PRC Environmental Management, Inc.
233 North Michigan Avenue
Suite 1621
Chicago, IL 60601
312-856-8700
Fax 312-938-0118

PRC

FOCUSED SITE INSPECTION PRIORITIZATION
SITE EVALUATION REPORT

E.I. DUPONT DE NEMOURS & CO., INC.
11215 BROWER ROAD
NORTH BEND, OHIO

EPA ID NO. OHD 088 656 525

Prepared for

U.S. ENVIRONMENTAL PROTECTION AGENCY
Site Assessment Section
77 West Jackson Boulevard
Chicago, IL 60604

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Prepared by	:	PRC Environmental Management, Inc. (James Styers)
PRC Project Manager	:	Christopher Scott
Telephone No.	:	(312) 856-8700
EPA Work Assignment Manager	:	Jeanne Griffin
Telephone No.	:	(312) 886-3007

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1.0 INTRODUCTION

Under Contract No. 68-W8-0084, Work Assignment No. 35-5JZZ, PRC Environmental Management, Inc. (PRC), has evaluated the E.I. DuPont de Nemours & Co., Inc. (DuPont), site in North Bend, Hamilton County, Ohio, as a potential candidate for the National Priorities List (NPL) and has prepared this site inspection prioritization report. Using the Hazard Ranking System (HRS), PRC performed focused site inspection prioritization (FSIP) activities for the site to determine whether, or to what extent, it poses a threat to human health and the environment. This report presents the results of PRC's evaluation and summarizes the site conditions and targets pertinent to the migration and exposure pathways associated with the site. Information was obtained from the preliminary assessment (PA), screening site inspection (SSI) report, and other information in Environmental Protection Agency (EPA) Region 5 and Ohio Environmental Protection Agency (OEPA) files.

This report has five sections, including this introduction. Section 2.0 describes the site and provides a brief site history. Section 3.0 provides information about previous investigations conducted at the site. Section 4.0 provides information about the four migration and exposure pathways (groundwater migration, surface water migration, soil exposure, and air migration) that can be scored. Section 5.0 summarizes conditions at the site. References used in the preparation of this report are listed at the end of the text. Unless otherwise specified, the source of all information presented in this report is a site reconnaissance performed by PRC (PRC 1995a). The appendix to this report contains photographs taken during the site reconnaissance. Attachment A shows the soil and sediment sampling locations and the analytical results of the samples. Finally, Attachment B shows the groundwater sampling locations and the analytical results of the samples.

2.0 SITE DESCRIPTION AND HISTORY

The DuPont site is located at 11215 Brower Road, in North Bend, Hamilton County, Ohio. It consists of 20 acres in a primarily industrial area located about 4 miles southwest of North Bend, Ohio. The site is bordered to the north by Shawnee Lookout, a 1,026-acre county park. The site is bordered in all other directions by property owned by Cincinnati Gas and Electric (CGE): the land to the east and west is undeveloped and the area to the south is covered by large ponds used to separate ash from

wastewater. The Great Miami River and the Ohio River are located about 0.2 mile west and 0.2 mile south of the site, respectively. The site's location is shown in Figure 1.

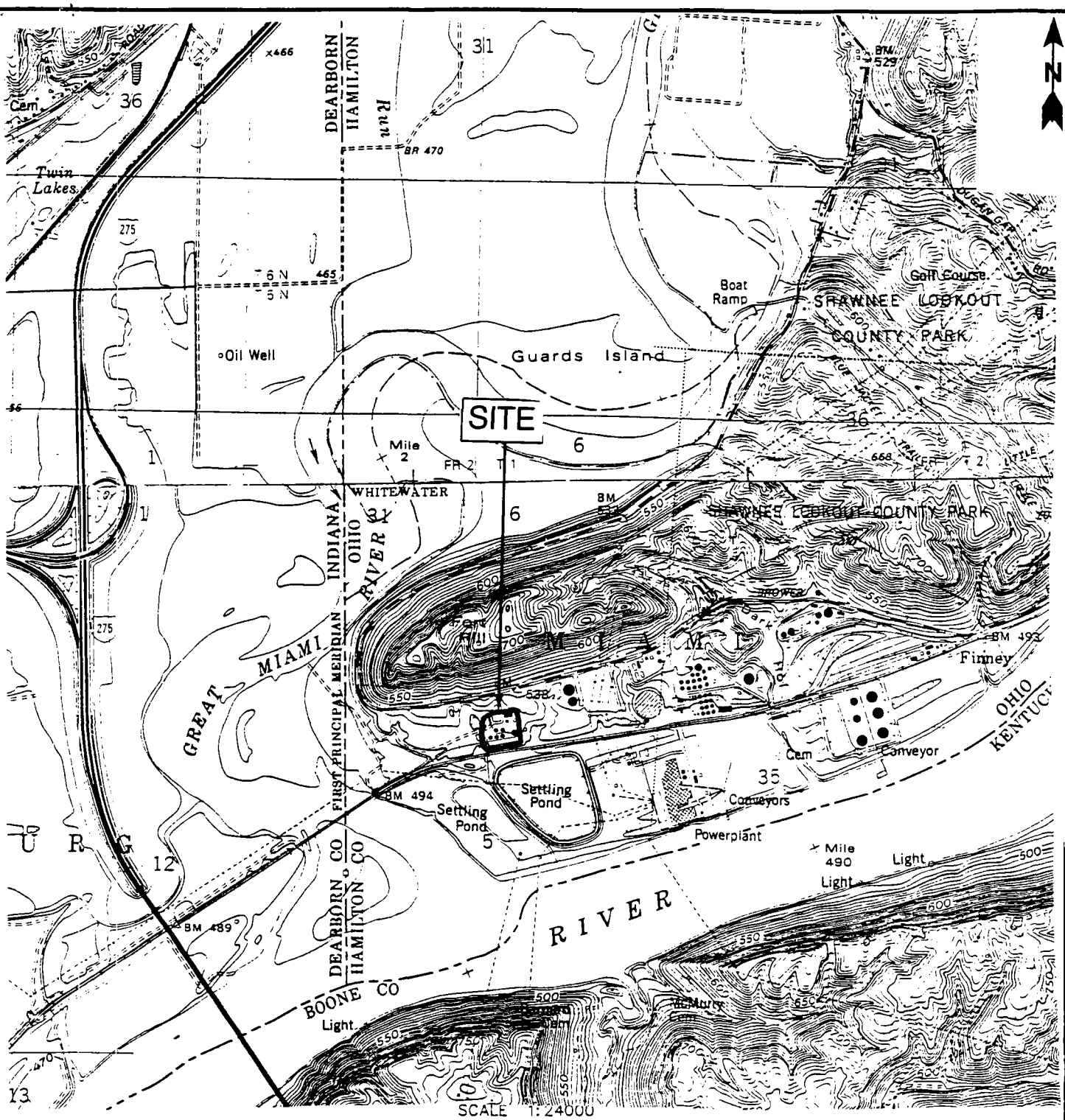
In 1956, DuPont purchased the site from CGE for use as a sulfuric acid production plant. After purchasing the property, DuPont constructed the plant and began operations later that same year. Prior to 1956, the site consisted of undeveloped land. Figure 2 shows the site layout.

