US EPA RECORDS CENTER REGION 5

472645

MI1051-04

522

ecology and environment, inc.

SITE SAFETY PLAN

Version 988

A. GENERAL INFORMATION

Project Title: Michigan Standard Alloys Alreco Metals

Project No.: NA

TDD/Pan No.: F05-8910-12/FMI1051SB

Project Manager: Randy Livingston

Project Dir.: NA

Location(s): 777 River Side Drive, Benton Harbor, MI - Berrien County

Prepared by: Randy Livingston

Date Prepared: 5/23/89

Approval by:

Date Approved:

Site Safety Officer Review:

Date Reviewed:

Scope/Objective of Work: The site inspection will include a site interview, reconnaissance, 8 soil samples and 4 sediment samples.

Proposed Date of Field Activities: July 13, 1989

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

Documentation/Summary:

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

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

B. SITE/WASTE CHARACTERISTICS

Waste Type(s):

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

Characteristic(s):

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

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

Other: Persistent

Physical Hazards:

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

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

Noise [ ] Heat/Cold Stress [X] Other: Bug bites

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

Site History/Description and Unusual Features (see Sampling Plan for detailed description): The Land-filling of dross (a solid waste from the aluminum manufacturing & recycling of aluminum process) occurred at this site. Runoff from piles of dross

Locations of Chemicals/Wastes: In back of the facility and assume entire site to be contaminated. Refer to alleged areas of contamination map.

Estimated Volume of Chemicals/Wastes: UNKNOWN

Site Currently in Operation Yes [X] No [ ]

C. HAZARD EVALUATION

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

Physical Hazard Evaluation: 1. Site reconnaissance

2. Soil Sampling

3. Sediment Sampling

4.

5.

6.

7.

8.

Chemical Hazard Evaluation:

Compound	PEL/TWA	Route of Exposure	Acute Symptoms	Odor Threshold	Odor Description
PCB	0.09 ppm 0.03 ppm	Ingestion, Eye (ocular), dermal	irritation of Skin, eyes, nose,	.0095	Pleasant, butter like
		Absorption, Skin contact,	throat, can cause Vomiting, edema,		
		Inhalation	anorexia, nausea, abdominal pain,		
			fatigue, Pigmentation of Skin & nails		
Lead	0.01 ppm	Ingestion, ocular, Skin contact,	Cumulative Nervo-town (Prolong	NONE	NONE
		inhalation.	exposure) Stomach distress, Vomiting,		
			diarrhea, black Stools, Anemia		
Chromium	0.47 ppm 0.23 ppm	Ingestion, ocular, Skin contact,	Contact Dermititis, Ulceration of Skin	NONE	NONE
		Inhalation	nasal mucosa, irritation of eyes		
			mucous Membranes,		
Aluminum	NONE	Inhalation of powder	pulmonary fibrosis. Alzheimers disease.	NONE	NONE

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

Site Name Michigan Standard Alloys
Job No. FT1305
TDD/PAN F05-8710-121/FMI105158

SITE HISTORY (Continued)

allegedly contained PCB, cyanide & heavy metals. A court order caused the company to remove the dross piles and cap the area. The State of Michigan Attorney General released Michigan Standard Alloys from any further liability. Alreco Metals, Inc. has owned the property since 1980 to the present.

The site is approximately 3 acres - in back of the facility.

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	Site Reconnaissance			←	X
Task 2	Soil Sampling			←	X
Task 3	Sediment Sampling			←	X
Task 4					
Task 5					
Task 6					
Task 7					
Task 8					

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.

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

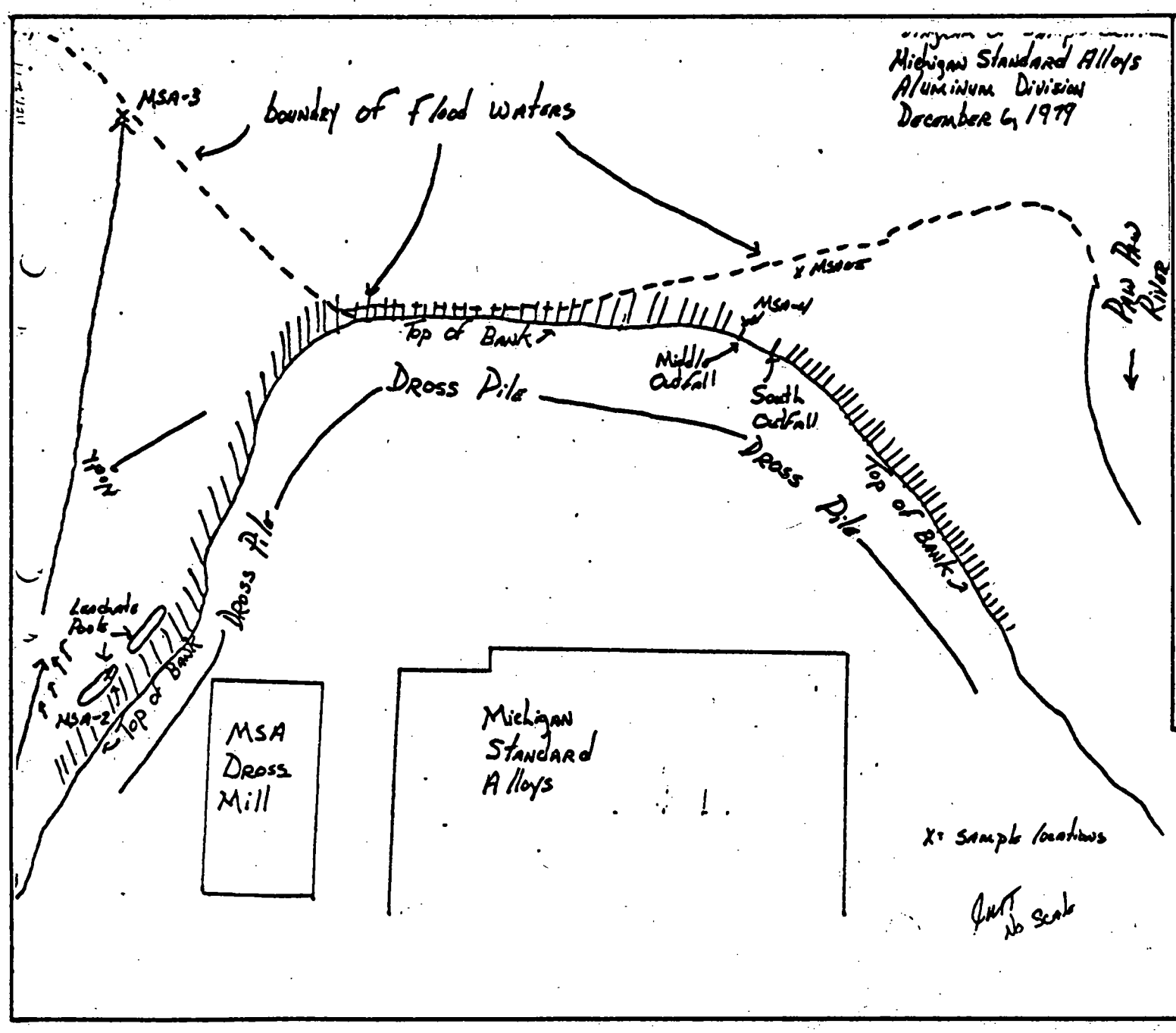
- Level D: O_2 <19.5% or >25%, explosive atmosphere >10% LEL, organic vapors above background levels, particulates > NA mg/m^3, other _____.
- Level C: O_2 <19.5% or >25%, explosive atmosphere >25% LEL (California-20%), unknown organic vapor (in breathing zone) >5 ppm, particulates > NA mg/m^3, other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

