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Statewide Landfill Inventory Progress Report

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Illinois State Geological Survey

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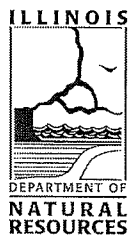
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Illinois Department of
Energy and Natural Resources

HWRIC RR 003

**STATEWIDE LANDFILL INVENTORY
PROGRESS REPORT**

by

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Illinois State Geological Survey

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Illinois Hazardous Waste Research and Information Center
State Water Survey Division
Illinois Department of Energy and Natural Resources

EXECUTIVE SUMMARY

The purpose of the Statewide Landfill Inventory is to determine the location and characteristics of all known landfill, impoundment, and land application waste disposal sites in Illinois at which hazardous wastes may have been disposed. To accomplish this purpose, all of these types of disposal sites (both industrial and municipal) in Illinois are being inventoried and characterized. This is being accomplished by compiling information from various governmental agency data files, published reports, and local records. The inventoried sites are predominantly off-site with respect to generators of waste, but facilities that are primarily generators of waste are included in this study if wastes are permanently disposed of on-site.

The project is divided into three tasks which are listed below. Following the description of each task are the major items of progress or understanding achieved for that task.

Task 1: An inventory of known disposal sites in Illinois is being compiled from federal, state, and county sources, and specific descriptions (as available) for each site are being entered into a computer data file. The information listed in the file for each site relates to: location, type, hydro-geologic setting, waste source(s), and background.

Sources of information currently being processed include:

- 1) National Technical Information Service (NTIS) file of sites for the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) - computer tape.
- 2) NTIS file of sites for the Resource Conservation and Recovery Act (RCRA) - computer tape.
- 3) United States Environmental Protection Agency (USEPA) file of Illinois data from the Surface Impoundment Assessment System (SIA) - computer tape.

- 4) USEPA Inventory of Open Dumps - printed report and microfiche format.
- 5) Illinois Environmental Protection Agency (IEPA) Selected Inventory File - computer tape and microfiche format.
- 6) Metropolitan Sanitary District of Greater Chicago (MSDGC) list of Cook County waste facilities - computer tape.

Other sources of information being incorporated into the inventory of waste disposal sites include:

- 1) Sites identified by Craig E. Colten of the Illinois State Museum (ISM) in a study of the area around Lake Calumet.
- 2) Sites identified in a study of surface impoundments in Illinois by Rauf Piskin et. al. (1980), of IEPA.
- 3) Sites identified in a study of Winnebago County by Nickolai and Gregory (1981) of the Rockford-Winnebago County Planning Commission.
- 4) Sites identified in a pilot study of DeWitt County by Mark Smith of the DeWitt County Department of Planning and Zoning and James Henricks of the DeWitt-Piatt Bi-County Health Department.

Task 2: Incorporation of this information into the Hazardous Waste Research and Information Center (HWRIC) data base.

- 1) A computer format has been specifically developed to serve as the means for storage of this landfill data base in the INFO data storage system of the Prime 750 Computer at the Illinois Natural History Survey (INHS). When the HWRIC Prime Computer is operational this data base will be transferred to that system.

Task 3: Preparation of a report and map summarizing the site inventory and background data.

- 1) The Progress Report (October, 1985) follows this executive summary. The report describes the state of progress in compiling the inventory.
- 2) The map which accompanies this report is at a scale of 1:500,000 so that it can be directly compared with many other maps prepared by the Illinois State Geological Survey (ISGS) at that scale. One copy of this map is printed on transparent film so that it may be directly overlaid onto multicolored maps. The computer file is compatible with the Geographic Information System (GIS).
- 3) A set of map symbols, which can be produced by the computer, has been developed to identify six different parameters related to disposal activities. These symbols have been used in combination to visually indicate the location, type of facility, and type of waste on the accompanying map. The symbols are shown below.

		hazardous	nonhazardous	unknown
		H	O	U
burial	X	H	O	U
impoundment	I	H	O	U
land application	—	H	O	U

- 4) Special smaller scale maps can be prepared for areas with a large concentration of data points such as Chicago or East St. Louis. Updated state and county maps will be prepared during the next phase of this project.

RESULTS AND RECOMMENDATIONS

The results and recommendations from the first year of this project are as follows:

Results

- 1) This study is an inventory of data available from a limited number of sources; however, the data base is designed to accommodate additional data in the future.
- 2) The items of information included in this Inventory reflect the purpose and scope of this study. This information is displayed in English language rather than numeric codes so that it might be more widely understood by public users; yet, it can be processed and sorted electronically.
- 3) In this phase of the study, hydrogeologic studies on individual sites were not performed.
- 4) The results of this study suggest less obvious sources of information to be pursued.

Recommendations

- 1) A list of the waste disposal sites which are not completely described by the information at hand should be compiled.
- 2) These sites should be ranked according to the apparent relative need for additional study based on the types of waste(s) disposed, volume of waste, method of disposal, age of the site, and the hydrogeologic conditions (either natural or modified) at the site.
- 3) Time and cost requirements for the additional studies of ranked sites should be estimated and evaluated from an economic viewpoint.

- 4) The decision to perform additional studies for any site should be based on the three preceding steps.
- 5) Field research studies at waste disposal sites in Illinois should be preceded by an evaluation of the hydrogeologic conditions at those sites.

