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EXPOSURE INFORMATION REPORT (VOLUME 2 OF 2) OCTOBER 31, 1991

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REPORT

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United States
Department of Energy

Fernald Environmental Management Project

EXPOSURE INFORMATION REPORT

(Volume 2 of 2)

October 31, 1991

U.S. EPA Identification No. 0H6890008976
Ohio EPA Permit No. 05-31-0681

ATTACHMENT 1

EXPOSURE INFORMATION REPORT (EIR)

Attachment 1

Requirement Checklist

Number	Information Requirement	Reg. Cite	Provide (Y/N)	Complete (Y/N)	Not Appl.	Location in Part B or EIR/Comment
A-1.	Information in Part B Application					
A-1a	General description of facility	270.14(b)(1)	____	____	____	Part B Section B-1
A-1b	Chemical and physical analyses of wastes	270.14(b)(2) and (3)	____	____	____	Not Available*
A-1c	Access control and security description of active portion	270.14(b)(4)	____	____	____	Part B Sections B-2, F-1
A-1d	General inspection schedule and procedures	270.14(b)(5) 270.17(d) 270.21(d)	____	____	____	Part B Section F-2
A-1e	Preparedness and prevention documentation	270.14(b)(6)	____	____	____	Part B Section F-3
A-1f	Contingency plan	270.14(b)(7)	____	____	____	Part B Section G
A-1g	Preventive procedures	270.14(b)(8)	____	____	____	Part B Section F-4
A-1h	Facility location information	270.14(b)(11) (i) and (ii)	____	____	____	Part B Section B-1
A-1i	Closure plan	270.14(b)(13)	____	____	____	Part B Section I-1, Not Available*
A-1j	Post-closure care plan	270.14(b)(13)	____	____	____	Part B Section I-2, Not Available*

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EXPOSURE INFORMATION REPORT (EIR)

Attachment 1

Requirement Checklist

Number	Information Requirement	Reg. Cite	Provide (Y/N)	Complete (Y/N)	Not Appl.	Location in Part B or EIR/Comment
A-1k	Documentation of insurance	270.14(b)(17)	____	____	X	Not required for Federal Facilities
A-1l	Topographic map (site plotted on USGS quadrangle maps)	270.14(b)(19)	____	____	____	Part B Section B-2
A-1m	List of wastes placed or to be placed in each unit	270.21(a) and 270.17(a)	____	____	____	EIR Section 2.1.4, Not Available*
A-2	Additional Information					
A-2a	Existing risk assessment reports and information, including liability insurance analyses, claims and settlements	270.10(j)	____	____	____	EIR Section 2.1.1, 3.1.1, 4.1.1
A-2b	Land use and zoning map(s) for an area of 4 miles around the unit	270.10(j)	____	____	____	EIR - Attachment 2
A-2c	Existing aerial photographs of the facility	270.10(j)	____	____	____	Part B Section A
A-2d	Identify and summarize any waste analysis data already submitted; provide additional data as discussed in the text	270.10(j)	____	____	____	EIR Section 2.1.4, Not Available*

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EXPOSURE INFORMATION REPORT (EIR)

Attachment 1

Requirement Checklist

Number	Information Requirement	Reg. Cite	Provide (Y/N)	Complete (Y/N)	Not Appl.	Location in Part B or EIR/Comment
A-2e	Current estimate of annual amount of waste received and description of any pretreatment process used	270.10(j)	____	____	X	No units receiving hazardous waste
A-2f	Identification of any Federal, State, or local inspection or compliance records related to environmental and health programs; include description of any major violations	270.10(j)	____	____	____	EIR Sections 2.1.6, 3.1.6, 4.1.6
B. GROUND-WATER PATHWAY						
B-1	Information in Part B Application					
B-1a	Interim status ground-water monitoring results	270.14(c)(1)	____	____	____	Not Available*
B-1b	Identification of uppermost aquifer including flow rate and direction	270.14(c)(2)	____	____	____	Not Available*
B-1c	Topographic maps related to ground-water protection (well location, water table elevation contours, etc.	270.14(c)(3) and 270.14(b)(19)	____	____	____	Not Available*
B-1d	Description of existing contamination	270.14(c)(4) (i) and (ii)	____	____	____	Not Available*

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Attachment 1

Requirement Checklist

Number	Information Requirement	Reg. Cite	Provide (Y/N)	Complete (Y/N)	Not Appl.	Location in Part B or EIR/Comment
B-1e	Detailed plans for ground-water monitoring program	270.14(c)(5)	____	____	____	Not Available*
B-1f	Description of detection monitoring program (if applicable)	270.14(c)(6)	____	____	____	Not Available *
B-1g	Description of compliance monitoring program and characterization of contaminated ground-water (if applicable)	270.14(c)(7) and (c)(7)(ii)	____	____	____	Not Available*
B-1h	ACL demonstration (if any)	270.14(c)(7)(iv)	____	____	____	Not Available*
B-1i	Corrective action program (if applicable)	270.14(c)(8)	____	____	____	Not Available*
B-1j	Description of liner and leachate collection system (if applicable)	270.21(b)(1) 270.17(b)(1)	____	____	____	EIR Section 5.1, Not Available*
B-2	Additional Information					
B-2a	Existing map showing location of all known wells within 3 miles; number and location of drinking water wells	270.10(j)	____	____	____	EIR Figures 2 and 3, Section 2.1.1

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Attachment 1

Requirement Checklist

Number	Information Requirement	Reg. Cite	Provide (Y/N)	Complete (Y/N)	Not Appl.	Location in Part B or EIR/Comment
B-2b	Discussion of ground-water uses within 3 miles of unit	270.10(j)	____	____	____	EIR Section 2.2.2
B-2c	Regional map showing areas of ground-water recharge and discharge	270.10(j)	____	____	____	EIR Attachment 3
B-2d	Net precipitation using net seasonal rainfall or other available data	270.10(j)	____	____	____	EIR Section 2.2.4
B-2e	Unless otherwise reported to EPA, available well data indicating a release, and information on any affected public or private water supplies, including populations served	270.10(j)	____	____	____	EIR Section 2.2.5
B-2f	Any known food chain contamination due to prior release from the unit to ground-water	270.10(j)	____	____	____	EIR Section 2.2.6
C. SURFACE-WATER PATHWAY						
C-1	Information in Part B Application					
C-1a	Location information related to 100 yr flood plain including variance demonstrations	270.14(b)(ll) (iii) thru (v)	____	____	____	Part B Section B-3b

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Attachment 1

Requirement Checklist

Number	Information Requirement	Reg. Cite	Provide (Y/N)	Complete (Y/N)	Not Appl.	Location in Part B or EIR/Comment
C-1b	System for control of run-on from each peak discharge of 25 yr storm	270.21(b)(2)	____	____	____	Part B Section D-1a(3)(d), Not Available*
C-1c	System for control of run-off from 24 hr, 25 yr storm	270.21(b)(3)	____	____	____	Part B Section F-4b, Not Available*
C-1d	Procedures/equipment to prevent overtopping	270.17(b)(2)	____	____	____	Not Available*
C-1e	Structural integrity of dikes	270.17(b)(3)	____	____	____	Not Available*
C-2	Additional Information					
C-2a	Discussion of surface-water uses within 3 miles of the unit, including a map showing the location of all surface-water bodies and downstream drinking water intakes	270.10(j)	____	____	____	EIR Section 2.3.1
C-2b	Velocities of streams and rivers passing through and adjacent to the property	270.10(j)	____	____	____	EIR Section 2.3.2
C-2c	Description of any system used to monitor surface-water quality, and a summary of the data	270.10(j)	____	____	____	EIR Section 2.3.3

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Attachment 1

Requirement Checklist

Number	Information Requirement	Reg. Cite	Provide (Y/N)	Complete (Y/N)	Not Appl.	Location in Part B or EIR/Comment
C-2d	Description of known releases to surface water; the extent of contamination; remedial action, if any; and if known, severity of impact	270.10(j)	____	____	____	EIR Sections 2.3.4, 3.3.4, 4.3.4
C-2e	Any known food chain contamination resulting from prior release from the unit to surface water	270.10(j)	____	____	____	EIR Sections 2.3.5, 3.3.5, 4.3.5
D. AIR PATHWAYS						
D-1	Information in Part B Application					
D-1a	Documentation of procedures to prevent accidental ignition or reaction	270.14(b)(9) 270.21(f)and(g) 270.21(h)and(i)	____	____	____	Part B Section F-5
D-1b	Plans to control wind dispersal of particulate matter at landfills	270.21(b)(5)	____	____	____	Part B Section I-2
D-1c	A wind rose showing prevailing windspeed and direction	270.14(b)(10)(v)	____	____	____	Part B Section B-2, Figure B-2
D-2	Additional Information					
D-2a	Summary of air monitoring data and a description of current monitoring systems, if any	270.10(j)	____	____	____	EIR Section 2.4.1

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Attachment 1

Requirement Checklist

Number	Information Requirement	Reg. Cite	Provide (Y/N)	Complete (Y/N)	Not Appl.	Location in Part B or EIR/Comment
D-2b	Population within a 4 mile radius of the unit	270.10(j)	____	____	____	EIR Section 2.4.2
D-2c	Describe any known releases to air; the extent of contamination; remedial action, if any; and severity of impact, if known	270.10(j)	____	____	____	EIR Sections 2.4.3, 3.4.3, 4.4.3
E. SUBSURFACE GAS PATHWAY						
E-1	Information in Part B Application (Note: None in addition to General Information Requirements)					
E-2	Additional Information					
E-2a	Any past disposal of municipal-type wastes in the unit; approximate quantities and dates of disposal, if known	270.10(j)	____	____	____	EIR Sections 2.5.1, 3.5.1, 4.5.1
E-2b	Map location of any underground conduits within the site and known underground conduits within 1000 feet of property boundary	270.10(j)	____	____	____	EIR Attachment 4

