ON-SCENE COORDINATOR'S REPORT

CERCLA REMOVAL PROJECT

INTERNATIONAL DISC CORPORATION

ELLSWORTH, MICHIGAN

SITE ID #4C

DELIVERY ORDER NOS.

PHASE 1	PHASE 2
6894-05-065	7360-05-021

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Phase 1

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Phase 2

Emergency and Enforcement Response Branch
Office of Superfund
Waste Management Division
Region V
United States Environmental Protection Agency

EXECUTIVE SUMMARY

On March 7, 1986, the United States Environmental Protection Agency (U.S.EPA) initiated Phase 1 of a removal action at the International Disc Corporation in Ellsworth, Michigan. The removal action was taken to mitigate the threats to public health posed by the presence of open vats containing large quantities of strong acids, bases, flammable, and cyanide-bearing materials. These materials posed threats through direct contact, fire/explosion, and through potential creation of toxic hydrocyanic acid fumes.

The primary objective of Phase 1 was to stabilize the site. This was accomplished by overpacking open drums, lab bottles, and cyanide containers. Fifteen overpacks were used for this purpose. Open vats and drums were covered and asbestos bricks inside room 11 were covered with Visqueen. The site was inspected for open transformers and all were sealed. The final steps were to restrict access as much as possible. Windows and doors were boarded and fencing was erected around open areas of room 11.

On July 21, 1987, the U.S. EPA implemented Phase 2 of the removal action. Approximately 3,900 gallons of liquids (acids, bases, flammable, or cyanide-bearing) were transported off-site for treatment. Approximately 130 cubic yards of hazardous waste solids were shipped off-site for treatment as well. Also included in the off-site disposal were five transformer carcasses sent for incineration. All actions taken were consistent with the National Contingency Plan.

The removal was completed on October 13, 1987, at an estimated cost of $534,566.20, of which $365,153.58 was for the Emergency Response Cleanup Services (ERCS) contractor. The On-Scene Coordinators were Robert W. Bowlus, Phase 1 and Peter D. Neithercut, Phase 2.

Robert W. Bowlus
On-Scene Coordinator

Peter D. Neithercut
On-Scene Coordinator

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1.0 SUMMARY OF EVENTS

1.1 Site Location and Description

International Disc Corporation (IDC) is located at 92126 Lake Street, Ellsworth, Michigan, near the southeastern junction of County Roads 48 and 65, in Antrim County (Figure 1). A public road bisects the two principal building corridors of the facility. The site is bordered on the north by an Amoco Oil Distribution facility and the Ellsworth Farmers Exchange; the south by a public boat ramp owned by the Michigan Department of Natural Resources (MDNR); the east by Ellsworth Lake, a recreational lake that is part of a 13-lake chain which feeds into Lake Michigan via Grand Traverse Bay, and the west by a residential area.

Since its inception in the 1950's, IDC has operated under the names Morweld Steel Company and Disco Manufacturing Company. Operations have included metal plating, painting, and metal heat-treating. The buildings located on the west side of the site were once a food cannery and were purchased by IDC in the 1960's.

In addition to the buildings on the property there exists a well, a cistern, and a lagoon once used as a settling basin for approximately 40,000 gallons per day of cooling and processing water. The lagoon is reported to be 15 feet deep, with walls of 10-foot thick clay and a basin of crushed stone. Soils in the area are loamy and sandy. An abandoned railroad grade runs through the center of the site (Figure 2).

1.2 Initial Situation

During facility operations, IDC had been repeatedly cited for storage violations, illegal disposal of heat-treat wastes and oils, and illegal hauling of wastes. Reportedly, local residents periodically complained that the facility was discharging oil into Ellsworth Lake. Facility operations ceased in 1979. The property was inspected in June 1985 under the auspices of the Resource Conservation and Recovery Act (RCRA). As a result, MDNR ordered disposal of all waste materials at a licensed hazardous waste facility. The potentially responsible parties (PRPs) did not respond effectively to the determination.

In November 1985, the MDNR obtained a warrant to inspect the IDC facility. Samples were collected indicating that the waste stored on the grounds included cyanides and strong acids. Environmental samples indicated elevated metal concentrations in the soils and sediments.

In January 1986, an order was issued by the Michigan Department of Public Health (MDPH) to IDC, ordering IDC to mitigate the problems posed by improper storage of hazardous waste on the site. The order was contested by attorneys representing IDC, and again the PRP did not respond effectively to the order. The case was referred to the U.S. EPA for assessment.

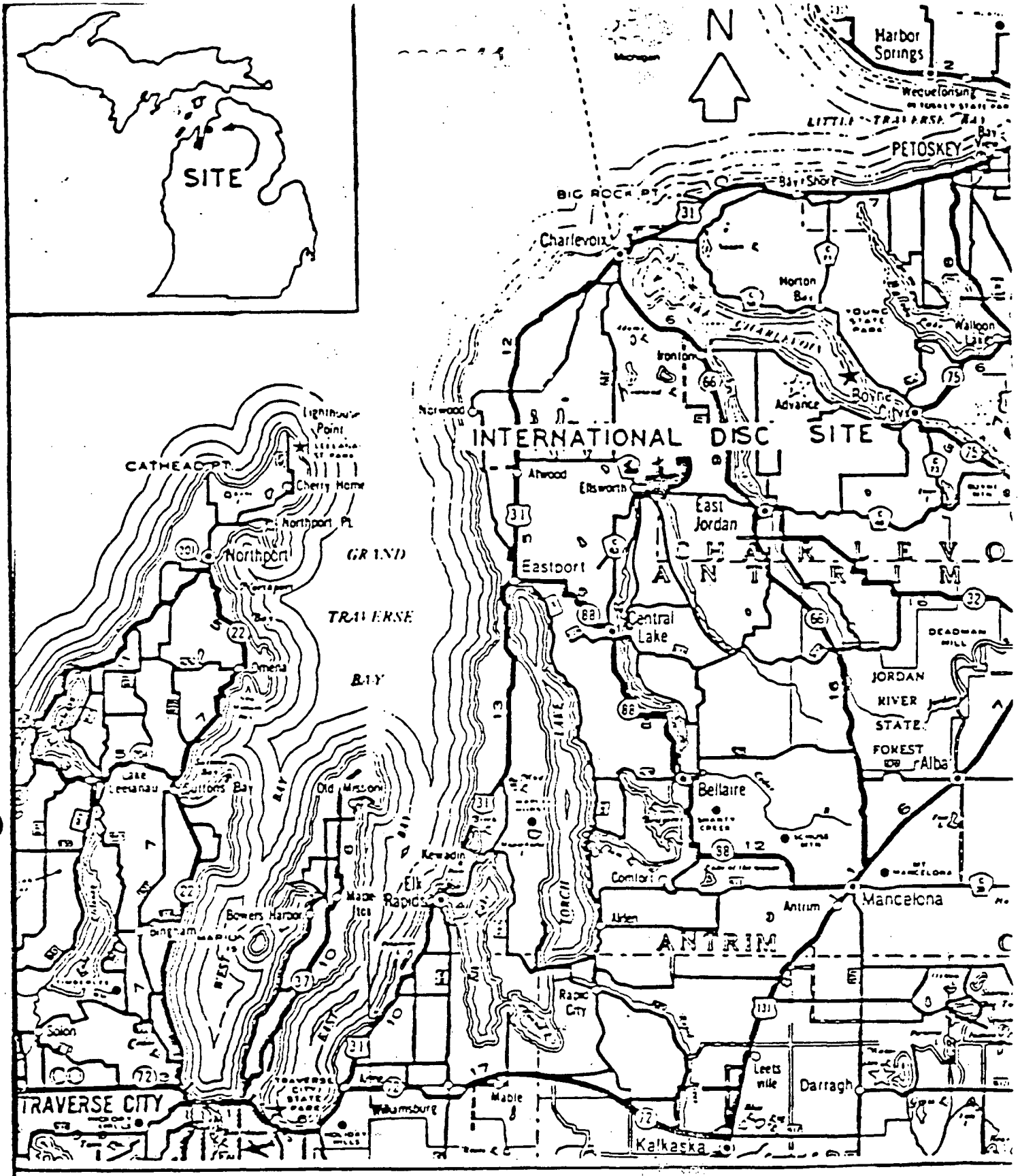


FIGURE 1. SITE LOCATION MAP.
INTERNATIONAL DISC SITE
ANTRIM CO., MICHIGAN.

