3.0 EXISTING ENVIRONMENT

This chapter describes various components of the existing environment that may be affected by the operation of the Mound glass melter. The proposed action potentially impacts air quality, surface water quality, biological resources, and human health and safety. In order to evaluate impacts to these resources, information on existing conditions is required. Section 3.1 presents information on atmospheric resources (e.g., meteorology and existing air quality). Section 3.2 presents data on water resources, and Section 3.3 provides a broad characterization of biological resources.

3.1 ATMOSPHERIC RESOURCES

Emissions from the glass melter potentially affect local and regional air quality. To evaluate impacts to these receptors, data on meteorologic conditions (particularly wind speed and direction) and existing air quality are needed. Table 3.1-1 summarizes wind speed and direction data for Mound. The distributions of wind speed and direction are significant factors in the contaminant emissions evaluations and public exposure assessments discussed in Section 4.1.1.

The Mound Plant is located in Montgomery County, within the Metropolitan Dayton Intrastate Air Quality Control Region (AQCR). In addition to Montgomery County, this AQCR includes Clark, Darke, Greene, Miami, and Preble counties. The region is under the authority of the Regional Air Pollution Control Agency (RAPCA), which conducts a program to monitor ambient levels of criteria pollutants. Recent data from the RAPCA regional monitoring program and that of the southwestern region of the Ohio Air Pollution Control Agency for sites near Mound are contained in Table 3.1-2. The location for each of these sites is shown in Figure 3.1-1. These data may be compared to the National Ambient Air Quality Standards (NAAQS) listed in Table 3.1-3. NAAQS defines the level of air quality that has been judged necessary to provide an adequate margin of safety to protect the public health (primary standards) and the public welfare (secondary standards).

In addition to the monitoring sites operated by RAPCA, Mound measures total suspended particulates (TSP) at 20 sites. Site locations (five on site near the fence line, ten within a 1-mi radius of Mound, and five sites in nearby communities) are identified in Figures 3.1-2 and 3.1-3. The results of the latest 5-year monitoring effort are provided in Table 3.1-4.

Sites located within the Mound Plant fence line (the 200 series monitoring stations listed in Table 3.1-4) are not accessible to the public and, therefore, not subject to the

Table 3.1-1. Percent Frequency of Wind Direction and Wind Speed at Mound (1981-1984)

Direction	%	Avg. Speed (meters/sec)
N	4.2	4.3
NNE	4.5	4.1
NE	4.9	4.0
ENE	4.9	4.0
E	4.5	4.1
ESE	4.1	3.9
SE	4.4	4.1
SSE	4.7	4.2
S	6.0	4.4
SSW	9.7	5.0
SW	12.4	5.6
WSW	8.7	5.2
W	5.4	5.0
WNW	5.3	5.1
NW	6.0	4.7
NNW	4.4	4.4
Calm	6.1	--
Total	100.0	4.4

Table 3.1-2. Regional Pollutant Levels

Annual Average Pollutant Levels

Site	Pollutant	1987 Mean	1986 Mean	5-year Avg.	Stnd.[a]
Kettering	TSP	42	42	41	
Moraine	($\mu g/m^3$)	69	67	64	75/60
Centerville		38	39	39	
Moraine	PM-10 ($\mu g/m^3$)	36	32		50
Dayton	SO_2 (ppm)	0.006	0.008	0.008	0.03

Maximum Short-Term Pollutant Levels

		Maximum 24-h Level		
		1987	1986	Stnd.
Kettering	TSP	114	111	260/150
Moraine	($\mu g/m^3$)	152	117	
Miamisburg		117	111	
Centerville		74[b]	103	
Moraine	PM-10 ($\mu g/m^3$)	69		50
Dayton	SO_2 (ppm)	0.031	0.031	0.14

		Maximum 8-h Level		
		1987	1986	Stnd.
Dayton	CO (ppm)	8.9	8.3	9

		Maximum 3-h Level		
		1987	1986	Stnd.
Dayton	SO_2 (ppm)	0.053	0.074	0.5

		Maximum 1-h Level		
		1987	1986	Stnd.
Dayton	CO (ppm)	14.3	12.6	35

[a] Primary and secondary standards are given as applicable. See Table 3.1-3 for an explanation of the National Ambient Air Quality Standards.

[b] Monitoring was discontinued at this site in April 1987.

