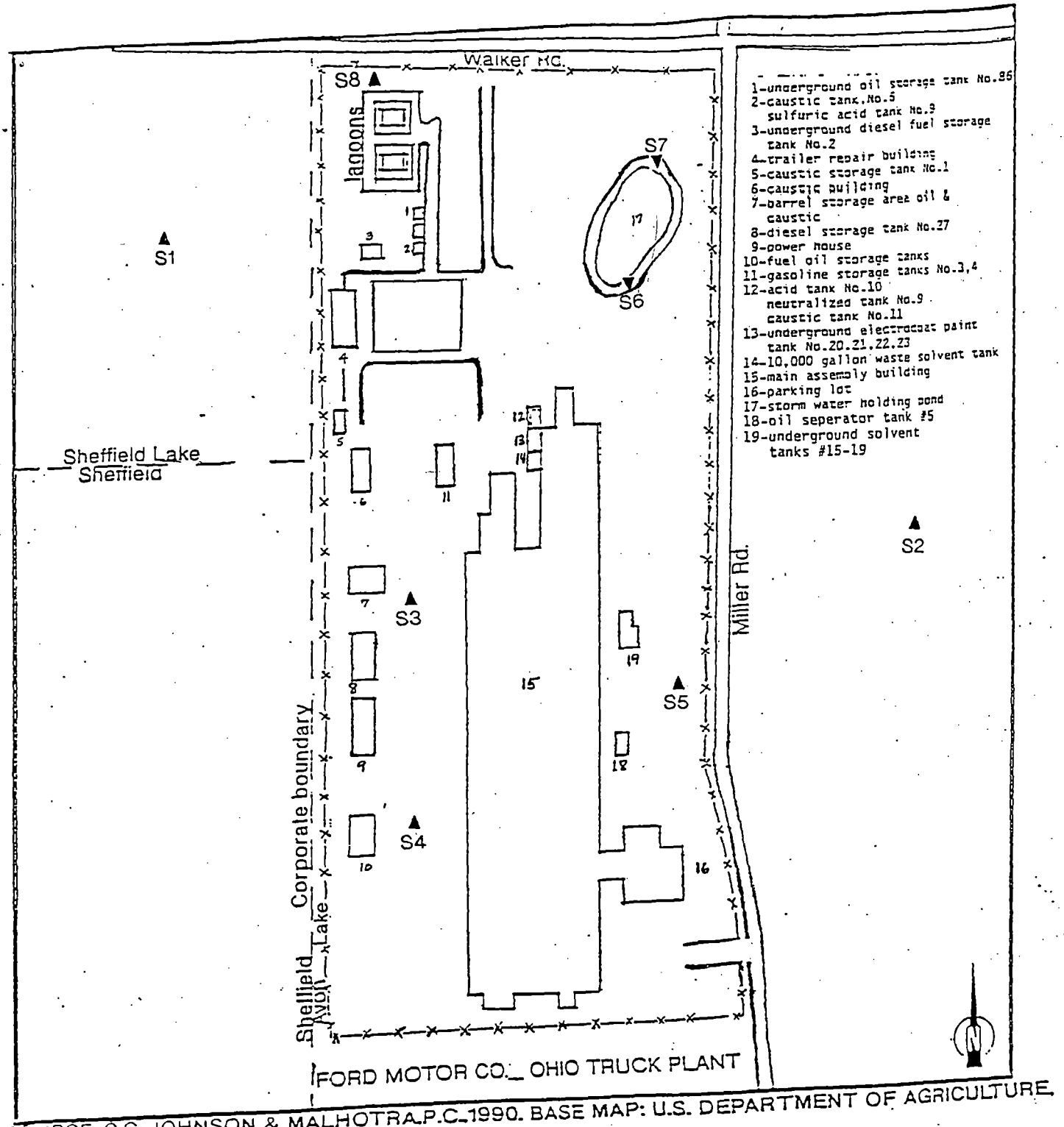
SOURCE: C.C. JOHNSON & MALHOTRA.P.C.1990. BASE MAP: U.S. DEPARTMENT OF AGRICULTURE, 1976 SOIL SURVEY OF LORAIN COUNTY,OHIO.

ASSUME ENTIRE SITE TO BE CONTAMINATED

SCALE

0 2000 FEET

FIGURE 2- DOCUMENTED AND ALLEGED TARGET COMPOUND MAP



SOURCE: C.C. JOHNSON & MALHOTRA,P.C.,1990. BASE MAP: U.S. DEPARTMENT OF AGRICULTURE, 1976 SOIL SURVEY OF LORAIN COUNTY,OHIO.

▲ Soil Sample Location

SCALE

0 2000 FEET

FIGURE 3- PROPOSED SOIL SAMPLING LOCATIONS

3

Cardinal

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
230 SOUTH DEARBORN ST.
CHICAGO, ILLINOIS 60604

REPLY TO THE ATTENTION OF:

Mark Besel, Supervisor
Program Support Unit
Division of Emergency and Remedial Response
Ohio Environmental Protection Agency
1800 WaterMark Drive
Columbus, Ohio 43266-0149

Site Name: Ford Motor Co.-Ohio Trk Plt
Location: Avon Lake, OH
U.S. EPA ID: OHD020626669
Date: 5/4/90

Dear Mr. Besel:

Attached is a copy of the screening site inspection (SSI) work plan that has been prepared for the site listed above. This document is considered to be draft and is subject to changes and modifications based on actual conditions that may be encountered at the site. The SSI work plan also contains a preliminary estimate of the Hazard Ranking System (HRS) score for the site and a projected score based on specific assumptions as addressed in the work plan. This information is considered to be pre-decisional in nature and should not be released to outside parties. Please inform your field and district staff of the legal implications of releasing a pre-decisional HRS score relative to the National Priorities List (NPL) candidacy process and the need to keep this information confidential.

Because this work plan is a draft document, it should be for official use only and should not be distributed outside of your agency without the approval of the U.S. Environmental Protection Agency.

If you have any comments on the SI work plan, please contact the FIT State Coordinator at (312) 663-9415 and Jeanne Griffin, the Site Assessment Manager (SAM) at (312) 886-3007 within 10 working days. If we do not receive any comments, written or verbal, from you during the comment period, my staff will approve the work plan based on U.S. EPA's comments only.

Please contact Jeanne Griffin as early as possible in the comment period so that your agency's suggestions can be evaluated, and any modifications made to the SSI work plan. We welcome suggestions from you and your staff that will enhance the quality of the site inspection of this NPL candidate site.

Sincerely,

Bill Messenger

Bill Messenger, Chief
Pre-Remedial Unit

Enclosures
cc: Ohio Environmental Protection Agency

E. PROPOSED SAMPLE PLAN

The HRS data gaps are identified in this section, and a proposed sample plan is developed based on the type of information required.

1. A) HRS data gap(s): Waste characterization

B) Sampling proposed to satisfy HRS data gap(s):

√ Soil √ Sediment ____ GW ____ SW ____ Air ____ Waste

C) Sampling procedures (number and types of samples; equipment; methodology): Six Surface Soil and Two Sediment Samples** will be collected from the area. Trowels, Stainless steel bowls, and spoons will be used to collect these samples. All samples will be collected and packaged As per U.S. EPA Protocal. Six samples will be collected near Potential migration pathways and areas of suspected contamination. Two soil samples will be Potential background samples to determine the representative chemical composition of Area soil. The above samples will be collected from the unregulated parts of the Property.

A table of proposed sample descriptions is presented in Table 2, Section 1. A proposed sample location map is presented on Figure 3 in Section 2.

2. A) HRS data gap(s): observed release to groundwater and Potential Human Exposure.

B) Sampling proposed to satisfy HRS data gap(s):

____ Soil ____ Sediment ____ GW ____ SW ____ Air ____ Waste

C) Sampling procedures (number and types of samples; equipment; methodology): Any release of TCL Compounds and/or TAL Analytes to the groundwater will be addressed at LSI stage. Groundwater Samples will not be collected because ① There are no monitoring wells on site ② Residential wells are located ≈ 1.5 miles southeast of the site i.e. there are no Residential wells within one mile of the site.

A table of proposed sample descriptions is presented in Table 2, Section 1. A proposed sample location map is presented in Figure 3, in Section 2.

Note: Sample locations and/or the number of samples may be changed or eliminated at the discretion of the site team leader in response to actual site conditions during the course of the inspection.

stification

** In order to determine the extent of contaminate migration, Two sediment samples will be collected from the stormwater holding pond area where some of the on-site surface runoff is collected.

B. SSI JUSTIFICATION

This section of the work plan presents information supporting the need to conduct an SSI, including: the threat posed to specific pathways and the populations and environments potentially affected. Justifications for specific sampling recommendations are provided in Section C.

FIT Believes that a site inspection is necessary for the following reasons:

1) The site is located about 1.3 stream miles south of Lake Erie & there is only ≈0.2 miles to Avon Lake's water intake point in Lake Erie from the point of entry.

2) Avon Lake water dept. supplies water to ≈ 80,000 people

3) Self monitoring Compliance Report indicates a number of violations w/ respect to Electroplating Pretreatment Standards. The specific instances are as follows:

Date	Parameter	Reported	Limitation
12-25-84	Ni/Zn	6.90/4.70 mg/L	4.1/4.2
	Total metals	11.63 mg/L	10.5
12-27-84	Total metals	12.52 mg/L	10.5
3-23-85	Total metals	14.54 mg/L	10.5
8-19-84	Total metals	216.66 mg/L	10.5
2-25-1985	Ni, Zn Ni Conc.	65 & 52 ppm	

4) Unstable Containment of wastes - leaky drums and tanks was noted in the Preliminary Assessment Report Conducted on May 6, 1985 by OEPA.

5) Mark Bergman, NEDO, OEPA, also has noted a violation regarding the F006 storage lagoons on his April 25, 1985 Report. (F006 is a Code for Wastewater treatment sludges from electroplating operations)

6) History of Pollution incidents indicates three spills to the sewer system that is connected to Lake Erie in 1979.

SSI JUSTIFICATION (Continued)

7) The site does not have NPDES permit and the RCRA Part A application was Withdrawn on July 20, 1981

8) There are ~ 17 Residential wells located about 1.5 miles southeast of the site in Avon city. These wells are used for drinking.

ecology and environment, inc.

111 WEST JACKSON BLVD., CHICAGO, ILLINOIS 60604, TEL. 312-663-9415

International Specialists in the Environment

October 22, 1990

Anne Molnar
650 Miller Road
Avon Lake, OH 44012

Re: Site Name: Ford Motor Company - Ohio Truck Plant
TDD No.: F05-8706-280
PAN: FOH0646GA
U.S. EPA No.: OHD020626669

Dear Ms. Molnar:

This letter is in response to your recent inquiry requesting additional information concerning our firm. C.C. Johnson and Malhotra has been retained by the U.S. Environmental Protection Agency (U.S. EPA) under contract 68-01-7347 for the purpose of evaluating candidate sites for the National Priorities List under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) and the Superfund Amendments and Reauthorization Act (SARA).

Information supplied to the U.S. EPA through CERCLA notifications as required by Section 103(c) of CERCLA has identified the property in question as a possible candidate for the National Priorities List. As part of our evaluation, the U.S. EPA has asked us to perform an on-site inspection of the property in question. This is the reason for my request to visit your facility on November 12, 1990.

I have attached a copy of the Letter of Introduction provided by the U.S. EPA for C.C. Johnson and Malhotra employees engaged in field investigation work, which outlines the statutory basis for such inspections. Also enclosed is a copy of Section 104(e) of CERCLA, outlining the authority of Ecology & Environment, Inc., to conduct inspections for the U.S. EPA, taken from Environment Reporter, published by the Bureau of National Affairs, Inc., Washington, D.C. 20037, February 24, 1989, 71:0710-0712. So you have a better understanding of the questions we need to ask, I have also attached a copy of the site inspection form.

Because of the U.S. EPA efforts to support state requirements, please be advised that pursuant to Ohio Revised Code Section 3734.02(H) and Ohio Administrative Code 3745-27-13, U.S. EPA has submitted a request for the authorization of the Director of the Ohio Environmental Protection Agency (OEPA) to perform this intrusive sampling at your facility. Ohio Administrative Code 3745-27-13(c)(4) requires U.S. EPA to provide OEPA with acknowledgment of notice to the property owner. I have enclosed a second copy of this letter and a stamped self-addressed return envelope. Please acknowledge receipt of this letter by signing the second copy and returning the signed letter in the enclosed envelope. If U.S. EPA does

recycled paper

not receive acknowledgment within 10 days after your receipt of this letter sent via certified mail, the return receipt will be deemed constructive acknowledgment of this notice.

If you require additional information, please do not hesitate to call me.

Sincerely,

Evelyn Maff FOR N.B.

Nahid Brown
Enclosures

Acknowledgment of Notice _____
Owner/Operator

_____
Date

HRS WORKSHEETS

PRELIMINARY AND PROJECTED HAZARD RANKING SYSTEM SCORE WORKSHEETS

Site Name: Ford Motor Co. - Ohio Truck Plant (Cerclis Name)

_____ (A.K.A.)

Address: 650 Miller Road

City/County/State/Zip Avon Lake / Lorain / Ohio / 44012

Cerclis ID # OHD020626669 SSID None

Prepared by Nahid Brown E&E Date 2-22-90

Reviewed by Omprakash Patel E&E Date 4/4/90

TDD: F05870628 0 PAN F0H0646GA

Type of Document

PA	____
PA Reassessment	____
WP-SSI	✓
WP-LSI	____

PRELIMINARY HRS SCORE

S_M= 9.76 S_{FE}= 0.00 S_{DC}= 0.00

PROJECTED HRS SCORE FOR SCREENING SITE INSPECTION (SSI)

S_M= 31.71 S_{FE}= 0.00 S_{DC}= 0.00

PROJECTED HRS SCORE FOR LISTING SITE INSPECTION (LSI)

S_M= 33.44 S_{FE}= 0.00 S_{DC}= 0.00

PRELIMINARY HRS SCORE

(THIS SCORE IS BASED ON EXISTING FILE INFORMATION THAT WAS OBTAINED PRIOR TO THE SCREENING SITE INSPECTION.)

	S	S^2
Groundwater Route Score (S_{GW}=)	7.54	56.85
Surface Water Route Score (S_{SW}=)	15.10	228.01
Air Route Score (S_A=)	0.00	0.00
$S_{GW}^2 + S_{SW}^2 + S_A^2$		284.86
$\sqrt{S_{GW}^2 + S_{SW}^2 + S_A^2}$		16.88
$\sqrt{S_{GW}^2 + S_{SW}^2 + S_A^2} / 1.73 = S_M$=		9.74

PROJECTED HRS SCORE FOR SCREENING SITE INSPECTION (SSI)

(THIS SCORE IS BASED ON THE EXPECTED ACQUISITION OF INFORMATION FROM THE SCREENING SITE INSPECTION.)

	S	S^2
Groundwater Route Score (S_{GW}=)	24.49	599.76
Surface Water Route Score (S_{SW}=)	49.09	2409.83
Air Route Score (S_A=)	0.00	0.00
$S_{GW}^2 + S_{SW}^2 + S_A^2$		3009.59
$\sqrt{S_{GW}^2 + S_{SW}^2 + S_A^2}$		54.86
$\sqrt{S_{GW}^2 + S_{SW}^2 + S_A^2} / 1.73 = S_M$=		31.71

PROJECTED HRS SCORE FOR LISTING SITE INSPECTION (LSI)

(THIS SCORE IS BASED ON THE EXPECTED AQUISITION OF INFORMATION FROM THE LISTING SITE INSPECTION.)

	S	S^2
Groundwater Route Score (S_{GW}=)	30.61	936.97
Surface Water Route Score (S_{SW}=)	49.09	2409.83
Air Route Score (S_A=)	0.00	0.00
$S_{GW}^2 + S_{SW}^2 + S_A^2$		3346.80
$\sqrt{S_{GW}^2 + S_{SW}^2 + S_A^2}$		57.85
$\sqrt{S_{GW}^2 + S_{SW}^2 + S_A^2} / 1.73 = S_M$=		33.44

GROUNDWATER ROUTE

PRELIMINARY HRS SCORE WORKSHEET

(This score is based on existing file information that was obtained prior to the Screening Site Inspection.)

Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Description	Ref. #
1 Observed Release	(0) 45	x1	0	None Documented	1
If Observed Release scores 45 proceed to line 4 If Observed Release scores 0 proceed to line 2					
2 Route Characteristics				Aquifer Description: Shale aquifer overlaid by Sand + Clay	6,7
Depth to Aquifer of concern	0 1 2 (3)	x2	6	6 ft.	7
Net Precipitation	0 (1) 2 3	x1	1	35" - 30.5" = +4.5" Precip 35" Evap 30.5"	1
Permeability of the Unsaturated Zone	0 1 (2) 3	x1	2	10^{-3}-10^{-5} cm/sec Sand + Clay	7
Physical State	0 1 2 (3)	x1	3	Sludge / liquid	5
	Total Route Char. Score		12		
3 Containment	0 1 2 (3)	x1	3	Unstable Containment of waste - leaky drums & tanks	5
4 Waste Characteristics				unknown	
Persistence / Toxicity		x1	0	unknown	
Haz. Waste Quantity	0 1 2 3 4 5 6 7 (8)	x1	8	4170 tons of sludge	5
	Total Waste Char. Score		8		
5 Targets					
Groundwater Use	0 1 2 (3)	x3	9	There are ≈ 19 Residential wells — Drinking	12
Distance to Nearest Well	0 1 (2) 3 4			≈ 1.5 miles SE of the site in Avon city	14,15,16
Population Served		x1	6	≈ 100 People use water wells in Avon city along Gil Rd. & North Ridge Road	14,15,16
	Total Targets Score		15		
6 If line 1 is 45, multiply 1 x 4 x 5 If line 1 is 0, multiply 2 x 3 x 4 x 5			4320		
7 Divide line 6 by 57,330 and multiply by 100			S_{gw} = 7.54		

Persistence	0	1	2	3
Toxicity 0	(0)	0	0	0
1	3	6	9	12
2	6	9	12	15
3	9	12	15	18

Distance to Nearest Well	0	1	(2)	3	4
0	0	0	0	0	0
(1)	0	4	(6)	8	10
2	0	8	12	16	20
3	0	12	18	24	30
4	0	16	24	32	35
5	0	20	30	35	40

GROUNDWATER ROUTE

PROJECTED HRS SCORE WORKSHEET FOR SCREENING SITE INSPECTION (SSI)

(This score is based on the expected acquisition of information from the Screening Site Inspection.)

Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Description	Ref. #
1 Observed Release	(0) 45	x1	0	None Documented	
If Observed Release scores 45 proceed to line 4. If Observed Release scores 0 proceed to line 2.					
2 Route Characteristics				Aquifer Description: Shale aquifer covered by sand + clay	6,7
Depth to Aquifer of concern	0 1 2 (3)	x2	6	4 ft.	7
Net Precipitation	0 (1) 2 3	x1	1	35" - 30.5" = +4.5" Precip 35" Evap 30.5"	1
Permeability of the Unsaturated Zone	0 1 (2) 3	x1	2	10^{-3} - 10^{-5} cm/sec sand clay	7
Physical State	0 1 2 (3)	x1	3	Sludge / Liquid	5
	Total Route Char. Score		12		
3 Containment	0 1 2 (3)	x1	3	unstable Containment of waste - leaky drums/tanks	5 /Lagoons
4 Waste Characteristics				Mercury, Xylene, Toluene, solvents, Paint Residues, Heavy metals, allegedly present Assumed	5,9
Persistence / Toxicity	(0 1 2 (3)) / (0 0 0 0 / 3 6 9 12 / 6 9 12 15 / (3) 9 12 15 (18))	x1	18	Persistence + Toxicity 15 3	11
Haz. Waste Quantity	0 1 2 3 4 5 6 7 (8)	x1	8	4170 Tons of Sludge	5
	Total Waste Char. Score		26		
5 Targets					
Groundwater Use	0 1 2 (3)	x3	9	There are ≈17 Residential wells - Used for Drinking	12
Distance to Nearest Well / Population Served	(0 1 2 3 4 / 0 0 0 0 0 / (1) 0 4 (6) 8 10 / 2 0 8 12 16 20 / 3 0 12 18 24 30 / 4 0 16 24 32 35 / 5 0 20 30 35 40)	x1	6	≈1.5 miles SE of the site in Avon city. ≈100 people use spring fed wells in Avon city along Colorado Road & North Ridge Road	14,15,16 / 14,15,16
	Total Targets Score		15		
6 If line 1 is 45, multiply 1 x 4 x 5. If line 1 is 0, multiply 2 x 3 x 4 x 5			14040		
7 Divide line 6 by 57,330 and multiply by 100			S_{gw} = 24.49		

GROUNDWATER ROUTE

PROJECTED HRS SCORE WORKSHEET FOR LISTING SITE INSPECTION (LSI)

(This score is based on the expected aquisition of information from the Listing Site Inspection.)

Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Description	Ref. #
1 Observed Release	0 (45)	x1	45	After installation of Monitoring wells + GW. Sampling	
If Observed Release scores 45 proceed to line 4 If Observed Release scores 0 proceed to line 2					
2 Route Characteristics				Aquifer Description:	
Depth to Aquifer of concern	0 1 2 3	x2		ft.	
Net Precipitation	0 1 2 3	x1		Precip Evap	
Permeability of the Unsaturated Zone	0 1 2 3	x1		cm/sec	
Physical State	0 1 2 3	x1			
	Total Route Char. Score				
3 Containment	0 1 2 3	x1			
4 Waste Characteristics				Mercury, Xylene, Toluene, solvents, Paint residues, Heavy metals allegedly present Assumed	5,9
Persistence (0 1 2 (3)) / Toxicity (0: 0 0 0 0; 1: 3 6 9 12; 2: 6 9 12 15; (3): 9 12 15 (18))		x1	18	Persistence + Toxicity is 3	11
Haz. Waste Quantity	0 1 2 3 4 5 6 7 (8)	x1	8	4170 Tons of sludge	5
	Total Waste Char. Score		26		
5 Targets					
Groundwater Use	0 1 2 (3)	x3	9	There are ≈17 wells in 3 mile Radius of the area – Drinking	12
Distance to Nearest Well (0: 0 0 0 0 0; (1): 0 4 (6) 8 10; 2: 0 8 12 16 20; 3: 0 12 18 24 30; 4: 0 16 24 32 35; 5: 0 20 30 35 40) / Population Served	0 1 (2) 3 4	x1	6	1.5 miles SE of the site in Avon Lake. ≈100 people use spring fed water wells in Avon city along Colorado Rd & North Ridge Rd.	14,15,16 / 14,15,16
	Total Targets Score		15		
6 If line 1 is 45, multiply 1 x 4 x 5 If line 1 is 0, multiply 2 x 3 x 4 x 5			17550		
7 Divide line 6 by 57,330 and multiply by 100			S_{gw} = 30.61		

SURFACE WATER ROUTE

PRELIMINARY HRS SCORE WORKSHEET

(This score is based on existing file information that was obtained prior to the Screening Site Inspection.)

Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Description	Ref. #
1 Observed Release	(0) 45	x 1	0	None Documented	
If Observed Release scores 45 proceed to line 4 If Observed Release scores 0 proceed to line 2					
2 Route Characteristics	Intervening Terrain Facility Slope: 0 0 0 0 3; (0) 1 1 2 3; 0 1 2 2 3; 0 2 2 3 3; 0 2 3 3 3	x 1	0	Facil % unknown Interv 0.21%	4
1-yr. 24 hr Rainfall	0 1 (2) 3	x 1	2	2.15 in.	2
Distance to Nearest Surface Water	0 1 (2) 3	x 2	4	0.6 miles To Lake Erie + Powdermaker	4
Physical State	0 1 2 (3)	x 1	3	Sludge / Liquid	5
	Total Route Char. Score		9		
3 Containment	0 1 2 (3)	x 1	3	unstable containment of waste/leaky drums/tanks/Lagoons	5
4 Waste Characteristics					
Persistence / Toxicity	0 1 2 3 0: (0) 0 0 0 1: 3 6 9 12 2: 6 9 12 15 3: 9 12 15 18			Unknown	
		x 1	0	Unknown	
Haz. Waste Quantity	0 1 2 3 4 5 6 7 (8)	x 1	8	4170 Tons of Sludge	5
	Total Waste Char. Score		8		
5 Targets					
Surface Water Use	0 1 2 (3)	x 3	9	Drinking	8
Dist. to Sensitive Environment	0 1 2 (3)	x 2	6	≈ 40 acres of wetspot adjacent to the site (W) by Walker Rd.	3
Population Served	Distance to Water Intake Downstream 0 0 0 0 0 0 4 6 8 10 0 8 12 16 20 0 12 18 24 30 0 16 24 32 35 0 20 (30) 35 40			* See below	4,8
		x 1	30	Avon Lake water dept. supplies water to ≈ 80,000 people	8,10
	Total Targets Score		45		
6 If line 1 is 45, multiply 1 x 4 x 5 If line 1 is 0, multiply 2 x 3 x 4 x 5			9720		
7 Divide line 6 by 64,350 and multiply by 100			S_{sw} = 15.10		

* ≈ 1.3 stream miles to Lake Erie and ≈ 0.2 miles to Avon Lake's water intake Point in Lake Erie from the point of entry.

SURFACE WATER ROUTE

PROJECTED HRS SCORE WORKSHEET FOR SCREENING SITE INSPECTION (SSI)

(This score is based on the expected acquisition of information from the Screening Site Inspection.)

Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Description	Ref. #
1 Observed Release	(0) 45	x1	0	none Documented	
If Observed Release scores 45 proceed to line 4 If Observed Release scores 0 proceed to line 2					
2 Route Characteristics				Facil % Assumed Flat	
Facility Slope (Intervening Terrain)	0 0 0 0 3 (0) 1 1 2 3 0 1 2 2 3 0 2 2 3 3 0 2 3 3 3	x1	0	Interv 0.21 %	4
1-yr. 24 hr Rainfall	0 1 (2) 3	x1	2	2.15 in.	2
Distance to Nearest Surface Water	0 1 (2) 3	x2	4	0.6 miles to Lake Erie	4
Physical State	0 1 2 (3)	x1	3	Sludge / Liquid	5
Total Route Char. Score			9		
3 Containment	0 1 2 (3)	x1	3	unstable containment of waste leaky drums / tanks / storage lagoons	5
4 Waste Characteristics					
Persistence	0 1 2 (3)			Mercury, Toluene, xylene, solvents, paint Residues, Heavy metals, allegedly present	5,9
Toxicity (0: 0 0 0 0; 1: 3 6 9 12; 2: 6 9 12 15; (3): 9 12 15 (18))		x1	18	Persistence + Toxicity is Assumed To be 3	11
Haz. Waste Quantity	0 1 2 3 4 5 6 7 (8)	x1	8	4170 Tons of Sludge	5
Total Waste Char. Score			26		
5 Targets					
Surface Water Use	0 1 2 (3)	x3	9	Drinking	8
Dist. to Sensitive Environment	0 1 2 (3)	x2	6	≈ 40 acres wetspot located adjacent to the site by walker Road	3
Population Served (Distance to Water Intake Downstream: 0 0 0 0 0; 0 4 6 8 10; 0 8 12 16 20; 0 12 18 24 30; 0 16 24 32 35; 0 20 (30) 35 40)		x1	30	x1.3 Stream miles To Lake Erie + 0.2 miles to Avon Lake's water intake Point Avon Lake water Dept. Supplies water to 80,000 People	4,8 8,10
Total Targets Score			45		
6 If line 1 is 45, multiply 1 x 4 x 5 If line 1 is 0, multiply 2 x 3 x 4 x 5			31590		
7 Divide line 6 by 64,350 and multiply by 100			S_{sw} = 49.09		

SURFACE WATER ROUTE

PROJECTED HRS SCORE WORKSHEET FOR LISTING SITE INSPECTION (LSI)

(This score is based on the expected aquisition of information from the Listing Site Inspection.)

Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Description	Ref. #
1 Observed Release	(0) 45	x1	0	None Documented	
If Observed Release scores 45 proceed to line 4 If Observed Release scores 0 proceed to line 2					
2 Route Characteristics	Intervening Terrain Facility Slope: 0 0 0 0 3; (0) 1 1 2 3; 0 1 2 2 3; 0 2 2 3 3; 0 2 3 3 3	x1	0	Facil % Assumed Flat Interv 0.21 %	4
1-yr. 24 hr Rainfall	0 1 (2) 3	x1	2	2.15 in.	2
Distance to Nearest Surface Water	0 1 (2) 3	x2	4	0.6 miles to Lake Erie	4
Physical State	0 1 2 (3)	x1	3	Sludge / liquid	5
	Total Route Char. Score		9		
3 Containment	0 1 2 3	x1	3	unstable Containment of fluids leaky drums / tanks / storage lagoons	5
4 Waste Characteristics					
Persistence	0 1 2 (3)			Mercury, Xylene, Toluene, solvents Heavy metals, allegedly Present	5, 9
Toxicity	0: 0 0 0 0; 1: 3 6 9 12; 2: 6 9 12 15; (3): 9 12 15 (18)	x1	18	Persistence + Toxicity is Assumed to be 3	11
Haz. Waste Quantity	0 1 2 3 4 5 6 7 (8)	x1	8	4170 Tons of Sludge	5
	Total Waste Char. Score		26		
5 Targets					
Surface Water Use	0 1 2 (3)	x3	9	Lake Erie is used For Drinking	8
Dist. to Sensitive Environment	0 1 2 (3)	x2	6	≈40 acres of WETSPOT Located adjacent to the west of Site off the Walker Rd	3
Population Served	Distance to Water Intake Downstream: 0 0 0 0 0; 0 4 6 8 10; 0 8 12 16 20; 0 12 18 24 30; 0 16 24 32 35; 0 20 (30) 35 40	x1	30	* See below Avon Lake water Dept. Supplies water to 80,000 People	4, 8 8, 10
	Total Targets Score		45		
6 If line 1 is 45, multiply 1 x 4 x 5 If line 1 is 0, multiply 2 x 3 x 4 x 5			31590		
7 Divide line 6 by 64,350 and multiply by 100			S_{sw} = 49.09		

* ≈ 1.3 Stream miles to Lake Erie + 0.2 miles to Avon Lake's water intake Point From the Point of entry.

AIR ROUTE

PRELIMINARY HRS SCORE WORKSHEET

(This score is based on existing file information that was obtained prior to the Screening Site Inspection.)

Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Description	Ref. #
1 Observed Release	(0) 45	x1	0	None Documented	
If line 1 is 0, the S_a=0. Enter on line 5 If line 1 is 45, then proceed to line 2					
2 Waste Characteristics					
Reactivity & Incompatability	0 1 2 3	x1			
Toxicity	0 1 2 3	x3			
Haz. Waste Quantity	0 1 2 3 4 5 6 7 8	x1			
	Total Waste Char. Score				
3 Targets	Dist to Population				
Population within 4-mile Radius	Pop. 0 0 0 0 9 12 15 18 12 15 18 21 15 18 21 24 18 21 24 27 21 24 27 30	x1			
Distance to Sensitive Environment	0 1 2 3	x2			
Land Use	0 1 2 3	x1			
	Total Targets Score				
4 Multiply 1 x 2 x 3					
5 Divide line 4 by 35,100 and multiply by 100			S_a = 0.00		

There is no documentation of air contamination at this site.

AIR ROUTE

PROJECTED HRS SCORE WORKSHEET FOR SCREENING SITE INSPECTION (SSI)

(This score is based on the expected acquisition of information from the Screening Site Inspection.)

Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Description	Ref. #
1 Observed Release	(0) 45	x1	0	* see below	
If line 1 is 0, the S_a=0. Enter on line 5 If line 1 is 45, then proceed to line 2					
2 Waste Characteristics					
Reactivity & Incompatability	0 1 2 3	x1			
Toxicity	0 1 2 3	x3			
Haz. Waste Quantity	0 1 2 3 4 5 6 7 8	x1			
	Total Waste Char. Score				
3 Targets					
Population within 4-mile Radius	Dist to Population Pop. 0 0 0 0 9 12 15 18 12 15 18 21 15 18 21 24 18 21 24 27 21 24 27 30	x1			
Distance to Sensitive Environment	0 1 2 3	x2			
Land Use	0 1 2 3	x1			
	Total Targets Score				
4 Multiply 1 x 2 x 3					
5 Divide line 4 by 35,100 and multiply by 100			S_a = 0.00		

* No quantitative air sampling will be done during SSI, since there is no documentation of air contamination at the site.

AIR ROUTE

PROJECTED HRS SCORE WORKSHEET FOR LISTING SITE INSPECTION (LSI)

(This score is based on the expected aquisition of information from the Listing Site Inspection.)

Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Description	Ref. #
1 Observed Release	(0) 45	x1	0	* See below	
If line 1 is 0, the S_a=0. Enter on line 5 If line 1 is 45, then proceed to line 2					
2 Waste Characteristics					
Reactivity & Incompatability	0 1 2 3	x1			
Toxicity	0 1 2 3	x3			
Haz. Waste Quantity	0 1 2 3 4 5 6 7 8	x1			
	Total Waste Char. Score				
3 Targets					
Population within 4-mile Radius	Dist to Population Pop. 0 0 0 0 9 12 15 18 12 15 18 21 15 18 21 24 18 21 24 27 21 24 27 30	x1			
Distance to Sensitive Environment	0 1 2 3	x2			
Land Use	0 1 2 3	x1			
	Total Targets Score				
4 Multiply 1 x 2 x 3					
5 Divide line 4 by 35,100 and multiply by 100			S_a = 0.00		

* No quantitative Air Sampling will be done unless some type of Air Contamination is observed during SSI.

FIRE AND EXPLOSION

PRELIMINARY HRS SCORE WORKSHEET

(This score is based on existing file information that was obtained prior to the Screening Site Inspection.)

Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Description	Ref. #
1 Containment	1 3	x1		* See below	18
2 Waste Characteristics					
Direct Evidence	0 3	x1			
Ignitability	0 1 2 3	x1			
Reactivity	0 1 2 3	x1			
Incompatability	0 1 2 3	x1			
Haz. Waste Quantity	0 1 2 3 4 5 6 7 8	x1			
	Total Waste Char. Score				
3 Targets					
Dist. to Nearest Pop.	0 1 2 3 4 5	x1			
Dist. to Nearest Bldg.	0 1 2 3	x1			
Dist. to Sensitive Env.	0 1 2 3	x1			
Land Use	0 1 2 3	x1			
Pop. Within 2 miles	0 1 2 3 4 5	x1			
Bldgs. Within 2 miles	0 1 2 3 4 5	x1			
	Total Targets Score				
4 Multiply 1 x 2 x 3					
5 Divide line 4 by 1,440 and multiply by 100			S_{FE} = 0.00		

* There are no fire and explosion history documented in the OEPA file information.
Chief Gary Fryfogle at Avon Lake fire Dept. was contacted on numerous occasions (Ref #18). He refused to provide the required information under 149.43 code!
During SSI fire & explosion History will be obtained from the site owner/operator.

FIRE AND EXPLOSION

PROJECTED HRS SCORE WORKSHEET FOR SCREENING SITE INSPECTION (SSI)

(This score is based on the expected acquisition of information from the Screening Site Inspection.)

Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Description	Ref. #
1 Containment	1 3	x1		* See below	18
2 Waste Characteristics					
Direct Evidence	0 3	x1			
Ignitability	0 1 2 3	x1			
Reactivity	0 1 2 3	x1			
Incompatability	0 1 2 3	x1			
Haz. Waste Quantity	0 1 2 3 4 5 6 7 8	x1			
	Total Waste Char. Score				
3 Targets					
Dist. to Nearest Pop.	0 1 2 3 4 5	x1			
Dist. to Nearest Bldg.	0 1 2 3	x1			
Dist. to Sensitive Env.	0 1 2 3	x1			
Land Use	0 1 2 3	x1			
Pop. Within 2 miles	0 1 2 3 4 5	x1			
Bldgs. Within 2 miles	0 1 2 3 4 5	x1			
	Total Targets Score				
4 Multiply 1 x 2 x 3					
5 Divide line 4 by 1,440 and multiply by 100			S_{FE} = 0.00		

* There are no fire and explosion history documented in the OEPA file information.