Scale 1" = 10 miles

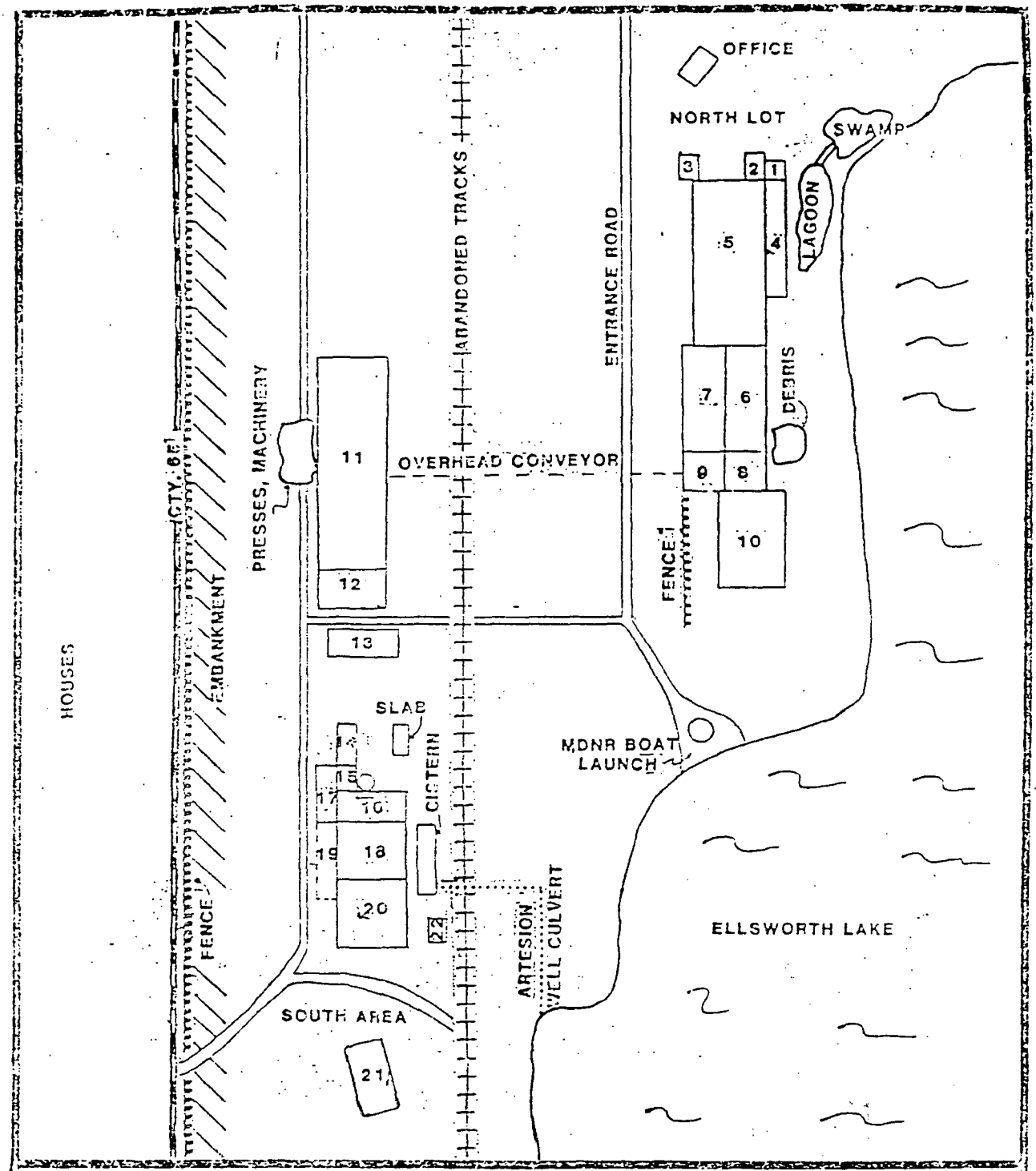


FIGURE 2

SITE MAP

INTERNATIONAL DISC

ELLSWORTH, MICHIGAN

NO SCALE

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Among conditions found on site by MDNR and the U.S. EPA Technical Assistance Team (TAT) investigators that posed a significant risk to human health or the environment as outlined in 40 CFR Part 300.65(b)(2) were: Acids, bases, and other unknown materials were stored in open vats, open drums, and laboratory bottles. There were unsealed transformers which may have contained PCBs. Asbestos bricks were found in an open room. Unsecured cyanide containers stored close to drums of strong oxidizers, posing a threat of hydrogen cyanide release. Metal plating and heat-treating chemicals were stored in areas with floor drains that entered nearby waterways. The MDNR had documented contamination of the lagoon and soils surrounding the IDC facility. Rain and snowmelt could also carry contaminants from the open vats and drums into the floor drains that empty into the lagoon. Some materials stored in vats and drums had low flash points, allowing for production of flammable vapors at low temperatures. Potentially explosive sodium nitrates were found in the heat-treating salts.

The site assessment concluded that the following measures were of immediate need: Overpacking open drums, lab materials, and cyanide containers; covering open vats in the plating lines; sealing open transformers; and restricting access to the buildings by fencing off open doors and boarding up windows.

1.3 Federal Cleanup Action

Phase 1: On March 7, 1986, verbal approval was granted to Robert Bowden, Region V Emergency Response Section Chief, by Valdas Adamkus, Regional Administrator, to expend up to $40,000 for the provision of site security and an extent of contamination study. The verbal approval was confirmed in writing on May 14, 1986.

On March 8, 1986, the U.S. EPA Region V Office of Regional Counsel issued a verbal notification to the potentially responsible parties. This notification served as a mechanism to demonstrate the intent of the Federal Government to take corrective action at IDC if action was not taken by the PRPs. The PRP agreed to commence site stabilization activities the following week. When the PRP did not commence site stabilization, the U.S. EPA conducted a site stabilization action from March 12 through March 14, 1986. The On-Scene Coordinator (OSC) for the first phase was Robert W. Bowlus, U.S. EPA, Region V, Eastern Response Unit. The removal activities were conducted by PEI Associates with OH Materials as the on-site cleanup contractor.

The site stabilization activities entailed four major tasks:

1. Overpack Open Drums, Lab Bottles, and Cyanide Containers

Fifteen overpacks were used to secure the cyanide containers and laboratory bottles in room 4, acid and fiber drums throughout the site, toluene from outdoors, and cobalt from the southern-most building. Chemicals were lab packed in room 12 until it was observed that the roof over the room was nearing collapse.

2. Cover Open Vats and Drums

The vats containing material in rooms 4, 5, 16, and 18 were covered with plywood and visqueen. Drums inside room 11 and west of room 11 were covered with visqueen. Asbestos bricks inside room 11 were covered with visqueen.

3. Inspect and Seal Open Transformers

The transformers in rooms 5 and 11 and outside of room 19 were inspected and open transformers were sealed.

4. Restrict Access to the Buildings

Twenty-four-hour security was arranged beginning March 7, 1986, until the site was secured on March 14, 1986. Rooms were secured by boarding windows and securing doors in rooms 5, 9, 11, 15, 16, 17, and 18. Fencing around the open areas of room 11 was erected.

The MDPH then attempted to enforce their order of January 1986, but continued to receive an inadequate response from the PRP. The MDPH and MDNR requested further assistance of the U.S. EPA. In response to Michigan Departmental requests, a site assessment was conducted by the TAT and U.S. EPA in February 1987, to evaluate the progress of the removal action. The site assessment showed the PRP had made little progress and a further Federal cleanup action was necessary to mitigate the hazards site access posed.

Phase 2: In order to continue the removal activities at the IDC, it was necessary to obtain approval to spend additional monies for Phase 2. An Action Memorandum requesting an increase of the total project ceiling from $40,000 to $464,100 was submitted on July 21, 1987 by OSC Neithercut, to the Regional Administrator. The project ceiling increase was approved that same day. The OSC for the second phase of the Federal Cleanup Action at IDC was Peter D. Neithercut of the U.S. EPA, Region V, Eastern Response Unit. The removal was performed by a Region V Emergency Response Cleanup Services (ERCS) contractor, MAECORP, Incorporated, Homewood, IL.

On July 21, 1987, Maurice Taylor was served a Federal Access Warrant by James Swanson, Special Agent, U.S. EPA Office of Criminal Investigations. The warrant granted the U.S. EPA and its contractors access to the property from July 21 through September 19, 1987, from the hours of 0800 to 1800. On August 4, the search warrant was amended at the request of U.S. Attorney John Smietanka and the hours were extended from 0700 to 1900. The objectives of the Federal Cleanup Action were: 1) identify all aboveground hazardous materials on the IDC site; 2) to transfer all hazardous waste materials found on site into proper shipping containers; 3) to decontaminate vats and baths on site that had once contained or were found to contain hazardous materials; 4) to secure and isolate friable asbestos; 5) to dispose of all hazardous waste materials; and 6) to conduct an extent of contamination study.

For ease of discussion, this section is divided into 11 subsections, each of which corresponds to a major task or aspect of the action. The tasks are presented on a Time/Activity Line (Figure 3).

1.3.1 Safety and Support Facilities

A site safety plan was developed by the TAT and adopted by the OSC as the official site safety plan. The plan defines levels of personal protection which were required for specific tasks, and was amended as warranted by changes in site conditions. All personnel authorized to be on-site under access granted by the Federal Warrant were required to read the site safety plan and sign a statement confirming that they had read and understood the plan. On July 22, 1987, a meeting was held between OSC Neithercut, the TAT, and MAECORP Division Manager (acting Response Manager) Jeffrey Clark to discuss site safety and cleanup strategies. At this time, work orders were cut initiating the removal. The office, trailer, decontamination zone, electricity and telephone connections were installed the week of July 27 through July 31, 1987.

Delineations of the exclusion zone were modified with changes in site activities, and in accordance with the access warrant. The hot zone initially included all of the buildings on the property. As specified in the warrant, the Federal cleanup action could only be conducted on the facility grounds until the evening of September 18, 1987. By September 19, 1987, all hazardous waste materials identified during the removal had been staged off of IDC property (Figure 4).

Heat stress was a major safety consideration; summertime temperatures often reached the upper 90 degrees F. Heat stress symptoms were explained to crew members, the "buddy" system enforced, and precautions for avoiding heat stress were discussed at daily safety meetings. Precautionary measures (adequate break times, replenishing of fluids) were taken, and as a result no crew member needed to be treated for heat stress.