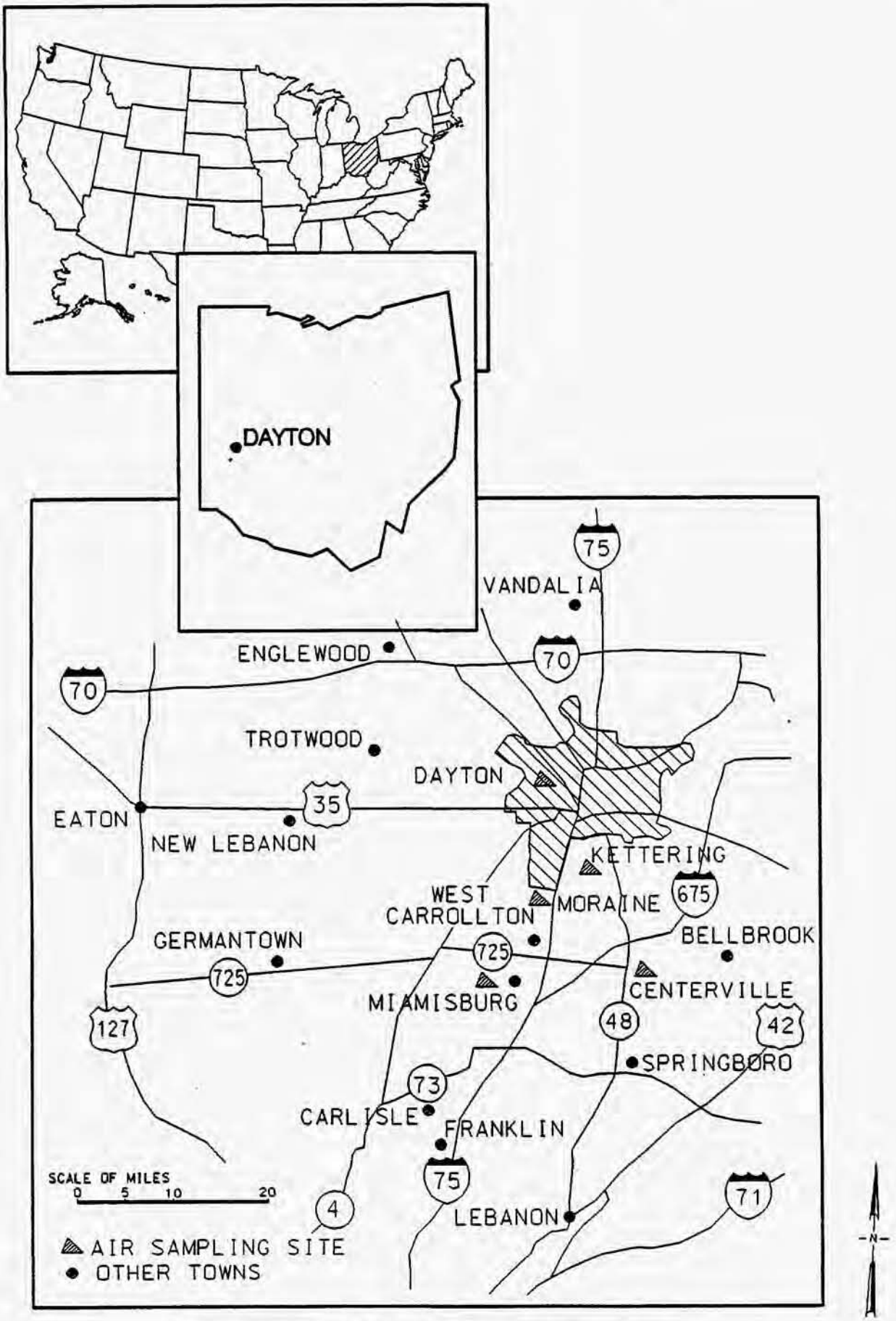


Figure 3.1-1. RAPCA Air Sampling Locations

Table 3.1-3. National Ambient Air Quality Standards

Pollutant	Concentration[a,b]	Remarks[c]
*Inhalable particulates (PM-10)	50 $\mu g/m^3$ primary/ secondary	Maximum annual arithmetic mean
	150 $\mu g/m^3$ primary/ secondary	Maximum 24-h concentration not to be exceeded more than once per year
*Suspended particulates (TSP)	75 $\mu g/m^3$ primary 60 $\mu g/m^3$ secondary	Maximum annual geometric mean
	260 $\mu g/m^3$ primary 150 $\mu g/m^3$ secondary	Maximum 24-h concentration not to be exceeded more than once per year
Sulfur dioxide	0.03 ppm primary	Maximum annual arithmetic mean
	0.14 ppm primary	Maximum 24-h/average concentration not to be exceeded more than once per year
	0.5 ppm secondary	Maximum 3-h/average concentration not to be exceeded more than once per year
Lead	1.5 $\mu g/m^3$ primary	Maximum concentration averaged over a calendar quarter
Carbon monoxide	9 ppm primary	Maximum 8-h average not to be exceeded more than once per year
	35 ppm primary	Maximum 1-h/average concentration not to be exceeded more than once per year
Nitrogen dioxide	0.05 ppm primary/ secondary	Annual arithmetic mean
Ozone[d,e]	0.12 ppm primary/secondary	Maximum 1-h average not to be exceeded on more than one day per year, averaged over the three most recent years
Hydrocarbons Nonmethane (guideline only)	0.24 ppm	Maximum 3-h average concentration between the hours of 6 to 9 a.m., not to be exceeded more than one day per year

* NAAQS for inhalable particulates were promulgated on 7/31/87. The state of Ohio retains standards for suspended particulates as well as for inhalable particulates.

Table 3.1-3. National Ambient Air Quality Standards (continued)

[a] Primary standards define the level of an air pollutant above which human health is endangered. Secondary standards define the level of a pollutant above which the welfare of citizens is endangered due to damage to crops, animals, vegetation, and materials.

The federal standards can be found in the 40 CFR, Part 50.4 - 50.11. The state standards are listed in the Ohio Administrative Code, Chapter 374.5.

[b] Micrograms per cubic meter ($\mu g/m^3$): a standard method of expressing the concentration of a pollutant on a weight basis. One microgram = .000001 gram.

[c] Depending on the pollutant, either the geometric or arithmetic mean is employed.

[d] To calculate the number of violations of the ozone standard averaged over three years, one must account for missing data (due to equipment malfunction, etc.). The U.S. EPA formula for calculating the "expected exceedences" for the period a monitor did not operate is listed in Appendix H of the Federal Register, Vol. 44, No. 28, pp. 8220-8221.

[e] In calculating exceedances of the ozone standard, a maximum 1-hour average ozone reading of greater than 0.12 but less than 0.125 is not considered an exceedance of the standard.

Conversion Factors
ppm SO_2 x 2620 = $\mu g/m^3$ SO_2
ppm CO x 1150 = $\mu g/m^3$ CO
ppm NO_2 x 1880 = $\mu g/m^3$ NO_2
ppm O_3 x 1960 = $\mu g/m^3$ O_3

