IL-153-04

DAMSITE

ECOLOGY AND ENVIRONMENT, INC.

FIELD INVESTIGATION TEAM

SITE SAFETY PLAN

EPA Region 5 Records Ctr.
287389

A. GENERAL INFORMATION

SITE: Mobil Chemical Company, Phosphorus Div Depot + Marquette streets

TDD NO: R5 8303-1B

WSTS NO: ILD062340641

LOCATION: DePue IL

05-IL-0153

PLAN PREPARED BY: DCUZZA

DATE: 12-22-83

APPROVED BY: [signature]

DATE: 2/16/84

OBJECTIVE (including description of work to be performed):

To perform on site inspection which may include sampling of soils, groundwater and/or surface water

PROPOSED DATE OF INVESTIGATION: Feb, 1984

BACKGROUND REVIEW: Complete: ____ Preliminary: O

DOCUMENTATION SUMMARY: OVERALL HAZARD: Serious: ____ Moderate: ____

Low: X Unknown: ____

B. SITE/WASTE CHARACTERISTICS

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

CHARACTERISTIC(S): Corrosive X Ignitable ____ Radioactive X

Volatile ____ Toxic X Reactive ____ Unknown ____ Other (Name) ____

FACILITY DESCRIPTION: The facility manufactures Ammonium Phosphate Fertilizer, Sulfuric and Phosphoric Acids. Site uses Vanadium, derived from phosphate rock, as a catalyst for sulfuric acid production - radioactive material

Principal Disposal Method (type and location):

Landfill, Impoundment

Unusual Features (dike intergrity, power lines, terrain, etc.):

Lake Depue near the site's southern border

Status: (active, inactive, unknown)

from 1967 - Present as Mobil Chemical

2/83

History: (Worker or non-worker injury; complaints from public; previous agency action): Site used to be operated by New Jersey Zinc Division of Gulf + Western Industries Inc. New Jersey Zinc still owns the neighboring property, which has a pile of smelting residue openly stored.
The site has a history of sulfuric & phosphoric acid spills. The sulfuric acid spills sometimes formed Hydrogen Sulfide gas and may be the cause of

C. HAZARD EVALUATION

(Use Hazard Evaluation of Chemicals sheets for specific or representative chemicals present.): a nearby resident's death and the injury of at least two other people after H_2S gas entered their homes via the sewer lines in 1980. The facility manufactures sulfuric and phosphoric acids and ammonium phosphates for fertilizer, so these products are stored on site.
Also on site are 2 holding lagoons, one for non-contact cooling water and the other for a seepage collection system - collecting rainwater runoff. H_2S alarms have since been installed and sewer lines leading from the lagoons have been disconnected.
A major fish kill was caused in 1974 due to acid reaching Lake Defre

D. SITE SAFETY WORK PLAN

PERIMETER ESTABLISHMENT: Map/Sketch Attached yes Site Secured? Yes
Perimeter Identified? yes Zone(s) of Contamination Identified? No

PERSONAL PROTECTION

Level of Protection: A ___ B ___ C ✓ D ✗

Modifications: Level D will be used for the site inspection unless the HNU or H_2S detector provide readings above background levels - in which case level C with ultratwin and acid mist cartridges may be used

Surveillance Equipment and Materials: HNU, CN meter, ROBERT SHAWS MONITOX
H_2S detector or drueger tubes (drueger tubes). Rad mini.
ultratwin, acid-mist cartridges, dosimeter HNu - 11.7eV lamp
coveralls, steel toed boots, 5 buckle boots. If sampling butyl rubber gloves, splash protection, safety glasses → TYVEKS WITH BUTYL APRON.

Action levels for HNU
0ppm Above background Level D
1-5ppm " " Level C
above 5ppm " " Leave site

DECONTAMINATION PROCEDURES: Contaminated boots and gloves will be washed prior to departing the site. If sampling is conducted, the sample equipment should be washed with detergent and water. If level C is used wash gloves, boots and sampling equipment.

Special Equipment, Facilities, or Procedures:

Wash tubs, detergent, brush, trash bags.

SITE ENTRY PROCEDURES: In accordance with on site personnel

Team Member	Responsibility
Mike Gifford	Team Leader
Don Seiwell	Team member - Site Safety Officer
Dan Cozza	

WORK LIMITATIONS (Time of day, etc.):

Daylight hours.

INVESTIGATION-DERIVED MATERIAL DISPOSAL:

To be disposed of on-site after being double bagged and labeled.