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I. INTRODUCTION

Purpose

The Hazardous Waste Research and Information Center (HWRIC) has a mandate to provide technical support, research, and service toward the development of a comprehensive hazardous waste management strategy for Illinois (Barcelona and Garrison, 1985). The research program of HWRIC is divided into four areas. The Statewide Landfill Inventory, hereinafter called "Inventory," is a two-year project which addresses an aspect of problem characterization and assessment. The results will be a comprehensive data base of landfill, impoundment, and land application waste disposal sites in the state. Included will be descriptions of site locations and other important characteristics such as size and type of waste disposed.

As part of defining the magnitude and extent of the hazardous waste problem in Illinois, it is necessary to have information on locations and characteristics of past and present waste disposal methods. The purpose of the Inventory is to gather and list the available sources of basic data on all known waste disposal sites in the state. An inventory of known disposal sites is being collected from all accessible sources, and each site is being described as to: location, type, hydrogeologic setting, waste source(s), and background data (site history, previous studies, and records of operation and monitoring). The above information will be incorporated into the HWRIC data base where it can serve all three program areas: Research, Information, and Industrial and Technical Assistance plus be available to other researchers and the public. The site locations are being digitized into a computer mapping system, which is compatible with the Geographic Information System (GIS), so that the relationship of waste disposal activities to other subjects of spatial consideration (such as groundwater, surface water supplies, and earth materials) can be easily studied.

Scope

This study primarily focuses on sites where disposal activities either are occurring or have occurred on land. This includes three methods of disposal: land burial, impoundment, and land application. The following type of operations are excluded from this study: the generation of waste(s) (unless a portion of the facility is used intentionally for on-site disposal); the storage of wastes; waste transfer stations; the transportation of wastes; and waste treatment facilities. Incineration is noted in the computer format but only if it occurs at a land disposal site. Disposal by discharge into surface waterways or by underground injection are also outside the scope of this study. The three methods of disposal included in this study involve the intent to permanently dispose of waste on land.

Land burial of waste is a common and longstanding practice in Illinois. Even though the expanded use of recycling and incineration in the future may reduce the volumes of waste going to land burial, some residue will remain and will probably be buried at a land disposal site.

Impoundments or lagoons allow waste materials to either precipitate or settle out of a fluid waste stream. In many industrial and mining operations it is common to utilize tailing ponds to collect fine-grained waste products before disposing of the clarified liquids. In Illinois, the brines collected along with the production of oil and gas have, in the past, been disposed of in "evaporating" ponds. Unfortunately, in this climatic zone the annual rate of evaporation does not exceed the annual rainfall, and the brines, rather than evaporating, have infiltrated into the shallow groundwater system. This practice, which is regulated by the Illinois Department of Mines and Minerals, is now being replaced by underground injection back into source formations. The Surface Impoundment Assessment (SIA), completed in 1980, identified over 3000 impoundment facilities, and 87% of these were active.

The land application of wastes or land farming of wastes has been used to a relatively limited extent as a method to dispose of some types of wastes in Illinois. These types of wastes include treated effluents, and thickened sludges. Treated effluents have been used extensively for irrigation in some of the arid western states, but irrigation has not been a pressing need in Illinois, and consequently most effluents are discharged into surface waterways according to permitted regulations. Thickened sludges are derived, for example, from the dredging of waterways, refining of petroleum, or the treatment of municipal sewage. This method has not been used extensively because many of the high volume sources of sludge contain trace amounts of a few objectionable chemical components, for example, heavy metals and some organic compounds. Also there is public concern that these components might enter the food chain with unfavorable results.

In the search for waste disposal sites which predate the establishment of IEPA, it has been arbitrarily decided that a site with an area less than one acre in size will not be included in the Inventory unless it is suspected of containing hazardous waste. Some construction sites in urban areas utilize demolition debris as fill material under driveways and parking lots. These sites are also not considered to be waste disposal sites in the sense of this Inventory.

II. METHODS OF STUDY

Inventory

Information for the Inventory is being obtained from a number of sources at the federal, state, and county levels of government. Copies of magnetic tapes containing computer files which included waste disposal sites were obtained through the Illinois State Water Survey (ISWS) for the following sources of information: the National Technical Information Service (NTIS)

file of sites for the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) more commonly known as Superfund; the NTIS file of sites for the Resource Conservation and Recovery Act (RCRA); the United States Environmental Protection Agency (USEPA) file of Illinois data from the Surface Impoundment Assessment System (SIA); the Illinois Environmental Protection Agency (IEPA) Selected Inventory File; and the Metropolitan Sanitary District of Greater Chicago (MSDGC) list of Cook County waste facilities. Other sources of written information related to waste disposal sites not listed above include: "Inventory of Open Dumps" (USEPA, 1983); "Inventory and Assessment of Surface Impoundments in Illinois" (Piskin, et al., 1980); "Inventory of Historic Solid Waste Disposal Sites in Winnebago County" (Nickolai and Gregory, 1981, and Nickolai, 1982); and "Industrial Wastes in the Calumet Area, 1869-1970, An Historical Geography" (Colten, 1985).

Each county in Illinois (except Winnebago, for which complete information is already available in Nickolai and Gregory, 1981) will be contacted during the next year through an appropriate responsible individual to determine the location of former waste disposal sites which have not yet been included in the Inventory. The initial contact will be by telephone to determine the name of a responsible individual in a county agency such as health, highway, or planning department, to briefly describe the purpose of the Statewide Landfill Inventory, and to ask for cooperation from that person. A letter of explanation will then be sent with an enclosed computer print-out list of inventoried sites and a computer generated map showing the locations of the sites.