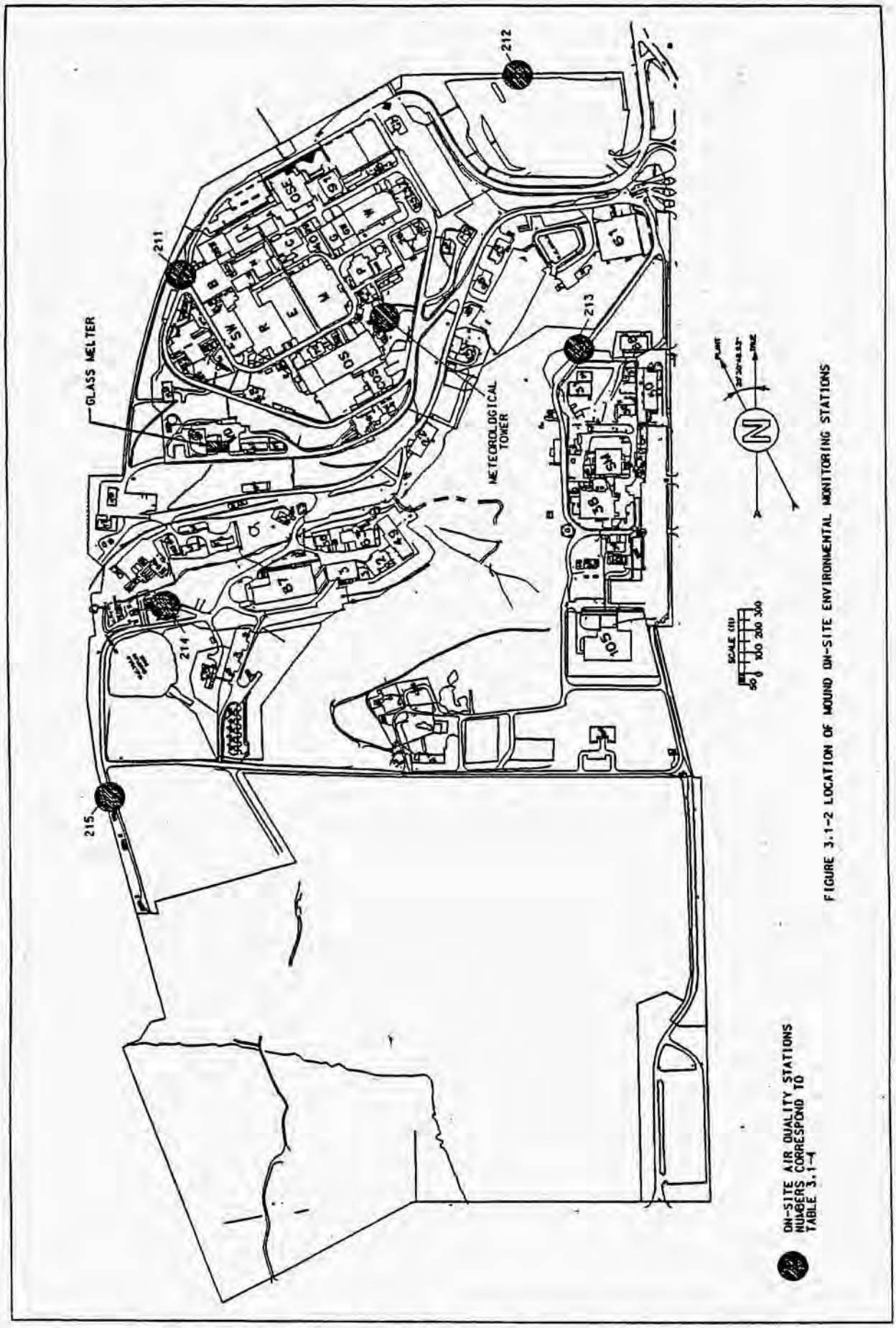


Figure 3.1-2. Location of Mound On-Site Environmental Monitoring Stations

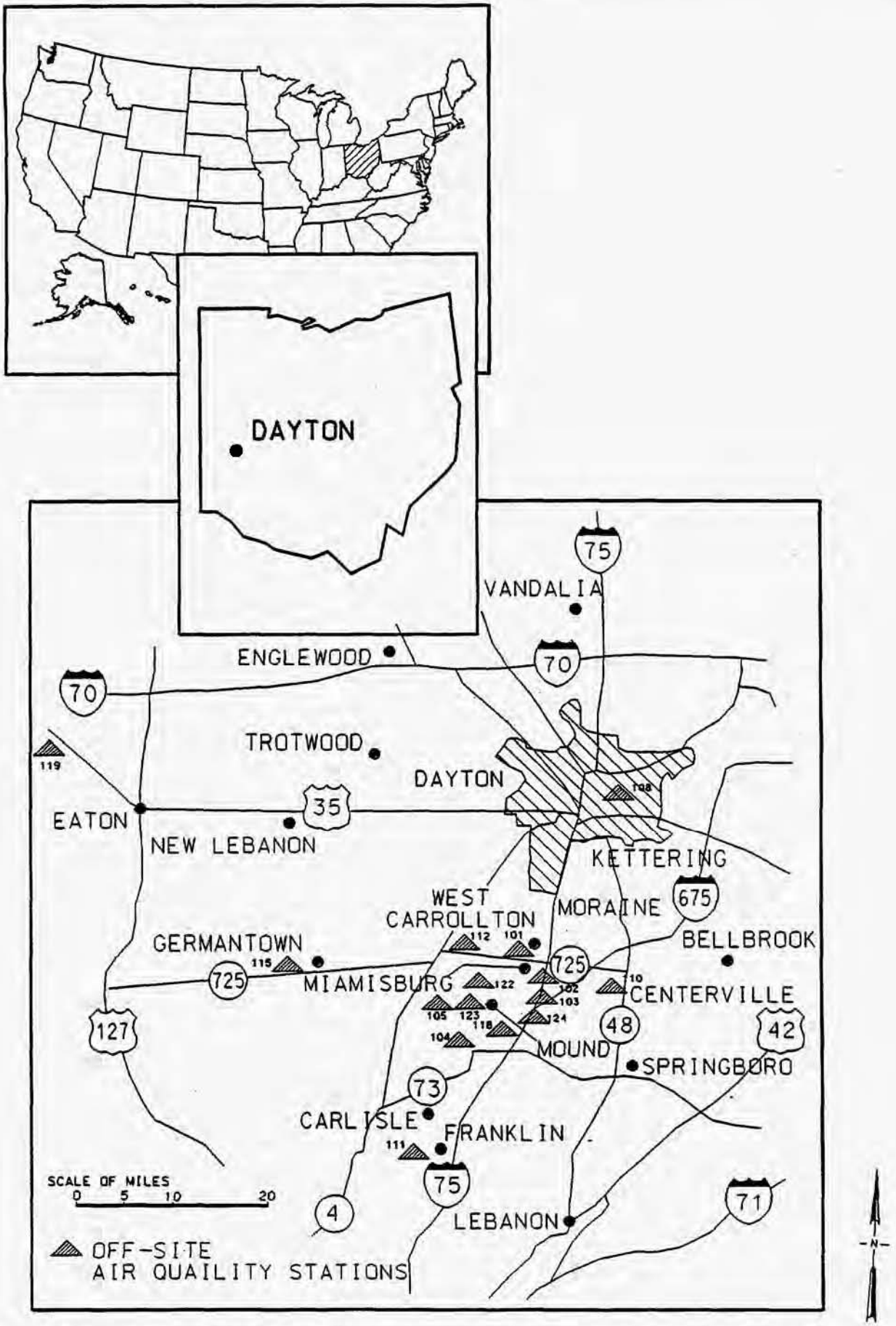


Figure 3.1-3. Location of Off-Site Environmental Monitoring Stations Near Mound

Table 3.1-4. Ambient Air Concentration of Total Suspended Particulates, 1981–1985

Monitoring Station	Ambient TSP Concentration: ($\mu g/m^3$) Calendar Year				
	1981	1982	1983	1984	1985
101	103(P)	97(P)	105(P)	54	50[a]
	174(S)	202(S)	216(S)	142	98[b]
102	95(P)	76(P)	78(P)	38	40
	307(P)	234(P)	165(P)	64	133
103	75(P)	67(P)	63(S)	34	32
	227(S)	161(S)	115	95	61
104	95(P)	91(P)	86(P)	40	42
	220(S)	212(S)	174(S)	105	286(P)
105	82(P)	66(S)	62(S)	33	37
	275(S)	153(S)	116	65	47
108	111(P)	109(P)	98(P)	53	50
	195(S)	239(S)	154(S)	95	86
110	70(S)	63(S)	74(S)	34	31
	139	170(S)	234(S)	62	51
111	106(P)	103(P)	104(P)	43	39
	191(S)	476(P)	394(P)	88	72
112	88(P)	73(S)	73(S)	38	31
	172(S)	212(S)	180(S)	63	49
115	89(P)	65(S)	80(P)	38	36
	267(P)	152(S)	229(S)	82	106
118	89(P)	80(P)	84(P)	40	39
	194(S)	203(S)	145	82	96
119	79(P)	64(S)	57	30	26
	472(P)	209(S)	202(S)	64	56
122	67(S)	60(S)	51	28	32
	271(P)	183(S)	93	66	69
123	90(P)	76(P)	81(P)	39	36
	155(S)	185(S)	296(P)	77	65
124	85(P)	78(P)	75(P)	38	34
	319(P)	228(S)	139	74	58
211	81(P)	73(S)	73(S)	54	50
	133	169(S)	339(P)	163(S)	127
212	72(S)	72(S)	67(S)	39	29
	147	168	305	74	57
213	81	86	117(P)	84(P)	62(S)
	153(S)	346(P)	265(P)	295(P)	108
214	59	60(S)	57	36	45
	124	204(S)	136	129	122
215	67(S)	70(S)	53	32	30
	146	231(S)	95	52	63

Source: MRC, 1982-1984, (1985, 1986)

Stations with serial numbers above 200 are located within the Mound Plant fence line.

Notes: [a] Upper value for a monitoring station is the annual arithmetic average.

[b] Lower value of a monitoring station is the maximum 24-h average.

(P) Denotes an exceedance of a primary NAAQS.

(S) Denotes an exceedance of secondary NAAQS.

NAAQS. Thus, exceedances of the NAAQS at sites within the fence line of the Mound Plant are irrelevant to this discussion. While Mound Plant is not subject to either the TSP or the new PM-10 standard, DOE recognizes that the Mound facility could contribute to regional air quality and strives to comply with both the TSP and PM-10 standards.