Wash water will also be left on site

E. EMERGENCY INFORMATION

LOCAL RESOURCES

Ambulance Spring Valley 663-0033
Hospital Emergency Room St. Margarets 815-664-5311
Poison Control Center 800-322-5330
Police Department DePue 815-447-2137
Fire Department DePue 815-447-2112
Airport N/A
Explosives Unit N/A
EPA Contact Tore Stole - 312-886-0393

SITE RESOURCES

Water Supply Supply own: 5 gallon container
Telephone On site
Radio None

Other

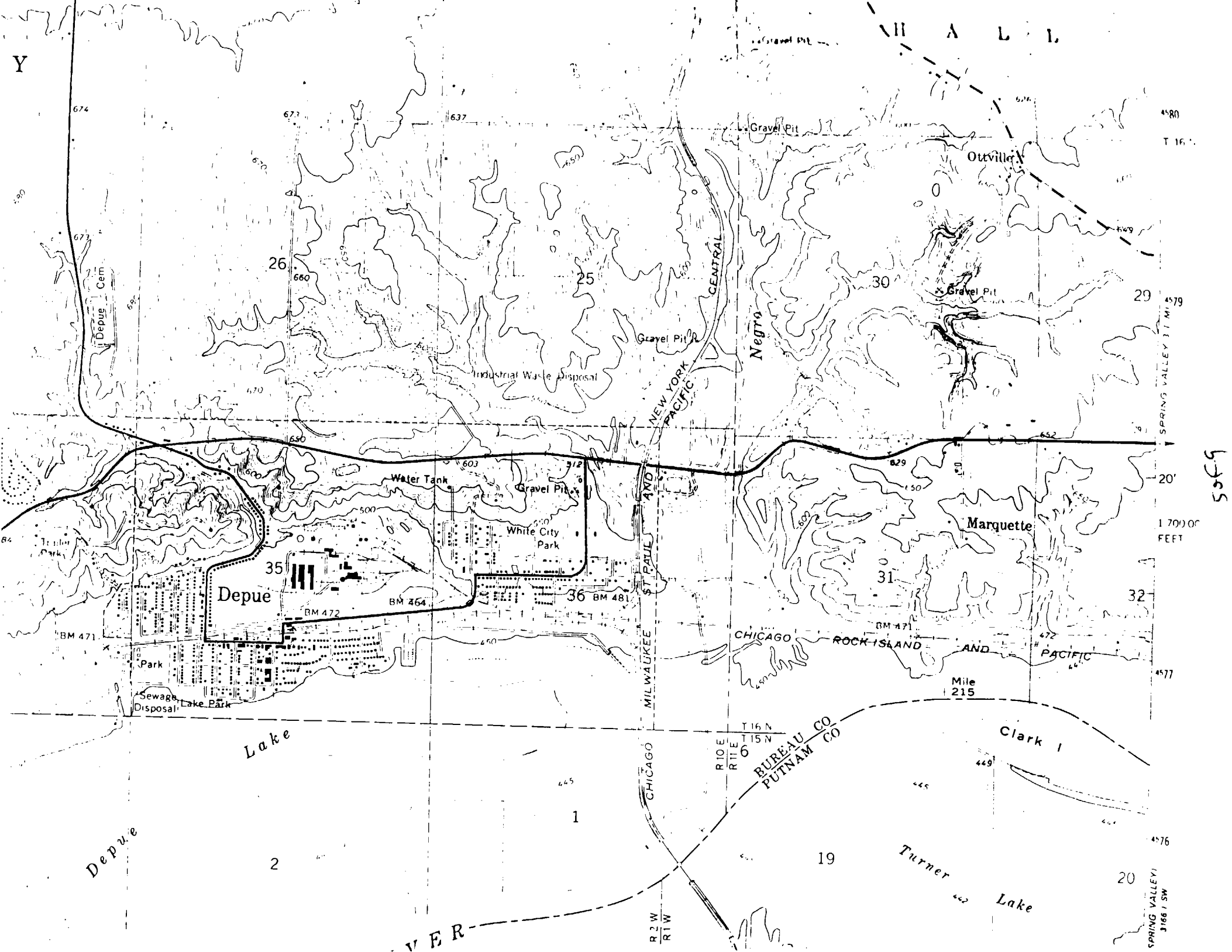
EMERGENCY CONTACTS

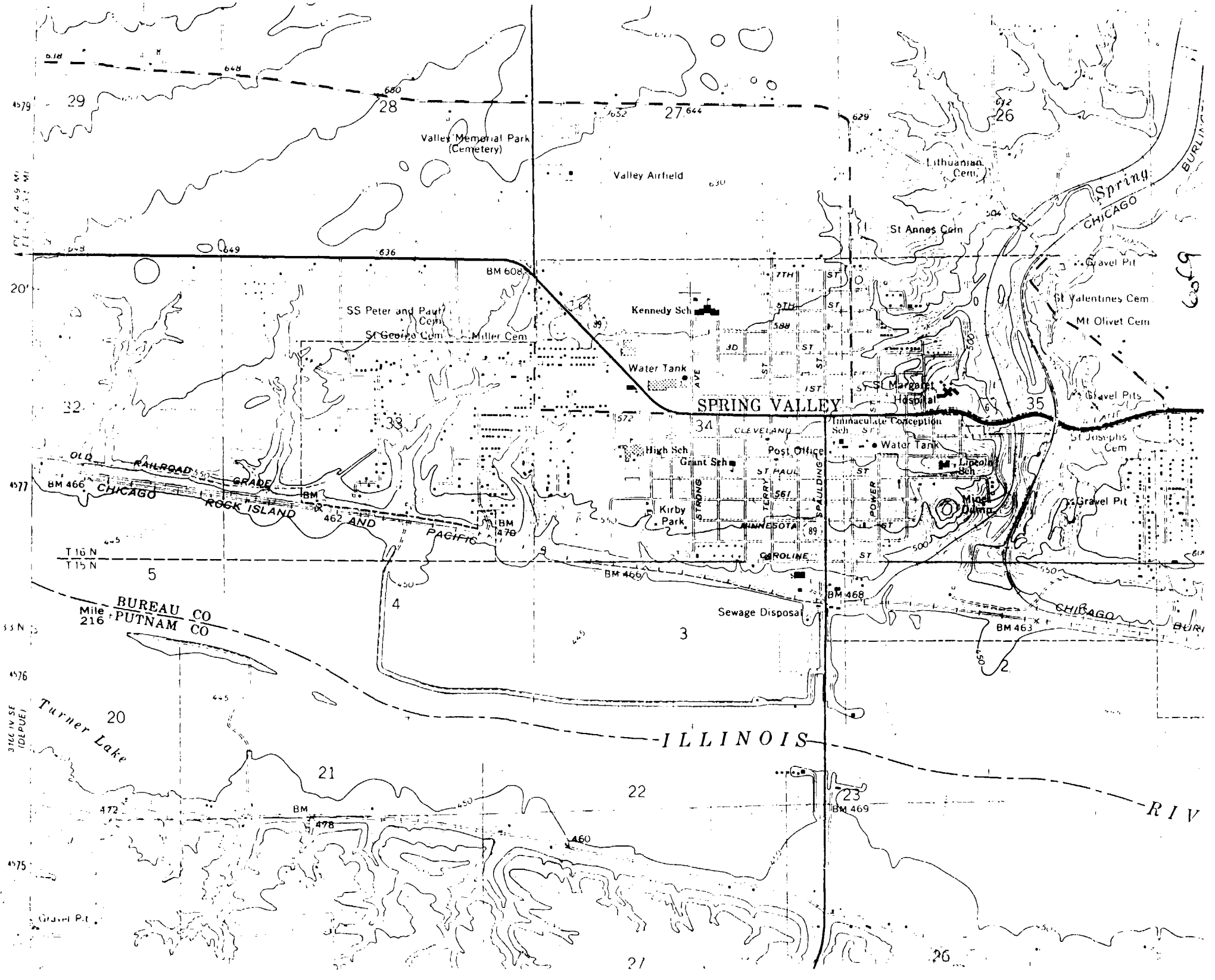
1. Dr. Raymond Harbison (Univ. of Arkansas).... (501) 661-5756 or (501) 661-5757
   MED-TOX..... (501) 370-8263 (24 Hours)
2. Regional Safety Coodinator - John Angelo ... (312) 882-7302
3. FIT Leader - Joseph Petrilli..... (312) ~~663-9415~~ 561-7639
4. FIT Office..... (312) 663-9415
5. E & E 24 Hour Call Line..... (716) 882-2804
   (24 Hours; Call Forwarding)
6. Regional Health Maintenance Program Contact. PMI - (312) 832-8820
   8:00 a.m. - 5:00 p.m.
7. E & E Emergency Paging System..... (716) 882-2804
8. 24 Hour Hot Line for Corporate Response Team (716) 631-9531
9. Dave Dahlstrom..... (716) 741-2384