Chief Gary Fryfogle at Avon Lake Fire Dept. was contacted on numerous occasions (Ref #18). He refused to provide acpm the required information under 149.43 code.

During SSI fire & explosion History will be obtained from the site owner/operator.

FIRE AND EXPLOSION

PROJECTED HRS SCORE WORKSHEET FOR LISTING SITE INSPECTION (LSI)

(This score is based on the expected acquisition of information from the Listing Site Inspection.)

Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Description	Ref. #
1 Containment	1 3	x1		* See below	18
2 Waste Characteristics					
Direct Evidence	0 3	x1			
Ignitability	0 1 2 3	x1			
Reactivity	0 1 2 3	x1			
Incompatability	0 1 2 3	x1			
Haz. Waste Quantity	0 1 2 3 4 5 6 7 8	x1			
	Total Waste Char. Score				
3 Targets					
Dist. to Nearest Pop.	0 1 2 3 4 5	x1			
Dist. to Nearest Bldg.	0 1 2 3	x1			
Dist. to Sensitive Env.	0 1 2 3	x1			
Land Use	0 1 2 3	x1			
Pop. Within 2 miles	0 1 2 3 4 5	x1			
Bldgs. Within 2 miles	0 1 2 3 4 5	x1			
	Total Targets Score				
4 Multiply 1 x 2 x 3					
5 Divide line 4 by 1,440 and multiply by 100			S_{FE} = 0.00		

* there are no fire and explosion history in the OEPA file information.

Chief Gary Fryfogle at Avon Lake fire Dept. was Contacted on numerous occasions (Ref #18). He refused to provide the required information under 149.43 code.

During SSI fire & explosion History will be obtained from the site owner / operator.

DIRECT CONTACT

PRELIMINARY HRS SCORE WORKSHEET

(This score is based on existing file information that was obtained prior to the Screening Site Inspection.)

Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Description	Ref. #
1 Observed Incident	(0) 45	x1	0	None Documented	
If line 1 is 45, proceed to line 4 If line 1 is 0, proceed to line 2					
2 Accessibility	(0) 1 2 3	x1	0	Plant security prevents access to the site	5
3 Containment	0 (15)	x1	15	unstable containment of waste - leaky drums / tanks / lagoons	5
4 Waste Characteristics					
Toxicity	(0) 1 2 3	x5	0	unknown	
5 Targets					
Pop. Within 1 mile	0 1 2 (3) 4 5	x4	12	1913 People	4
Dist. to Crit. Habitat	(0) 1 2 3	x4	0	Larwin County is listed as Potential Area for Indiana Bats	4
	Total Targets Score		12		
6 If line 1 is 45, multiply 1 x 4 x 5 If line 1 is 0, multiply 2 x 3 x 4 x 5			0		
7 Divide line 6 by 21,600 and multiply by 100			S_{DC} = 0.00		

DIRECT CONTACT

PROJECTED HRS SCORE WORKSHEET FOR SCREENING SITE INSPECTION (SSI)

(This score is based on the expected acquisition of information from the Screening Site Inspection.)

Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Description	Ref. #
1 Observed Incident	(0) 45	x1	0	none Documented	
If line 1 is 45, proceed to line 4 If line 1 is 0, proceed to line 2					
2 Accessibility	(0) 1 2 3	x1	0	Plant Security Prevents Access to the Site	5
3 Containment	0 (15)	x1	15	Storage cusoon leaky drums/tanks	5
4 Waste Characteristics					
Toxicity	0 1 2 (3)	x5	15	Persistence + toxicity is assumed to be 3	11
5 Targets					
Pop. Within 1 mile	0 1 2 (3) 4 5	x4	12	1913 people	4
Dist. to Crit. Habitat	(0) 1 2 3	x4	0	French Creek located ½ 2 miles South of the Site - Indiana Bat	4
	Total Targets Score		12		
6 If line 1 is 45, multiply 1 x 4 x 5 If line 1 is 0, multiply 2 x 3 x 4 x 5			0.00		
7 Divide line 6 by 21,600 and multiply by 100			S_{DC} = 0.00		

DIRECT CONTACT

PROJECTED HRS SCORE WORKSHEET FOR LISTING SITE INSPECTION (LSI)

(This score is based on the expected acquisition of information from the Listing Site Inspection.)

Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Description	Ref. #
1 Observed Incident	(0) 45	x1	0	none documented	
If line 1 is 45, proceed to line 4 If line 1 is 0, proceed to line 2					
2 Accessibility	(0) 1 2 3	x1	0	Plant security prevents access to the site	5
3 Containment	0 (15)	x1	15	storage lagoons leaky drums / tanks	5
4 Waste Characteristics					
Toxicity	0 1 2 (3)	x5	15	Persistence + Toxicity is assumed to be 3	11
5 Targets					
Pop. Within 1 mile	0 1 2 (3) 4 5	x4	12	1913 people	4
Dist. to Crit. Habitat	(0) 1 2 3	x4	0	Indiana bats habitat in French creek ≈ 2 miles South of site	4
	Total Targets Score		12		
6 If line 1 is 45, multiply 1 x 4 x 5 If line 1 is 0, multiply 2 x 3 x 4 x 5			0		
7 Divide line 6 by 21,600 and multiply by 100			S_{DC} = 0.00		

4

Cardinal

APPENDIX

Copies of the following addenda have been supplied to the U.S. Environmental Protection Agency and the appropriate state agencies. Refer to these addenda when reviewing this work plan.

Addendum	Title
A	Routine Analytical Services Contract Required Detection and Quantitation Limits
B	Central Regional Laboratory Detection Limits
C	Special Analytical Services Detection Limits Drinking Water Samples
D	Special Analytical Services Detection Limits High Concentration Samples

REFERENCES

REFERENCE DOCUMENTATION SHEET

Ref.#	DESCRIPTION OF REFERENCE
1	U.S. Department of Comerce, 1979, Climate Atlas of the United States, Ashville, N.C., National Climatic Center.
2	U.S. Department of Comerce, 1963, Rainfall Frequency Atlas of the United States, Technical Paper NO. 40, Washington, D.C., U.S. Government Printing office.
3	U.S. Department of Agriculture, 1976, Soil Survey of Lorain County, Ohio.
4	U.S. Geological Survey, Topographic Map. 1. Avon Quadrangle, Ohio, 7.5 minute series, 1969, Revised 1973.

REFERENCE DOCUMENTATION SHEET

Ref.#	DESCRIPTION OF REFERENCE
5	Environmental Protection Agency, May 6, 1985, Potential Hazardous Waste site Preliminary Assessment, Submitted by Pam Wicks.
6	Ohio Department of Natural Resources, 1980, Ground water Resource Map of Lorain County.
7	Ohio Department of Natural Resources, Div. of water, well Log and Drilling Report, Lorain, ohio.
8	Kniepper, John, Jan. 24, 1990, Telephone Conversation, Avon Lake Water Dept., (216) 933-6224, Contacted by Mike Duet.

REFERENCE DOCUMENTATION SHEET

Ref.#	DESCRIPTION OF REFERENCE
9	Ford Motor Co., Ohio Truck Plant, March 24, 1982, Spill Prevention Control and Countermeasure Plan, Submitted (To OEPA) by Ford Motor Co.
10	De Santis, Robert, Jan. 24, 1990, Telephone Conversation, Lorain Water Dept., (216) 245-1000, Lorain, Ohio, Contacted by Mike Duet.
11	SAX, N. IRving, Dangerous Properties of Industrial Materials, VAN Nostrand Reinhold Co., New York.
12	Jones, Wayne, March 7, 1990, Telephone Conversation, Columbus, Ohio, (614) 265-6739, Contacted by Nahid Brown.

REFERENCE DOCUMENTATION SHEET

Ref.#	DESCRIPTION OF REFERENCE
13	Hausrod, Richard, March 15, 1990, Telephone conversation, Avon Lake, Ohio, (216) 933-6141, Contacted by Nabid Brown.
14	Conrad, Dave, March 16, 1990, Telephone conversation, Avon Lake, Ohio, (216) 934-4322, Contacted by Nabid Brown.
15	Smitek, John, March 15, 1990, Telephone Conversation, Avon, Ohio, (216) 934-6192, Contacted by Nabid Brown.
16	Sheets, Leo, March 16, 1990, Telephone Conversation, Sheffield, Ohio, (216) 934-6104, Contacted by Nabid Brown.

REFERENCE DOCUMENTATION SHEET

Ref.#	DESCRIPTION OF REFERENCE
17	Ohio Environmental Protection Agency, April 25, 1985, Hazardous Waste Inspection Report, Submitted by Mark Bergman, Division of Solid & Hazardous Waste Management, OEPA.
18	Fryfogle, Gary, March 29, 1990, Avon Lake Fire Dept., Correspondence, (216) 933-8305, Avon Lake, Ohio.
19	Basil G. Constantelos, Waste Management Division Director, United States Environmental Protection Agency, July 15, 1985, Information Request Form.
20	Fryfogle, Gary Ellis, Feb 28, 1990, Telephone Conversation, Avon Lake Fire Dept., Avon Lake, Ohio, (216) 933-8305, Contacted by Nahid Brown.

SOURCES AND DATES OF INFORMATION COLLECTION

SOURCE	DATE
1) State Hazardous/Solid Waste Files	1-6-88
2) State Water Files	1-6-88
3) State Air Files	1-6-88
4) State Department of Health	
5) State Geological Survey	
6) State Department of Natural Resources	3/7/90
7) State Fire Harshall	
8) County Department of Health	
9) County Engineer	
10) County Clerk/Recorder of Deeds	
11) City Department of Health	
12) City Engineer	
13) City Fire Department/Fire Harshall	3/15/90
14) City Water/Sever Department	2/28/90 1/24/90
15) U.S. Soil Conservation Service	
16) Others	

STATE CONTACT(S): Rod Beals (name) — (216) 425-9171 (phone number)

(name) — (phone number)

US EPA RECORDS CENTER REGION 5
555097

ecology and environment, inc.

EXISTING SITE SAFETY PLAN ADDENDUM FORM

Site Name: FORD MOTOR CO OHIO TRUCK PLANT

TDD/Pan/Project Number: F05 9007-012/ F0H0646SA/ FT1305

Date of original SSP: 11/12/90

Date of amendment: 2/20/91

Date of proposed new work: 2/28/91

Added activities and hazard evaluations: NONE

Added monitoring activities: NONE

Level of protection: ___ A ___ B ___ C X D

Reason for up/downgrading: SEE ATTACHED SAFETY PLAN

PPE: SAME

Decon: SAME

Team Members	Responsibility
NAHID BROWN	TEAM LEADER
CLIFF FLORCZAK	SITE SAFETY OFFICER
MATHEW JOSEPH	SAMPLER
CHARLES ONYEZIA	TEAM MEMBER
TANVEER ANJUM	TEAM MEMBER

Equipment	Quantity	Equipment	Quantity
SAME			

THE TERMS OF THE ORIGINAL SSP SHALL BE IN EFFECT EXCEPT AS NOTED ON THIS FORM.

Prepared by: MIKE DUET Date: 2/20/91

Reviewed by: L. Evans Date: 2/20/91

INSTRUCTIONS: This form to be approved through normal channels and attached to original plan. Form SSP-A

ecology and environment, inc.

EXISTING SITE SAFETY PLAN ADDENDUM FORM

Site Name: FORD MOTOR CO OHIO TRUCK PLANT

TDD/Pan/Project Number: F05.9007-012/ F01H0646SA/ FT1305

Date of original SSP: 11/12/90

Date of amendment: 2/20/91

Date of proposed new work: 2/28/91

Added activities and hazard evaluations:

Collection of 2-4 deep samples with power auger

Added monitoring activities: Will Monitor for organic vapors when collecting deep samples

Level of protection: ___ A ___ B ___ C X D

Reason for up/downgrading: SEE ATTACHED SAFETY PLAN

PPE: SAME

Decon: SAME

Team Members	Responsibility
NAHID BROWN	TEAM LEADER
CLIFF FLORCZAK	SITE SAFETY OFFICER
MATHEW JOSEPH	SAMPLER
CHARLES ONYEZIA	TEAM MEMBER
TANVEER ANJUM	TEAM MEMBER

Equipment	Quantity	Equipment	Quantity
Hearing Protection	10		

THE TERMS OF THE ORIGINAL SSP SHALL BE IN EFFECT EXCEPT AS NOTED ON THIS FORM.

Prepared by: MIKE DUET Date: 2/20/91

Reviewed by: L. Evans Date: 2/20/91

INSTRUCTIONS: This form to be approved through normal channels and attached to original plan. Form SSP-A

ecology and environment, inc.

EXISTING SITE SAFETY PLAN ADDENDUM FORM

Site Name: Ford Motor Co.- Ohio truck plant TDD/Pan/Project Number: FOS-8706-280 FOH0646SA

Date of original SSP: Nov. 12, 1990

Date of amendment: N/A

Date of proposed new work: N/A

Added activities and hazard evaluations: N/A

Added monitoring activities: N/A

Level of protection: ___ A ___ B ___ C ✓ D

Reason for up/downgrading: N/A

PPE:

Decon:

Team Members	Responsibility
Nahid Brown	Team leader
Phil Richards	site safety officer
Mike Duet	sampler
Dean Tiebout	team member
Lisa Graczyk	team member

Equipment	Quantity	Equipment	Quantity
same as original			

THE TERMS OF THE ORIGINAL SSP SHALL BE IN EFFECT EXCEPT AS NOTED ON THIS FORM.

Prepared by: Nahid Brown Date: Nov. 6, 1990

Reviewed by: Date:

INSTRUCTIONS: This form to be approved through normal channels and attached to original plan. Form SSP-A

ecology and environment, inc.

SITE SAFETY PLAN

Version 988

A. GENERAL INFORMATION

Project Title: FORD Motor Company - Ohio Truck Plant
Project No.: FT1305
TDD/Pan No.: F05-8706-280 / FOH0646SA
Project Manager: Nahid Brown
Project Dir.:
Location(s): 650 Miller Road Avon Lake, OH
Prepared by: Evelyn Mayes
Date Prepared: 08-21-90
Approval by: Laura Evans
Date Approved: 10/26/90
Site Safety Officer Review: Mike Duet
Date Reviewed: 10/17/90
Scope/Objective of Work: Screening Site Inspection Includes (i) Reconnaissance (ii) Interview (iii) Photographs (iv) collection of six surface soils and 2 background soil sample
Proposed Date of Field Activities: Nov. 12, 1990 – 2nd week of Nov.

Background Info: Complete [ ] Preliminary (No analytical data available) [X]

Documentation/Summary:

Overall Chemical Hazard: Serious [ ] Low [X] Moderate [ ] Unknown [ ]

Overall Physical Hazard: Serious [ ] Low [ ] Moderate [X] Unknown [ ]

B. SITE/WASTE CHARACTERISTICS

Waste Type(s):

Liquid [X] Solid [ ] Sludge [X] Gas/Vapor [X]

Characteristic(s):

Flammable/Ignitable [X] Volatile [X] Corrosive [X] Acutely Toxic [X]

Explosive [X] Reactive [X] Carcinogen [X] Radioactive* [ ]

Other: Persistent, teratogen, Dermal absorber, Poison

Physical Hazards:

Overhead [ ] Confined* Space [ ] Below Grade [ ] Trip/Fall [X]

Puncture [X] Burn [X] Cut [X] Splash [X]

Noise [X] Heat/Cold Stress [X] Other: ACTIVE PLANT, LAGOONS

*Requires completion of additional form and special approval from the Corporate Health/Safety Group. Contact RSC or HQ.

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Site History/Description and Unusual Features (see Sampling Plan for detailed description): SEE FOLLOWING PAGES

Locations of Chemicals/Wastes: Assume Entire site To be contaminated

Estimated Volume of Chemicals/Wastes: unknown

Site Currently in Operation Yes: [✓] No: [ ]

C. HAZARD EVALUATION

List Physical Hazards by Task (i.e., drum sampling - explosion hazard, drilling - noise hazard, etc.) and number them. (Task numbers are cross-referenced in Section D)

Task/Physical Hazard Evaluation: 1. Reconnaissance: Awareness of TRIP/FALL/TRAFFIC Conditions

2. Photographs: Awareness of TRIP/FALL/TRAFFIC Conditions

3. Soil Samples: Awareness of TRIP/FALL/TRAFFIC Conditions

4.

5.

6.

7.

8.

Chemical Hazard Evaluation:

Compound	PEL/TWA	Route of Exposure	Acute Symptoms	Odor Threshold	Odor Description
Arsenic	0.16ppm/.06 ppm	Ingest, Dermal Inhalation, EYES	nose/throat pale, dizzy/abdom pain	—	—
Benzene	10ppm/10 ppm	Ingest, EYES, SKIN Dermal, Inhale	dizzy, Euphoric headache, naus/vomit	5 ppm	Aromatic, Pleasant, Sweet
Cadmium	.04ppm/.01 ppm	Ingest, Inhale Dermal	naus/vomit, diarrhea pain, COUGH, musc. Aches	—	—
Chromium Hexavalent	0.28 ppm/.02ppm	Ingestion Dermal Inhalation	Contact Dermatitis Irit mucous/RESP	—	—
Chromium metal	0.47ppm/.23 ppm	Inhalation, EYES INGEST, SKIN	Dermatitis, irrt. eyes SKIN ulcers	—	—
Copper	.33 ppm/.38 ppm	Ingest, Skin Inhalation	Skin eyes sneezing- nausea	—	none
Lead	—/0.01	Ingest, Inhalation SKIN, EYES	vomit, Diarrhea Nervous SYS. Distress	—	—
Mercury	0.01ppm/0.001 ppm	Ingest, EYES Dermal, SKIN, Inhale	headache, cough, sore mouth chest/pain/tightness	—	—
Sulfuric Acid	0.24ppm/.24 ppm	Ingest, Dermal SKIN, Inhalation	Skin Burn, eyes, respir tract, COUGH, blue lips	0.25 ppm	Odorless

Note: Complete and attach a Hazard Evaluation Sheet for major known contaminant.