DuPont produces sulfuric acid by first burning sulfur with excess air in a single absorption process to produce sulfur dioxide. The sulfur dioxide is then sent through a reactor in four passes over a bed of pentoxide, a catalyst, where it reacts with oxygen to produce sulfur trioxide. Water is added to the sulfur trioxide along with sulfuric acid to produce various grades of fuming sulfuric acid. Because the reaction used to produce the sulfur trioxide is exothermic, heat is used in two waste heat boilers to generate steam. Some of the steam is used to heat reboilers in process columns and to heat solid sulfur that enters the facility in railcars. The finished products are stored in steel tanks until being shipped off site for use in detergents, pharmaceutical products, and other industrial applications. DuPont currently manufactures about 540 tons of sulfuric acid per day at the site.

Up until the mid-1970s, diatomaceous earth containing vanadium pentoxide used in the manufacturing process was disposed of in an on-site 1-acre landfill, located west of the sulfuric acid production area. About 700 tons of diatomaceous earth contaminated with vanadium pentoxide was placed in the landfill, along with construction debris (OEPA 1987b). Although vanadium pentoxide was not placed in the landfill after the mid-1970s, the landfill has continued to be used for one temporary storage of construction debris since that time.

An emergency overflow pond was constructed in the west central part of the site in the 1970s to handle overflow from the secondary containment around the product storage area. This pond measured about 50 feet long by 50 feet wide (E&E 1991). No documentation exists that shows this area was used for its intended purpose.

DuPont also has two outfalls through which wastewaters are discharged to the Great Miami River. One of these outfalls discharges effluent from a wastewater treatment system that receives boiler blowdown,



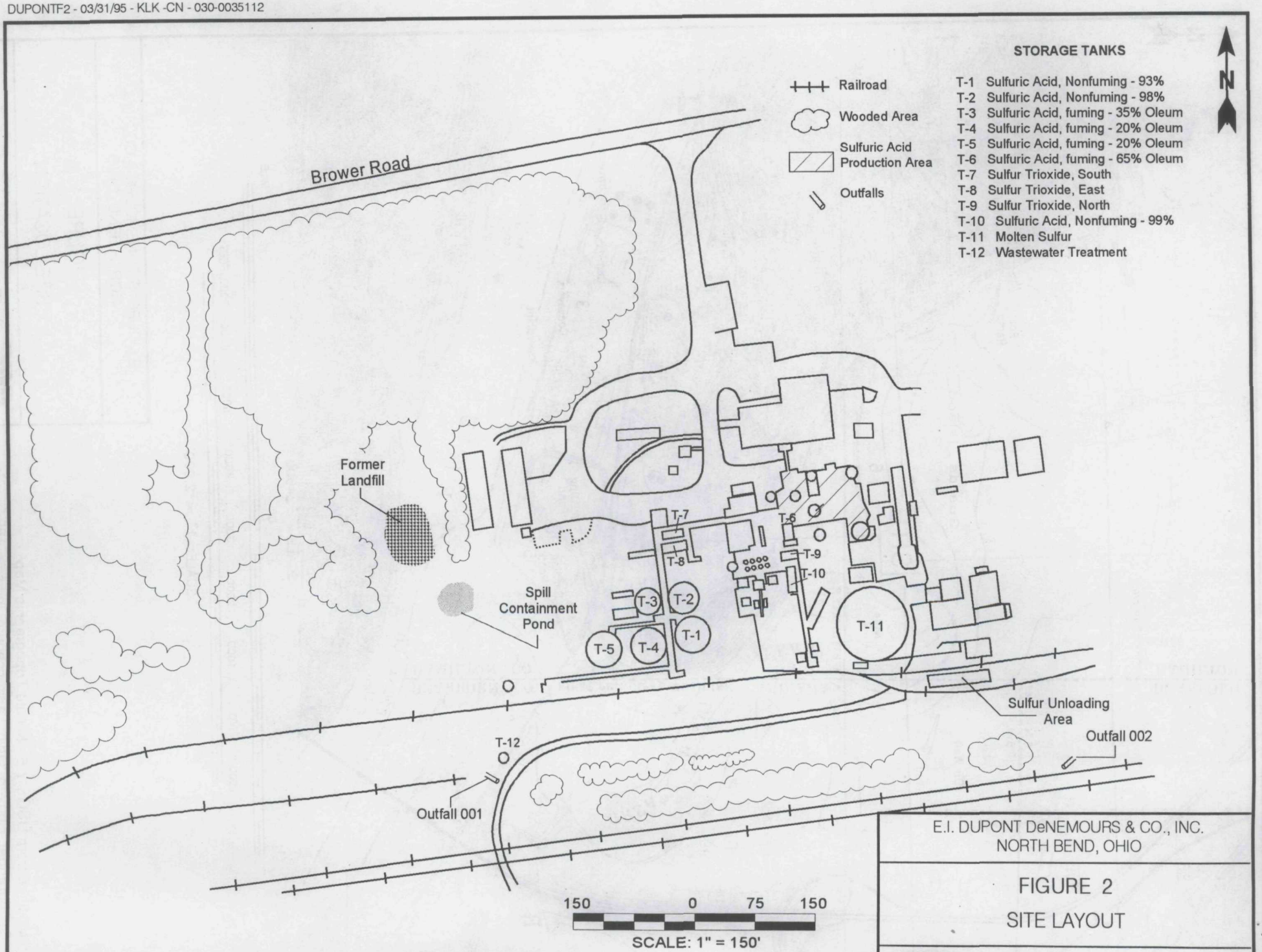
E.I. DUPONT DeNEMOURS & CO., INC.
NORTH BEND, OHIO

FIGURE 1

SITE LOCATION

PRC ENVIRONMENTAL MANAGEMENT, INC.