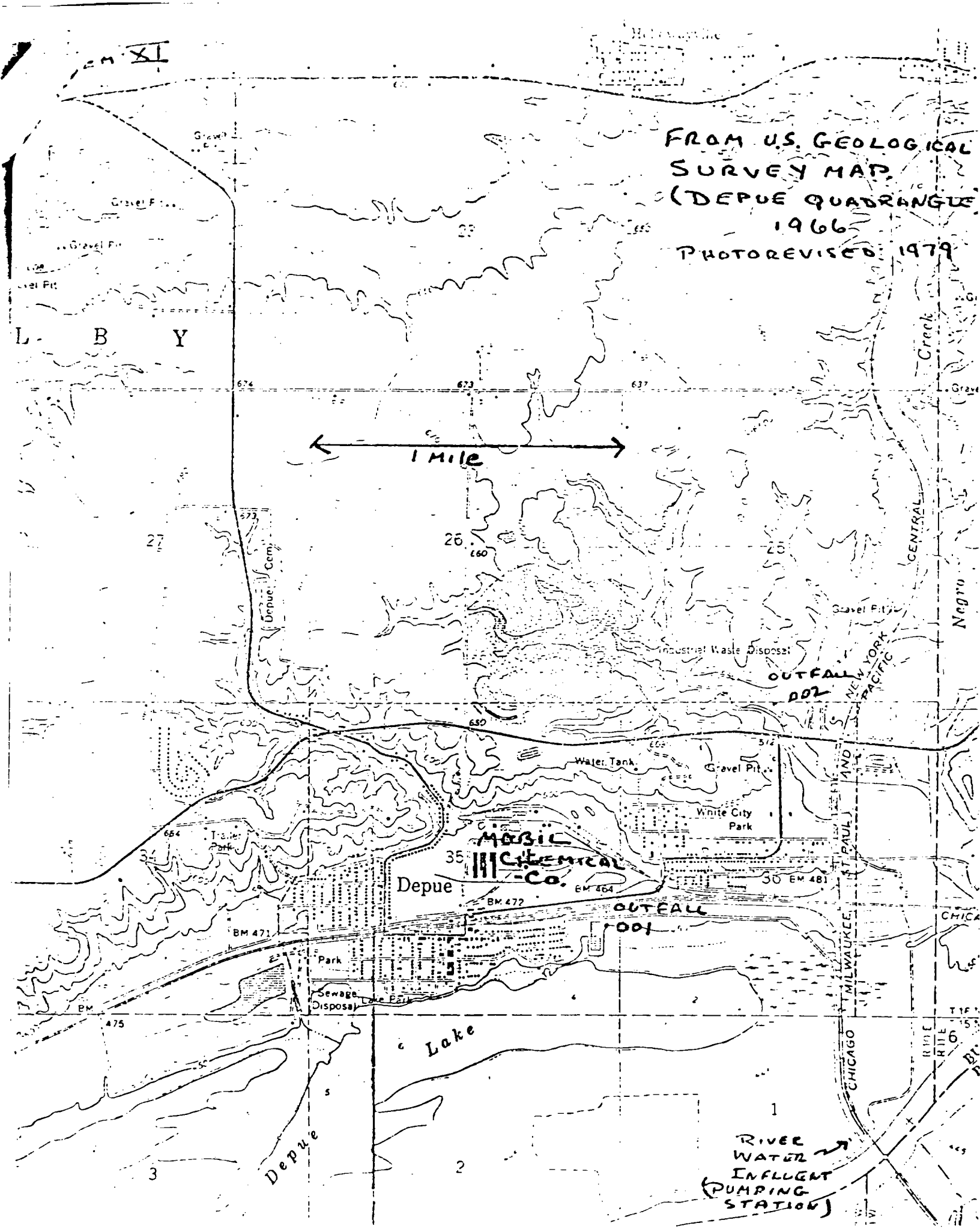
F. EMERGENCY ROUTES

(Give road or other directions; attach map)

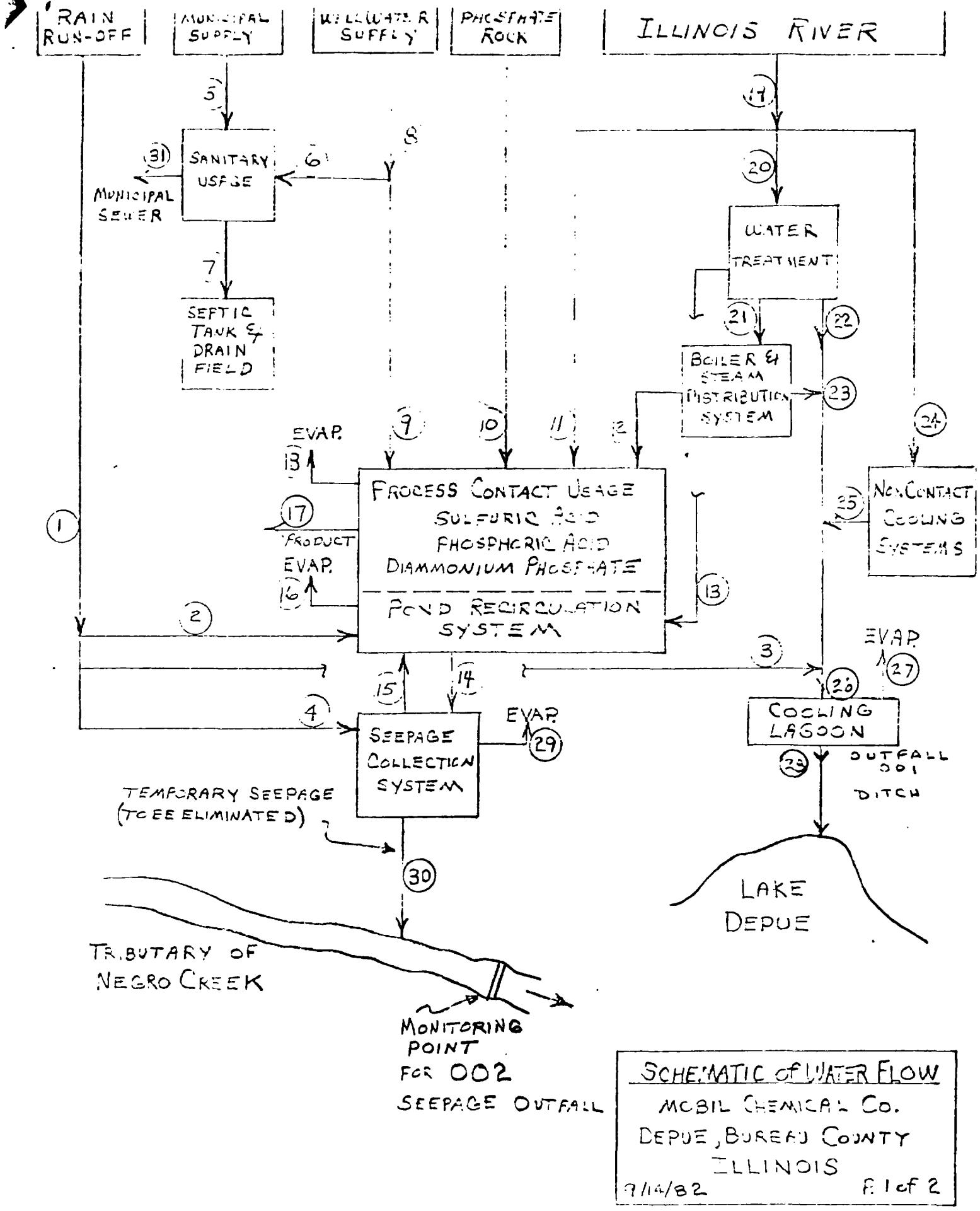
Hospital: St Margarets Hospital - 600 E 1st St. Spring Valley. From site take Marquette St east to Rt 29 east into Spring Valley. Hospital at 600 E 1st St.


