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**EVALUATION OF EXISTING CONDITIONS
AT THE NEWPORT PLANT - NORTH DISPOSAL SITE**

FOR

**E.I. DU PONT DE NEMOURS & COMPANY, INC.
BRANDYWINE BUILDING
WILMINGTON, DELAWARE 19898**

prepared by

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87C4540

19 March 1987

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EXECUTIVE SUMMARY

The north disposal site at the Newport Plant has received a variety of inorganic and organic waste materials during operations between 1902 and 1974, a review of available data concerning materials disposed in the landfill suggests that potential ground-water contaminants from the landfill include:

- o Barium;
- o Cadmium;
- o Chromium;
- o Zinc;
- o Tetrachloroethylene; and
- o Radioisotopes.

Available ground-water monitoring data for monitoring wells in the area are reasonably consistent with the historic record of waste disposal. Ground-water contamination has been observed in both the Columbia and Potomac aquifers which underlie the site. The primary contaminants observed in ground water are:

- o Barium;
- o Cadmium;
- o Zinc; and
- o Tetrachloroethylene.

All of these chemicals have been observed in ground water north of the Christina River in concentrations well above existing or proposed drinking water standards. Limited available data concerning levels of radioactivity suggests that ground water may exceed drinking water standards, at least on a localized basis. It is not known if observed radiation levels are related to the site or to natural background conditions. Limited available monitoring data for organic compounds

suggests that with the exception of tetrachloroethylene (and possibly trichloroethylene), significant ground-water contamination by organic compounds is not likely.

The pattern of ground water flow in the vicinity of the site strongly indicates that the Christina River represents a barrier to transport of contaminated ground water from the north disposal site. In general, regional flow in the deeper (Potomac) aquifer is to the south. The shallower (Columbia) aquifer is expected to be highly influenced by the Christina River, which appears to be a discharge area for the Columbia. The north disposal site is in an area of discharge (upward movement) of the Potomac aquifer. The north disposal site itself represents a local recharge area, resulting from mounding of water infiltrating the fill material. Ground water in the fill is likely to discharge to the drainage ditch bordering the north and west boundaries of the North Disposal site, or to discharge directly to the Christina River. Since the Columbia and Potomac aquifers discharge in the area of the Christina River, it is highly probable that the river represents a boundary for southerly transport of contamination from the north disposal site.

Available ground water quality monitoring data indicated some anomolous results with respect to this interpretation. First, cadmium contamination in the Potomac aquifer is present in DM-1 and DM-8, apparently upgradient of the north disposal site. It is possible that this contamination was produced as a result of local northerly ground water flow induced by active pumping of du Pont production wells WW-11 and WW-13. Available data however, do not rule out the possibility of an upgradient source of contamination. Second; the presence of cadmium and tetrachloroethylene contamination immediately south of the Christina River, in DM-4/5, is not consistent with the Christina River serving as a barrier to contaminant transport, if the north disposal site represents the only suspected source of contamination. Presence of tetrachloroethylene at this location and at DML-7/DMU-7 suggests a potential, currently unknown, source south of the Christina River. The absence of heavy metals at DML-7/DMU-7 is

consistent with the interpretation of the Christina River as a barrier to southerly transport from the north disposal site.

The presence of the Christina River as a barrier to southerly transport of ground-water contamination from the north disposal site is particularly important considering the location of ground-water receptors in the vicinity of the site. A number of local water supply wells are located along Old Airport Road, south of the Christina River about 1/2 mile southwest of the north disposal site. Available records for two wells in this area indicate wells are screened in the shallow Columbia formation. As discussed in detail in Section 5 of this report, these wells are extremely unlikely to be affected by any contamination present from the north disposal site. Similarly, the public water supply wells at the Wilmington Airport, operated intermittently by the Artesian Water Company, are unlikely to be impacted by the north disposal site. Thus, while the ground water under the disposal site would present an unacceptable risk if ingested, the actual public health risk associated with ground-water contamination from the north disposal site is minimal, since transport of contamination to receptors is not anticipated.

Potential patterns of ground-water migration in the vicinity of the site apparently were not considered by the USEPA in developing the Hazard Ranking System (HRS) score for the site, since both local ground-water users along Old Airport Road, and the wells operated by the Artesian Water Company were considered as potential receptors of contamination from the site. The relatively high score obtained for the site resulted primarily from the proximity to the site of the local wells, and the high population served by the Artesian System. The HRS scoring also considered both systems as sole water supplies not easily replaced.

In the case of the local (Old Airport Road area) wells, the area is served by the Artesian Water Company, which has reported existence of a water main along Old Airport Road. Although service has not been connected to any residents along Old Airport Road, an alternative water supply could be made available if ground-

water contamination is observed in this area. (This event is not unlikely considering local land use patterns along Old Airport Road).

The Artesian Water Company wells located at the Wilmington Airport do not appear to represent a critical component of the Artesian System. These wells are operated only during the summer season (about 6 months) because they supply relatively low quality water due to high background levels of iron and manganese. Overall, these wells represent less than 5% of the Artesian System water supply when they are operating, and only about 2% of the systems supply on an annual basis. The HRS scoring for the site, apparently overestimated the significance of these wells by considering them as the sole source supply for the entire population served by the Artesian Water Company.

In summary, the HRS score for the site apparently significantly overestimated potential risks posed by the north disposal site, since local barriers to contaminant migration, and existence of alternate water supplies were not considered in the scoring.

SECTION 1 INTRODUCTION

Du Pont has retained Woodward-Clyde Consultants (WCC) to conduct an independent review of information concerning ground-water contamination related to the north disposal site at the Newport Plant. The objectives of this review are:

- o Analyze and interpret existing data concerning ground-water contamination at the site; and
- o Assess the risk to public health, if any, associated with current conditions.

This report presents the results of WCC's review of available information.

Section 2 presents a brief description of the history of the site. Section 3 discusses the types of wastes which were disposed in the landfill, and the potential ground-water contaminants associated with these wastes. Section 4 discusses the geohydrology of the site and the surrounding areas. Section 5 discusses groundwater quality, and potential contaminant migration pathways. Section 6 identifies potential receptors of ground-water contamination, namely public and private wells in the vicinity of the site.

SECTION 2 BACKGROUND

Du Pont's Newport Plant is a pigment manufacturing plant located at James and Water Street in Newport, Delaware. The site was originally owned and operated (from 1902 to 1929) by Henrik J. Krebs for the manufacture of Lithopone, a white inorganic pigment. In 1929, Du Pont purchased the site, which has since been used to manufacture Lithopone and other materials, including organic and inorganic pigments.

During plant operations, areas of the site bordering the Christina River were landfilled as a means of waste disposal. Landfilling of wastes may have occurred between 1902 and 1974, when Du Pont terminated such on-site landfill activities. Landfilling occurred in two areas designated the "south disposal site" and the "north disposal site". The south disposal site is an approximately 15 acres landfill located across the Christina River from the plant, operated from approximately 1902-1953. Materials deposited in this landfill consisted of primarily insoluble residues of zinc and barites ores, which were pumped through a pipeline under the Christina River. Some dikes and berms were constructed to contain the material. This material hardened to a sandstone consistency, according to Du Pont's records. In 1973, the State of Delaware, Department of Highways, deposited approximately 130,000 cubic yards of soil from highway construction at this location, covering the south disposal site with several feet of soil.

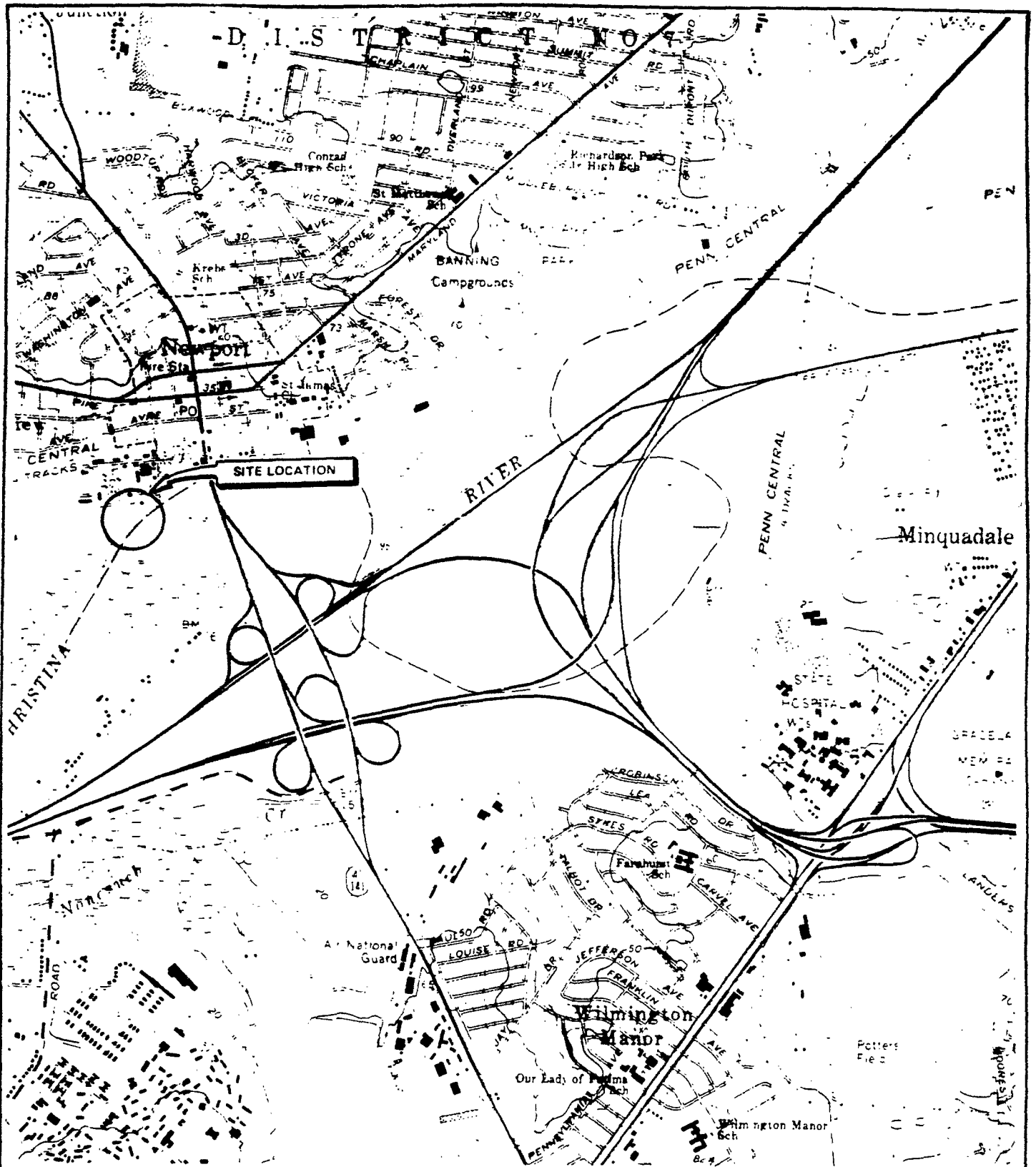
The north disposal site (see Figure 2-1) was used for disposal of general refuse and process wastes from the early 1900's until 1974. The north disposal site covers approximately 7 acres, and received approximately 25,000 tons of material. Additional details concerning wastes disposed in the north disposal site are presented in Section 3. The fill depth ranges from about 13 feet at the southwestern edge to 8 feet in the northwestern portion. The north disposal site

was operated under a State of Delaware permit from 1968 until its closure on 1 January 1975. Upon closure, this site was capped with 2 feet of clay.

After closure of the north disposal site, ground-water monitoring was begun in 1976. Twelve monitoring wells are currently in operation. Water quality data has been collected from these wells on a quarterly basis and submitted to the Delaware Department of Natural Resources and Environmental Control.

In 1984, Du Pont sold the pigments operation at the Newport Plant to Ciba-Geigy, which currently operates the eastern portion of the plant. Du Pont continues to operate a chromium dioxide magnetic tape manufacturing plant on the western portion of the plant site. Du Pont has retained ownership of the North and south disposal sites.

In 1986, the Mitre Corporation, under contract to the USEPA, conducted a site evaluation and Hazard Ranking System (HRS) scoring of the north disposal site, in accordance with provisions of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or "Superfund"). An overall HRS score for the site of 51.91 was developed, based upon observed ground-water contamination and the potential (not observed) impact on regional water supply wells. Surface water and airborne exposure routes were considered insignificant in the HRS scoring. Based upon the HRS score, the USEPA has proposed inclusion of the site on the Superfund National Priority List (NPL), which would require remedial investigations, feasibility studies, and possible remedial actions under the terms of CERCLA. EPA's decision to include the site on the NPL appears to be based entirely upon the HRS score, which is a preliminary screening tool. No consideration was given to additional data available for the site including available ground water monitoring data, or to an evaluation of the actual risk posed by the site. The subsequent sections of this report describe additional available information, in terms of better defining the actual and potential risks associated with the north disposal site.



SOURCE: WILMINGTON SOUTH QUADRANGLE,
7.5 MINUTE SERIES (TOPOGRAPHIC)

SITE LOCATION NORTH DISPOSAL SITE NEWPORT PLANT		
WOODWARD-CLYDE CONSULTANTS CONSULTING ENGINEERS, GEOLOGISTS AND ENVIRONMENTAL SCIENTISTS WAYNE, NEW JERSEY		
DR. BY TJD	SCALE AS SHOWN	PROJ NO. 87C4540
CK'D BY JR	DATE 14 MAR 1987	FIG NO. 2-1

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SECTION 3
WASTE CHARACTERISTICS

A variety of inorganic and organic waste materials were disposed in the north disposal site from approximately 1902 to 1974. This section summarizes available information concerning wastes quantities and characteristics, including an identification of potential hazardous constituents. The primary sources of this information are the following documents:

- o "Notes on Lithopone" - C.K. Cooper, 8 August, 1979.
- o Memorandum - P.E. Kress to J.C. Deming, 6 November 1979.
- o Letter - M. Barszcz (Du Pont) to R. Gordon (USEPA) titled Newport Waste Disposal Operations, 22 July 1980.
- o Memorandum titled "Waste Disposal Survey" - R.E. Kress to P.F. Brown - 29 October 1980.
- o Letter - R.J. Mattson (Du Pont) to S. R. Wassersug (USEPA) 21 May 1986.

The north disposal site comprises about 7 acres immediately north of the Christina River. This site received a variety of waste materials during its operations between 1902-1975. Table 3-1 presents a summary of materials known or suspected to have been disposed in the north disposal site. No known disposal of RCRA - listed hazardous wastes has occurred at the north disposal site. The major waste materials containing potentially hazardous constituents, based upon available information, are discussed below.

Lithopone Wastes

The lithopone process produced a white pigment composed of barium sulfide and zinc sulfate. Some lithopone pigments (off-quality) and lithopone wastes may have been disposed in the north disposal site. Several thousand tons of fill dirt containing zinc and barites ore were also placed in the north disposal site.

Wastes from the Lithopone process consisted of insoluble ore residues. Zinc ore was treated with sulfuric acid to dissolve zinc. Insoluble residues were precipitated with ferric hydroxide, resulting in a "red mud" which was disposed. The zinc process also produced a byproduct filter cake which was sold for cadmium recovery.

The barium sulfate ore was roasted in kilns to reduce the sulfate to barium sulfide, which was dissolved in hot water. The insoluble ore residues formed a "black mud", which was disposed. The waste muds were generated in an estimated ratio of 1 part red mud to 3 parts black mud. Best estimates indicate disposal of approximately 25,000 tons of this mixture over approximately 15 acres in the south disposal site. After 1953, any remaining ore residue wastes were disposed in the north disposal site. According to the available records, after disposal, the muds solidified to a "sandstone consistency". Potential contaminants from lithopone wastes and ore residues include barium, zinc, and cadmium.

Copper Phthalocyanine Wastes

Copper phthalocyanine, a stable blue-green pigment has been manufactured at the plant since 1947. In general, byproducts have been discharged to municipal waste treatment facilities. Some off-quality pigments were disposed at the north disposal site. According to data providing by Du Pont, copper phthalocyanine is essentially non-toxic by the oral route. It has been approved by the US Food and Drug Administration (FDA) for use as a pigment in polymers used in food

packaging. According to Merck (1983), this compound is also approved by FDA for use in polypropylene sutures.

Quinacridone Wastes

Quinacridone, a stable red organic pigment, has been manufactured at the plant since 1958. Byproducts of the process have generally been discharged to municipal wastewater treatment facilities, with the exception of an insoluble tarry solid, which was disposed in the north disposal site until 1974. Primary constituents of this tar are biphenyl, diphenyl ether, and alpha-methyl naphthalene. The quinacridone process also used tetrachloroethylene and it is possible that some quinacridone wastes may have become contaminated with tetrachloroethylene or Dowtherm constituents. Off-quality quinacridone pigments were also disposed in the North Disposable Site. Soluble components of quinacridone wastes, including tetrachloroethylene if present, represent potential ground water contaminants from this material. According to data supplied by Du Pont, quinacridone itself is essentially non-toxic by the oral route, and has been approved by FDA as a colorant for poly-olefins used in food packaging.

"Afflair" Pigment Wastes

Afflair, a stable white pigment, consists of mica coated with titanium dioxide. Some scrap mica (a natural mineral), was disposed at the north disposal site. This material is unlikely to represent a significant source of contamination.

Metal Production Wastes

From 1950 to 1960, several metals and metal alloys were manufactured at the plant. These included titanium, zirconium, and silicon, which are relatively inert substances. Unknown, small quantities of off-grade materials were disposed in the north disposal site.

For about 2 years during this period, thoriated nickel (nickel containing 2-5% of ThO_2) was produced. Approximately 20 tons of process wastes (primarily off-grade thoriated nickel) were disposed in the north disposal site under NRC guidelines. Thorium is a radioactive substance.

Since the metals produced are essentially insoluble in their metallic forms, the only potential ground-water contaminant from the metal wastes is potential radioisotopes (thorium and its daughters).

Chromium Dioxide Wastes

Chromium dioxide has been manufactured at the plant since 1966, some of which is used in production of magnetic recording tape (mylar coated with chromium dioxide). Approximately 10 tons of off-quality chromium dioxide (in drums) and mylar recording tape (in bags) were disposed at the north disposal site. The primary potential ground-water contaminant from this material is the heavy metal, chromium, which has not been found in ground water in significant concentrations.

Miscellaneous Wastes

As shown on Table 3-1 a variety of other wastes including low volume process wastes, lab packs, and garbage were disposed in the north disposal site. A variety of low level contaminants could be present in these materials.

A variety of relatively inert materials, including trash, concrete, steel, rubber refuse, nylon shutters, and corian (imitation marble sheets) were also disposed in the north disposal site. No significant ground-water contamination would be expected from these materials.

Summary

A variety of inorganic and organic waste materials were disposed in the north disposal site. Potential suspected ground-water contaminants which could be identified based upon the waste disposal inventories include:

- o Barium;
- o Cadmium;
- o Chromium;
- o Zinc;
- o Tetrachloroethylene; and
- o Radioisotopes.

Actual ground-water monitoring data for the site is discussed in Section 5.

TABLE 3-1
 NORTH DISPOSAL SITE - WASTE DISPOSAL INVENTORY

<u>Material</u>	<u>Estimated Quantitu</u>
o Garbage	several tons
o Trash (glass, wood, paper, cardboard)	>100 tons
o Steel drums	several hundred tons
o Lever Packs	several hundred tons
o Sand and dirt	several thousand tons
o Concrete	
o Steel work	
o Asbestos	>5 tons
o Light ballasts - PCB's/PBB's	<2 tons
o Rubber - gasket material, tires from garage	a few tons
o Nylon shutters	2 tons
o Artificial marble - "Corian"	< 4 tons
o Acrylates and latex emulsions	several hundred lbs
o Quinacridone tars	>1,000 tons
o Bad quality copper phthalocyanine pigment	< 100 tons
o Bad quality quinacridone pigment	
o Bad quality "Afflair" pigment	estimated 10,000-15,000 lbs
o Bad quality Chromium Dioxide coated "Mylar" recording tape	6 tons
o "Afflair" fines (30% mica) + (70% TiO ₂)	estimated 100,000 lbs
o Bad quality chromium dioxide floor sweepings and bags	<2 tons

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<u>Material</u>	<u>Estimated Quantity</u>
o Thoriated nickel	<20 tons of combined waste
o Dirt contaminated with zinc ore	several hundred tons.
o Raw materials left in bag liners and drums and leaks from drums	several hundred tons
- Quinacridone	a few tons
- Copper phthalocyanine	a few tons
- "Afflair"	a few tons
- Magnetic Products	a few tons
o Laboratory waste including resins from Quinacridone, copper phthalocyanine, "Afflair", and Magnetic Products	a few tons
o Scrap amounts of the following materials (maximum several tons).	
- Graphite (thick pieces-carbon 3' x 1-1/2' rock) + shavings + powder	
- Titanium - metal	
- Sodium (burned or exploded)	
- "Baxtron" (tungsten carbide cobalt)	
- "Tiper-sul" (potassium titanate (PKT)	
- "Fibex" (TiO ₂)	
- "Erifon"	
- Silica	
- Silicon	
- Zirconium	
- Columbium	
- Titanium bisteric - synthetic oil - antifreeze	
- Tetra-isopropyltitanate	

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TAG

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SECTION 4 REGIONAL SETTING

4.1 PHYSIOGRAPHY

The Newport Landfill is located within the Atlantic Coastal Plain Province, proximal to the Appalachian Piedmont Province (Figure 4-1). The Coastal Plain is a relatively flat and low area with elevations not exceeding 100 feet above mean sea level. The area adjacent to the Delaware Bay is exposed to tidal flooding and is characterized by conspicuous marshes and estuaries. Most of the streams in this zone are tidal or have at least a tidal segment. Stream valleys are shallow compared with those of the Piedmont.

By comparison, the Piedmont Province is an area of diversified relief dissected by narrow and deep stream valleys with residual high areas rising above the general upland level. It is composed of folded Paleozoic and Precambrian metamorphic and igneous rocks consisting predominantly of banded gneiss and schist. The surface of these crystalline rocks of the Piedmont slopes southward and southeastward forming the basement upon which lies the wedge-shaped mass of sedimentary rocks of the Coastal Plain.

The Piedmont and Coastal Plain Provinces are separated by the Fall Zone, which divides the area of predominant erosion (Piedmont Province) from the area of predominant deposition (Coastal Plain Province). The Piedmont streams are characterized by relatively steep gradients and, therefore, most of their sediment load is transported out into the Coastal Plain and only a minor part is deposited in their channels and flood plains. The gradients of the Coastal Plain streams draining into the Delaware Bay, however, are very gentle and a large part of their sediment load is deposited before reaching the bay. The process of deposition is particularly effective in the tidal marsh area along the bay or its tributaries.

4.2 COASTAL PLAIN GEOLOGY

The wedge-shaped mass of sedimentary deposits comprising the Coastal Plain in the Newport area consists of the Pleistocene Columbia Formation and the Cretaceous Potomac Formation. The diverse structural features present in the crystalline basement rocks that caused the complex geological framework of the Fall Zone have also exerted a considerable influence on the distribution of the overlying sediments of the Coastal Plain.

4.2.1 Columbia Formation

The Pleistocene (Quaternary) sediments of the Columbia Formation were deposited on the eroded surface of the underlying Potomac Formation sediments in the area. The Formation includes gravelly coarse and medium sands with some interbedded silts and clays. The sands are moderately to poorly sorted, cross-bedded, yellow to brownish-yellow in color, and contain on the average about 5 percent clay and silty matrix. Fine sediments are abundant locally and gravels are subordinate.

The Columbia sediments were deposited in stream channels, flood plains, and associated environments.