Based on maintenance of pollutant levels below the NAAQS, the region has been classified as attainment of the NAAQS for nitrogen dioxide (NO_2), sulfur dioxide(SO_2), and lead (Pb). However, several counties within the AQCR, including Montgomery County, have been classified as nonattainment for ozone (O_3). Montgomery County is also designated as nonattainment for TSP; however, application for redesignation has been submitted for consideration by EPA.

RAPCA has recently initiated programs to characterize ambient levels of toxic chemicals and heavy metals in the Dayton area. A program to inventory emission levels of toxics based on Ohio EPA's 1986 list of 39 toxic chemicals (Table 3.1-5) was conducted during 1986. Xylene and toluene accounted for more than 70% by mass of all toxics emitted by industrial sources under the jurisdiction of RAPCA. Chloroform and methylene chloride accounted for approximately 12% for each of the remaining emissions. A summary of point source toxic emissions is provided in Table 3.1-6.

A study to determine ambient levels of heavy metals was conducted in Dayton during the years 1980 through 1986. The program revealed measurable levels of arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, iron, manganese, molybdenum, nickel, lead, vanadium, and zinc; however, levels were often less than background levels. Therefore, accurate estimates cannot be made. Analyses did, however, show levels of lead and copper to be declining and those of iron and manganese to be increasing. RAPCA assigned an upper bound to the risk associated with the measured concentrations of some metals. Chromium was found to have the highest upper bound of individual lifetime cancer risk, 98 cancers per million persons (RAPCA, 1988).

Ohio EPA has recently compiled a list of 29 toxics that, based on their usage within the state, are of maximum concern to the citizens of Ohio. For each of these toxics, the state has assigned a maximum acceptable ground level concentration (MAGLC), which is currently one-tenth of the Threshold Limit Value (TLV) assigned by the American Conference of Governmental Industrial Hygienists (ACGIH). For carcinogens, the state considers a risk-based assessment that does not allow a maximum individual risk to exceed 9.9×10^{-6} acceptable. Regulatory policy is currently under review, and revisions are expected in the near future (Koval, 1988).

Mound Laboratory uses a number of chemicals in various processes. Quantities of selected materials used annually are listed in Table 3.1-7. Chemical compounds proposed to be processed in the glass melter are listed in Tables 2.1-3, 2.1-4, and 2.1-5.

Table 3.1-5. Toxic Air Pollutants, State of Ohio

Pollutant	Pollutant
Acetaldehyde	Ethylene
Acetonitrile	Ethylene dibromide
Acrylonitrile	Ethylene dichloride
Ammonia	Ethylene oxide
Arsenic and compounds	Fluorine
Benzene	Formaldehyde
Benzo (a) pyrene	Hydrogen cyanide
Beryllium and compounds	Maleic anhydride
Bromine	Methyl chloride
Butadiene	Methyl methacrylate
Cadmium and compounds	Methylene chloride
Carbon disulfide	Perchloroethylene
Carbon tetrachloride	Phosgene
Chlorine	Styrene
Chlorabenzene	Titanium tetrachloride
Chloroform	Toluene
Chromium (VI) compounds	Toluene diisocyanate
Cyanide and compounds	Vinyl chloride
Dioxin	Xylene
Ethylbenzene	

Table 3.1-6. Summary of Point Source Toxic Emissions in the Dayton Area for 1986

	No. of Facilities	Tons/year Emitted	Percentage of Total
Xylene	34	818	47
Toluene	32	411	23
Chloroform	1	219	12
Methylene chloride	14	207	13
Tetrachloroethylene	7	76	4
Styrene	5	15	1
Formaldehyde	7	3	0.2
Methyl methacrylate	1	1	<0.1
Toluene diisocyanate	1	0.2	<0.1
Benzene	3	0.2	<0.1
Ethylbenzene	3	0.1	<0.1
Ammonia	1	1	<0.1
		Total = 1,751.5 tons	

Source: RAPCA , 1988.

Table 3.1-7. Estimated Annual Usage of Chemicals at Mound

Inventory Materials Purchased

Material	Estimated Annual Usage (lb/year)
Organics	
Acetone	8,705
Acetonitrile	42
Butylacetone	213[a]
Benzene	42
Cyclohexane	63
Diacetone alcohol	3
Dichlorobenzene	2[a]
Ethanol	30,358
Isopropanol	14,612
Methanol	1,152
Methylene chloride	6,403
Refrigerant	7,425
Toluene	1,192
Trichloroethane	2,560
Trichloroethylene	6,121
Xylene	11
Inorganics	
Asbestos	could not be estimated
Cyanides	could not be estimated
Hydrofluoric acid	2
Hydrochloric acid	2,532
Lead	60[a]
Mercury	233[a]
Mercury chloride	1[a]
Nitric acid	2,532
Sulfuric acid	6,507

Sources: MRC, 1986
MRC, 1985

[a] Estimate based on Mound Industrial Hygiene Inventory.

Present operations at Mound result in releases of plutonium (Pu) and tritium. The site is also a source of radon due to past practices, as well as uranium (U), thorium (Th), cesium (Cs), and cobalt (Co) via resuspension of contaminated soils related to past practices. Mound operates a network of twenty ambient air monitoring stations (refer to Figures 3.1-2 and 3.1-3) for plutonium and tritiated water vapor. Measured background concentrations are plotted in Figures 3.1-4 and 3.1-5. The population distribution around Mound is shown in Figure 3.1-6. Ambient concentrations from the various sites are provided in Tables 3.1-8 and 3.1-9. Recorded levels are well below the DOE off-site derived concentration guidelines (DCGs). The DCGs for these nuclides are as follows:

Nuclide	DCG ($\mu Ci/mL^3$)
^{238}Pu	3.0×10^{-14}
^{239}Pu	2.0×10^{-14}
^{3}H (oxide)	1.0×10^{-7}