Slip/trip/fall hazards were a major safety consideration due to the large quantity of scrap metal, and the poor condition of the structures. In addition, several large pits were located throughout the buildings. Once hazardous waste materials were removed from these areas, they were cordoned with caution tape. All personnel authorized to be on-site were briefed of these hazards, and reminded of them in the daily safety meetings. (See Site Safety Plan-Appendix J)

1.3.2 Air Monitoring

Monitoring of volatile organic compounds was conducted on a daily basis using an HNU Photoionization Detector. Levels of volatile organic compounds were monitored to ensure the correct selection of protective respiratory equipment during site activities. Monitoring of oxygen concentrations and lower explosive limits was conducted using a Combustible Gas Indicator (CGI). The partial

FIGURE 3

Activity timeline - IDC - Phase II

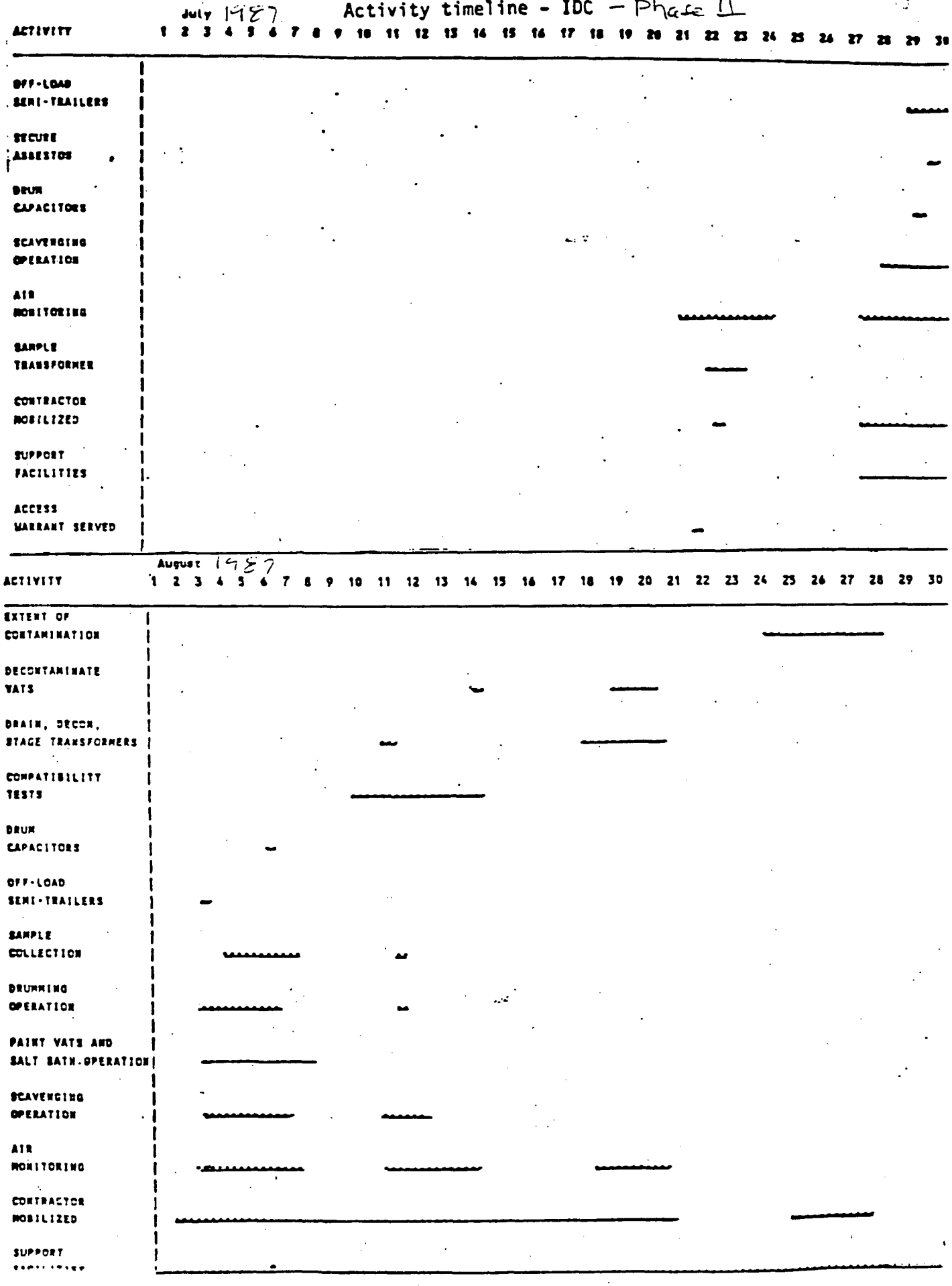
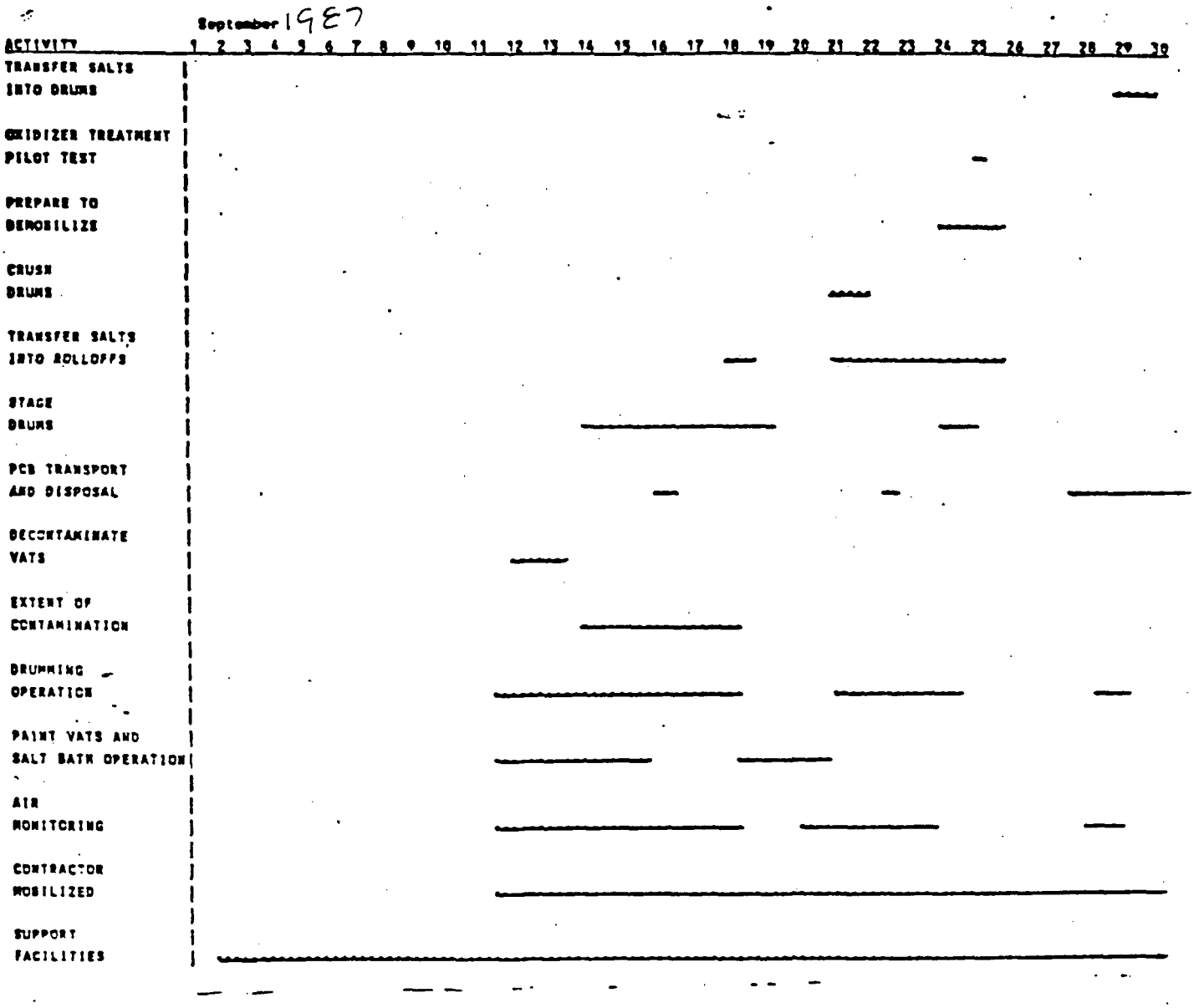
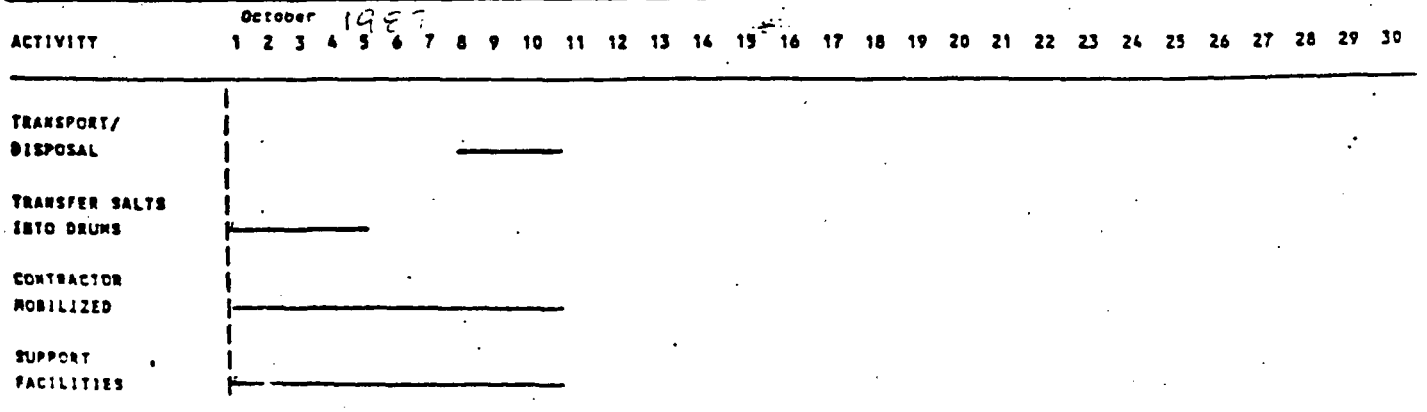


FIGURE 3 (cont)