The aerial distribution of the Columbia lithologies appears to have been controlled by the topography and composition of the underlying Potomac surface. The valleys in this surface often were developed in the areas composed of fine Potomac deposits, such as clays and silts. For this reason these areas were the location of the main Pleistocene stream system and the transport routes of the Columbia sands. Thus, the Columbia sands are often directly underlain by Potomac fine sediments. Although the Columbia deposits can differ widely in color, the differentiation of the Columbia deposits from the underlying Potomac

units can usually be made on a lithologic basis in northern Delaware. However, some difficulty can be encountered when the color of the Columbia sediments, deposited in channels eroded into Potomac channels, are similar to the color of the Potomac sediments (Johnston, 1973).

In northern New Castle County, the Columbia Formation is generally thin, having an average thickness of about 30 feet, except in paleochannels where the maximum known thickness is about 105 feet. The Columbia thickens to the south and reaches a maximum thickness in excess of 150 feet. In the Newport area, the reported range of Columbia sediments thickness is 0 to in excess of 20 feet (Woodruff and Thompson, 1975).

Quaternary deposits that are younger than the Columbia Formation are apparently widespread near the Fall Zone. These Holocene sediments are mostly brown to yellow-brown sands, poorly sorted, cross-bedded, coarse to fine, contain large mica flakes, and on the average about 2 percent clay matrix. The geometry and the form of these sedimentary bodies, and their relationship to the stream valleys of the Piedmont, are strong indications that the Holocene sediments were deposited as alluvial fans. The deposition of the alluvial fans may have occurred during the last extensive Pleistocene flooding when a large volume of the sediments was brought into this area by the Piedmont streams (Spoljaric, 1972). For the purposes of this report, all of the deposits younger than the Potomac Formation are referred to as Columbia sediments.

4.2.2 Potomac Formation

The Potomac Formation consists of south eastward thickening wedge of sand, silt, and clay beds that were deposited by ancient streams as floodplain, channel, bar deposits, and perhaps by alluvial fans on crystalline bedrock. The Formation and its stratigraphic equivalents extend from Long Island southward to the mid-Atlantic States. The Potomac sand beds are important aquifers throughout the eastern United States provided they contain potable water.

Within the area of interest, the Potomac sediments comprise more than 50 percent of the total sequence of the Coastal Plain sediments. The geometry of the sand bodies is characterized by shoestring form, are discontinuous, and thus, they are difficult to correlate laterally. In other words, distinct marker beds, which are so important for a proper subsurface correlation of sedimentary units, are missing in the Potomac Formation (Spoljaric, 1979). The Potomac Formation thickens to the southeast and sandy units tend to occur in the lower half of the formation.

As part of the Chesapeake-Delaware embayment, a structural low which is largely filled with Potomac sediments, the fluvial environment responsible for the deposition of the Potomac Formation probably consisted of a meandering stream system as evidenced by the relatively low ratios of sand to clay, the presence of fine-grained overbank deposits, and abundant lignite. Another reference as to the depositional environment of the Potomac Formation deposits indicates that they were laid down by a system of coalescing alluvial fans and, therefore, the sand beds tend to have lenticular geometry, limited lateral continuity, and interbedded finer sediments (Martin and Denver, 1982).

The Potomac typically is divided into an upper and lower sandy section. The thickness of the upper sandy section may include thin interbedded clays or silts and is measured from the first Potomac sand lying beneath the Columbia Formation downward to the top of a mappable clay. The clay underlying the upper sandy interval occupies about the middle one-third of the Potomac Formation and hydrologically separates the upper sands from the lower sandy unit (Woodruff, 1985). Some workers have further subdivided the Potomac Formation by suggesting a middle sandy zone, but this seems inapplicable in the area of Newport. The upper sandy unit is in direct contact with the overlying sediments of the Columbia Formation from the Greater Wilmington Airport area northward to the Christina River. Thus, in this area upper Potomac sands can be in direct contact with overlying Columbia sand beds and form a single hydrologic unit

(aquifer). The Christina River is located approximately on the northernwest edge of these upper sand beds (Woodruff, 1985).

By comparison, the lower sandy zone of the Potomac Formation extends further north than the upper sandy zone and underlies Columbia sediments in the entire area surrounding the Newport site until they pinch out at the Fall Zone. The relative positions of these various stratigraphic units are shown schematically in Figure 4-2, derived from Woodruff, 1985.

Well sorted, fine to medium sands generally make up the sandy fraction of the upper part of the formation, but sands may locally be coarse in channels. The lower part of the Potomac Formation is typically described as variegated red, gray, purple, yellow, and white, frequently lignitic, silt and clays containing interbedded white, gray, and rust-brown coarse sands and some gravel (Woodruff and Thompson, 1975).

4.3 HYDROGEOLOGY

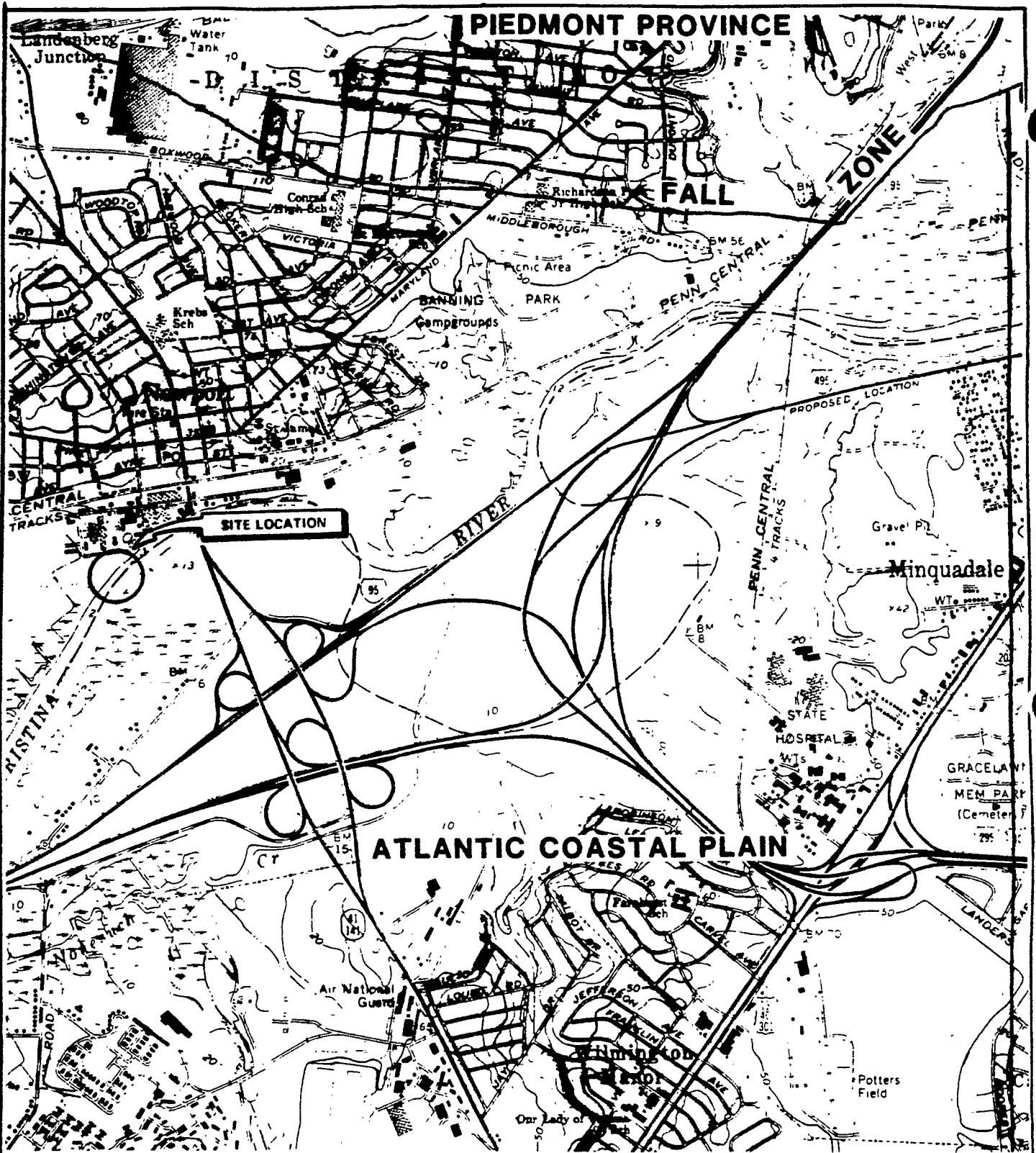
Because Holocene age sediments are not extensive or thick enough to be considered as significant sources of water supply, the Columbia and Potomac sands constitute the aquifers in this region. The Columbia deposits are part of an interdependent stream-aquifer system in the Delaware Coastal Plain. They comprise the uppermost, and most permeable, section of saturated sand in the water table aquifer throughout most of Delaware. These Pleistocene deposits receive most recharge reaching the water table and are the outlet for most ground-water discharge. The small Coastal Plain streams that are incised into the upper part of the Columbia deposits derive much of their flow from ground-water runoff. Except for periods of overland runoff, the streams act as shallow drains from the aquifer. Precipitation and evapotranspiration rates determine the recharge rate to the aquifer, and, in turn, changes in storage in the aquifer closely control the base flow of the draining streams (Johnston, 1973). Much vertical recharge to deeper aquifers probably takes place through the Columbia Formation.

Although not in the Newport area, many shallow domestic wells and irrigation wells tap Columbia sands in northern Delaware. There are even some high-yielding industrial wells where drilling has encountered thick Columbia paleochannels (Woodruff, 1969). However, due to the relatively thin nature of the Columbia sands near the Newport area, they are not considered a significant source of water supply in this area. Perhaps their most important hydrologic function here is to provide recharge to deeper underlying lower aquifer of the Potomac Formation (Woodruff, 1984).

The sands of the Potomac Formation in the northern part of the Coastal Plain are generally thin and irregular in extent and thickness. Although the average grain size of individual sandy units is usually constant over short lateral distances, the grain size varies widely among sands of the Potomac Formation as a whole and, therefore, the yield from the Potomac aquifers is highly variable. Despite the yield variability, the Potomac aquifers serves as the major sources of water supply in the area.

As mentioned earlier, the upper and lower sands of the Potomac Formation typically operate as separate hydrologic units (Woodruff, 1984). Because the upper sandy zone appears to subcrop to the south of the Newport area, the lower Potomac aquifer is apparently the only Potomac unit encountered at the Newport site. The potential for recharging water into both the upper and lower Potomac aquifers has been evaluated on the basis of physical properties of the sediments and on water table evaluations and flow directions. The lower Potomac aquifer is largely recharged in an area north of the Newport site when major ground water withdrawals from the lower Potomac are not occurring in adjacent areas (which condition presently exists). The upper Potomac aquifer is probably recharged in a large area southwest and northeast from the Greater Wilmington Airport (Woodruff, 1984). Consequently, the Newport site is not located in the recharge area of the upper or lower Potomac aquifer.

From an analysis of ground water flow between hydrologic basins, the Newport area along the Christina River has been specifically noted in the literature for its lack of flow in the lower Potomac aquifer into adjoining areas. In fact there is "excess ground water in the Potomac Formation which appears to be discharging to the Christina River" (Woodruff, 1984). Figure 4-3 shows the general area of probable discharge in the vicinity of Newport that has been mapped by the Delaware Geological Survey (Petty et al; 1983). The prime significance of this data is that ground water (and contaminants) in the lower Potomac aquifer at the Newport Landfill site is apparently discharging to the Christina River and not flowing south or southeastward toward the Greater Wilmington Airport or Wilmington Manor areas where active public water supply wells are located.



SOURCE: WOODRUFF (1984)

**PHYSIOGRAPHIC PROVINCES
AFTER PETTY, ETAL (1983)
DELAWARE-NEWPORT SITE**

WOODWARD - CLYDE CONSULTANTS
CONSULTING ENGINEERS, GEOLOGISTS AND ENVIRONMENTAL SCIENTISTS
WAYNE, NEW JERSEY

DR BY	TJD	SCALE	AS SHOWN	PROJ NO	87C4540
CK'D BY	JR	DATE	14 MARCH 1987	FIG NO	4-1

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FALL ZONE

NEWPORT NORTH
DISPOSAL SITE

CHRISTINA
RIVER

OLD
AIRPORT
ROAD

GREATER WILMINGTON
AIRPORT

MONITORING WELL

SUPPLY WELL

SUPPLY WELL

COLUMBIA

POTOMAC FORMATION CLAY/SILTS

LOWER POTOMAC FORMATION SAND UNITS

CRYSTALLINE BASEMENT COMPLEX

UPPER POTOMAC
FORMATION SAND UNITS

NOTE:

DERIVED FROM WOODRUFF, 1965

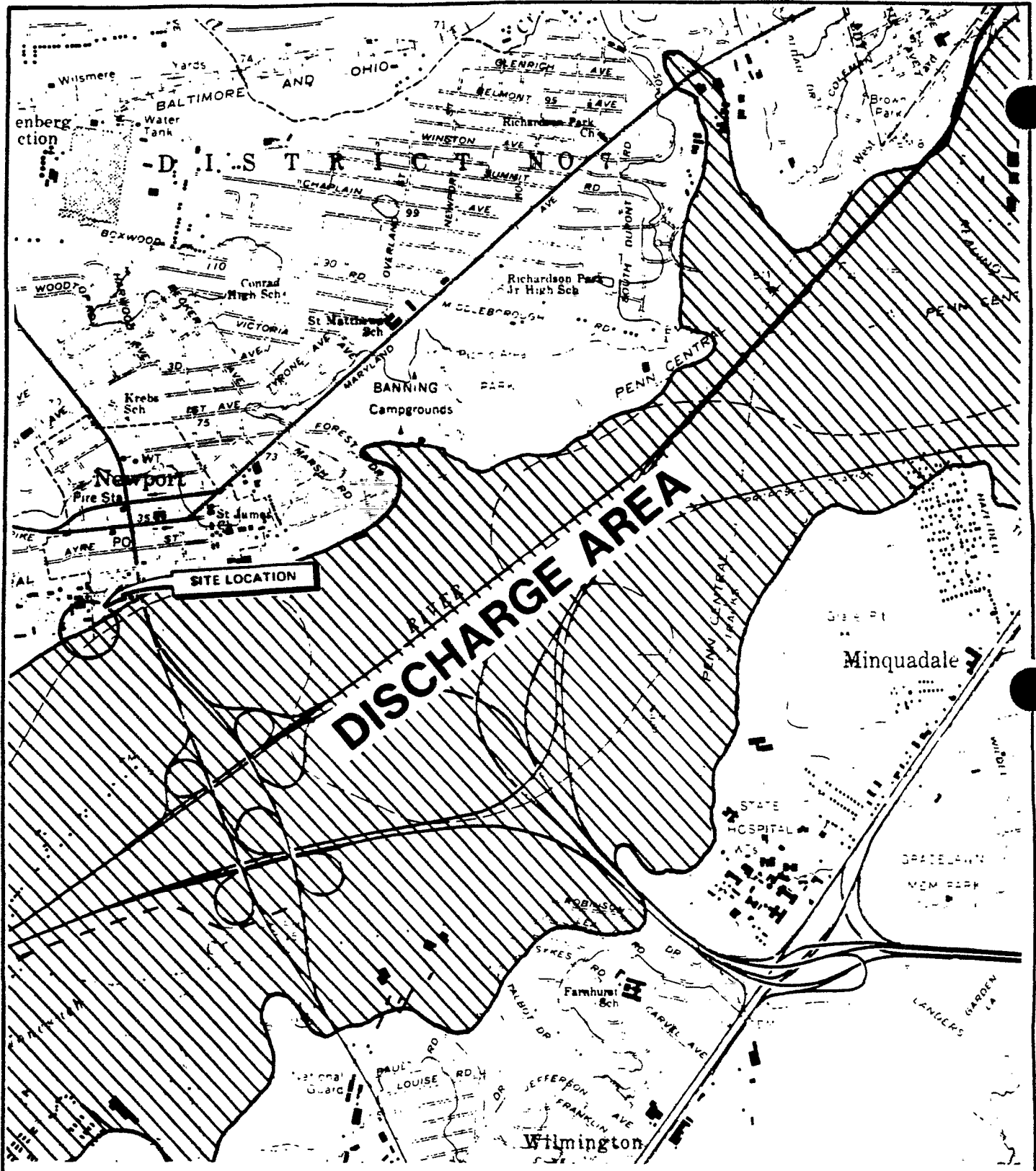
REGIONAL STRATIGRAPHY
CHUPONT-NEWPORT SITE
NEWPORT, DELAWARE

WOODWARD - CLYDE CONSULTANTS

CONSULTING ENGINEERS, GEOLOGISTS AND ENVIRONMENTAL SCIENTISTS
WAYNE, NEW JERSEY

DR BY: TJD	SCALE: NONE	PROJ. NO: 87C4848
CK'D BY: JR	DATE: 14 MARCH 1987	FIG. NO: 4-2

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SOURCE: PETTY, ETAL (1983)

REGIONAL DISCHARGE AREAS		
WOODWARD - CLYDE CONSULTANTS		
CONSULTING ENGINEERS, GEOLOGISTS AND ENVIRONMENTAL SCIENTISTS WAYNE, NEW JERSEY		
DR BY	TJD	SCALE AS SHOWN
CK'D BY	JR	DATE 14 MARCH 1987
PROJ NO 87CA540		FIG NO 4-3

100039

SECTION 5 SITE HYDROGEOLOGY

Some hydrogeologic investigations have been conducted at, and in the immediate vicinity of, the north disposal site. On the basis of monitoring well and boring descriptions, as well as the ground-water level monitoring program conducted by Du Pont, an initial model of ground water flow can be made. These hydrogeologic deductions provide the basis for inferring the fate of contaminants introduced into the ground-water system can be evaluated in terms of migration potential.

5.1 BORINGS/MONITORING WELLS

In addition to the previously existing supply wells WW-11 and WW-13, 16 test borings and 13 monitoring wells were installed by Du Pont from 1975 to 1981 to evaluate the geologic and hydrogeologic conditions in the vicinity of the site. Table 5-1 provides a summary of the construction data and current operational status of all of the monitoring wells and supply wells. In addition to WW-11 and WW-13, ten of the original 13 monitoring wells are presently utilized to monitor ground water quality and water levels. These data have been collected quarterly and submitted to the Delaware Department of Natural Resources and Environmental Control.

The locations of the two supply wells and 13 monitoring wells involved since 1975 in the ongoing evaluation program as shown in Figure 5-1. The majority of the wells are located north of the Christina River. Boring logs for selected representative wells are included in Appendix A.

5.2 STRATIGRAPHY

Site stratigraphy is based on a number of borings and monitoring wells constructed between 1969 and 1981. The deepest boring, DM-7, was drilled to a depth of 155 feet on the south side of the Christina River. Material described as variegated silty sand with mica and labeled "decomposed rock", was encountered at a depth of 139 to 155 feet. In DM-8, which is located near the north end of the site, decomposed rock described as variegated silty clay with fine sand was identified from 84 feet to 125 feet below the surface. Thus the depth of bedrock, and correspondingly the thickness of the sediments overlying decomposed bedrock, increases from 85 feet on the north side of the site to 139 feet in a southerly direction across the site.

The oldest deposits resting on bedrock are sands, silts, and clays of the Potomac Formation and which range in thickness from approximately 50 to 100 feet across the site, with an average around 80 feet thick. Based on the boring logs, the Potomac Formation consists of variegated brown, red, gray and mostly medium to coarse sands and gravel with silt and clay; and red, white, gray variegated clays with sand and silt. As demonstrated by the generalized cross-section shown in Figure 5-2 (originally prepared by Du Pont) correlation between individual sand beds within the lower Potomac is difficult from boring to boring. Note that this cross-section is a compilation of most of the wells at the Newport site, rather than a specific linear arrangement along a typical cross-section.

Sediments of the Columbia Formation unconformably overlie the Potomac sediments; that is, they were deposited on an eroded, irregular Potomac surface. The average thickness of the Columbia sediments is 20 to 30 feet based on the boring logs. At specific locations the thickness can vary considerably in response to erosion of the Pleistocene sediments prior to deposition of the younger deposits or where Columbia channel sands have been deposited into deeply eroded into the Potomac sediments. Boring DM-6, perhaps, gives some indication of this possibility wherein Pleistocene sands and gravels might have been deposited in a

channel lithologically similar Potomac sediments. Consequently, precise identification of the top of the Potomac sediments can be difficult. If the complete interval of sands and gravels from 16 feet to 45 feet is considered Columbia sediments, then DM-6 would represent the location of the thickest and deepest Pleistocene deposits.

Based on the boring logs, the Columbia sediments are: gray, brown mostly silts and fine to coarse sands with some gravel; and variegated clays. Correlation of individual sands and/or clay beds in the Columbia between borings is difficult. The irregular vertical and lateral distribution of the individual Columbia sand and clay and is also suggested in Figure 5-2, where correlation of individual units between borings is difficult.

Holocene deposits unconformably overlie the Columbia sediments. Although the depth of this unconformity cannot, of course, be determined from the boring logs, these recent sediments are probably comprised of the relatively thin silts, clays and organics identified in the uppermost intervals of many of the borings. Some of the Holocene deposits likely to be indistinguishable from the uppermost Columbia sediments. In this report, the Holocene deposits are included with the Columbia sediments.

5.3 AQUIFERS

The aquifers at the site are the sand units of the Columbia and Potomac Formations. The various sand beds in the Columbia are hydraulically connected and therefore respond as a single unconfined, water table aquifer. This shallow aquifer typically responds to variations in precipitation and is recharged directly by rainfall. In addition, the tidal readings taken in the Christina River in conjunction with ground water level measurements suggest that the Columbia aquifer also responds hydraulically to changes in tidal influence on water levels in

Christina River. The depth to the water table below ground surface ranges from approximately 7 feet below ground at the north end of the site to ground surface at the Christina River.

The sand units of the Potomac Formation constitute the lower aquifer at the site. As suggested by the approximately 20 to 30 foot separation in screen depths of the supply wells WW-11 and WW-13, several different Potomac sand beds capable of commercial quantities of water appear to exist in this area. However, based on water level measurements collected in the Potomac Formation from monitoring wells screened in a variety of sand intervals, the Potomac Formation does appear to act as a single hydrologic unit.

As discussed previously, the hydrologic units within the Potomac Formation have been separated into the lower Potomac, upper Potomac, and, perhaps a middle Potomac aquifer. According to Woodruff (1985), the upper sandy unit of the Potomac is present south of the Christina River in the Newport area, but does not extend north of the River. Consequently, the Cretaceous sand aquifer encountered at the site appears to belong to the lower sandy zone or lower Potomac aquifer.

The spatial distribution of the interbedded clay layers within and between the Columbia and Potomac sediments determines the hydraulic communication between the Columbia aquifer and the Potomac aquifer. The Delaware Geological Survey has indicated that in some cases the sands of the Potomac Formation and the sands of the Columbia Formation may act as single hydrologic unit (Woodruff, 1981). At the Newport site, the differences in the elevations of the water table in the Columbia aquifer versus the potentiometric surface in the Potomac aquifer indicate that these aquifers are separate hydrologic units. However, available evidence suggests that hydraulic communication does occur between the Columbia and Potomac aquifers.

The 1976 Newport site hydrographs prepared by Du Pont (Figure 5-3) corroborate this conclusion. The hydraulic communication between the two aquifers is discerned by comparison of water levels in the middle of July when one or both of the supply wells, WW-11 and WW-13, were turned off. Not only do the water levels in the two supply wells quickly recover, but all of these monitoring wells recover quickly when the pumping ceased. Thus, the interbedded clay layers separating the Columbia and Potomac aquifers do serve as aquitards which retard vertical movement of water between the two aquifers, but they apparently do not prevent hydraulic communication between the aquifers. As previously discussed, the clay beds are discontinuous, thus, no continuous barrier retarding vertical flow is present at the site.