Source: Modified from USGS 7.5 - Minute Topographic Map, Quandrangel, Hooven, Ohio; Lawrenceburg, Indiana, 1994.



Source: Modified from E.I. Dupont DeNemours & Co., Inc., drawing, 1994.

E.I. DUPONT DeNEMOURS & CO., INC.
NORTH BEND, OHIO

FIGURE 2
SITE LAYOUT

PRC ENVIRONMENTAL MANAGEMENT, INC.

noncontact cooling water, wastewater from demisters in sulfuric acid storage tanks, and storm water runoff. The second outfall receives and subsequently discharges stormwater runoff.

On February 3, 1995, PRC conducted a reconnaissance inspection of the DuPont site and found conditions to be generally consistent with those noted during previous investigations (see Section 3.0). Information regarding current site conditions is based on PRC's observations, unless otherwise noted. The landfill is currently inactive and is covered with two feet of soil (see Photographs No. 1, 2, and 3). Site representatives stated that the landfill was closed by being covered with soil in the mid-1980s. The area is covered with little vegetation. During the reconnaissance inspection, debris consisting primarily of wood, concrete, and scrap metal was observed overlying the capped, former landfill. No visual evidence of releases from the landfill was present. The former emergency overflow pond was observed; no visual evidence of releases of hazardous substances from the pond was noted. Site representatives stated that in 1993, the pond was covered with soil. The area over the pond's former location is vegetated with grass and trees (see Photograph No. 4). The outfalls for the site's wastewater discharges were also observed. No visual evidence of releases of hazardous substances, including stressed vegetation or discolored sediments or water, was observed at either outfall (see Photographs No. 5, 6, 7, and 8).

The site currently has a National Pollutant Discharge Elimination System (NPDES) permit for discharge via its two outfalls. The site also has a permit from OEPA to operate an air contaminant source. The permit requires continuous monitoring of emissions of sulfur dioxide and particulate matter from a stack in the production process (OEPA 1994). The site has no permits for solid or hazardous waste treatment, storage, or disposal.

3.0 PREVIOUS INVESTIGATIONS

Previous investigations conducted at the site include a PA and an SSI. On April 21, 1987, OEPA performed a preliminary assessment for the site (OEPA 1987a). OEPA recommended the site receive a medium priority for further action, including soil and groundwater sampling (OEPA 1987b). Based on the results of the PA, an SSI was performed on November 6, 1990 (E&E 1991).

The 1990 SSI included soil, sediment, and groundwater sampling. Five soil samples were collected, including three in the vicinity of the former landfill and one in the spill containment pond. Soil sample S1 was collected north of the site to be used as a potential background sample. Sample S5, taken from the spill containment pond, contained elevated concentrations of vanadium (376 parts per million [ppm]). Two sediment samples were collected in the vicinity of a ditch used to convey storm water runoff from outfall 001 as regulated under the site's NPDES permit. Two sediment samples also were collected in the area of a storm water runoff ditch currently discharging as outfall 002 of the site's NPDES permit. No background sediment sample was collected as part of the SSI. However, samples collected at outfall 001 contained chromium concentrations that are significantly higher than those found in samples collected from outfall 002. Samples at outfall 002 did not contain any apparently elevated concentrations of hazardous substances (E&E 1991). Attachment A provides the locations from which soil and sediment samples were collected and the analytical results obtained from these samples.

The SSI also included groundwater sampling. A total of three groundwater samples were collected from three production wells located at the site. One sample collected from production well 2 contained copper at a concentration of 112 ppm. However, the presence of copper cannot be attributed to the site because no background groundwater samples were taken during the SSI. The SSI report did not recommend any necessary further action (E&E 1991). No evidence of additional environmental studies are known to have been conducted at the site since the SSI. Attachment B provides the locations from which groundwater samples were collected and the analytical results generated from these samples.

4.0 MIGRATION AND EXPOSURE PATHWAYS

This section describes the four migration and exposure pathways associated with the Dupont site. Section 4.1 discusses the groundwater migration pathway; Section 4.2 discusses the surface water migration pathway; Section 4.3 discusses the soil exposure pathway; and Section 4.4 discusses the air migration pathway.

4.1 GROUNDWATER MIGRATION PATHWAY

This section discusses geology and soils, groundwater releases, and targets associated with the groundwater migration pathway at the site.

4.1.1 Geology and Soils

The site is located about 0.25 mile east of the intersection of three distinct geological settings. The southern portion of the site consists of part of the Great Miami Buried River Aquifer, which consists of permeable sand and gravel alluvial deposits that typically produce high yields of groundwater of more than 500 gallons per minute (gpm). The northern portion of the site consists of sand and gravel deposits with yields ranging from 100 to 500 gpm. The area north of the site across Brower Road consists of limestone bedrock of Ordovician age that is a poor source of groundwater, with yields of typically 3 gpm or less. The bedrock consists of interbedded plastic shales and thin layers of limestone with overlying deposits of glacial cover consisting primarily of clay (ODNR 1986). The area south of the Ohio River beginning about 0.75 mile south of the site in the Commonwealth of Kentucky consists primarily of upper Ordovician age bedrock uplands consisting of limestone and shale that are poor sources of groundwater. This area is several hundred feet higher than the Great Miami River valley and its buried aquifer (USGS 1960 and 1994).

Well logs from the construction of a recent production well in the southwestern portion of the site consists of various layers of silt, clays, sands, and gravels overlying beds of shale. Well logs for three other existing wells at the site indicate that the depth to groundwater ranges from 11 to 44 feet below ground surface (bgs) (ODNR 1970, 1979, 1980a, and 1980b).