Activity Timeline - IDC - Phase II





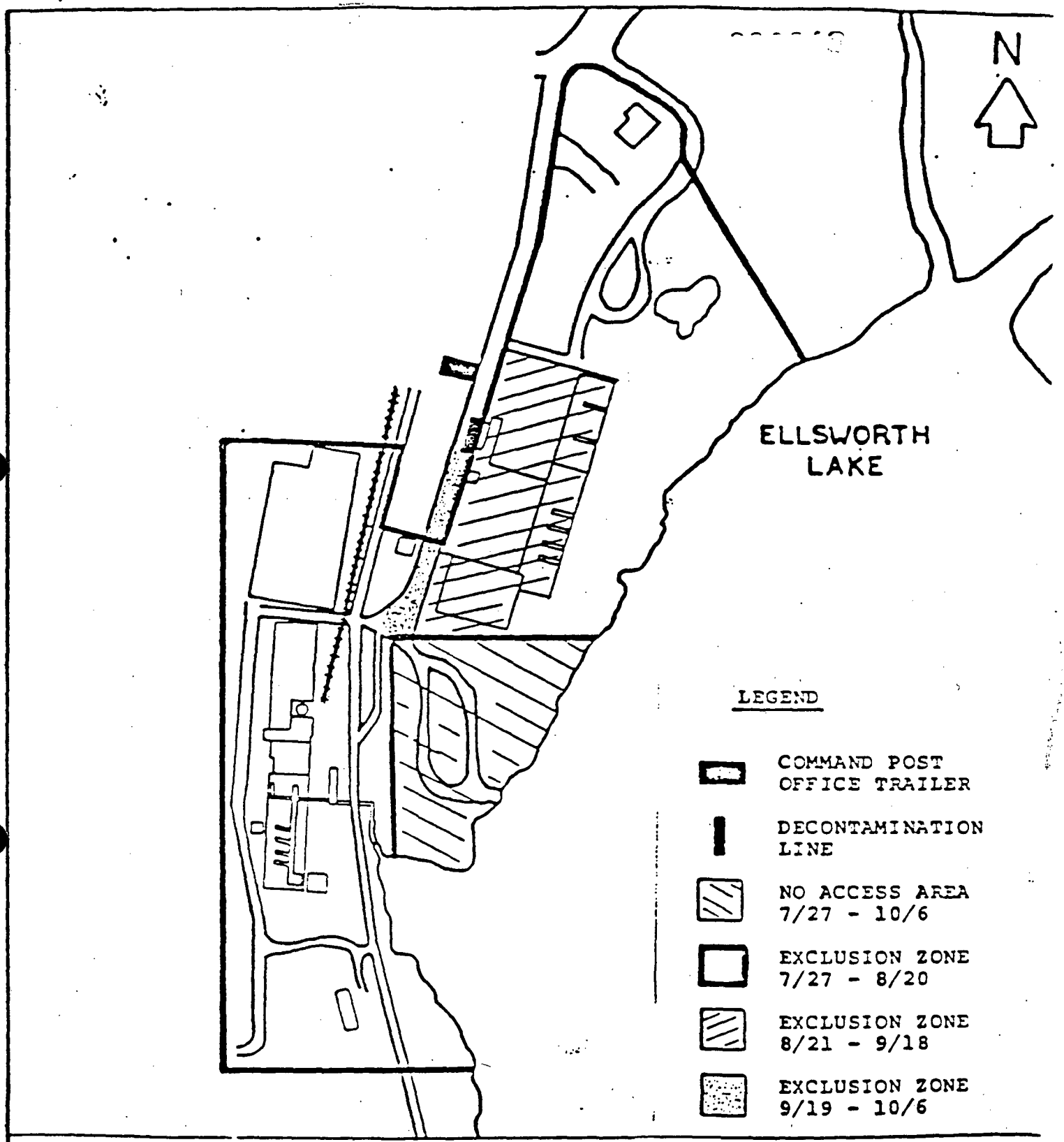


FIGURE 4. INTERNATIONAL DISC CORP.
ZONE DELINEATION MAP.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

SCALE 1"≈ 240'

pressure of atmospheric oxygen was monitored to ensure the proper selection of respiratory equipment. Combustible gases and vapors were monitored in terms of their lower explosive limits to ensure safe working conditions. Monitoring was conducted with a radiation meter to ensure that no radioactive materials existed on-site. Monitoring of hydrogen cyanide gas and hydrogen chloride gas was conducted with a Draeger pump and tubes, when warranted by specific site activities, to ensure the proper selection of respiratory equipment. Monitoring of friable asbestos concentrations was conducted to ensure worker safety and validate the integrity of the visqueen used to secure asbestos-containing materials until a later date when they could be removed by the PRP. (See data in Appendix Q)

1.3.3 Scavenging Operation

An extensive site reconnaissance tour was conducted from July 21 through July 24, 1987 and a site inventory compiled. Based on the site inventory, a structured scavenging operation was conducted from July 28 through August 12, 1987 in which each room and site area was thoroughly inspected for hazardous and unknown waste materials. Those items and materials suspected of being or containing hazardous waste were noted for sampling. Any materials that required sampling and characterization were staged in Room 10. All empty drums were collected and staged in Room 5.

1.3.4 Off-Loading Operation

Two semi-trailers positioned on the north side of the site were found to be loaded with spent heat-treat salts. These salts were contained in fiber drums and one cubic-yard cardboard boxes. All the drums and boxes were open, and stacked on pallets. Most of the containers and pallets were in poor condition. The front legs on many collapsed when moved. The trailers had sunk into the ground, further complicating the unloading. A pathway was cleared leading from the trailers to the staging areas in Rooms 8 and 10. ERCS crew members relocated the palletized salt containers to the staging areas using a pallet jack and backhoe fitted with forks.

1.3.5 Asbestos Operation

An investigation of insulating materials found on-site revealed the presence of asbestos. A heating unit in Room 4 and two metal bins containing asbestos-brick were secured with visqueen and caution tape. The boiler room was also secured and barricaded. These measures were employed to contain the friable asbestos until it could be abated by the RP.

1.3.6 Paint Vats and Salt Bath Operations

Paint vats in Room 4 were found to contain solidified paint wastes. The wastes were scraped from the vats and packaged in proper shipping containers. Solidified heat-treat salts were found in a salt bath in Room 4. The spent salts were removed from the bath using a jackhammer, and were packaged in proper

shipping containers. The containers of paint wastes and spent salts were staged in Room 10.

1.3.7 Methyl Chloride Cylinder

A methyl chloride cylinder was discovered in Room 5. It was in fair condition, and, due to its weight, was judged to contain liquid methyl chloride. Identifying markings indicated it was manufactured by Park Chemical of Detroit, Michigan. The firm was contacted, and the cylinder was removed from the site at the expense of Park Chemical.

1.3.8 PCB-Contaminated Waste

Characterization

On July 21 through July 24, samples were collected from each of 12 transformers that were situated on platforms. Of these samples, three were selectively chosen, and a PCB-screening test conducted in the field, using "Dexsil Chlor-in-Oil" PCB Screening Test Kits. All 12 samples were analyzed by Kar Laboratories, Kalamazoo, Michigan. Of these 12 transformers, four contained oil with PCB concentrations between 50 and 500 ppm; the remaining eight had concentrations less than 50 ppm. In August, two additional transformers were sampled. One contained oil with PCB concentrations non-detected, and the other approximately 105 gallons of Askeral oil. Eighteen capacitors containing PCBs were also discovered. This material was found in a collapsed building.

Packaging and Disposal

The capacitors were placed in three 85-gallon drums. Approximately 225 gallons of diesel and creosol rinsates were generated from the decontamination of the transformer carcasses. This was collected in new DOT-approved shipping containers. Approximately 875 gallons of PCB-contaminated oil were generated by draining transformers. The total number of PCB and PCB-contaminated items included: 5 transformer carcasses, 3 drums of overpacked capacitors, 16 drums of oil, 1 drum of solid crystals, and 3 drums of rinsates. All PCB and PCB-contaminated material was transported by National Electric to Pyrochem for treatment and disposal. Non-PCB transformers and oils were not scheduled for disposal.

1.3.9 Non-PCB Contaminated Waste

Waste Characterization

The contents of 136 fiber drums and one cubic-yard container, 94 steel drums, and 3 vats of liquid were sampled. Compatibility tests were conducted on-site by the MAECORP field compatibility laboratory. Based on the results, the 233 samples were each identified to be characteristic of one of 16 waste streams. Not all streams were found on site. A representative sample of each waste stream was then analyzed for disposal/treatment parameters. Several additional samples were collected after the

demobilization of the field compatibility laboratory, and were analyzed individually for disposal/treatment parameters.

Packaging of Waste Streams

Upon waste characterization, approximately 64 cubic yards of spent heat-treat salts from the original fiber drums were transferred into 226 steel drums using a hopper. The transfer of 12 vats of liquids and solids into shipping containers generated 785 gallons and more than 3 cubic yards of wastes which were characterized as oxidizers, acids, or cyanide materials. The transfer of liquids and solids from 94 drums in poor condition into shipping containers, in addition to decontamination rinse water and materials generated by the cleanup itself (disposable clothing, crushed drums), generated 2,770 gallons and 68 cubic yards of wastes, which were characterized as flammable, corrosive combustible, non-hazardous, or flammable corrosive material.

1.3.10 Disposal Summary

The disposal facilities used during this removal were:

1) Pyrochem, Inc., Coffeyville, Kansas
2) CyanoKEM, Inc., Detroit, Michigan
3) Environmental Waste Control, Inkster, Michigan
4) Wayne Disposal, Belleville, Michigan
5) ThermalKEM, Rock Hill, South Carolina

The waste categories, quantities, and disposal facilities are listed in Table 4. (See manifests in Appendix X)

1.3.11 Extent of Contamination

The site was divided into five zones for the extent of contamination study. Zone 1 included the west drainage system, Zone 2 the southeastern area, Zone 3 the southwestern shoreline, Zone 4 the eastern drainage system and lagoon, and Zone 5 the northeastern area. Sample locations of all soil and sediment samples collected are presented in Figure 5.

Extractable Organic Compounds

Sixteen soil and sediment samples were analyzed for extractable organic compounds. Table 1 presents a summary of analytical data. Only the five samples that indicated concentrations of at least one compound greater than the respective detection limits are listed. A complete list of data is presented in Appendix W. Sample locations are shown in Figure 6.