5.4 GROUND-WATER MOVEMENT

In order to evaluate more fully the movement of ground water at the Newport site both laterally and vertically, the water level data collected over a number of years by Du Pont was evaluated. Although a number of hydrologic factors, such as rainfall, regional water levels, tidal influences, etc., impact the water levels of both aquifers to varying degrees at the site, the most striking impact is associated with ground water withdrawals from the supply wells WW-11 and WW-13. As an example, Figure 5-4 (prepared by Du Pont personnel) has been included here to demonstrate the magnitude of the cone of depression created by pumping WW-11. Withdrawals from WW-13 have similar impacts on the potentiometric surface of the Potomac aquifer. In contrast, a fairly uniform hydraulic gradient within the Potomac aquifer exists across the site when neither of the supply wells are being pumped.

Since 1980, WW-11 and WW-13 have not been pumped for supply purposes at the Newport plant. Consequently, cones of depression previously present have ceased to exist. To evaluate the movement of ground water at the site subsequent

to 1980, water table and potentiometric surface contour maps were prepared on the available water level data. As representative examples, Figures 5-5 and 5-6 depict ground-water elevations measured on-site in October 1986.

Figure 5-5, which is superimposed over a base map for the site, shows the typical contour pattern of the potentiometric surface in the Potomac aquifer. The fairly uniform direction of ground-water movement in response to the existing hydraulic gradients is toward the southeast on the north side of the Christina River. The ground-water elevations in monitor wells DML-7 and DMU-7 do not vary enough to make a strong definitive statement of the direction of ground-water movement in the Potomac aquifer on the south side of the Christina River. However, during measuring episodes when water levels were available for DM-5 or DM-4, the majority of the water level data suggest a small degree of horizontal flow component within the Potomac aquifer to the northwest (toward the Christina River). These data are supported by Woodruff (1984), wherein excess water in the lower Potomac aquifer is reported to discharge to the Christina River.

In comparison, the contour map of the October 1986 ground-water elevations in the Columbia aquifer (Figure 5-6) suggests a more intricate and varied movement of ground water in response to hydraulic gradients in the water table aquifer. This interpretation of the available data is based on the apparent relationship between surface topography and the depth to the water table in the Columbia aquifer. In the northern portion of the site, there is a fairly uniform southerly flow of ground water. However, the apparent discharge of ground water from the Columbia aquifer into the lowlands adjacent to the Christina River appears to have a strong control over the radial direction of ground water flow away from the mounded landfill area itself along the north side of the river. This is not an unexpected phenomenon since the Columbia aquifer is commonly considered the source of base flow in the streams in this area (Johnston, 1973).

With respect to the north disposal site, precipitation infiltrates the fill materials and then is discharged to the Christina River and the intermittent tributary of the River on the north and west sides of the landfill.

5.5 RECHARGE/DISCHARGE

As discussed earlier, on a regional basis the Columbia aquifer frequently serves a very important hydrologic function by providing recharge to the deeper underlying sand units of the Potomac Formation. This basically occurs in areas where the elevation of the water table in the Columbia aquifer is higher than the potentiometric surface elevation within the Potomac aquifer. The degree to which this type of recharge occurs depends on the magnitude of the difference in the water level elevations of the two aquifers and the vertical permeability of the aquicludes, or lack of, which separate the two hydrologic units.

Where the potentiometric surface elevation in the Potomac aquifer is higher than the water table elevation in the Columbia aquifer, the potential exists for the movement of ground water upward from the Potomac to the Columbia in response to the vertical upward hydraulic gradient. Even if there is no net vertical upward flow of Potomac water, the vertical gradient in this type of situation prevents the downward movement of ground water from the Columbia into the Potomac.

By overlaying the contour maps of the water level elevations in the Columbia and Potomac aquifers, the relative head differences and direction of vertical hydraulic gradients can be discerned. The net result of this comparison is shown in Figure 5-7. As the available data suggest, the artificially mounded landfill on the north side of the Christina River has higher water level elevations than the Columbia aquifer. Consequently, the potential exists for localized downward vertical movement of ground water.

The general area to the north and northeast of the site also has head differences suggestive of a recharge area. In contrast, the Christina River and associated lowlands surrounding the landfill have an apparent upward vertical hydraulic gradient and thus are potential discharge areas as suggested by Woodruff (1984). The areas identified in Figure 5-7 as discharge areas correspond to the discharge area shown by Petty et al. (1983), but show the boundaries in greater detail in accordance with the specific drainage patterns associated with the Christina River lowlands at the Newport site.

5.6 CONTAMINANT MIGRATION

Monitoring wells in the area of the north disposal site typically show evidence of contamination by barium, cadmium, and zinc. Available ground water quality monitoring data and included as Appendix B.

Upgradient shallow wells (SM-2 and SM-5) show no or low levels of these metals. However, shallow wells SM-3, and SM-4, at the southern limit of the north disposal site typically contain these metals in concentrations at or above their respective drinking water standards. Trichloroethylene and tetrachloroethylene have also been reported in SM-3, at concentrations between 10 and 100 ug/l. In SM-1, just north of the Christina River east of the north disposal site, only barium appears in ground water in significant concentrations (i.e., above its drinking water standards).

A somewhat similar pattern is seen in the deep (Potomac Formation) wells north of the Christina River. Monitoring well DM-3, at the southern boundary of the north disposal site, typically shows the highest levels of contamination observed, with concentrations of cadmium and zinc well above their respective drinking water standards, and concentrations of tetrachloroethylene typically above 200 ug/l. Trichloroethylene has also been detected in low concentrations

(less than 10 ug/l) at this location. Relatively low contaminant concentrations are observed in DM-6, at the southwest corner of the site, with levels of cadmium slightly above drinking water standards (typically 0.02 to 0.03 mg/l).

The deep wells upgradient of the north disposal site include the two former water supply wells (WW-11 and WW-13), DM-1, which is just north of the north disposal site, and DM-8, which is on the plant site to the northeast. The water supply wells typically contained cadmium above 0.01 mg/l while they were in operation. Since these wells have stopped pumping, cadmium levels are generally below the drinking water standard of 0.01 mg/l. Well DM-1, north of the disposal site, also contained levels of barium and cadmium above drinking water standards during 1977-1980, possibly as a result of flow to the north from the landfill induced by the water supply wells during their operation. Well DM-8, northeast of the landfill, also shows evidence of contamination by cadmium, zinc, and tetrachloroethylene.

Although the Christina River appears to represent a boundary to contaminant migration from the north disposal site, some contamination has been observed in monitoring wells in the Potomac Formation south of the river (DM-4/5, DML-7 and DMU-7). Cadmium, barium, and tetrachloroethylene have been observed in the DM-4/5 well pair. The heavy metal contaminants associated with the site (barium, cadmium, and zinc) have not been observed in the DML-7/DMU-7 pair south of the north disposal site, indicating that southerly migration of these contaminants has not occurred. However, recent data suggests the presence of tetrachloroethylene in the shallower well, DMU-7. Water quality data in wells south of the Christina River suggests a separate source of contaminants in this area.

Recent water quality data also indicates some localized ground water containing radioactivity levels which exceed drinking water standards. Some disposal of thoriated nickel (a radioactive substance in an insoluble metal matrix) has occurred at the north disposal site. However, regional geologic data

(less than 10 ug/l) at this location. Relatively low contaminant concentrations are observed in DM-6, at the southwest corner of the site, with levels of cadmium slightly above drinking water standards (typically 0.02 to 0.03 mg/l).

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Recent water quality data also indicates some localized ground water containing radioactivity levels which exceed drinking water standards. Some disposal of thoriated nickel (a radioactive substance in an insoluble metal matrix) has occurred at the north disposal site. However, regional geologic data

(Woodruff and Thompson, 1975) indicate the presence of pegmatitic veins and lignitic clays, these geologic features are commonly associated with high levels of naturally occurring background radiation. The available data are insufficient to determine whether background radiation or waste disposal at the North Disposal site are contributing to the observed levels of radioactivity.

The overall conclusions regarding the hydrogeology of the local Columbia and Potomac Formations can be applied to an evaluation of the migration of contaminants in the ground-water system relative to the north disposal site. For example, if the concentrations of cadmium are historically reviewed for the monitoring wells, DM-8 stands out as a well location where notable concentrations of cadmium have continuously been measured in the Potomac Formation from 1981 to 1987. Because the adjacent Columbia monitor well, SM-5, has never shown high cadmium concentrations, the cadmium source is not in the immediate vicinity of DM-8. The most plausible explanation of cadmium concentrations at this location is related to the directional flow components of local ground-water movement between and within the Columbia Formation and the Potomac Formation associated with previous ground water withdrawals from supply wells WW-11 and WW-13.

Recognizing the waste disposal in the area and ground water withdrawals from WW-11 and WW-13 extended over a period of decades, the cadmium concentrations in ground-water samples from DM-8 reflect: 1) the vertical downward gradient between the Columbia aquifer and the Potomac aquifer at the disposal site; and 2) the downward vertical gradient and northerly component of horizontal flow in the Potomac aquifer temporarily created by the cone of depression induced by ground water withdrawals in WW-11 and WW-13. Because these supply wells were only taken out of service about 1980, the return of the vertical and horizontal flow components to the apparent present day conditions has not existed over a significantly long enough period of time to allow removal of contaminants from the Potomac aquifer in the immediate vicinity of DM-8.

Thus the DM-8 cadmium concentrations reported since 1981 probably are relics or artifacts of the downward and northward flow gradient that existed only when WW-11 and WW-13 served as active water supply wells. Since their abandonment, however, the flow gradients in the Potomac aquifer have reversed to the normal southward horizontal flow and the normal vertical upward gradient near the supply wells. In fact, the cadmium concentrations in DM-8 have consistently declined since 1983. Although the cadmium levels in WW-11 and WW-13 were never very high, they have likewise dropped significantly in the last seven to ten years, along with decreasing levels of zinc and barium.

The hydrogeologic deductions can also be utilized with regard to the low cadmium and zinc concentrations in DM-6, which lies at the immediate southwestern edge of the north disposal site, versus the very high cadmium and zinc concentrations at DM-3, in the main landfill area. The vertical downward gradient from Columbia to the Potomac set up by the artificial mounding of material on the landfill (to an elevation in excess of 25 feet above sea level) has apparently been responsible for the movement of the contaminants down into the Potomac aquifer at the DM-3 monitoring well location. In strong contrast, an upward vertical gradient from the Potomac aquifer typically exists in the area of discharge essentially surrounding the northern landfill site, as indicated by the data reviewed for this analysis and corroborated by Woodruff's (1984) reporting of Potomac aquifer discharge into the Christina River. This upward gradient in the lowlands along the Christina River has apparently prevented any significant downward movement of contaminants into the Potomac aquifer. Monitor well SM-4 shows very high cadmium and zinc levels as does DM-3.

Another very interesting observation regarding SM-4 is that since at least 1982, this well has shown a decreasing trend in both cadmium and zinc. This might reflect an increased upward gradient in the Potomac aquifer since the curtailment of pumpage from WW-11 and WW-13, which decreases movement of contaminants into the Columbia adjacent to the landfill.

Therefore, general contaminant migration scenario associated with the north disposal site could be described as follows. Within the mounded landfill perimeter contaminants have likely migrated downward into the Potomac sediments in response to the artificially induced vertical downward gradient. This "island of recharge", however, is surrounded by an area of probable discharge from the Potomac Formation due to the upward vertical gradients. As shown schematically in Figure 5-8, the net effect of these hydrogeologic conditions could conceivably be that virtually all of the contaminants in the Potomac aquifer derived from the north disposal site are gradually being discharged into the Christina River.

The lack of contaminant migration in the Potomac aquifer southward beyond the Christina River is indicated from the analyses of cadmium, barium, and zinc in monitoring wells DMU-7 and DML-7, which are also located on the south side of the Christina River. These wells, screened at 50-foot and 140-foot depths, respectively, show no sign of any significant heavy metal contamination. The recent observation of tetrachloroethylene concentrations in DMU-7 (but not DML-7) suggest another source of ground-water contamination somewhere on the south side of the Christina River. Presence of heavy metals (cadmium, zinc and barium) and tetrachloroethylene at the DM-4/DM-5 location south of the river also indicates a potential source on the south side of the river.

The results of this hydrogeologic evaluation address the potential for contaminant migration from the northern landfill site to potential ground-water users south of the Christina River. The probable source of water in the Columbia aquifer along Old Airport Road is local infiltration of precipitation. At the Newport plant site, all available evidence suggests that water in the Columbia aquifer discharges locally to the Christina River or its tributaries. With respect to the Artesian Water Company-Wilmington Airport wells, ground water flow is upward in the lower Potomac near the north disposal site and apparently discharges into the Christina River as Woodruff (1984) reported, whereas recharge to the Potomac aquifer several miles south of the plant site is by local vertical infiltration.

TABLE 5-1

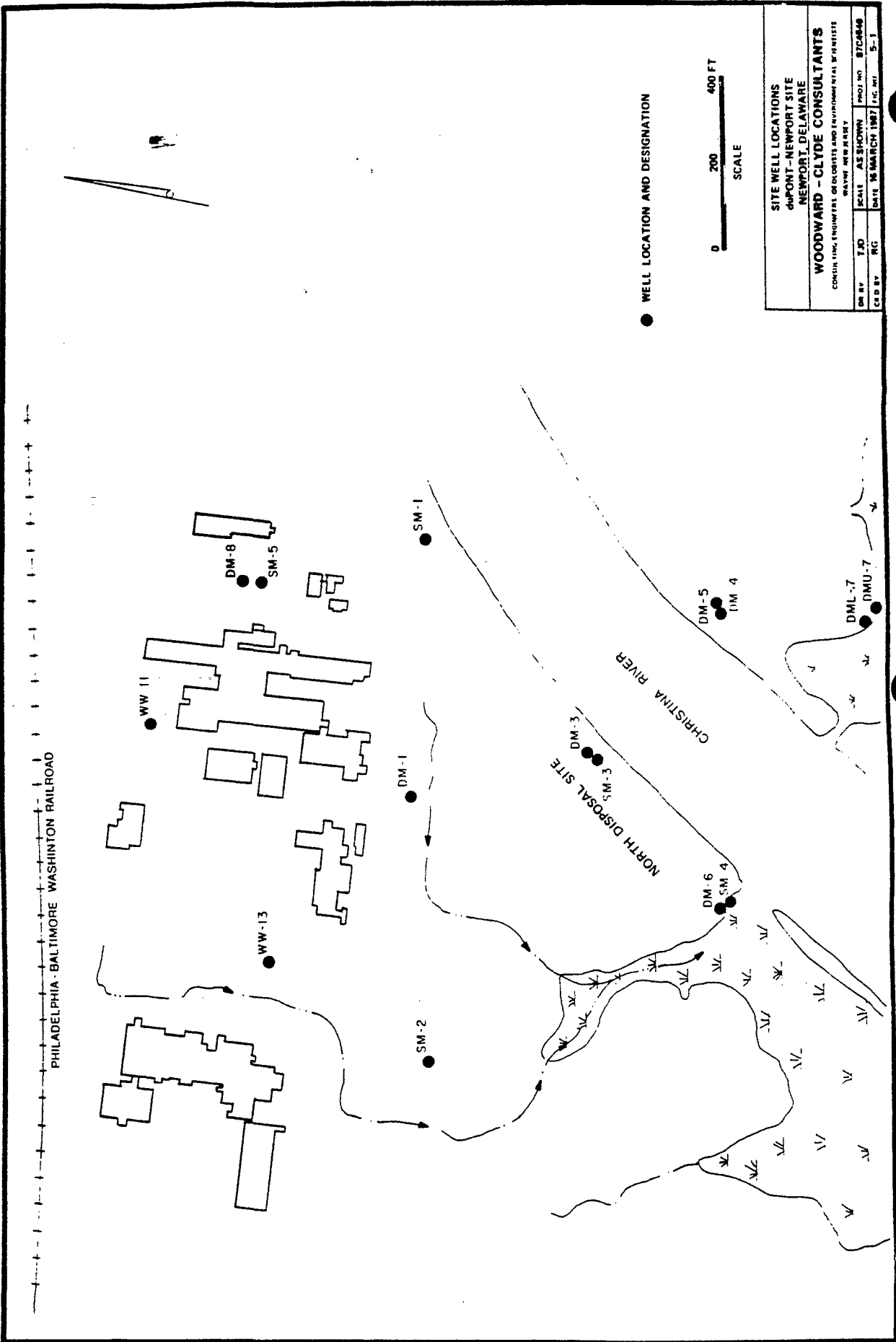
NEWPORT PLANT
MONITOR WELLS

<u>Designation</u>	<u>TD</u>	<u>Screened Interval</u>	<u>Aquifer</u>	<u>(MSL) Ground Elevation</u>	<u>Status</u>
SM-1	24'	17' - 21'	Columbia	21.1'	Active
SM-2	25'	21' - 25'	Columbia	13.5'	Active
SM-3	35'	33' - 35'	Columbia	25.0'	Active
SM-4	51'	20' - 25'	Columbia	3.1'	Active ⁽¹⁾
SM-5	20'	15' - 20'	Columbia	18.6'	Active
DM-1	56'	27' - 31'	Columbia	16.0'	Plugged
DM-3	63'	53' - 62'	Potomac	24.8'	Plugged
DM-4	51'	? - 51'	Potomac	7.6'	Active
DM-5	81'	53' - 63'	Potomac	7.7'	Plugged
DM-6	70'	60' - 70'	Potomac	3.1'	Active
DMU-7	50'	40' - 50'	Potomac	9.5'	Active
DML-7	155'	135' - 145'	Potomac	9.5'	Active
DM-8	126'	45' - 55'	Potomac	18.0'	Active
WW-11	65'	50' - 60'	Potomac	22.0'	Active ⁽²⁾
WW-13	112'	88' - 99'	Potomac	23.2'	Active ⁽²⁾

(1) Formerly DM-2; reclassified as SM-4 due to screened interval in Columbia

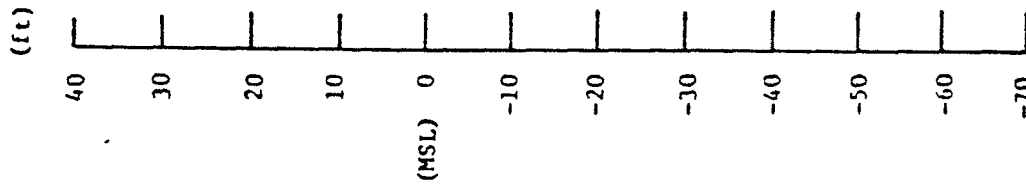
(2) Not utilized for supply purposes since approximately 1980

100052



SITE WELL LOCATIONS NEWPORT - NEWPORT SITE NEWPORT, DELAWARE			
WOODWARD - CLYDE CONSULTANTS <small>CONSULTING ENGINEERS OF CHEMISTS AND ENVIRONMENTAL SCIENTISTS</small> <small>WALTON WAREHOUSE</small>			
DR BY	L.R.D.	SCALE	AS SHOWN
CD BY	R.G.	DATE	16 MARCH 1987
		PROJ. NO.	87/0440
		DWG. NO.	5-1

100053

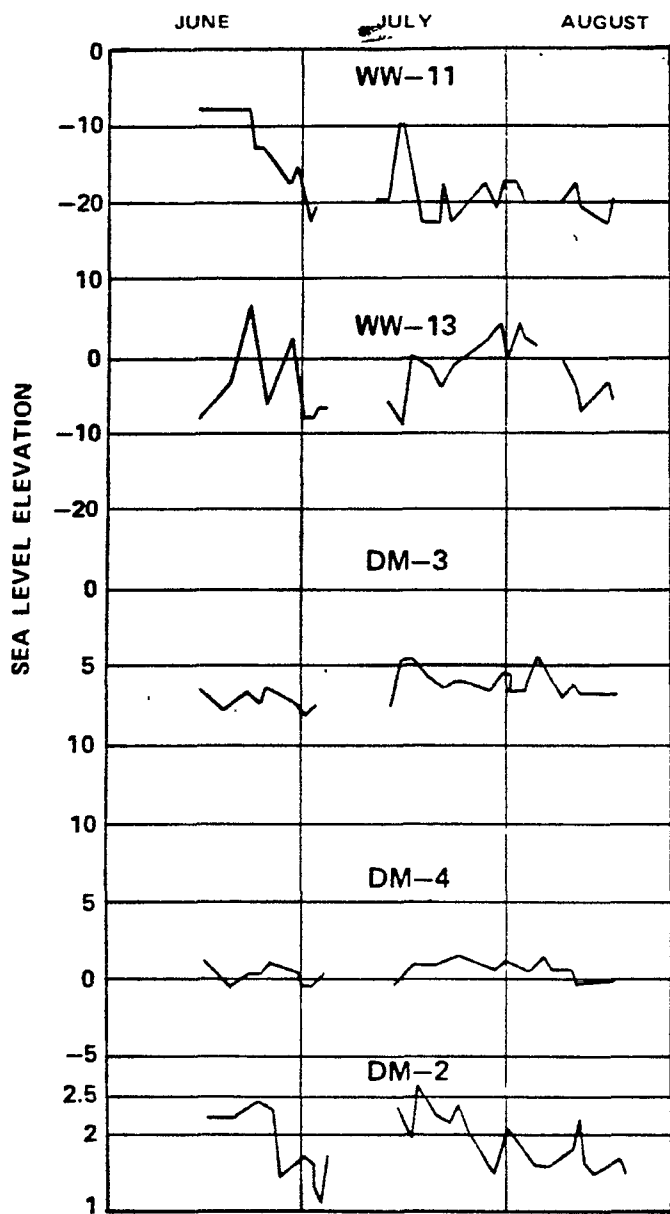


GENERALIZED GEOLOGIC CROSS-SECTION
 duPONT-NEWPORT SITE
 NEWPORT, DELAWARE

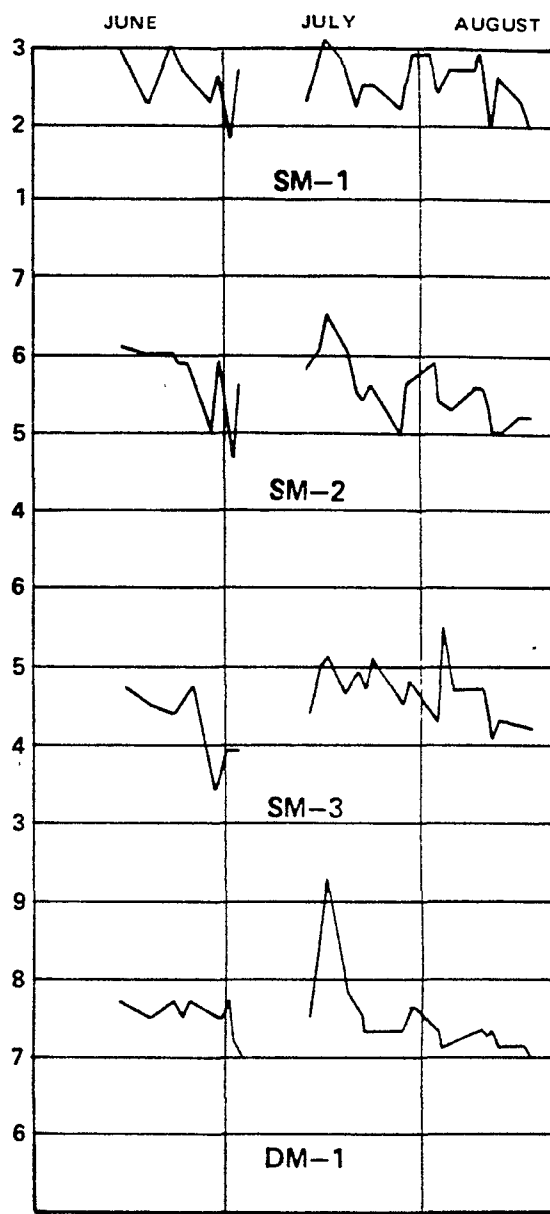
WOODWARD - CLYDE CONSULTANTS
 CONSULTING ENGINEERS, GEOLOGISTS AND ENVIRONMENTAL SCIENTISTS
 WAYNE, NEW JERSEY