Air Monitoring (daily calibration unless otherwise noted):

Contaminant of Interest	Type of Sample (area, personal)	Monitoring Equipment	Frequency of Sampling
NA			

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

All potentially contaminated materials will be washed with a solution of water and alconox and triple rinsed with distilled water. All wash and rinse water will be left on site with prior permission of the site owner.



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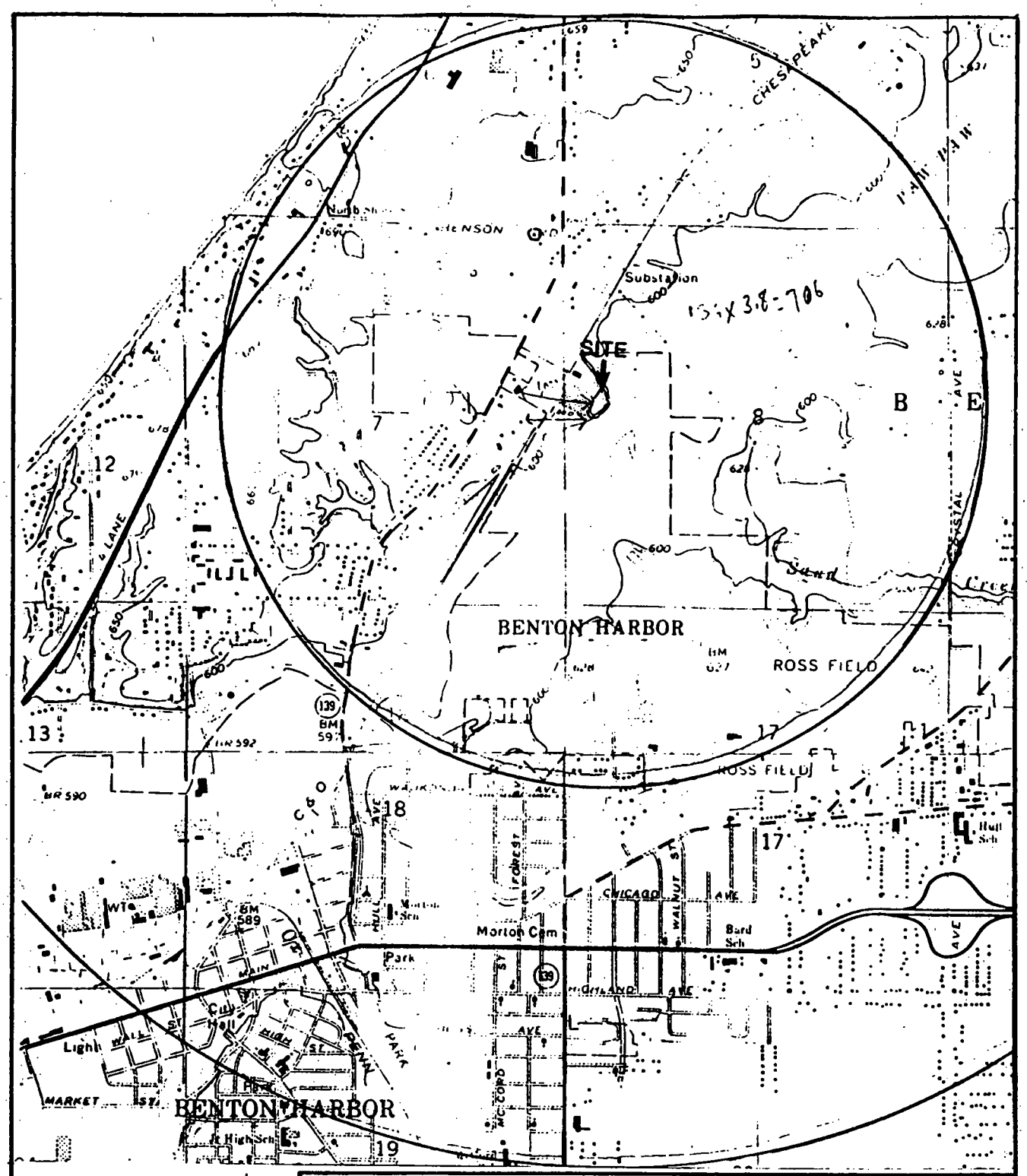
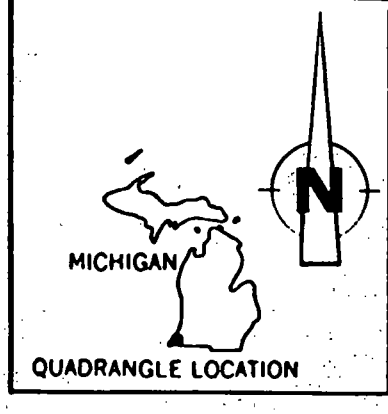
TITLE	DOCUMENTED/ALLEGED TARGET COMPOUND
FIGURE #	2
SITE	MICHIGAN STANDARD ALLOYS ALRECO METALS
SCALE	NO SCALE
CITY	BENTON HARBOR
STATE	MICHIGAN
P.A.N.	FMI1051SA
SOURCE	SITE FILE
DATE	12-6-1979
REVISED	