Extraction Procedure Toxicity Test (EP Tox)

A total of 46 soil and sediment samples were analyzed using the EP Tox Test. Four samples exceeded the maximum concentration characteristic for EP Toxicity, and were confined to sump and drain areas within the building in Zone 1. A summary of

FIGURE 5. INTERNATIONAL DISC CORP.
SAMPLE LOCATION MAP

SCALE 1" ≃ 170'

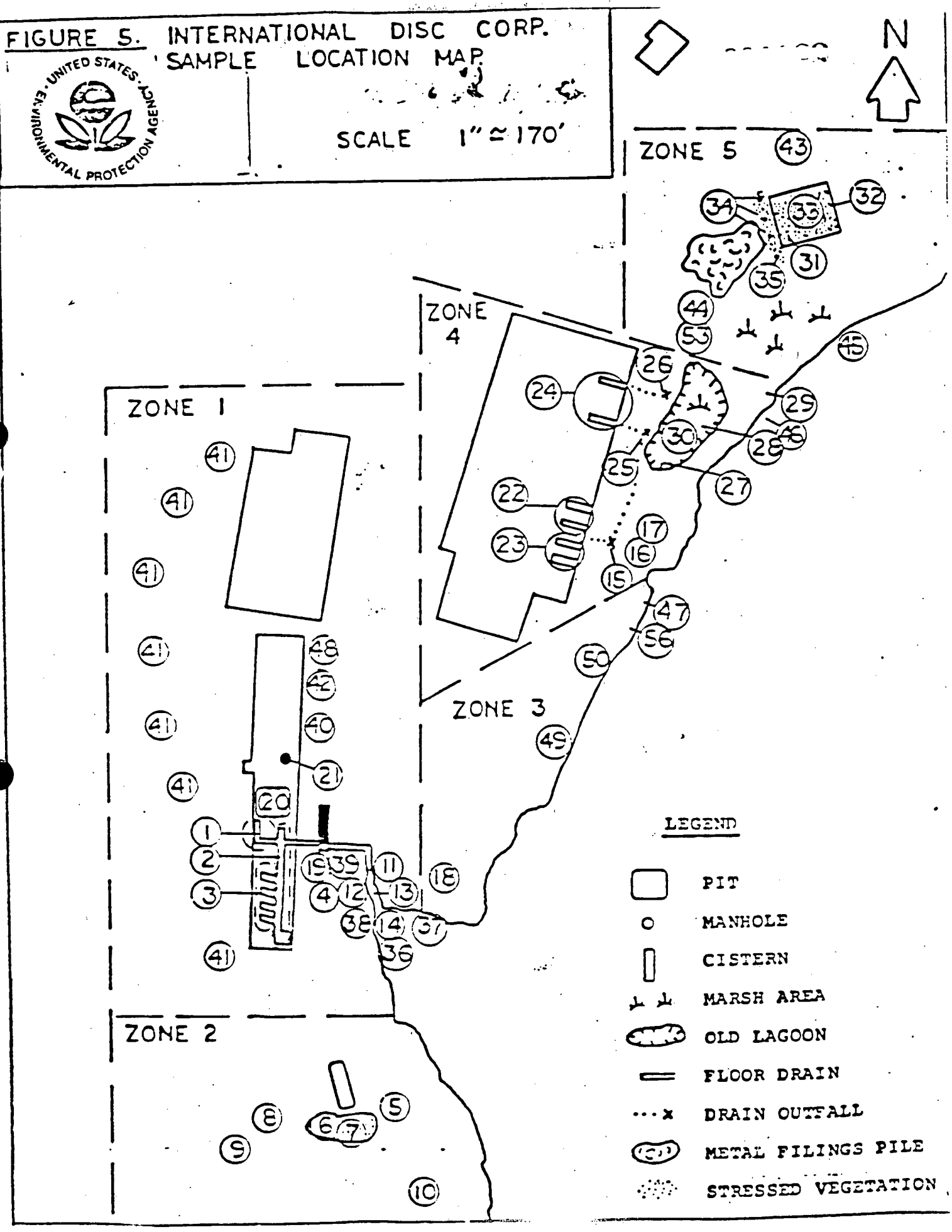
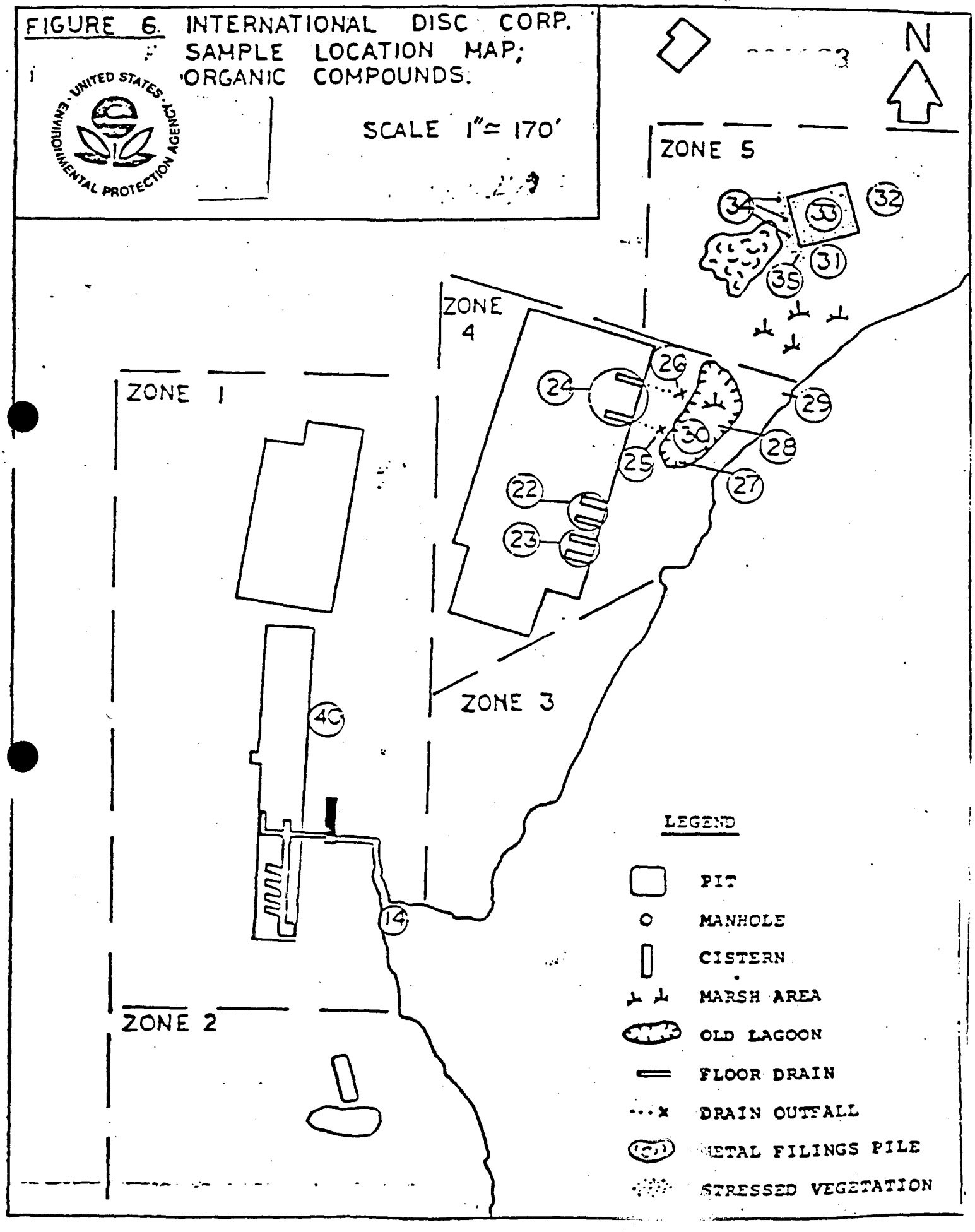


FIGURE 6. INTERNATIONAL DISC CORP. SAMPLE LOCATION MAP; ORGANIC COMPOUNDS.

SCALE 1"≈ 170'



analytical data is presented in Table 2. Only those samples that exceeded the standards are listed; a complete list of data is presented in Appendix W. Sample locations are shown in Figure 7.

Total Metal Concentrations

A total of 21 soil and sediment samples were analyzed for total metal concentrations. No standards are available for total metal concentrations in soils or sediments; however, criteria exist for typical element concentrations in natural soils. Table 3 presents a summary of analytical data; a complete list of data is presented in Appendix W. Locations of samples are presented in Figure 8.

1.4 State and Local Efforts to Clean Up Site

Numerous efforts were undertaken by the local, State, and Federal agencies from 1967 until the U.S. EPA removal activities.

The MDNR, Cadillac District, inspected the two outlets to Ellsworth Lake, berm constructions along the lake, general dumping (including zinc chromate paint), and slime growth in the lake, on June 13, 1967. The MDNR later received a complaint that a bright green liquid was being discharged into Ellsworth Lake from Morweld Steel.

Laboratory results received by the MDNR on July 20, 1970, indicated that chrome and phosphate were present in effluent from Morweld Steel into Ellsworth Lake. Inspection of Ellsworth Lake shoreline by MDNR on August 24, 1972, noted the presence of algae (Cladaphora) but there was no easily observable effect on Ellsworth Lake due to wastewater from Morweld Steel. MDNR sent a letter to Morweld Steel on September 5, 1972, citing them for illegal disposal of plating wastes and oils.

A Facility Inspection Report (FIR) submitted by the MDNR on March 9, 1979, cited Disco Manufacturing, Inc., for failure to meet complaince dates for a Pollution Incident Prevention Plan (PIPP) and a National Pollution Discharge Elimination System (NPDES) permit application. A follow-up inspection noted that a limited cleanup had been conducted but many drums remained.

A FIR conducted by the MDNR on May 11, 1982, found that drums had been moved inside the buildings but the storage methods were inadequate. Discharge to Ellsworth Lake continued. Samples collected on September 2, 1982, by the MDNR from drums on site exhibited the characteristics of EP toxicity. The MDNR issued compliance dates for removal of drums. A follow-up FIR on July 26, 1983, observed that 83 barrels had been removed but several drums of old salts, new processing salts, and liquids remained.

An MDNR investigation conducted under the auspices of the RCRA was conducted in June 1985. This inspection identified the presence of various hazardous wastes. The MDNR indicated that all hazardous waste still remaining on the premises should be disposed of at a permitted hazardous waste removal facility. In November 1985, the MDNR obtained a warrant to inspect the IDC facility.