Source: DOE Order 5400.5

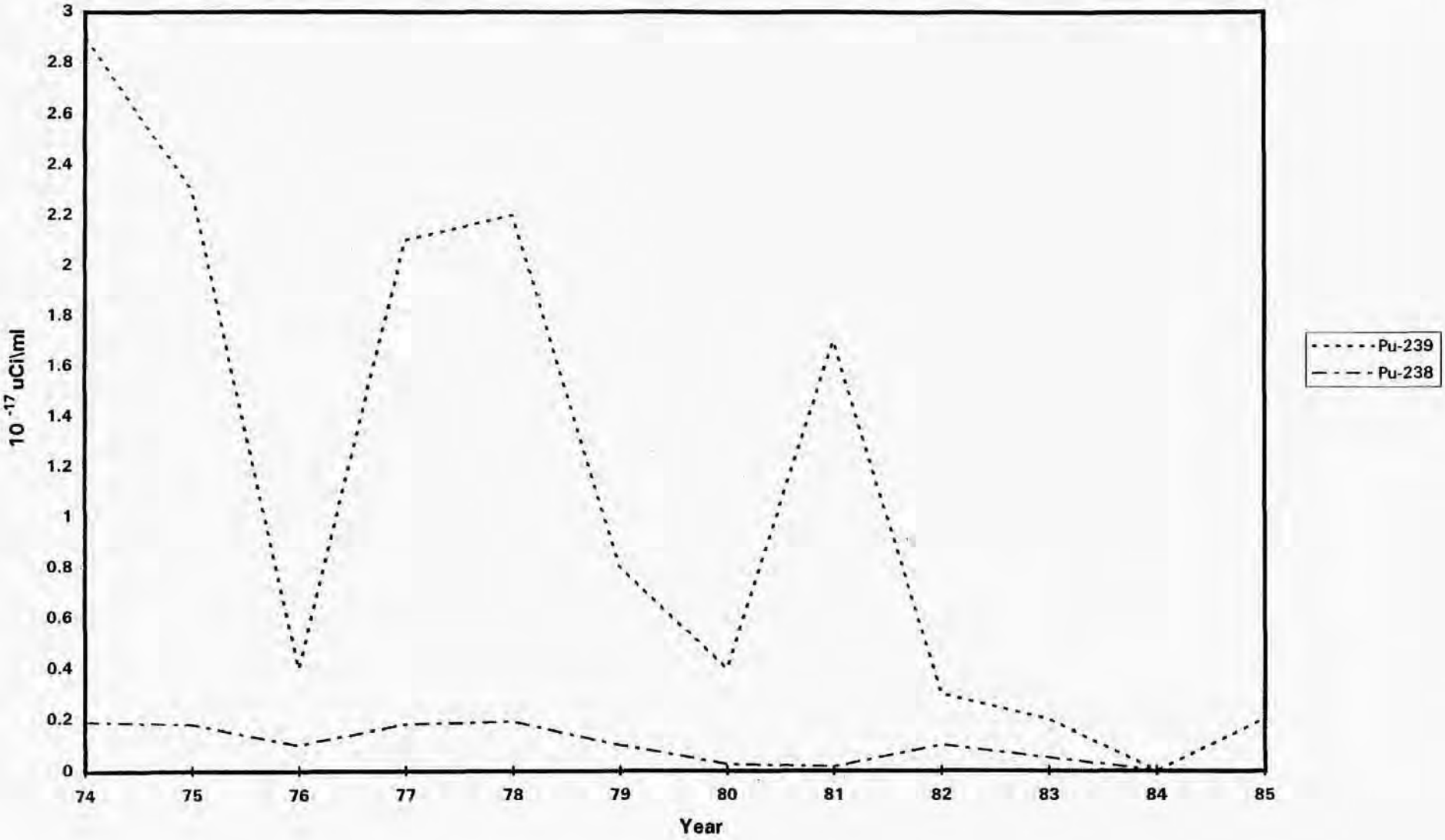
3.2 WATER RESOURCES

There are no perennial streams on the Mound site. Runoff from the site is directed to a northeast-southwest trending drainage that transects the site. This drainage basin is small with steep slopes. Two man-made ponds and a series of interconnected concrete, retention basins control storm runoff. An asphalt-lined pond collects runoff from the Special Metallurgical Hill in the upper reach of the watershed. Retention basins on the western edge of the site collect runoff before discharging off site to the Miami-Erie canal. During periods of heavy rainfall, these basins overflow to a nearby clay-lined pond.

Major surface water features of the area are shown in Figure 3.2-1. The surface water closest to the Mound Plant is the Great Miami River. The total area of the Great Miami River drainage basin at Miamisburg is 7,018 km^2 (2,710 $miles^2$) and consists of several minor subdrainages and three major subdrainages: Stillwater River, with an area of 1,750 km^2 (676 $miles^2$); Great Miami above Stillwater, draining 3,042 km^2 (1,175 $miles^2$); and Mad River, that drains 1,700 km^2 (656 $miles^2$).

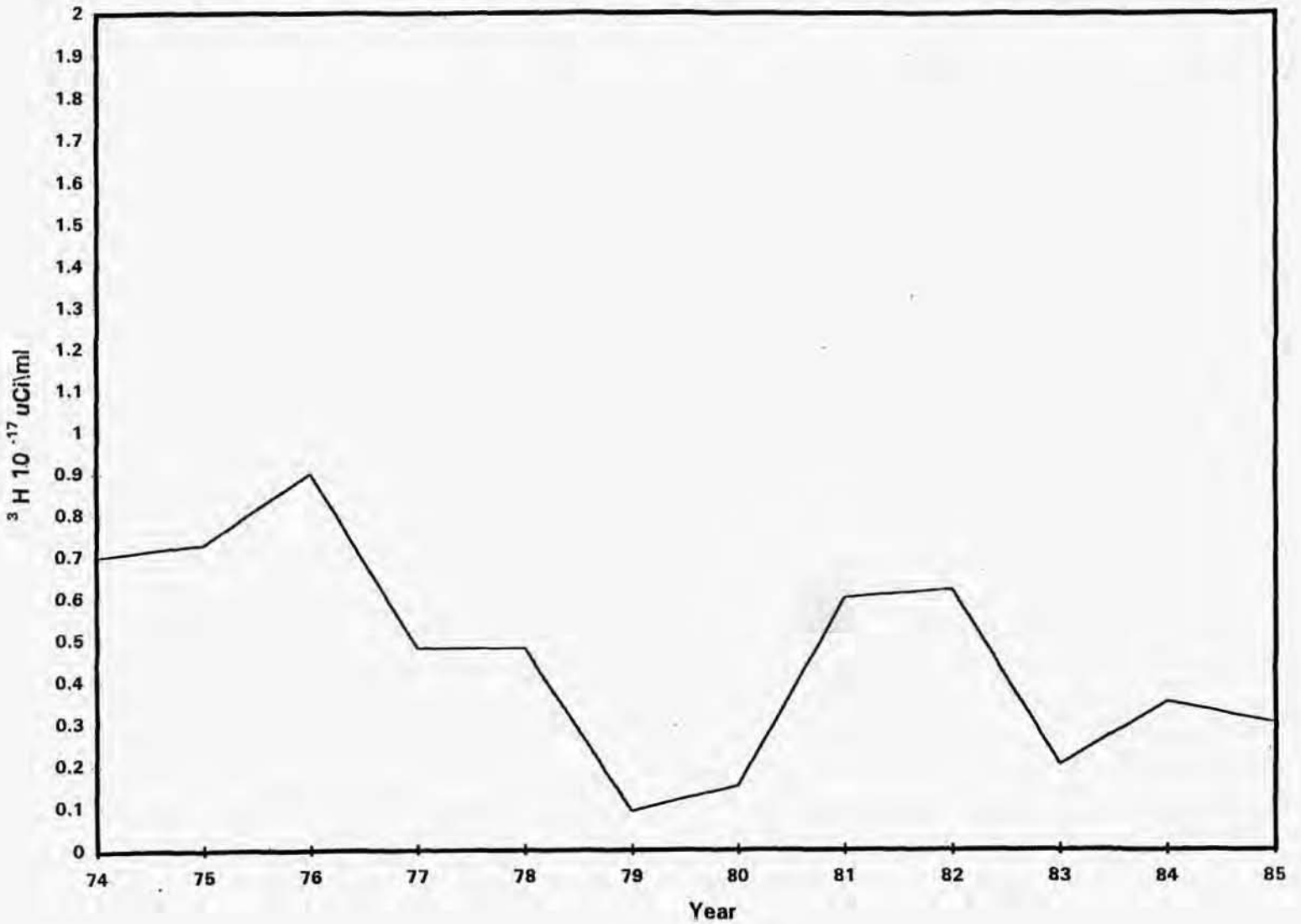
Flow in the Great Miami River in the vicinity of the site is regulated by the Hutchings Station Dam, which is located approximately 2.4 km (1.5 miles) downstream of Mound. The normal pool elevation near the site is maintained at 208 m (682 ft); river bottom elevation is at 204 m (669 ft). Elevations within the Mound facility range between 216 to 268 m (709 to 879 ft). The WD building containing the glass melter is located at approximately 242 m (794 ft) elevation.