LOCATON	CMPND STATUS		MATRIX (✓)							DOCUMENTED COMPOUND AND CONCENTRATION OR ALLEGED COMPOUND AND RATIONALE	REFERENCE
	DOCU	ALLEG	SOIL	SED	GW	SW	AIR	WSTE	OTHR		
UNKNOWN		✓	✓							PCB, heavy metals, CN (*)	PA, 13

Table 1
DOCUMENTED/ALLEGED TARGET COMPOUND LIST

(*) Sampling was apparently done in dross pile area. (Soil excavation + capping have been performed in this area.) Data not in E+E files.





QUADRANGLE LOCATION

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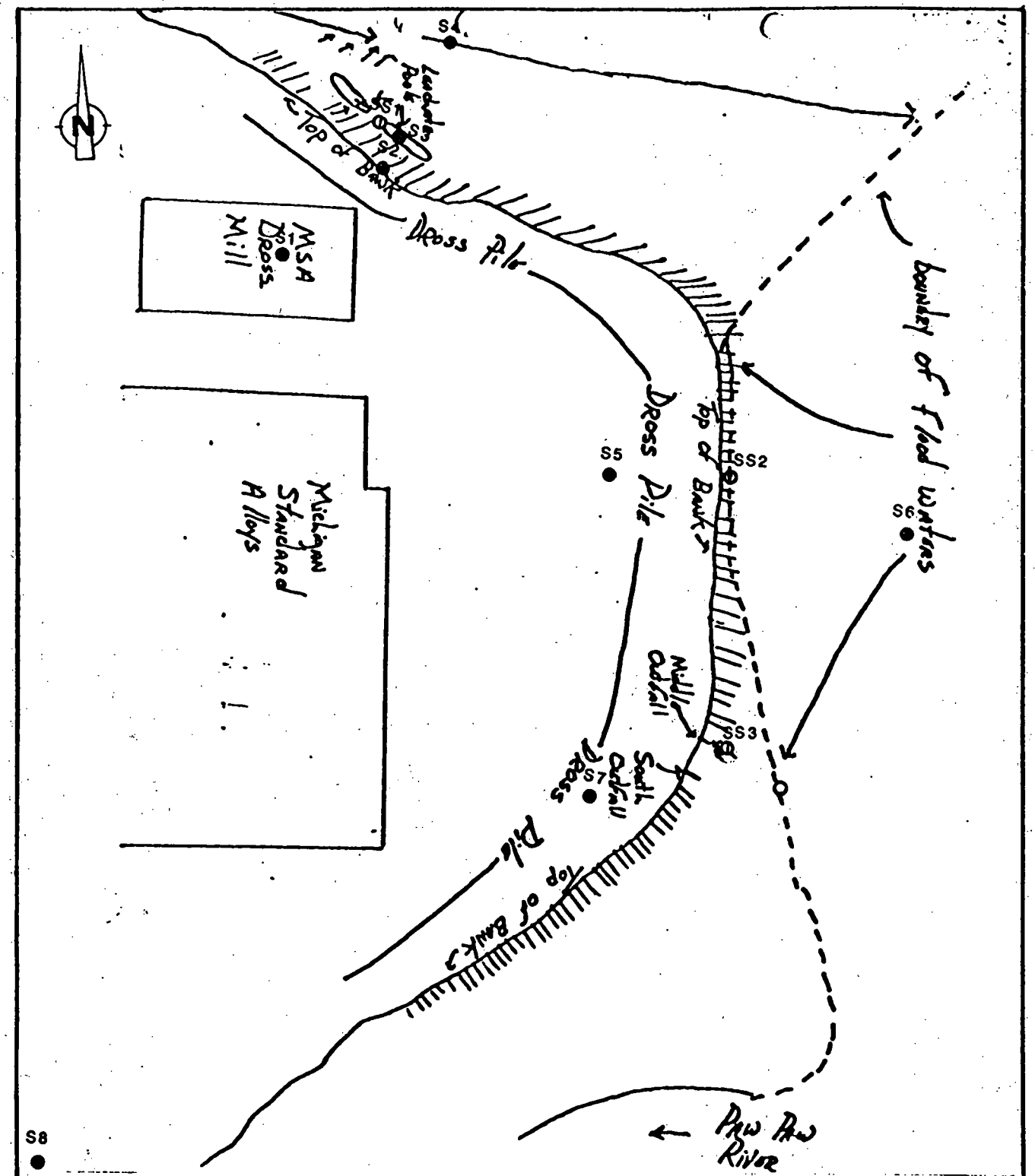
TITLE: SITE LOCATION MAP	FIGURE #: 1
SITE: MICHIGAN STANDARD ALLOYS ALRECO METALS	SCALE: 1:24000
CITY: BENTON HARBOR, STATE: MICHIGAN	P.A.N.: FMI1051SA
SOURCE: BENTON HEIGHTS USGS BENTON HARBOR QUADS. (TOPO) MAP	DATE: 1970 REVISED: 1980



PROPOSED SAMPLE LOCATION

SOIL ●

SOIL SEDIMENT ⦶

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TITLE: PROPOSED SAMPLE LOCATIONS	FIGURE #: 3
SITE: MICHIGAN STANDARD ALLOYS ALRECO METALS	SCALE: NA
CITY: BENTON HARBOR, STATE: MICHIGAN	P.A.N.: FMI1051SA
SOURCE: SITE FILE	DATE: 4-26-1988
	REVISED:

Personnel Decon Protocol: A two wash tub system will be used. The first wash tub will be used to decontaminate clothing (gloves, boots & suits) in alconox solution. The second tub will be used to rinse with distilled water.