To determine the feasibility and effectiveness of contacting the counties individually, a pilot study was conducted in DeWitt County. Contact was made with Mr. Mark Smith of the DeWitt County Department of Planning and Zoning to identify former disposal sites. He enlisted assistance from Mr. James

Henricks of the DeWitt-Piatt Bi-County Health Department. DeWitt County was selected because of its rural character, moderate size, and proximity to Champaign. In the IEPA Selected Inventory File, 18 disposal sites are listed for DeWitt County, and an additional 10 disposal sites have been identified in the pilot study. Six other waste storage sites were identified, but these will not be included in the Inventory. The sites have been assigned provisional numbers, but they have not yet been entered into the Inventory.

The sites identified by the local study in Winnebago County have been compared with the sites listed in the IEPA Selected Inventory File. Of the 196 sites identified in the local study, 70 sites were included in the Selected Inventory File, and an additional nine sites in the Selected Inventory File were not identified in the local study. All of the disposal sites in Winnebago County which are not listed in the Selected Inventory File have been assigned provisional numbers for the Inventory, but they have not as yet been entered into the Inventory.

A comparison of the two counties shows that a significantly greater percentage of the total number of sites were included in the Selected Inventory File for DeWitt County than for Winnebago County, being respectively 64% and 39%. This sampling represents only two of the 102 counties so it remains to be seen how truly representative these figures are for the entire state. The first impression of these figures indicates that the task of locating former disposal sites in rural counties should proceed relatively quickly because of the small number of sites involved, but that the task of locating former disposal sites in the urban and industrial counties may take a proportionally longer time based on the number of sites per county in the Selected Inventory File.

To compensate for the difference in concentration of disposal sites a priority list has been established in which 16 counties with the largest number of sites in the Selected Inventory File have been selected to be processed into this Inventory ahead of the other counties. This "List of Preferred Order of Counties for Study" is shown in Figure 1.

FIGURE 1: LIST OF PREFERRED ORDER OF COUNTIES FOR STUDY
(Arranged Vertically)

Winnebago	DeKalb	Marion
DeWitt	Douglas	Marshall
Cook	Edgar	Mason
Will	Edwards	Massac
DuPage	Effingham	Menard
Lake	Fayette	Mercer
Kane	Ford	Monroe
McHenry	Franklin	Montgomery
St. Clair	Fulton	Morgan
Madison	Gallatin	Moultrie
Peoria	Greene	Ogle
Tazewell	Grundy	Perry
Rock Island	Hamilton	Piatt
Sangamon	Hancock	Pike
LaSalle	Hardin	Pope
Vermilion	Henderson	Pulaski
Macon	Henry	Putnam
Adams	Iroquois	Randolph
Alexander	Jackson	Richland
Bond	Jasper	Saline
Boone	Jefferson	Schuyler
Brown	Jersey	Scott
Bureau	JoDaviess	Shelby
Calhoun	Johnson	Stark
Carroll	Kankakee	Stephenson
Cass	Kendall	Union
Champaign	Knox	Wabash
Christian	Lawrence	Warren
Clark	Lee	Washington
Clay	Livingston	Wayne
Clinton	Logan	White
Coles	McDonough	Whiteside
Crawford	McLean	Williamson
Cumberland	Macoupin	Woodford

Computer Procedures

The data contained in the five computer tape files listed above were entered into the Prime 750 computer system housed at the Illinois Natural History Survey (INHS). In addition to information on waste disposal sites, these files contained listings of generator, treatment, storage, and transporter facilities. The waste disposal information was extracted from each file and prepared for transfer into the Inventory. Because each file used a different format, only one file could be read directly into the Inventory. The IEPA Selected Inventory File contained the largest amount of sites and most comprehensive data, so it was chosen as the file to be read directly into the Inventory. A complete description of the methods used to reduce the data and set up the computer file for the Inventory is in preparation and will be available as a users guide with complete documentation for the use of those responsible for the Inventory.

A copy of the computer sample form from the Inventory is shown in Figure 2. The sites in the inventory are listed in numerical order based on the IEPA number or provisional number assigned to each site. The IEPA identification numbering system is based on the Federal Information Processing Standards (FIPS) which was developed by the U.S. Department of Commerce, National Bureau of Standards. Each identification number contains 10 digits, of which the first three digits are the county code; the next three digits are the city/township code; and the final four digits are the site code. The site codes are assigned in chronological order for all of the different types of waste facilities in each city/township. This Inventory will identify any sites which do not have IEPA identification numbers by provisional numbers using standard county and city/township codes. The site code portion of the provisional number will be temporarily identified by letters rather than

Figure 2: COMPUTER SAMPLE FORM

A IEPA No. 0000000000 SITE NAME: SAMPLE SITE
 PROVISIONAL NO. 123456ABCD

B LOCATION:
 COUNTY: CAPITOL CITY/TOWNSHIP: HOME TOWN
 LATITUDE: 234456 LEGAL: 3 PM, R.03E T.10N SEC.24 NWSNESW
 LONGITUDE: 123456 LAMBERT-PHI:X 1234567 Y 1234567

C OWNER: ACME SUPPLY CO. LANDFILL SIZE
 OPERATOR: MR. JOHN DOE IN ACRES: 15

D SOURCES OF DATA:
 1) IEPA X 5) DPH
 2) ISGS X 6) LOCAL HD X
 3) PCP 7) OTHER AGENCY
 4) IDM&M 8) OTHER

E TYPE OF DISPOSAL: A B
 1) OPEN DUMP = A 4) INCINERATION = D
 2) SECURED CONTAINERS = B 5) SURFACE INPOUNDMENT = E
 3) LANDFILL = C 6) LAND APPLIC. = F