DR BY	TJD	SCALE	AS SHOWN	PROJ NO	B7C4640
CK'D BY	RG	DATE	13 MARCH 1987	FIG NO	5-2

NOTE:
 FIGURE PROVIDED BY DUPONT
 NO HORIZONTAL SCALE



1976



1976

NOTE:

HYDROGRAPHS PROVIDED BY DUPONT

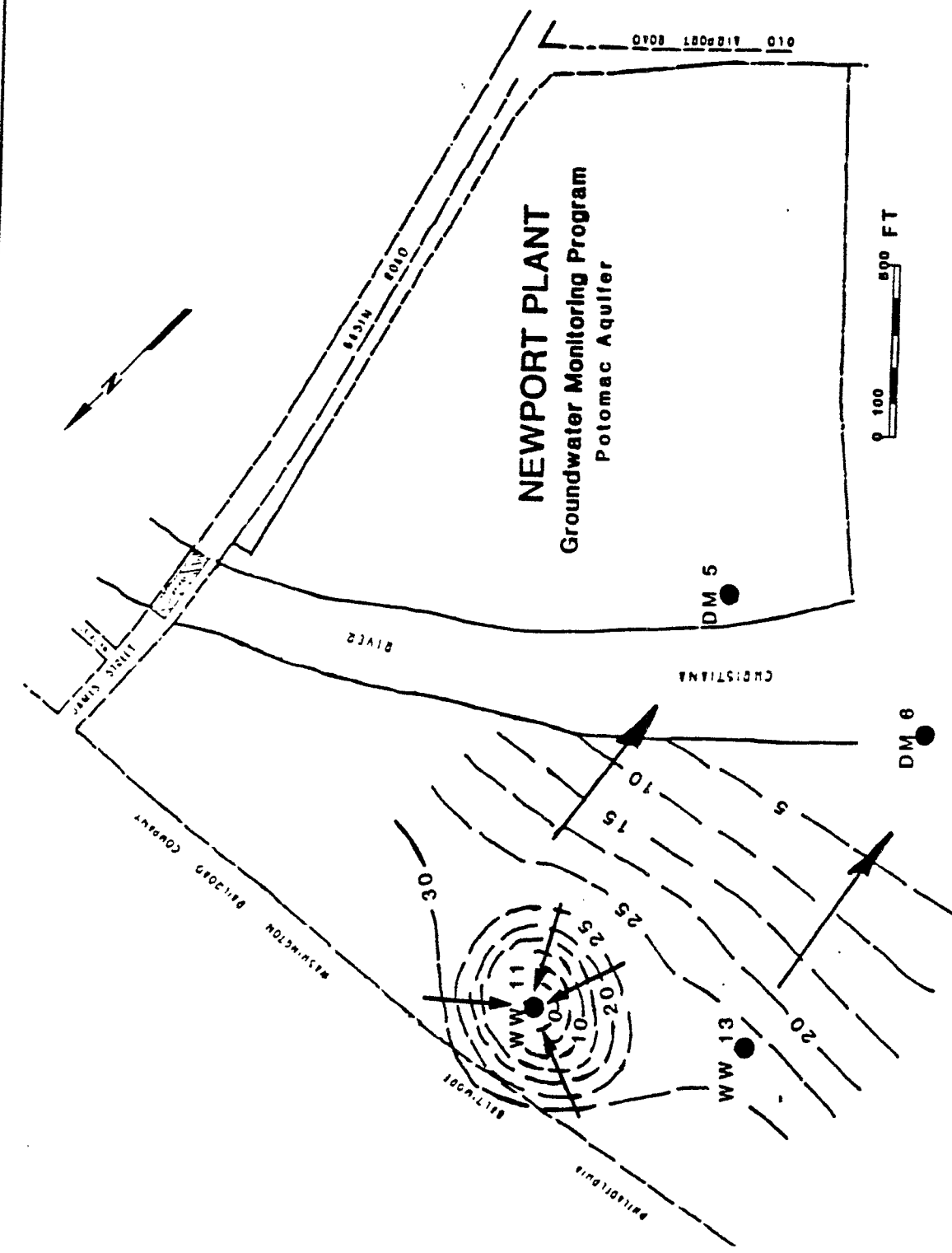
COLUMBIA AND POTOMAC AQUIFER HYDROGRAPHS
duPONT-NEWPORT SITE
NEWPORT, DELAWARE

WOODWARD - CLYDE CONSULTANTS

CONSULTING ENGINEERS GEOLOGISTS AND ENVIRONMENTAL SCIENTISTS
WAYNE NEW JERSEY

DR BY	TJD	SCALE	AS SHOWN	PROJ NO	B7C4540
CK'D BY	RG	DATE	13 MARCH 1987	FIG NO	5-3

100055

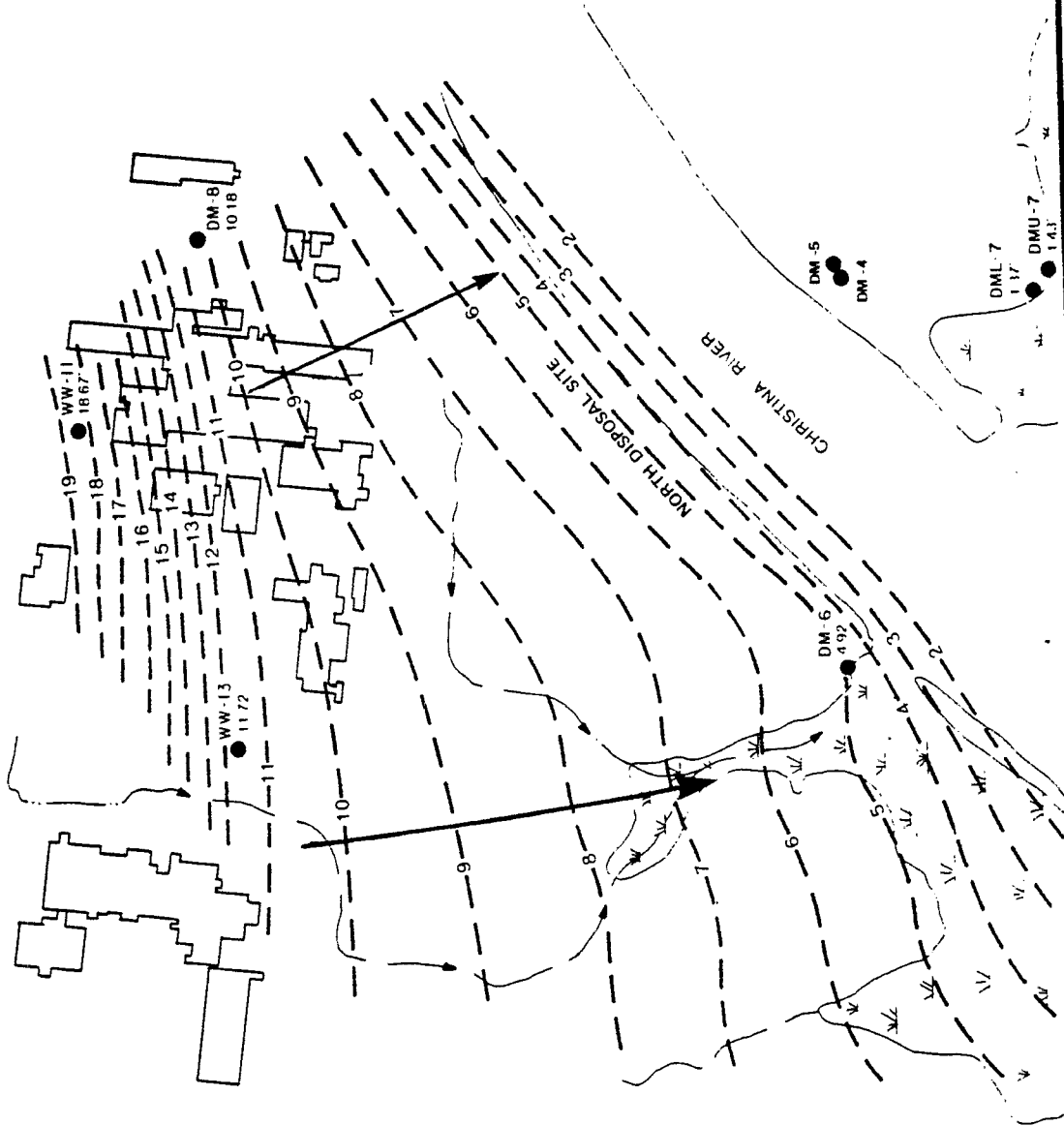
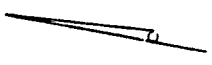


POTOMAC AQUIFER—PUMPING CONDITIONS			
duPONT—NEWPORT SITE			
NEWPORT, DELAWARE			
WOODWARD - CLYDE CONSULTANTS			
CONSULTING ENGINEERS, GEOLOGISTS AND ENVIRONMENTAL SCIENTISTS			
WAYNE, NEW JERSEY			
DM BY	TJD	SCALE: AS SHOWN	PROJ NO 87C4540
CK'D BY	RG	DATE 13 MARCH 1987	FIG NO 5-4

NOTE:
FIGURE PROVIDED BY DUPONT.

- LEGEND**
- 10 — Groundwater elevation in feet above MSL
 - Groundwater flow direction in Potomac aquifer
 - DM # Monitoring well

PHILADELPHIA BALTIMORE WASHINGTON RAILROAD



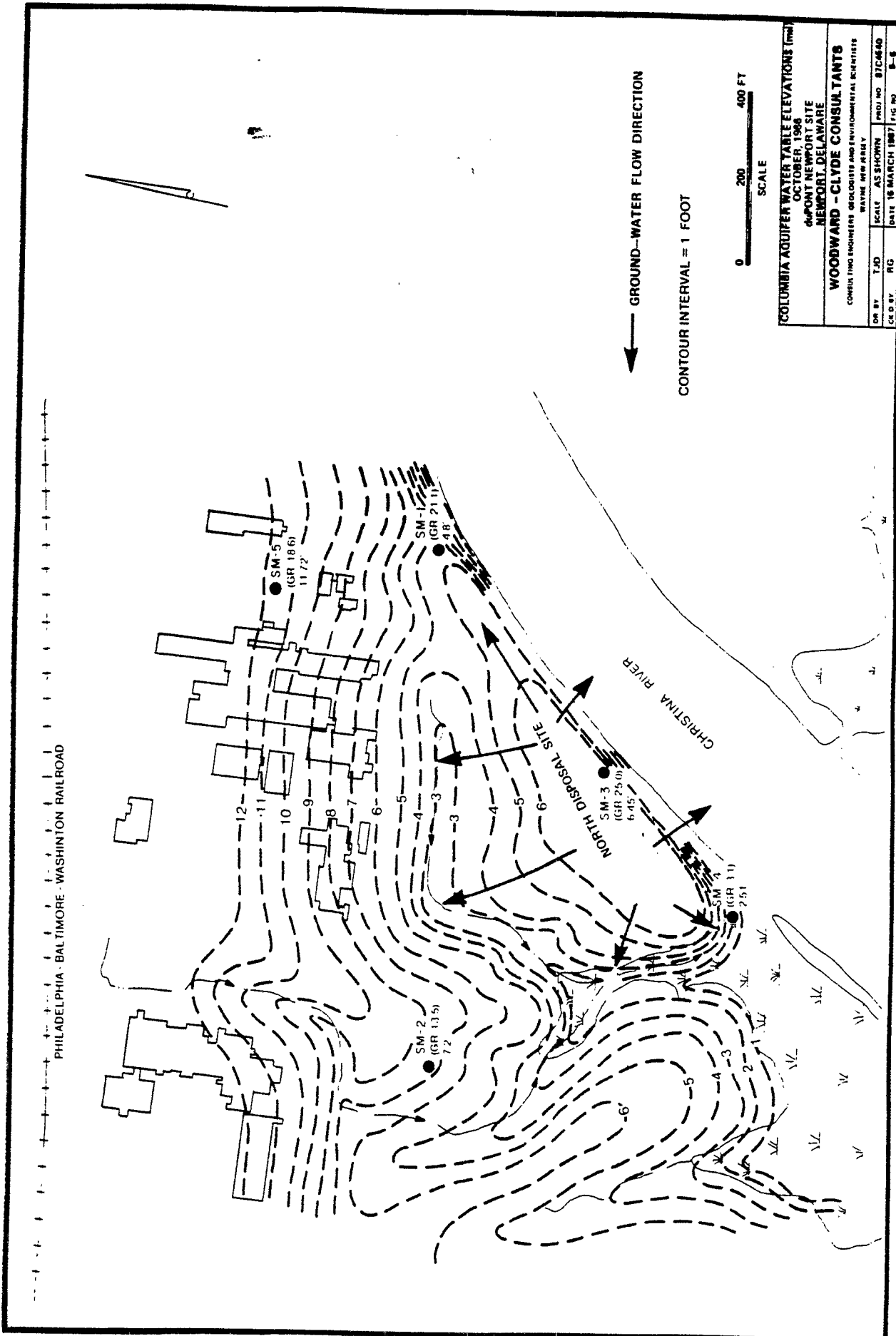
GROUND-WATER FLOW DIRECTION

CONTOUR INTERVAL = 1 FOOT



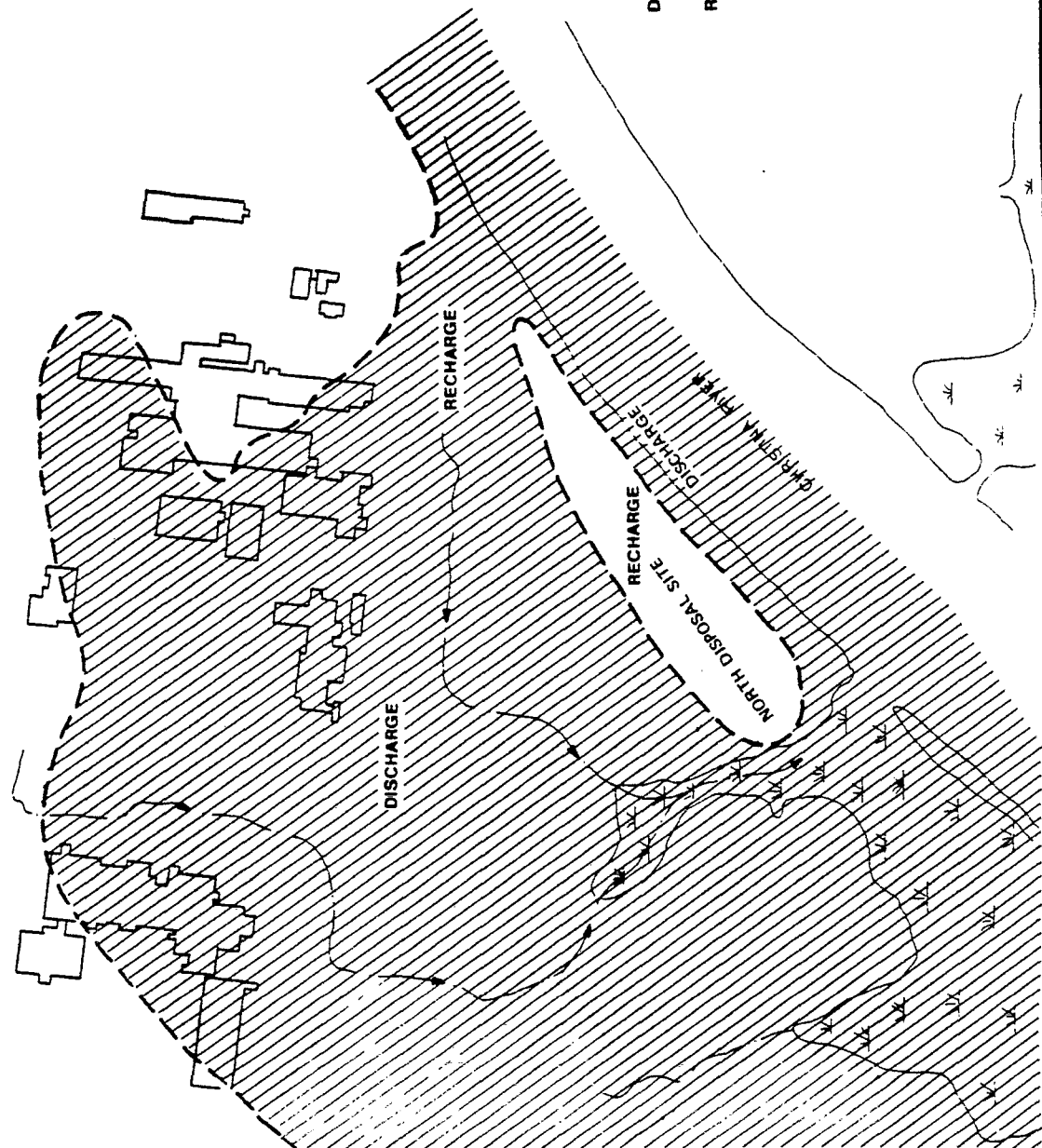
POTOMAC AQUIFER POTENTIOMETRIC SURFACE (mud)			
CONTINGENCY REPORT SITE			
NEWPORT, DELAWARE			
WOODWARD - CLYDE CONSULTANTS			
CONSULTING ENGINEERS, GEOLOGISTS AND ENVIRONMENTAL SCIENTISTS			
WAYNE, NEW JERSEY			
DR BY	TJD	SCALE	AS SHOWN
PROJ NO	87C0840	DATE	18 MARCH 1987
FIG NO	E-5		

100057



100058

PHILADELPHIA BALTIMORE WASHINGTON RAILROAD



DISCHARGE--WHERE HYDRAULIC HEADS INCREASE WITH DEPTH

RECHARGE--WHERE HYDRAULIC HEADS DECREASE WITH DEPTH



POTOMAC AQUIFER POTENTIAL RECHARGE/DISCHARGE AREAS NEWPORT, DELAWARE			
WOODWARD - CLYDE CONSULTANTS CONSULTING ENGINEERS GEOLOGISTS AND ENVIRONMENTAL SCIENTISTS BALTIMORE, MARYLAND			
DR BY	TJD	SCALE	AS SHOWN
CD BY	FIG	DATE	19 MARCH 1987
		PROJ NO	87C640
		FIG NO	8-7

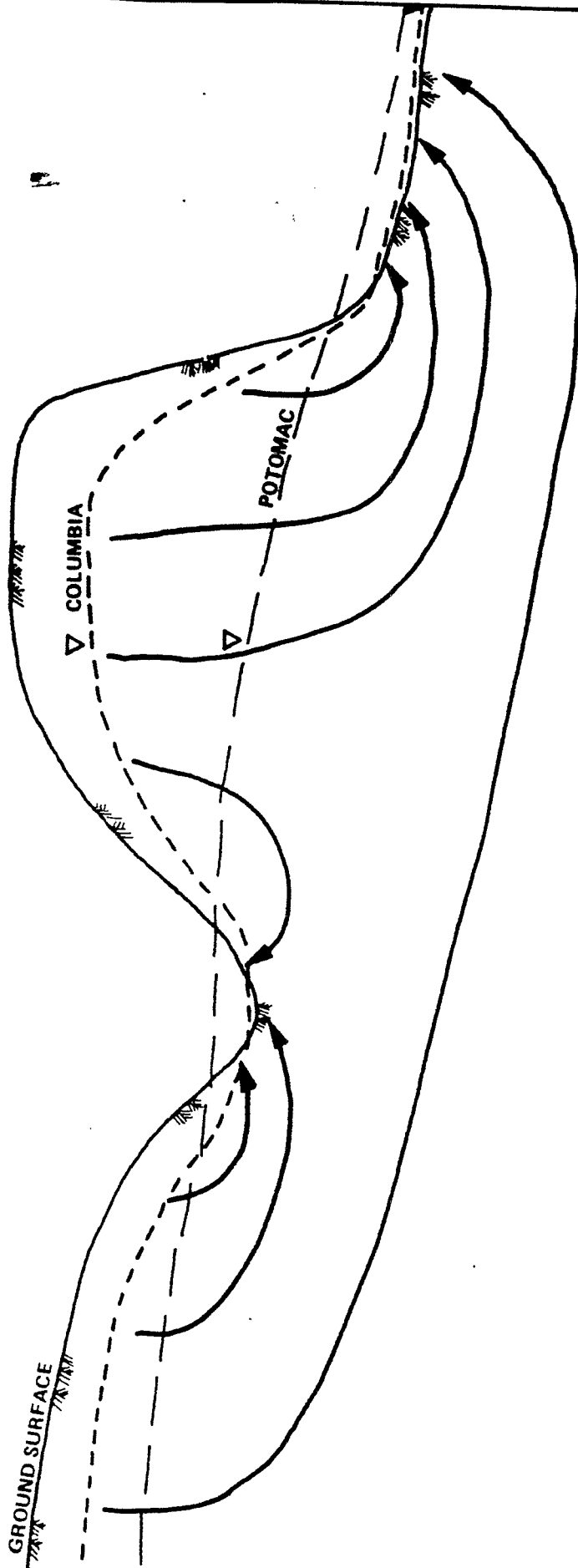
NW

SE

LOWLANDS
DRAINAGEWAY

NORTH
DISPOSAL
SITE

CHRISTINA
RIVER



LEGEND:

- COLUMBIA WATER TABLE ELEVATION
- POTOMAC POTENTIOMETRIC SURFACE
- GROUND-WATER FLOW DIRECTION

GENERALIZED GROUND-WATER MOVEMENT			
NORTH DISPOSAL SITE			
NEWPORT, DELAWARE			
WOODWARD - CLYDE CONSULTANTS			
CONSULTING ENGINEERS, GEOLOGISTS AND ENVIRONMENTAL SCIENTISTS			
WAYNE, NEW JERSEY			
DR. BY: TJD	SCALE: NONE	PROJ. NO.: 87CA040	
CK'D BY: JR	DATE: 14 MARCH 1987	FIG. NO.: B-8	

100001

SECTION 6 POTENTIAL RECEPTORS

Water supplies in the vicinity of the site were identified as potential receptors of ground-water contamination from the north disposal site. Three potential receptors were identified. These included two public water supplies in the area - the Artesian Water Company, and Wilmington Suburban Water Corporation. In addition, one area of local ground water usage via private wells was identified - along Old Airport Road southwest of the site. The following sections briefly describe available information concerning these potential receptors. Figure 6-1 illustrates the locations of the ground-water supplies within 3 miles of the site.

6.1 WILMINGTON SUBURBAN WATER CORPORATION

The Wilmington Suburban Water Corporation currently uses only surface water supplies although the Corporation formerly used ground water supplies. The main surface water intake is located almost due west (upstream) of the Newport facility at the junction of the White City and Red Clay Creeks (tributary to the Christina River). Since the Wilmington Suburban intakes are located upstream of the site on tributaries to the Christina River, no impact to these receptors from the site is expected.

6.2 THE ARTESIAN WATER COMPANY

The Artesian Water Company, with offices in Newark, Delaware, operates a water supply comprising 42 wells over an area of about 110 square miles. The population served by the Artesian Water Company is approximately 150,000, according to the HRS Scoring (USEPA, 1986). Total supply of the system averages approximately 11,000,000 gpd.