Decon Solution Monitoring Procedures, if Applicable:

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

NONE

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:

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. If this is not acceptable, they will be disposed of in a municipal dumpster or other appropriate waste container.

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
Randy Livingston	Team Leader
Frank Santella	Site Safety Officer
Ray Whitlock	Sampler
Cindy Schultz	Team Member
Bob Slaughter	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 (616) 925-2141

Hospital Emergency Room (616) 927-5100 Mercy Hospital

Poison Control Center Bronson Hospital 1-800-442-4112

Police (include local, county sheriff, state) Benton Harbor Police - (616) 927-1361, Sheriff, Berrien County (616) 983-3911, State Police (616) 429-1111

Fire Department (616) 926-6161

Airport American Airlines Inc. 1-800-433-7300 / Twin Cities Airport (616) 927-3194

Agency Contact (EPA, State, Local USCG, etc.) Dr. Don Josif (312) 886-0393

Local Laboratory NA

UPS/Fed. Express Benton Harbor (616) 925-3277 / South Bend, IN, 1832 Kenmore

Client/EPA Contact Dr. Don Josif (312) 886-0393

Site Contact Paul Webb (616) 925-5905

SITE RESOURCES

Site Emergency Evacuation Alarm Method Verbal Call.

Water Supply Source To be supplied by Ecology & Environment, Inc., FIT

Telephone Location, Number To be determined

Cellular Phone, if available NA

Radio NA

Other NA

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)
   (716) 655-1260 (home)

3. Regional Office Contact .....Paul Moss..... (312) 541-6635 (home)
   (312) 663-9415 (office)

4. Office Manager .....Jerry Oskvarek..... (312) 545-6016 (home)
   (312) 663-9415 (office)

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:

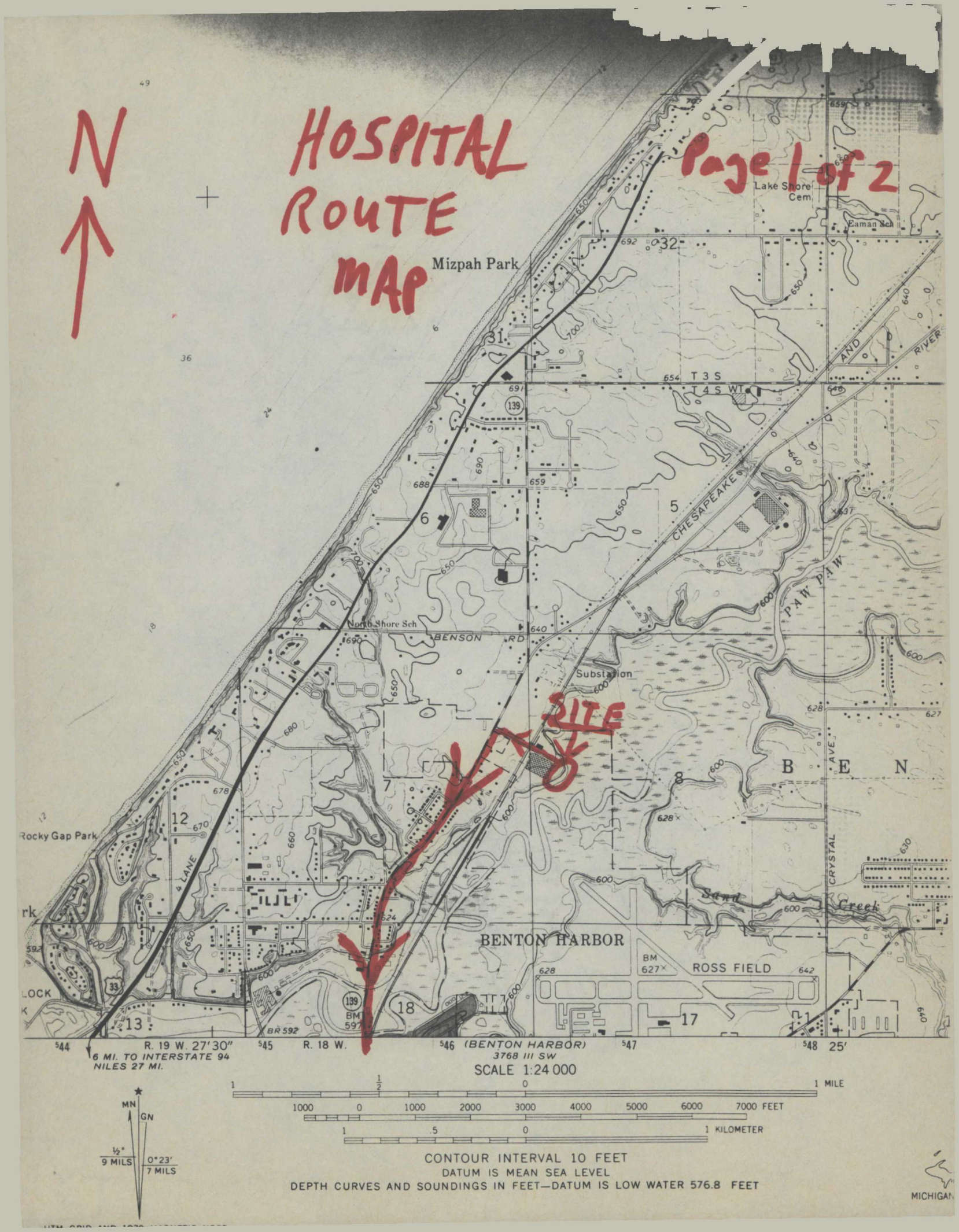
   a. 24 hour hotline - (716) 684-8940
   b. Corporate Safety Director - Paul Jonmaire - home # (716) 655-1260
   c. Assistant Corp. Safety Officer - Steven Sherman - home # (716) 688-0084

EMERGENCY ROUTES

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

Directions to hospital (include map) Go South on Riverside Road (Route 139) to Main Street and go east on Main Street to Route 139 (B.R. 31) go South on Route 139 (B.R. 31) to Empire Ave. go west on Empire Ave. about 2 1/2 block to Agard and the Mercy Hospital is at Empire & Agard, the southwest corner, 960 Agard Benton Harbor, MI ~3 1/2 miles from site.