4.1.2 Groundwater Releases

No release from the site to groundwater has been established. Furthermore, a release of hazardous substances to groundwater is not likely because the constituents of concern (vanadium pentoxide and chromium) have a relatively low mobility in groundwater. Groundwater samples taken from production wells at the site were sampled for Target Compound List (TCL) and Target Analyte List (TAL) analytes. Analysis of one of the samples found elevated concentrations of copper (112 ppm).

However, a release of copper cannot be attributed to the site, because (1) no background samples were taken and (2) copper is not used as part of industrial processes at the site. Furthermore, the SSI report stated that this elevated copper concentration may have been attributable to the copper fittings in the spigot from which the groundwater was collected (E&E 1991).

4.1.3 Targets

Most of the residences and businesses in the area obtain drinking water from wells in the City of Cleves, Ohio. These wells are located about 4.5 miles northeast of the site and are screened in sand and gravel at depths ranging from 70 to 90 feet bgs (PRC 1995e). Because groundwater flow in the area is to the south-southwest (OKI 1988), it is not likely that these wells would be affected by a release to groundwater. The areas surrounding the site have not been designated as a wellhead protection area (OEPA 1995; PRC 1995h).

Several municipal well fields obtain groundwater within a 4-mile radius of the site. These include the four wells operated by Possie Township in Dearborn County, Indiana, which are located between 1 and 2 miles west of the site and serve about 1,500 people (Frost 1995b; PRC 1995d). These wells are screened in sand and gravel at depths between 160 and 170 feet bgs (PRC 1995d). The well field for the City of Greendale, Indiana, includes three wells located about 2.5 miles west of the site (PRC 1995c). The well field for the City of Lawrenceburg, Indiana, consists of three wells located about 3 miles southwest of the site (PRC 1995b). These wells are screened in sand and gravel at depths greater than 100 feet bgs (PRC 1995b and 1995c) These wells serve about 8,500 people (Frost 1995b; PRC 1995b and 1995c).

A small percentage of people within a 4-mile radius of the site obtain their drinking water from private wells. The closest private drinking water well is located between 0.5 and 1 mile to the northwest of the site (USGS 1994). The total population served by private wells between 0.5 and 4 miles from the site is about 400 (Frost 1995a, 1995b, and 1995c).

Four production wells are located on site. These wells are used to obtain water for the boilers and for the production process conducted on site, but they are not used for drinking water. Workers at the site drink bottled water.

4.2 SURFACE WATER MIGRATION PATHWAY

This section discusses the migration route, surface water releases, and targets associated with the surface water migration pathway at the site.

4.2.1 Migration Route

Likely routes of migration to surface water bodies include discharges from two storm water ditches that run in a north to south direction through the site on the eastern and western sides of the site. These ditches carry runoff from the areas of the former landfill and spill containment pond. The ditch on the western side of the site also receives treated boiler blowdown, noncontact cooling water, and demister wastewaters. The facility's NPDES permit requires that the effluent from both of the ditches be sampled. No documented evidence indicates the site has been found in noncompliance with its NPDES permit. Topographic migration routes could carry hazardous substances to the Great Miami and Ohio Rivers.

The Great Miami River is located about 0.2 mile to the west of the site, and the Ohio River is located about 0.2 mile to the south of the site. The confluence of the two rivers is about 0.5 mile to the southwest of the site (USGS 1994). The effluent from the site's storm water ditches flows into the Great Miami River west of the site.

The Great Miami River has a mean flow of 3,300 cubic feet per second (cfs) as measured at Hamilton, Ohio (Spieker 1968). The Ohio River has a flow of 108,700 cfs as measured at North Bend, Ohio, which is about 4 miles northeast of the site (Ohio River Valley Water Sanitation Commission 1990).

4.2.2 Surface Water Releases

Based on sediment samples collected during the SSI, chromium may have been released to the surface water drainage ditch at outfall 001. However, because a background sediment sample was not collected as part of the SSI, a release cannot be conclusively documented. Furthermore, because of the high flow rates associated with the Great Miami and the Ohio Rivers, any contamination reaching these water bodies would be quickly diluted.

4.2.3 Targets

No drinking water intakes are located on the Ohio River within 15 miles downstream of the site (PRC 1995c and 1995i). The Ohio and Great Miami Rivers are used for recreational purposes, including boating and fishing. Fish consumption from the Great Miami and Ohio Rivers is estimated to be between 1,000 and 10,000 pounds per year (ODNR 1995). About 1 to 2 miles of noncontiguous wetlands are found along the Great Miami River and about 5 miles of noncontiguous wetlands are found along the Ohio River within 15 miles downstream of the site (DOI 1989a and 1989b). Endangered species that may be present in the area include the bald eagle, the Indiana bat, and the running buffalo clover (PRC 1995f and 1995g). Although these targets may be present, it is not likely that they will be affected by releases from the site because of the high dilution associated with the Great Miami and Ohio Rivers.

4.3 SOIL EXPOSURE PATHWAY

The former landfill, the spill containment pond, and NPDES outfall 001 all have the potential to release hazardous substances to on-site soils. Both the former landfill and spill containment pond have been covered with soil. Samples collected from the center of the spill containment pond at a depth of 1 foot indicate concentrations of vanadium that were elevated above concentrations detected in a background sample taken at the eastern border of the site. The source of this vanadium is probably the vanadium pentoxide catalyst used at the site. A sample taken at the area that discharges from the eastern storm water ditch (outfall 001) indicates concentrations of chromium that were elevated above background concentrations (E&E 1991). The source of the chromium is unknown.

No residential, school, or daycare facilities are located on site or within 200 feet of the site. The site currently employs 21 people. The closest residents are located between 0.5 and 1 mile to the northeast of the site (USGS 1994). The site is not used for recreational purposes and it is not surrounded by a fence.

4.4 AIR MIGRATION PATHWAY

Possible emissions from the site include particulate emissions of sulfur dioxide and vanadium pentoxide from the former landfill. The vanadium pentoxide waste in the former landfill was covered with 2 feet of soil to prevent migration of particulates (E&E 1991). The facility has a permit from OEPA that limits the discharge of sulfur dioxide and particulate matter through a stack in its process to 25 pounds per hour, and 0.51 pounds per hour, respectively (OEPA 1994). No documented evidence indicates that the site has had any violations of its air permit. No documented evidence exists that site personnel or OEPA have received complaints from neighbors regarding air emissions.