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Attachment 1

Requirement Checklist

Number	Information Requirement	Reg. Cite	Provide (Y/N)	Complete (Y/N)	Not Appl.	Location in Part B or EIR/Comment
E-2c	Descriptions of any monitoring or control mechanisms for subsurface gas release; summarize resulting data	270.10(j)	____	____	____	EIR Sections 2.5.3, 3.5.3, 4.5.3
E-2d	Description of any known releases, extent of contamination; remedial action, if any; and the severity of impact, if known	270.10(j)	____	____	____	EIR Sections 2.5.4, 3.5.4, 4.5.4
F. CONTAMINATED SOIL PATHWAY						
F-1	Information in Part B Application (Note: None in addition to General Information Requirements)					
F-2	Additional Information					
F-2a	If soil sampling has been done, a map showing areas of soil contamination, and a summary of analytical results	270.10(j)	____	____	____	EIR Sections 2.6.1, 3.6.1, 4.6.1
F-2b	Description of the types of major releases that resulted in soil contamination, and any clean-up action	270.10(j)	____	____	____	EIR Sections 2.6.2, 3.6.2, 4.6.2

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Attachment 1

Requirement Checklist

Number	Information Requirement	Reg. Cite	Provide (Y/N)	Complete (Y/N)	Not Appl.	Location in Part B or EIR/Comment
F-2c	Any known food-chain contamination resulting from the use of contaminated soils for raising crops	270.10(j)	____	____	____	EIR Sections 2.6.3, 3.6.3, 4.6.3
G. TRANSPORTATION INFORMATION						
G-1	Information in Part B Application					
G-1a	Traffic pattern, volume, and controls, access road characteristics	270.14(b)(10)	____	____	____	Part B Section B-4, Figures B-8
G-2	Additional Information					
G-2a	Description of the types and capacities of vehicles used to transport waste	270.10(j)	____	____	____	EIR Section 2.7.1
G-2b	Identification of normal transport routes for hazardous waste into the site and within 1 mile of the facility entries	270.10(j)	____	____	____	EIR Figure 1, Section 2.7.2
G-2c	Description of procedures for clean-up of transportation-related spills or leaks	270.10(j)	____	____	____	Part B Section G

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Attachment 1

Requirement Checklist

Number	Information Requirement	Reg. Cite	Provide (Y/N)	Complete (Y/N)	Not Appl.	Location in Part B or EIR/Comment
G-2d	Description of any transportation accidents releasing hazardous wastes on-site, or in the immediate vicinity	270.10(j)	____	____	____	____ EIR Section 2.7.4
	H. Management Practices Information					
H-1	Information in Part B Application					
H-1a	Outline of programs to train employees to safely operate and maintain facility, including emergency response activities	270.14(b)(12)	____	____	____	Part B Section H-1
H-2	Additional Information					
H-2a	Summary of existing records on worker illness or injury, related to the operation of the unit, include summaries of Workmen's Compensation claims, or hospital records	270.10(j)	____	____	____	EIR Section 2.8.1

* Additional information will be provided per the Compliance Schedule submitted by the Department of Energy to the Ohio EPA and U.S. EPA on August 27, 1991 (Westerbeck to Pardi DOE-2109-91) Titled "Schedules for Implementing Hazardous Waste Requirements For Newly Identified Hazardous Waste Management Units"

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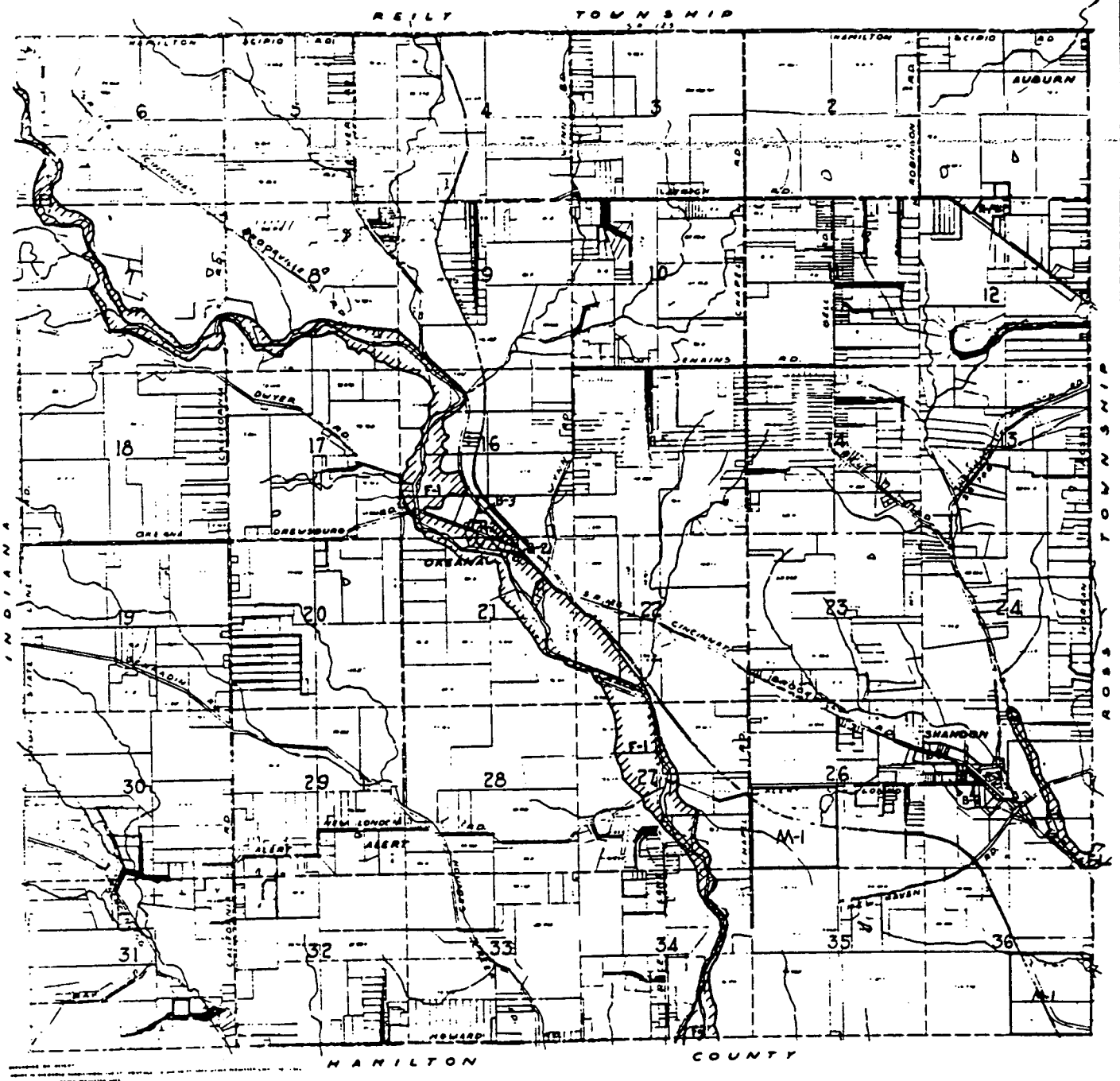
EIR
ATTACHMENT 2



MORGAN TOWNSHIP

LEGEND AND SUMMARY OF ZONING REGULATIONS

A-1	agriculture							
R-E	residence							
R-1	residence							
R1A	residence							
R-2	residence							
R-3	residence							
R-4	residence							
R-PUD	residence							
R-MHP	residence							
B-1	neighborhood business							
B-2	community business							
B-3	general business							
M-1	light industry							
M-2	general industry							
F-1	flood plain							

PROPOSED ZONING MAP

BUTLER COUNTY OHIO

1) DEPENDING ON HEIGHT
2) HOMES IN RECORDED SUBDIVISIONS-100 FT FRONTAGE, 20 000 SQ FT AREA OTHER PERMITTED USES 1-10 ACRES
3) LARGER AREA FOR OTHER PERMITTED USES
4) NONE REQUIRED FOR NON-RESIDENTIAL USES EXCEPT WHERE ADJOINING R-DISTRICT
5) EXCEPT WHERE GREATER HEIGHT NECESSARY FOR MANUFACTURING PROCESS
6) SEE REGULATIONS
7) ACCORDING TO MORGAN TOWNSHIP ZONING RESOLUTION AND BUTLER COUNTY AND OHIO BUILDING CODE