Figure 3.1-4 Measured Background $^{238, 239}$ Pu Air Concentrations In Southwestern Ohio, 1974-1985



Source: Mound Environmental Monitoring Reports (MRC, 1975-1984, 1985b, 1986b)

Figure 3.1-5 Measured Background ^{3}H Air Concentrations In Southwestern Ohio, 1974-1985



Source: Mound Environmental Monitoring Reports (MRC, 1975-1984, 1985b, 1986b)

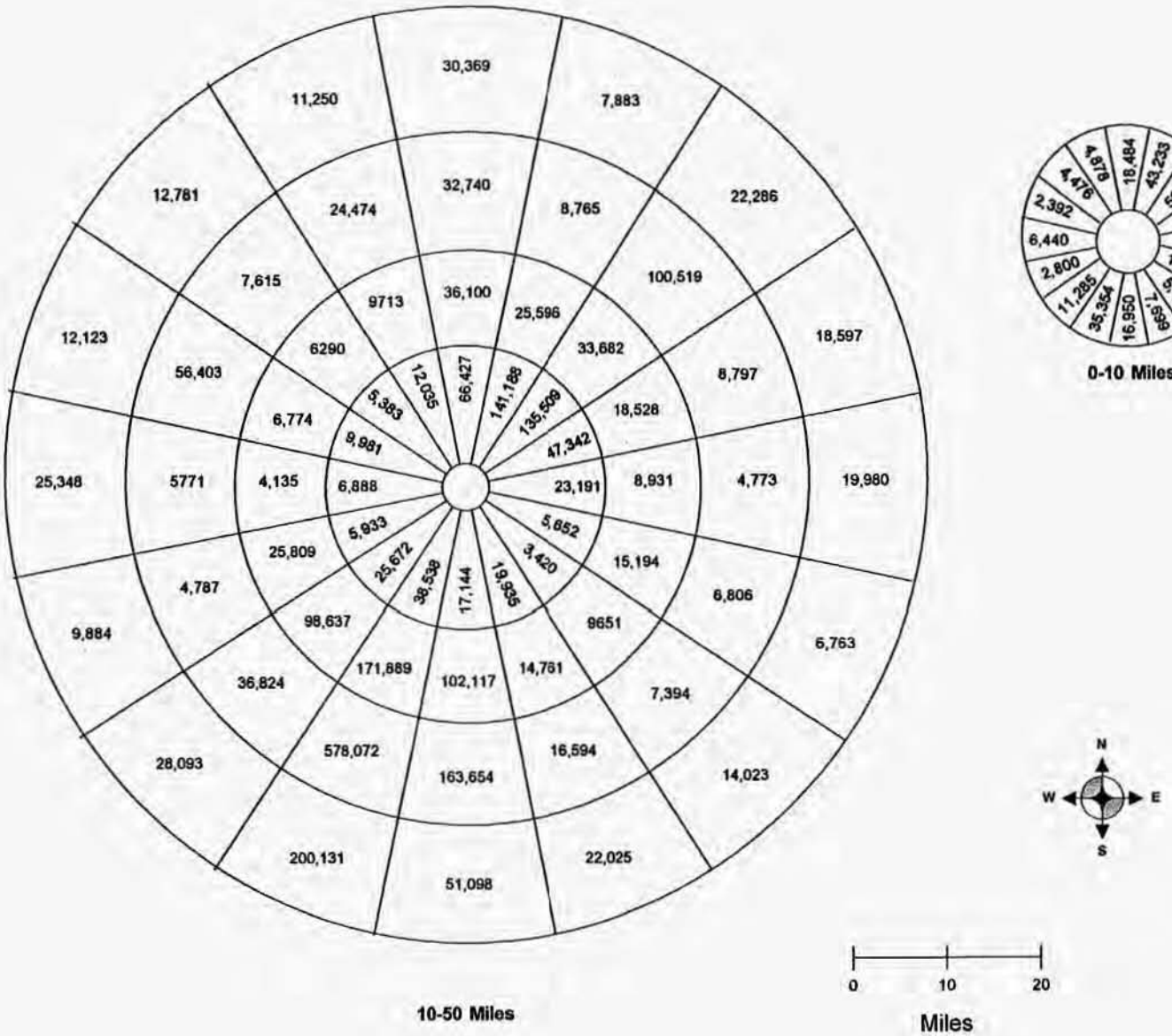


Figure 3.1-6 Distribution of Population within 50 mi (80 km) of Mound

Table 3.1-8. Ambient Annual Average Plutonium Concentrations, 1974 - 1985

(10^{-17} μ Ci/mL)

Year		Monitoring Station									
		101	102	103	104	105	108	110	111	112	115
1974	^{238}Pu	10.00 max	6.00	6.40	1.30	1.20	3.20	1.30	0.78	2.00	1.00
	^{239}Pu [a]	3.10	2.80	3.20	3.30	3.40 max	3.40 max	1.30	3.00	2.70	3.40 max
1975	^{238}Pu	2.30 max	1.40	1.30	1.40	0.94	0.75	<0.23	<0.33	0.35	<0.17
	^{239}Pu	2.90 max	2.90 max	2.30	2.20	1.90	1.90	1.90	2.20	3.10	2.60
1976	^{238}Pu	3.90	2.60	2.90	<0.79	<0.21	0.39	<0.17	<0.17	0.26	0.21
	^{239}Pu	0.67	0.52	0.86	0.52	0.48	0.44	0.46	.046	0.51	0.55
1977	^{238}Pu	1.00	0.81	0.62	0.37	<0.15	<0.15	<0.09	<0.21	<0.16	<0.13
	^{239}Pu	2.40	2.20	2.10	2.20	2.20	2.70	2.30'	2.50	2.10	2.50
1978	^{238}Pu	0.31	0.66	3.00 max	0.27	0.15	0.14	0.11	0.26	0.12	<0.08
	^{239}Pu	2.80	3.20 max	2.70	2.60	2.70	3.90 max	2.90	3.30	3.00	2.70
1979	^{238}Pu	0.34	0.67	0.42	0.40	0.14	0.11	0.10	0.16	0.09	0.07
	^{239}Pu	0.87	0.87	0.85	1.00	0.81	1.10	0.95	0.95	0.88	0.92
1980	^{238}Pu	0.22	0.69	0.56	0.25	0.09	0.04	0.07	0.12	0.06	0.06
	^{239}Pu	0.55	0.48	0.49	0.47	0.49	0.51 max	0.51 max	0.51 max	0.42	0.42
1981	^{238}Pu	0.12	0.47	0.71	0.26	0.10	0.02	0.05	0.02	0.04	0.04
	^{239}Pu	1.86	1.83	1.77	1.71	1.57	2.32 max	1.84	1.77	1.74	1.93
1982	^{238}Pu	0.21	0.45	0.40	0.17	0.09	0.03	0.03	0.06	0.04	0.04
	^{239}Pu	0.26	0.26	0.23	0.22	0.21	0.27 max	0.20	0.26	0.25	0.20
1983	^{238}Pu	0.10	0.28	0.65	0.43	0.07	0.02	0.06	0.07	0.04	0.07
	^{239}Pu	0.29	0.24	0.25	0.23	0.25	0.19	0.21	0.19	0.25	0.22
1984	^{238}Pu	0.29	1.12	0.46	0.23	0.08	0.07	0.02	0.02	0.02	0.03
	^{239}Pu	0.06	0.06	0.05	0.04	0.03	0.05	0.03	0.05	0.05	0.04
1985	^{238}Pu	0.26	0.819	0.65	0.188	0.262	0.02	0.018	0.035	0.099	0.008
	^{239}Pu	0.025	0.027	0.039	0.017	0.017	0.033	0.016	0.021	0.022	0.023