Depue
Marquette
Ottville
Negro
Depue Lake
Turner Lake
Clark I
Water Tank
Gravel Pit
White City Park
Industrial Waste Disposal
Sewage Disposal
Lake Park
Depue Cem
NEW YORK CENTRAL
CHICAGO ROCK ISLAND AND PACIFIC
CHICAGO MILWAUKEE ST PAUL AND PACIFIC
BUREAU CO
PUTNAM CO
T 16 N
T 15 N
R 10 E
R 11 E
R 2 W
R 1 W
Mile 215
BM 471
BM 472
BM 464
BM 481
SPRING VALLEY 3 1/4 MI
SPRING VALLEY 3166 I SW
1 700 00 FEET

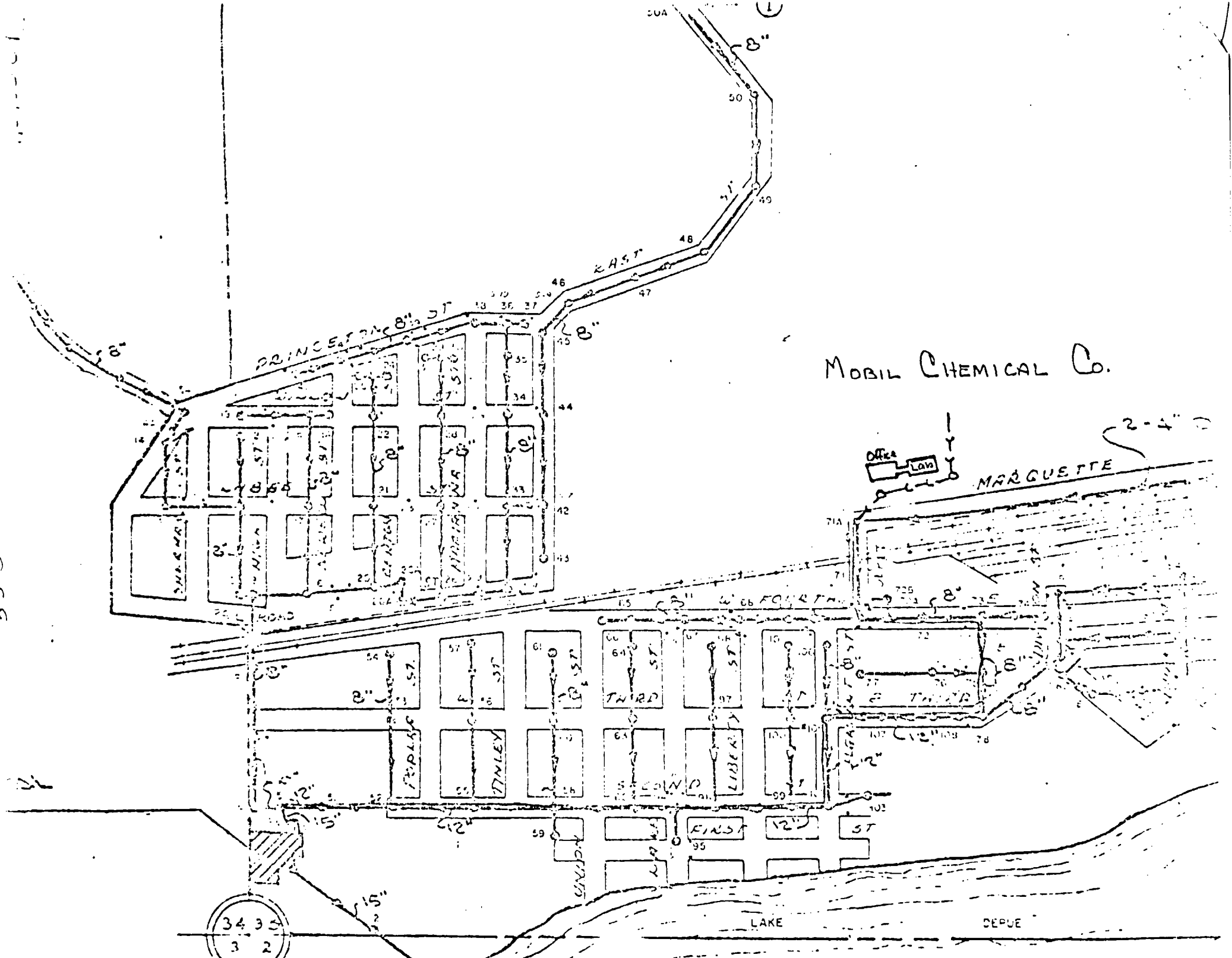

Valley Memorial Park (Cemetery)
Valley Airfield
Lithuanian Cem
St Annes Cem
Spring
CHICAGO
Gravel Pit
St Valentines Cem
Mt Olivet Cem
SS Peter and Paul Cem
St George Cem
Miller Cem
Kennedy Sch
Water Tank
SPRING VALLEY
St Margaret Hospital
Gravel Pits
Immaculate Conception Sch
Water Tank
St Josephs Cem
High Sch
Post Office
Grant Sch
Lincoln Sch
Mine Dump
Gravel Pit
Kirby Park
OLD RAILROAD GRADE
CHICAGO ROCK ISLAND AND PACIFIC
BM 466
BM 462
BM 478
BM 608
BM 466
BM 468
BM 463
BM 469
BM 478
T 16 N
T 15 N
BUREAU CO
PUTNAM CO
Mile 216
Sewage Disposal
Turner Lake
ILLINOIS
RIV
Gravel Pit


FROM U.S. GEOLOGICAL SURVEY MAP (DEPUE QUADRANGLE 1966 PHOTOREVISED 1979
1 Mile
Industrial Waste Disposal
OUTFALL 002
Water Tank
Gravel Pit
White City Park
MOBIL CHEMICAL CO.
Depue
OUTFALL 001
Trailer Park
Park
Sewage Disposal
Lake Park
Lake
Depue
Negro Creek
NEW YORK CENTRAL
ST. PAUL AND PACIFIC
MILWAUKEE
CHICAGO
RIVER WATER INFLUENT (PUMPING STATION)

FORM 2C - ITEM II



SCHEMATIC of WATER FLOW
MOBIL CHEMICAL CO.
DEPUE, BUREAU COUNTY
ILLINOIS
9/14/82 P. 1 of 2


MOBIL CHEMICAL Co.
PRINCETON ST
EAST
MARQUETTE
Office
Lab
FOURTH
THIRD
SECOND
FIRST
ST
POPLAR
TINLEY
LIBERTY
LAKE
DEPUE
8"
12"
15"
2-4"

HDS — HYDROGEN SULFIDE

Common Synonyms
Sulphuretted hydrogen

Liquefied compressed gas — Colorless — Rotten egg odor, but odorless at poisonous concentrations

Sinks and boils in water. Poisonous, flammable, visible vapor cloud is produced.

Avoid contact with gas. Keep people away.
Wear goggles and self-contained breathing apparatus.
Shut off ignition sources and call fire department.
Stop discharge if possible.
Evacuate area in case of large discharges.
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.
May explode if ignited in an enclosed area.
Wear goggles and self-contained breathing apparatus.