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Site Name Ford Motor Co. - OTP

Job No. FT1305

TDD/PAN F05-8706-280 / F0H06465A

CHEMICAL HAZARD EVALUATION (Continued)

Compound	PEL/TWA	Route of Exposure	Acute Symptoms	Odor Threshold	Odor Description
Toluene	100ppm / 100 ppm	Ingest, Eyes Skin Inhalation	Eyes/Skin/Resp. IRRTS FATIGE, weakness Confusion, headache	1.20 ppm	Sour Pungent Aromatic
Xylene	100ppm / 100 ppm	Ingest, Eyes Dermal Skin, Inhalation	dizziness, headache cough, pulm distress nausea/vomit,	20 ppm	aromatic odor sweet
Hydrogen CYANIDE	10ppm / 10ppm	Ingestion, Eyes Dermal, Skin Inhalation	bitter/burning taste throat constriction weakness, confusion	.814 - 4.52 ppm	Sweetish - almond-like
Methyl Ethyl Ketone	200 ppm / 200 ppm	Ingestion, Eyes Dermal, Skin, Inhalation	eyes burn, eyes/nose/throat headaches, weakness	16 ppm	like - Acetone pleasant pungent, sweet
Naphthalene	10 ppm / 10 ppm	Ingest, Eyes Dermal, Inhale	eyes, skin IRRT headache, nausea vomit/diarrhea, coma	.0095 - .64 ppm	Coal tar mothballs
CRUDE OIL	—	Eyes, Skin	eyes, Skin	—	OFFensive TARRY
Cyclohexane	TLV 300 ppm	Ingestion eyes, Skin, Inhalation	dizziness, nausea, vomity	—	mild, sweet

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SITE HISTORY (Continued)

Ford Motor Co. - Ohio Truck Plant is located about 0.9 miles South of Lake Erie in Avon Lake, Lorain County, Ohio. The Plant's Western property line is along the Avon Lake/Sheffield Corporate boundary, Miller Road forms the eastern boundary, and Walker Road the northern property line. The Ohio Truck Plant assembles and paints Van bodies for Ford. They are RCRA Generator of waste paints, solvents and an F006 (waste water Treatment sludges from electroplating operations) filter cake that in the past was designated as F018 lagoon waste. Ford Originally notified under RCRA 3001 as both a generator and TSD facility (Aug. 15, 1980).

On April 6, 1981, Ford applied for a RCRA Part A permit. On July 20, 1981, Ford requested a withdrawal of the permit application due to a suspension of the F018 hazard class.

OEPA Conducts regular inspections of the plant for Compliance with 40CFR Generator requirements. (Refere to Site Inspection History, Next Page)

The environmental/human health hazards that might be associated with Ford's Ohio Truck plant are regulated by RCRA.

- History of Pollution Incidents:

1) April 24, 1979 - Minor oil spill - ≈ 30 gallons entered the sewer system

2) July 13, 1979 - Minor resin spill - 5-10 gallons entered the sewer system Connected to Lake Erie

3) Aug. 9, 1979 - Petroleum naptha spill - entered the sewer system.

Ford Motor Co. - Ohio Truck plant does NOT have NPDES Permit.

SITE HISTORY (Continued)

• Storage / disposal Methods:

Ford Motor Co. - Ohio Truck plant has a number of above and below ground, Gasoline, Primer Paint, E-Coat, Fuel oil #6 Grade, Sulfuric Acid, Storage Tanks on-site.

There are also two cement lined lagoons (Northeast & Northwest lagoons) used for Treatment and Storage of certain electroplating waste on-site. Based on, Mark Bergman's (DSHWM) inspection Report (April 25, 1985) these storage lagoons ~~are~~ were in violation of Generator and TSD hazardous waste regulations.

• Site Inspection History:

2/24/1982 - Helen Takacs - Division of Hazardous Material Management - OEPA.
RCRA Intrim Status Inspection.

4/25/1985 - Mark Bergman - Division of Hazardous Material Management - OEPA.

• Hazardous Waste Generated:

1. Waste water treatment sludges from industrial painting (F018).
2. Paint residues from industrial painting (F017).
3) Paint Residues from industrial painting (D002).
4) Spent non-halogenated solvents (F001, F003, F005).
5) Waste Commercial chemical Products: xylene (U239), Toluene (U22).

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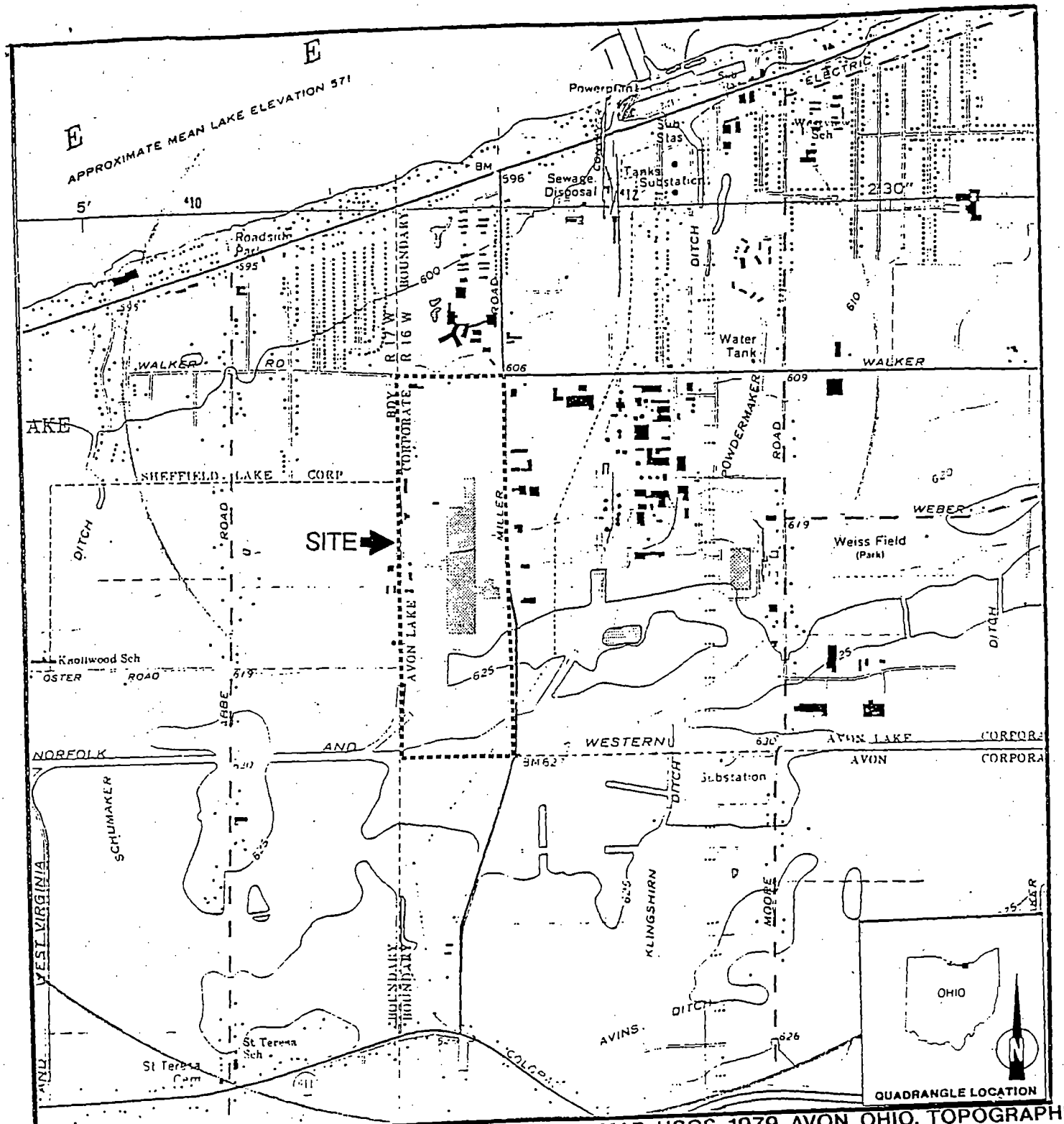

SOURC: C.C. JOHNSON & MALHOTRA, P.C.,1990. BASE MAP: USGS, 1979, AVON, OHIO, TOPOGRAPHIC QUADRANGLE, 7.5 MINUTE SERIES, 1:24,000.

1 OF 2

SCALE

0 ½ 1 MILE

FIGUER 1- SITE LOCATION

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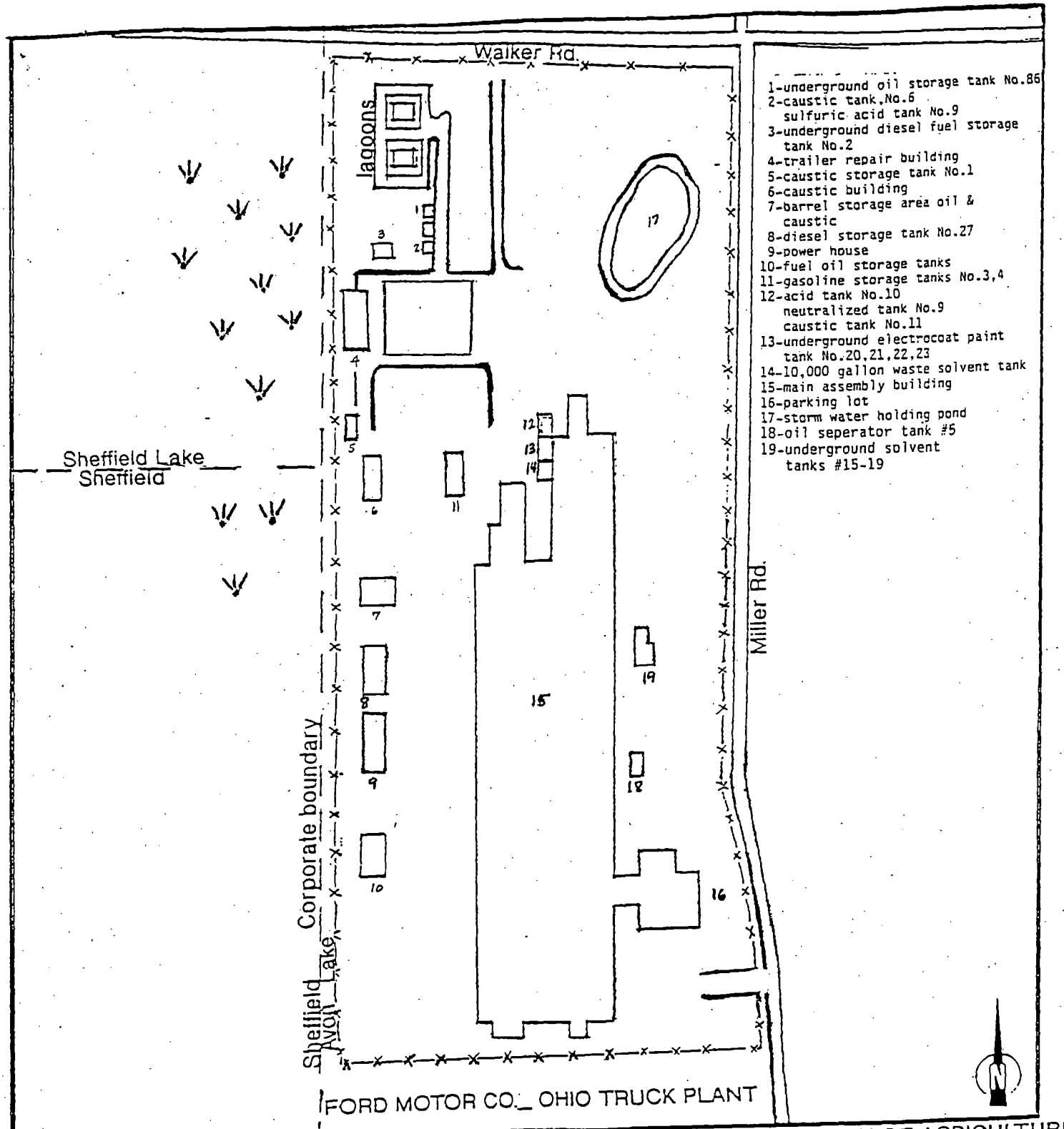

SOURCE: C.C. JOHNSON & MALHOTRA.P.C.,1990. BASE MAP: U.S. DEPARTMENT OF AGRICULTURE, 1976 SOIL SURVEY OF LORAIN COUNTY,OHIO.

ASSUME ENTIRE SITE TO BE CONTAMINATED

2 OF 2

SCALE

0 2000 FEET

FIGURE 2- DOCUMENTED AND ALLEGED TARGET COMPOUND MAP

FO HO 646SA / 08-21-90

D. SITE SAFETY WORK PLAN

Site Control: Attach map, or sketch of site showing hot zone, contamination reduction, zone, etc.

Perimeter identified? Yes [ ] No [X] Site secured? Yes [ ] No [X]

Work Areas Designated? Yes [ ] No [X] Zone(s) of Contamination Identified? Yes [ ] No [X]

Personnel Protection: TLD badges required for all field personnel.

Anticipated Level of Protection (Cross-reference task numbers to Section C):

	TASK DESCRIPTION	A	B	C	D
Task 1	Reconnaissance			←	X
Task 2	Photographs			←	X
Task 3	Surface soil samples			←	X
Task 4					
Task 5					
Task 6					
Task 7					
Task 8					

*If windy dusty conditions arise, FIT will upgrade level of protection to C. OR if monitoring equipment warrants to do so.

Modifications: Rad-Mini >0.1 mR/hr (alarm sounds) and/or Monitox readings >0 ppm, evacuate work zone and then call Health and Safety Staff. → OR when DRAEGER TUBE changes color

Action Levels for Evacuation of Work Zone Pending Reassessment of Conditions: CONTACT HEALTH AND SAFETY STAFF IF EVACUATION OCCURS.

- Level D: O_2 <19.5% or >25%, explosive atmosphere >10% LEL, organic vapors above background levels, particulates >N/A mg/m^3, other N/A.
- Level C: O_2 <19.5% or >25%, explosive atmosphere >25% LEL (California-20%), unknown organic vapor (in breathing zone) >5 ppm, particulates >N/A mg/m^3, other N/A.
- Level B: O_2 <19.5% or >25%, explosive atmosphere >25% LEL (California-20%), unknown organic vapors (in breathing zone) >500 ppm, particulates >N/A mg/m^3, other N/A.
- Level A: O_2 <19.5% or >25%, explosive atmosphere >25% LEL (California-20%), unknown organic vapors >500 ppm, particulates >N/A mg/m^3, other N/A.

Air Monitoring (daily calibration unless otherwise noted):

*Air monitoring should be continuous

Contaminant of Interest	Type of Sample (area, personal)	Monitoring Equipment	Frequency of Sampling
ORGANIC VAPORS	AREA	HNU	Continuous
HCN	AREA	DRAEGER-HCN	continuous

Decontamination Solutions and Procedures for Equipment, Sampling Gear, etc.:

ALL contaminated EQUIPMENT will be washed with Alconox solution and TRIPLE RINSED USING Distilled water. ALL WASH AND RINSE WATER will be left onsite with PRIOR Permission OF THE SITE OWNER / OPERATOR.

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Personnel Decon Protocol: A Two-bucket wash system will be used. The first wash bucket containing alconox and distilled water will be used to decontaminate gloves, booties and sample bottles. The second bucket will be used to triple rinse the washed items, using distilled water.

Decon Solution Monitoring Procedures, if Applicable: N/A

Special Site Equipment, Facilities, or Procedures (Sanitary Facilities and Lighting Must Meet 29 CFR 1910.120):

OBEY SITE SAFETY REGULATIONS AT A MINIMUM. HARD HATS, STEEL-TOED BOOTS AND GLOVES WILL BE USED BY FIT. HEARING Protection will be USED IF NECESSARY

Site Entry Procedures and Special Considerations: Permission will be obtained prior to site entry. Stay upwind of contamination when possible. The buddy system will be maintained at all times.

Work Limitations (time of day, weather conditions, etc.) and Heat/Cold Stress Requirements:

Work is restricted to daylight hours only and workers are to be monitored for heat/cold stress.

When vermiculite is used to pack samples, dust masks will be worn.

General Spill Control, if applicable: N/A

Investigation-Derived Material Disposal (i.e., expendables, decon waste, cuttings):

Investigative-derived materials will be decontaminated in accordance with procedures listed above. The decontaminated material will be bagged and left on-site in appropriate waste containers with prior permission of site owner/operator.

Sample Handling Procedures Including Protective Wear:

After samples have been collected, the outside of the sample bottles will be decontaminated by washing (not submerging) the bottles in an Alconox solution and rinsing in distilled water. The protective clothing level (i.e. suits, gloves, boots) worn during on-site job activities will be maintained while decontaminating the bottles. Respiratory protection will be worn based on professional judgment. Latex gloves, at a minimum, will be worn, while handling the bottles after decontamination.

Team Member*	Responsibility
Nahid Brown	Team Leader
Phil Richards	Site Safety Officer
Mike Duet	Sampler
Dean Tiebout	team member
Lisa Graczyk	team member

*All entries into exclusion zone require Buddy System use. All E & E field staff participate in medical monitoring program and have completed applicable training per 29 CFR 1910.120. Respiratory protection program meets requirements of 29 CFR 1910.134, and ANSI Z88.2 (1980).