Potential targets of air emissions from the site include on-site workers and local residents. Approximately 21 employees work at the site. The area within 2 miles of the site is sparsely populated, but about 10,000 residents live within a 4-mile radius of the site (Frost 1995a, 1995b, and 1995c). About 80 acres of noncontiguous wetlands are found within a 4-mile radius of the site (DOI 1989a, 1989b, and 1989c).

5.0 SUMMARY

A low potential exists for hazardous substances from the site to be released to the surrounding area. The former landfill and the spill containment pond have been covered with soil to reduce the potential for soil exposure and particulate releases to air. The site is located in an industrial area with few residents within 2 miles of the site. Groundwater is not used as a source of drinking water at the site. Three residential well fields, ranging from 2 to 3 miles to the west of the site, serve about 10,000 people. The closest private well is located between 0.5 and 1 miles to the northwest of the site, and the total population served by private wells within a 4-mile radius of the site is about 400. The site is located about 0.2 miles from the Great Miami and Ohio Rivers. No surface water intakes are used for drinking water within 15 miles downstream of the site. The site is not used for recreational purposes.

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APPENDIX

SITE RECONNAISSANCE PHOTOGRAPHS

E.I. DUPONT DE NEMOURS & CO., INC.
NORTH BEND, OHIO

(Six Sheets)

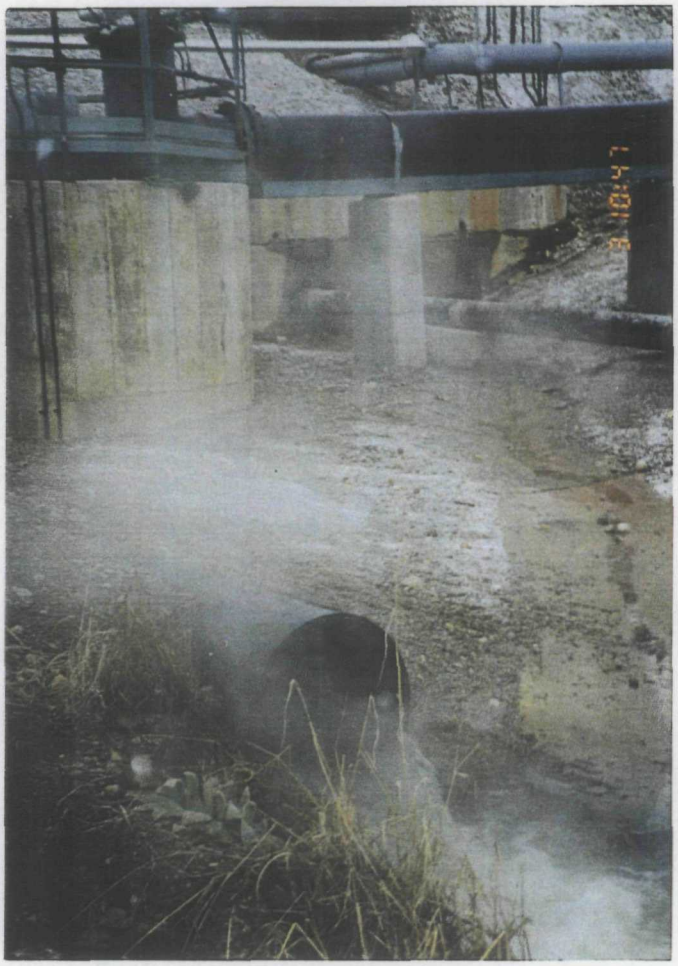
Photographs No. 1 & 2
Orientation: North
Description: Panorama of old landfill area; steam vent at far right

Location: Northwest part of DuPont property
Date: 2/3/95

Photograph No. 3 Location: Northwest part of DuPont property
Orientation: East Date: 2/3/95
Description: Former landfill area; steam vent in background

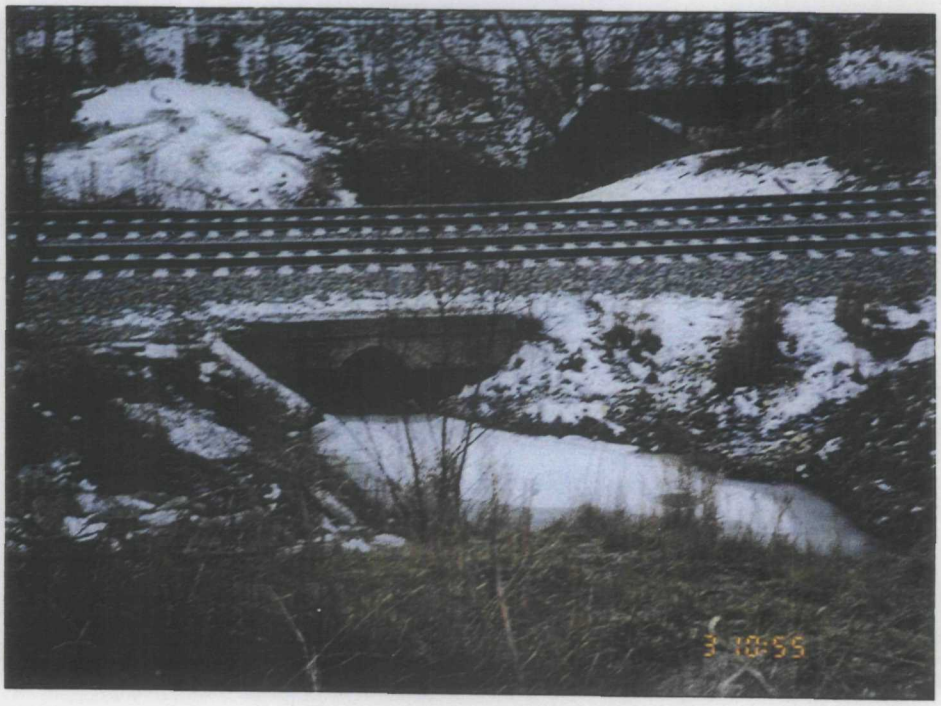
Photograph No. 4 Location: West-central part of DuPont property
Orientation: East Date: 2/3/95
Description: Low, grass-covered area; former location of spill containment pond