LEGEND AND SUMMARY OF ZONING REGULATIONS

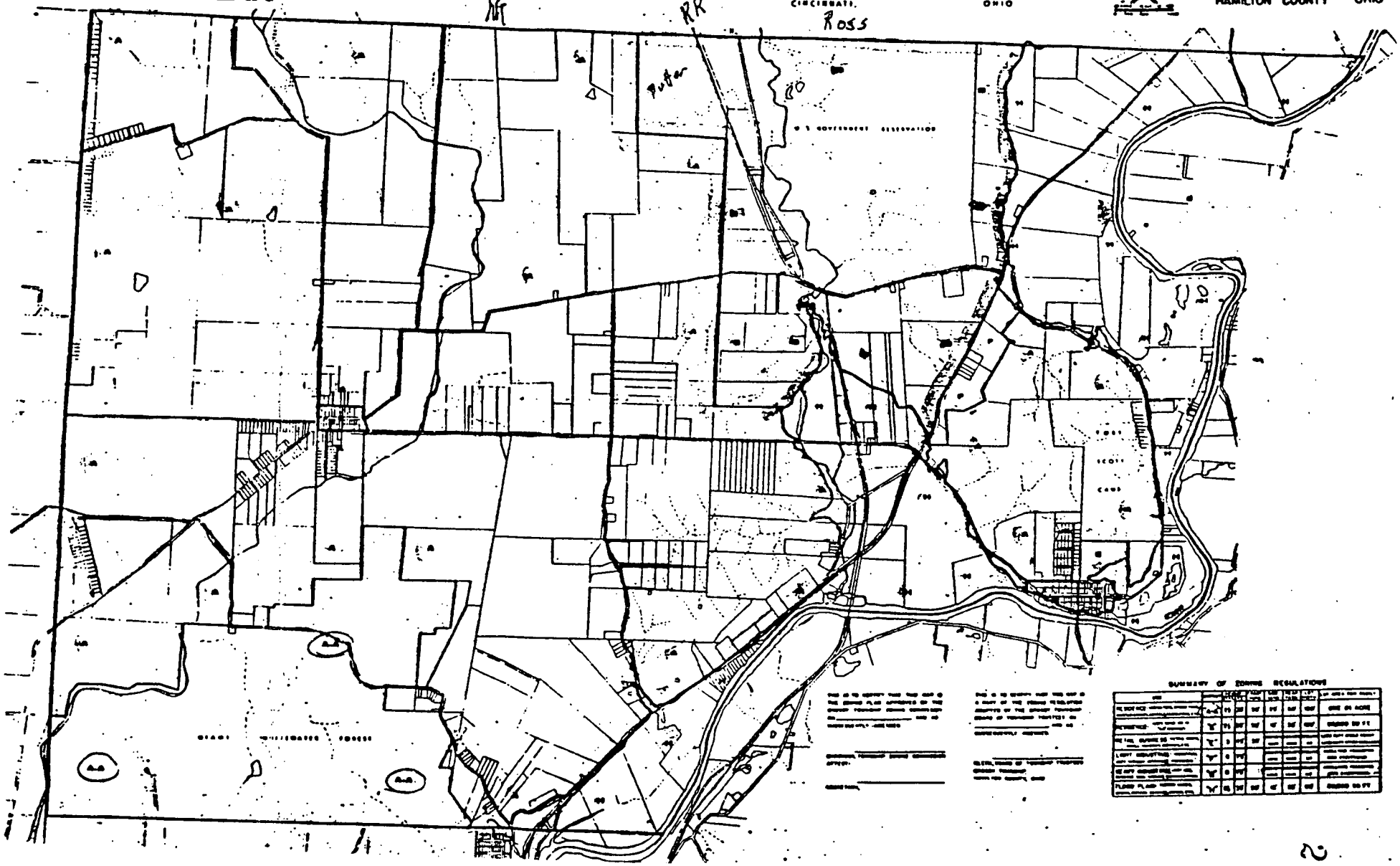
DISTRICT	SYMBOL	PRINCIPAL USES	HEIGHT		YARDS			FRONTAGE	LOT AREA PER FAMILY
			ST	FT.	FRONT	SIDE	REAR		
A-1		agriculture FARMS, 1&2 FAMILY HOMES CHURCHES, SCHOOLS.	2.5	30	40	25'-50'	50'	200' 2)	2) 1 ACRE
R-E		residence 1-FAMILY HOMES, FARMS PARKLAND AND COMMON OPEN SPACE	2.5	30	50	25'-60'	60'	160'	60,000 SQ. FT
R-1		residence 1-FAMILY HOMES FARMS, CHURCHES, SCHOOLS.	2.5	30	40	15'-30'	50'	100'	20,000 SQ. FT 3)
R1A		residence 1-FAMILY HOMES, FARMS, CHURCHES, SCHOOLS.	2.5	30	35	10'-25'	45'-50'	90	15 000 SQ FT
R-2		residence SINGLE FAMILY	2.5	30	35	8'-20'	40'	65'	1FAM 8000 SQ FT
R-3		residence 1-FAMILY 2-FAMILY HOMES, DWELLING GROUPS.	2.5	30	30	8'-20'	35'-45'	50' 80'	1 FAM 7000 SQ FT 2 FAM 6000 SQ FT
R-4		residence 1-FAMILY, 2-FAMILY MULTI-FAMILY HOMES LODGING AND BOARDING HOUSES	3	40	30	8'-18'	35'-60'	55' 60' 100'	1 FAM 6500 SQ FT 2 FAM 3750 SQ FT MULTI 2500 SQ FT
R-PUD		residence 1,2 AND MULTIPLE FAMILY HOMES, CHURCHES, PARKLAND AND COMMON OPEN SPACE	6)	6)	6)	6)	6)	6)	6)
R-MHP		residence MOBILE HOMES, PRIVATE PARKS AND RELATED FACILITIES	6)	6)	6)	6)	6)	6)	6)
B-1		neighborhood business NEIGHBORHOOD RETAIL STORES.	2.5	30	30	4)	4)	4)	7)
B-2		community business CERTAIN B-1 USES, MAJOR RETAIL STORES, GARAGES, ETC	3	40	30	4)	4)	4)	7)
B-3		general business CERTAIN B-1, B-2 USES, WHOLESALE BUSINESS, DRIVE-IN ESTABLISHMENTS	3	40	30	4)	4)	4)	7)
M-1		light industry COMMERCIAL USES, LIGHT MANUFACTURING	3	50 5)	30	4)	30'-50'	4)	7)
M-2		general industry HEAVY INDUSTRY	3	50 5)	30	4)	40'-60'	4)	7)
F-1		flood plain FARMS	2.5	30	6)	6)	6)	6)	6)