Emergency Egress Routes to Get Off-Site Exit site by taking the site access road north west to Riverside Road and go South on Riverside Road.


N
HOSPITAL ROUTE MAP
Page 1 of 2
Mizpah Park
Lake Shore Cem
Eaman Sch
T 3 S
T 4 S
CHESAPEAKE
AND
RIVER
PAW PAW
North Shore Sch
BENSON RD
Substation
SITE
B E N
AVE
CRYSTAL
Sand Creek
Rocky Gap Park
4 LANE
BENTON HARBOR
BM 627
ROSS FIELD
BM 597
BR 592
R. 19 W. 27'30"
R. 18 W.
(BENTON HARBOR)
3768 III SW
25'
6 MI. TO INTERSTATE 94
NILES 27 MI.
SCALE 1:24 000
1 MILE
7000 FEET
1 KILOMETER
MN
GN
½°
9 MILS
0°23'
7 MILS
CONTOUR INTERVAL 10 FEET
DATUM IS MEAN SEA LEVEL
DEPTH CURVES AND SOUNDINGS IN FEET—DATUM IS LOW WATER 576.8 FEET
MICHIGAN

PLAN HOLD CORPORATION • IRVINE, CALIFORNIA
REORDER BY NUMBER 075AR

Page 2 of 2

HOSPITAL ROUTE MAP

N

RIOR

STATE OF MICHIGAN

9 MI. TO INTERSTATE 196 & U.S. 31 (33) R. 19 W. 27 30' 545 R. 18 W. 546 3768 III NW (BENTON HEIGHTS) 547

BENTON TWP
Jean Klock Park
Waterworks
BR 590
PAW PAW RIVER
ALANE
ROSS FIELD
WAUKONDA AVE
FOREST AVE
CHICAGO AVE
WALNUT ST
Morton Sch
Morton Cem
Bard Sch
HULL AVE
MAIN ST
City Hall
Light
WALL ST
HIGH ST
PENN
PARK
HIGHLAND AVE
BUSS AVE
MARKET ST
BENTON HARBOR
Jr High Sch
Calvin Britain Sch
BRITAIN
Park
MC CORD
McCord Sch
Lake Michigan College
HOUSE OF DAVID
Trailer Park
St John Sch
St Mathew Sch
CATALPA AVE
PIPESTONE
Creek
CENTRAL
Radio Island
Morrison
Radio Tower (WSJM)
Sew Disp
RIVER
Channel
CLAY ST
High Sch
Columbus Sch
EMPIRE
Mercy Hospital
HOSPITAL
PARKER AVE
MAY ST
Sterne Branson Sch
CROSS ST
625 Union Park
UNION
MILTON
EMERY AVE
LYNCH ST
Northeast Sch
Northwest Sch
Garrett Sch
Lincoln Sch
ST JOSEPH
BRADFORD RD
PONTIAC RD
COLFAX
BROADWAY
MC KANN
MAYNARD DR
Sorters Sch
CRYSTAL SPRING
Napier Park
NAPIER AVE
St Mark Ch
Hospital
Trailer Park
Church of
Courthouse
PO
BM 642
BM 589
WT
RO
586
589
621
624
618
625
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630
637
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5/22/89
FT305/FMT105/SB

THR: HIGH ivn, orl, ipr.
Disaster Hazard: When heated to decomp it emits tox fumes of NO_x.

ALTERNARIOL-9-METHYL ETHER

CAS RN: 23452053 NIOSH #: HP 8755000
mf: $C_{15}H_{12}O_5$; mw: 272.27

SYNS:
ALTERNARIOL MONOMETHYL ETHER
3,7-DIHYDROXY-9-METHOXY-1-METHYL-6H-DIBENZO(B,D) PYRAN-6-ONE

TOXICITY DATA: 3 CODEN:
mmo-sat 500 ug/plate MUREAV 78,33,80
ipr-ham TDLo:200 mg/kg TOXID9 1,35,81

THR: MUT data. HIGH ipr. An exper TER.
Disaster Hazard: When heated to decomp it emits smoke and acrid fumes.

ALUMINON

CAS RN: 569584 NIOSH #: GU 4800000
mf: $C_{22}H_{23}N_3O_9$; mw: 473.48

SYNS:
AMMONIUM AURINTRICARBOXYLATE
AURINTRICARBOXYLIC ACID AMMONIUM SALT

TOXICITY DATA: 3 CODEN:
ivn-mus LD50:4 mg/kg 12VXA5 8,42,68

Reported in EPA TSCA Inventory, 1980.
THR: HIGH ivn.
Disaster Hazard: When heated to decomp it emits tox fumes such as NO_x.

ALUMINUM

CAS RN: 7429905 NIOSH #: BD 03300000
mf: Al; mw: 26.98

A silvery ductile metal. mp: 660°, bp: 2450°, d: 2.702, vap. press 1 mm @ 1284°. Sol in HCl, H_2SO_4 and alkalies.

SYNS:
ALAUN (GERMAN)
ALUMINA FIBRE
ALUMINIUM FLAKE
ALUMINUM DEHYDRATED
ALUMINUM, METALLIC, POWDER (DOT)
ALUMINUM POWDER
C.I. 77000