The wells nearest to the site operated by Artesian Water Company are located at the Wilmington Airport approximately 1-1/2 miles southeast of the site (see Figure 6-1). Three wells are operated at this location on an intermittent basis to meet the peak demand to meet the peak demand. (4-6 months during the summer season). Quality of this water is considered to be poor due to high natural background concentrations of iron and manganese. When operating, these wells provide approximately 500,000 gpd, or less than 5% of the average system supply. On an annual basis, these wells provide about 2% of the Artesian system supply.

The primary supply of the Artesian Water Company is provided by wells 3 miles or more from the site which are interconnected in the distribution system. Figure 6-1 shows the permanently operated wells nearest the site, which are located at Wilmington Manor, 3 miles southeast of the site.

As discussed in Section 5, there is no evidence that contamination from the north disposal site is likely to migrate to the Artesian Water Company Wells southeast of the site. In addition, the wells operated at the Wilmington Airport do not appear to represent an irreplaceable component of the Wilmington Supply, but rather represent low quality water used for peaking purposes only.

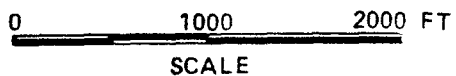
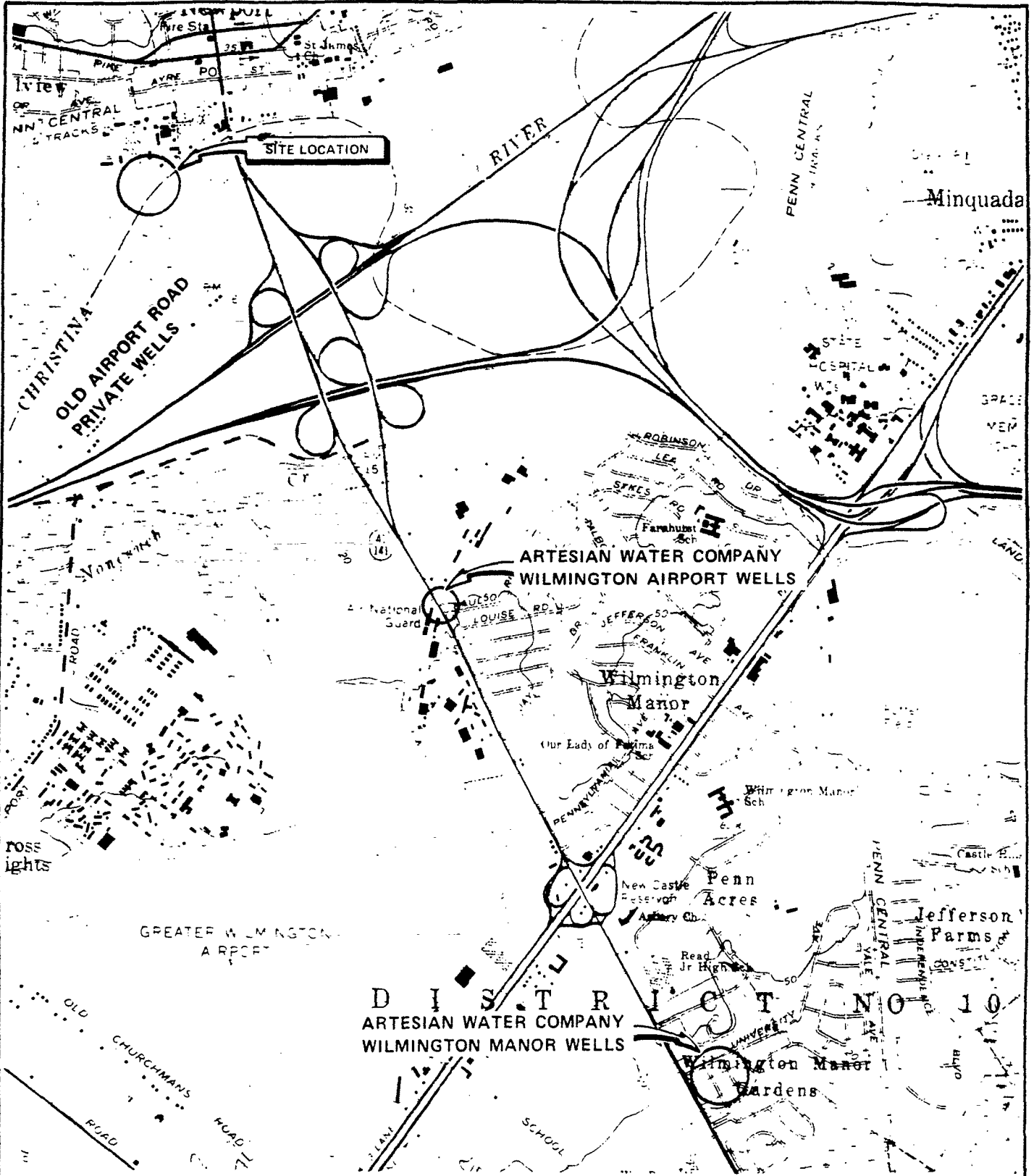
6.3 PRIVATE RESIDENCES ON OLD AIRPORT ROAD

The potential ground-water receptors closest to the site are the approximately 25 private residences along Old Airport Road southwest of the site (see Figure 6-1). According to documentation collected by USEPA to support the HRS scoring, at least 2 private wells with depths of about 20 to 25 feet are operated in this area. The Artesian Water Company, which services this area, has no records of connections to residents in this area. It is therefore reasonable to assume that all residences are supplied with drinking water from private wells. With the exception of the two relatively shallow wells documented by USEPA,

depths of other wells in the area are unknown. Based upon the analysis of hydrogeology of the area presented in Section 5 above, it is highly unlikely that contamination from the north disposal site could impact private wells in this area. Shallow ground water in this area is likely recharged by infiltration, with discharge northward to the Christina River.

If ground-water contamination is observed in the area of Old Airport Road, it is likely to be related to local land use patterns, which includes a high density of large automobile junkyards between Old Airport Road and the Christina River.

Although the Artesian Water Company does not currently supply water to residents in this area, this company has a water main along Old Airport Road, according to Mr. B. Lakshman, chief engineer of the company. If contamination is observed in private wells along Old Airport Road, public water supply may be readily available.



SOURCE: WILMINGTON SOUTH QUADRANGLE,
7.5 MINUTE SERIES (TOPOGRAPHIC)

LOCATIONS OF GROUND WATER USERS			
WOODWARD - CLYDE CONSULTANTS			
CONSULTING ENGINEERS, GEOLOGISTS AND ENVIRONMENTAL SCIENTISTS WAYNE, NEW JERSEY			
DR BY	TJD	SCALE	AS SHOWN
CKD BY	JR	DATE	14 MARCH 1987
		PROJ NO	87C4540
		FIG NO	6-1

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SECTION 7
LIMITATIONS

The professional opinions presented in this report are based upon our interpretation of available information. No new information was generated by WCC. Primary sources of information included: description of regional geohydrology developed by the Delaware Geological survey; information concerning site history, waste characteristics, hydrogeology and ground water quality collected by Du Pont; information available from USEPA files concerning the site; and information provided by water purveyors in the area. We have assumed that the information available to us is complete and accurate, and have developed our interpretation based upon the best available data. In interpreting available information, we have assumed that the data are representative of actual prevailing geohydrologic conditions. Our conclusions are based upon our understanding of site conditions and history and our general experience. Our engineering work and judgements rendered meet current professional standards, and reflect a degree of conservatism WCC deems proper for this project at this time.

SECTION 8
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EVALUATION OF EXISTING CONDITIONS
AT THE NEWPORT PLANT - NORTH DISPOSAL SITE

FOR

E.I. DU PONT DE NEMOURS & COMPANY, INC.
BRANDYWINE BUILDING
WILMINGTON, DELAWARE 19898

prepared by

WOODWARD-CLYDE CONSULTANTS
201 Willowbrook Boulevard
Wayne, New Jersey 07470
201-785-0700

87C4540

19 March 1987

100068

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**APPENDIX A
SELECTED BORING LOGS**

100073



WALTON CORPORATION

Drilling Contractor

P. O. BOX 1097, NEWARK, DELAWARE 19711

BORING LOG SM-1

Client: DuPont Company PROJECT NO. _____
 Location: New Port, Delaware SUPERVISOR _____

BORING NO.	SM-1	DRILLER	R. Erickson	DATE	7-15-75
WEATHER	Cloudy, Hot, Humid	SURFACE ELEVATION		DATUM	

Sample No.	Sample Depth - Feet		Depth Strata Feet		Driller's Description of Materials	Blows A
	From	To	From	To		
			0	1.0	Brn. Silt w/Ves. (Top Soil)	
1	0	2.0		1.5	Top Brn. Silt (Rec. 2.0)	SMILEY
			1.5		Bottom Cinder Fill	
2	2.0	4.0		3.4	Top Cinder Fill (Rec. 2.0)	SMILEY
			3.4		Bottom Brn. Silt, Sand & Gravel	
3	4.0	4.6			Same as S-2 Rec. 0.6	SMILEY
4	5.0	5.7			Cinder Fill Rec. 0.7	SMILEY
5	6.0	6.8			Misc. Fill (Cinders, Red Brick) - (Rec. 0.8)	SMILEY
6	8.0	8.7			Same as above Rec. 0.7	SMILEY
1	10.0	12.0			Same (Wet)	
2	12.0	14.0			Misc. Fill (Cinders, Spanish Blue Silty Sand & Gravel) Wet	
3	14.0	15.0			Same	
4	16.0	17.0		16.5	Same	
			16.5		Brn. Med. Sand w/Gravel Tr. Silt	100/1.0
5	19.0	19.7		20.0	Same as above (Wet)	100/1.0
6	20.0	21.5	20.0		Brn. & Gray Med. Sand w/Some Silt & Mica Tr. Gravel	100/1.0
7	22.0	24.0		24.0	Brn. Med. Sand & Gravel (Wet) w/Some Silt	

*A Number of blows of 140 lb. hammer dropped 30 in. required to drive 2 in. split-spoon sampler for each of three 6 in. increments.

*B Number of blows of 300 lb. hammer dropped 18 in. required to drive in. casing 12 inches.

REMARKS: Drilling water used 3.5.0

Screen: 2"x4" Sch. 80 P.V.C. .010 Slot 17.0-21.0

Gravel Pack: Morie #2 15.0-21.0

Put: Bentonite Pellets 13.0-15.0

Cement 0 - 13.0

GROUND WATER

16.8 before pumping

19.0 after pumping

BLOWS (CASING)

0-1

1-2

2-3

3-4

4-5

5-6

6-7

7-8

8-9

9-10

10-11

11-12

12-13

13-14

14-15

15-16

16-17

17-18

18-19

19-20

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AR100074



Drilling Contractor
 P. O. BOX 1097, NEWARK, DELAWARE 19711

BORING LOG
SM-2

ME DuPont Company.....PROJECT NO.....
 Newport, Del.....SUPERVISOR.....

BORING NO.	SM-2	DRILLER	S. Williams	DATE	7-21-75
WEATHER	Clear, Hot, Humid	SURFACE ELEVATION		DATUM	

BLOWS ON CASING B
0-1
1-2
2-3
3-4
4-5
5-6
6-7
7-8
8-9
9-10
10-11
11-12
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13-14
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Sample No.	Sample Depth - Feet		Depth Strata Feet		Driller's Description of Materials	Blows A	
	From	To	From	To			
			0	7.0	Brn. Silt		
			7.0		Gray Clayey Silt		
S-1	8.0	10.0		9.0	Top: Gray Clayey Silt		SHELBY
			9.0	10.5	Brn. & Lt. Brn. Micaceous Silt		
S-2	10.0	12.0	10.5	13.0	Brn. & Dk. Brn. M/C Sand w/some Gravel & Micaceous Silt (Wet)		
1	14.0	16.0	13.0	17.5	Brn. & Dk. Brn. M/C Sand & Gravel w/Some Silt		
2	19.0	21.0	17.5	22.5	Brn. Micaceous Silt w/Layer of Coarse Sand & Gravel (Wet)		
3	24.0	25.0	22.5	24.5	Brn. M/C Sand & Gravel w/Some Silt (Wet)		
			24.5	25.0	Gray Silt w/Layer of Fine Sand		

A Number of blows of 140 lb. hammer dropped 30 in. required to drive 2 in. split- spoon sampler for each of three 6 in. increments.

B Number of blows of 300 lb. hammer dropped 18 in. required to drive in. casing 12 inches.

MARKS: Wet on Rod @ 11.0

Screen: 2"x4" Sch. 80 P.V.C. .010 Slot 21.0-25.0

Gravel Pack: Morie #2 19.0-25.0

Grout: Bentonite Pellets 17.0-19.0

Cement 0 - 17.0

GROUND WATER		



WALTON CORPORATION

Drilling Contractor

P. O. BOX 1097, NEWARK, DELAWARE 19711

BORING LOG

BLOWS ON CASING B

0-1
1-2
2-3
3-4
4-5
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NAME DuPont Company PROJECT NO.

Newport Plant SUPERVISOR Mr. Sherman

BORING NO. DRILLER DATE
 WEATHER SURFACE ELEVATION DATUM
 Clear & Cool, Slight G. Truver 3, 22-76

Sample No.	Sample Depth - Feet		Strata Depth Feet		Driller's Description of Materials	Blows A		
	From	To	From	To				
			0		Sand, Cinders, Gravel, Silt (Fill)			
1	9.0	10.5			Sand, Silt, Cinders & Unidentified Fill	3	3	4
2	14.0	15.5	12.5		Same as above	2	3	3
3	19.0	20.5	18.5		Unidentified Blk. Substance (let) Fill	2	1	2
4	21.0	22.5	22.2		Same as above	2	2	6
			22.2	23.0	Dk. Gray & Greenish Silt (Very Compact)			
5	23.0	24.5	23.0	24.5	Brn Clayey Silt w/Tr. Gravel	2	1	5
6	25.0	26.5	24.5		Brn. & Gray Med. to Coarse Sand & Gravel w/some Silt (Wet)	8	13	14
7	27.0	28.5	27.5		Same	3	20	33
			27.5		Unidentified Black Substance (Fill)			
8	29.0	30.5	30.0		Same	5	13	13
			30.0	30.5	Brn. Med. Silty Sand w/Some Gray. (Wet)			
9	31.0	32.5	30.5	33.0	Brn. & Gray Med. to C Sand & Gravel w/Some Silt & Traces of Fill (Wet)	11	7	6
10	33.0	34.5	33.0	34.5	Brn. & Gray Med. to C Sand & Gravel Some Silt (Wet)	15	15	15
			34.5	35.0	Augered to 35.0			

* A Number of blows of 140 lb. hammer dropped 30 in. required to drive 2 in. split-spoon sampler for each of three 6 in. increments.

* B Number of blows of 300 lb. hammer dropped 18 in. required to drive in. casing 12 inches.

REMARKS: .. Point Set @ 35.0. 1:30 P.M. ... 4:00 P.M. Installation of Pot
 Drilling Water First Used @ 29.0

..... Materials on next Page

GROUND WATER		

100076



WALTON CORPORATION

Drilling Contractor

P. O. BOX 1097, NEWARK, DELAWARE 19711

BORING LOG

(DM-2)
SM-4

AME ... DuPont Company ... PROJECT NO.
 ... New Port., Delaware ... SUPERVISOR

BORING NO. **DM-2** | DRILLER **T. Dickinson** | DATE **7-23-75**
 WEATHER **Clear, Hot & Humid** | SURFACE ELEVATION | DATUM

Sample No.	Sample Depth - Feet		Depth Strata Feet		Driller's Description of Materials	*Blows A	
	From	To	From	To			
3-1	0	2.0	0		Gray Silty Clay w/Organic	SHLIPM	
					Rec. 2.0		
3-2	2.0	4.0			Same as above (Rec. 1.3)	Shallow	
1	4.0	6.0			Same as above Sticky		
2	6.0	11.0		10.5	Same as above		
				10.5	Brn. Peat w/Some Silty Clay		
3	14.0	15.0		15.5	" " " " " "		
				15.5	16.0	Gray Silty Clay (Wet)	
4	16.0	21.0	16.0	22.5	Gray Sandy Silt w/Some Silty Clay		
					Layer of Coarse White Sand (Wet)		
5	24.0	26.0	22.5	25.0	Fine to Med. Variegated Silty Sand (Wet)		
				25.0	27.0	Red Clay (Stiff)	
6	28.0	31.0	27.0	28.0	Variegated Silty Sand (Wet)		
7	34.0	36.0	32.0	33.5	Variegated Clayey Sand (Wet)		
8	38.0	41.0	37.5	44.0	Variegated Silty Sand w/Some Clay (Wet)		
9	44.0	46.0	44.0	45.0	Light Silty Clay		
10	48.0	51.0	48.0	50.5	Variegated Silty Sand (Wet)		
				50.5	51.0	Brn. Silt w/Gr. Gravel	

BLOWS ON CASING B
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1-2
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*A Number of blows of 140 lb. hammer dropped 30 in. required to drive 2 in. split-spoon sampler for each of three 6 in. increments.
 *B Number of blows of 300 lb. hammer dropped 18 in. required to drive in. casing 12 inches.
 REMARKS: ... Screens: 2"x5" Sch. 80 P.V.C. ... 010 Slot 20.0-25.0
 Gravel Pack: ... Marie #2 ... 18.0-25.0
 Grout: Bentonite Pellets 16.0-18.0
 Cement: ... 0. - 16.0

GROUND WATER

100078

SM-5

DRILLERS LOG Permit #49179

THICKNESS OF STRATUM

DEPTH TO BOTTC OF STRATUM

MISC. FILL (SAND & GRAVEL)

3.0

3.0

BAN SILTY F/C SAND W/ GRAVEL & MICA

17.0

20.0

1/2-I G.P.M. Clear (Across River Site)

Pressure Grouted 14.0-0'

Gravel Pack 14. - 20

Casing PVC +2 to 15' (4")

Screen PVC 15'to 20' (4")

SM-5

100079



BOHRING LOG DM-1

CASING B

- 0-1
- 1-2
- 2-3
- 3-4
- 4-5
- 5-6
- 6-7
- 7-8
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- 60-61

BY DuPont Company.....PROJECT NO.....
 Newport, Del.....SUPERVISOR.....

BOHRING NO. DM-1	DRILLER R. Erickson	DATE 7-16-75
WEATHER Cloudy & Hot	SURFACE ELEVATION	DATUM

Sample No.	Sample Depth - Feet		Depth Strata Feet		Driller's Description of Materials	Blows A	
	From	To	From	To			
			0		Brn. Silt w/Some Sand & Gravel		
S-1	0	2.0	2.0		" " " " " " "	SHELBY	
					(Rec. 1.5)		
			2.0		Lt. Brn. Silt w/Gravel		
			3.0		Some Brn. Clay Some Fill(Brick)		
			3.0		Brn. & Gray Silt & Gravel w/Some		
		4.0	5.0		Fill & Gray Silty Clay		
2	5.0		5.0		Brn. & Gray Silt w/Tr. Red Brick Auger Sample		
3	6.0		6.5		Same as above	"	"
4	7.0		6.5		Brn. & Gray Silt	"	"
5	7.5		8.0		Same as above	"	"
6	8.0	10.0	8.0	10.0	Variegated Silt w/Some Clay Tr. Spoon		
					Gravel (Slightly Plastic)		
7	10.0	12.0	10.0		Variegated Clay Spoon		
S-2	12.0	14.0			Variegated Clay (Rec. 1.8)	SHELBY	
S-3	14.0	16.0		18.5	Brn. & Gray Clay (Rec. 2.0)	SHELBY	
8	19.0	21.0	18.5		Gray Clayey Silt w/Tr. Sand & Organics Spoon		
	21.0		23.5		Same No Organic Wash Sample		
	23.0		23.5	24.0	Gray Clayey Silt w/Brn. Sand	"	"
9	24.0	26.0	24.0	26.5	Brn. Silt, Sand & Gravel Tr. Clay Spoon		
	26.0		26.5		Brn. Coarse Sand & Gray. Some Silt Wash Sample		
	28.0		38.0		Brn. Coarse Sand & Gray. Some Silt	"	"

*A Number of blows of 140 lb. hammer dropped 30 in. required to drive 2 in. split-spoon sampler for each of three 6 in. increments.
 * B Number of blows of 300 lb. hammer dropped 18 in. required to drive in. casing 12 inches.

REMARKS:

.....

.....

GROUND WATER		



NO LONGER USED. SEALED.

WALTON CORPORATION

Drilling Contractor

P. O. BOX 1097, NEWARK, DELAWARE 19711

BORING LOG

Deactivated & Sealed 12/80.

BLOWS ON CASING B

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NAME DuFont Company PROJECT NO.
 Newport Plant SUPERVISOR Mr. Sherman

BORING NO. DRILLER DATE
 W-3 G. Truver 3-23-76
 WEATHER Clear & Mild SURFACE ELEVATION DATUM

Sample No.	Sample Depth - Feet		Depth Strata Feet		Driller's Description of Materials	Blows A		
	From	To	From	To				
			0	35.0	Augered No Samples Taken			
1	35.0	36.5	35.0		Gray Brn. C Sand & Gravel (wet)	21	18	13
2	37.0	38.5		39.0	Same as above	26	16	16
3	39.0	40.5	39.0	40.5	Brn. C Sand & Gravel w/some silt (wet)	16	9	7
4	41.0	42.5	40.5	42.5	Brn. Red. Silty Sand w/Tr. Grav. (wet)	5	3	6
5	43.0	44.5	42.5	45.0	Brn. & Red Med. Silty Sand with Some Gravel (wet)	9	5	3
6	45.0	46.5	45.0	46.5	Same w/Tr. Clay	5	4	3
7	47.0	48.5	46.5	49.0	Variogated Clay & Sandy Clay w/some silt (wet)	3	4	6
8	49.0	50.5	49.0	50.5	Variogated Silty Sand w/some Clay (wet)	3	2	3
9	51.0	52.5	50.5	53.0	Variogated Sandy silt w/some Clay (wet)	2	3	10
10	53.0	54.5	53.0	54.5	Variogated Sandy Clay w/some Sand Pockets (wet)	3	4	6
11	55.0	56.5	54.5	56.5	Variogated Clay w/some silt Tr. Sand	7	13	23

*A Number of blows of 140 lb. hammer dropped 30 in. required to drive 2 in. split-spoon sampler for each of three 6 in. increments.

* B Number of blows of 300 lb. hammer dropped 18 in. required to drive in. casing 12 inches.

REMARKS: Drilling Water First used @ 35.0
 Drilling Mud First used @ 41.0

GROUND WATER

19.2	@ completion
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100082



WALTON CORPORATION

Drilling Contractor

P. O. BOX 1097, NEWARK, DELAWARE 19711

BORING LOG

BLOWS ON CASING B

NAME ... DuPont Company PROJECT NO.
 ...Newport Plant SUPERVISOR Mr. Sherman

BORING NO. _____ DRILLER P. Erickson DATE 3-30-76
 WEATHER D¹-3 SURFACE ELEVATION _____ DATUM _____

Sample No.	Sample Depth - Feet		Depth Strata Feet		Driller's Description of Materials	*Blows A	
	From	To	From	To			
					Continued from page 1		
					Wash Samples		
12	56.0	57.0			Variegated Clay w/some Sand & Small Gravel		
13	57.0	58.0			Same as above		
14	58.0	59.0			" " "		
15	59.0	60.0			Same as above w/more Sand		
16	60.0	61.0			F/i/c Sand, Gravel and some Variegated Clay		
17	61.0	62.0			Same as above		
18	62.0	63.0	43.0		" " "		
					Note: Much larger gravel is problem from upper strata		
					56.0-59.0 Drilled Smooth		
					Hole took water @ 42.0 and small amounts thereafter.		
					Screen Set 61.5 (Hole caved from upper strata)		
					Materials:		
					3 - 2" Sch. 80 x 3' Screens		

*A Number of blows of 140 lb. hammer dropped 30 in. required to drive 2 in. split-spoon sampler for each of three 6 in. increments.