E. EMERGENCY INFORMATION

(Use supplemental sheets, if necessary)

LOCAL RESOURCES

(Obtain a local telephone book from your hotel, if possible)

Ambulance AVON LAKE FIRE DEPARTMENT 1-(216)-933-8305

Hospital Emergency Room LORAIN Community Hospital, 3700 Kolbe Rd., LORAIN, OH 44055, 1-(216)-960-3050

Poison Control Center AT LORAIN Community Hospital 1-(216)-282-2220

Police (include local, county sheriff, state) AVON LAKE Police Department 1-(216)-933-4567

Fire Department AVON LAKE Fire Department 1-(216)-933-8305

Airport LORAIN County Regional, 44050 Russia Road, Elyria, OH 44035 (216)-323-4063

Agency Contact (EPA, State, Local USCG, etc.) Jeanne Griffin 1(312)-886-3007

Local Laboratory N/A

UPS/Fed. Express AVON LAKE, OH

Client/EPA Contact North EAST District Rod Beals (216)-425-9171

Site Contact Anne Molnar (216) 933-1332

SITE RESOURCES

Site Emergency Evacuation Alarm Method To be Determined Prior to SITE ENTRY

Water Supply Source SUPPLIED BY FIT

Telephone Location, Number To be determined Prior to site ENTRY

Cellular Phone, if available NONE

Radio NONE

Other —

EMERGENCY CONTACTS

1. Dr. Raymond Harbison (Univ. of Florida) ..... (501) 221-0465 or (904) 462-3277, 3281
   Alachua, Florida (501) 370-8263 (24 hours)

2. Ecology and Environment, Inc., Safety Director
   Paul Jonmaire ..... (716) 684-8060 (office)
   non-responsive (home)

3. Laura D. Evans, Regional Safety Coordinator, Chicago .... (312) 663-9415 (office)
   non-responsive (home)

4. Jerry Oskvarek, Office Manager, Chicago ..... non-respons [redacted] (home)

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MEDTOX HOTLINE

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

   What to report:

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

2. A toxicologist, (Drs. Raymond Harbison or associate) 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:

   a. 24 hour hotline - (716) 684-8940
   b. Corporate Safety Director - Paul Jonmaire - home # (716) 655-1260
   c. Assistant Corp. Safety Officer - Steven Sherman - home # (716) 688-0084
   d. Chicago Health & Safety Manager - Laura Evans - home # (708) 898-3853

EMERGENCY ROUTES

(NOTE: Field Team must Know Route(s) Prior to Start of Work)

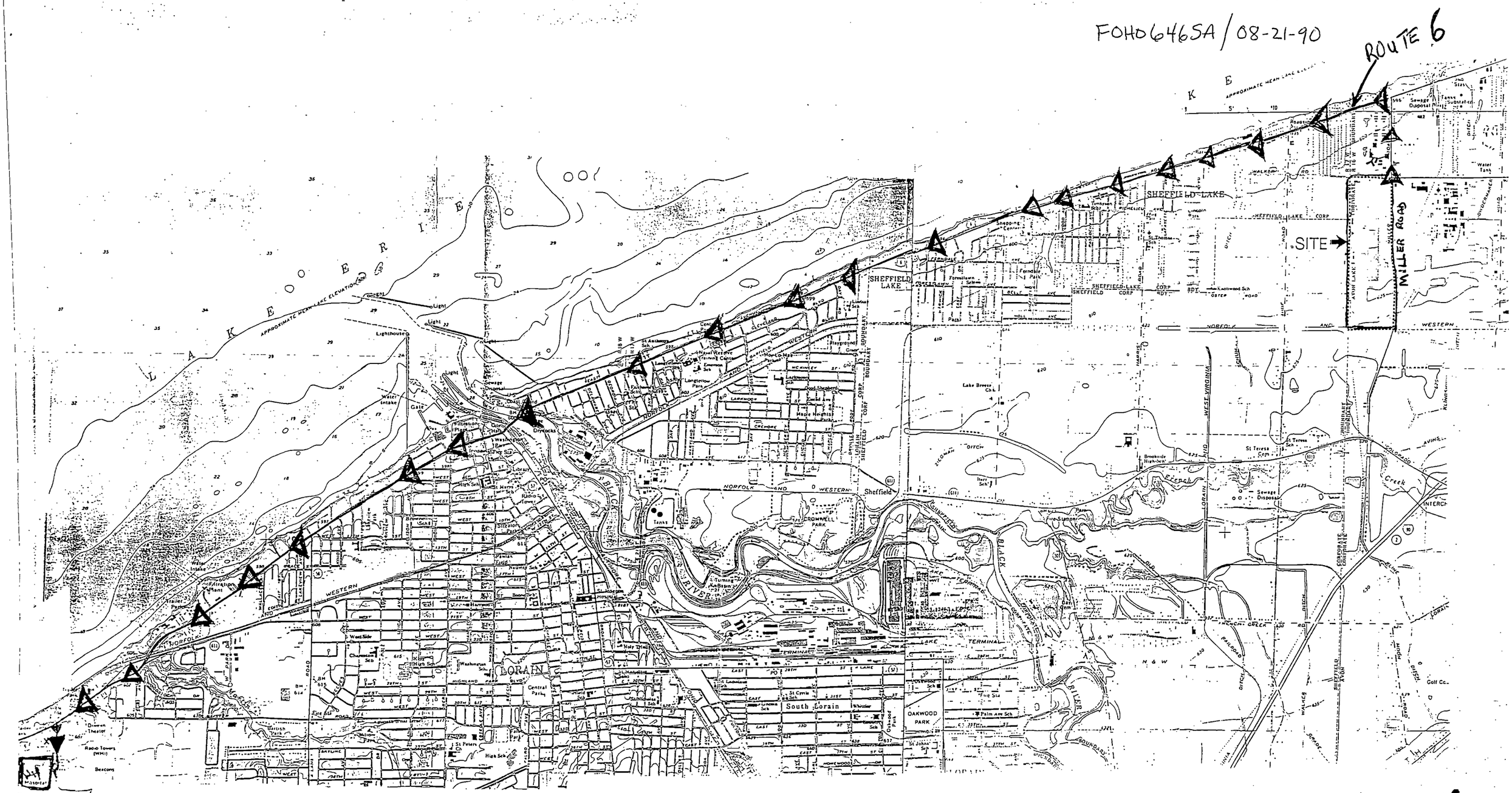
Directions to hospital (include map) EXIT SITE ACCESS ROAD TO MILLER ROAD, GO North (TAKE LEFT) TO Route 6 approx. 1/2 mile. TAKE LEFT AT ROUTE 6 (GOING WEST) AND GO 10 miles to the CITY OF LORAIN where ROUTE 6 BECOMES EAST AND WEST Erie Avenue. Once WEST ERIE Ave. is spotted, Proceed APPROXIMATELY 3 more miles to KOLBE ROAD, TAKE A LEFT (South) AND GO 1 block to LORAIN HOSPITAL.

Emergency Egress Routes to Get Off-Site EXITS will be located Prior TO SITE WORK. EMERGENCY EXITS will be determined UPON SITE ARRIVAL, then LOGGED INTO THE FIELD LOGBOOK.

HS018A(06/11/90)

HOSPITAL: LORAIN Community HOSPITAL
3700 KOLBE ROAD
LORAIN, OH 44055
(1)-216-960-3050
Total trip to hospital is approximately 14 miles.

FOH0646SA / 08-21-90



RAIN
MUNITY
PITAL

PAGE 1 OF 1

HOSPITAL LOCATION MAP

WASTE-DISPOSAL METHODS

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

The disposal of some chemicals may require deactivation or modification of the material by chemical means. Chemical waste-disposal reactions must be handled with the same care and consideration used with synthetic procedures. Appropriate consideration must be given to reaction conditions, *i.e.*, stoichiometry, order and rate of addition, heat of reaction, evolution of gaseous products, pH, efficiency of stirring, rate of reaction, atmospheric sensitivity, etc.

Chemical waste-disposal reactions should be carried out in a chemical fume hood and in appropriate laboratory glassware. Because these reactions are often vigorous, protective safety equipment such as safety goggles, respirator, gloves, face and/or safety shield and other protective equipment must be used.

Initial reactions in a disposal sequence should be carried out on a small scale (5-10g). The reactant concentrations should not exceed 10% of the reaction volume and the final reaction volume should not exceed 50% of the working capacity of the reaction vessel, regardless of the reaction scale. Larger quantities of the material should be handled in several small-size reactions. To ensure completion of reaction, the waste disposal procedure should be run for at least an additional 4 to 8 hours after all materials have been mixed.

All reactions should be run by technically qualified persons familiar with the potential hazards of the chemical reactions.

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

B 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.

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

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

E 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.

F 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.

These recommendations are intended only as guides. Sigma-Aldrich shall not be held liable for any damage resulting from their use. See Foreword of the Sigma-Aldrich Library of Chemical Safety Data for more information.

THE SIGMA-ALDRICH LIBRARY OF CHEMICAL SAFETY DATA

Explanation of Codes

recycled paper

PROCEDURES 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 condition.

ecology and environment

Z14,866-0

Sigma-Aldrich Corporation, P.O. Box 355, Milwaukee, Wisconsin 53201 USA
(Sigma: 314-771-5765; Aldrich: 414-273-3850)

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SITE DOSIMETER LOG

PROJECT/PAN # FOH06465A SITE NAME FORD Motor Co.-Ohio Truck Plant

SITE SAFETY OFFICER _____ WEEK OF _____

NAME AND DOSIM. #	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
Nahid Brown #0011							
Dean Tizbout							
MIKE DUET #0007							
Phil Richards 237							
Lisa Graczyk 287							

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

HS005(2/24/89)

Hazard Evaluation of Chemicals
Region V - Chicago

ATE : 8/21/90
OB NO: F01H0646SA

CHEMICAL NAME: Arsenic

SYN : Metallic arsenic, Arsenic 75, Organic Arsenic
CAS NO: 7440-38-2 FORMULA: As
DOT CLASS: 1558/POISON

CHEMICAL PROPERTIES

ys St: Solid	Boil Pt: 1139.0 °F	Ionz Pot : ---	Fl Pt: —
ol Wt : 74.9	Melt Pt: 1500.8 °F	Vap Press: 1.0 mmHg	LFL : —
Gr : 5.72	Frz Pt : —	Odr Thr : ---	UFL : —
dor : none			

COMPAT/REACT: heat, acids, oxidizing agents, halogens, air sensitive
OLUBILITY : water-insoluble; nitric acid

TOXICOLOGICAL PROPERTIES

posure Limits: TLV-TWA (ACGIH): 0.06 ppm PEL (OSHA): 0.16 ppm
STEL: — IDLH: —

THER PROPERTIES :
ox Data: INHAL :
DERMAL :
ORAL : man TDLo: 7857 mg/kg/55Y
CARCIN : human positive
MUTAGEN : exper
REPRO TOX: exper
AQUATIC :
OTHER TOX: TARGET ORGANS: liver,kidneys,skn,lung,lymphat sys
ROUTES OF EXP: Ingestion, Eye(Ocular), Dermal Absorption, Skin Contact, Inhalation

PERSONAL PROTECTIVE MEASURES

SPIRATORS : APR: dusty/windy condit or known high concent or >1 but <5ppm; SCBA: >5ppm
RTRIDGE TYPE : GMC-H or AP3 (RACAL)
OTECTIVE CLOTHING: Coverall: Tyvek Gloves: Butyl, Neoprene
EC PRECAUTIONS : OSHA Regulated Carcinogen

FIRST AID

HALATION: move to fresh air, give O2/CPR if nec. SEEK MEDICAL ATTENTION
E/SKIN : Remove cont. clothes, flush w/water 15 min. SEEK MEDICAL ATTENTION
GESTION : Rinse mouth w/water, treat for shock, SEEK MEDICAL ATTENTION

SYMPTOMS

UTE : dermatitis,nose/throat irritation,mild bronchitis,headache,dizzy,fatigue,pale/blue face,diff breath,abd pain,diarrhea,trembling of arms/legs, convulsions, pulmonary edema
RONIC: loss of apetite,cramps,nausea,constipation,diarrhea,liver damage,blood,kidney & nervous syst. disturb, poss. skin cancer, lymphatic system affected.

DISPOSAL, FIRE, SPILLS (see attached sheet)

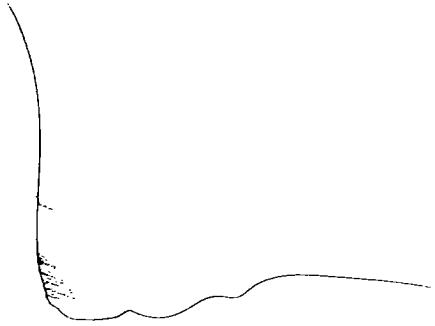
SPOSAL: P FIRE: 11,13 LEAKS & SPILLS: 4,6,7,9
COMPOSITION PRODUCTS: arsenic oxides

REFERENCES CONSULTED

GH/OSHA Pocket Guide, ACGIH TLV Booklet, RTECS
ER REFERENCES: Sigma-Aldrich, Handbook of Poisoning, Emerg Resp Guide, OSHA

MICAL CLASSIFICATION: Non-metal/Metalloid

LAST REVISION DATE:
04/19/89



Hazard Evaluation of Chemicals
Region V - Chicago

E : 8/21/90
3 NO: F0H0646SA

CHEMICAL NAME: Benzene

SYN : Benzol, Benzole, Benzolene, Coal Tar Naphtha
CAS NO: 71-43-2 FORMULA: C6H6
DOT CLASS: 1114

CHEMICAL PROPERTIES

s St: Liquid | Boil Pt: 176.00°F | Ionz Pot : 9.24ev | Fl Pt: 12.00°F
Wt : 78.11 | Melt Pt: 41.00°F | Vap Press: 75.00000mmHg | LFL : 1.30%
Gr : 0.88 | Frz Pt : 42.00°F | Odr Thr : 5.00ppm | UFL : 7.90%
or : aromatic, pleasant, sweet
OMPAT/REACT: nitric acid, oxidizing agents, chlorine, bromine
UBILITY : Water-slightly, soluble in organic solvents

TOXICOLOGICAL PROPERTIES

osure Limits: TLV-TWA (ACGIH): 10.00000ppm PEL (OSHA): 10.00000ppm
STEL: -- IDLH: 2000.00000ppm
ER PROPERTIES : CEILING: 25PPM/15MIN. ACCUPT MAX PEAK ABOVE CEIL
Data: INHAL : rat LC50: 10000ppm/7hr
DERMAL : skn rbt: 500mg/24H MODERAT
ORAL : rat LD50: 4894mg/kg
CARCIN : human positive
MUTAGEN : exper
REPRO TOX: exper
AQUATIC : 5ppm/6hr/minnow/lethal/distilled water
OTHER TOX: TARGET ORGANS: Blood, CNS, Skin, Bone Marrow, Eyes, Resp Sys
ROUTES OF EXP: Ingestion, Eye(Ocular), Dermal Absorption, Skin Contact, Inhalation

PERSONAL PROTECTIVE MEASURES

PIRATORS : APR: dusty/windy condit or known high concent or >1 but <5ppm; SCBA: >5ppm
TRIDGE TYPE : GMC-H or AP3 (DACAL)
TECTIVE CLOTHING: Coverall: Saranex Gloves: Silvershield-8hr, PVA-6hr, Viton-6hr (PVA degrade in water)
IC PRECAUTIONS : OSHA REGULATED CARCINOGEN.

FIRST AID

HALATION: move to fresh air, give O2/CPR if nec, SEEK MEDICAL ATTENTION
/SKIN : remove contaminated clothes, flush areas w/water for 15 min, SEEK MEDICAL ATTENTION
ESTION : Treat for shock, CPR if nec., SEEK MEDICAL ATTENTION

SYMPTOMS

TE : dizziness,weakness,euphoria,headache,nau/vomt,tight chest,staggering, visual blurring,tremors,skin irritation/scaling/cracking
RONIC: loss of appetite, drowsy, nervous, pallor, anemia, petechiae, abnml bleeding, aplasia of bone marrow, leukemia, encephalopathy w/ataxia, tremulousness, emotional lability, diffuse cerebral atrophy

DISPOSAL, FIRE, SPILLS (see attached sheet)

POSAL: D FIRE: 6,7 LEAKS & SPILLS: 3,4,5,6,9
OMPOSITION PRODUCTS: carbon monoxide, carbon dioxide

REFERENCES CONSULTED

GIH/OSHA Pocket Guide, Chris(vol. III), ACGIH TLV Booklet, RTECS
HER REFERENCES: Sigma-Aldrich, Handbook of Poisoning, OSHA

LAST REVISION DATE: 10/18/89

MICAL CLASSIFICATION: Aromatic Hydrocarbon

Hazard Evaluation of Chemicals
Region V - Chicago

DATE : 8/21/90
JOB NO: F0H0646SA

CHEMICAL NAME: Cadmium (dust)

SYN : C.I. 77180
CAS NO: 7440-43-9 FORMULA: Cd
DOT CLASS:

CHEMICAL PROPERTIES

Phys St: Solid	Boil Pt: 1412.00°F	Ionz Pot : —	Fl Pt: —
Mol Wt : 112.40	Melt Pt: —	Vap Press: —	LFL : —
Sp Gr : 8.64	Frz Pt : 609.00°F	Odr Thr : —	UFL : —
Odor :			

INCOMPAT/REACT: sulfur,selenium,tellurium,zinc,hydrazoic acid,ammonium nitrate, potassium,oxidizing agents & acid
SOLUBILITY : insoluble in H2O; soluble in acids, non-reactive with alkalies

TOXICOLOGICAL PROPERTIES

Exposure Limits: TLV-TWA (ACGIH): 0.01 ppm PEL (OSHA): 0.04 ppm
STEL: — IDLH: —

OTHER PROPERTIES : CEILING: 0.6 mg/mg3
Tox Data: INHAL : human LCLo 35mg/m3/2PM
DERMAL :
ORAL : rat LD50: 225mg/kg
CARCIN : animal pos.,human suspect
MUTAGEN : exper
REPRO TOX: exper teratogen
AQUATIC :
OTHER TOX: TARGET ORGANS: Resp Sys, Kidney, Prostate, Blood
ROUTES OF EXP: Ingestion, Dermal Absorption, Inhalation

PERSONAL PROTECTIVE MEASURES

RESPIRATORS : AFR: dusty/windy condit or known high concent or >1 but <5ppm; SCBA: >5ppm
CARTRIDGE TYPE : GMC-H or AP3 (RACAL)
PROTECTIVE CLOTHING: Coverall: Tyvek Gloves: Butyl
SPEC PRECAUTIONS :

FIRST AID

INHALATION: move from area, O2/artf resp if nec, SEEK MEDICAL ATTENTION.
EYE/SKIN : Flush w/water at least 15min, SEEK MEDICAL ATTENTION.
INGESTION : Give milk, SEEK MEDICAL ATTENTION.