FIGURE 7. INTERNATIONAL DISC CORP.
SAMPLE LOCATION MAP
EP TOX.

SCALE 1" ≈ 170'

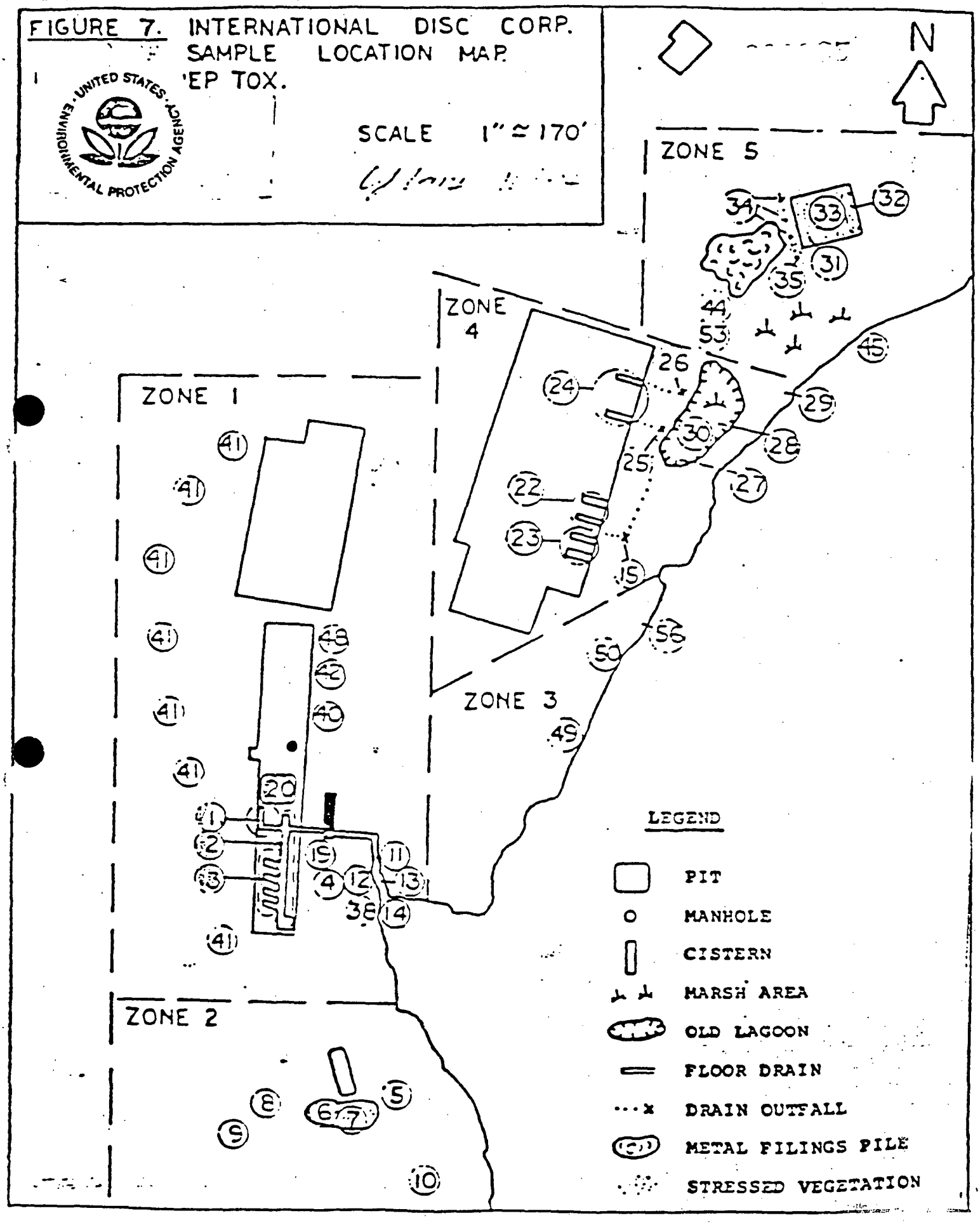
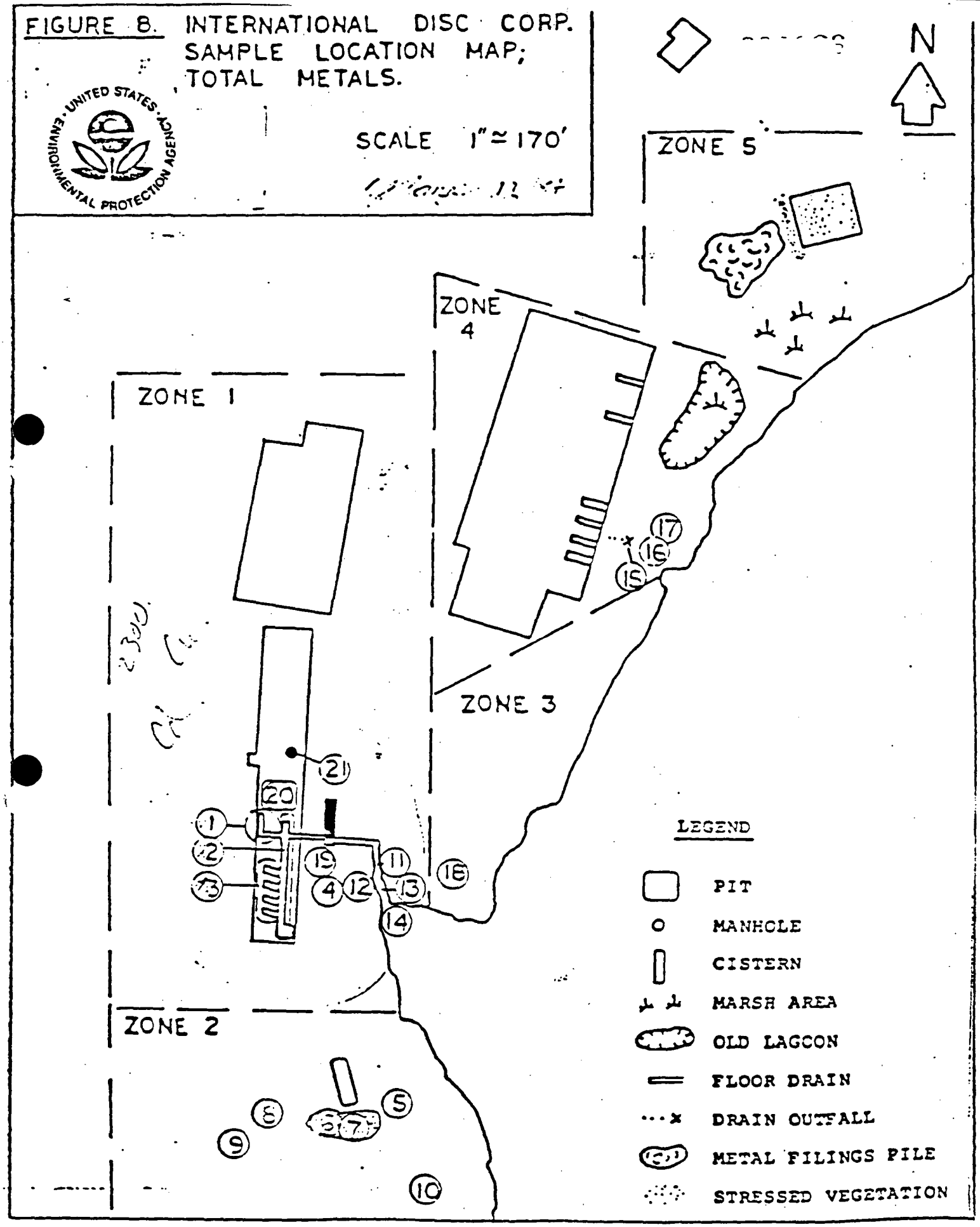


FIGURE 8. INTERNATIONAL DISC CORP. SAMPLE LOCATION MAP; TOTAL METALS.

SCALE 1" ≈ 170'



Samples collected during this inspection indicated elevated levels of heavy metals in the soils and sediments. The inspection also noted that ignitable, corrosive and toxic materials were still being stored on the premises, including improperly stored cyanides and acids.

In January 1986, an order was issued by the MDPH to IDC requiring the facility to: 1) mitigate physical and chemical hazards posed on the property; 2) submit to the MDPH a Plan of Action that would address the mitigation of potential physical and chemical hazards; 3) comply with hazardous waste handling and storage regulations; 4) restrict access with fencing until such time that the property no longer posed threats; and 5) grant site access to MDPH and MDNR personnel.

This order was contested by the IDC attorney, and no apparent effort was made to comply with the stipulations of the order. As a result of the consistent lack of action on the part of IDC personnel, the MDNR and MDPH requested the U.S. EPA assess hazards posed by the site. A site assessment was conducted and, on March 11, 1986, a Federal Cleanup Stabilization Action coordinated by OSC Robert Bowlus took place. The MDPH then attempted to enforce their order of January 1986, but continued to receive an inadequate response from the PRP. The MDPH and MDNR requested the assistance of the U.S. EPA, which resulted in this Federal cleanup action.

1.5 Summary of Expenditures

Site Stabilization activities (Phase 1) commenced on March 7, 1986, and were completed on March 14, 1986. Expenditures for services and materials provided by an ERCS subcontractor, totalled $13,964.68. Expenditures for services and materials provided by the TAT totaled $2,610.70. Costs incurred by the U.S. EPA totaled $1,500.00. A summary of all costs is provided in Table 6. These costs are subject to verification by the Financial Management Branch (FMB) of the U.S. EPA.

Site cleanup activities (Phase 2) commenced on July 22, 1987, and were completed on October 13, 1987 (Table 5). Expenditures for services and materials provided by MAECORP totaled $351,188.90. Expenditures for services and materials provided by the TAT totaled $71,761.21. Costs incurred directly and indirectly by the U.S. EPA totaled $93,540.71. A summary of all costs is presented in Table 6. These costs are subject to verification by the FMB.