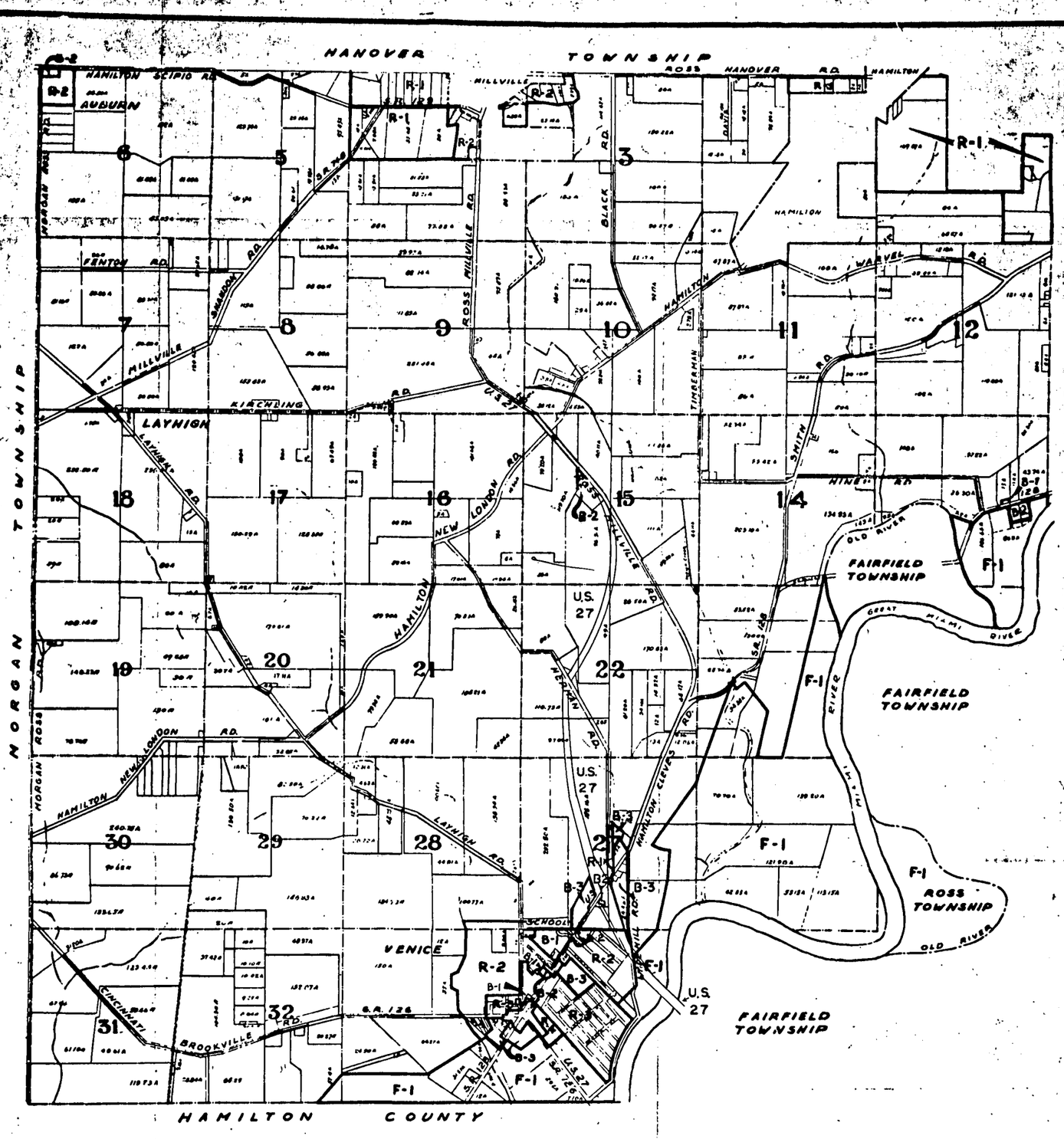
CROSBY TOWNSHIP HAMILTON COUNTY, OHIO

ZONING PLAN

HAMILTON COUNTY
REGIONAL PLANNING COMMISSION
CINCINNATI, OHIO

CROSBY TOWNSHIP
ZONING COMMISSION
HAMILTON COUNTY OHIO





ROSS TOWNSHIP

LEGEND AND SUMMARY OF ZONING REGULATIONS

DISTRICT	SYMBOL	PRINCIPAL USES	HEIGHT 5	HEIGHT 5	YARDS 3 FRONT	YARDS 3 SIDE	YARDS 3 REAR	FRONAGE	LOT AREA PER FAMILY
A-1		AGRICULTURE — FARMS, 1 & 2-FAMILY HOMES, CHURCHES, SCHOOLS, RECREATION, ETC	2½	30	40'	25'-50	50'	200'	1 ACRE
R-1		RESIDENCE — 1-FAMILY HOMES, FARMS, CHURCHES, SCHOOLS, ETC	2½	30	35'	10'-20'	30	100'	20 000 SQ FT
R-2		RESIDENCE — 0-1 USES, 2-FAMILY HOMES IN CERTAIN LOCATIONS	2½	30	30'	6'-15'	40-45	65' 60'	1 FAM 6000 SQ FT 2 FAM 7000 SQ FT
R-3		RESIDENCE — 0-2 USES, 2-FAMILY HOMES, DWELLING GROUPS, ETC.	2½	30	25'	6'-12'	35-45	60 55	1 FAM 7000 SQ FT 2 FAM 4000 SQ FT
R-4		RESIDENCE — 0-3 USES, MULTI-FAMILY HOMES, LODGING AND ROOMING HOUSES	3	40	25'	6-15	35-50	50 100	1 FAM 5000 SQ FT 2 FAM 7500 SQ FT MULTI-FAM 1,500 SQ FT
B-1		NEIGHBORHOOD BUSINESS — NEIGHBORHOOD RETAIL STORES, SERVICE ENTERPRISES (P-4 OR BETTER)	2	25	25'	5'	10'	5'	DWELLINGS SAME AS R-4
B-2		COMMUNITY BUSINESS — 0-1 USES, GALLERY RETAIL STORES, GARAGES, ETC	3	40	25'	5'	10'	5'	DWELLINGS SAME AS R-4
B-3		GENERAL BUSINESS — 0-3 USES, HOUSEHOLD BUSINESS, SERVICE ESTABLISHMENTS	3	40	25'	5'	10'	5'	DWELLINGS SAME AS R-4
M-1		LIGHT INDUSTRY — 0-3 USES, LIGHT MANUFACTURING	3	50	25'	5'	30-50	5'	DWELLINGS SAME AS R-4
M-2		GENERAL INDUSTRY — 0-1 USES, GENERAL MFG., HEAVY MANUFACTURING, SLAUGHTER AND RENDERING OPERATIONS	3	50	25	5'	40-50	5'	NO DWELLINGS PERMITTED
F-1		FLOOD PLAIN — FARMS, SINGLE FAMILY HOMES, GARAGE YARDS, RECREATION, ETC.	2½	30	25'	10'	35'	50'	SEASONAL DWELLINGS 4000 SQ FT

1) EXCEPTIONS ON HEIGHT
2) SINGLE OR REQUIRED DWELLINGS - 100 FT FRONTAGE, DEPTH 140 FT AREA, OTHER PERMITTED USES - 1 ACRE
3) LARGER AREA FOR OTHER PERMITTED USES
4) SAME REQUIRED FOR NON-RESIDENTIAL USES EXCEPT WHERE ADJOINING R-DISTRICT
5) EXCEPT ADJOINING R-DISTRICT
6) NO MINIMUM REQUIRED FOR NON-RESIDENTIAL USES
7) EXCEPT WHERE GREATER HEIGHT NECESSARY FOR MANUFACTURING PROCESS

APPROVED BY: BUTLER COUNTY RURAL ZONING COMMISSION
June 13 1962
Chairman — Secretary

APPROVED BY: BUTLER COUNTY PLANNING COMMISSION
June 12 1962
Chairman — Planning Director

ADOPTED BY: BUTLER CO BOARD OF COUNTY COMMISSIONERS
July 24 1962
President
Member — Member

This is to certify that this map is a part of the Zoning Resolution adopted by the Butler County Board of County Commissioners on July 24 1962
Clerk, Board of County Commissioners

This is to certify that this map is a part of the proposed Plan of Zoning approved by a majority vote of the electors in Ross Township on November 6 1962
Board of Elections

OFFICIAL ZONING MAP

BUTLER COUNTY COMMISSIONERS

BUTLER COUNTY · OHIO

MILE 1/2 — 0 — 1000 2000 3000 4000 5000 FEET

LADISLAS SEGOE AND ASSOCIATES
CITY PLANNING CONSULTANTS
CINCINNATI · OHIO
1962

EIR
ATTACHMENT 3

EXPOSURE INFORMATION REPORT (EIR)

ATTACHMENT 2

Colerain Township Zoning Maps are available on request.

2495

Ground-Water Resources of HAMILTON COUNTY

by

Alfred C. Walker

1:62,500

Well Site Symbols

- Well Site
- Municipal-Industrial Well
- Test Well*
- Observation Well**
- Chemical Analyses

S - Sand
CL - Clay
SH - Shale
LS - Limestone
SG - Sand & Gravel

Depth (ft) - Water-bearing Formation - Yield (gpm)

290 SG-19
224

Depth to Bedrock (ft)

Chemical Analysis Table

Well Site	A	B	C	D	H-5	H-6	H-9	H-11
Depth of well (ft.)	78	125	197	118	122	167	168	148
Aquifer	SG	SG	SG	SG	SG	SG	SG	SG
pH	7.5	7.8	7.6	7.6	7.1	7.6	7.1	7.4
Total hardness ($CaCO_3$)	378.0	146.0	—	350.0	440	280	410	310
Sulfate (SO_4)	50.0	52.0	101.0	79.9	61	6.1	97	290
Iron (Fe)	—	—	4.2	0.08	2.6	4.5	2.6	1.9
Manganese (Mn)	—	0.08	0.37	0.38	0.11	0.09	0.18	1.1
Fluoride (F)	0.11	0.23	0.21	0.30	0.10	0.30	0.30	0.10
Chloride (Cl)	40.0	21.0	32.0	36.0	31	9.8	65	200
Calcium (Ca)	105.6	45.0	129.0	110.0	120	78	100	78

Chemical constituents as milligrams per liter (mg/l)

Well Yields

AREAS IN WHICH YIELDS OF MORE THAN 500 GALLONS PER MINUTE CAN BE DEVELOPED.

Best ground-water areas in Hamilton County. Permeable sand and gravel deposits in ancient stream channels, suitable for large industrial well field development. Yields of as much as 1,000 gallons per minute have been reported.

AREAS IN WHICH YIELDS OF 100 TO 500 GALLONS PER MINUTE CAN BE DEVELOPED.

Sand and gravel deposits, generally well sorted, may yield several hundred gallons per minute. Higher yields are reported where recharge is available from nearby streams. Exploratory drilling is necessary to locate coarser materials.

AREAS IN WHICH YIELDS OF 25 TO 100 GALLONS PER MINUTE CAN BE DEVELOPED.

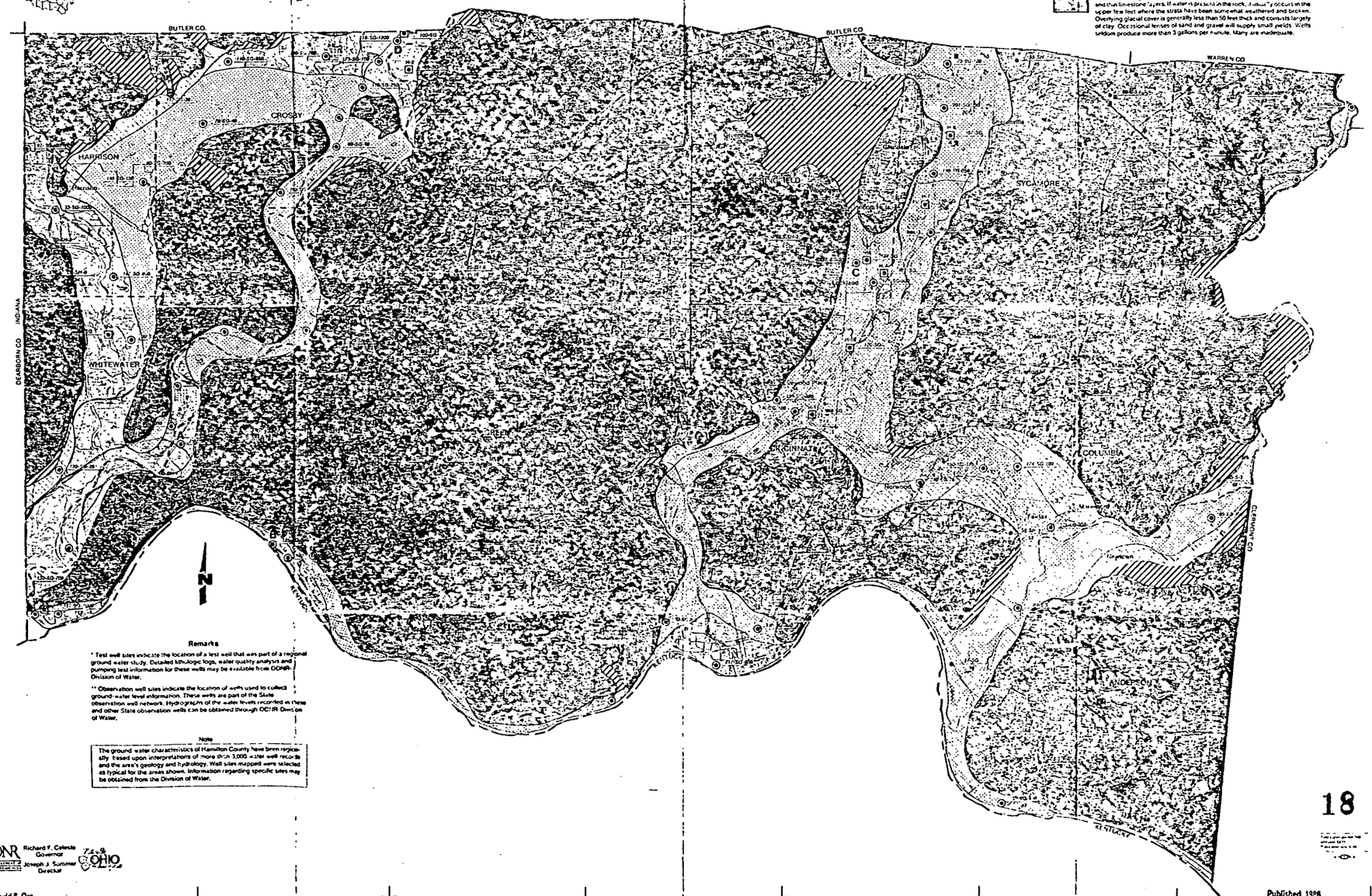
Valley fill contains thick local deposits of sand and gravel. Screened wells encountering permeable deposits yield less than 100 gallons per minute. Shale bedrock will supply very limited yields.