F HYDROGEOLOGIC REPORT AT: (P=PRELIMINARY, D=DETAILED, PD, NO)
 1) HWRIC 2) IEPA 3) ISGS P 4) OTHER

G SOURCE(S) AND TYPES OF WASTE:
 1) HAZARDOUS SOLIDS 11) ANIMAL WASTE
 2) HAZARDOUS LIQUIDS X 12) PATHOLOGICAL WASTE
 3) NONHAZARDOUS WASTE 13) FOUNDRY SAND
 4) SPECIAL 14) SLAG
 5) RADIOACTIVE WASTE 15) INCINERATOR ASH
 6) GENERAL SOLID WASTE X 16) DEMOLITION DEBRIS
 7) INDUSTRIAL WASTE 17) CONCRETE/ASPHALT
 8) OIL FIELD BRINE 18) LANDSCAPING WASTE
 9) MUNI SEWAGE SLUDGE 19) OTHER (SPACE RESERVED FOR COMMENTS)
 10) SEPTIC SLUDGE 20) UNKNOWN X

H BACKGROUND DATA: (Y=YES, N=NO)
 1) STATUS: INACTIVE 7) RCRA SITE:
 2) PERMIT STATUS: UNPERMITTED UNAUTHORIZED 8) FORMER DISPOSAL SITE:
 3) DATE PERMITTED: 0 9) ILLEGAL DUMP: Y
 4) DATE OPENED: 121281 10) DATE DISCOVERED: 111483
 5) DATE CLOSED: 111583 11) DATE CLEANED: 0
 6) CERCLA SITE: Y 12) GW MONITORING: Y
 COMMENTS: (THIS LINE STORES 61 SPACES FOR GENERAL COMMENTS.)
 (THIS LINE STORES 61 SPACES FOR GENERAL COMMENTS.)

I MISCELLANEOUS INFORMATION: (ON FILE AT)
 1) PREVIOUS STUDIES:
 2) SITE PLANS:
 3) OPERATION RECORDS:
 4) MONITORING DATA: ISGS
 5) OTHER RECORDS: IEPA & ACME SPLY. CO
 6) LEGAL ACTIONS:

numbers until they are incorporated into IEPA files and given an IEPA identification number.

The Landfill Inventory is alphabetically sorted by county. Adams County sites will be presented first in the file, and Woodford County sites will be presented at the end of the file. The FIPS code numbers for the 102 counties in Illinois are the consecutive odd numbers (001) through (203). The numbers are assigned to the counties as named in alphabetical order. Thus the first three digits for all sites in Adams County are (001) and in Woodford County are (203).

The IEPA format provides for identifying disposal sites by legal land description in the Congressional Township System, and also by latitude and longitude. For some sites in the IEPA file the legal descriptions are either incomplete or missing. Some sites are not identified by latitude and longitude, and the accuracy of some of the listed latitude and longitude figures are questioned because many figures for seconds appear to be rounded off to zero.

A third method of locating sites, Lambert-Phi coordinates, is used in this inventory for the purpose of being able to plot the site locations on maps by means of a computer digitizer (DuMontelle et al., 1968 and Swann et. al., 1970).

The other items contained in the computer format are more or less self-explanatory in nature. These items list information pertaining to the owner, operator, and size of the site, types of waste and method of disposal, IEPA permit status, and sources which may be contacted for additional information. In July, it was decided that a few minor changes in the items included in the format were needed as a result of difficulties in transferring some items from IEPA paper files into the Inventory. These changes in the

format have been completed and the data is being transferred from the previous format into the current one shown in Figure 2.

The file is accessed through the INF09S data management system. This user friendly system allows easy manipulation of the file. For example, it is possible to call up only records for one county, or only records of hazardous waste sites, or even records of hazardous waste sites for only one county. It is also possible to resort the file, or a selected portion of the file, by a parameter other than the IEPA number, such as site size. The file is set up so that new data can be added. An explanation of the commands needed to use the Inventory is given in Appendix A, Users Guide to the Statewide Landfill Inventory.

Data Collection and Processing

Most of the data currently in the Inventory was derived from the IEPA Selected Inventory File. However, this source file is by no means a complete list of waste disposal sites in Illinois nor was the transfer of information perfect. Information was sometimes lost when the data was reformatted and transferred to the selected inventory.

One type of site, illegal dump, was not sorted from the source file due to a technical problem, and these sites are being visually sorted from the microfiche file copy for inclusion into the Inventory. A few facilities of inappropriate types such as generators, storage, and transporters were sorted into the Inventory, and these sites are being visually identified from the microfiche file copy and deleted from the Inventory.

The information on types and sources of waste from the source files was not in a form that could be easily transferred into the Inventory, so these items must be obtained visually from the microfiche format, hand recorded, and then entered into the Inventory. This work is proceeding systematically.

Some needed items of information are missing or unavailable in the computer tape file, and these items must be obtained from the paper records of IEPA in Springfield. This work is time-consuming and, in addition, costly because of travel expenses. A schedule has been arranged with IEPA for one person to visit the Records Section on Thursdays and Fridays to obtain this information.

