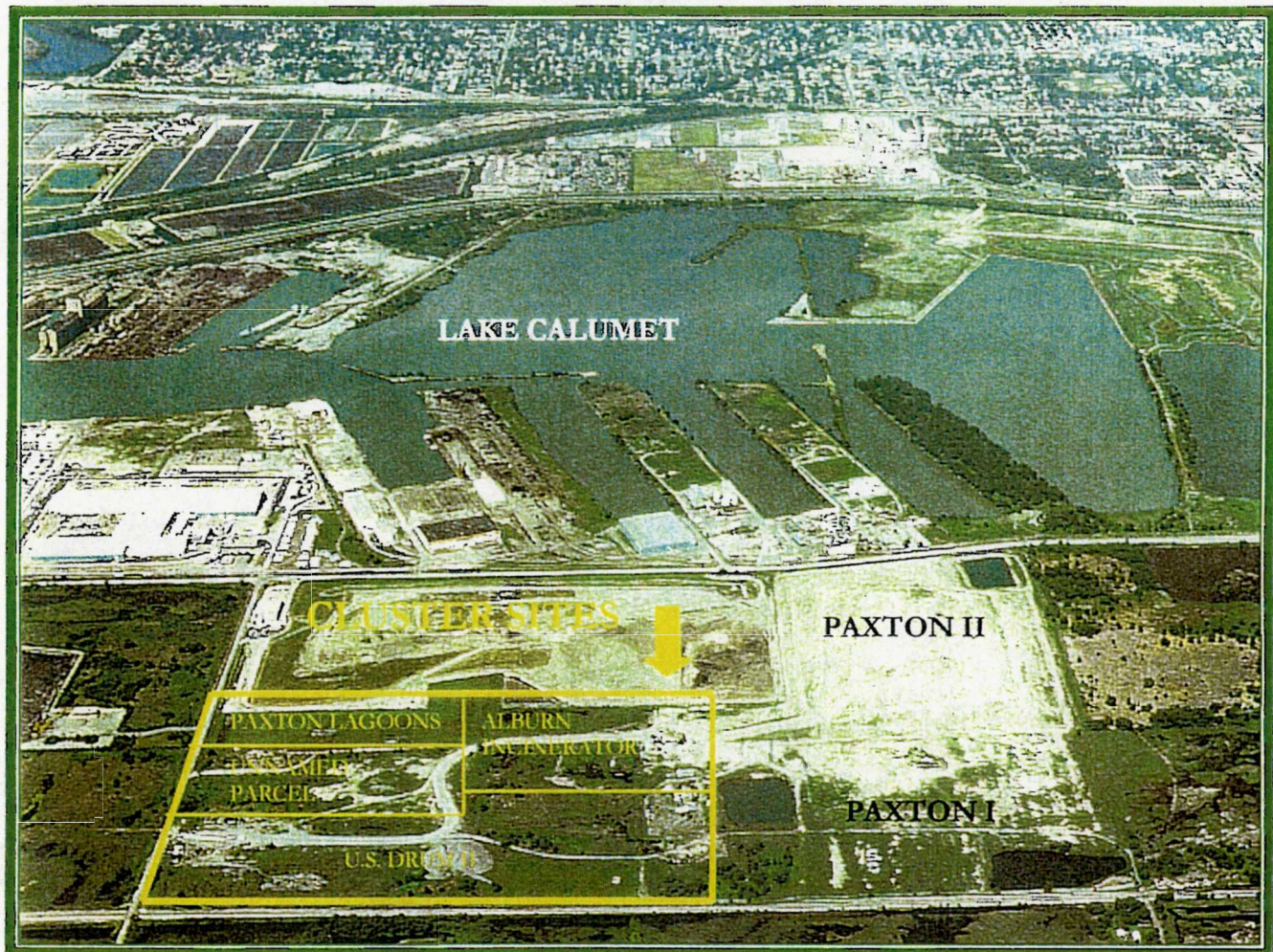


INVESTIGATING THE CLUSTER SITES OF SOUTHEAST CHICAGO

EXECUTIVE SUMMARY



PREPARED APRIL 2001

Illinois Environmental Protection Agency
Bureau of Land

THIS REPORT SERVES AS AN EXECUTIVE SUMMARY OF THE CLUSTER SITES SAMPLING INVESTIGATION FOR 2000

The State of Illinois, City of Chicago, Region 5 Offices of the U.S. Environmental Protection Agency (U.S. EPA) and several community organizations are working together to reclaim a group of waste disposal sites, commonly known as the Cluster Sites¹, which are located in southeast Chicago immediately east of Lake Calumet. Since 1985, the Illinois EPA and U.S. EPA have conducted a number of environmental site investigations, remedial activities and soil and drum removals in the area (Table 2, page 7). The Illinois EPA is currently conducting a feasibility study to determine the anticipated costs for the most effective remedial action at the Cluster Sites. While the feasibility study will focus on the Cluster Sites, it will also evaluate the surrounding area because of each property's effect on the other.

CLUSTER SITES ENVIRONMENTAL CONTAMINATION PROBLEMS



Illinois EPA sampling waste materials from a backhoe at U.S. Drum.

Working in cooperation with the City of Chicago and the U.S. EPA, the Illinois EPA conducted an environmental investigation in the summer of 2000 that confirmed widespread contamination throughout the Cluster Sites area.

At several locations, waste was documented to be present more than 25

feet below ground surface. Much of this waste contains high concentrations of PNA's, BTEX, chlorobenzene and vinyl chloride contamination that pose a risk to human health and the environment. The migration of contaminants from the waste at the Cluster Sites can present a problem in the sediments of nearby wetlands and other nearby bodies of water. Vapor emissions from waste buried near the surface pose a threat to nearby human and wildlife populations. Contamination from the Cluster Sites can contaminate the nearby Indian Ridge Marsh located to the east, Lake Calumet to the west, the Calumet River and the Little Calumet River to the south. The investigation completed in the summer of 2000 documents that more than 103 acres of the Cluster Sites could be classified as an unpermitted landfill. It is estimated this area contains more than 1.8 million cubic yards of industrial, chemical, commercial and municipal waste.