TOXICITY DATA: CODEN:
Toxicology Review: FOREAE 7,313,42; PEXTAR 12,102,69; AMTODM 3,209,77. DOT: Flammable Solid, Label: Flammable Solid FEREAC 41,57018,76. "NIOSH Manual of Analytical Methods" VOL 5 173#. Reported in EPA TSCA Inventory, 1980.
THR: Aluminum is not generally regarded as an industrial poison. Inhal of finely divided aluminum powder has been reported as a cause of pulmonary fibrosis. May be implicated in Alzheimers disease.
Fire Hazard of Dust: Mod, when exposed to heat or flame or by chemical reaction.
Spontaneous Heating: No.
Explosion Hazard of Dust: Mod, when exposed to heat or flame or on contact with powerful oxidizers such as chlorates, bromates, iodates, peroxides, perchlorates, nitrates, nitrites, oxides, performates, persulfates, halogens, NO_x, melted sulfates, SO_2, (trichloroethylene + HCl), (Na_2O_2 + CO_2), SCl_2, $COCl_2$, PCl_3, AgCl, O_2 compressed or liquid, (Pd + Δ), NOCl, (Nb oxide + S), chloro and/or fluoro methanes and ethanes, ICl, (Mn + air), CH_3Br, CH_3Cl, (fluoro-chloro lubricants + pressure), (Mg + $KClO_4$), propylene dichloride, Na_2C_2, Na_2CO_3, NaOH.
To Fight Fire: Special mixtures of dry chemical.
Incomp: Halocarbons, mercury (amalgam), Cl_2, I, (Fe + SiO_2 + Al), (Al foil + Hg), (Al + $BaNO_3$ + KNO_3 + S + organic matter) can explode.
For further information see Vol. 1, No. 4 of *DPIM Report.*

ALUMINUM AMMONIUM SULFATE

mf: $Al_2(SO_4)_3(NH_4)_2SO_4.24H_2O$; mw: 906

Colorless crystals, odorless, sol in water, glycerine; insol in alc. d: 1.645; mp: 94.5°; bp: loses 20 H_2O @ 120°.

THR: A mild astringent used as a general-purpose food additive. Irr if inhal or ingested. See also aluminum compounds and sulfates.
Disaster Hazard: Dangerous; see sulfates.

ALUMINUM BOROHYDRIDE

mf: AlB_3H_{12}; mw: 71.53

Liquid. bp: 44.5°; mp: −64.5°; vap. press: 400 mm @ 28.1°.

SYN: ALUMINUM TETRAHYDROBORATE

THR: Unknown. See also hydrides and boron compounds.
Fire Hazard: Dangerous by spont chemical reaction; ignites spont in air, particularly in moist air.
Explosive Hazard: Explodes in O_2 at temperatures as low as 20°. An explosive range of 5% to 90%.
Incomp: Water, steam, oxidizing materials, acid or acid fumes.
Disaster Hazard: Mod dangerous; will react with water or steam to produce heat, H_2 or tox fumes.
To Fight Fire: CO_2, dry chemical.

ALUMINUM BROMIDE

CAS RN: 7727153 NIOSH #: BD 0350000
mf: $AlBr_3$; mw: 266.71

White to yellow-red lumps. mp: 97.5°; bp: 263.3° @ 748 mm; d: 3.2; vap. press: 1 mm @ 81.3°.

SYNS:
ALUMINUM BROMIDE (ANHYDROUS)
ALUMINUM TRIBROMIDE
TRIBROMOALUMINUM

TOXICITY DATA: CODEN:
DOT: Corrosive Material, Label: Corrosive FEREAC 41,57018,76.
Reported in EPA TSCA Inventory, 1980.
THR: A tox, corrosive material. See also bromides. Mixtures with Na or K explode violently upon impact.

SAX, 6th Edition

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

DATE : 5/22/89
JOB NO: FT1305/FMT105156

CHEMICAL NAME: Polychlorinated Biphenyl 1242
SYN : PCB 1242, Arochlor 1242, Chlorodiphenyl
CAS NO: 53469-21-9 FORMULA: C12H7Cl3
DOT CLASS: 2315

CHEMICAL PROPERTIES

Phys St: Liquid | Boil Pt: 617.00°F | Ionz Pot : --- | Fl Pt: 349.00°F
Mol Wt : 258.00 | Melt Pt: --- | Vap Press: 0.001 mmHg | LFL : —
Sp Gr : 1.30 | Frz Pt : -2.00°F | Odr Thr : 0.0095 ppm | UFL : —
Odor : pleasant, butter like
INCOMPAT/REACT: strong oxidizers
SOLUBILITY : insoluble

TOXICOLOGICAL PROPERTIES

Exposure Limits: TLV-TWA (ACGIH): 0.09 ppm SKIN PEL (OSHA): 0.09 ppm SKIN
STEL: --- IDLH: 0.47 ppm
OTHER PROPERTIES : affects male/female reproduction, Genetic injury to animals in experiments, PERSIS, TOXIC
Tox Data: INHAL : human Tclo: 10mg/m3
DERMAL : -
ORAL : rat LD50: 4250mg/kg
CARCIN : human suspect
MUTAGEN : animal positive
REPRO TOX: teratogen
AQUATIC : Tlm 96: .278 ppm
OTHER TOX: TARGET ORGANS: Skin, Liver, Resp Sys, Eyes
ROUTES OF EXP: Ingestion, Eye(Ocular), Dermal Absorption, Skin Contact, Inhalation

PERSONAL PROTECTIVE MEASURES

RESPIRATORS : To be determined on a case-by-case basis by H & S Staff.
CARTRIDGE TYPE : GMC-H or APS (RACAL)
PROTECTIVE CLOTHING: Coverall: Saranex Gloves: Neoprene, Viton Boots: Neoprene for soil sampling in known conc.
SPEC PRECAUTIONS : High concentrations in air are dangerous to exposed skin, eyes, mucous membranes.

FIRST AID

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

SYMPTOMS

ACUTE : irritation of skin/eyes/nose/throat, can cause vomiting, edema, anorexia, nausea, abdominal pain, fatigue, pigmentation of skin & nails
CHRONIC: chloracne,acute/chronic may cause liver damage/cancer,lkert/kidney edema; reprod: orl ing may be embryotoxic causg stillbirth,grey-brn skin,incr. eye dischrg to babies born to women exposd during preg

DISPOSAL, FIRE, SPILLS (see attached sheet)

DISPOSAL: 0,0 FIRE: 7 LEAKS & SPILLS:
DECOMPOSITION PRODUCTS: HCl, CO

REFERENCES CONSULTED

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

LAST REVISION DATE: 05/10/89

CHEMICAL CLASSIFICATION: Halogen Cmpd, Aromatic, Polycyclic

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

DATE : 5/2/89
JOB NO: FT1305/FMT/05/15B

CHEMICAL NAME: Polychlorinated Biphenyl 1254
SYN : PCB 1254, Arochlor 1254, Chlorodiphenyl, Chlorinated Biphenyl
CAS NO: 11097-69-1 FORMULA: C12H5C15
DOT CLASS:

CHEMICAL PROPERTIES

Phys St: Liquid | Boil Pt: 689.00°F | Ionz Pot : -- | Fl Pt: 236.00°F
Mol Wt : 326.00 | Melt Pt: -- | Vap Press: 0.00006mmHg | LFL : --
Sp Gr : 1.50 | Frz Pt : 432.00°F | Odr Thr : 0.0095 ppm | UFL : --
Odor : pleasant, butter like
INCOMPAT/REACT: strong oxidizers, heat
SOLUBILITY : insoluble-water; most organic solvents

TOXICOLOGICAL PROPERTIES

Exposure Limits: TLV-TWA (ACGIH): 0.03 ppm SKIN PEL (OSHA): 0.03 ppm SKIN
STEL: -- IDLH: --
OTHER PROPERTIES : Affect male/female reproduct, PERSISTENT, Genetic injury in animal experiments, TOXIC
Tox Data: INHAL : -
DERMAL : rat Tdlo: 4mg/kg; ETA
ORAL : rat LD50: 1295mg/kg
CARCIN : YES
MUTAGEN : exper
REPRO TOX: exper teratogen
AQUATIC : .278ppm/96hr/bluegill/TLm/fresh water
OTHER TOX: TARGET ORGANS: Skin, Liver, Resp Sys, Eyes
ROUTES OF EXP: Ingestion, Eye(Ocular), Dermal Absorption, Skin Contact, Inhalation

PERSONAL PROTECTIVE MEASURES

RESPIRATORS : To be determined on a case-by-case basis by H & S Staff.
CARTRIDGE TYPE : GMC-H or AP3 (RACAL)
PROTECTIVE CLOTHING: Coverall: Saranex Gloves: Neoprene, Viton Boots: Neoprene for soil sampling in known concent.
SPEC PRECAUTIONS : High concentrations in air are dangerous to exposed skin/eyes/mucous membranes.

FIRST AID

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

SYMPTOMS

ACUTE : irritation of eyes/nose/throat, can cause vomtg, edema, anorexia, nausea, abdominal pain, fatigue

CHRONIC: chloracne, dermatitis, jaundice, dark urine, liver/kidney/heart damage or cancer, INCREASED CHLORINATION EQUALS INCREASED TOXICITY

DISPOSAL, FIRE, SPILLS (see attached sheet)

DISPOSAL: D,0 FIRE: 7 LEAKS & SPILLS:
DECOMPOSITION PRODUCTS: HCl, CO

REFERENCES CONSULTED

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

CHEMICAL CLASSIFICATION: Aromatic Halogenated Hydrocarbon

LAST REVISION DATE: 05/10/89

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

DATE : 5/12/89
JOB NO: FT1305/FM1105158

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, AP3 (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

DATE : 5/22/89
JOB NO: FT/305/FMT/105/SB

CHEMICAL NAME: Chromium-metal

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

CHEMICAL PROPERTIES

Phys St: Boil Pt: 4784.00°F Ionz Pot : -- Fl Pt: 0.23°F
Mol Wt : 52.00 Melt Pt: 3452.00°F Vap Press: -- LFL : --
Sp Gr : 7.20 Frz Pt : 3339.00°F Odr Thr : -- UFL : --
Odor : none
INCOMPAT/REACT: strong oxidizers, powdered metal is explosive
SOLUBILITY : insoluble

TOXICOLOGICAL PROPERTIES

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

OTHER PROPERTIES :
Tox 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

RESPIRATORS : APR: dusty/windy condit or known high concent or >1 but <5ppm; SCBA: >5ppm
CARTRIDGE TYPE : GMC-H, AP3 (RACAL)
PROTECTIVE CLOTHING: Coverall: Tyvek Gloves: Butyl
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 amts of water, induce vomiting, SEEK MEDICAL ATTENTION

SYMPTOMS

ACUTE : conctact dermatitis, ulceration of skin/nasal mucosa, irritation of eyes/mucous membranes

CHRONIC: pulmonary disease

DISPOSAL, FIRE, SPILLS (see attached sheet)

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

REFERENCES CONSULTED

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

LAST REVISION DATE:
04/18/89

CHEMICAL CLASSIFICATION: Heavy metal

THE SIGMA-ALDRICH LIBRARY OF CHEMICAL SAFETY DATA

Explanation of Codes

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 conditions.

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

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. Adjust 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.

ecology and environment, inc.

ON-SITE SAFETY MEETING

Project Michigan Standard Alloys Alreco Metals TOD/Pan F05-8710-121/FMI1051SB

Date _____ Time _____ Job No. FT1305

Address 777 River Side Drive, Benton Harbor, MI - Berrien County

Specific Location _____

Type of Work _____

SAFETY TOPICS PRESENTED

Protective Clothing/Equipment _____

Chemical Hazards _____

Radiation Hazards _____

Physical Hazards _____

Emergency Procedures _____

Hospital/Clinic _____ Telephone _____

Hospital Address _____

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
Randy Livingston	

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

_____ (Site Safety Coordinator) _____ (Team Leader)

533

SITE DOSIMETER LOG

PROJECT/PAN # FT1305/FMJ1051SB SITE NAME Michigan Standard Alloys

SITE SAFETY OFFICER _____ WEEK OF _____

NAME AND DOSIM. #	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
Randy #21 Livingston							

To the nearest half-hour, record time spent downrange as "S" (e.q., 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)