SYMPTOMS

ACUTE : nau/vomt,diarrhea,headache,musc. aches,salivation,abdom. pain,cough(foam/blood sputum),weakness,leg pain

CHRONIC: no sense of smell,cough,dyspnea,weight loss,anemia,irritability,yellow-stained teeth, liver/kidney damage

DISPOSAL, FIRE, SPILLS (see attached sheet)

DISPOSAL: P FIRE: 13 LEAKS & SPILLS: 7,10
DECOMPOSITION PRODUCTS: toxic fumes

REFERENCES CONSULTED

NIOSH/OSHA Pocket Guide, Merck Index, ACGIH TLV Booklet, RTECS
OTHER REFERENCES: Sigma-Aldrich, Handbook of Poisoning, OSHA

CHEMICAL CLASSIFICATION: Heavy Metal

LAST REVISION DATE:
04/19/89

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

DATE : 08/11/90
JOB NO: FOH0646SA

CHEMICAL NAME: Chromium Hexavalent

SYN : Soluble chromic salts
CAS NO: 7440-47-3 FORMULA: Cr
DOT CLASS:

CHEMICAL PROPERTIES

Phys St:	Boil Pt: —	Ionz Pot : —	Fl Pt: —
Mol Wt : 52.00	Melt Pt: —	Vap Press: —	LFL : —
Sp Gr : —	Frz Pt : —	Odr Thr : —	UFL : —
Odor :			

INCOMPAT/REACT: strong oxidizers, water
SOLUBILITY : soluble

TOXICOLOGICAL PROPERTIES

Exposure Limits: TLV-TWA (ACGIH): 0.02 ppm PEL (OSHA): 0.25 ppm
STEL: — IDLH: 117.78 ppm

OTHER PROPERTIES :
Tox Data: INHAL : -
DERMAL : -
ORAL : -
CARCIN : YES
MUTAGEN : exper
REPRO TOX: exper teratogen
AQUATIC : -
OTHER TOX: TARGET ORGANS: Skin
ROUTES OF EXP: Ingestion, Eye(Ocular), Dermal Absorption, Skin Contact, Inhalation

PERSONAL PROTECTIVE MEASURES

RESPIRATORS : APR: dusty/windy condit or known high concent or >1 but <5ppm; SCBA: >5ppm
CARTRIDGE TYPE : GMC-H, AFB (RACAL)
PROTECTIVE CLOTHING: Coverall: Saranex Gloves: Nitrile
SPEC PRECAUTIONS :

FIRST AID

INHALATION: move to fresh air, artf resp if nec, SEEK MEDICAL ATTENTION
EYE/SKIN : Flush w/water 15 min, wash skin w/soap & water, SEEK MEDICAL ATTENTION
INGESTION : give lg amt of water, induce vomiting, SEEK MEDICAL ATTENTION

SYMPTOMS

ACUTE : contact dermatitis, irritation of muc membr/upp resp tract, coughing, wheezing, headache, fever, wt loss, ulceration of nasal septum, naus/vomt
CHRONIC: carcinogen; liver and/or kidney damage, brochitis, ulceration of skin, lung cancer

DISPOSAL, FIRE, SPILLS (see attached sheet)

DISPOSAL: P,O FIRE: 13 LEAKS & SPILLS: 3,4,6-9
DECOMPOSITION PRODUCTS: toxic fumes

REFERENCES CONSULTED

NIOSH/OSHA Pocket Guide, ACGIH TLV Booklet, RTECS
OTHER REFERENCES: NIOSH Guides, Handbook of Poisoning, OSHA

LAST REVISION DATE: 04/18/89

CHEMICAL CLASSIFICATION: Heavy Metal

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

ATE : 8/21/90
OB NO: FOH064659

CHEMICAL NAME: Chromium metal

SYN : Insoluble salts
CAS NO: 7440-47-3 FORMULA: Cr
DOT CLASS:

CHEMICAL PROPERTIES

hys St: Solid | Boil Pt: 4784.00°F | Ionz Pot : — | Fl Pt: 0.23°F
ol Wt : 52.00 | Melt Pt: 3452.00°F | Vap Press: — | LFL : —
p Gr : 7.20 | Frz Pt : 3339.00°F | Odr Thr : — | UFL : —
dor : none
NCOMPAT/REACT: strong oxidizers, powdered metal is explosive
OLUBILITY : insoluble

TOXICOLOGICAL PROPERTIES

xposure Limits: TLV-TWA (ACGIH): 0.23 ppm PEL (OSHA): 0.47 ppm
STEL: — IDLH: 235.57 ppm

THER PROPERTIES :
ox Data: INHAL : -
DERMAL : -
ORAL : -
CARCIN : -
MUTAGEN : -
REPRO TOX: -
AQUATIC : -
OTHER TOX: TARGET ORGANS: Respiratory System
ROUTES OF EXP: Ingestion, Eye(Ocular), Skin Contact, Inhalation

PERSONAL PROTECTIVE MEASURES

ESPIRATORS : APR: dusty/windy condit or known high concent or >1 but <5ppm; SCBA: >5ppm
ARTRIDGE TYPE : GMC-H, AP3 (RACAL)
ROTECTIVE CLOTHING: Coverall: Tyvek Gloves: Butyl
PEC PRECAUTIONS :

FIRST AID

HALATION: move to fresh air, artf resp if nec, SEEK MEDICAL ATTENTION
E/SKIN : Flush w/water 15 min, wash skin w/soap & water, SEEK MEDICAL ATTENTION.
GESTION : Give lg amts of water, induce vomiting, SEEK MEDICAL ATTENTION

SYMPTOMS

UTE : contact dermatitis, ulceration of skin/nasal mucosa, irritation of eyes/mucous membranes

RONIC: pulmonary disease

DISPOSAL, FIRE, SPILLS (see attached sheet)

SPOSAL: P FIRE: 13 LEAKS & SPILLS: 3,4,6-9
COMPOSITION PRODUCTS:

REFERENCES CONSULTED

IOSH/OSHA Pocket Guide, ACGIH TLV Booklet
HER REFERENCES: NIOSH Guides, Sigma-Aldrich, OSHA

LAST REVISION DATE:
10/19/89

EMICAL CLASSIFICATION: Heavy metal

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

DATE : 8/21/90
JOB NO: F01H0646SA

CHEMICAL NAME: Copper

SYN : Cupric, Cuprous
CAS NO: 7440-50-8 FORMULA: Cu
DOT CLASS:

CHEMICAL PROPERTIES

Phys St: Solid	Boil Pt: 4652.60°F	Ionz Pot : —	Fl Pt: —
Mol Wt : 63.55	Melt Pt: 1981.40°F	Vap Press: —	LFL : —
Sp Gr : 8.92	Frz Pt : —	Odr Thr : —	UFL : —
Odor : none			

INCOMPAT/REACT: acetylene gas, magnesium metal, halogens, strong acids, oxidizing agents
SOLUBILITY : concen acids; slowly attached by dil acids

TOXICOLOGICAL PROPERTIES

Exposure Limits: TLV-TWA (ACGIH): 0.36 ppm PEL (OSHA): 0.33 ppm
STEL: — IDLH: —

OTHER PROPERTIES : tumorigenic in rats, oral data: gastro effects, repro data: fetotoxic
Tox Data: INHAL :
DERMAL :
ORAL : hum TDLo: 120 ug/kg
CARCIN :
MUTAGEN :
REPRO TOX: rat TDLo: 152 mg/kg
AQUATIC : sensitive
OTHER TOX: TARGET ORGANS: Skin, Resp Sys, Liver, Incr Risk of Wilson's Disease, Kidney
ROUTES OF EXP: Ingestion, Skin Contact, Inhalation

PERSONAL PROTECTIVE MEASURES

RESPIRATORS : APR: dusty/windy condit or known high concent or >1ppm but <5ppm; SCBA >5ppm
CARTRIDGE TYPE : GMC-H, AP3 (RACAL)
PROTECTIVE CLOTHING: Coverall: Tyvek Gloves: Butyl
SPEC PRECAUTIONS : Flammable in finely divided form. Also occurs as radioisotopes

FIRST AID

INHALATION: move to fresh air, CPR if nec, SEEK MEDICAL ATTENTION
EYE/SKIN : flush w/water, wash skin w/soap, SEEK MEDICAL ATTENTION
INGESTION : SEEK MEDICAL ATTENTION IMMEDIATELY

SYMPTOMS

ACUTE : skin, eyes, sneezing, nausea

CHRONIC: respiratory system, lungs, liver, kidneys

DISPOSAL, FIRE, SPILLS (see attached sheet)

DISPOSAL: P FIRE: 13 LEAKS & SPILLS: 7
DECOMPOSITION PRODUCTS: toxic fumes

REFERENCES CONSULTED

NIOSH/OSHA Pocket Guide, ACGIH TLV Booklet, Aldrich, RTECS
OTHER REFERENCES: Poison Handbook

CHEMICAL CLASSIFICATION: Metal

LAST REVISION DATE:
10/19/89

Hazard Evaluation of Chemicals
Region V - Chicago

FOH0646SA/8-21-98

DATE : / /
JOB NO: _____

CHEMICAL NAME: Hydrogen Cyanide

SYN : Hydrocyanic acid, Prussic acid, Formonitrile
CAS NO: 74-90-8 FORMULA: HCN
DOT CLASS: 1051-POIS-CLS 6

CHEMICAL PROPERTIES

Phys St: Liquid	Boil Pt: 78.00°F	Ionz Pot : 13.91ev	Fl Pt: —
Mol Wt : 27.03	Melt Pt: 8.16°F	Vap Press: 620.00 mmHg	LFL : 5.60%
Sp Gr : 0.69	Frz Pt : 8.10°F	Odr Thr : 0.814-4.52 ppm	UFL : 40.00%

Odor : sweetish, almond-like
INCOMPAT/REACT: water, caustics, amines, light-sensitive
SOLUBILITY : miscible-water, alcohol, ether

TOXICOLOGICAL PROPERTIES

Exposure Limits: TLV-TWA (ACGIH): 10.00 ppm SKIN PEL (OSHA): 10.00 ppm SKIN
STEL: -- IDLH: 50.00 ppm

OTHER PROPERTIES : TLV = Ceiling Limit (15min) (ACGIH).
Tox Data: INHAL : hum LCLO: 200mg/m3/10min
DERMAL : -
ORAL : hum LDlo: 570ug/kg
CARCIN : -
MUTAGEN : -
REPRO TOX: -
AQUATIC : .16ppm/72hr/young bass/TLm/fresh water
OTHER TOX: TARGET ORGANS: CNS, Liver, Kidney, CVS
ROUTES OF EXP: Ingestion, Eye(Ocular), Dermal Absorption, Skin Contact, Inhalation

PERSONAL PROTECTIVE MEASURES

RESPIRATORS : any detectable concentration - SCBA
CARTRIDGE TYPE : no cartridge available
PROTECTIVE CLOTHING: Level D: Tyvek coverall & PE gloves; Level C: Impermeable Suit
SPEC PRECAUTIONS : High concentrations in air are DANGEROUS to exposed skin, eyes, mucous membranes. Flammable substance.

FIRST AID

INHALATION: move to fresh air, artf resp if nec, SEEK MEDICAL ATTENTION
EYE/SKIN : flush w/water at least 15 min, SEEK MEDICAL ATTENTION
INGESTION : give 1g amt of water or milk, induce vomiting, SEEK MEDICAL ATTENTION

SYMPTOMS

ACUTE : bitter/burning taste, constriction in throat, weakness, headache, confusion, nausea/vomiting, unconscious, death, eye irritation,
CHRONIC: dizziness, weakness, lung congestion, hoarseness, conjunctivitis, lost appetite, weight loss, dermatitis, mental deterioration

DISPOSAL, FIRE, SPILLS (see attached sheet)

DISPOSAL: S FIRE: 4,10 LEAKS & SPILLS: 4,6,7,8,9
DECOMPOSITION PRODUCTS: toxic fumes of CN

REFERENCES CONSULTED

NIOSH/OSHA Pocket Guide, Merck Index, Chris(vol. III), ACGIH TLV Booklet, RTECS
OTHER REFERENCES: NIOSH Guides, OSHA, Cond Chem Dict, Poison Handbook, Kirk Othmer, Clin Tox

LAST REVISION DATE: 06/02/89

CHEMICAL CLASSIFICATION:

CYCLOHEXANE

FOH064654

CHX

Common Synonyms	Watery liquid	Colorless	Gasoline-like odor
Hexahydrobenzene Hexamethylene Hexanaphthene	Floats on water. Flammable irritating vapor is produced. Freezing point is 44°F.		

Stop discharge if possible. Keep people away.
Shut off ignition sources and call fire department.
Avoid contact with liquid and vapor.
Stay upwind and use water spray to "knock down" 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 foam, dry chemicals 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.
If inhaled, will cause dizziness, nausea, vomiting or loss of consciousness.
Move to fresh air.
If breathing has stopped, give artificial respiration.
If breathing is difficult, give oxygen.

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.

Water Pollution

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

Notify local health and pollution control officials.
Notify operators of nearby water intakes.

1. RESPONSE TO DISCHARGE

(See Response Methods Handbook)

Issue warning-high flammability
Evacuate area
Disperse and flush

2. LABEL

2.1 Category: Flammable liquid
2.2 Class: 3

3. CHEMICAL DESIGNATIONS

3.1 CG Compatibility Class: Paraffin
3.2 Formula: C_6H_{12}
3.3 IMO/UN Designation: 3.1/1145
3.4 DOT ID No.: 1145
3.5 CAS Registry No.: 110-82-7

4. OBSERVABLE CHARACTERISTICS

4.1 Physical State (as shipped): Liquid
4.2 Color: Colorless
4.3 Odor: Resembling benzene; mild, sweet, resembling chloroform

5. HEALTH HAZARDS

5.1 Personal Protective Equipment: Hydrocarbon vapor canister, supplied-air or hose mask, hydrocarbon-insoluble rubber or plastic gloves, chemical goggles or face splash shield, hydrocarbon-insoluble rubber or plastic apron.
5.2 Symptoms Following Exposure: Dizziness, with nausea and vomiting. Concentrated vapor may cause unconsciousness and collapse.
5.3 Treatment of Exposure: INHALATION: remove victim to fresh air; if breathing stops, apply artificial respiration and administer oxygen. SKIN OR EYE CONTACT: remove contaminated clothing and gently flush affected areas with water for 15 min.; call a physician.
5.4 Threshold Limit Value: 300 ppm
5.5 Short Term Inhalation Limits: 300 ppm for 60 min.
5.6 Toxicity by Ingestion: Grade 2; LD_{50} = 0.5 to 5 g/kg
5.7 Late Toxicity: None
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: 10,000 ppm

6. FIRE HAZARDS

6.1 Flash Point: -4°F C.C.
6.2 Flammable Limits in Air: 1.33%-6.95%
6.3 Fire Extinguishing Agents: Foam, carbon dioxide, dry chemical.
6.4 Fire Extinguishing Agents Not to be Used: Water may be ineffective on fire.
6.5 Special Hazards of Combustion Products: Not pertinent
6.6 Behavior in Fire: Not pertinent
6.7 Ignition Temperature: 518°F
6.8 Electrical Hazard: Data not available
6.9 Burning Rate: 6.9 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: 31

8. WATER POLLUTION

8.1 Aquatic Toxicity: 15,500 ppm/24 hr/mosquito fish/TL_m/fresh water
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: Research grades: 99.5%, 98.0%; commercial: 85-99%
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-V-W

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 Pollution	
Human Toxicity	1
Aquatic Toxicity	2
Aesthetic Effect	2
Reactivity	
Other Chemicals	0
Water	0
Self Reaction	0

11.3 NFPA Hazard Classification:

Category	Classification
Health Hazard (Blue)	1
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: 84.16
12.3 Boiling Point at 1 atm: 177.3°F = 80.7°C = 353.9°K
12.4 Freezing Point: 43.8°F = 6.6°C = 279.8°K
12.5 Critical Temperature: 536.5°F = 280.3°C = 553.5°K
12.6 Critical Pressure: 591 psia = 40.2 atm = 4.07 MN/m²
12.7 Specific Gravity: 0.779 at 20°C (liquid)
12.8 Liquid Surface Tension: 24.6 dynes/cm = 0.0246 N/m at 20°C
12.9 Liquid Water Interfacial Tension: 50 dynes/cm = 0.050 N/m at 25°C
12.10 Vapor (Gas) Specific Gravity: 2.9
12.11 Ratio of Specific Heats of Vapor (Gas): 1.067
12.12 Latent Heat of Vaporization: 150 Btu/lb = 65 cal/g = 3.6 X 10⁴ J/kg
12.13 Heat of Combustion: −18,654 Btu/lb = −10,360 cal/g = −434.59 X 10⁴ 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: 7.47 cal/g
12.26 Limiting Value: Data not available
12.27 Reid Vapor Pressure: 3.3 psia

NOTES

CHRIS VOL III

C48

CHX CYCLOHEXANE

12.17 SATURATED LIQUID DENSITY

Temperature (degrees F)	Pounds per cubic foot
55	49.030
60	48.870
65	48.710
70	48.550
75	48.390
80	48.230
85	48.060
90	47.900
95	47.730
100	47.570
105	47.400
110	47.230
115	47.060
120	46.890
125	46.720
130	46.550
135	46.370
140	46.200
145	46.020
150	45.850
155	45.670
160	45.490
165	45.320
170	45.140
175	44.960

12.18 LIQUID HEAT CAPACITY

Temperature (degrees F)	British thermal unit per pound-F
45	.421
50	.424
55	.427
60	.429
65	.432
70	.435
75	.438
80	.441
85	.443
90	.446
95	.449
100	.452
105	.454
110	.457
115	.460
120	.463
125	.466
130	.468
135	.471
140	.474
145	.477
150	.479
155	.482
160	.485
165	.488
170	.491

12.19 LIQUID THERMAL CONDUCTIVITY

Temperature (degrees F)	British thermal unit-inch per hour-square foot-F
65	.838
70	.833
75	.829
80	.824
85	.819
90	.814
95	.810
100	.805
105	.800
110	.795
115	.791
120	.786
125	.781
130	.776
135	.772
140	.767
145	.762
150	.757
155	.752
160	.748
165	.743
170	.738

12.20 LIQUID VISCOSITY

Temperature (degrees F)	Centipoise
52	1.125
54	1.101
56	1.078
58	1.055
60	1.033
62	1.012
64	.991
66	.971
68	.952
70	.933
72	.914
74	.896
76	.879
78	.862
80	.845
82	.829
84	.813
86	.798
88	.783
90	.768
92	.754
94	.740
96	.727
98	.714
100	.701
102	.689