Table 3.1-8. Ambient Annual Average Plutonium Concentrations, 1974 - 1985 (continued)

(10^{-17} μ Ci/mL)

Year		Monitoring Station									
		118	119	122	123	124	211[b]	212[b]	213[b]	214[b]	215[b]
1974	^{238}Pu	1.40	0.19	—	—	—	81.00	19.00	57.00	17.00	8.20
	^{239}Pu [a]	3.00	2.90	—	—	—	—	—	—	—	—
1975	^{238}Pu	0.44	<0.14	1.70	—	—	21.20	5.20	103.3 max	6.70	3.80
	^{239}Pu	1.80	1.90	1.60	—	—	2.20	2.10	4.10 max	2.50	2.20
1976	^{238}Pu	0.65	<0.05	3.80	16.00 max	—	8.70	3.50	26.70 max	9.10	3.30
	^{239}Pu	0.56	0.38	0.60	0.51	—	0.59	0.54	1.30 max	0.81	2.20
1977	^{238}Pu	0.75	<0.10	2.10	2.90 max	1.70	5.10	2.50	8.10 max	3.10	1.30
	^{239}Pu	2.50	2.10	1.60	2.10	2.40	2.00	1.90	3.10 max	1.90	<1.70
1978	^{238}Pu	0.95	0.16	0.94	3.00	1.40	2.70	1.50	12.00	3.30	1.30
	^{239}Pu	3.60	2.20	2.20	3.00	3.00	2.60	2.70	2.70	2.60	2.50
1979	^{238}Pu	0.41	0.05	0.42	3.60 max	1.30	2.20	1.70	19.00 max	1.40	0.68
	^{239}Pu	0.99	0.78	0.74	0.96	0.98	0.84	0.83	1.10 max	0.81	0.79
1980	^{238}Pu	0.12	0.02	0.28	1.40 max	0.66	3.80	0.91	5.90 max	0.69	0.57
	^{239}Pu	0.48	0.34	0.33	0.44	0.45	0.43	0.40	0.49 max	0.31	0.37
1981	^{238}Pu	0.23	0.01	0.17	1.66 max	1.59	36.40 max	1.04	6.62	2.08	0.61
	^{239}Pu	2.04	1.63	1.30	1.71	1.70	1.86 max	1.26	1.36	1.38	1.48
1982	^{238}Pu	0.11	0.03	0.28	1.74 max	0.46	8.83 max	0.88	3.86	2.42	0.55
	^{239}Pu	0.27 max	0.26	0.23	0.26	0.25	0.29 max	0.25	0.24	0.28	0.24
1983	^{238}Pu	0.06	0.02	0.20	1.24 max	0.60	2.96	0.62	7.44 max	1.34	0.29
	^{239}Pu	0.31 max	0.1	0.15	0.27	0.28	0.23	0.23	0.30 max	0.22	0.19
1984	^{238}Pu	0.50	0.0002	0.21	1.50	2.20 max	4.19	1.71	12.60 max	2.32	0.50
	^{239}Pu	0.05	0.04	0.05	0.07 max	0.06	0.10	0.06	0.11 max	0.07	0.06
1985	^{238}Pu	1.10	0.015	0.858	4.03 max	1.38	18.20 max	1.69	15.30	12.60	1.66
	^{239}Pu	0.029	0.013	0.033	0.084 max	0.02	2.21 max	0.31	0.99	0.74	0.37

Source: MRC, 1975-1984, 1985, 1986

a Concentration of $^{239}Pu + ^{240}Pu$

b On Site

max Maximum annual average off-site and on-site concentrations

— Not reported

Table 3.1-9 Ambient Annual Average Tritium Concentrations, 1974 - 1985

(10^{-17} µCi/mL)

Year	Monitoring Station									
	101	102	103	104	105	108	110	111	112	115
1974	<11.00	<14.00	<14.80	<4.90	<5.40	<1.60	<1.70	<1.10	<4.00	<1.20
1975	<1.30	<1.60 max	<1.40	<0.90	<0.78	<0.78	<0.74	<0.74	<1.00	<0.75
1976	<1.30	<1.50 max	<1.10	<0.94	<0.90	<0.89	<0.90	<0.81	<0.92	>0.85
1977	<0.64	<1.24 max	<0.72	<0.44	<0.40	<0.37	<0.40	<0.62	<0.59	<0.56
1978	0.44	0.86 max	0.52	0.34	0.14	0.17	0.14	0.30	0.29	0.07
1979a	0.53	1.04	0.65	0.39	0.05	0.10	0.05	0.05	0.22	0.03
1980	4.96	13.70 max	5.55	1.40	0.18	0.60	0.18	0.01	0.71	EL
1981	7.02 max	6.10	5.17	2.92	1.19	1.10	1.19	0.72	1.29	0.16
1982	4.70 max	3.57	3.13	1.09	0.63	0.73	0.63	0.57	0.81	0.11
1983	2.53	2.60	1.97	0.78	0.24	0.45	0.24	0.46	0.73	0.02
1984	1.88 max	1.72	1.14	0.87	0.09	0.26	0.09	EL	0.11	EL
1985	1.74	2.92 max	1.09	0.939	0.099	0.23	0.099	EL	0.245	EL

Year	Monitoring Station									
	118	119	122	123	124	211	212	213	214	215
1974	<8.70	<0.70	—	—	—	<8.60	<11.00	<32.00 max	<17.00	<16.00
1975	<0.89	<0.74	—	—	—	<3.10	<3.30	<3.10	<3.40 max	<2.00
1976	<0.90	<0.88	—	<1.10	—	<1.80	<2.00	<2.80 max	<2.20	<2.40
1977	<0.57	<0.44	—	<0.88	<0.94	<1.80	<3.00 max	<2.00	<1.60	<1.60
1978	0.19	0.56	—	0.73	0.60	0.94	0.62	0.90 max	0.87	0.45
1979[a]	0.29	0.06	0.62	0.76	1.10 max	0.83	0.99	1.35 max	0.86	0.74
1980	0.86	0.20	4.21	4.53	7.60	8.88	41.30 max	21.50	8.58	3.90
1981	3.12	0.65	3.19	5.26	5.94	7.18	6.76	7.85 max	4.45	3.04
1982	0.66	0.73	1.70	2.80	2.00	5.26	3.93	5.65 max	3.02	2.07
1983	0.75	0.14	2.15	3.07	3.26 max	3.53	3.21	4.25 max	3.43	2.12
1984	0.19	0.41	1.44	1.58	1.61	2.21	2.11	2.83 max	2.67	2.15
1985	0.649	0.254	1.17	2.02	1.82	3.27 max	2.97	2.73	2.48	1.98