Work also continues on adding more sites to the Landfill Inventory. At the time of this writing the EPA Surface Impoundment Assessment is being processed. Oil and gas brine disposal pits, listed in this source, are being added to the inventory. Other sources, such as the inventory of industrial wastes in the Calumet area (from Colten, 1985), are being incorporated into the inventory.

Contacting the remaining 100 counties in the state will be a lengthy procedure. The list of sites for each county must be checked to see that all of the disposal sites are included and that only disposal sites are listed. After the list for one county is fully checked, the map for that county can be generated by the computer, and then contact will be made.

III. INCORPORATION OF INFORMATION INTO HWRIC DATA BASE

The Statewide Landfill Inventory is stored in the Prime 750 Computer housed at INHS in the Natural Resources Building, Champaign, Illinois. This is a suitable repository for the Inventory until the HWRIC computer is operational. At the completion of this project the information stored in the Inventory will be accessible to other researchers and interested persons upon request.

IV. COMPUTERIZED MAP PRODUCTION

A Map of Waste Disposal Sites in Illinois accompanies this report. The map is at a scale of 1:500,000 or approximately 8 miles per inch. The only

features shown other than the disposal sites are county boundaries. The county names are not indicated so that the sites stand out more distinctly. At the present time not all the sites in the Inventory can be plotted on the map by the computer. The sites shown are those for which the legal land descriptions have been converted into Lambert-Phi coordinate values. The legal land descriptions are either missing or incomplete for 17% of the sites, and these cannot be plotted until the proper information is obtained.

Because this map is plotted at the same scale that has been used by ISGS for printing many maps such as bedrock geology, surficial deposits, drift thickness, and susceptibility of shallow aquifers to pollution it will allow easy visual comparison of these maps. One copy of the map of disposal sites is printed on a transparent film so that it may be used with the other maps as a direct overlay.

A set of map symbols has been developed to identify six different parameters related to disposal activities. The three parameters related to methods of disposal and the respective symbols are: burial, X; impoundment, I; and land application —. The three parameters related to types of waste materials and the respective symbols are: hazardous, H; nonhazardous, O; and unknown, U. When the symbols of these parameters are placed in a matrix they form a set of nine distinguishable symbols as shown in Figure 3.

FIGURE 3: MAP SYMBOLS

		hazardous H	nonhazardous O	unknown U
burial	X	H	O	U
impoundment	I	H	O	U
land application	—	H	O	U

The map of Waste Disposal Sites in Illinois utilizes these symbols for sites where type of waste and method of disposal are known. Other sites, presently plotted as small crosses, are in the process of being updated. A future revised map of Waste Disposal Sites in Illinois will display all of the sites with their proper symbols.

V. DISCUSSION

This study, which is still in progress, is an inventory of data collected from a limited number of sources. The Inventory is designed to be open-ended for the collection of additional data in the future. Information on former waste disposal sites in Winnebago County was already available for use in this study. DeWitt County was contacted at the local level to assist in identifying other waste disposal sites in the county which are unrecorded at the state level. Efforts to contact all other counties in the state will begin in the preferred order for study as soon as all the items for all the sites in a county have been updated in the Inventory.

The items selected for inclusion in the Statewide Landfill Inventory are not identical to those included in the IEPA Selected Inventory File due to basic differences of purpose between IEPA and HWRIC. IEPA is charged with regulatory and enforcement duties, while HWRIC, from the standpoint of this study, is to serve as guidance for future research and as a clearinghouse on information to the public, industry, and the scientific community. This Inventory is in an English language format which is much easier to understand than the numerically coded format of the IEPA computer file, and yet both files can be processed and sorted electronically.

In this initial phase of the Inventory it is not possible, due to the short time-frame, to perform any hydrogeologic studies on individual sites. Sites in the Inventory will be identified as having either preliminary or detailed studies available, or no studies available.

VI. ADDITIONAL STUDIES NEEDED

The information available for some waste disposal sites is inadequate to properly characterize or evaluate them from the standpoint of risk from pollution of groundwater. The problem of risk might depend on the type(s) of wastes disposed of at the site, the method of disposal, the age of the site, the hydrogeologic setting of the site, or from a combination of two or more of these factors. Sites subject to risk for these reasons should be identified and listed.

These sites should be ranked on the basis of the perceived relative need for additional study. A rating system will have to be devised by some empirical method to place relative values on the missing information.

Time and cost requirements for the additional studies of ranked sites should be estimated and evaluated from an economic viewpoint. Disposal sites suspected of containing hazardous wastes and sites located in areas with a high potential for groundwater contamination should be more thoroughly evaluated.

The decision to perform additional studies for any site should be based on the three preceding steps. It should be emphasized that the studies identified as being needed are secondary data analyses of records and other information on file at several state and federal agencies.

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VIII. ACKNOWLEDGEMENTS

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APPENDIX A

A USERS GUIDE
TO THE
STATEWIDE LANDFILL INVENTORY

Illinois State Geological Survey

October, 1985

USERS GUIDE FOR THE STATEWIDE LANDFILL-INVENTORY

Welcome to the Statewide Landfill Inventory. This Inventory is a cooperative effort of the Hazardous Waste Research and Information Center (HWRIC) and the Illinois State Geological Survey (ISGS). The Inventory is stored on the Department of Energy and Natural Resources (DENR), PRIME 750 computer, housed at the Illinois Natural History Survey (INHS), and is accessed through the INFO9S data management package. This users guide is divided into four sections, plus appendices. These sections are listed in the Directory. This manual will guide the user who wishes to use the Inventory; however, this is not a comprehensive INFO manual. For a complete guide to INFO see INFO Reference Manual - Prime Revision 8.40 by Henco Software, Inc.