Stop flow of gas if possible.
Cool exposed containers and men effecting shutoff with water.
Let fire burn.

Exposure

CALL FOR MEDICAL AID.

VAPOR
POISONOUS IF INHALED.
Irritating to eyes.
Move to fresh air.
If breathing has stopped, give artificial respiration.
If breathing is difficult, give oxygen.
IF IN EYES, hold eyelids open and flush with plenty of water.

Water Pollution

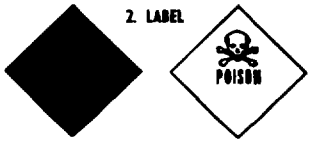
HARMFUL TO AQUATIC LIFE IN VERY LOW CONCENTRATIONS.
May be dangerous if it enters water intakes.
Notify local health and wildlife officials.
Notify operators of nearby water intakes.

1. RESPONSE TO DISCHARGE

(See Response Methods Handbook, CG 448-4)

Issue warning: high flammability, poison
Restrict access
Evacuate area

2. LABEL



3. CHEMICAL DESIGNATIONS

3.1 **Synonyms:** Sulfuretted hydrogen
3.2 **Coast Guard Compatibility Classification:** Not applicable
3.3 **Chemical Formula:** H_2S
3.4 **IMCO/United Nations Numerical Designation:** 2.0/1053

4. OBSERVABLE CHARACTERISTICS

4.1 **Physical State (as shipped):** Liquid under pressure
4.2 **Color:** Colorless
4.3 **Odor:** Offensive odor, like rotten eggs

5. HEALTH HAZARDS

5.1 **Personal Protective Equipment:** Rubber-framed goggles, approved respiratory protection.
5.2 **Symptoms Following Exposure:** Irritation of eyes, nose and throat. If high concentrations are inhaled, hyperpnea and respiratory paralysis may occur. Very high concentrations may produce pulmonary edema.
5.3 **Treatment for Exposure:** INHALATION: remove victim from exposure; if breathing has stopped, give artificial respiration, administer oxygen if needed; consult physician.
EYES: wash with plenty of water.
5.4 **Toxicity by Inhalation (Threshold Limit Value):** 10 ppm
5.5 **Short-Term Inhalation Limits:** 200 ppm for 10 min; 100 ppm for 30 min, and 50 ppm for 60 min.
5.6 **Toxicity by Ingestion:** Hydrogen sulfide is present as a gas at room temperature, so ingestion not likely.
5.7 **Late Toxicity:** Data not available
5.8 **Vapor (Gas) Irritant Characteristics:** Vapor is moderately irritating such that personnel will not usually tolerate moderate or high vapor concentrations.
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:** 0.0047 ppm