* B Number of blows of 300 lb. hammer dropped 18 in. required to drive in. casing 12 inches.

REMARKS:

GROUND WATER

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100083



NO LONGER USED. SEALED.

WALTON CORPORATION

Drilling Contractor

P. O. BOX 1097, NEWARK, DELAWARE 19711

BORING LOG

Deactivated & Sealed 12/80

NAME Dupont Company
Newport Plant

NOTE: CLOSED B. WISCONSIN

PROJECT NO.
SUPERVISOR Mr. Sherman

BORING NO. D-4	DRILLER G. Triver	DATE 3-24-76
WEATHER Clear Mild	SURFACE ELEVATION	DATUM

Sample No.	Sample Depth - Feet		Depth Strata Feet		Driller's Description of Materials	Blows A		
	From	To	From	To				
			0	10.0	Augered No Samples Taken			
1	10.0	11.5	10.0		Gray Luck w/Tr. Organics			1
2	12.0	13.5			Same w/Tr. mica			1
3	14.0	15.5		16.0	Same w/Tr. mica			1
4	16.0	17.5	16.0		Gray Luck w/Tr. mica & Fine Sand			1
5	18.0	19.5		20.0	" " " " " " " "			1
6	20.0	21.5	20.0	21.5	Organics (Veg.) w/some Gray Luck		1	1
7	22.0	23.5	21.5	24.0	Gray Luck w/some Organics Tr. mica		2	2
8	24.0	25.5	24.0	25.5	Gray Silty Clay w/Tr. Sand & mica	1	3	4
9	26.0	27.5	25.5	27.5	Var. Silt w/mica Tr. Sand & Clay	1	3	4
10	28.0	29.5	27.5	29.0	Gray Fine Silty Sand		1	2
			29.0	30.0	Gray Med. Sand (wet)			3
11	30.0	31.5	30.0	31.5	Gray Med. Silty Sand w/C Grav. (wet)	5		8
12	32.0	33.5	31.5	34.0	Br. & Gray M/C Sand, Grav. Silt (wet)	16	14	14
13	34.0	35.5	34.0	35.5	Brn. M/C Sand & Grav. w/some Silt	22	9	8
14	36.0	37.5	35.5	39.0	Brn. Med. Silty Sand (wet)	13	25	20
15	41.0	42.5	39.0	43.0	Variegated Clay & Silt w/Tr Grav	8	5	5
16	43.0	44.5	43.0	45.0	Variegated Clay w/some Silt	3	3	6
17	45.0	46.5	45.0	46.5	Variegated Sandy Silt	5	7	12
18	47.0	48.5	46.5		Variegated Silty Sand	8	23	21
19	48.0	50.5		50.5	" " "	8	19	28

*A Number of blows of 140 lb. hammer dropped 30 in. required to drive 2 in. split-spoon sampler for each of three 6 in. increments.

* B Number of blows of 300 lb. hammer dropped 18 in. required to drive in. casing 12 inches.

REMARKS: ...Drilling Water & Mud First used @ 30.0

GROUND WATER

BLOWS ON CASING B
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100086



WALTON CORPORATION

Drilling Contractor

P. O. BOX 1097, NEWARK, DELAWARE 19711

BORING LOG

NAME DuPont Company PROJECT NO. _____
Newport Plant SUPERVISOR Mr. Sherman

BORING NO. _____ DRILLER R. Erickson DATE 4-2-76
WEATHER Dr. 4 SURFACE ELEVATION _____ DATUM _____
Fair

Sample No.	Sample Depth - Feet		Depth Strata Feet		Driller's Description of Materials	Blows A
	From	To	From	To		
					Ream auger hole to 50.0 & install 2" Point	
					Point Set 50.0' (bottom)	
					Materials:	
					2 - 2" PVC Sch. 80 x 3' .012 Slot Screen	
					1 - 2" PVC Cap	
					5 - 2" PVC Couplings	
					47.0' 2" PVC Sch. 40 pipe	
					1 - 2" PVC Female Adapter	
					1 - 2" PVC Plug	
					6.0' - 3" Steel Pipe	
					1 - 3" Steel Cap Vented	
					14 Bags Portland Cement	
					3 Bags Sand Mix	
					15 Gal. #3 Morie Sand	
					2 1/2 Gal Bentonite Pellets	

BLOWS ON CASING B
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*A Number of blows of 140 lb. hammer dropped 30 in. required to drive 2 in. split-spoon sampler for each of three 6 in. increments.
* B Number of blows of 300 lb. hammer dropped 18 in. required to drive in. casing 12 inches.

REMARKS: _____

GROUND WATER		

4001

109087

CASING USED FOR
 15 & DM6
 7" PVC SCHEDULE 40

WALTON CORPORATION *DM-5
 Drilling Contractor
 P. O. BOX 1097, NEWARK, DELAWARE 19711

BORING LOG
 DM-5

BLOWS
 CASING

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NAME Dupont Company PROJECT NO.
 Newport, Plant SUPERVISOR

BORING NO. (WELL 2)* DM-5 DRILLER R. Erickson DATE 3-31-77
 WEATHER Mild SURFACE ELEVATION DATUM

Sample No.	Sample Depth - Feet		Depth Strata Feet		Driller's Description of Materials	*Blows A
	From	To	From	To		
1	0	5.0	0		Gray & Brn. Silty Clay w/Organics	
2	5.0	10.0			Same w/Sand Lenses	
3	10.0	15.0			Same	
4	15.0	20.0			Same Less F Sand	
5	20.0	25.0			Same More F Sand	
6	25.0	30.0		32.0	Same More F/M Sand	
7	30.0	35.0	32.0	38.0	Brn. F/M Sand w/Clay Lenses	
8	35.0	40.0	38.0		Var. C Sand w/Clay Lenses	
9	40.0	45.0			Same	
10	45.0	50.0			Same	
11	50.0	55.0		50.0	Same More F/M Sand	
			50.0	53.0	Clay Lense	
12	55.0	60.0			FMC Brn. Sand	
13	60.0	65.0			FMC Brn. Sand	
14	65.0	70.0		73.0	FMC Brn. Sand Tr. Clay	
			73.0	76.0	Gray Clay Lense	
			76.0	78.0	Sand Lense Brn. F/M Sand	
			78.0	81.0	Gray Clay	
15	70.0	81.0			Brn. F/M Sand & Gray Clay	

*A Number of blows of 140 lb. hammer dropped 30 in. required to drive 2 in. split-spoon sampler for each of three 6 in. increments.

* B Number of blows of 300 lb. hammer dropped 18 in. required to drive in. casing 12 inches.

REMARKS: ... 2"x10' PVC #16 Slot Well Screen 53.0-63.0

... Gravel Pack. 63.0-50.0. 49.0-50.0. Bentonite Pellets

Pressure Grouted w/Cement 49 to 0

GROUND WATER

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100088



WALTON CORPORATION

Drilling Contractor

P. O. BOX 1097, NEWARK, DELAWARE 19711

BORING LOG

BLOWS ON CASING B
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CLIENT E. I. DuPont de Nemours & Company PROJECT NO.
 Newport Plant, Newport, DE. SUPERVISOR

RING NO. DM-7	DRILLER G. Truver	DATE 9-8-81
WEATHER Cloudy	SURFACE ELEVATION	DATUM

Sample No.	Sample Depth - Feet		Depth Strata Feet		Driller's Description of Materials	*Blows A		
	From	To	From	To				
			0	2.0	Gray Silt w/Some Clay			
			2.0	4.0	Gray Silty Clay w/Tr. Veg.			
1	4.0	5.5	4.0		Gray Silty Clay w/Veg.	1	1	2
2	9.0	10.5		12.5	Same	1	1	2
3	14.0	15.5	12.5		Gray Silty Clay w/Sand Lenses & Tr. Vegetation	1	1	2
4	19.0	20.5			Same	1	1/1	0
* 5	24.0	25.5		24.5	Same	WH	1	1
			24.5	27.5	Gray F/M Sand w/Mica & Tr. Silt			
6	29.0	30.5	27.5	32.5	Gray F/C Sand w/Clay Lenses, Veg. & Tr. Gravel	1	1	1
+ 7	34.0	35.5	32.5	37.0	Gray F/C Sand & Gravel	14	53	19
8	39.0	40.5	37.0	42.0	Red F/M Sandy Clay w/Tr. Gravel	16	8	9
+ 9	44.0	45.5	42.0		Var. Clayey F/C Sand w/Tr. Silt & Grav	4	3	4
10	49.0	50.5			No Recovery (2 attempts)	3	2	1
11	54.0	55.5			Red F Sand w/Tr. Gravel	WR/1	5	
12	59.0	60.5			Same (Tr. Silt)	4	3	2
13	54.0	65.5		65.2	Same (Tr. Silt)	8	8	6
			65.2		Red F Sandy Clay w/Tr. Silt			
14	59.0	70.5			Same	5	9	13
15	74.0	75.5		75.2	Same	9	12	18
			75.2		Var. Clayey F Sand w/Tr. Silt			

*A Number of blows of 140 lb. hammer dropped 30 in. required to drive 2 in. split-spoon sampler for each of three 6 in. increments.

*B Number of blows of 300 lb. hammer dropped 18 in. required to drive in. casing 12 inches.

REMARKS: *Wet on Rods @ 17.5

..... *Wash Water Used

..... @ Washed ahead of auger's

GROUND WATER

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100090



WALTON CORPORATION

Drilling Contractor

P. O. BOX 1097, NEWARK, DELAWARE 19711

BORING LOG

NAME E. I. DuPont de Nemours & Company PROJECT NO.
 Newport plant, Newport, DE SUPERVISOR

DRILLING NO. DM-7 Cont DRILLER DATE
 WEATHER SURFACE ELEVATION DATUM

Sample No.	Sample Depth - Feet		Depth Strata Feet		Driller's Description of Materials	*Blows A		
	From	To	From	To				
			75.2		Var. Clayey F Sand w/Tr. Silt			
16	79.0	80.5		80.0	Same	8	12	15
			80.0		White Silty Clay w/Tr. F Sand			
			80	81.0	White Silty Clay w/Tr. F Sand			
17	84.0	85.5	81.0	86.5	Var. Clayey F/C Sand w/Tr. Silt	7	10	11
18	89.0	90.5	86.5		Red & White Silty Clay	4	8	12
19	94.0	95.5		94.2	Same	6	8	9
			94.2	96.5	White Clayey F/M Sand w/Tr. Silt			
20	99.0	100.5	96.5		Var. Silty Clay w/Tr. F Sand	8	11	15
21	104.0	105.5		107.0	Same	5	10	13
22	109.0	110.5	107.0	112.0	Gray Silty Clay w/Tr. Veg.	7	15	20
23	114.0	115.5	112.0	117.0	Light Gray F/M Sand w/Veg. Tr. Clay	23	22	30
24	119.0	120.5	117.0	122.5	Gray Clayey F/M Sand w/Veg.	6	11	20
25	124.0	125.5	122.5		Dk. Gray Organic Clay w/Silt	20	25	43
26	129.0	130.35		133.5	Same & Wood	29	50	100/0
27	134.0	135.5	133.5	137.0	Var. Clayey F/M Sandw/Silt	13	18	22
28	139.0	140.5	137.0		Var. Silty Sand w/Mica	11	16	23
29	144.0	145.5			Same	15	24	45
30	149.0	150.5			Same	17	27	40
31	154.0	155.5		155.5	Same	16	26	66

BLOWS ON CASING B
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*A Number of blows of 140 lb. hammer dropped 30 in. required to drive 2 in. split-spoon sampler for each of three 6 in. increments.

B Number of blows of 300 lb. hammer dropped 18 in. required to drive in. casing 12 inches.

REMARKS: X Decomposed Rock

GROUND WATER

100091

DRILLERS LOG Permit #49178	THICKNESS OF STRATUM	DEPTH TO BOTTO OF STRATUM
GREY SILTY CLAY w/VEGETATION	11.0	11.0
GREY SILTY CLAY w/SAND LENSES	13.0	24.0
GREY F-M SAND w/MICA TR OF SILT	13.0	37.0
Variegated F/M SANDY CLAY w/SAND LENSES	13.0	50.0
1-3 G.P.M. Clear (plant site)		
Pressure Grouted 39' to 0		
Gravel Pack 39.0 to 50.0'		
Casing PVC +2 to 40 (4")		
Screen PVC 40 to 50 (4")		

0001

DMU-7 ?

100092



WALTON CORPORATION
Drilling Contractor
P. O. BOX 1097, NEWARK, DELAWARE 19711

BORING LOG

ME E. I. DuPont de Nemours & Company PROJECT NO. _____
Newport Plant, Newport, DE. SUPERVISOR _____

BORING NO. DM-8 DRILLER G. Truver DATE 9-11-81
 WEATHER Sunny & Warm SURFACE ELEVATION _____ DATUM _____

Sample No.	Sample Depth - Feet		Depth Strata Feet		Driller's Description of Materials	Blows A		
	From	To	From	To				
			0	0.1	Gravel Fill			
			0.1	0.3	Fill (F/M Sand)			
			0.3	4.0	Brn. Silt w/Tr. F Sand			
1	4.0	5.5	4.0	4.5	Brn. Silty F/M Sand w/Gravel	5	2	3
			4.5	6.0	Brn. Silt w/Tr. Clay & Mica			
2	9.0	10.5	8.0	12.5	Brn. Silty F/C Sand w/Gravel & Mica	7	16	17
3	14.0	15.5	12.5	17.0	Brn. Silty F Sand w/Mica & Tr. Gravel	2	4	2
4	19.0	20.5	17.0	19.4	Blk. Micaceous Silt w/Clay & Tr. F Sand	6	9	9
			19.4	22.0	Var. F/C Sand w/Clay & Tr. Gravel			
5	24.0	25.5	22.0	28.0	Var. Clayey F Sand w/Silt	7	2	5
6	29.0	30.5	28.0	29.2	Red Sandy Clay w/Silt	4	3	3
			29.2	31.5	Variegated Silty F Sand w/Tr. Clay			
7	34.0	35.5	31.5	37.0	Variegated F Sandy Clay w/Silt	4	4	7
8	39.0	40.5	37.0	42.0	Var. Clayey F/M Sand w/Silt	5	4	6
9	44.0	45.5	42.0	47.0	Var. F Sandy Clay w/Silt	3	6	6
10	49.0	50.5	47.0	52.0	Brn. F/M Sand w/Silt	7	8	10
11	54.0	55.5	52.0		Variegated Clayey F/C Sand w/Tr. Silt & Gravel	5	12	13
12	59.0	60.5		63.5	Same	10	14	20
13	64.0	65.5	63.5	65.2	Var. Sandy Clay w/Silt	15	15	12
			65.2	67.0	Dk. Gray F Sandy Silt w/Tr. Clay			

-A Number of blows of 140 lb. hammer dropped 30 in. required to drive 2 in. split-spoon sampler for each of three 6 in. increments.

B Number of blows of 300 lb. hammer dropped 18 in. required to drive in. casing 12 inches.

REMARKS: * Wet on Spoon @ 14.0

+ Wash Water Used

Washed ahead of augers

GROUND WATER

BLOWS ON CASING B
0-1
1-2
2-3
3-4
4-5
5-6
6-7
7-8
8-9
9-10
10-11
11-12
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60-61

100093

APP-011

100095

306

APPENDIX B
AVAILABLE WATER QUALITY MONITORING DATA

0001

100096

ETC

DM-0H (Parameter History, by Sample Point)

0001

100097



DATA MANAGEMENT SUMMARY REPORT
(DM-OH) - History of All Parameters Tested, Selected Sample Point

DATE: 02/26/8
 PAGE: 1

Chain of Custody Data Required for ETC Data Management Summary Report

See Below	E. I. DUPONT	DUPNEWMAN	SMI	See Below
ETC Sample No.	Company	Facility	Sample Point	Date

Parameters	Sample Points, Sampling Dates, and ETC Sample No.'s							
	SMI 760109 V3731	SMI 760429 V3732	SMI 770308 V3733	SMI 770701 V3734	SMI 770810 V3735	SMI 771014 V3736	SMI 780330 V3737	SMI 780615 V3738
Miscellaneous Parameters								
Barium	21.0	9.33	70.3	490	61.2	91	55	-
Cadmium	.008	.02	.014	28	.017	09	008	006
Depth to Water	-	-	18.6	18.5	18.7	18.6	17.3	12.8
Iron	-	-	-	-	-	-	-	-
Sulfate as SO4	-	-	-	-	-	-	-	-
Trichloroethylene	1.50	.02	.61	24.1	2.53	4.4	3.1	2.80
Zinc	-	-	-	-	-	-	-	-
pH (Field)	-	-	-	-	-	-	-	-

100098

DATA MANAGEMENT SUMMARY REPORT
(DM-OH) - History of All Parameters Tested, Selected Sample Point

DATE: 02/26/88
 PAGE: 2

Chain of Custody Data Required for ETC Data Management Summary Report

See Below
 ETC Sample No.

E. I. DUPONT
 Company

DUPNEWGM
 Facility

SMI
 Sample Point

See Below

Date

Sample Points, Sampling Dates, and ETC Sample No.'s

Parameters	SMI 780927 V3739	SMI 781115 V3740	SMI 790321 V3741	SMI 790501 V3742	SMI 790717 V3743	SMI 791017 V3744	SMI 800212 V3745	SMI 800619 V3746
Miscellaneous Parameters								
Barium	50.4	16.6	15.2	66.4	9.013	57.002	46.002	7.0
Cadmium	.011	.004	.02	.002	.013	.002	.002	.005
Depth to Water	18.3	18.5	18.1	14.4	16.1	18.6	18.2	15.4
Iron	-	-	-	-	-	-	-	4
Sulfate as SO4	-	-	-	-	-	-	-	-
Trichloroethylene	1.18	1.2	1.5	.51	.22	.02	7	.06
Zinc	-	-	-	-	-	-	-	-
pH (Field)	-	-	-	-	-	-	-	-

100099

DATA MANAGEMENT SUMMARY REPORT
 (DM-OH) - History of All Parameters Tested, Selected Sample Point

DATE: 02/26/1
 PAGE: 3

Chain of Custody Data Required for ETC Data Management Summary Report

See Below	E. I. DUPONT	SMI	See Below
ETC Sample No.	Company	Facility	Sample Point Date

Parameters	Sample Points, Sampling Dates, and ETC Sample No's							
	SMI 800911 V3747	SMI 801114 V3748	SMI 810313 V3749	SMI 810521 V3750	SMI 810813 V3751	SMI 811118 V3752	SMI 820225 V3753	SMI 820514 V3754
Miscellaneous Parameters								
Barium	4.4	254	30	35	50	60	40	55
Cadmium	131	011	0001	0001	01	01	01	01
Depth to Water	19.1	19.6	18.4	18.5	18.4	18.5	20.0	16.6
Iron	-	200	1	1	5	5	5	5
Sulfate as SO4	1	2	1	1	5	5	5	5
Trichloroethylene	18	5.9	04	05	16	12	08	08
Zinc	-	-	-	-	-	-	-	-
pH (Field)	-	-	-	-	-	-	-	-

100100

DATA MANAGEMENT SUMMARY REPORT
(DM-OH) - History of All Parameters Tested, Selected Sample Point

DATE: 02/26/8
 PAGE: 4

Chain of Custody Data Required for ETC Data Management Summary Report

See Below ETC Sample No. E. I. DUPONT Company Facility DUPNEKGM SM1 See Below Sample Point Date

Sample Points, Sampling Dates, and ETC Sample No.'s

Parameters	Units	SM1 820903 V3755	SM1 821008 V3756	SM1 830106 V3757	SM1 830627 V3758	SM1 830921 V3759	SM1 831129 V3760	SM1 840109 V3761	SM1 840621 V3762
Miscellaneous Parameters									
Barium	mg/l	56	52	60	55	85	130	46	43
Cadmium	mg/l	.01	.01	.01	.01	.01	.01	.01	.01
Depth to Water	Feet	17.0	17.0	18.4	17.4	17.4	16.9	16.4	16.4
Iron	ug/l	10	13	10	33	5	5	5	5
Sulfate as SO4	mg/l								
Trichloroethylene	ug/l								
Zinc	mg/l	.05	.05	.12	.05	.09		.15	
pH (Field)	std								

100101

DATA MANAGEMENT SUMMARY REPORT
(DM-OH) - History of All Parameters Tested, Selected Sample Point

Chain of Custody Data Required for ETC Data Management Summary Report

See Below ETC Sample No. E. I. DUPONT Company DUPNEIGHM SMI See Below Sample Point Date

Sample Points, Sampling Dates, and ETC Sample No.'s

Parameters	ETC Sample No.	Company	Facility	Sample Point	Date	Value	Units
Miscellaneous Parameters	840814 V3763	841015 V3764	850610 V3766	850910 V3767	851226 V3768	860225 V3769	860429 V3770
Barium	35	55	44	84	67	68	67
Cadmium	.01	.01	.01	.01	.01	.01	.01
Depth to Water	14.82	16.23	16.45	16.61	16.9	16.11	15.98
Iron	14	5	5	5	5	7	5
Sulfate as SO4	.05	.05	.09	.05	.05	.06	.06
Trichloroethylene							
Zinc							
pH (Field)							

100102

DATA MANAGEMENT SUMMARY REPORT
(DM-OH) - History of All Parameters Tested, Selected Sample Point

DATE: 02/26/87
 PAGE: 6

Chain of Custody Data Required for ETC Data Management Summary Report

See Below	E. I. DUPONT	DUPONELAB	SM1	See Below
ETC Sample No.	Company	Facility	Sample Point	Date

Sample Points, Sampling Dates, and ETC Sample No.'s

Parameters	Units	SM1 860731 V3771	SM1 870211 R4840	SM1 16400	SM1 191 7.13
Miscellaneous Parameters					
Barium	mg/l	67	98.1		
Cadmium	mg/l	.01	.012		
Depth to Water	Feet	16.94			
Iron	ug/l	5	16400		
Sulfate as SO4	mg/l				
Trichloroethylene	ug/l				
Zinc	mg/l	.05	1.91		
pH (Field)	std		7.13		

100103

DATA MANAGEMENT SUMMARY REPORT
(DM-OH) - History of All Parameters Tested, Selected Sample Point

DATE: 02/26/87
 PAGE: 1

Chain of Custody Data Required for ETC Data Management Summary Report

See Below ETC Sample No. E. I. DUPONT Company DUPNEWM Facility SM2 See Below Sample Point Date

Sample Points, Sampling Dates, and ETC Sample No.'s

Parameters	Units	SM2 760109 V3772	SM2 760429 V3773	SM2 770308 V3774	SM2 770701 V3775	SM2 770810 V3776	SM2 771014 V3777	SM2 780330 V3778	SM2 780615 V3779
Miscellaneous Parameters									
Barium	mg/l	2	1	5	7.45	.46	.48	8	-
Cadmium	mg/l	.001	.02	.019	.003	.010	.05	.005	.002
Depth to Water	Feet	-	-	9.0	8.9	8.4	8.5	4.8	6.3
Iron	ug/l	-	-	-	-	-	-	-	-
Sulfate as SO4	mg/l	-	-	-	-	-	-	-	-
Tetrachloroethylene	ug/l	-	-	-	-	-	-	-	-
Trichloroethylene	ug/l	-	-	-	-	-	-	-	-
Zinc	mg/l	.19	24	38	.47	.29	.28	3.0	.51
pH (Field)	std	-	-	-	-	-	-	-	-

100104

DATA MANAGEMENT SUMMARY REPORT
(DM-OH) - History of All Parameters Tested, Selected Sample Point