DIRECTORY

- Section 1: How to access the STATEWIDE LANDFILL INVENTORY file.
- Section 2: How to review and update records.
- Section 3: How to make hard copies of records.
- Section 4: A list of INFO commands.
- Appendix 1: Computer Sample Form.
- Appendix 2: Item list from the INVENTORY

SECTION 1

". . .ON THE 8TH DAY GOD CREATED INFO, AND GOD LOOKED UPON INFO AND SAID IT WAS GOOD. . . . AND CONFUSING."

INFO is a data management system on the DENR'S PRIME 750 computer, so any person wishing to use the Inventory must first gain access to the Prime system. This may be done through the consultants of INHS in room 272 of the Natural Resources Building. Once access rights have been granted, the user may call up INFO with the following sequence of commands: (CAPS indicate

messages/prompts printed by the computer, underlined words indicate user responses.)

OK, LOGIN (your name)

PASSWORD? (your password)

The prime will not print your password on the screen. To enter the INFO data management system type:

OK, INFO9S

ENTER PASSWORD (your password) Almost any combination of three to eight characters will suffice as a password. Initials are easy to remember. After INFO recognizes your password, it will prompt you with:

ENTER COMMAND

To call the LANDFILL-INVENTORY file type:

ENTER COMMAND SELECT LANDFILL-INVENTORY

2119 RECORDS SELECTED (as of 8-7-85)

You may now use the UPDATE command (explained later) to look at records in the file, the IPF command to add new records, or any of the commands explained in this manual.

A note about RECORDS and ITEMS. Each site in the LANDFILL-INVENTORY constitutes one record. For each record in the Landfill-Inventory there is a set of items (Appendix 2) which defines the data stored in that record. The set of items is identical for each record in the data file, but the data contained in the items is unique. It will not always be desirable to select all 2119 records in the LANDFILL-INVENTORY. In this case the records may be reselected based on the data contained in certain items. For instance, if the records for only a certain county are desired:

ENTER COMMAND SELECT LANDFILL-INVENTORY

2119 RECORDS SELECTED

ENTER COMMAND RESELECT COUNTY EQ 'CHAMPAIGN'

24 RECORDS SELECTED

The reselect command can be used for any item in the file. For example, if records for all surface impoundments are needed:

ENTER COMMAND SELECT LANDFILL-INVENTORY

2119 RECORDS SELECTED

Inspection of the item list (Appendix 2) will show that the item TYPE is needed for this procedure. Inspection of the data form (Appendix 1) will show that the code for surface impoundments is E. Thus the sequence of commands needed to reselect all records of surface impoundments from the LANDFILL-INVENTORY is:

ENTER COMMAND RESELECT TYPE EQ 'E'

24 RECORDS SELECTED

In its original form the LANDFILL-INVENTORY is sorted by IEPA number or provisional number. The user may wish to sort the file on another item, such as landfill size:

ENTER COMMAND SELECT LANDFILL-INVENTORY

2119 RECORDS SELECTED

ENTER COMMAND SORT ON SIZE

Info will sort the file, in ascending order, based on the item SIZE. If you wish the file to be sorted in descending order:

ENTER COMMAND SORT ON SIZE (D)

after you have finished with your sort, please re-sort the file numerically by entering the command SORT ON IEPA.

There are two other commands which will be useful when reselecting records. The aselect command allows the user to add records to the selected set:

ENTER COMMAND RESELECT SIZE LE 10

465 RECORDS SELECTED

ENTER COMMAND ASELECT SIZE LE 100

1481 RECORDS SELECTED

ENTER COMMAND ASELECT

2119 RECORDS SELECTED

The nselect command allows the user to replace the set of reselected records with the set of non-selected records:

ENTER COMMAND RESELECT COUNTY.EQ'COOK'

162 RECORDS SELECTED

ENTER COMMAND NSELECT

1957 RECORDS SELECTED

SECTION 2

"To err is human . . . to really foul things up requires a computer."

After the appropriate records have been selected, reselected, and sorted, the user may wish to review and/or update the file. Both of these procedures can be accomplished with the update command:

ENTER COMMAND SELECT LANDFILL-INVENTORY

2119 RECORDS SELECTED

ENTER COMMAND (reselect/sort/etc.)

100 RECORDS SELECTED

ENTER COMMANDS UPDATE WITH INPUT

RECNO? 1

After you have entered the appropriate record number (1-2119), the first screen of the data form (Appendix 1) will be presented on the screen. You may either review the items presented on the form, or you may update some of the items.

To simply review the record use the TAB key to move the cursor past each item. When you reach the final item on the screen, the 2nd screen will automatically be presented.

If you wish to update an item: use the TAB key to advance the cursor to the desired item, enter the new value, then press RETURN . The new value for the item will be temporarily entered, and the cursor will advance to the next item. If you press RETURN without entering a value, the value of the item will be replaced by a null value.

When you have advanced the cursor past the last item on the form, you will be prompted with the question:

IS THIS FORM ACCEPTABLE? (Y, N, Q, L, or E)

Answer:

Y stores the data entered and returns to RECNO? prompt.

N Leaves updated values on screen and returns to first item.

Q Replaces updated item values with original values and returns to RECNO? prompt.

L & E are the same as Y.

If the record is correct press Y

If you have made a mistake (such as pressing RETURN instead of TAB press Q.