AREAS IN WHICH YIELDS OF 3 TO 10 GALLONS PER MINUTE MAY BE DEVELOPED.

Thick deposits of clay with thin lenses of sand and gravel will yield less than 10 gallons per minute. Wells not encountering sand and gravel produce less than 3 gallons per minute from the underlying limey shale at depths of less than 100 feet.

AREAS IN WHICH YIELDS SELDOM EXCEED 3 GALLONS PER MINUTE.

Poor source of ground water. Bedrock consists of interbedded plastic shales and thin limestone layers. If water is present in the rock, it usually occurs in the upper few feet where the strata have been somewhat weathered and broken. Overlying glacial cover is generally less than 50 feet thick and consists largely of clay. Occasional lenses of sand and gravel will supply small yields. Wells seldom produce more than 3 gallons per minute. Many are inadequate.



Remarks

* Test well sites indicate the location of a test well that was part of a regional ground water study. Detailed lithologic logs, water quality analysis and pumping test information for these wells may be available from ODNR-Division of Water.

** Observation well sites indicate the location of wells used to collect ground-water level information. These wells are part of the State observation well network. Hydrographs of the water levels recorded in these and other State observation wells can be obtained through ODNR Division of Water.

Note

The ground water characteristics of Hamilton County have been regionally based upon interpretations of more than 3,000 water well records and the area's geology and hydrology. Well sites mapped were selected as typical for the areas shown. Information regarding specific sites may be obtained from the Division of Water.

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ODNR Richard F. Celeste Governor
Joseph J. Sommer Director
OHIO

Cartography: David S. Orr

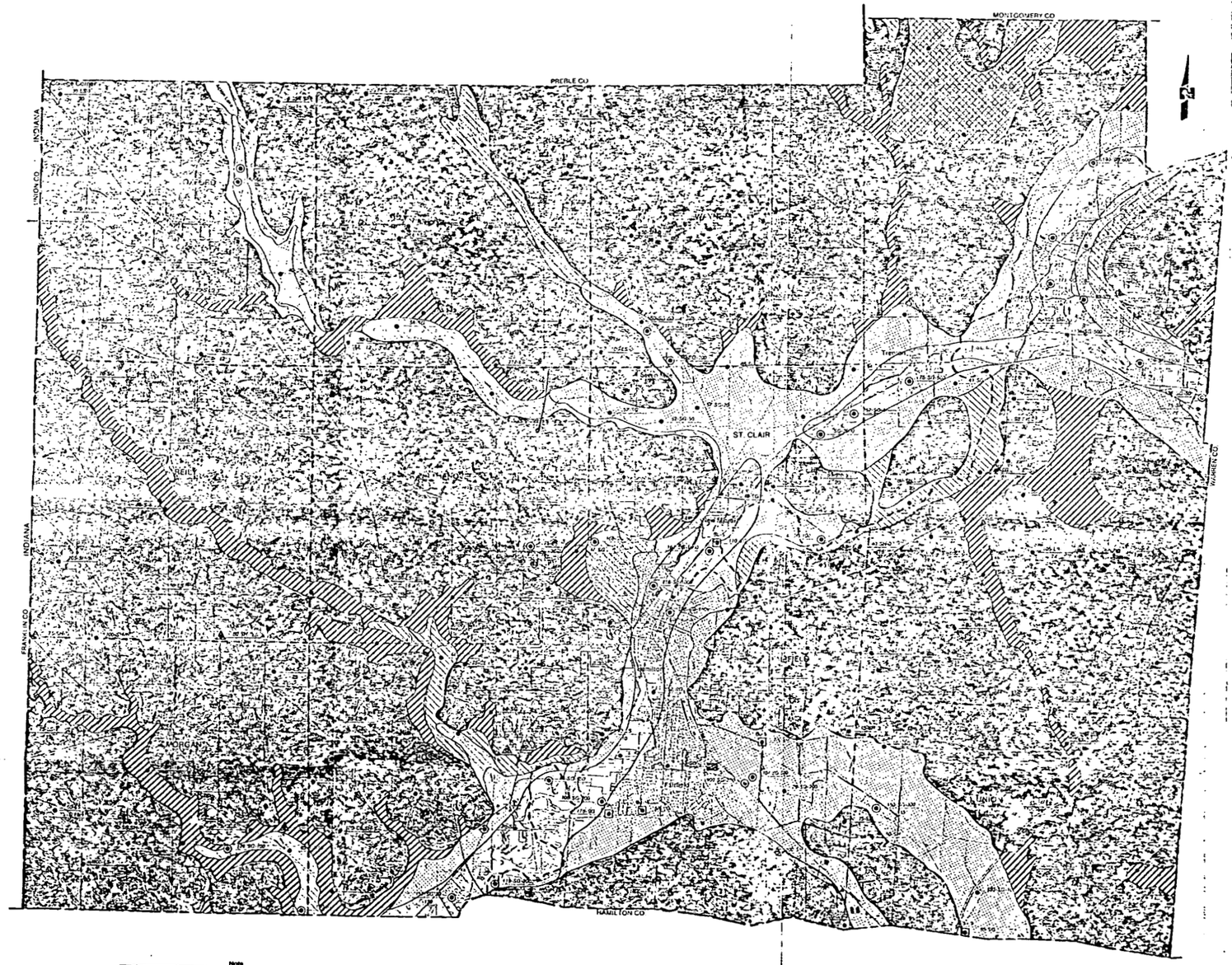
Published, 1986

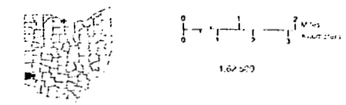
Ground-Water Resources of BUTLER COUNTY

2495

by

James J. Schmidt





Well Yields

AREAS IN WHICH YIELDS OF 500 TO 1000 GALLONS PER MINUTE MAY BE DEVELOPED

Permeable sand and gravel deposits in an industrial dominant glacial valley. Large diameter wells can usually yield this much water. Pumping tests indicate that depths ranging from 30 to 150 feet may be adequate.

AREAS IN WHICH YIELDS OF 100 TO 500 GALLONS PER MINUTE MAY BE DEVELOPED

Relatively extensive, thick permeable deposits of sand and gravel may yield as much as 500 gallons per minute. Extensive test drilling is necessary to locate coarser deposits at average depths of 90 feet and ranging from 35 to as much as 150 feet.

AREAS IN WHICH YIELDS OF AS MUCH AS 75 GALLONS PER MINUTE MAY BE DEVELOPED

Water bearing deposits of sand and sand and gravel interbedded with thick layers of clayey till. Gravel deposits may be as much as 100 feet thick but wells are usually developed at average depths of 75 feet.

AREAS IN WHICH YIELDS OF 5 TO 20 GALLONS PER MINUTE MAY BE DEVELOPED

Sediments consisting of clay with thin layers of sand. Depth to rock may range from 100 to 200 feet. Wells may be drilled in order to obtain yields of from 5 to 20 gallons per minute. Pumping tests of well in this area indicate low water quality.

Ground water obtained from thin, not extensive, sand and gravel deposits interbedded with mostly thick layers of clayey till. Wells are usually developed at depths of less than 50 feet and deeper drilling into the underlying bedrock is non-productive.

AREAS IN WHICH YIELDS OF 3 TO 10 GALLONS PER MINUTE MAY BE DEVELOPED

Relatively thick unconsolidated glacial deposits of silty sand and clayey till. Thin layers of water bearing sand and gravel may be encountered at depths ranging from 25 to more than 150 feet. Cautious drilling is advisable to attempt the development of relatively meager supplies.

AREAS IN WHICH YIELDS OF LESS THAN 2 GALLONS PER MINUTE MAY BE DEVELOPED

Clayey till usually less than 35 feet thick overlying non-water bearing shaly limestone bedrock. Very meager supplies are developed with cisterns and/or additional storage necessary to maintain daily water requirements.