Warehouse Phone (312) 775-7763

F. EQUIPMENT CHECKLIST

Job/PAN FT1305/FMT1057SB

Team Leader Randy Livingston

PROTECTIVE GEAR

Level A	No.	Level B	No.
SCBA		SCBA	1
SPARE AIR TANKS		SPARE AIR TANKS	
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	✓	OUTER WORK GLOVES	
POWER AIR PURIFYING RESPIRATOR			
CARTRIDGES (Type GMCH)	10 pairs	**Level D**	
PROTECTIVE COVERALL: Type _____ SM _____ M _____ L _____		ULTRA-TWIN RESPIRATOR (Available)	
		CARTRIDGES (Type GMCH)	10 pairs
BUTYL APRON		5-MINUTE ESCAPE MASK (Available)	3
SURGICAL GLOVES (LATEX)	1 Box	PROTECTIVE COVERALL: Type Tyvecks / Saranexs SM _____ M 5 L 5	10
GLOVES: Type _____ SM _____ M 5 L 5	10	OUTER WORK GLOVES	
OUTER WORK GLOVES		HARD HAT	
HARD HAT	✓	FACE SHIELD	
FACE SHIELD		RAIN SUIT	
HARDHAT		WINTER BOOTS	
RAIN SUIT	✓	BOOTIES (LATEX)	10
NEOPRENE SAFETY BOOTS	✓ 0	NEOPRENE SAFETY BOOTS	
BOOTIES (LATEX)	10	STEEL TOED BOOTS	✓
STEEL TOED BOOTS	✓	SAFETY GLASSES	✓

HS017(03/07/89)

INSTRUMENTATION	No.	DECON EQUIPMENT	No.
OVA	1	WASH TUBS	2
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	1 Box
BRUNTON COMPASS		TRASH CANS	
MONITOX CYANIDE	1	MASKING TAPE	✓
HEAT STRESS MONITOR		DUCT TAPE	✓
NOISE EQUIPMENT		PAPER TOWELS	2 Rolls
PERSONAL SAMPLING PUMPS (Type)		DUST MASK	
DUST MONITOR (MDA OR GCA System)		FACE MASK SANITIZER	6
		FOLDING CHAIRS	
RADIATION EQUIPMENT		STEP LADDERS	
TLD BADGES	✓	DISTILLED WATER	✓
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	
ION CHAMBER		120 ML. GLASS	
ALERT DOSIMETER		~~SPOONS~~ TROWELS	12
POCKET DOSIMETER		KNIVES	
		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	

HS017(03/07/89)

VAN EQUIPMENT	No.
TOOL KIT	1
HYDRAULIC JACK	1
LUG WRENCH	1
TOW CHAIN	
VAN CHECK OUT	
Gas	
Oil	
Antifreeze	
Battery	
Windshield Wash	
Tire Pressure	
MISCELLANEOUS	
CHALK	
LEVEL/TRIPOD AND ROD	
BOWLS	12
PITCHER PUMP	
SURVEYOR'S TAPE	
100 FIBERGLASS TAPE	
300 NYLON ROPE	
NYLON STRING	
SURVEYING FLAGS	
FILM	✓
WHEEL BARROW	
BUNG WRENCH	
SOIL AUGER	1
PICK	
SHOVEL	1
CATALYTIC HEATER	
PROPANE GAS	
BANNER TAPE	
SURVEYING METER STICK	
CHAINING PINS & RING	
TABLES	
WEATHER RADIO	
BINOCULARS	
MEGAPHONE	

MISCELLANEOUS (Cont.)	No.
HEARING PROTECTION	
LIFE VESTS	
WALKIE-TALKIE	
CONDUCTIVITY METER	
PH METER	
CAMERA	1
WATER-LEVEL INDICATOR	
SPLIT SPOON SAMPLERS	
PVC HAND PUMP	
RESISTIVITY METER	
WELL POINT SAMPLER	
ROBAIR PUMP SYSTEM	
THERMOMETER	
MASTERFLEX PUMP & FILTER APPARATUS	
SHIPPING EQUIPMENT	
COOLERS	4
PAINT CANS WITH LIDS, 7 CLIPS EACH	
VERMICULITE	4
SHIPPING LABELS	✓
DOT LABELS: "DANGER"	
"UP"	
"INSIDE CONTAINER COMPLIES ..."	
"HAZARD GROUP"	
STRAPPING TAPE	
BOTTLE LABELS	
BAGGIES	
CUSTODY SEALS	
CHAIN-OF-CUSTODY FORMS	
FEDERAL EXPRESS FORMS	
CLEAR PACKING TAPE	
VEHICLES: 1 VAN	1
1 SUBURBAN	1

HS017(03/07/89)

ON-SITE SAFETY LOG

ECOLOGY AND ENVIRONMENT, INC.
CHICAGO

A. ON-SITE MONITORING

	EQUIPMENT USED	BACKGROUND READING IN BREATHING ZONE	CALIBRATED AT	ON-SITE READING IN BREATHING ZONE
1.				
2.				
3.				
4.				
5.				

B. PROTECTIVE CLOTHING WORN: _____

C. SITE NAME: Michigan Standard Alloys PAN/JOB NUMBER: FMI105/SB/FT1305

DATE: _____

WEATHER CONDITIONS: _____

NAMES OF ATTENDEES AT SITE: _____

D. COMMENTS ON MONITORING OR PROTECTIVE CLOTHING: _____

	NAME	SIGNATURE
TEAM LEADER:	Randy Livingston	
SITE SAFETY OFFICER:		

(P.D. Moss 12/87)

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
____ Viper 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: Michigan Standard Alloys, Benton Harbor, MI
PAN/JOB NUMBER: FMD1051SB / FT1305

RETURN OF VEHICLE TO DUTY STATION

Vehicle Cleanliness: _____
Remarks: _____
_____
_____
_____

Corrections Necessary: _____
_____

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

Date: _____ Time: _____ Odometer: _____

9/88
1372:6

PROPER PAGE ORDER FOR SITE SAFETY PLAN

A. General Information / B. Site/Waste Characteristics Page

C. Hazard Evaluation Page

Site History (Cont) (If Needed)

Hazard Evaluation (Cont) (If Needed)

D. Site Safety Work Plan Page

Site Map

Decon / Team Members Page

E. Emergency Information Page

MedTox Hotline

Hospital Route Map

Hazard Evaluation Sheets / CHRIS Sheets (Alphabetized)

Sigma-Aldrich (Spill/Leaks, Waste Disposal)

Site Dosimeter Log

Equipment Checklist (3 Pages)

On-Site Safety Meeting

On-Site Safety Log

Vehicle Safety Checklist