If you want to update an additional item press L.

If you are finished updating and reviewing records press RETURN at the RECNO? prompt. This will return you to the ENTER COMMAND prompt.

If new records are to be added to the file, the IPF command should be used:

ENTER COMMAND IPF INPUT

You will be prompted for each item of the new record. After all new records

have been added, pressing RETURN at the IEPA NUMBER prompt will return you to the ENTER COMMAND . Then SORT ON IEPA to enter the records in their appropriate position in the file.

SECTION 3

"A rose by any other name is still a rose; but a computer printout by any name is just a lot of scrap paper."

To obtain a hard copy of any part of the LANDFILL-INVENTORY the following command is used:

ENTER COMMAND SF PRINT

DO YOU WANT OUTPUT TO THE PRINTER? Y

ENTER COMMAND SPOOL

YOUR PRT # is 001

After your prt # is given on the screen you may pick up your print out in room 274. NOTE, the INVENTORY is 2119 pages long. To print this entire file on the printer in room 274 will take more than 10 hours. Always reselect so that the number of records printed is no greater than needed.

SECTION 4

"The Computer is Basically Stupid"

INFO COMMANDS:

To Select Records;

SELECT LANDFILL-INVENTORY The first command needed for any use of this file.

RESELECT (item name) (logical expression) (value)

where logical expressions are;

EQ = Equal to

NE = Not equal to

GE = Greater than or equal to

LE = Less than or equal to

Character items must be preceded and followed by single quotation marks (ex: 'CHAMPAIGN').

NSELECT to replace selected records with unselected records

ASELECT (FOR logical expression; see RESELECT)

To add some or all of the non-selected records to the set of selected records.

SORT ON (items) To resort selected records.

To obtain hard (paper) output:

SF PRINT to send output to the spool file.

SPOOL to send the spool file to the printer.

To update items;

UPDATE WITH INPUT to review and/or update the data stored in the items of any records.

TAB will advance the cursor without changing the value of the item.
(for reviewing items)

(new value) RETURN will replace the old value in the record with the new value. (for updating items)

Y in response to the prompt IS THIS RECORD ACCEPTABLE? directs the program to store the last version of the record (whether updated or not) and prompt for a new record number. Use Y for records which have satisfactory information.

N directs INFO to print the last version of the record on the screen and position the cursor at the first item.

Q directs INFO to save the previous version of the record (before the present update) and prompt for a new record. Use Q for records on which you have inadvertently deleted information.

L & E are the same as Y

IPF INPUT to add new records to the file.

ITEMS to display the item structure of the LANDFILL-INVENTORY

REDEFINE to create alternate names for the items. Or to reformat the

OPEN item at the end of the inventory. This is how new items may be added to the inventory. (Note: the Input and Print Forms must also be changed)

DISPLAY (item 1, item 2,..., item 8) to display certain items only.

Other INFO commands:

RELATE ON (item) to combine two files through a common item.

FILES to list selected and related data files.

MOVE to move the contents of all data in item A, file 1 to item B, file 2; or to item B, file 1.

SAVE to write selected records to another unrelated file. This command may be used to write records outside INFO.

GET to read records from another file. This command can be used to read records from a file outside of INFO.

For a complete description of these and other commands see the INFO Reference Manual. A copy is available in Room 272 of the Natural Resources Building.

Appendix 1: COMPUTER SAMPLE FORM

A IEPA No. 0000000000 SITE NAME: SAMPLE SITE
 PROVISIONAL NO. 123456ABCD

B LOCATION:
 COUNTY: CAPITOL CITY/TOWNSHIP: HOME TOWN
 LATITUDE: 234456 LEGAL: 3 PM, R.03E T.10N SEC.24 NWSNESW
 LONGITUDE: 123456 LAMBERT-PHI:X 1234567 Y 1234567

C OWNER: ACME SUPPLY CO. LANDFILL SIZE
 OPERATOR: MR. JOHN DOE IN ACRES: 15

D SOURCES OF DATA:
 1) IEPA X 5) DPH
 2) ISGS X 6) LOCAL HD X
 3) PCP 7) OTHER AGENCY
 4) IDM&M 8) OTHER

E TYPE OF DISPOSAL: A B
 1) OPEN DUMP = A 4) INCINERATION = D
 2) SECURED CONTAINERS = B 5) SURFACE INPOUNDMENT = E
 3) LANDFILL = C 6) LAND APPLIC. = F

F HYDROGEOLOGIC REPORT AT: (P=PRELIMINARY, D=DETAILED, PD, NO)
 1) HWRIC 2) IEPA 3) ISGS P 4) OTHER

G SOURCE(S) AND TYPES OF WASTE:
 1) HAZARDOUS SOLIDS 11) ANIMAL WASTE
 2) HAZARDOUS LIQUIDS X 12) PATHOLOGICAL WASTE
 3) NONHAZARDOUS WASTE 13) FOUNDRY SAND
 4) SPECIAL 14) SLAG
 5) RADIOACTIVE WASTE 15) INCINERATOR ASH
 6) GENERAL SOLID WASTE X 16) DEMOLITION DEBRIS
 7) INDUSTRIAL WASTE 17) CONCRETE/ASPHALT
 8) OIL FIELD BRINE 18) LANDSCAPING WASTE
 9) MUNI SEWAGE SLUDGE 19) OTHER (SPACE RESERVED FOR COMMENTS)
 10) SEPTIC SLUDGE 20) UNKNOWN X

H BACKGROUND DATA: (Y=YES, N=NO)
 1) STATUS: INACTIVE 7) RCRA SITE:
 2) PERMIT STATUS: UNPERMITTED UNAUTHORIZED 8) FORMER DISPOSAL SITE:
 3) DATE PERMITTED: 0 9) ILLEGAL DUMP: Y
 4) DATE OPENED: 121281 10) DATE DISCOVERED: 111483
 5) DATE CLOSED: 111583 11) DATE CLEANED: 0
 6) CERCLA SITE: Y 12) GW MONITORING: Y
 COMMENTS: (THIS LINE STORES 61 SPACES FOR GENERAL COMMENTS.)
 (THIS LINE STORES 61 SPACES FOR GENERAL COMMENTS.)