1.6 Community Relations

Attention to the facility was brought by local citizens concerned over discharges into Ellsworth Lake and the dilapidated state of the buildings. These problems prompted the initiation of a site investigation and subsequent stabilization action by the U.S. EPA at the abandoned facility. Local newspapers and television stations increased public awareness of the State and Federal actions at the site.

Phase 1 OSC Bowlus was present in Ellsworth, Michigan, at a public hearing in April 1986 to discuss the hazards remaining at the IDC property.

Community relations program was implemented by the U.S. EPA Office of Public Affairs (OPA), and Phase 2 OSC Neithercut. Periodic television and newspaper interviews were granted, and efforts initially established by the OPA and OSC continued throughout the cleanup action. (See newspaper articles, Appendix I)

1.7 Threats to Public Health and the Environment

The hazardous properties of materials present at the facility, and its proximity to residential and public recreational areas, presented threats to human health and the environment. Of particular concern was the fact that the public had easy, unrestricted access to the areas in which ignitable and corrosive acid and cyanide wastes were being stored.

A public road that leads to an MDNR owned boat ramp bisects the IDC premises. An abandoned railroad grade on the west side of the facility was regularly used by dirt-bike riders. Many secluded out-buildings in various states of disrepair made the unsecured property inviting to children.

Specific materials that posed threats included: 1) transformers containing PCB oil, particularly the Askeral transformer that was found in poor condition on the ground; 2) approximately 330 gallons of liquid waste that contained 7,200 ppm cyanide. This was found improperly stored in an open vat next to other vats and drums that contained waste acid liquid; 3) approximately 64 cubic yards of spent sodium nitrate salts, a characteristic hazardous waste; 4) unsecured asbestos-containing insulating materials in various areas throughout the property; 5) paint wastes, liquid and solid.

2.0 EFFECTIVENESS OF THE REMOVAL ACTION

2.1 Potentially Responsible Parties

The potentially responsible parties (PRPs) are:

1) Mr. Maurice Taylor, Jr., individually and as registered agent of 418922 Ontario Ltd. Mr. Taylor can be contacted at 17016 Mack Avenue, Grosse Pointe Park, Michigan 48230.

2) Ms. Madeline Taylor, as registered agent of Disc Coulter Stamping Corporation. Ms. Taylor can be contacted at 17016 Mack Avenue, Grosse Pointe Park, Michigan 48230.

3) Mr. Maurice Taylor, Sr., facility owner and operator. Mr. Taylor can be contacted in Ellsworth, Michigan.

4) Mr. Brent Taylor.

5) Mr. Arthur Reibel, land owner. Mr. Reibel can be contacted at 210 Belvedere Street, Charlevoix, Michigan 49720.

Notification of Potentially Responsible Parties:

On April 29, 1987, an Administrative Order was issued to the above-mentioned parties by the U.S. EPA under the authority of Section 106 (a) of the Comprehensive Environmental Response Compensation and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act (SARA). The Order stated the minimum actions that must be taken by the PRPs to mitigate the hazards posed by the facility. The PRPs did not comply with the order. Subsequent to the removal activities, an extensive PRP search was conducted. A draft report is included in Appendix Z.

2.2 State and Local Agencies

William Huber, District Representative for Congressman Robert Davis, visited the site during the cleanup action to become updated on the status of the threats to public health and to offer administrative support to the U.S. EPA. Sgt. Glen Hare, Environmental Conservation Officer, MDNR, provided support during the cleanup action, particularly during the issuance of the Federal Access Warrant.

Sheriff Guy Molby and Undersheriff John Meyette of the Antrim County Sheriff's Department provided support and offered assistance to the U.S. EPA. The Ellsworth Police Department offered its assistance to the U.S. EPA during the cleanup action. The Mayor of Ellsworth provided support to the U.S. EPA for the duration of the cleanup action. The fire chief of Ellsworth also lent support to the U.S. EPA during the cleanup action.

The MDNR is proposing to conduct further site assessment in 1990.

2.3 Federal Agencies

The U.S. EPA assumed responsibility as the lead Federal Agency for the IDC emergency response action. Departments active in lending support to the cleanup action were:

1) Region V Waste Management Division, Emergency Response Section, Eastern Response Unit;

2) Office of the Regional Counsel, Region V;

3) Office of Public Affairs, Region V;

4) Office of Criminal Investigations, Region V; and

5) Advanced Monitoring Systems Division, Environmental Photographic Interpretation Center.

The objectives of the U.S. EPA, as stated in Section 1.3 of the text, were met. United States Attorney John Smietanka, visited

the site in the initial stages of the cleanup action, submitted the initial request for the Federal Access Warrant, and offered his support to the U.S. EPA. As a result of Mr. Smietanka's assistance, the search warrant was amended to enable the cleanup action to be active 12 instead of 10 hours a day.

The U.S. EPA removal was limited to activities actionable under the removal program.

3.0 PROBLEMS ENCOUNTERED

During Phase 1 of the removal, March 12-14, 1986, extremely cold weather and deep snow occurred during the site assessment, making it difficult to determine the extent of contamination outside of the buildings and to assess the lagoon. Freezing rain slowed activities during part of the site stabilization.

For the purposes of this discussion, the problems encountered during this cleanup action are defined as those events which were not anticipated within the original scope of the plan that: 1) significantly impacted the removal time table; 2) significantly increased project expenditures; or 3) posed unique situations, the discussions of which could be expected to benefit other response personnel.

3.1 Waste Characterization

3.1.1 Cyanide and Sulfide Reactivity

Several samples of the spent heat-treat salts were characterized by Wadsworth Laboratory as having greater cyanide and sulfide reactivities than total cyanide and sulfide concentrations. The approved methods reportedly used by the laboratory were:

Total Sulfide	#9030
Total Cyanide	#9010
Sulfide Reactivity	SW846 Section 7.3.4.1
Cyanide Reactivity	SW846 Section 7.3.3.2

To conduct these procedures correctly, the samples must be treated with sulfamic acid to remove any interference nitrates might contribute. When the laboratory was questioned, it was determined that this precautionary step was not performed because the laboratory did not possess the appropriate equipment.

The OSC was directed by the Emergency Response Section Chief, Robert Bowden, to transfer the materials into rolloff boxes for storage until the analyses could again be conducted using the sulfamic acid treatment. With this action, if the material was determined to be non-hazardous, it could be transported to a landfill; if it was determined to be hazardous, it could be addressed as such while still in compliance with the stipulations of the access warrant.

Additional analyses were conducted on September 18, by Kar Laboratory, and the results for cyanide and sulfide reactivity were negative.

3.1.2 Spent Oxidizer Solids

In August, the (ERCS) field compatibility laboratory characterized the spent heat-treat material as an oxidizer. This determination was made using potassium iodide-starch test strip paper. On September 14, the material was characterized by Wadsworth Laboratory as not being an oxidizer using the same test procedure. Under the direction of Robert Bowden, Chief, Emergency Response Section, regarding the cyanide and sulfide reactivity (see above), the material and the containers in which they had been found (fiber drums, cardboard containers lined with visqueen) were transferred into roll-off boxes beginning September 17.

In an attempt to determine the proper shipping name assigned to the spent heat-treat materials and to resolve the conflicting laboratory results, a third analysis was conducted by Kar Laboratory. Kar used Method 330.65, Oxidant Determination for Hazardous Waste Samples. This procedure indicated that the material was indeed an oxidizer. Although there is no U.S. EPA approved method for the determination of the oxidizing potential of a substance, Method 330.65 is a titration analysis rather than a spot test, and was, therefore, considered to be more accurate.

It was agreed upon by the laboratories that the discrepancy in analytical results was most likely due to the content of nitrates in the salt. It was decided to conduct the test procedure used by the Department of Transportation (DOT) to determine whether or not the material was to be considered an oxidizer.

The DOT test method for the determination of oxidizing potential compares the vigor with which a standard burns to the vigor with which the sample burns. The standard used is a mixture of sawdust and ammonium persulfate in a 50:50 ratio by weight. The material in question is mixed with sawdust in a 50:50 and 80:20 ratio by weight. The standard and the two test cases are ignited. The speed and intensity with which each burns is observed. If the sample burns more vigorously than the standard, the material in question is considered to be an oxidizer.

The DOT test method was conducted by KAR Laboratory on September 29, 1987. The results were positive, and it was determined that the material required repackaging to comply with DOT regulations.

3.2 Material Handling

3.2.1 Salt Bath Operation

Spent solidified heat-treat salts were found in a salt bath in Room 4. The bath was approximately 4 feet wide, 20 feet long, and 4 feet deep. The hardness of the solidified material made hand shovels ineffective.

3.4 Disposal of Oxidizer Solids

CyanoKEM had originally quoted a treatment price of $125 per drum for 226 drums of oxidizer solid. Two semi-trailer loads containing a total of 151 drums of oxidizer solids arrived at CyanoKEM on October 9, 1987.

Before the trucks were off-loaded, a sample was collected from one of the drums and analyzed. The facility claimed that this sample was not the same material on which they had based a waste acceptance and price quotation, and the price for treatment was raised to $225 per drum. After the trucks were delayed by the facility for more than six hours, they were finally off-loaded. A third semi-trailer loaded with an additional 75 drums was off-loaded. The drums were to be staged at the facility while disposal alternatives were revaluated by the OSC. On October 19,1987, CyanoKEM agreed to accept the 226 drums of oxidizer solid at the original price quote of $125 per drum.

3.5 Transportation

On October 10,1987, two Northern-A1 semi-trailers departed the site. One truck was loaded with 75 drums of oxidizer solid bound for CyanoKEM, Detroit, Michigan. The second truck was loaded with 34 drums of liquid bound for Environmental Waste Control, Inkster, Michigan, and 13 drums of corrosive solids bound for CyanoKEM, Detroit, Michigan. Inkster is a suburb of Detroit.The oxidizer solids were delivered to the CyanoKEM and the liquid delivered to Environmental Waste Control. Due to an oversight by Northern-A1, corrosive solids were not delivered to CyanoKEM, but were transported back to the Northern-A1 terminal in Kalkaska, Michigan, approximately 220 miles north of Detroit. The OSC was notified of this situation on October 22. The corrosive solid was delivered to CyanoKEM on October 26.