¹ The term "Cluster Sites" was coined in the summer of 1994, and refers to Alburn Incinerator, Unnamed Parcel, U.S. Drum II, Paxton Lagoons, and all lands between these individual sites. The Paxton Lagoons were not included in the Illinois EPA 2000 sampling event because of the previous remedial work and cap installation in 1992 (Table 2, page 7). The Illinois EPA is also performing remedial work on the adjacent Paxton I and II landfills. This remedial work will have a positive effect on the Cluster Sites.

SUMMARY OF SAMPLING RESULTS

Table 1 summarizes the analytical results of the year 2000 sampling investigation. This table demonstrates specific contaminants found throughout the Cluster Sites, the highest concentration of those contaminants in mg/kg, and the number of times a specific contaminant exceeds a 35 IAC Section 742, Tiered Approach Corrective Action Objective (TACO). It is important to note that numerous volatile and semivolatile contaminants exceeded even the short-term, 60-day risk exposure scenario for construction workers.

TABLE 1: Sampling Results Pursuant to 35 IAC Section 742 (TACO)

| CONTAMINANT | CLUSTER SITES HIGHEST CONCENTRATION (mg/kg) | FREQUENCY OF EXCEEDENCES OUT OF 283 SAMPLES* |
|-------------------------|--|--|
| VOLATILE | | |
| Benzene | 92 | 54 |
| Toluene | 8900** | 25 |
| Ethylbenzene | 5000** | 24 |
| Chlorobenzene | 180 | 22 |
| Xylenes (Total) | 25000** | 16 |
| Vinyl Chloride | 0.26 | 2 |
| 1,1,1-Trichloroethane | 52000** | 2 |
| 1,1-Dichloroethane | 440 | 1 |
| SEMIVOLATILE | | |
| Benzo(a)pyrene | 55 | 141 |
| Benzo(b)fluoranthene | 350 | 136 |
| Benzo(a)anthracene | 310 | 135 |
| Dibenzo(a,h)anthracene | 59 | 112 |
| Indeno(1,2,3-c,d)pyrene | 24 | 62 |
| Pentachlorophenol | 130 | 14 |
| Benzo(k)fluoranthene | 65 | 4 |
| Chrysene | 310 | 1 |
| INORGANIC | | |
| Antimony | 1020 | 27 |
| Arsenic | 151 | 2 |
| Barium | 10800 | 7 |
| Selenium | 20 | 35 |
| Cyanide | 218 | 2 |
| Lead | 5710 | 129 |
| PCBs | 173 | |

* Concentrations exceed TACO Remediation Objectives.