Well Site Symbols

Depth (ft) - Water Bearing Formation - Yield (gpm)

298 SG 50

224

Depth to Bedrock (ft)

S - Sand
G - Gravel
SG - Sand & Gravel
FS - Fine Sand
LS - Limestone
SH - Shale
CL - Clay

- Well Site
- Well Site - H_2S Noted
- Municipal-Industrial Well
- Test Well*
- Observation Well**

Chemical Analysis Table

Well Site	Bu-5	Bu-7	Bu-8	Bu-9	Bu-58
Hardness as $CaCO_3$	320	330	340	680	370
Sulfate (SO_4)	54	52	32	190	72
Dissolved Solids	410	382	300	805	478
Iron (Fe)	2.80	0.68	3.70	1.60	0.10
Sodium (Na)	18	4.9	140	75	26
Nitrogen, Ammonia as N	0.10	–	1.00	0.04	0.01

Chemical constituents in milligrams per liter (mg/l)

19

Remarks

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** Observation well sites indicate the location of wells used to collect ground water level information. These wells are part of the State observation well network. Hydrographs of the water levels recorded in these and other State observation wells can be obtained through ODNR-Division of Water

Note

The ground-water characteristics have been mapped regionally, based upon interpretations of water well records and the area's geology and hydrology. Well sites mapped were selected as typical for the areas shown. Information regarding specific sites may be obtained from the Division of Water.

ODNR Richard F. Celeste, Governor; Joseph J. Sommer, Director

OHIO

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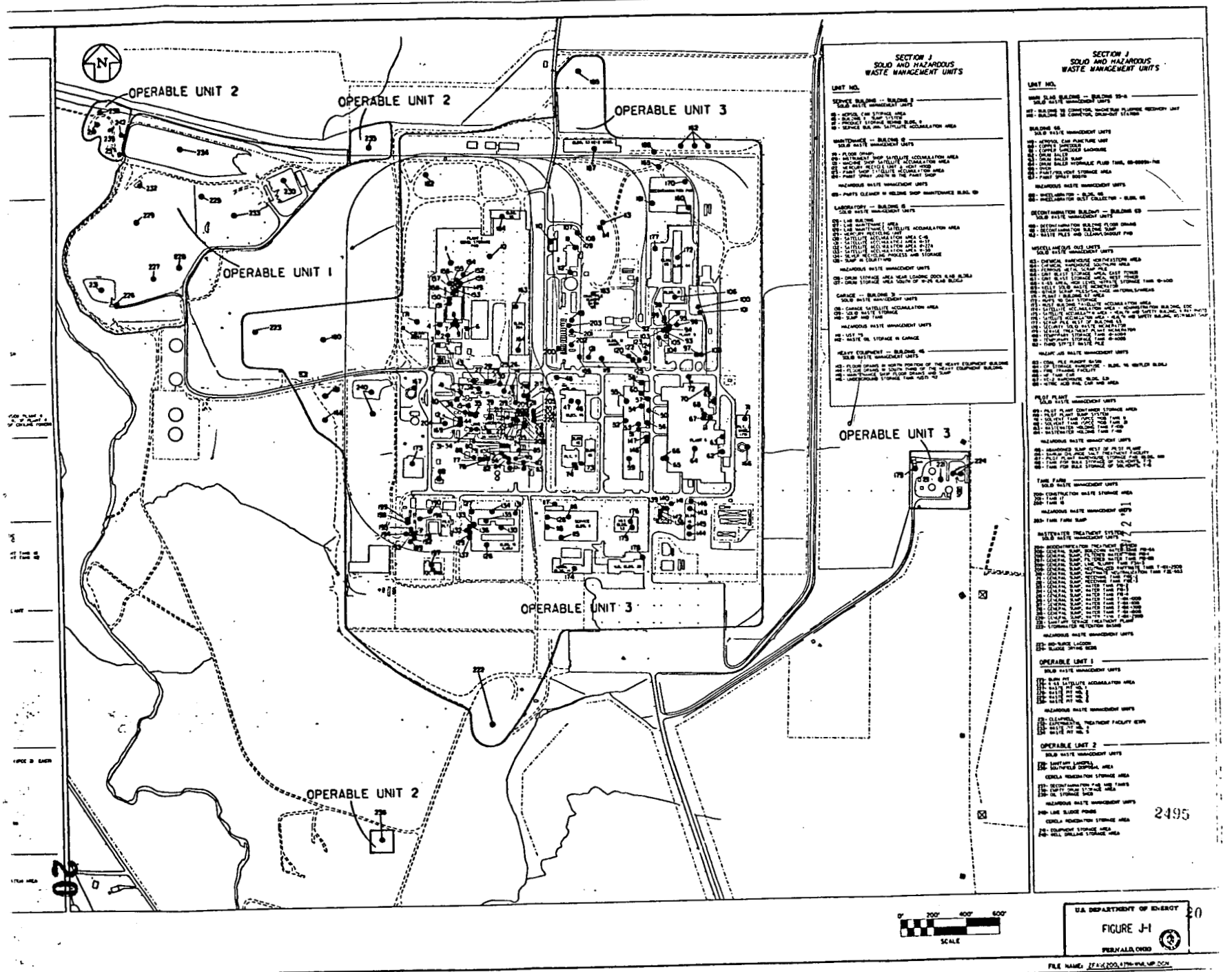
EIR
ATTACHMENT 4


OPERABLE UNIT 2
OPERABLE UNIT 2
OPERABLE UNIT 3
OPERABLE UNIT 1
OPERABLE UNIT 3
OPERABLE UNIT 3
OPERABLE UNIT 2
SECTION J
SOLID AND HAZARDOUS
WASTE MANAGEMENT UNITS
UNIT NO.
SECTION J
SOLID AND HAZARDOUS
WASTE MANAGEMENT UNITS
UNIT NO.
OPERABLE UNIT 1
OPERABLE UNIT 2
2495
0' 200' 400' 600'
SCALE
U.S. DEPARTMENT OF ENERGY
FIGURE J-1
FERNALD, OHIO
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EXPOSURE INFORMATION REPORT (EIR)

ATTACHMENT 4

Individual Grid Drawings #1 - #31 are available on request.

SECTION J
SOLID AND HAZARDOUS WASTE MANAGEMENT UNITS

UNIT NO. OPERABLE UNIT 3

PLANT 1 -- SAMPLING PLANT
SOLID WASTE MANAGEMENT UNITS

1 - COPPER METAL SCRAP PILE
2 - MAGNESIUM FLUORIDE TITAN MILL
3 - PLANT 1 ORE SILOS
4 - PLANT 1 SAMPLE LIME
5 - PLANT 1 SUMP SYSTEM
6 - PLANT 1 THAW TUNNEL
7 - SAFE GEOMETRY DIGESTION SUMP
8 - SLOP STORAGE TANK

HAZARDOUS WASTE MANAGEMENT UNITS

9 - DETREX STILL
10 - PLANT 1 PAD
11 - PLANT 1 STORAGE BLDG. (BLDG. 67)

PLANT 2/3 -- REFINERY
SOLID WASTE MANAGEMENT UNITS

12 - INCINERATOR BUILDING SATELLITE ACCUMULATION AREA
13 - MAINTENANCE SHOP FLOOR DRAIN
14 - PLANT 2/3 SUMP SYSTEM
15 - RAFFINATE STORAGE TANK F1-400
16 - RAFFINATE STORAGE TANK F1-401
17 - RAFFINATE STORAGE TANK F1-402
18 - RAFFINATE STORAGE TANK F1-403
19 - REFINERY SUMP, FILTER WASH TANK F1-608
20 - REFINERY SUMP, FILTER WASH TANK F1-609
21 - REFINERY SUMP, FILTER WASH TANK F1-610
22 - REFINERY SUMP, FILTER WASH TANK F2E-601
23 - REFINERY SUMP, FILTER WASH TANK F2E-602
24 - REFINERY SUMP, THICKENER SLURRY TANK F1-612
25 - SATELLITE ACCUMULATION AREA (CURRENT)
26 - SATELLITE ACCUMULATION AREA (PRIOR)
27 - TRIBUTYL PHOSPHATE/KEROSENE HOLDING TANK 17A
28 - TRIBUTYL PHOSPHATE/KEROSENE HOLDING TANK 17B
29 - TRIBUTYL PHOSPHATE/KEROSENE HOLDING TANK 17C
30 - TRIBUTYL PHOSPHATE/KEROSENE HOLDING TANK F1-512
31 - UNH STORAGE TANK F1-310
32 - UNH STORAGE TANK F1-311
33 - UNH STORAGE TANK F1-312
34 - UNH STORAGE TANK F1-317
35 - URANYL NITRATE TANK F1-405
36 - URANYL NITRATE RAFFINATE TANK F3E-405
37 - WASTEWATER STORAGE TANK F1-25A
38 - WASTEWATER STORAGE TANK F1-26A

HAZARDOUS WASTE MANAGEMENT UNITS

39 - NAR SYSTEM COMPONENTS
40 - TRANE THERMAL LIQUID INCINERATOR
41 - URANYL NITRATE TANKS (DIGESTION AREA (2 LOCATIONS))
42 - URANYL NITRATE TANKS (NFS STORAGE AREA)
43 - URANYL NITRATE TANKS (NORTH OF PLANT 2)
44 - URANYL NITRATE TANKS (RAFFINATE BLDG.)
45 - URANYL NITRATE TANKS (SOUTHEAST OF PLANT 2)

PLANT 4 -- GREEN SALT PLANT
SOLID WASTE MANAGEMENT UNITS

46 - PLANT 4 SUMP SYSTEM

HAZARDOUS WASTE MANAGEMENT UNITS

47 - DRUMMED HF RESIDUE/ASSOCIATED STORAGE AREAS INSIDE PLANT 4
48 - DRUMMED HF RESIDUE/ASSOCIATED STORAGE AREAS N.W. OF PLANT 4
49 - DRUMMED HF RESIDUE/ASSOCIATED STORAGE AREAS S. OF COOLING TOWERS