Photograph No. 5 Location: Southern DuPont site boundary
Orientation: South Date: 2/3/95
Description: Outfall 001; black pipe at center shows discharge

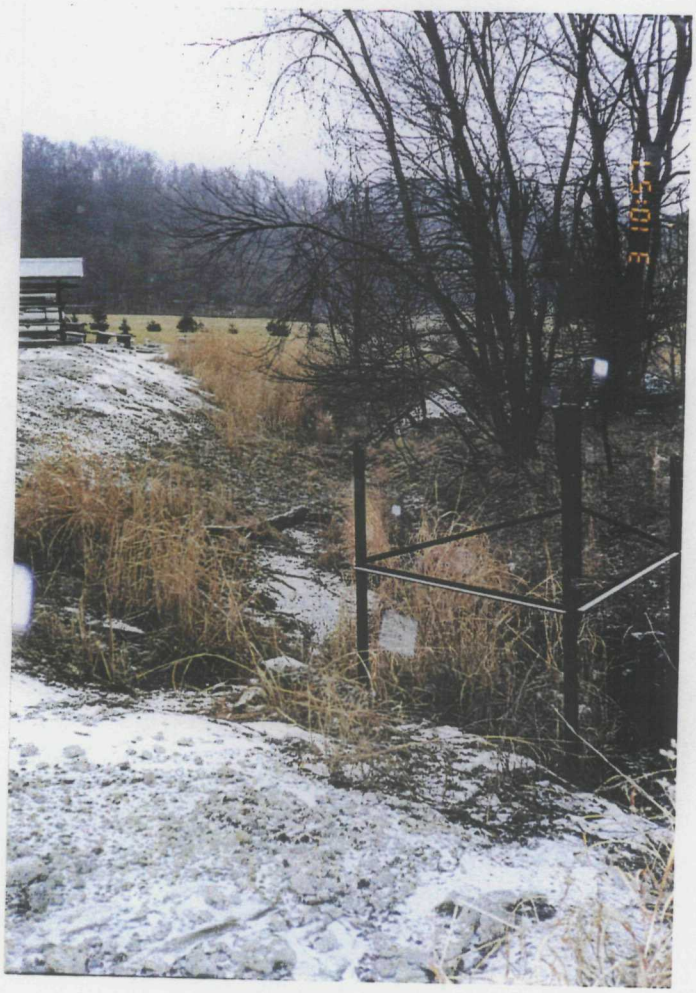


Photograph No. 6
Orientation: Northeast
Description: Closeup of outfall 001

Location: Southern DuPont site boundary
Date: 2/3/95



Photograph No. 7 Location: Southern DuPont site boundary
Orientation: South Date: 2/3/95
Description: Outfall 002; culvert carries drainage through railroad embankment



Photograph No. 8
Orientation: Northeast
Description: Drainage on eastern site boundary

Location: Southeast corner of DuPont site
Date: 2/3/95

ATTACHMENT A

SITE INVESTIGATION SOIL AND SEDIMENT SAMPLING LOCATIONS AND ANALYTICAL RESULTS

E.I. DUPONT DE NEMOURS & CO., INC.
NORTH BEND, OHIO

(Three Sheets)