12.21 SOLUBILITY IN WATER

Temperature (degrees F)	Pounds per 100 pounds of water
83.02	.015

12.22 SATURATED VAPOR PRESSURE

Temperature (degrees F)	Pounds per square inch
45	.792
50	.909
55	1.041
60	1.190
65	1.356
70	1.542
75	1.748
80	1.978
85	2.233
90	2.515
95	2.827
100	3.171
105	3.550
110	3.965
115	4.421
120	4.921
125	5.466
130	6.061
135	6.710
140	7.415
145	8.181
150	9.011
155	9.910
160	10.880
165	11.930
170	13.060

12.23 SATURATED VAPOR DENSITY

Temperature (degrees F)	Pounds per cubic foot
45	.01230
50	.01399
55	.01587
60	.01795
65	.02026
70	.02282
75	.02564
80	.02874
85	.03214
90	.03588
95	.03996
100	.04442
105	.04928
110	.05457
115	.06032
120	.06655
125	.07330
130	.08059
135	.08846
140	.09694
145	.10610
150	.11590
155	.12640
160	.13770
165	.14970
170	.16260

12.24 IDEAL GAS HEAT CAPACITY

Temperature (degrees F)	British thermal unit per pound-F
0	.247
25	.265
50	.283
75	.300
100	.317
125	.335
150	.352
175	.369
200	.385
225	.402
250	.419
275	.435
300	.451
325	.467
350	.483
375	.499
400	.515
425	.531
450	.546
475	.561
500	.576
525	.592
550	.606
575	.621
600	.636

Hazard Evaluation of Chemicals
Region V - Chicago

E : 8/21/90
NO: F01H064654

CHEMICAL NAME: Lead

SYN : White lead, Plumbum, Inorganic Lead
CAS NO: 7439-92-1 FORMULA: Pb
DOT CLASS:

CHEMICAL PROPERTIES

a St: Solid	Boil Pt: 3164.00°F	Ionz Pot : ---	Fl Pt: —
Wt : 207.00	Melt Pt: 620.00°F	Vap Press: —	LFL : —
Gr : 11.30	Frz Pt : —	Odr Thr : —	UFL : —
: none			

OMPAT/REACT: strong oxidizers, peroxides, active metals
UBILITY :

TOXICOLOGICAL PROPERTIES

osure Limits: TLV-TWA (ACGIH): 0.01 ppm PEL (OSHA): —
STEL: — IDLH: —

ER PROPERTIES : PEL - 50ug/m3
Data: INHAL : -
DERMAL : -
ORAL : rat TDLo: 790mg/kg
CARCIN : indefinite
MUTAGEN : -
REPRO TOX: exper teratogen
AQUATIC : -
OTHER TOX: TARGT ORGNS: GI Trct,CNS,Kid,Bld,Gingival Tissue
ROUTES OF EXP: Ingestion, Eye(Ocular), Skin Contact, Inhalation

PERSONAL PROTECTIVE MEASURES

PIRATORS : AFR: dusty/windy condit or known high concent or >1 but <5ppm; SCBA: >5ppm
TRIDGE TYPE : GMC-H, AP3 (RACAL)
TECTIVE CLOTHING: Coverall: Saranex Gloves: Nitrile
C PRECAUTIONS :

FIRST AID

ALATION: move to fresh air, artf resp if nec, SEEK MEDICAL ATTENTION
/SKIN : flush w/water 15 minutes, wash skin with soap/water, SEEK MEDICAL ATTENTION
ESTION : give water, induce vomiting, SEEK MEDICAL ATTENTION IMMEDIATELY

SYMPTOMS

TE : cumulative neurotoxin (prolong expos), stomach distress, vomtg, diarrhea, black stools, anemia, nervous system effects
ONIC: alimentary: abdm pain/discomf,constptn,diarrh neuromusc: musc weaknss,joint/musc pain,dizzy,insom, encephalic: brain involvment, stupor, coma,death-rare reprod: poison to m/f germ cells

DISPOSAL, FIRE, SPILLS (see attached sheet)

POSAL: P FIRE: 13 LEAKS & SPILLS: 7,8,10
OMPOSITION PRODUCTS: toxic fumes of lead

REFERENCES CONSULTED

GH/OSHA Pocket Guide, ACGIH TLV Booklet, RTECS
ER REFERENCES: Sigma-Aldrich, OSHA 1910., Handbook of Poisoning

LAST REVISION DATE: 04/18/89

MICAL CLASSIFICATION: Heavy Metal

Hazard Evaluation of Chemicals
Region V - Chicago

DATE : 8/21/90
JOB NO: FOH0646SA

CHEMICAL NAME: Mercury

SYN : Quicksilver, Inorganic Mercury
CAS NO: 7439-97-6 FORMULA: Hg
DOT CLASS: 2809

CHEMICAL PROPERTIES

Phys St: Liquid	Boil Pt: 675.00°F	Ionz Pot : —	Fl Pt: —
Mol Wt : 200.59	Melt Pt: -38.00°F	Vap Press: 0.0012 mmHg	LFL : —
Sp Gr : 13.55	Frz Pt : -38.00°F	Odr Thr : —	UFL : —

Odor : none
INCOMPAT/REACT: acetylene,ammnia gs,halgens,strg oxdizers,ht sulfuric acid,chlorine dioxide,azides,chlorates,nitrate
SOLUBILITY : insoluble

TOXICOLOGICAL PROPERTIES

Exposure Limits: TLV-TWA (ACGIH): 0.001 ppm SKIN PEL (OSHA): 0.01 ppm SKIN
STEL: — IDLH: 3.41 ppm

OTHER PROPERTIES : PEL IS A CEILING; DO NOT EXCEED IN 15 MIN.
Tox Data: INHAL : Hom TCLO: 150ug/m3/46D
DERMAL : -
ORAL : -
CARCIN : -
MUTAGEN : -
REPRO TOX: animal teratogen
AQUATIC : 0.25ppm/48hr/marine fish/TLm/salt water
OTHER TOX: TARGET ORGANS: Skin, Resp Sys, CNS, Kidney, Eye
ROUTES OF EXP: Ingestion, Eye(Ocular), Dermal Absorption, Skin Contact, Inhalation

PERSONAL PROTECTIVE MEASURES

RESPIRATORS : AFR: dusty/windy condit or known high concent or >1 but <5ppm; SCBA: >5ppm
CARTRIDGE TYPE : GMC-H
PROTECTIVE CLOTHING: Coverall: PE Tyvek Gloves: Neoprene
SPEC PRECAUTIONS : High concentrations in air are dangerous to skin, eyes, mucous membranes. Other Exposure Limits are given for different Mercury types.

FIRST AID

INHALATION: move to fresh air, artf resp is nec., SEEK MEDICAL ATTENTION
EYE/SKIN : remove contamtd. clothes, flush w/water 15 min, wash skin w/soap & water, SEEK MEDICAL ATTENTION
INGESTION : SEEK MEDICAL ATTENTION

SYMPTOMS

ACUTE : headaches,cough,chest pain/tightness,diffic. breath,chemical pneumanitis, sore mouth,loss of teeth,naus,diarrhea,skin irritation
CHRONIC: shaking of hands, eyelids, lips, tongue or jaw; allergic skn rash, headache, sores in mouth, sore/swollen gums, loose teeth, insomnia, excess salivation, personality changes, irritatibility

DISPOSAL, FIRE, SPILLS (see attached sheet)

DISPOSAL: P FIRE: 11,13 LEAKS & SPILLS: 18
DECOMPOSITION PRODUCTS: toxic fumes

REFERENCES CONSULTED

NIOSH/OSHA Pocket Guide, Chris(vol. III), ACGIH TLV Booklet, RTECS
OTHER REFERENCES: NIOSH Guide, Sigma-Aldrich

LAST REVISION DATE: 05/03/89

CHEMICAL CLASSIFICATION: Metal

Hazard Evaluation of Chemicals
Region V - Chicago

FOH06465A / 8-21-98

DATE : / /
JOB NO: _____

CHEMICAL NAME: Methyl Ethyl Ketone

SYN : MEK, 2-Butanone
CAS NO: 78-93-3 FORMULA: CH3COCH2CH3
DOT CLASS: 1193-FL LIQ CL3

CHEMICAL PROPERTIES

Phys St: Liquid | Boil Pt: 175.30°F | Ionz Pot : 9.53ev | Fl Pt: 20.00°F
Mol Wt : 72.11 | Melt Pt: -124.60°F | Vap Press: 70.00 mmHg | LFL : 1.80%
Sp Gr : 0.80 | Frz Pt : -123.30°F | Odr Thr : 16.00ppm | UFL : 11.50%
Odor : like acetone, pleasant, pungent, sweet, sharp
INCOMPAT/REACT: sulfuric acid, nitric acid, aliphatic amines, oxidizing agents, bases, strong reducing agents
SOLUBILITY : water soluble

TOXICOLOGICAL PROPERTIES

Exposure Limits: TLV-TWA (ACGIH): 200.00 ppm | PEL (OSHA): 200.00 ppm
STEL: 300.00 ppm | IDLH: 3000.00 ppm

OTHER PROPERTIES :
Tox Data: INHAL : human Tclo: 100 ppm/5min
DERMAL : skn rbt LD50: 13 gm/kg
ORAL : rat LD50: 2737 mg/kg
CARCIN : -
MUTAGEN : -
REPRO TOX: exper teratogen
AQUATIC : 5640mg/l/48hr/bluegill/TLm/fresh water
OTHER TOX: TARGET ORGANS: CNS, Lungs
ROUTES OF EXP: Ingestion, Eye(Ocular), Dermal Absorption, Skin Contact, Inhalation

PERSONAL PROTECTIVE MEASURES

RESPIRATORS : APR: dusty/windy condit or known high concent or >1 but <5ppm; SCBA: >5ppm
CARTRIDGE TYPE : GMC-H or AP3 (RACAL)
PROTECTIVE CLOTHING: Coveralls: Tyvek Gloves: Butyl
SPEC PRECAUTIONS :

FIRST AID

INHALATION: move to fresh air, CPR if nec, SEEK MEDICAL ATTENTION
EYE/SKIN : flush w/water at least 15min, SEEK MEDICAL ATTENTION
INGESTION : DO NOT INDUCE VOMITING, SEEK MEDICAL ATTENTION IMMEDIATELY

SYMPTOMS

ACUTE : eye burns, vapor: irritates eyes/nose/throat, headache, dizziness, weakness, nausea, CNS depressant, neuropathy

CHRONIC: dermatitis

DISPOSAL, FIRE, SPILLS (see attached sheet)

DISPOSAL: D | FIRE: 3,7 | LEAKS & SPILLS: 1,3,4,6,9
DECOMPOSITION PRODUCTS: CO, CO2

REFERENCES CONSULTED

Chris(vol. III), ACGIH TLV Booklet, RTECS
OTHER REFERENCES: Sigma-Aldrich, Poison Handbook

LAST REVISION DATE: 05/10/89

CHEMICAL CLASSIFICATION: Ketone, Aliphatic & Alicyclic

Hazard Evaluation of Chemicals
Region V - Chicago

DATE : / /
JOB NO: _____

CHEMICAL NAME: Naphthalene

SYN : Naphthalin, Tar Camphor
CAS NO: 91-20-3 FORMULA: C10H8
DOT CLASS: 2304

CHEMICAL PROPERTIES

Phys St: Solid	Boil Pt: 424.00°F	Ionz Pot : 8.12ev	Fl Pt: 174.00°F
Mol Wt : 128.18	Melt Pt: 176.00°F	Vap Press: 0.05 mmHg	LFL : 0.90%
Sp Gr : 1.14	Frz Pt : 176.40°F	Odr Thr : .0095-.64 ppm	UFL : 5.90%

Odor : coal tar, moth balls
INCOMPAT/REACT: nitric acid
SOLUBILITY : water-insoluble; sol-ether, hydronaphthalenes

TOXICOLOGICAL PROPERTIES

Exposure Limits: TLV-TWA (ACGIH): 10.00 ppm PEL (OSHA): 10.00 ppm
STEL: 15.00 ppm IDLH: 500.00 ppm

OTHER PROPERTIES :
Tox Data: INHAL : -
DERMAL : -
ORAL : rat: LD50 1250mg/kg
CARCIN : -
MUTAGEN : -
REPRO TOX: -
AQUATIC : 150mg/l/96hr/sunfish/TLm/fresh water
OTHER TOX: TARGT ORGNS: Eye, Bld, Livr, Kidn, Skn, REC, CNS
ROUTES OF EXP: Ingestion, Eye(Ocular), Dermal Absorption, Skin Contact, Inhalation

PERSONAL PROTECTIVE MEASURES

RESPIRATORS : AFR: dusty/windy condit or known high concent or >1 but <5ppm; SCBA: >5ppm
CARTRIDGE TYPE : GMC-H, AFS (RACAL)
PROTECTIVE CLOTHING: Coverall: Tyvek Gloves: Neoprene
SPEC PRECAUTIONS :

FIRST AID

INHALATION: move to fresh air, CPR if nec, SEEK MEDICAL ATTENTION
EYE/SKIN : flush w/water at least 15 min, wash skin with soap/water, SEEK MEDICAL ATTENTION
INGESTION : give water, induce vomiting, SEEK MEDICAL ATTENTION IMMEDIATELY

SYMPTOMS

ACUTE : eye/skin irritant, headache, mental confusion, visual disturbances, nausea, vomiting, diarrhea, oliguria, hematuria, anemia, jaundice, diaphoresis, fever, convulsions, coma, cyanosis
CHRONIC: same as acute; dermatitis, corneal irritation or injury.

DISPOSAL, FIRE, SPILLS (see attached sheet)

DISPOSAL: A FIRE: 1,2,8 LEAKS & SPILLS: 4,7,8,9
DECOMPOSITION PRODUCTS: CO, CO2

REFERENCES CONSULTED

NIOSH/OSHA Pocket Guide, Merck Index, Chris(vol. III), ACGIH TLV Booklet
OTHER REFERENCES: OSHA, Sigma-Aldrich, Poison Handbook

CHEMICAL CLASSIFICATION: Aromatic Hydrocarbon

LAST REVISION DATE: 05/10/89

OILS, FUEL: 4

OFR

Common Synonyms	Oily liquid	Dark	Lube or fuel oil odor
Residual fuel oil No. 4	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 dry chemical, foam or carbon dioxide.
Water may be ineffective on fire.
Cool exposed containers with water.

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

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:** 3.3/1223
3.4 **DOT ID No.:** 1223
3.5 **CAS Registry No.:** Data not available

4. OBSERVABLE CHARACTERISTICS

4.1 **Physical State (as shipped):** Liquid
4.2 **Color:** Brown
4.3 **Odor:** Characteristic

5. HEALTH HAZARDS

5.1 **Personal Protective Equipment:** Protective gloves; goggles or face shield.
5.2 **Symptoms Following Exposure:** INGESTION: gastrointestinal irritation. ASPIRATION: pulmonary irritation is normally minimal but may become more severe several hours after exposure.
5.3 **Treatment of Exposure:** INGESTION: do NOT lavage or induce vomiting. ASPIRATION: treatment probably not required; delayed development of pulmonary irritation can be detected by serial chest x-rays; consider prophylactic antibioticregime if condition warrants. EYES: wash with copious quantity 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:** Not pertinent
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:** None
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:** >130°F C.C.
6.2 **Flammable Limits in Air:** 1.0%-5%
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:** 505°F
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:** 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:** 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:** 214 to >1092°F = 101 to >588°C = 374 to 861°K
12.4 **Freezing Point:** —20 to +15°F = —29 to —9°C = 244 to 264°K
12.5 **Critical Temperature:** Not pertinent
12.6 **Critical Pressure:** Not pertinent
12.7 **Specific Gravity:** 0.904 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:** —17,460 Btu/lb = —9,700 cal/g = —406.1 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

013

Hazard Evaluation of Chemicals
Region V - Chicago

DATE : 8/21/90
JOB NO: F0H0646SA

CHEMICAL NAME: Sulfuric Acid

SYN : Battery Acid, Oil of Vitriol
CAS NO: 7664-93-9 FORMULA: H2SO4
DOT CLASS:

CHEMICAL PROPERTIES

Phys St: Liquid | Boil Pt: 518.00°F | Ionz Pot : -- | Fl Pt: —
Mol Wt : 98.08 | Melt Pt: 37.00°F | Vap Press: 0.001 mmHg | LFL : —
Sp Gr : 1.84 | Frz Pt : 50.00°F | Odr Thr : 0.25ppm | UFL : —
Odor : odorless
INCOMPAT/REACT: organics, metals, water, chlorates, carbides, fulminates, picrates
SOLUBILITY : miscible but highly reactive

TOXICOLOGICAL PROPERTIES

Exposure Limits: TLV-TWA (ACGIH): 0.24 ppm PEL (OSHA): 0.24 ppm
STEL: — IDLH: 19.98 ppm

OTHER PROPERTIES :
Tox Data: INHAL : guinea: LC50: 18mg/m3
DERMAL :
ORAL : rat: LD50: 2140 mg/kg
CARCIN :
MUTAGEN :
REPRO TOX:
AQUATIC : 24.5ppm/24hr/bluegil/lethal/fresh water
OTHER TOX: TARGET ORGANS: Resp Sys, Eyes, Skin, Teeth
ROUTES OF EXP: Ingestion, Dermal Absorption, Skin Contact, Inhalation

PERSONAL PROTECTIVE MEASURES

RESPIRATORS : APR: dusty/windy condit or known high concent or >1 but <5ppm; SCBA: >5ppm
CARTRIDGE TYPE : GMC or GMC-H, GMC
PROTECTIVE CLOTHING: Coverall: Saranex Gloves: Neoprene
SPEC PRECAUTIONS :

FIRST AID

INHALATION: move to fresh air, give O2/CPR as nec. SEEK MEDICAL ATTENTION
EYE/SKIN : Flush w/water for 15min, treat skin burns by applying dry, sterile dressing. SEEK MEDICAL ATTENTION
INGESTION : Give milk or water in lg qty. DO NOT INDUCE VOMITING. SEEK MEDICAL ATTENTION

SYMPTOMS

ACUTE : severe burns to skin,eyes,respir. tract, cough, diffic. breathing, headache, bluish face/lips, salivation, abdom cramps, naus/vomit, tongue changes white to black and corrosion of teeth.
CHRONIC:

DISPOSAL, FIRE, SPILLS (see attached sheet)