6. FIRE HAZARDS

6.1 **Flash Point:** Flammable gas
6.2 **Flammable Limits in Air:** 4.3%–45%
6.3 **Fire Extinguishing Agents:** Stop flow of gas
6.4 **Fire Extinguishing Agents Not to be Used:** Not pertinent
6.5 **Special Hazards of Combustion Products:** Toxic gases are generated in fires.
6.6 **Behavior in Fire:** Vapor is heavier than air and may travel considerable distance to a source of ignition and flash back.
6.7 **Ignition Temperature:** 500°F
6.8 **Electrical Hazard:** Not pertinent
6.9 **Burning Rate:** 2.3 mm/min (liquid)

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

8. WATER POLLUTION

8.1 **Aquatic Toxicity:** 1.38 ppm/48 hr/fathead minnows/TL_m/fresh water
sat./0.5 hr/bullis/lethal/salt 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. SELECTED MANUFACTURERS

1. P P G Industries, Inc
Industrial Chemicals Division
One Gateway Center
Pittsburgh, Pa 90670
2. Union Oil Co of California
Union Oil Center
Los Angeles, Cal 90017
3. Will Ross, Inc
Matheson Gas Products Division
East Rutherford, N J 07073

10. SHIPPING INFORMATION

10.1 **Grades or Purity:** Purified, technical
10.2 **Storage Temperature:** Ambient
10.3 **Inert Atmosphere:** No requirement
10.4 **Venting:** Safety relief

11. HAZARD ASSESSMENT CODE

(See Hazard Assessment Handbook CG 448-3)

A-B-C-D-E-F-G

12. HAZARD CLASSIFICATIONS

12.1 **Code of Federal Regulations:** Flammable compressed gas
12.2 **NAS Hazard Rating for Bulk Water Transportation:** Not listed
12.3 **NFPA Hazard Classifications:**

Category	Classification
Health Hazard (Blue)	3
Flammability (Red)	4
Reactivity (Yellow)	0

13. PHYSICAL AND CHEMICAL PROPERTIES

13.1 **Physical State at 15°C and 1 atm:** Gas
13.2 **Molecular Weight:** 34.08
13.3 **Boiling Point at 1 atm:** −76.7°F = −60.4°C = 212.8°K
13.4 **Freezing Point:** −117°F = −82.8°C = 190.4°K
13.5 **Critical Temperature:** 212.7°F = 100.4°C = 373.6°K
13.6 **Critical Pressure:** 1300 psia = 88.9 atm = 9.01 MN/m²
13.7 **Specific Gravity:** 0.916 at −60°C (liquid)
13.8 **Liquid Surface Tension:** (est.) 30 dynes/cm = 0.03 N/m at −61°C
13.9 **Liquid-Water Interfacial Tension:** Data not available
13.10 **Vapor (Gas) Specific Gravity:** 1.2
13.11 **Ratio of Specific Heats of Vapor (Gas):** 1.322
13.12 **Latent Heat of Vaporization:** 234 Btu/lb = 130 cal/g = 5.44 × 10⁵ J/kg
13.13 **Heat of Combustion:** −6552 Btu/lb = −3640 cal/g = −152.4 × 10⁵ J/kg
13.14 **Heat of Decomposition:** Not pertinent
13.15 **Heat of Solution:** Not pertinent
13.16 **Heat of Polymerization:** Not pertinent

(Continued on pages 5 and 6)

NOTES

APP

AMMONIUM PHOSPHATE

Common Synonyms			
Monoammonium orthophosphate Ammonium phosphate, dibasic Secondary ammonium phosphate Diammonium hydrogen phosphate Diammonium orthophosphate	Solid	White	Weak ammonia odor
	Sinks and mixes with water.		

Stop discharge if possible. Keep people away.
Avoid contact with solid and dust.
Isolate and remove discharged material.
Notify local health and pollution control agencies.

Fire	Not flammable. Irritating gases may be produced when heated.
Exposure	CALL FOR MEDICAL AID. DUST Irritating to eyes, nose and throat. If inhaled will cause coughing or difficult breathing. If in eyes, hold eyelids open and flush with plenty of water. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen. SOLID 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. IF SWALLOWED and victim is UNCONSCIOUS OR HAVING CONVULSIONS, do nothing except keep victim warm.
Water Pollution	Effect of low concentrations on aquatic life is unknown. 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, CG 446-4)

Disperse and flush

2. LABELS

No hazard label required by Code of Federal Regulations

3. CHEMICAL DESIGNATIONS

3.1 **Synonyms:** Ammonium phosphate, dibasic
Diammonium hydrogen phosphate
Diammonium orthophosphate
Monoammonium orthophosphate
Secondary ammonium phosphate

3.2 **Coast Guard Compatibility Classification:** Not listed

3.3 **Chemical Formula:** $NH_4H_2PO_4$ and $(NH_4)_2HPO_4$

(Continued on page 4)

4. OBSERVABLE CHARACTERISTICS

4.1 **Physical State (as shipped):** Solid

4.2 **Color:** White

4.3 **Odor:** Diammonium – faint ammonia
Monoammonium – faint acid

5. HEALTH HAZARDS

5.1 **Personal Protective Equipment:** Dust mask, protective gloves, and goggles. When diammonium phosphate is stored in closed area, self-contained breathing apparatus is required to protect against ammonia fumes.