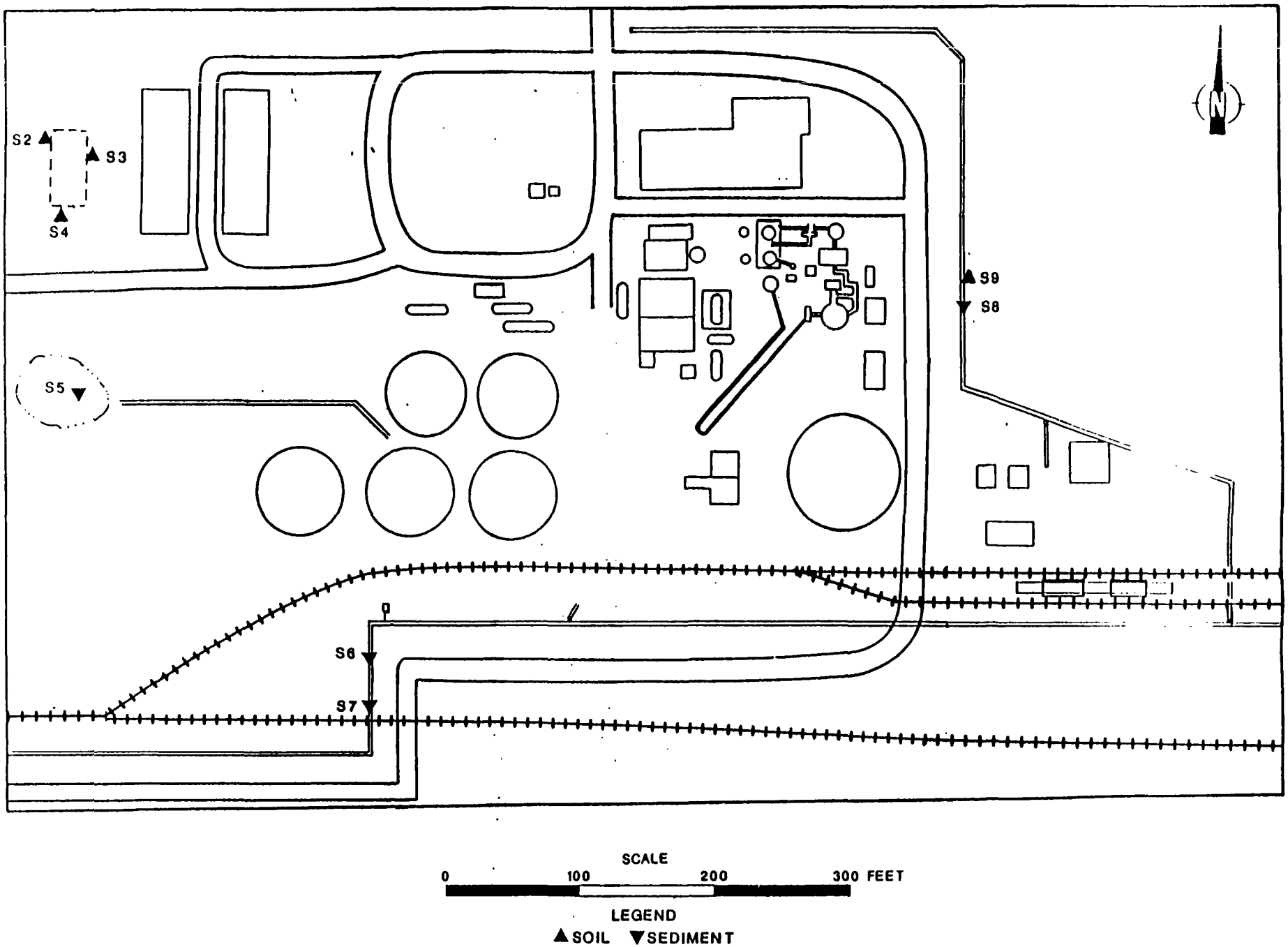


FIGURE 3-2 ON-SITE SOIL/SEDIMENT SAMPLING LOCATIONS

Table 4-1
RESULTS OF CHEMICAL ANALYSIS OF
FIX-COLLECTED SOIL/SEDIMENT SAMPLES

Sample Collection Information and Parameters	Sample Number S1	S2	S3	S4	S5	S6	S7	S8	S9
Date	11/16/90	11/16/90	11/16/90	11/16/90	11/16/90	11/16/90	11/16/90	11/16/90	11/16/90
Time	1600	1305	1310	1400	1405	1445	1506	1540	1545
CLP Organic Traffic Report Number	EM070	EM071	EM072	EM073	EM074	EM075	EM076	EM077	EM078
CLP Inorganic Traffic Report Number	MEBS02	MEBS03	MEBS04	MEBS05	MEBS06	MEBS07	MEBS08	MEBS09	MEBS10
Compound Detected (values in µg/kg)									
Volatile Organics									
4-methyl-2-pentanone	—	—	—	—	—	—	3J	—	—
toluene	—	—	—	—	—	—	3J	—	5J
Semivolatile Organics									
phenanthrene	—	—	—	—	—	510J	240J	480J	—
anthracene	—	—	—	—	—	—	—	120J	—
fluoranthene	—	—	—	—	—	2,900	1,500	600J	120J
pyrene	—	—	—	—	—	2,500	800J	390J	89J
benzo[a]anthracene	—	—	—	—	—	2,900	590J	190J	—
chrysene	—	—	—	—	—	4,400	1,000	260J	76J
bis(2-ethylhexyl)phthalate	—	—	—	—	—	650J	—	—	—
benzo[b]fluoranthene	—	—	—	—	—	6,000	1,500	270J	—
benzo[a]pyrene	—	—	—	—	—	3,300	590J	160J	—
indeno(1,2,3-cd)pyrene	—	—	—	—	—	3,000	400J	110J	—
dibenzo[a,h]anthracene	—	—	—	—	—	630J	—	—	—
benzo[g,h,i]perylene	—	—	—	—	—	2,300	330J	90J	—
TICs†									
sulfur (10544-50-0)	—	—	—	—	—	2,000J	10,000J	10,000J	10,000J
Analyte Detected (values in mg/kg)									
aluminum	15,700	5,880	9,080	9,630	11,200	7,700	5,200	2,410	4,500
antimony	—	—	—	—	0.88NJ	—	—	24.4NJ	27.2NJ
arsenic	7.1	7.4	11.3	12.6	13.2	15	6.1	7.4B	6.8
barium	91.6	65.2	81.2	45.3B	160	953	411	15.7B	31.6B
beryllium	1.0	—	—	1.1B	0.96B	2.1B	1.7	—	—
calcium	5,720EJ	1,480EJ	780BEJ	1,540EJ	11,400EJ	9,880EJ	2,300EJ	57,400EJ	46,800EJ
chromium	19.2	13.5	17.4	13.7	47.5	97.2	43.3	9.7	8.6
cobalt	14.1	—	4.0B	7.7B	3.7B	9.2B	5.6B	—	3.5B
copper	38.1NJ	12.5NJ	21NJ	21.7NJ	38.7NJ	71.4NJ	55.2NJ	6.4NJ	16.9NJ
iron	30,000EJ	14,500EJ	24,600EJ	26,500EJ	24,700EJ	38,500EJ	20,600EJ	9,100EJ	12,000EJ
lead	45.1	11	14.2	11.5	27.5	73.2	84.5	5	4.4B

Table 4-1 (Cont.)

Sample Collection Information and Parameters	Sample Number S1	S2	S3	S4	S5	S6	S7	S8	S9
magnesium	4,030	9930	2,100	2,430	6,470	3,410	1,500	19,200	17,500
manganese	1,030EJ	76.4EJ	105EJ	401EJ	114EJ	943EJ	111EJ	155EJ	246EJ
mercury	—	—	—	—	0.25	0.65	0.48	—	—
nickel	25	6.6B	15.9	16.7	18.4	38.4	21.3	11.3	8B
potassium	3,110	1,150B	1,460	1,130B	1,740	1,230B	940B	410BJ	714B
selenium	R	R	R	R	R	2.1B4J	R	R	R
silver	3.3J	2.4BJ	2.9J	3.2J	4.7J	4.8BJ	2.9J	4.1J	4.4J
sodium	1000	—	88.7B	19B	157B	287B	223B	122B	112B
vanadium	23.7	10.4B	17.3	16	376	28.5	10.1B	11.1B	16.1
zinc	74.6	36.9	68.5	58.7	77	203	78.7	21.7	34.4

— Not detected.
† TIC Chemical Abstracts Service (CAS) numbers, if available, are provided in parentheses.

COMPOUND QUALIFIER	DEFINITION	INTERPRETATION
J	Indicates an estimated value.	Compound value may be semiquantitative.

ANALYTE QUALIFIERS	DEFINITION	INTERPRETATION
E	Estimated or not reported due to interference. See laboratory narrative.	Analyte or element was not detected, or value may be semiquantitative.
M	Spike recoveries outside QC protocols, which indicates a possible matrix problem. Data may be biased high or low. See spike results and laboratory narrative.	Value may be quantitative or semiquantitative.
+	Correlation coefficient for standard additions is less than 0.995. See review and laboratory narrative.	Data value may be biased.
B	Value is real, but is above instrument DL and below CRDL.	Value may be quantitative or semiquantitative.
J	Value is above CRDL and is an estimated value because of a QC protocol.	Value may be semiquantitative.
W	Post-digestion spike for furnace AA analysis is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance.	Value may be semiquantitative.
R	Results are unusable due to a major violation of QC protocols.	Analyte value is not usable.