I MISCELLANEOUS INFORMATION: (ON FILE AT)
 1) PREVIOUS STUDIES:
 2) SITE PLANS:
 3) OPERATION RECORDS:
 4) MONITORING DATA: ISGS
 5) OTHER RECORDS: IEPA & ACME SPLY. CO
 6) LEGAL ACTIONS:

Appendix 2: Item list from the INVENTORY

DATAFILE NAME: LANDFILL-INVENTORY

8/9/1985

76 ITEMS: STARTING IN POSITION 1

COL	ITEM NAME	WDTH	OPUT	TYP	N. DEC	ALTERNATE NAME
1	IEPA-NO.	10	10	L	0	IEPA
11	SITE-NAME	30	30	C	-	NAME
41	LAT	6	6	I	-	
47	LONG	6	6	I	-	
53	PM	1	1	I	-	
54	TOWNSHIP	3	3	C	-	
57	RANGE	3	3	C	-	
60	SECTION	2	2	C	-	
62	QUARTER-SEC	8	8	C	-	
70	CITY	20	20	C	-	
90	OWNER	30	30	C	-	
120	OPERATOR	30	30	C	-	
150	T	1	1	C	-	
151	DATE-CLD	6	6	I	-	DATE-CLOSED
157	ACRE	6	6	I	-	SIZE
163	OPSTATUS	1	1	C	-	
164	PMSTATUS	1	1	C	-	
165	M	1	1	C	-	
166	COUNTY	20	20	C	-	
186	X	10	10	C	-	
196	Y	10	10	C	-	
206	D1	1	1	C	-	
207	D2	1	1	C	-	
208	D3	1	1	C	-	
209	D4	1	1	C	-	
210	D5	1	1	C	-	
211	D6	1	1	C	-	
212	D7	15	15	C	-	
227	D8	15	15	C	-	
242	F1	2	2	C	-	
244	F2	2	2	C	-	
246	F3	2	2	C	-	
248	F4	15	15	C	-	
263	GENERAL	1	1	C	-	GENSOLID-WASTE
264	MUNI	1	1	C	-	MUNICIPAL-SEWAGE
265	SEPTIC	1	1	C	-	SEPTIC-SEWAGE
266	ANIMAL	1	1	C	-	ANIMAL-WASTE
267	PATH	1	1	C	-	PATHOLOGICAL
268	INDUST	1	1	C	-	INDUSTRIAL-WASTE
269	SAND	1	1	C	-	FOUNDRY-SAND
270	ASH	1	1	C	-	INCINERATOR-ASH
271	SLAG	1	1	C	-	
272	HAZ-SOL	1	1	C	-	HAZARDOUS-SOLIDS
273	HAZ-LIQ	1	1	C	-	HAZARDOUS-LIQUID
274	RADIO	1	1	C	-	RADIOACTIVE
275	DEBRIS	1	1	C	-	DEMOLITION
276	CONCRETE	1	1	C	-	ASPHALT
277	LANDSCP	1	1	C	-	LANDSCAPING

278	BRINE	1	1	C	-	OIL-FIELD-BRINE
279	SPECIAL	1	1	C	-	
280	NONHAZ	1	1	C	-	NONHAZARDOUS
281	UNKNOWN	1	1	C	-	
282	DATE-OPN	6	6	I	-	DATE-OPENED
288	I1	20	20	C	-	PREVIOUS-STUDIES
308	I2	20	20	C	-	SITE-PLANS
328	I3	20	20	C	-	
348	I4	20	20	C	-	MONITORING-DATA
368	I5	20	20	C	-	OTHER-RECORDS
388	I6	20	20	C	-	ACTIONS
408	STATUS	22	22	C	-	
430	PERMIT	40	40	C	-	
470	MONITOR	3	3	C	-	
473	TYPE	11	11	C	-	
484	DATE-PRMTD	6	6	I	-	
490	YEAR	2	2	I	-	
492	OTHER	31	31	C	-	
523	ILLEGAL	1	1	C	-	
524	FORMER-SITE	1	1	C	-	
525	DATE-DISCOV	6	6	I	-	
531	COMMENT-ONE	61	61	C	-	
592	COMMENT-TWO	61	61	C	-	
653	PROVSNL-NO	10	10	C	-	
663	MARKER	4	12	F	3	
667	SYMBOL	4	12	F	3	
671	LINE	4	12	F	3	
675	OPEN	200	200	C	-	
** REDEFINED ITEMS **						
189	XX	7	7	C	-	
199	YY	7	7	C	-	
675	DATE CLEANED	6	6	I	-	
1	CTY	3	3	I	-	
681	CERCLA-SITE	1	1	C	-	
682	RCRA-SITE	1	1	C	-	