** These contaminants were found to exceed the Soil Saturation Limits also.



Oily sheen on groundwater at U.S. Drum II.

LAKE CALUMET REGION

The Calumet Region was formerly the largest wetland complex in the Great Lakes area, but by the 1900's, it became the heart of heavy industry for the upper Midwest. Currently a combination of nature and industry typifies the contrast found around Lake Calumet. Abundant wildlife (including many state and federal endangered species) live in remnants of a once vast wet prairie system scattered among industrial development. Much of the wetland area that was not converted to active industrial or residential use was used for municipal, industrial and chemical waste disposal. The economic decline of the steel industry during the last decades of the 20th Century left the Calumet area economically and ecologically degraded. Today, remnant wetlands and other natural areas remain, but they are interspersed with active and abandoned industries, slag materials generated from nearby steel manufactures, chemical waste disposal sites and landfills.

Long neglected, the Calumet Region is poised for a dramatic comeback through the State of Illinois, the City of Chicago and the U.S. EPA's joint partnership for sustainable growth and ecological reclamation. The plans for the region include creation of a Calumet Open Space Reserve, which will preserve over 3,000 acres of wetlands, marshes, lakes and streams. The increased attention to the region is a result of collaborative efforts between citizen groups, local environmental groups, government agencies, city educational institutions and industry representatives.

CLUSTER SITES HISTORY AND PHYSICAL PROPERTIES

During the investigation, the Cluster Sites were found to contain natural materials as well as slag generated from the nearby steel industry; construction debris, municipal, industrial and chemical waste. From 1900 to 1970's, nearby industries deposited slag and other waste that raised the surface area to an elevation just above the water table. From 1940 to 1992, much of the area was used for unpermitted waste disposal. The contaminated runoff in the area impacts wetland soils and hydrology.



White chemical waste encountered at 6 to 10 feet below ground at Unnamed Parcel.

Current topography around the Cluster Sites is relatively flat, with the notable exceptions of Land and Lakes #3 Landfill and Paxton II Landfill. The flat terrain includes interspersed areas of slag, open waters and wetlands. The composition of the fill varies considerably, as evidenced by the uneven growth of vegetation and the fact that much of the area is inundated a significant portion of the year. There are limited surface drainage ditches, and no storm water lines. The upper-most 15 to 20 feet contains an unconfined, contaminated aquifer.

ALBURN INCINERATOR

The former Alburn Incinerator site is located one-half mile east of Lake Calumet, one mile west of the Calumet River, and one and one-quarter mile north of the Little Calumet River. Alburn Incinerator covers approximately 35 acres. Historic records suggest that from 1967 to 1977, the Alburn Incinerator property received a large amount of slag material that raised the ground height above the existing surface water level. During that timeframe, chemical wastes were reportedly disposed in pits and trenches. In 1977, Alburn Incinerator began the construction of a hazardous waste incineration and hazardous waste storage/transfer operation. In 1982, after several environmental violations, Illinois EPA revoked Alburn's operating permit. On July 5, 1983, heat expansion and a subsequent chemical reaction caused two onsite drums to explode. Consequently, U.S. EPA initiated a CERCLA immediate removal action on July 18, 1983. During that removal action, drum and tanked liquid waste were removed, and the site received a partial cover. Illinois EPA conducted a follow-up soil sampling investigation during 1988 and 1989.

Today, Alburn Incinerator is partially fenced and covered with ponded water and heavy vegetative growth. Alburn Incinerator has two small, dilapidated buildings and the partial remains of an incinerator on the northeastern quadrant.

UNNAMED PARCEL

The Unnamed Parcel is approximately 38 acres in size and could be classified as an unpermitted landfill. It is believed that this area received various municipal, industrial and chemical waste materials from the 1940's through the 1960's. Much of the Unnamed Parcel area has little or no soil cap and is covered with perennial grasses, weeds and wetland vegetation.



Excavated black oily waste collected at a depth of 8 feet from Unnamed Parcel.

U.S. DRUM II

U.S. Drum II is an unfenced, undeveloped area covering about two and one-half acres. Historic records suggest that as early as the 1940s, U.S. Drum II and the adjacent areas have been used as dumping grounds for industrial and municipal wastes. The present surface level of the U.S. Drum property is currently raised approximately 10 feet above the original natural ground level, due to the unauthorized land disposal.