DISPOSAL: N FIRE: 2,12 LEAKS & SPILLS: 1,4,6,9
DECOMPOSITION PRODUCTS:

REFERENCES CONSULTED

NIOSH/OSHA Pocket Guide, Chris(vol. III), ACGIH TLV Booklet, RTECS
OTHER REFERENCES: 1st Aid for Chem Accidents, Emerg. Resp. Guide, H/H Indus. Tox., Sigma-Aldrich

LAST REVISION DATE: 04/18/89

CHEMICAL CLASSIFICATION: Inorganic Acids

Hazard Evaluation of Chemicals
Region V - Chicago

TE : 8/21/90
3 NO: F0H06465A

CHEMICAL NAME: Xylene, all isomers

SYN : Dimethylbenzene, Xylol
CAS NO: 1330-20-7 FORMULA: C6H4(CH3)2
DOT CLASS: FLAMMABLE

CHEMICAL PROPERTIES

ys St: Liquid | Boil Pt: — | Ionz Pot : 8.56ev | Fl Pt: 81.00°F
l Wt : 106.20 | Melt Pt: — | Vap Press: 9.00 mmHg | LFL : 1.00%
Gr : 0.86 | Frz Pt : — | Odr Thr : 20.00ppm | UFL : 7.00%
or : aromatic odor, sweet
COMPAT/REACT: strong oxidizers
LUBILITY : practically insoluble in water

TOXICOLOGICAL PROPERTIES

osure Limits: TLV-TWA (ACGIH): 100.00 ppm | PEL (OSHA): 100.00 ppm
STEL: 150.00 ppm | IDLH: 1000.00 ppm
HER PROPERTIES :
x Data: INHAL : hum TCLo: 200ppm
DERMAL : -
ORAL : rat LD50: 4300 mg/kg
CARCIN : -
MUTAGEN : exper
REPRO TOX: exper teratogen
AQUATIC : -
OTHER TOX: TARGET ORGANS: CNS, Eyes, GI Tract, Blood, Liver, Kidneys, Skin
ROUTES OF EXP: Ingestion, Eye(Ocular), Dermal Absorption, Skin Contact, Inhalation

PERSONAL PROTECTIVE MEASURES

SPIRATORS : APR: dusty/windy condit or known high concent or >1 but <5ppm; SCBA: >5ppm
CTRIDGE TYPE : GMC-H or A3 (RACAL)
OTECTIVE CLOTHING: Coverall: PE Tyvek Gloves: PVA, Viton (PVA degrades in water)
E PRECAUTIONS :

FIRST AID

HALATION: move to fresh air, artf resp if nec, SEEK MEDICAL ATTENTION
/SKIN : flush w/water 15 minutes, wash skin with soap/water, SEEK MEDICAL ATTENTION
GESTION : DO NOT INDUCE VOMITING, SEEK MEDICAL ATTENTION IMMEDIATELY

SYMPTOMS

UTE : vapor cause dizziness, headache, cough, pulmonary distress/edema, nausea/vomiting, abdominal cramps, narcotic in high concent, mild skin irritant
RONIC: possible liver and/or kidney damage, pulmonary congestion. Ingestion may be fatal.

DISPOSAL, FIRE, SPILLS (see attached sheet)

POSAL: 0 | FIRE: 6,7 | LEAKS & SPILLS: 3,4,5,6,9
COMPOSITION PRODUCTS: CO, CO2

REFERENCES CONSULTED

SHA/OSHA Pocket Guide, Merck Index, Chris(vol. III), ACGIH TLV Booklet, RTECS
HER REFERENCES: NIOSH Guides, Sigma-Aldrich

LAST REVISION DATE:
06/16/89

MICAL CLASSIFICATION: Hydrocarbons, Aromatic

Hazard Evaluation of Chemicals
Region V - Chicago

DATE : 8/21/90
JOB NO: EOH0646SA

CHEMICAL NAME: Toluene

SYN : Toluol, Methylbenzene
CAS NO: 108-88-3 FORMULA: C6H5CH3
DOT CLASS: 1294/FLAM LIQ 3

CHEMICAL PROPERTIES

Phys St: Liquid	Boil Pt: 231.10°F	Ionz Pot : 8.82ev	Fl Pt: 40.00°F
Mol Wt : 92.14	Melt Pt: -139.00°F	Vap Press: 22.00 mmHg	LFL : 1.27%
Sp Gr : 0.87	Frz Pt : -139.00°F	Odr Thr : 1.20ppm	UFL : 7.00%

Odor : pungent, aromatic, benzene-like, sour
INCOMPAT/REACT: nitric acid, strong oxidizers, peroxides
SOLUBILITY : water-slightly

TOXICOLOGICAL PROPERTIES

Exposure Limits: TLV-TWA (ACGIH): 100.00 ppm PEL (OSHA): 100.00 ppm
STEL: 150.00 ppm IDLH: 2000.00 ppm

OTHER PROPERTIES : CEILING: 300ppm, MAX PEAK: 500ppm/10M/8H shift, IRRITANT
Tox Data: INHAL : human Tclo: 200ppm
DERMAL : skn rbt: LD50 12124 mg/kg
ORAL : rat: LD50 5000mg/kg
CARCIN : exper
MUTAGEN : exper
REPRO TOX: exper teratogen
AQUATIC : 1180mg/l/96hr/sunfish/TLm/fresh water
OTHER TOX: TARGET ORGANS: CNS, Liver, Skin, Kidney
ROUTES OF EXP: Ingestion, Eye(Ocular), Skin Contact, Inhalation

PERSONAL PROTECTIVE MEASURES

RESPIRATORS : AFR: dusty/windy condit or known high concent or >1 but <5ppm; SCBA: >5ppm
CARTRIDGE TYPE : GMC-H
PROTECTIVE CLOTHING: Coverall: Saranex Gloves: Viton
SPEC PRECAUTIONS :

FIRST AID

INHALATION: move to fresh air, artf resp if nec, SEEK MEDICAL ATTENTION
EYE/SKIN : flush w/water 15 minutes, SEEK MEDICAL ATTENTION
INGESTION : DO NOT INDUCE VOMITING, SEEK MEDICAL ATTENTION IMMEDIATELY

SYMPTOMS

ACUTE : eye/respiratory/skin irritation, fatigue, weakness, confusion, headachedizziness, drowsiness, tingling skin, numbness, vision disturbances, mild macrocytic anemia, narcotic in high concentrations,coma
CHRONIC: drying & cracking of skin, fatty degeneration of the heart, liver, and adrenals, and hemorrhages, anemia

DISPOSAL, FIRE, SPILLS (see attached sheet)

DISPOSAL: D FIRE: 6,7 LEAKS & SPILLS: 3,4,5,6,9
DECOMPOSITION PRODUCTS: CO2, CO

REFERENCES CONSULTED

NIOSH/OSHA Pocket Guide, Chris(vol. III), ACGIH TLV Booklet, RTECS
OTHER REFERENCES: NIOSH Guides, Sigma-Aldrich

LAST REVISION DATE: 06/10/89

CHEMICAL CLASSIFICATION: Aromatic Hydrocarbon

Warehouse Phone (312) 775-7763

F. EQUIPMENT CHECKLIST

Job/PAN FT1305/F0H06465A

Team Leader Nalid Brown

PROTECTIVE GEAR

Level A	No.	Level B	No.
SCBA		SCBA	1
SPARE AIR TANKS		SPARE AIR TANKS	1
ENCAPSULATING SUIT (Type _____)		PROTECTIVE COVERALL: Type _____ SM _____ M _____ L _____	
SURGICAL GLOVES (Latex)			
NEOPRENE SAFETY BOOTS		BUTYL APRON	
BOOTIES (Latex)		SURGICAL GLOVES (LATEX)	
GLOVES: Type _____ SM _____ M _____ L _____		GLOVES: Type _____ SM _____ M _____ L _____	
OUTER WORK GLOVES		NEOPRENE SAFETY BOOTS	
CASCADE SYSTEM		BOOTIES (LATEX)	
5-MINUTE ESCAPE MASK		HARD HAT	
COOLING VEST		FACE SHIELD	
HARD HAT		MANIFOLD SYSTEM WITH AIRLINE	
		CASCADE SYSTEM	
Level C		RAIN SUIT	
ULTRA-TWIN RESPIRATOR	Personal	OUTER WORK GLOVES	
POWER AIR PURIFYING RESPIRATOR			
CARTRIDGES (Type GMC-H)	2 boxes	**Level D**	
PROTECTIVE COVERALL: Type SARANEX 2XL SM 2 M 2 L 2	8	ULTRA-TWIN RESPIRATOR (Available)	✓
		CARTRIDGES (Type GMC-H)	✓
BUTYL APRON		5-MINUTE ESCAPE MASK (Available)	2
SURGICAL GLOVES (LATEX)	1 box	PROTECTIVE COVERALL: Type PE TYVEK 2XL SM 2 M 2 L 2	8
GLOVES: Type Silver SM 2 M 2 L 2	6 pr	OUTER WORK GLOVES Silvershields	10 Pr
OUTER WORK GLOVES SILVER shields	6 pr	HARD HAT	Personal
GLOVE LINERS _____	10 pr	FACE SHIELD	Personal
FACE SHIELD	Personal	RAIN SUIT	Personal
HARDHAT	Personal	WINTER BOOTS	—
RAIN SUIT	Personal	BOOTIES (LATEX)	8 pr
NEOPRENE SAFETY BOOTS		NEOPRENE SAFETY BOOTS	—
BOOTIES (LATEX)	8 pr	STEEL TOED BOOTS	Personal
STEEL TOED BOOTS	Personal	SAFETY GLASSES	3 pr

HS018D(05/30/89)

INSTRUMENTATION	No.	DECON EQUIPMENT	No.
OVA	1	WASH TUBS	
THERMAL DESORBER		BUCKETS	2
O2/EXPLOSIMETER W/CAL. KIT	1	SCRUB BRUSHES	2
PHOTOVAC TIP		PRESSURIZED SPRAYER	
HNu (Probe 10.2 OR 11.7)		DETERGENT (Type Alconox)	1
MAGNETOMETER		SOLVENT (Type)	
PIPE LOCATOR		PLASTIC SHEETING	
WEATHER STATION		TARPS AND POLES	
DRAEGER PUMP, TUBES		TRASH BAGS	7
BRUNTON COMPASS		TRASH CANS	
MONITOX CYANIDE	1	MASKING TAPE	
HEAT STRESS MONITOR		DUCT TAPE	1
NOISE EQUIPMENT		PAPER TOWELS	
PERSONAL SAMPLING PUMPS (Type)		FACE MASK SANITIZER	✓
DUST MONITOR (MDA OR GCA System)		FOLDING CHAIRS	
		STEP LADDERS	
RADIATION EQUIPMENT		DISTILLED WATER	
TLD BADGES	Personal		
DOCUMENTATION FORMS			
PORTABLE RATEMETER			
SCALER/RATEMETER		**SAMPLING EQUIPMENT**	
NaI Probe		80 OZ. AMBER GLASS BOTTLES	
ZnS Probe		1 L. AMBER GLASS BOTTLES	
GM Pancake Probe		40 ML. VIALS	
GM Side Window Probe		1 L. PLASTIC	
MICRO R METER / RAD-MINI	1	8 OZ. GLASS	24
ION CHAMBER		120 ML. GLASS	24
ALERT DOSIMETER		SPOONS	8
POCKET DOSIMETER		KNIVES	2
		FILTER PAPER	
FIRST AID EQUIPMENT		PERSONAL SAMPLING PUMP SUPPLIES	
FIRST AID KIT	1	BUCK CALIBRATOR	
OXYGEN ADMINISTRATOR		HAND BAILERS	
STRETCHER		THIEVING RODS WITH BULBS	
PORTABLE EYE WASH	1	DIOXIN SAMPLE KIT	
BLOOD PRESSURE MONITOR		PRESERVATIVES: HNO3___ NaOH___ Other___	
FIRE EXTINGUISHER	1	STRING	

HS018D(05/30/89)

VAN EQUIPMENT	No.	MISCELLANEOUS (Cont.)	No.
TOOL KIT	1	HEARING PROTECTION	pk 10
HYDRAULIC JACK		LIFE VESTS	
LUG WRENCH		WALKIE-TALKIE	
TOW CHAIN		CONDUCTIVITY METER	
VAN CHECK OUT		PH METER	
Gas		CAMERA	1
Oil		WATER-LEVEL INDICATOR	
Antifreeze		SPLIT SPOON SAMPLERS	
Battery		PVC HAND PUMP	
Windshield Wash		RESISTIVITY METER	
Tire Pressure		WELL POINT SAMPLER	
		ROBAIR PUMP SYSTEM	
MISCELLANEOUS		THERMOMETER	
CHALK		MASTERFLEX PUMP & FILTER APPARATUS	
LEVEL/TRIPOD AND ROD		**SHIPPING EQUIPMENT**	
BOWLS	8	COOLERS Sm 2 2 med	4
PITCHER PUMP		PAINT CANS WITH LIDS, 7 CLIPS EACH	
SURVEYOR'S TAPE		VERMICULITE	3 bgs
100 FIBERGLASS TAPE		DUST MASK	pk of 10
300 NYLON ROPE		SHIPPING LABELS	
NYLON STRING		DOT LABELS: "DANGER"	
SURVEYING FLAGS	8	"UP"	✓
FILM	2	"INSIDE CONTAINER COMPLIES ..."	
WHEEL BARROW		"HAZARD GROUP"	
BUNG WRENCH		STRAPPING TAPE	✓
~~SOIL AUGER~~ Post hole digger	1	BOTTLE LABELS	✓
PICK		BAGGIES	✓
SHOVEL	1	CUSTODY SEALS	✓
CATALYTIC HEATER		CHAIN-OF-CUSTODY FORMS	✓
PROPANE GAS		FEDERAL EXPRESS FORMS	✓
BANNER TAPE		CLEAR PACKING TAPE	✓
SURVEYING METER STICK			
CHAINING PINS & RING			
TABLES			
WEATHER RADIO			
BINOCULARS			
MEGAPHONE			

HS018D(05/30/89)

recycled paper

ecology and environment

ecology and environment, inc.

ON-SITE SAFETY MEETING

Project: FORD MOTOR Co. - Ohio Truck Plant TOO/Tem: F05-8706-280 / F0H06465A

Date: _____ Time: _____ Job No.: FT1305

Address: 650 MILLER ROAD,

Specific Location: AVON LAKE, LORAIN COUNTY

Type of Work: _____

SAFETY TOPICS PRESENTED

Protective Clothing/Equipment: _____

Chemical Hazards: _____

Radiation Hazards: _____

Physical Hazards: _____

Emergency Procedures: _____

Hospital/Clinic: LORAIN Community HOSPITAL Telephone: 1(216) - 960-3050

Hospital Address: 3700 KOLBE ROAD, LORAIN, OH 44055

Special Equipment: _____

Other: _____

Checklist

1. Emergency information reviewed? _____ and made familiar to all team members? _____
2. Route to nearest hospital driven? _____ and its location known to all team members? _____
3. Site safety plan readily available and its location known to all team members? _____

Meeting shall be attended by all personnel who will be working within the exclusion area. Daily informal update meetings will be held when site tasks and/or conditions change.

ATTENDEES

(Expand on back of sheet if necessary)

Name Printed	Signature
Nahid Brown	
MIKE DUET	
MATHEW JOSEPH	

Meeting Conducted by: _____ (Print) _____ (Signature)

_____ (Site Safety Coordinator) _____

ECOLOGY AND ENVIRONMENT, INC. - CHICAGO

ON-SITE SAFETY LOG

Name: FORD MOTOR Company

Date:

PAN #/Job #: F0H0646SA / FT1305

Weather

	Equipment (Circle All Used)	ID#	Calibration/ Operation Check	Initials and Date	Background Readings	On-Site Readings
1.	OVA					
	HNu					
	Photovac Tip					
2.	O_2 Meter					
	Explosimeter					
	Combo Meter					
3.	Rad-Mini					
	Monitor 4					
4.	HCN Draeger					
	Monitox					
5.	Other:					

Attendees At Site:

Protective Clothing Worn:

Comments on Monitoring or Protective Clothing:

Team Leader Nahid Brown

Name

Signature/Date

Site Safety Officer

Name

Signature/Date

Please submit original to Laura Evans, and a copy to the project file.

HS018E(6/11/90)

Vehicle Safety Checklist
Ecology & Environment, Inc.
Chicago Office

Date: _____ Time: _____ Odometer: _____

Vehicle Model: _____ Color: _____ License Plate No. _____

INTERIOR:
____ All Safety Belts-Proper Locking
____ Parking Brake

START ENGINE:
____ Oil Pressure
____ Instrument Panel (Warning Lights or Buzzers)
____ Horn
____ Windshield Wiper & Washer
____ Heater/Defroster
____ Mirrors
____ Steering (Loose)
____ Interior Lights
____ Emergency Flashers
____ Starts Properly

FRONT:
____ Headlights (Dim/Bright)
____ Turn Signals
____ Emergency Flashers

REAR:
____ Tail Lights
____ Brake Lights
____ Back up Lights
____ Turn Signals
____ Emergency Flashers

MECHANICAL OPERATION:
____ Engine (misses, knocks, etc.)
____ Check Oil
____ Water/Anti-freeze
____ Wiper Fluid
____ Brake Fluid

OUTSIDE:
____ Tires (properly inflated)
____ Gas Tank Cap

EMERGENCY EQUIPMENT:
____ Fire Extinguisher
____ First Aid Kit
____ Flags, Flares,
____ Spare tire (properly inflated)
____ Tire Changing Kit (jack, tools, etc.)

REMARKS:
_____
_____
_____
_____
_____
_____
_____
_____

TEAM MEMBER/OPERATOR: _____ / _____
(print name) signature

SITE NAME/ADDRESS: Ford Motor Co- Ohio Truck Plant - 650 Miller Road, Lorain, OH
PAN/JOB NUMBER: FOH0646SA / F11305

RETURN OF VEHICLE TO DUTY STATION

Vehicle Cleanliness: _____
Remarks: _____
_____
_____
_____

Corrections Necessary: _____
_____

TEAM MEMBER/OPERATOR: _____ / _____
(print name) signature

Date: _____ Time: _____ Odometer: _____