PLANT 5 -- METALS PRODUCTION PLANT
SOLID WASTE MANAGEMENT UNITS

50 - HOFFMAN DUST COLLECTOR SYSTEM 101
51 - HOFFMAN DUST COLLECTOR SYSTEM 256
52 - HOFFMAN DUST COLLECTOR SYSTEM 258
53 - HOFFMAN DUST COLLECTOR SYSTEM 260
54 - HOFFMAN DUST COLLECTOR SYSTEM 261
55 - HOFFMAN DUST COLLECTOR SYSTEM 262
56 - MAINTENANCE SHOP FLOOR DRAIN AND SUMP
57 - MAINTENANCE SHOP STEAM BOOTH
58 - METALS PLANT SATELLITE ACCUMULATION AREA
59 - PLANT 5 SUMP SYSTEM

HAZARDOUS WASTE MANAGEMENT UNITS

60 - HILCO OIL RECOVERY

PLANT 6 -- METALS FABRICATION PLANT
SOLID WASTE MANAGEMENT UNITS

61 - ELECTROSTATIC DUST COLLECTOR SYSTEM, NORTH DC
62 - ELECTROSTATIC DUST COLLECTOR SYSTEM, SOUTH DC
63 - OPERATIONS AREA SATELLITE ACCUMULATION AREA
64 - PLANT 6 SUMP SYSTEM
65 - SPENT COOLING WATER FOR NU-SAL HEAT TREATMENT TANK W1
66 - SPENT COOLING WATER FOR NU-SAL HEAT TREATMENT TANK W2
67 - SPENT NITRIC ACID STORAGE TANK FS-3
68 - UNDERGROUND STORAGE TANK (UST) #14
69 - WASTEWATER STORAGE TANK FSE-700
70 - WATER TREATMENT SATELLITE ACCUMULATION AREA

HAZARDOUS WASTE MANAGEMENT UNITS

71 - PLANT 6 WAREHOUSE (BLDG. 79)
72 - STORAGE PAD NORTH OF PLANT 6

PLANT 7 -- URANIUM HEXAFLUORIDE REDUCTION PLANT
SOLID WASTE MANAGEMENT UNITS

73 - ABANDONED SUMP TANK 07 - UNDESIGNATED
74 - HYDROGEN FLUORIDE SCRUBBER AREA SUMP #0817

PLANT 8 -- SCRAP RECOVERY PLANT
SOLID WASTE MANAGEMENT UNITS

75 - EAST OLIVER FILTER
76 - EIMCO FILTER (EAST)
77 - EIMCO FILTER (WEST)
78 - FILTRATE TANK #08-A005-TNK
79 - FILTRATE TANK #08-A006-TNK
80 - FILTRATE TANK #08-A007-TNK
81 - OXIDATION FURNACE #2
82 - PLANT 8 SUMP SYSTEM
83 - ROTARY KILN
84 - ROTEX SCREENING UNIT

HAZARDOUS WASTE MANAGEMENT UNITS

85 - BOX FURNACE
86 - OXIDATION FURNACE #1
87 - PLANT 8 EAST DRUM STORAGE PAD
88 - PLANT 8 WEST DRUM STORAGE PAD
89 - PLANT 8 WAREHOUSE (BLDG. 80)
90 - PRIMARY CALCINER

PLANT 9 -- SPECIAL PRODUCTS PLANT
SOLID WASTE MANAGEMENT UNITS

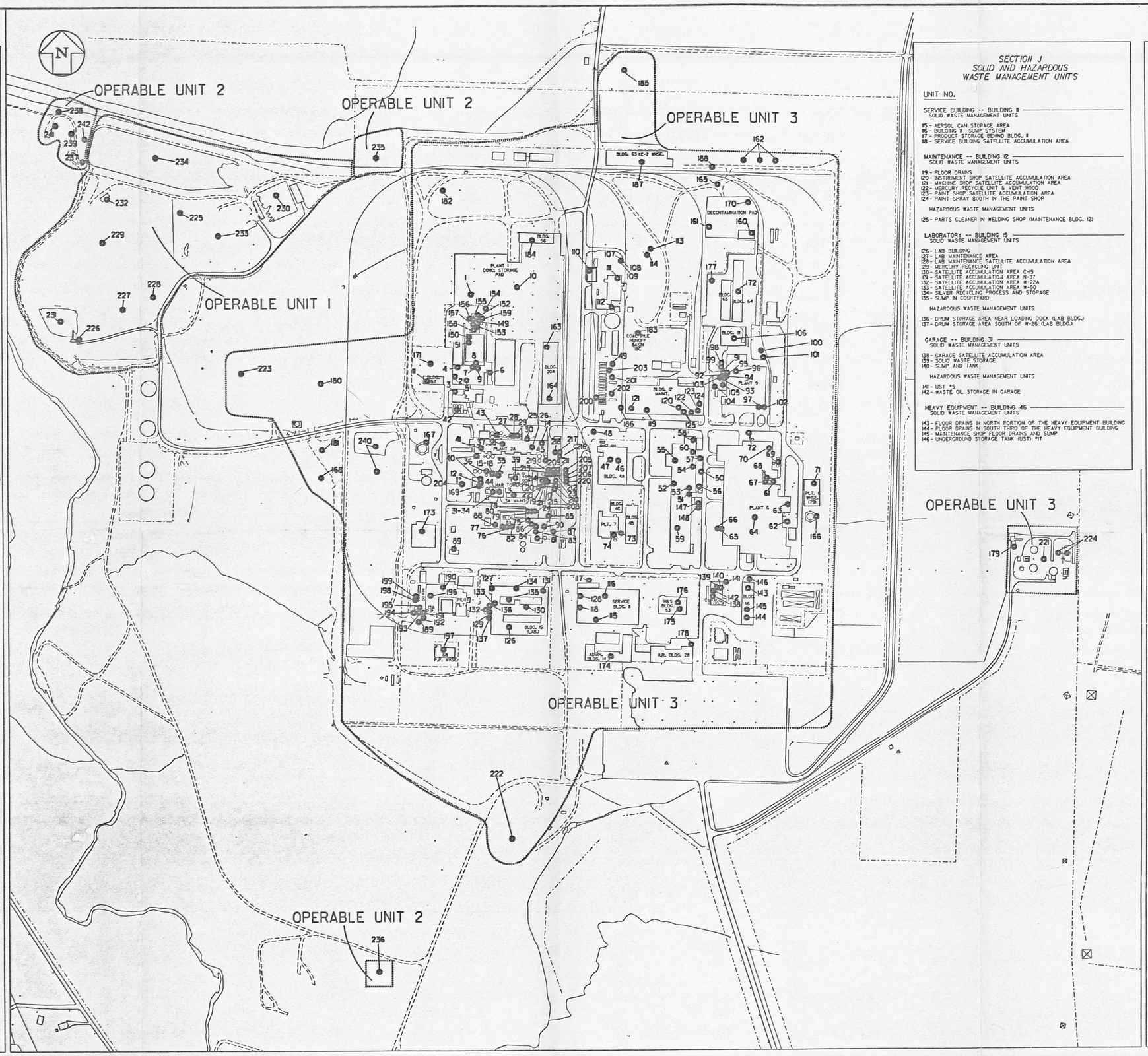
91 - DILUTE HYDROFLUORIC ACID (DHF) DUMPSTER TANK (SPCC 21 EAST)
92 - FILTRATE WATER SUMP TANK - F1-1
93 - FILTRATE WATER SUMP TANK - F1-2
94 - FILTRATE WATER SUMP TANK - F1-3
95 - LIME SLURRY (DUMPSTER TANK (SPCC 21 WEST)
96 - PLANT 9 SUMP SYSTEM
97 - SPENT NITRIC ACID TANK (SPCC 20A WEST)
98 - SPENT NITRIC ACID TANK (SPCC 44 TANK 1)
99 - SPENT NITRIC ACID TANK (SPCC 44 TANK 2)
100 - UNDERGROUND STORAGE TANK (UST) #7
101 - USED CUTTING OIL TANK (SPCC 29)
102 - WASTEWATER STORAGE TANK F-9W-700
103 - WASTEWATER STORAGE TANK 2429 (SPCC 23)
104 - WATER TREATMENT AMMONIA TANK (SPCC 24)
105 - WEST PORTABLE OIL/WATER RESIDUE TANK (SPCC 15)

HAZARDOUS WASTE MANAGEMENT UNITS

106 - PLANT 9 WAREHOUSE (BLDG. 80)

BOILER PLANT -- BUILDING 10
SOLID WASTE MANAGEMENT UNITS

107 - ASH RECEIVING TANK, 10-B004A
108 - ASH RECEIVING TANK, 10-B004B
109 - ASH SYSTEM, AIR WASH SPRAYER, 10-B004C
110 - BOILER PLANT MAINTENANCE SATELLITE ACCUMULATION AREA
111 - BOILER PLANT SATELLITE ACCUMULATION AREA
112 - CHEMICAL FEED SUMP
113 - GRAPHITE BURNER
114 - OIL BURNER



SECTION J
SOLID AND HAZARDOUS WASTE MANAGEMENT UNITS

UNIT NO.