Source: Mound Environmental Monitoring Reports (MRC, 1975-1984, 1985, 1986)

[a] Concentrations after 1978 are incremental relative to the concentration measured at Station 119

EL Less than background levels

max Maximum on-site and off-site concentrations

— Not reported

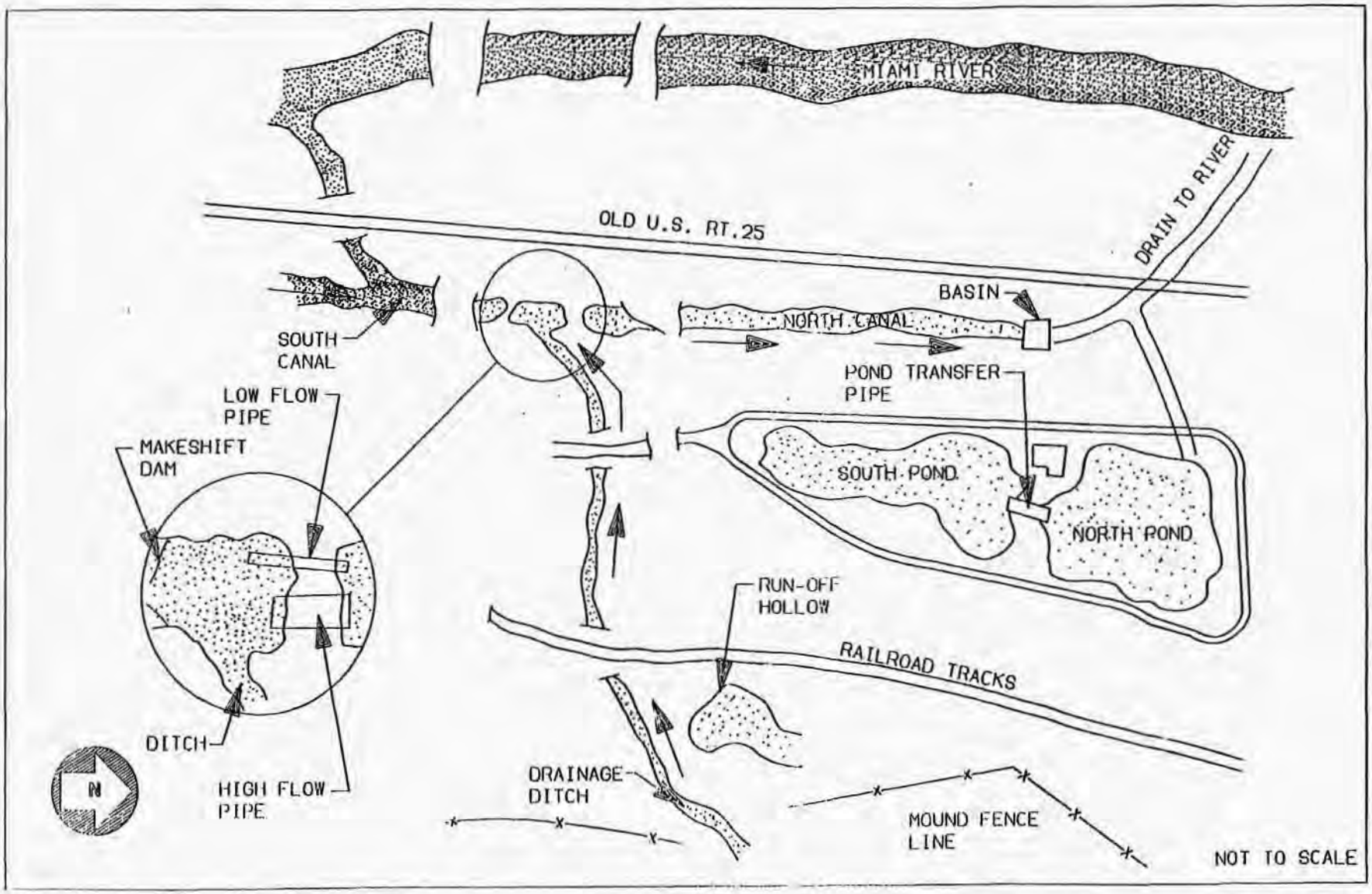


Figure 3.2-1. Surface Water Features

Flow data are available from a gauging station operated since 1916, located 1.6 km (1 mi) upstream from Mound. According to the flow duration data (DOE, 1979), the discharge equals or exceeds 310 cubic feet per second (cfs) (low-flow conditions) 90% of the time and 1,050 cfs (mean-flow conditions) 50% of the time; the 7-day, 20-year low flow is 180 cfs. The greatest historic discharge at Miamisburg was estimated at 257,000 cfs during a flood in 1913. The Miami Conservancy District constructed retarding basins on reaches of the river in 1921. Since that time, a maximum discharge of 61,800 cfs was recorded in 1959 at Miamisburg.

3.3 BIOLOGICAL RESOURCES

This section provides a general description of terrestrial and aquatic biota found in the vicinity of Mound. A list of terrestrial and aquatic species is provided in DOE, 1979.

3.3.1 Terrestrial Biota

Because much of the land near Mound is farmed, the most noticeable animals are domesticated animals grown for food, breeding, or recreational purposes. Many feral species, however, are supported by the abundant wooded areas nearby. Mammals commonly found in the Miami Valley include opossum, mole, shrew, bat, rabbit, squirrel, woodchuck, chipmunk, rat, mouse, raccoon, weasel, mink, skunk, fox, and deer. Some of the smaller mammals are sometimes seen in the wooded areas on the Mound site, as are lizards, land turtles, and several varieties of snakes. Many bird species are commonly found in the vicinity of Mound, and numerous others are present frequently or migrate through the area. The order Passeriformes is represented by the most species, i.e., more than 100. Sparrows, wrens, swallows, robins, pigeons, and many crows are regularly seen on or near the Mound site, along with an occasional owl or hawk.

The cultivated land near Mound is used principally to grow soybeans and corn. The heavily wooded areas on and near the Mound site support an abundance of native flora. Most species of trees are included in the beech, willow, walnut, birch, maple, olive, and dogwood families. Additionally, many conifer and ornamental species have been introduced into the area. The hilly areas are commonly covered with small trees and shrubs, whereas scrub growth and grasses are the dominant vegetation on the flatter areas.

3.3.2 Aquatic Biota

The Great Miami River, located 0.93 km (0.58 miles) west of Mound, supports several species of fish, including species of black bass, carp, catfish, crappie, darter, herring, perch, sculpin, sucker, sunfish, trout-perch, and walleye. Beaver and otter, semiaquatic animals, are also present as well as numerous species of salamanders, frogs, and turtles. Perennial streams do not exist on the Mound site, but there are several privately-owned fishing ponds in the vicinity of Mound. Aquatic species present in local waterways (exclusive of fish stocked in ponds) are presented in DOE, 1979.

3.3.3 Endangered and Threatened Species

According to the Fish and Wildlife Service, the only endangered species that may be present in the area of concern is the Indiana bat, *Myotis sodalis*. This bat lives in caves and riparian habitats in several Ohio counties, including Montgomery County. These habitats do not exist on the Mound site. There are no threatened species in the vicinity of Mound (see Appendix A).