3.6 Equipment Demobilized Without OSC Authorization

The OSC had authorized the demobilization of ERCS personnel, the loader, and the backhoe on October 5. The rented skid loader was to remain on-site until October 8, when ERCS crew members would be remobilized and the skid loader used to load trucks with palletized drums.

The skid loader was collected on October 6 by the rental firm. The security guard on duty had not been informed that the skid loader was to be removed from the site, and was unable to contact a site representative to confirm this.

On October 8, the OSC, TAT, and ERCS foreman arrived on-site and discovered that the skid loader had been removed from the site and returned to the rental firm facility. Two trucks scheduled to be loaded at 0800 and 1200 respectively, were rescheduled. The foreman procured a size 700 Bobcat with which to load the trucks. The Bobcat proved ineffective. A fork-lift was delivered to the site, and additional ERCS crew mobilized. The trucks were loaded and departed the site at 2300.

4.0 RECOMMENDATIONS

The OSCs, Robert W. Bowlus and Peter Neithercut, have no further recommendations at this time.

TABLE 1

SUMMARY OF EXTRACTABLE ORGANIC COMPOUND CONCENTRATIONS
IN SOIL AND SEDIMENT SAMPLES
INTERNATIONAL DISC CORPORATION
ELLSWORTH, MICHIGAN
1967
(results in mg/kg)

PARAMETER	+ SAMPLE LOCATION AND FIELD I.D. NUMBER				
	Zone 1 - West Drainage System		Zone 4 - East Drainage System		
	14	40	22	24	26
Benzo (A) Anthracene	ND	23.00	3.40	0.79	ND
Benzo (B) Fluoranthene	2.20	2.1	3.60	1.70	ND
Benzo (K) Fluoranthene	1.80	1.70	ND	0.67	ND
Benzo (A) Pyrene	2.10	ND	ND	0.68	ND
Benzo (GHI) Perylene	1.20	ND	ND	0.90	ND
Bis (2-ethylhexyl) Phthalate	ND	ND	ND	7.20	1.80
Chrysene	ND	3.20	4.20	1.00	ND
Fluoranthene	0.51	8.10	5.50	1.20	ND
Indeno (1,2,3,-CD) Pyrene	1.10	ND	ND	ND	ND
Naphthalene	ND	1.50	ND	ND	ND
Phenanthrene	0.33	6.50	4.30	0.73	ND
Pyrene	0.51	20.00	5.10	1.50	ND

+ See Figure 6 for sample locations.

ND - Not Detected at Method Detection Limits

TABLE 2

SUMMARY OF EXTRACTION PROCEDURE TOXICITY TEST CONCENTRATIONS
IN SOIL AND SEDIMENT SAMPLES
INTERNATIONAL DISC CORPORATION
ELLSWORTH, MICHIGAN
1987
(results in mg/l)

CONCENTRATE	++SAMPLE LOCATION AND FIELD I.D. NUMBER				MAXIMUM
	ZONE 1 - WEST DRAINAGE SYSTEM				FOR EP TOXICITY
ELEMENT	1	2	3	20	CHARACTERISTIC
Arsenic	ND	0.012	ND	0.011	5.0
Barium	1.5	0.38	2.2	0.19	100.0
Cadmium	20	17	20	32	1.0
Chromium	0.14	0.15	0.12	0.10	5.0
Copper	0.27	0.40	0.18	2.0	100.0
Lead	0.07	1.1	1.5	110	5.0
Mercury	ND	ND	0.0005	ND	0.2
Selenium	ND	0.019	ND	0.030	1.0
Silver	0.03	0.04	0.04	0.03	5.0
Zinc	46	85	32	15	500.0

++ See Figure 7 for sample locations.
ND - Not Detected at Method Detection Limits

TABLE 3

TOTAL METAL CONCENTRATIONS
FOUND IN SAMPLES COLLECTED AT
INTERNATIONAL DISC CORPORATION
ELLSWORTH, MICHIGAN
1987
(results in mg/kg)

ELEMENT	✦SAMPLE LOCATION AND FIELD IDENTIFICATION NUMBER											✦✦TYPICAL CONCENTRATIONS IN NATURAL SOILS	
	ZONE 1 - WEST DRAINAGE SYSTEM												
	1	2	3	4	11	12	13	14	19	20	21	AVERAGE	RANGE
Aluminum	12,500	3,900	4,200	2,000	1,200	5,500	700	1,000	1,300	19,300	940	71,000	10,000-300,000
Arsenic	18	ND	10	2.8	2.6	6.0	1.8	0.93	2.3	5.2	1.1	5	1-50
Cadmium	1300	570	1100	29	1.7	2.2	5.0	9.4	7.5	1300	1.5	0.06	0.01-0.7
Chromium	350	130	130	22	20	26	14	11	29	450	4.4	100	1-1000
Copper	320	210	2200	7.2	45	17	16	38	74	1500	7.8	30	2-100
Lead	2300	2300	740	6.9	43	18	35	90	150	37000	45	10	2-200
Mercury	1.0	0.19	0.03	0.40	0.07	0.03	0.02	0.11	0.11	21	0.01	.03	0.01-0.3
Nickel	79	51	78	19	11	16	7	6	10	210	5.4	40	5-500
Selenium	ND	ND	ND	ND	0.40	ND	8	0.25	ND	65	ND	0.3	0.1-2
Silver	3.3	4.7	4.5	2.6	1.3	4.8	1.6	0.85	0.64	6.4	0.68	0.5	0.01-5
Zinc	4100	8600	3100	56	72	64	49	100	91	3200	90	50	10-300

✦ See Figure 8 for sample locations.

✦✦ Adapted from Hazardous Waste Land Treatment, U.S. EPA, SW 874, April, 1983.

ND - Not Detected at Method Detection Limits

TABLE 4

SUMMARY OF WASTE STREAM DISPOSAL
INTERNATIONAL DISC CORPORATION
ELLSWORTH, MICHIGAN
1987

SHIPPING NAME	QUANTITY/VOLUME	DISPOSAL FACILITY
Waste Oxidizer, NOS	64 yds^3	CyanoKEM
Waste Corrosive, Solid NOS	1.3 yds^3	CyanoKEM
Waste Corrosive, Solid NOS	3 yds^3	CyanoKEM
Waste Corrosive, Solid NOS (Oxalic Acid)	0.5 yds^3	CyanoKEM
Waste Corrosive, Liquid NOS (Contained CN)	330 Gal.	CyanoKEM
Waste Combustible Liquid NOS	420 Gal.	Environmental Waste Control
Waste Flammable Liquid NOS	940 Gal.	Environmental Waste Control
Waste Flammable Liquid Corrosive, NOS	600 Gal.	Environmental Waste Control
Waste Flammable Solid NOS	4.7 yds^3	ThermalKEM
Hazardous Waste, Solid NOS (Contained sulfides)	1.4 yds^3	CyanoKEM
Hazardous Waste, Liquid NOS (Contained sulfides)	255 Gal.	CyanoKEM
Non-Hazardous Industrial Waste Water	1040 Gal.	Environmental
Non-Hazardous Debris NOS	60 yds^3	Wayne Disposal

TABLE 4 (continued)

page 2

SHIPPING NAME	QUANTITY/VOLUME	DISPOSAL FACILITY
R.Q. Waste, Hazardous Substance, Liquid or Solid NOS	770 Gal. (PCB oil) 50-500 ppm)	Pyrochem
R.Q. Waste, Hazardous Substance, Liquid or Solid NOS	110 Gal. (Askeral Oil	Pyrochem
R.Q. Waste, Hazardous Substance, Liquid or Solid NOS	225 Gal. (PCB Rinsate)	Pyrochem
R.Q. Waste, Hazardous Substance, Liquid or Solid NOS	0.4 yds^3 (PCB Solid)	Pyrochem
R.Q. Waste, Hazardous Substance, Liquid or Solid NOS	1.3 yds^3 (Overpacked) PCB Capacitors)	Pyrochem
R.Q. Waste, Hazardous Substance, Liquid or Solid NOS	13,550 lbs. (5 PCB Transformer carcasses)	Pyrochem

TABLE 5

SUMMARY OF EMERGENCY RESPONSE CLEANUP SERVICES (ERCS)

CONTRACTOR EXPENDITURES BY SERVICE CATEGORY

INTERNATIONAL DISC CORPORATION

ELLSWORTH, MICHIGAN

SITE ID# 4C

SERVICE	AMOUNT Phase 1	Phase 2
Labor	$ 6,769.65	$ 78,035.84
Travel and Subsistence	1,155.00	18,252.93
Equipment	1,943.80	28,938.20
Materials	2,385.24	25,219.45
Subcontractors	1,710.99	62,578.41
Transportation	-0-	25,625.00
Disposal	-0-	69,620.32
Analytical	-0-	42,918.75
Phase Total	$ 13,964.68	$ 351,188.90

TOTAL ERCS CONTRACTORS COST $ 365,153.58

Phase 1 based on PEI Associates Invoice 1065-2 dated 12/1/87

Phase 2 based on MAECORP Invoice 21-8 dated 9/7/88

TABLE 6

SUMMARY OF ESTIMATED COSTS INCURRED

INTERNATIONAL DISC CORPORATION

ELLSWORTH, MICHIGAN

SITE ID# 4C

	AMOUNT	
ORGANIZATION	Phase 1	Phase 2
ERCS Contractor	$ 13,964.68	$ 351,188.90
Technical Assistance Team (TAT)	2,610.70	71,761.21
Direct U.S. EPA Costs	1,500.00	31,346.21
Indirect U.S. EPA Costs	NA	62,194.50
Phase Totals	$18,075.38	$516,490.82
TOTAL PROJECT COST		$ 534,566.20

Any indication of specific costs incurred in this OSC report is only an approximation and is subject to internal audit and final "definitization". The OSC report is not a final reconciliation of the costs associated with a site.