SERVICE BUILDING -- BUILDING 11
SOLID WASTE MANAGEMENT UNITS

85 - AERSOL CAN STORAGE AREA
86 - BUILDING 11 SUMP SYSTEM
87 - PRODUCT STORAGE BEHIND BLDG. 11
88 - SERVICE BUILDING SATELLITE ACCUMULATION AREA

MAINTENANCE -- BUILDING 12
SOLID WASTE MANAGEMENT UNITS

119 - FLOOR DRAINS
120 - INSTRUMENT SHOP SATELLITE ACCUMULATION AREA
121 - MACHINE SHOP SATELLITE ACCUMULATION AREA
122 - MERCURY RECYCLE UNIT & VENT HOOD
123 - PAINT SHOP SATELLITE ACCUMULATION AREA
124 - PAINT SPRAY BOOTH IN THE PAINT SHOP

HAZARDOUS WASTE MANAGEMENT UNITS

125 - PARTS CLEANER IN WELDING SHOP (MAINTENANCE BLDG. 12)

LABORATORY -- BUILDING 15
SOLID WASTE MANAGEMENT UNITS

126 - LAB BUILDING
127 - LAB MAINTENANCE AREA
128 - LAB MAINTENANCE SATELLITE ACCUMULATION AREA
129 - MERCURY RECYCLING UNIT
130 - SATELLITE ACCUMULATION AREA C-15
131 - SATELLITE ACCUMULATION AREA N-37
132 - SATELLITE ACCUMULATION AREA W-22A
133 - SATELLITE ACCUMULATION AREA W-50
134 - SILVER RECYCLING PROCESS AND STORAGE
135 - SUMP IN COURTYARD

HAZARDOUS WASTE MANAGEMENT UNITS

136 - DRUM STORAGE AREA NEAR LOADING DOCK (LAB BLDG.)
137 - DRUM STORAGE AREA SOUTH OF W-26 (LAB BLDG.)

GARAGE -- BUILDING 31
SOLID WASTE MANAGEMENT UNITS

138 - GARAGE SATELLITE ACCUMULATION AREA
139 - SOLID WASTE STORAGE
140 - SUMP AND TANK

HAZARDOUS WASTE MANAGEMENT UNITS

141 - UST #5
142 - WASTE OIL STORAGE IN GARAGE

HEAVY EQUIPMENT -- BUILDING 46
SOLID WASTE MANAGEMENT UNITS

143 - FLOOR DRAINS IN NORTH PORTION OF THE HEAVY EQUIPMENT BUILDING
144 - FLOOR DRAINS IN SOUTH THIRD OF THE HEAVY EQUIPMENT BUILDING
145 - MAINTENANCE SHOP FLOOR DRAINS AND SUMP
146 - UNDERGROUND STORAGE TANK (UST) #17

SECTION J
SOLID AND HAZARDOUS WASTE MANAGEMENT UNITS

UNIT NO.

MAIN SLAG BUILDING -- BUILDING 55-A
SOLID WASTE MANAGEMENT UNITS

147 - BUILDING 55 CONVEYOR, MAGNESIUM FLUORIDE RECOVERY UNIT
148 - BUILDING 55 CONVEYOR, DRUM-OUT STATION

BUILDING 66
SOLID WASTE MANAGEMENT UNITS

149 - AEROSOL CAN PUNCTURE UNIT
150 - COPPER SHREDDER
151 - COPPER SHREDDER BAGHOUSE
152 - DRUM BALER
153 - DRUM BALER SUMP
154 - DRUM BALER HYDRAULIC FLUID TANK, 66-0009A-TNK
155 - OVEN
156 - PAINT/SOLVENT STORAGE AREA
157 - PAINT SPRAY BOOTH

HAZARDOUS WASTE MANAGEMENT UNITS

158 - WHEELABRATOR - BLDG. 66
159 - WHEELABRATOR DUST COLLECTOR - BLDG. 66

DECONTAMINATION BUILDING -- BUILDING 69
SOLID WASTE MANAGEMENT UNITS

160 - DECONTAMINATION BUILDING FLOOR DRAINS
161 - DECONTAMINATION BUILDING SUMP
162 - WASTE PILES AND CLEAN/LOADOUT PAD

MISCELLANEOUS OU3 UNITS
SOLID WASTE MANAGEMENT UNITS

163 - CHEMICAL WAREHOUSE NORTHEASTERN AREA
164 - CHEMICAL WAREHOUSE SOUTHERN AREA
165 - FERROUS METAL SCRAP PILE
166 - GRIT BLAST STORAGE AREA, EAST TOWER
167 - GRIT BLAST STORAGE AREA, WEST TOWER
168 - K-65 AREA, HIGH LEVEL NITRATE STORAGE TANK 18-A010
169 - KELLY SOLID WASTE INCINERATOR
170 - OTHER SCRAP PILES/SALVAGE MATERIALS/AREAS
171 - PLANT 1 BUILDING 67 AREA
172 - RVFS 90 DAY STORAGE
173 - RUST BUILDING SATELLITE ACCUMULATION AREA
174 - SATELLITE ACCUMULATION AREA - ADMINISTRATION BUILDING, EOC
175 - SATELLITE ACCUMULATION AREA - HEALTH AND SAFETY BUILDING, X-RAY/PHOTO
176 - SATELLITE ACCUMULATION AREA - HEALTH AND SAFETY BUILDING, INSTRUMENT SHOP
177 - SCRAP PILE WEST OF BUILDING 65
178 - SECURITY SOLID WASTE INCINERATOR
179 - SEWAGE TREATMENT PLANT INCINERATOR
180 - TEMPORARY STORAGE TANK 18-A004
181 - TEMPORARY STORAGE TANK 18-A005
182 - THIRD STREET WASTE PILE

HAZARDOUS WASTE MANAGEMENT UNITS

183 - COAL PILE RUNOFF BASIN
184 - CP STORAGE WAREHOUSE - BLDG. 56 (BUTLER BLDG.)
185 - FIRE TRAINING FACILITY
186 - HF TANK CAR
187 - KC-2 WAREHOUSE (BLDG. 63)
188 - NITRIC ACID RAIL CAR AND AREA

PILOT PLANT
SOLID WASTE MANAGEMENT UNITS

189 - PILOT PLANT CONTAINER STORAGE AREA
190 - PILOT PLANT SUMP SYSTEM
191 - SOLVENT TANK (SPCC #10B TANK 1)
192 - SOLVENT TANK (SPCC #10B TANK 2)
193 - WASTEWATER HOLDING TANK F-100
194 - WASTEWATER HOLDING TANK F-102

HAZARDOUS WASTE MANAGEMENT UNITS

195 - ABANDONED SUMP WEST OF PILOT PLANT
196 - BARIUM CHLORIDE SALT TREATMENT FACILITY
197 - PILOT PLANT WAREHOUSE STORAGE PAD (BLDG. 68)
198 - TANK FOR BULK STORAGE OF SOLVENTS, T-5
199 - TANK FOR BULK STORAGE OF SOLVENTS, T-6

TANK FARM
SOLID WASTE MANAGEMENT UNITS

200 - CONSTRUCTION WASTE STORAGE AREA
201 - TANK 17
202 - TANK 18

HAZARDOUS WASTE MANAGEMENT UNITS

203 - TANK FARM SUMP

WASTEWATER TREATMENT SYSTEM
SOLID WASTE MANAGEMENT UNITS

204 - BIODENITRIFICATION TREATMENT SYSTEM
205 - GENERAL SUMP, BOILDOWN WATER TANK F18-6A
206 - GENERAL SUMP, FILTERED WATER TANK F18-1
207 - GENERAL SUMP, FILTERED WATER TANK F18-6B
208 - GENERAL SUMP, LIME SLURRY TANK F3A-3
209 - GENERAL SUMP, NEUTRALIZED RAFFINATE TANK T-18X-2500
210 - GENERAL SUMP, RAFFINATE NEUTRALIZATION TANK F2E-603
211 - GENERAL SUMP, RECEIVING TANK F18E-2
212 - GENERAL SUMP, RECEIVING TANK F18E-3
213 - GENERAL SUMP, WATER TANK F18-2
214 - GENERAL SUMP, WATER TANK F18-3
215 - GENERAL SUMP, WATER TANK F18-4
216 - GENERAL SUMP, WATER TANK T-18X-1000
217 - GENERAL SUMP, WATER TANK T-18X-1100
218 - GENERAL SUMP, WATER TANK T-18X-1300
219 - GENERAL SUMP, WATER TANK T-18X-1500
220 - GENERAL SUMP, WATER TANK T-18X-2900
221 - SANITARY SEWAGE TREATMENT PLANT
222 - STORMWATER RETENTION BASINS

HAZARDOUS WASTE MANAGEMENT UNITS

223 - BIO-SURGE LAGOON
224 - SLUDGE DRYING BEDS

OPERABLE UNIT 1
SOLID WASTE MANAGEMENT UNITS

225 - BURN PIT
226 - K-65 SATELLITE ACCUMULATION AREA
227 - WASTE PIT NO. 1
228 - WASTE PIT NO. 2
229 - WASTE PIT NO. 3
230 - WASTE PIT NO. 6

HAZARDOUS WASTE MANAGEMENT UNITS

231 - CLEARWELL
232 - EXPERIMENTAL TREATMENT FACILITY (ETF)
233 - WASTE PIT NO. 4
234 - WASTE PIT NO. 5

OPERABLE UNIT 2
SOLID WASTE MANAGEMENT UNITS

235 - SANITARY LANDFILL
236 - SOUTHFIELD DISPOSAL AREA

CERCLA REMEDIATION STORAGE AREA

237 - DECONTAMINATION PAD AND TANKS
238 - EMPTY DRUM STORAGE AREA
239 - OIL STORAGE SHED

HAZARDOUS WASTE MANAGEMENT UNITS

240 - LIME SLUDGE PONDS

CERCLA REMEDIATION STORAGE AREA

241 - EQUIPMENT STORAGE AREA
242 - WELL DRILLING STORAGE AREA

2495

U.S. DEPARTMENT OF ENERGY

FIGURE J-1

FERNALD, OHIO

20

FILE NAME: ZFA1:[200,419]HWMUMP.DGN