The Illinois EPA became aware of the site in the 1970s, when the property was used as a solvent recovery and waste transfer facility. During April 1979, a temporary restraining order was issued and operations ceased due to the discovery of 6,000 55-gallon drums, four open dump lagoons of sludge and various waste, 25 semi-trailers, and three bulk liquid trucks. The site ceased operations shortly thereafter, and by July 1, 1985, all 6,000 drums were removed and approximately 341,000 gallons of semi-solid wastes and liquids were disposed. Following the removal action, the area was leveled and partially covered.



Black stained clay material excavated from U.S. Drum II.

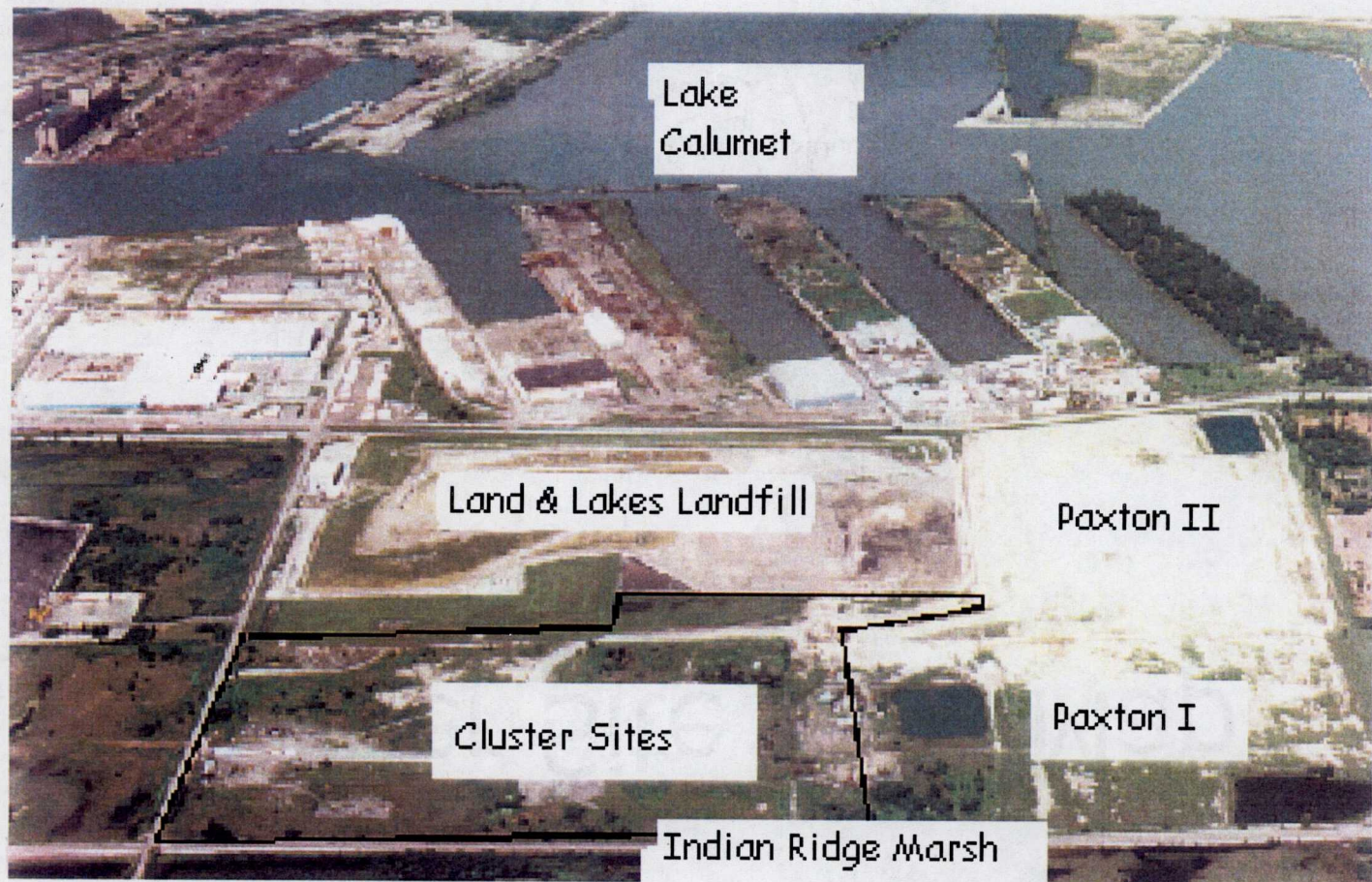
PAXTON AVENUE LAGOONS

The Paxton Avenue Lagoons are located north of 122nd Street, southwest of Alburn Incinerator and west of Unnamed Parcel. Lake Calumet is located approximately one mile to the west. Paxton Avenue Lagoons consisted of three lagoons, a berm of soil and crushed drums and an area of oily soil. The lagoons were reportedly used during the 1940s, a variety of chemical wastes from nearby steel mills were allegedly brought to the site. A large number of drums are also alleged to have been buried here. Illinois EPA samples collected during 1985 disclosed significant levels of volatiles, semivolatiles, PCBs and heavy metals. U.S. EPA conducted an immediate removal during 1990 of 60 drums of hazardous materials and 2,200 cubic yards of acidic soil. The lagoon area was capped with clay. To date, Paxton Avenue Lagoons is the third most costly (\$7.4 million) state-funded site. The lagoons have been closed and fenced since October 1993.

TABLE 2: Summary of Cluster Sites Data

| Site Name, Owner Status | Site Size | Illinois EPA Remedial Expenditure to Date | Contaminants | Summary |
|---|------------|---|--|---|
| Alburn Incinerator Abandoned | 35 acres | \$ 206,691 | BTEX, PNAs and Vinyl Chloride | Currently a flat marshy area with 40 percent covered by standing water. A ½ acre pond is on site. From 1967 to 1977 on-site trenches at the site were filled-in with wastes. In 1977, Alburn started incinerating liquid hazardous waste. A RCRA permit to continue incineration was revoked in 1982. During July and August 1983, the U.S. EPA performed an