DATE: 02/26/87
 PAGE: 2

Chain of Custody Data Required for ETC Data Management Summary Report
 See Below
 ETC Sample No. E. I. DUPONT Company DUPNENGAM SM2 See Below
 Facility Sample Point Date

Parameters	Units	Sample Points, Sampling Dates, and ETC Sample No.'s																		
		SM2 781115 V3780	SM2 790321 V3781	SM2 790501 V3782	SM2 790717 V3783	SM2 791017 V3784	SM2 800212 V3785	SM2 800619 V3786	SM2 800911 V3787											
Miscellaneous Parameters																				
Barium	mg/l	2	2	1	2	0	5	0	2	2	2	2	2	2	2	2	2	2	2	2
Cadmium	mg/l	.009	.006	.003	.015	.003	.012	.002	.006	.002	.006	.006	.006	.006	.006	.006	.006	.006	.006	.006
Depth to Water	Feet	6.1	5.6	5.3	5.8	5.3	5.8	6.6	6.4	6.6	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Iron	ug/l	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulfate as SO4	mg/l	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tetrachloroethylene	ug/l	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trichloroethylene	ug/l	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	mg/l	9	1.1	.31	3.5	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-
pH (Field)	std	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

100105



ENVIRONMENTAL
TESTING and CERTIFICATION

DATA MANAGEMENT SUMMARY REPORT
(DM-OH) - History of All Parameters Tested, Selected Sample Point

DATE: 02/26/87
PAGE: 3

Chain of Custody Data Required for ETC Data Management Summary Report

See Below ETC Sample No.	E. I. DUPONT	DUPNEIGHAM	SM2	See Below Sample Point	Date

Sample Points, Sampling Dates, and ETC Sample No.'s

Parameters	SM2 801114 V3788	SM2 810313 V3789	SM2 810521 V3790	SM2 810813 V3791	SM2 811118 V3792	SM2 820225 V3793	SM2 820514 V3794	SM2 820903 V3795
Miscellaneous Parameters								
Barium	15	20001	20001	201	201	401	201	201
Cadmium	6.4	56	5.5	4.6	4.5	5.7	5.0	2.0
Depth to Water								
Iron	70	34	33	52	50	49	39	46
Sulfate as SO4	36							
Tetrachloroethylene	5							
Trichloroethylene	1.0				1.7			
Zinc			54					
pH (Field)								

100106

DATA MANAGEMENT SUMMARY REPORT
(DM-OH) - History of All Parameters Tested, Selected Sample Point

DATE: 02/26/87
 PAGE: 4

Chain of Custody Data Required for ETC Data Management Summary Report

See Below ETC Sample No.	E. I. DUPONT	DUPONT	SM2	See Below
		Facility	Sample Point	Date

Sample Points, Sampling Dates, and ETC Sample No.'s

Parameters	SM2 821008 V3796	SM2 830106 V3797	SM2 830627 V3798	SM2 830921 V3799	SM2 831129 V3800	SM2 840109 V3801	SM2 840621 V3802	SM2 840814 V3803
Miscellaneous Parameters								
Barium	2	2	3	2	8	14	13	13
Cadmium	.01	.01	.01	.024	.01	.01	.01	.01
Depth to Water	7.0	6.0	4.0	7.0	5.0	5.0	7.54	5.17
Iron	44	42	37	45	40	36	37	34
Sulfate as SO4								
Tetrachloroethylene								
Trichloroethylene								
Zinc	.60	.67	.16	7.0	.21	1.3	.41	.12
pH (Field)								

201007

DATA MANAGEMENT SUMMARY REPORT
(DM-OH) - History of All Parameters Tested, Selected Sample Point

DATE: 02/26/87
 PAGE: 5

Chain of Custody Data Required for ETC Data Management Summary Report

See Below	E. I. DUPONT	DUPNEWMGM	SM2	See Below
ETC Sample No.	Company	Facility	Sample Point	Date

Sample Points, Sampling Dates, and ETC Sample No's

Parameters	Units	SM2 841015 V3804	SM2 850122 V3805	SM2 850610 V3806	SM2 850910 V3807	SM2 851226 V3808	SM2 860225 V3809	SM2 860429 V3810	SM2 860731 V3811
Miscellaneous Parameters									
Barium	mg/l	.10	.10	.10	.10	.10	.10	.10	.10
Cadmium	mg/l	.01	.01	.01	.01	.01	.01	.01	.01
Depth to Water	Feet	6.17	5.58	5.75	6.17	5.58	4.25	4.60	6.33
Iron	ug/l	35	37	40	33	27	38	33	33
Sulfate as SO4	mg/l	-	-	-	-	-	-	-	-
Tetrachloroethylene	ug/l	2.1	.47	.25	.32	.05	.08	.10	.09
Trichloroethylene	ug/l	-	-	-	-	-	-	-	-
Zinc	mg/l	-	-	-	-	-	-	-	-
pH (Field)	std	-	-	-	-	-	-	-	-

100108

DATA MANAGEMENT SUMMARY REPORT
(DM--OH) - History of All Parameters Tested, Selected Sample Point

DATE: 02/26/87
 PAGE: 6

Chain of Custody Data Required for ETC Data Management Summary Report

See Below ETC Sample No.	E. I. DUPONT	Company	DUPNEGLUM	SM2	See Below
			Facility	Sample Point	Date

Sample Points, Sampling Dates, and ETC Sample No.'s

Parameters	Units	SM2 870211 R4850						
Miscellaneous Parameters								
Barium	mg/l							
Cadmium	mg/l							
Depth to Water	Feet							
Iron	ug/l							
Sulfate as SO4	mg/l	36500						
Tetrachloroethylene	ug/l							
Trichloroethylene	ug/l							
Zinc	mg/l							
pH (Field)	std							

100109

DATA MANAGEMENT SUMMARY REPORT
(DM-OH) - History of All Parameters Tested, Selected Sample Point

DATE: 02/26/8
 PAGE: 1

Chain of Custody Data Required for ETC Data Management Summary Report

See Below ETC Sample No. E. I. DUPONT Company Facility Sample Point Date
 See Below DUPNENGM SM3 See Below Sample Point Date

Sample Points, Sampling Dates, and ETC Sample No.'s

Parameters	Units	760429 V3812	770308 V3813	770701 V3814	770810 V3815	771014 V3816	780330 V3817	780615 V3818	780927 V3819
Miscellaneous Parameters									
Barium	mg/l	20	9	12.1	.06	4.73	3.2	-	.2
Barium	mg/l	.02	.005	.02	.005	.05	.002	.002	.003
Cadmium	mg/l	-	19.3	19.9	19.7	20.3	19.2	19.1	19.3
Depth to Water	Feet	-	-	-	-	-	-	-	-
Iron	ug/l	-	-	-	-	-	-	-	-
Sulfate as SO4	mg/l	-	-	-	-	-	-	-	-
Sulfate as SO4	mg/l	-	-	-	-	-	-	-	-
Tetrachloroethylene	ug/l	-	-	-	-	-	-	-	-
Trichloroethylene	ug/l	60	9.08	7.27	3.27	3.0	10.2	13.3	14
Zinc	mg/l	-	-	-	-	-	-	-	-
Zinc	mg/l	-	-	-	-	-	-	-	-
pH (Field)	std	-	-	-	-	-	-	-	-

01001

**DATA MANAGEMENT SUMMARY REPORT
(DM-OH) - History of All Parameters Tested, Selected Sample Point**

DATE: 02/26/8
PAGE: 2

Chain of Custody Data Required for ETC Data Management Summary Report

See Below
ETC Sample No.

E. I. DUPONT
DUPNENGAM
SM3

See Below
Sample Point
Date

Sample Points, Sampling Dates, and ETC Sample No.'s

Parameters	Units	SM3 781115 V3820	SM3 790321 V3821	SM3 790501 V3822	SM3 790717 V3823	SM3 791017 V3824	SM3 800212 V3825	SM3 800619 V3826	SM3 800911 V3827
Miscellaneous Parameters									
Barium	mg/l	.3	2	5	.3	.4	3.0	2	11.0
Barium	mg/l	.013	.011	.012	.007	.442	.002	.01	.008
Cadmium	mg/l	19.6	18.7	18.5	18.5	19.2	19.1	18.6	19.2
Depth to Water	Feet	-	-	-	-	-	-	39	27
Iron	ug/l	-	-	-	-	-	21	-	-
Sulfate as SO4	mg/l	-	-	-	-	-	-	-	-
Sulfate as SO4	mg/l	-	-	-	-	-	-	-	-
Tetrachloroethylene	ug/l	-	-	-	-	-	-	-	-
Trichloroethylene	ug/l	17	10	11.1	9.1	10.4	6.7	9.2	8.5
Zinc	mg/l	-	-	-	-	-	-	-	-
Zinc	mg/l	-	-	-	-	-	-	-	-
pH (Field)	std	-	-	-	-	-	-	-	-

100111

DATA MANAGEMENT SUMMARY REPORT
(DM-OH) - History of All Parameters Tested, Selected Sample Point

DATE: 02/26/81
 PAGE: 3

Chain of Custody Data Required for ETC Data Management Summary Report

See Below	E. I. DUPONT	DUPNENGAM	SM3	See Below
ETC Sample No.	Company	Facility	Sample Point	Date

Parameters	Sample Points, Sampling Dates, and ETC Sample No.'s							
	SM3 801114 V3828	SM3 810210 V3829	SM3 810313 V3830	SM3 810521 V3831	SM3 810813 V3832	SM3 811118 V3833	SM3 820225 V3834	SM3 820514 V3835
Barium	39	2.0	.2	.4	.8	.8	4.2	1.0
Barium	-	3.0	-	-	-	-	-	-
Cadmium	.023	.002	.0001	.0001	.01	.01	.01	.01
Cadmium	-	.01	-	-	-	-	-	-
Depth to Water	19.4	-	19.1	18.8	18.9	19.6	19.0	18.7
Iron	-	-	21	20.1	21	15	19	17
Sulfate as S04	230	20	-	-	-	-	-	-
Sulfate as S04	-	21	-	-	-	-	-	-
Tetrachloroethylene	84	-	-	-	-	-	-	-
Trichloroethylene	25	-	-	-	-	-	-	-
Zinc	9.0	4.4	4.4	5.1	4.0	5.4	6.9	17
Zinc	-	4.2	-	-	-	-	-	-
pH (Field)	-	-	-	-	-	-	-	-

211001

DATA MANAGEMENT SUMMARY REPORT
 (DM-OH) - History of All Parameters Tested, Selected Sample Point

DATE: 02/26/81
 PAGE: 4

Chain of Custody Data Required for ETC Data Management Summary Report

See below	E. I. DUPONT	DUPNEIGHAM	SM3	See below
ETC Sample No.	Company	Facility	Sample Point	Date

Sample Points, Sampling Dates, and ETC Sample No.'s

Parameters	SM3 820903 V3836	SM3 821008 V3837	SM3 830106 V3838	SM3 830627 V3839	SM3 830921 V3840	SM3 831129 V3841	SM3 840109 V3842	SM3 840621 V3843
Miscellaneous Parameters								
Barium	.6	.2	.6	.2	.4	10	17	3.0
Barium								
Cadmium	.01	.01	.01	.01	.01	.01	.01	.01
Cadmium								
Depth to Water	18.1	19.1	19.5	10.5	20.5	18.5	19.5	18.54
Iron	34	59	43	60	52	13	7	45
Sulfate as S04								
Sulfate as S04								
Tetrachloroethylene								
Trichloroethylene								
Zinc	20	18	6.2	11.5	10	4.0	1.2	8.0
Zinc								
pH (Field)								

100113

DATA MANAGEMENT SUMMARY REPORT
(DM-OH) - History of All Parameters Tested, Selected Sample Point

DATE: 02/26/1
 PAGE: 5

Chain of Custody Data Required for ETC Data Management Summary Report

See Below ETC Sample No.	E. I. DUPONT	DUPNENGAM	SM3	See Below
	Company	Facility	Sample Point	Date

Parameters	Sample Points, Sampling Dates, and ETC Sample No.'s							
	SM3 840814 V3844	SM3 841015 V3845	SM3 850122 V3846	SM3 850610 V3847	SM3 850910 V3848	SM3 851226 V3849	SM3 860225 V3850	SM3 860429 V3851
Miscellaneous Parameters								
Barium mg/l	14	3.1	1.1	4.4	.51	.91	.80	.31
Barium mg/l								
Cadmium mg/l	.01	.01	.01	.01	.01	.01	.01	.01
Depth to Water Feet	18.75	18.33	18.75	17.9	18.04	18.92	18.75	18.67
Iron ug/l	51	45	45	6	78	75	45	5.2
Sulfate as SO4 mg/l								
Sulfate as SO4 ug/l								
Tetrachloroethylene ug/l								
Trichloroethylene mg/l	.57	9.1	10.4	8.7	13	12	8.9	9.8
Zinc mg/l								
pH (Field) std								

100114

DATA MANAGEMENT SUMMARY REPORT
(DM-OH) - History of All Parameters Tested, Selected Sample Point

DATE: 02/26/87
 PAGE: 6

Chain of Custody Data Required for ETC Data Management Summary Report

See Below ETC Sample No.	E. I. DUPONT	Company	DUPNEXGAM	SM3	See Below Sample Point	Date
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Parameters		SM3 860731 V3852	SM3 870211 R4851	Sample Points, Sampling Dates, and ETC Sample No.'s		
	Units					
Miscellaneous Parameters						
Barium	mg/l	1.2	5.73			
Barium	mg/l	-	-			
Cadmium	mg/l	<	.0052			
Cadmium	mg/l	-	-			
Depth to Water	Feet	20.08	-			
Iron	mg/l	39	8400			
Sulfate as SO4	mg/l	-	-			
Sulfate as SO4	mg/l	-	-			
Tetrachloroethylene	ug/l	-	-			
Trichloroethylene	ug/l	11	15.7			
Zinc	mg/l	-	-			
Zinc	mg/l	-	6.89			
pH (Field)	std	-	-			

100115



ENVIRONMENTAL
TESTING and CERTIFICATION

DATA MANAGEMENT SUMMARY REPORT (DM-OH) - History of All Parameters Tested, Selected Sample Point

DATE: 02/26/8
PAGE: 1

Chain of Custody Data Required for ETC Data Management Summary Report

See Below ETC Sample No.	E. I. DUPONT	DUPONT	See Below
	Company	Facility	Sample Point Date

Sample Points, Sampling Dates, and ETC Sample No's

Parameters	ETC Sample No.	Company	Facility	Sample Point	Date	ETC Sample No's	ETC Sample No's
Miscellaneous Parameters							
Barium	760109 V3853	760429 V3854	770308 V3855	770701 V3856	770810 V3857	771014 V3858	780330 V3859
Barium	1.5	.50	.7	.45	.69	.60	14.6
Cadmium	.001	.02	.005	.26	.35	.033	.85
Depth to Water			.9	1.2	1.5	2.0	.9
Iron							
Sulfate as SO4							
Sulfate as SO4	4.60	26.0	19.3	78.9	105	95	160
Tetrachloroethylene							
Zinc							300
pH (Field)							

100116

DATA MANAGEMENT SUMMARY REPORT
 (DM-OH) - History of All Parameters Tested, Selected Sample Point

DATE: 02/26/87
 PAGE: 2

Chain of Custody Data Required for ETC Data Management Summary Report

See Below	E. I. DUPONT	DUPNEWGAM	SMA	See Below
ETC Sample No.	Company	Facility	Sample Point	Date

		Sample Points, Sampling Dates, and ETC Sample No.'s									
Parameters	Units	SMA 780927 V3861	SMA 781115 V3862	SMA 790321 V3863	SMA 790501 V3864	SMA 790717 V3865	SMA 791017 V3866	SMA 800212 V3867	SMA 800619 V3868		
Miscellaneous Parameters											
Barium	mg/l	.2	.2	.2	.5	.2	.2	.3	.2		
Barium	mg/l	297	.197	.185	1.17	153	.518	1.04	.88		
Cadmium	mg/l										
Depth to Water	Feet	.7	1.2	1.2	.8	1.3	1.0	1.0	.3		
Iron	ug/l										
Sulfate as SO4	mg/l										
Sulfate as SO4	mg/l										
Tetrachloroethylene	ug/l										
Zinc	mg/l	270	200	260	260	190	130	243	163		
Zinc	mg/l										
pH (Field)	std										

100117

DATA MANAGEMENT SUMMARY REPORT
(DM-OH) - History of All Parameters Tested, Selected Sample Point

DATE: 02/26/87
 PAGE: 3

Chain of Custody Data Required for ETC Data Management Summary Report

See Below	E. I. DUPONT	DUPNEWGMA	SMA	See Below
ETC Sample No.	Company	Facility	Sample Point	Date

Sample Points, Sampling Dates, and ETC Sample No.'s

Parameters	Units	SMA 800911 V3869	SMA 801114 V3870	SMA 801114 V3545	SMA 810210 V3871	SMA 810313 V3872	SMA 810521 V3873	SMA 810813 V3874	SMA 811118 V3875
Miscellaneous Parameters									
Barium	mg/l	1.2	4.0	-	.5	.33	.5	.2	.2
Barium	mg/l	-	-	-	.4	-	-	-	-
Cadmium	mg/l	1.25	1.2	-	1.1	.113	1.16	1.1	.93
Cadmium	mg/l	-	-	-	1.0	-	-	0	-
Depth to Water	Feet	1.6	2.0	-	-	.3	.5	-	3
Iron	ug/l	-	-	-	-	-	150	220	220
Sulfate as SO4	mg/l	288	260	-	201	115	-	-	-
Sulfate as SO4	mg/l	-	-	3	220	-	-	-	-
Tetrachloroethylene	ug/l	-	-	-	275	135	290	300	280
Zinc	mg/l	240	260	-	270	-	-	-	-
Zinc	mg/l	-	-	-	-	-	-	-	-
pH (Field)	std	-	-	-	-	-	-	-	-

100118

ETC ENVIRONMENTAL TESTING and CERTIFICATION

**DATA MANAGEMENT SUMMARY REPORT
(DM-OH) - History of All Parameters Tested, Selected Sample Point**

DATE: 02/26/87
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Chain of Custody Data Required for ETC Data Management Summary Report

See Below ETC Sample No.	E. I. DUPONT	DUPNEWGMM	SMA	See Below
	Company	Facility	Sample Point	Date

Sample Points, Sampling Dates, and ETC Sample No.'s

Parameters	SMA 820225 V3876	SMA 820514 V3877	SMA 820903 V3878	SMA 821008 V3879	SMA 830106 V3880	SMA 830627 V3881	SMA 830921 V3882	SMA 831129 V3883
Miscellaneous Parameters								
Barium	.4	.2	.4	.2	.2	.1	.2	.5
Barium	1.0	.92	.94	.96	1.1	1.16	.8	.65
Cadmium	1.0	0	.3	.3	-	.7	-	-
Depth to Water	210	220	220	220	200	210	190	200
Iron	-	-	-	-	-	-	-	-
Sulfate as SO4	250	260	250	260	270	225	220	165
Sulfate as SO4	-	-	-	-	-	-	-	-
Tetrachloroethylene	-	-	-	-	-	-	-	-
Zinc	-	-	-	-	-	-	-	-
Zinc	-	-	-	-	-	-	-	-
pH (Field)	-	-	-	-	-	-	-	-

617001

DATA MANAGEMENT SUMMARY REPORT
(DM-OH) - History of All Parameters Tested, Selected Sample Point

DATE: 02/26/87
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Chain of Custody Data Required for ETC Data Management Summary Report

See Below	E. I. DUPONT	DUPNEIGHAM	SMA	See Below
ETC Sample No.	Company	Facility	Sample Point	Date

Sample Points, Sampling Dates, and ETC Sample No.'s

Parameters	Units	SMA	SMA	SMA	SMA	SMA	SMA	SMA	SMA
Miscellaneous Parameters									
Barium	mg/l	840109	840621	840814	841015	850122	850610	850910	851226
Barium	mg/l	V3884	V3885	V3886	V3887	V3888	V3889	V3890	V3891
Cadmium	mg/l								
Cadmium	mg/l	.28	.18	.10	.17	.10	.17	.21	.12
Depth to Water	Feet								
Iron	ug/l	.55	.84	.75	.71	.70	.63	.65	.67
Sulfate as SO4	mg/l		190	160	220	180	180	160	170
Sulfate as SO4	ug/l								
Tetrachloroethylene	mg/l	150	200	200	180	180	190	180	200
Zinc	mg/l								
Zinc	mg/l								
pH (Field)	std								

100120

DATA MANAGEMENT SUMMARY REPORT
(DM-OH) - History of All Parameters Tested, Selected Sample Point

DATE: 02/26/87
 PAGE: 6

Chain of Custody Data Required for ETC Data Management Summary Report

See Below ETC Sample No. E. I. DUPONT Company DUPNEWGLM Facility SMA See Below Sample Point Date

Sample Points, Sampling Dates, and ETC Sample No.'s

Parameters	Units	SMA 860226 V3892	SMA 860429 V3893	SMA 860731 V3894	SMA 870210 R4849
Miscellaneous Parameters					
Barium	mg/l	.10	.10	.10	.13
Barium	mg/l	.73	.65	.60	.618
Cadmium	mg/l	-	-	-	-
Depth to Water	Feet	-	.08	-	-
Iron	ug/l	87	160	160	31200
Sulfate as S04	mg/l	-	-	-	-
Sulfate as S04	mg/l	190	190	180	180
Tetrachloroethylene	mg/l	-	-	-	-
Zinc	mg/l	-	-	-	-
Zinc	mg/l	-	-	-	-
pH (Field)	std	-	-	-	5.73

100121

DATA MANAGEMENT SUMMARY REPORT
 (DM-OH) - History of All Parameters Tested, Selected Sample Point

DATE: 02/26/87
 PAGE: 1

Chain of Custody Data Required for ETC Data Management Summary Report

See Below ETC Sample No.	E. I. DUPONT	DUPNEKGM	SMS	See Below
	Company	Facility	Sample Point	Date

		Sample Points, Sampling Dates, and ETC Sample No.'s							
Parameters	Units	W SMS 811118 V3895	W SMS 820225 V3896	W SMS 820514 V3897	W SMS 820903 V3898	W SMS 821008 V3899	W SMS 830106 V3900	W SMS 830627 V3901	W SMS 830920 V3902
Miscellaneous Parameters									
Barium	mg/l	2	2	2	3	2	2	1	2
Cadmium	mg/l	.01	.01	.01	.01	.01	.01	.01	.002
Depth to Water	Feet	9.7	8.6	7.0	7.3	5.3	6.7	4.7	6.7
Iron	ug/l	130	160	160	120	110	120	85	120
Sulfate as SO4	mg/l	57	44	52	49	42	35	60	34
Zinc	mg/l								
pH (Field)	std								

100122

ETC ENVIRONMENTAL TESTING and CERTIFICATION

DATA MANAGEMENT SUMMARY REPORT
 (DM-OH) - History of All Parameters Tested, Selected Sample Point

DATE: 02/26/87
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Chain of Custody Data Required for ETC Data Management Summary Report

See Below
 E. I. DUPONT

DUPNEWGAM

SMS

See Below

ETC Sample No.