5.2 **Symptoms Following Exposure:** Inhalation of monoammonium form causes irritation of mucous membranes, with diammonium form, ammonia vapors in closed area can cause pulmonary edema and asphyxia. Contact with solid or with ammonia gas causes irritation of eyes and skin.

5.3 **Treatment for Exposure:** INHALATION, if exposed to ammonia fumes from diammonium phosphate, give artificial respiration and oxygen if needed; enforce rest. EYES: flush with water for at least 15 min.; if irritation persists, get medical attention. SKIN: flush with water.

5.4 **Toxicity by Inhalation (Threshold Limit Value):** Data not available

5.5 **Short-Term Inhalation Limits:** Data not available

5.6 **Toxicity by Ingestion:** Data not available

5.7 **Late Toxicity:** Data not available

5.8 **Vapor (Gas) Irritant Characteristics:** Data not available

5.9 **Liquid or Solid Irritant Characteristics:** Data not available

5.10 **Odor Threshold:** Odorless

6. FIRE HAZARDS

6.1 **Flash Point:** Not flammable

6.2 **Flammable Limits in Air:** Not flammable

6.3 **Fire Extinguishing Agents:** Not pertinent

6.4 **Fire Extinguishing Agents Not to be Used:** Not pertinent

6.5 **Special Hazards of Combustion Products:** Toxic and irritating fumes of ammonia and oxides of nitrogen may form in fires.

6.6 **Behavior in Fire:**

6.7 **Ignition Temperature:** Not pertinent

6.8 **Electrical Hazard:** Not pertinent

6.9 **Burning Rate:** Not pertinent

7. CHEMICAL REACTIVITY

7.1 **Reactivity with Water:** No reaction

7.2 **Reactivity with Common Materials:**

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

8. WATER POLLUTION

8.1 **Aquatic Toxicity:** 155 ppm/96 hr/fathead minnow/LC_{50}

8.2 **Waterfowl Toxicity:** Data not available

8.3 **Biological Oxygen Demand (BOD):** Data not available

8.4 **Food Chain Concentration Potential:** None

9. SELECTED MANUFACTURERS

1. J. T. Baker Chemical Co.
Phillipsburg, N. J. 08865
2. Mobil Oil Corporation
150 E. 42nd Street
New York, N. Y. 10017
3. Occidental Chemical Co
P. O. Box 198
Lathrop, Calif. 95330

10. SHIPPING INFORMATION

10.1 **Grades or Purity:** Reagent, Technical

10.2 **Storage Temperature:** Ambient

10.3 **Inert Atmosphere:** Ventilated (forced)

10.4 **Venting:** Open

11. HAZARD ASSESSMENT CODE

(See Hazard Assessment Handbook, CG 446-3)

SS

12. HAZARD CLASSIFICATIONS

12.1 **Code of Federal Regulations:** Not listed

12.2 **NAS Hazard Rating for Bulk Water Transportation:** Not listed

12.3 **NFPA Hazard Classifications:** Not listed

13. PHYSICAL AND CHEMICAL PROPERTIES

13.1 **Physical State at 15°C and 1 atm:** Solid

13.2 **Molecular Weight:**
Monoammonium: 115
Diammonium: 132

13.3 **Boiling Point at 1 atm:** Not pertinent (begins to decompose at 100°C)

13.4 **Freezing Point:** Not pertinent (begins to decompose at 100°C)

13.5 **Critical Temperature:** Not pertinent

13.6 **Critical Pressure:** Not pertinent

13.7 **Specific Gravity:**
Diammonium: 1.8 at 20°C (solid)
Monoammonium: 1.6 at 20°C (solid)

13.8 **Liquid Surface Tension:** Not pertinent

13.9 **Liquid-Water Interfacial Tension:** Not pertinent

13.10 **Vapor (Gas) Specific Gravity:** Not pertinent

13.11 **Ratio of Specific Heats of Vapor (Gas):** Not pertinent

13.12 **Latent Heat of Vaporization:** Not pertinent

13.13 **Heat of Combustion:** Not pertinent

13.14 **Heat of Decomposition:** Not pertinent

13.15 **Heat of Solution:** 42 Btu/lb = 23 cal/g = 0.97×10^5 J/kg

13.16 **Heat of Polymerization:** Not pertinent

(Continued on pages 5 and 6)

3. CHEMICAL DESIGNATIONS (Cont'd)

3.4 **IMCO/United Nations Numerical Designation:** Not listed