emergency removal of all visible sources of hazardous wastes, including tanks, pails, lagoon sludge, and the top six inches of topsoil; an estimated 30,000 cubic yards of contaminated surficial soil was replaced with clean fill. Summer 2000 sampling event of 45 test pits confirmed waste from the surface to 15 feet below ground level. Random test pits to depths of 30 feet below ground level indicated widespread waste. |
| Unnamed Parcel Unknown Owner | 38 acres | -0- | Toluene, PCBs, Ethylbenzene, PNAs and 1,1,1-Trichlorobenzene | Operated in the 1940s through the 1960s. Accepted waste from nearby steel mill industries. The site contains two, ¼ acre ponds. Summer 2000 sampling event of 39 test pits confirmed waste from the surface to 15 feet below ground level. Random test pits to depths of 30 feet below ground level indicated widespread waste. |
| U.S. Drum II Abandoned | 2.5 acres | \$ 927,750 | BTEX, PNAs, PCBs and Vinyl Chloride | Allegedly used since 1940's as dump for municipal and industrial waste. Used until 1979 as a temporary drum storage and transfer facility, when the Illinois Pollution Control Board shut it down. Immediate removal in 1985 involved 6,000 drums and 341,000 gallons of semi-solid wastes and liquids removed. Summer 2000 sampling event of 53 test pits confirmed waste present from the surface to 15 feet below ground level. |
| Paxton Avenue Lagoons Abandoned | 12 acres | \$ 7,428,389 | Volatile Organics | A flat parcel, approximately 300 by 1,200 feet. An illegal dumpsite since the 1940's, U.S. EPA conducted an immediate removal during 1990 of 60 drums of hazardous materials and 2,200 cubic yards of acidic soil. The Illinois EPA incinerated PCBs during 1992. The incinerated material was backfilled and used for grading. A 4.5-foot cap was installed. A surface water pond was dug on the southern border and the sides of the site were bermed to keep surface water runoff within the capped area. |
| Total | 87.5 acres | \$ 8,562,830 | | |

Note: Illinois EPA is currently conducting a \$14.4 million dollar corrective action at Paxton II and plans to perform a \$2 million dollar corrective action at Paxton I. The Illinois EPA plans additional expenditures at Paxton II for leachate treatment and landfill gas collection.



Cluster Site Area Map