ATTACHMENT B

SITE INVESTIGATION GROUNDWATER SAMPLING LOCATIONS AND ANALYTICAL RESULTS

E.I. DUPONT DE NEMOURS AND CO., INC.
NORTH BEND, OHIO

(Three Sheets)

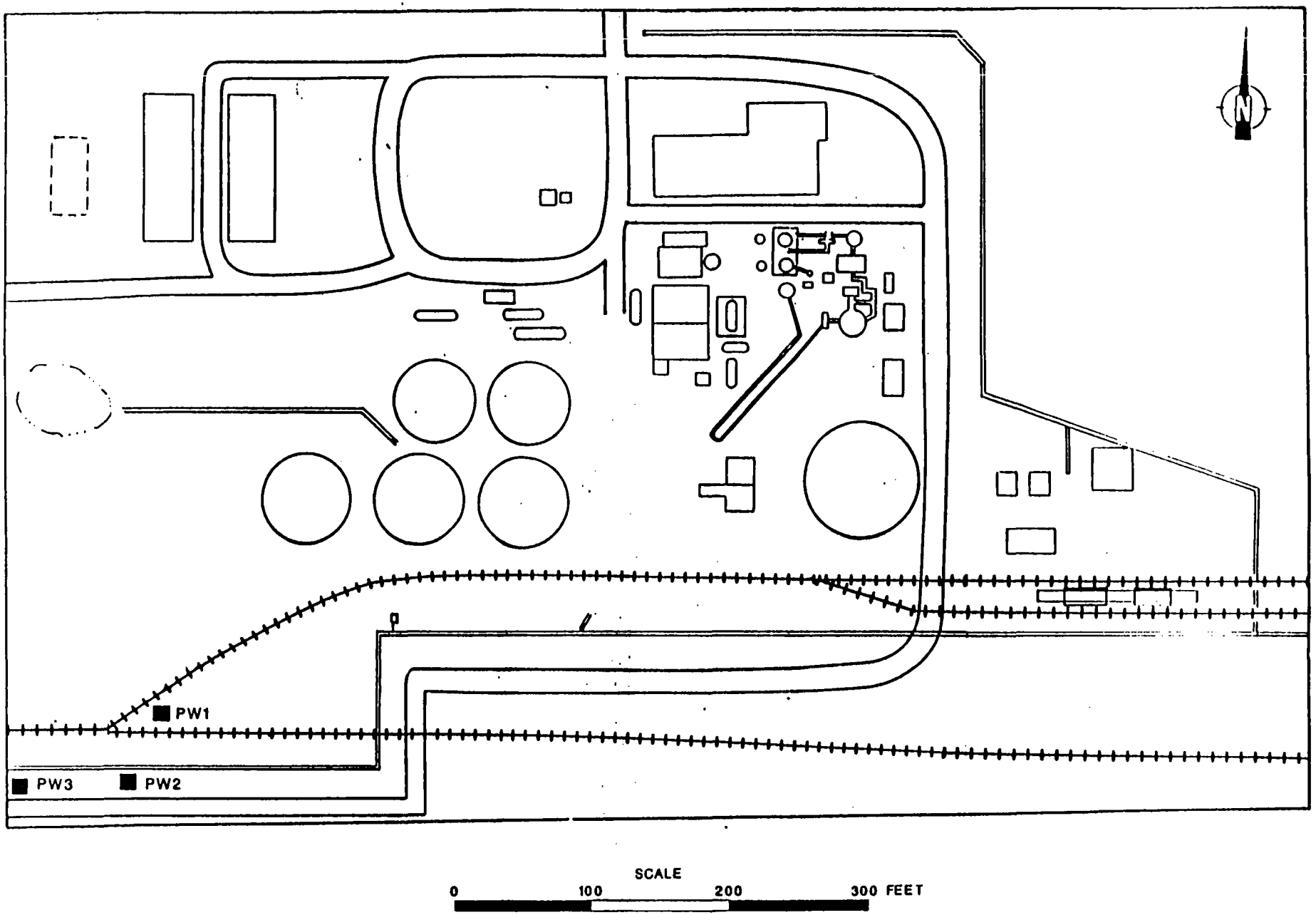

PW1
PW3
PW2
N
SCALE
0
100
200
300 FEET

Table 4-2

RESULTS OF CHEMICAL ANALYSIS OF

FIT-COLLECTED PRODUCTION WELL SAMPLES

Sample Collection Information and Parameters	Sample Number				
	PW1	PW2	Duplicate	PW3	Blank
Date	11/6/90	11/6/90	11/6/90	11/6/90	11/6/90
Time	1615	1755	1755	1800	1800
CRL Log Number	91FL30S89	91FL30S90	91FL30D90	91FL30S91	91FL03R87
Temperature (°C)	53	52	52	53.5	53
Specific Conductivity (μmhos/cm)	700	831	831	830	0
pH	7.3	7.61	7.61	7.22	7.04
Compound Detected (values in μg/L)					
Volatile Organics					
chloroform	—	—	—	—	1J
Semivolatile Organics					
di-n-butylphthalate	2	1J	1J	1J	—
Pesticides/PCBs*					
Analyte Detected (values in μg/L)					
arsenic	—	—	—	3	—
barium	152	110	111	228	—
calcium	102,000	120,000	119,000	82,700	—
copper	6.7	112	29.1	—	—
iron	265	—	—	1,000	—
lead	—	—	2	—	—
magnesium	27,300	31,400	31,500	24,300	—

Table 4-2 (Cont.)

Sample Collection Information and Parameters	Sample Number				
	PW1	PW2	Duplicate	PW3	Blank
manganese	31.5	292	301	930	--
potassium	5,340	6,480	5,050	--	--
sodium	25,100	27,100	27,100	25,500	--

-- Not detected.

* Results are unusable due to an error in the extraction procedure.

COMPOUND QUALIFIER	DEFINITION	INTERPRETATION
J	Indicates an estimated value.	Compound value may be semiquantitative.