Company

Facility

Sample Point

Date

Sample Points, Sampling Dates, and ETC Sample No.'s

Parameters	Units	H SMS 831129 V3903	H SMS 840109 V3904	H SMS 840521 V3905	H SMS 840815 V3906	H SMS 841015 V3907	H SMS 850115 V3908	H SMS 850610 V3909	H SMS 850910 V3910
Miscellaneous Parameters									
Barium	mg/l	5	.23	.40	.10	.10	.10	.10	.10
Cadmium	mg/l	.01	.01	.01	.01	.01	.01	.01	.01
Depth to Water	Feet	6.7	6.7	5.94	5.46	6.38	6.79	7.46	6.59
Iron	ug/l	91	87	58	56	74	72	97	73
Sulfate as SO4	mg/l	.33	.32	1.4	.48	.55	.62	.46	.44
Zinc	mg/l								
pH (Field)	std								

100123

**DATA MANAGEMENT SUMMARY REPORT
(DM-OH) - History of All Parameters Tested, Selected Sample Point**

DATE: 02/26/87
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Chain of Custody Data Required for ETC Data Management Summary Report

See Below ETC Sample No.	E. I. DUPONT	Company	DUPNEHGM	Facility	SMS 870210 R4845	See Below Sample Point	Date
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Sample Points, Sampling Dates, and ETC Sample No.'s

Parameters	Units	W SMS 851226 V3911	W SMS 860225 V3912	W SMS 860429 V3913	W SMS 860731 V3914	W SMS 870210 R4845
Miscellaneous Parameters						
Barium	mg/l	10	1	1	10	.098
Cadmium	mg/l	.01	.01	.01	.01	.0063
Depth to Water	Feet	6.79	5.79	5.96	6.46	6900
Iron	ug/l	78	67	42	49	-
Sulfate as SO4	mg/l	50	39	39	39	38
Zinc	mg/l	-	-	-	-	5.34
pH (Field)	std	-	-	-	-	-

100124

Notes: BMDL = Below Method Detection Limit ND = Parameter not determined - = Parameter not tested

ETC ENVIRONMENTAL TESTING and CERTIFICATION

**DATA MANAGEMENT SUMMARY REPORT
(DM-OH) - History of All Parameters Tested, Selected Sample Point**

DATE: 02/26/87
PAGE: 1

Chain of Custody Data Required for ETC Data Management Summary Report

See Below ETC Sample No. E. I. DUPONT Company DUPNEKGM DM1 See Below Sample Point Date

Sample Points, Sampling Dates, and ETC Sample No.'s

Parameters	DM1 760109 V3527	DM1 760429 V3528	DM1 770308 V3529	DM1 770701 V3530	DM1 770810 V3531	DM1 771014 V3532	DM1 780330 V3533	DM1 780615 V3534
Miscellaneous Parameters								
Barium	8	.05	1.4	1.92	1.32	.55	3.8	.002
Cadmium	.002	.02	.005	.009	.012	.03	.006	8.6
Depth to Water	-	-	8.9	10.2	10.0	11.3	7.9	-
Sulfate as SO4	-	-	-	-	-	-	-	-
Tetrachloroethylene	.26	.38	.99	.53	.56	.38	1.22	.69
Zinc	-	-	-	-	-	-	-	-

100125

DATA MANAGEMENT SUMMARY REPORT
 (DM-OH) - History of All Parameters Tested, Selected Sample Point

DATE: 02/26/8
 PAGE: 2

Chain of Custody Data Required for ETC Data Management Summary Report

See Below ETC Sample No.	E. I. DUPONT	DUPNEGAM	DM1	See Below Sample Point	Date
	Company	Facility			

Sample Points, Sampling Dates, and ETC Sample No.'s

Parameters	DM1 780927 V3535	DM1 781115 V3536	DM1 790321 V3537	DM1 790502 V3538	DM1 790718 V3539	DM1 791016 V3540	DM1 800213 V3541	DM1 800619 V3542
Miscellaneous Parameters								
Barium	2.005	2.003	2.004	5.016	4.004	3.020	3.002	2.008
Cadmium	8.2	9.2	6.9	7.2	9.7	8.3	7.9	7.6
Depth to Water	-	-	-	-	-	-	-	-
Sulfate as SO4	-	-	-	-	-	-	-	-
Tetrachloroethylene	2.7	1.3	1.1	.44	.60	.80	.24	.23
Zinc								

100126



ENVIRONMENTAL
TESTING and CERTIFICATION

DATA MANAGEMENT SUMMARY REPORT
(DM-OH) - History of All Parameters Tested, Selected Sample Point

DATE: 02/26/81
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Chain of Custody Data Required for ETC Data Management Summary Report

See Below ETC Sample No.	E. I. DUPONT	DUPONEMGM	DM3	See Below Sample Point	Date

Sample Points, Sampling Dates, and ETC Sample No's

Parameters	H DM3 760429 V3546	H DM3 770308 V3547	H DM3 770701 V3548	H DM3 770810 V3549	H DM3 771014 V3550	H DM3 780330 V3551	H DM3 780615 V3552	H DM3 780927 V3553
Miscellaneous Parameters								
Barium	.07	1	33	30	.67	6.9	5.3	2
Cadmium	5.40	4.78	2.34	2.82	.51	2.2	19.0	.343
Depth to Water	-	19.5	21.0	20.5	22.2	19.4	-	20.2
Sulfate as SO4	-	-	-	-	-	-	-	-
Tetrachloroethylene	-	-	-	-	-	-	-	-
Trichloroethylene	-	-	-	-	-	-	-	-
Zinc	800	462	241	359	300	220	450	460

100128

DATA MANAGEMENT SUMMARY REPORT
(DM-OH) - History of All Parameters Tested, Selected Sample Point

DATE: 02/26/87
 PAGE: 2

Chain of Custody Data Required for ETC Data Management Summary Report

See Below	E. I. DUPONT	DUPNEWGAM	DM3	See Below
ETC Sample No.	Company	Facility	Sample Point	Date

Sample Points, Sampling Dates, and ETC Sample No's

Parameters	DM3 781115 V3554	DM3 790321 V3555	DM3 790502 V3556	DM3 790718 V3557	DM3 791016 V3558	DM3 800213 V3559	DM3 800221 V3560	DM3 800228 V3561
Miscellaneous Parameters								
Barium	2	2	5	2	2	2	-	-
Cadmium	.222	.190	4.3	.153	.023	4.0	-	-
Depth to Water	20.1	19.2	19.1	19.7	20.5	19.4	-	-
Sulfate as SO4	-	-	-	-	-	980	-	-
Tetrachloroethylene	-	-	-	-	-	-	99	94
Trichloroethylene	-	-	-	-	-	-	10	10
Zinc	340	340	380	280	290	250	-	-

100129

DATA MANAGEMENT SUMMARY REPORT
 (DM-OH) - History of All Parameters Tested, Selected Sample Point

DATE: 02/26/
 PAGE: 3

Chain of Custody Data Required for ETC Data Management Summary Report

See Below	E. I. DUPONT	DUPONT	DMS	See Below
ETC Sample No.	Company	Facility	Sample Point	Date

Parameters	Units	Sample Points, Sampling Dates, and ETC Sample No's																		
		DM3 800502 V3562	DM3 800619 V3563	DM3 800624 V3564	DM3 800711 V3565	DM3 800714 V3566	DM3 800715 V3567	DM3 800911 V3568	DM3 801114 V3569											
Miscellaneous Parameters																				
Barium	mg/l	1.170	2	-	-	-	-	-	-	-	-	3	5							
Cadmium	mg/l	3.900	3.4	-	-	-	-	-	-	-	-	5	4							
Depth to Water	Feet	-	19.6	-	-	-	-	-	-	-	-	20.8	19.5							
Sulfate as SO4	mg/l	-	45	-	-	-	-	-	-	-	-	883	825							
Tetrachloroethylene	ug/l	-	-	223	313	224	215	-	-	-	-	-	222							
Trichloroethylene	ug/l	-	-	-	9.0	-	9.0	-	-	-	-	-	8							
Zinc	mg/l	-	350	-	-	-	-	-	-	-	-	380	400							

ETC ENVIRONMENTAL TESTING and CERTIFICATION

**DATA MANAGEMENT SUMMARY REPORT
(DM-OH) - History of All Parameters Tested, Selected Sample Point**

DATE: 03/06/8
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Chain of Custody Data Required for ETC Data Management Summary Report

See Below ETC Sample No.	E. I. DUPONT	DUPONT	DMA	See Below
	Company	Facility	Sample Point	Date

Sample Points, Sampling Dates, and ETC Sample No's							
Parameters	Units	W DMA 790502 V3578	W DMA 791017 V3580	W DMA 800213 V3581	W DMA 800619 V3582	W DMA 800911 V3583	W DMA 801114 V3584
Miscellaneous Parameters							
Barium	mg/l	5.003	2.009	3.3024	2.007	7.7008	5.013
Cadmium	mg/l	5.6	5.3	5.8	6.8	5.5	7.4
Depth to Water	Feet	-	-	132	50	4	5
Sulfate as SO4	mg/l	-	1.0	2.2	-	-	16
Tetrachloroethylene	mg/l	.32	-	-	.8	.48	1.6
Zinc	mg/l	-	-	-	-	-	-

100132

DATA MANAGEMENT SUMMARY REPORT
(DM-OH) - History of All Parameters Tested, Selected Sample Point

DATE: 03/06
 PAGE: 1

Chain of Custody Data Required for ETC Data Management Summary Report

See below E. I. DUPONT

DUPONT

DMS

See below

ETC Sample No.

Company

Facility

Sample Point

Date

Sample Points, Sampling Dates, and ETC Sample No.'s

Parameters	Unit	H DMS 770701 V3586	H DMS 770810 V3587	H DMS 771014 V3588	H DMS 780330 V3589	H DMS 780615 V3590	H DMS 780927 V3591	H DMS 781116 V3592	H DMS 790321 V3593
Priority Pollutant Volatiles									
Acrolein	ug/l	-	-	-	-	-	-	-	-
Acrylonitrile	ug/l	-	-	-	-	-	-	-	-
Benzene	ug/l	-	-	-	-	-	-	-	-
bis(Chloromethyl)ether	ug/l	-	-	-	-	-	-	-	-
Bromoform	ug/l	-	-	-	-	-	-	-	-
Carbon tetrachloride	ug/l	-	-	-	-	-	-	-	-
Chlorobenzene	ug/l	-	-	-	-	-	-	-	-
Chlorodibromomethane	ug/l	-	-	-	-	-	-	-	-
Chloroethane	ug/l	-	-	-	-	-	-	-	-
2-Chloroethylvinyl ether	ug/l	-	-	-	-	-	-	-	-
Chloroform	ug/l	-	-	-	-	-	-	-	-
Dichlorobromomethane	ug/l	-	-	-	-	-	-	-	-
Dichlorodifluoromethane	ug/l	-	-	-	-	-	-	-	-
1,1-Dichloroethane	ug/l	-	-	-	-	-	-	-	-
1,2-Dichloroethane	ug/l	-	-	-	-	-	-	-	-
1,1-Dichloroethylene	ug/l	-	-	-	-	-	-	-	-
1,2-Dichloropropane	ug/l	-	-	-	-	-	-	-	-
cis-1,3-Dichloropropylene	ug/l	-	-	-	-	-	-	-	-
Ethylbenzene	ug/l	-	-	-	-	-	-	-	-
Methyl bromide	ug/l	-	-	-	-	-	-	-	-
Methyl chloride	ug/l	-	-	-	-	-	-	-	-
Methylene chloride	ug/l	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	ug/l	-	-	-	-	-	-	-	-
Tetrachloroethylene	ug/l	-	-	-	-	-	-	-	-
Toluene	ug/l	-	-	-	-	-	-	-	-
1,2-Trans-dichloroethylene	ug/l	-	-	-	-	-	-	-	-
1,1,1-Trichloroethane	ug/l	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	ug/l	-	-	-	-	-	-	-	-
Trichloroethylene	ug/l	-	-	-	-	-	-	-	-
Trichlorofluoromethane	ug/l	-	-	-	-	-	-	-	-
Vinyl chloride	ug/l	-	-	-	-	-	-	-	-
trans-1,3-Dichloropropylene	ug/l	-	-	-	-	-	-	-	-

89100

DATA MANAGEMENT SUMMARY REPORT
(DM-OH) - History of All Parameters Tested, Selected Sample Point

DATE: 03/06/87
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Chain of Custody Data Required for ETC Data Management Summary Report

See Below ETC Sample No. E. I. DUPONT Company DUPNEHGAM Facility DMS 780615 Sample Point DMS 780927 Date See Below V3586 V3587 V3588 V3589 V3590 V3591 V3592 V3593

Parameters	Sample Points, Sampling Dates, and ETC Sample No.'s							
	DMS 770701 V3586	DMS 770810 V3587	DMS 771014 V3588	DMS 780330 V3589	DMS 780615 V3590	DMS 780927 V3591	DMS 781115 V3592	DMS 790321 V3593
Miscellaneous Parameters								
Barium	1.71	.94	2.59	3.5	-	.2	.2	.2
Barium								
Cadmium	.010	.018	.05	.011	.018	.041	.027	.020
Cadmium								
Depth to Water	6.0	6.5	6.0	5.2	6.4	5.5	4.8	5.4
Gross Alpha								
Gross Alpha								
Gross Beta								
Gross Beta								
Iron								
Sulfate as SO4								
Sulfate as SO4	.45	.59	.49	2.3	4.0	4.0	3.8	2.0
Zinc								
Zinc								
pH (Field)								

100134

ETC ENVIRONMENTAL TESTING and CERTIFICATION

**DATA MANAGEMENT SUMMARY REPORT
(DM-OH) - History of All Parameters Tested, Selected Sample Point**

DATE: 03/06
PAGE: 3

Chain of Custody Data Required for ETC Data Management Summary Report

See Below E. I. DUPONT

DUPONT

DMS

See Below

ETC Sample No.

Company

Facility

DMS

Sample Point

Date

Sample Points, Sampling Dates, and ETC Sample No.'s

Parameters	Unit	H DMS 790501 V3594	H DMS 790717 V3595	H DMS 791017 V3596	H DMS 800212 V3597	H DMS 800221 V3598	H DMS 800228 V3599	H DMS 800502 V3600	H DMS 800619 V3601
Priority Pollutant Volatiles									
Acrolein	ug/l	-	-	-	-	-	-	-	-
Acrylonitrile	ug/l	-	-	-	-	-	-	-	-
Benzene	ug/l	-	-	-	-	-	-	-	-
bis(Chloromethyl)ether	ug/l	-	-	-	-	-	-	-	-
Bromoform	ug/l	-	-	-	-	-	-	-	-
Carbon tetrachloride	ug/l	-	-	-	-	-	-	-	-
Chlorobenzene	ug/l	-	-	-	-	-	-	-	-
Chlorodibromomethane	ug/l	-	-	-	-	-	-	-	-
Chloroethane	ug/l	-	-	-	-	-	-	-	-
2-Chloroethylvinyl ether	ug/l	-	-	-	-	-	-	-	-
Chloroform	ug/l	-	-	-	-	-	-	-	-
Dichlorobromomethane	ug/l	-	-	-	-	-	-	-	-
Dichlorodifluoromethane	ug/l	-	-	-	-	-	-	-	-
1,1-Dichloroethane	ug/l	-	-	-	-	-	-	-	-
1,2-Dichloroethane	ug/l	-	-	-	-	-	-	-	-
1,1-Dichloroethylene	ug/l	-	-	-	-	-	-	-	-
1,2-Dichloropropane	ug/l	-	-	-	-	-	-	-	-
cis-1,3-Dichloropropylene	ug/l	-	-	-	-	-	-	-	-
Ethylbenzene	ug/l	-	-	-	-	-	-	-	-
Methyl bromide	ug/l	-	-	-	-	-	-	-	-
Methyl chloride	ug/l	-	-	-	-	-	-	-	-
Methylene chloride	ug/l	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	ug/l	-	-	-	-	76	86	-	-
Tetrachloroethylene	ug/l	-	-	-	-	-	-	-	-
Toluene	ug/l	-	-	-	-	-	-	-	-
1,2-Trans-dichloroethylene	ug/l	-	-	-	-	-	-	-	-
1,1,1-Trichloroethane	ug/l	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	ug/l	-	-	-	-	-	-	-	-
Trichloroethylene	ug/l	-	-	-	-	-	-	-	-
Trichlorofluoromethane	ug/l	-	-	-	-	-	-	-	-
Vinyl chloride	ug/l	-	-	-	-	-	-	-	-
trans-1,3-Dichloropropylene	ug/l	-	-	-	-	-	-	-	-

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ETC ENVIRONMENTAL TESTING and CERTIFICATION

**DATA MANAGEMENT SUMMARY REPORT
(DM-OH) - History of All Parameters Tested, Selected Sample Point**

DATE: 03/06
PAGE: 4

Chain of Custody Data Required for ETC Data Management Summary Report
 See Below E. I. DUPONT DUPNEOHM DMS See Below
 ETC Sample No. Company Facility Sample Point Date

Parameters	Units	DMS 790601 V3594	DMS 790717 V3595	DMS 791017 V3596	DMS 800212 V3597	DMS 800221 V3598	DMS 800228 V3599	DMS 800502 V3600	DMS 800619 V3601
Sample Points, Sampling Dates, and ETC Sample No's									
Miscellaneous Parameters									
Barium	mg/l	.5	.2	.2	.2	.2	.2	.126	.2
Barium	mg/l	.003	.014	.005	.002	.002	.002	.050	.005
Cadmium	mg/l	5.4	5.4	5.3	6.0	6.0	6.0	6.7	6.7
Depth to Water	Feet								
Gross Alpha	pCi/l								
Gross Alpha	pCi/l								
Gross Beta	pCi/l								
Iron	ug/l						83		110
Sulfate as S04	mg/l								
Sulfate as S04	mg/l	.67	.57	.30	.13	.13	.13	.13	.13
Zinc	mg/l								
Zinc	mg/l								
pH (Field)	std								

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DATA MANAGEMENT SUMMARY REPORT
(DM-OH) - History of All Parameters Tested, Selected Sample Point

DATE: 03/06,
 PAGE: 5

Chain of Custody Data Required for ETC Data Management Summary Report
 See Below E.I. DUPONT DUPNENGM DMS See Below
 ETC Sample No. Company Facility Sample Point Date

Parameters	Units	Sample Points, Sampling Dates, and ETC Sample No.'s							
		DMS 800624 V3602	DMS 800711 V3603	DMS 800714 V3604	DMS 800715 V3605	DMS 800911 V3606	DMS 801114 V3607	DMS 810210 V3608	DMS 810313 V3609
Priority Pollutant Volatiles									
Acrolein	ug/l								
Acrylonitrile	ug/l								
Benzene	ug/l								
bis(Chloromethyl)ether	ug/l								
Bromoform	ug/l								
Carbon tetrachloride	ug/l								
Chlorobenzene	ug/l								
Chlorodibromomethane	ug/l								
Chloroethane	ug/l								
2-Chloroethylvinyl ether	ug/l								
Chloroform	ug/l								
Dichlorobromomethane	ug/l								
Dichlorodifluoromethane	ug/l								
1,1-Dichloroethane	ug/l								
1,2-Dichloroethane	ug/l								
1,1-Dichloroethylene	ug/l								
1,2-Dichloropropane	ug/l								
cis-1,3-Dichloropropylene	ug/l								
Ethylbenzene	ug/l								
Methyl bromide	ug/l								
Methyl chloride	ug/l								
Methylene chloride	ug/l								
1,1,2,2-Tetrachloroethane	ug/l	167	247	49	173		133		
Tetrachloroethylene	ug/l								
Toluene	ug/l								
1,2-trans-dichloroethylene	ug/l								
1,1,1-Trichloroethane	ug/l								
1,1,2-Trichloroethane	ug/l		2.5		1.5				
Trichloroethylene	ug/l								
Trichlorofluoromethane	ug/l								
Vinyl chloride	ug/l								
trans-1,3-Dichloropropylene	ug/l								

100137

DATA MANAGEMENT SUMMARY REPORT
(DM-OH) - History of All Parameters Tested, Selected Sample Point

DATE: 03/06/1
 PAGE: 6

Chain of Custody Data Required for ETC Data Management Summary Report

See Below ETC Sample No. E. I. DUPONT Company DUPNENGLM Facility DMS 800911 V3606 Sample Point DMS 801114 V3607 Date See Below

Sample Points, Sampling Dates, and ETC Sample No.'s

Parameters	Units	DMS 800624 V3602	DMS 800711 V3603	DMS 800714 V3604	DMS 800715 V3605	DMS 800911 V3606	DMS 801114 V3607	DMS 810210 V3608	DMS 810313 V3609
Miscellaneous Parameters									
Barium	mg/l	-	-	-	-	5	1.6	.2	.2
Barium	mg/l	-	-	-	-	.01	.005	.004	.0001
Cadmium	mg/l	-	-	-	-	5.4	7.5	.01	5.7
Depth to Water	Feet	-	-	-	-	-	-	-	-
Gross Alpha	pCi/l	-	-	-	-	-	-	-	-
Gross Alpha	pCi/l	-	-	-	-	-	-	-	-
Gross Beta	pCi/l	-	-	-	-	-	-	-	-
Gross Beta	pCi/l	-	-	-	-	-	-	-	-
Iron	ug/l	-	-	-	-	144	180	199	130
Sulfate as S04	mg/l	-	-	-	-	35	29	210	30
Sulfate as S04	mg/l	-	-	-	-	-	-	37	-
Zinc	mg/l	-	-	-	-	-	-	34	-
Zinc	mg/l	-	-	-	-	-	-	-	-
pH (Field)	std	-	-	-	-	-	-	-	-

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DATA MANAGEMENT SUMMARY REPORT
(DM-OH) - History of All Parameters Tested, Selected Sample Point

DATE: 03/06/81
 PAGE: 7

Chain of Custody Data Required for ETC Data Management Summary Report

See Below	E. I. DUPONT	DUPNECKAM	DMS	See Below
ETC Sample No.	Company	Facility	Sample Point	Date

Parameters	Units	Sample Points, Sampling Dates, and ETC Sample No's							
		DMS 810621 V3610	DMS 810813 V3611	DMS 811118 V3612	DMS 820226 V3613	DMS 820814 V3614	DMS 820903 V3615	DMS 821008 V3616	DMS 830106 V3617
Priority Pollutant Volatiles									
Acrolein	ug/l	-	-	-	-	-	-	-	-
Acrylonitrile	ug/l	-	-	-	-	-	-	-	-
Benzene	ug/l	-	-	-	-	-	-	-	-
bis(Chloromethyl)ether	ug/l	-	-	-	-	-	-	-	-
Bromoform	ug/l	-	-	-	-	-	-	-	-
Carbon tetrachloride	ug/l	-	-	-	-	-	-	-	-
Chlorobenzene	ug/l	-	-	-	-	-	-	-	-
Chlorodibromomethane	ug/l	-	-	-	-	-	-	-	-
Chloroethane	ug/l	-	-	-	-	-	-	-	-
2-Chloroethylvinyl ether	ug/l	-	-	-	-	-	-	-	-
Chloroform	ug/l	-	-	-	-	-	-	-	-
Dichlorobromomethane	ug/l	-	-	-	-	-	-	-	-
Dichlorodifluoromethane	ug/l	-	-	-	-	-	-	-	-
1,1-Dichloroethane	ug/l	-	-	-	-	-	-	-	-
1,2-Dichloroethane	ug/l	-	-	-	-	-	-	-	-
1,1-Dichloroethylene	ug/l	-	-	-	-	-	-	-	-
1,2-Dichloropropane	ug/l	-	-	-	-	-	-	-	-
cis-1,3-Dichloropropylene	ug/l	-	-	-	-	-	-	-	-
Ethylbenzene	ug/l	-	-	-	-	-	-	-	-
Methyl bromide	ug/l	-	-	-	-	-	-	-	-
Methyl chloride	ug/l	-	-	-	-	-	-	-	-
Methylene chloride	ug/l	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	ug/l	-	-	-	-	-	-	-	-
Tetrachloroethylene	ug/l	-	-	-	-	-	-	-	-
Toluene	ug/l	-	-	-	-	-	-	-	-
1,2-Trans-dichloroethylene	ug/l	-	-	-	-	-	-	-	-
1,1,1-Trichloroethane	ug/l	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	ug/l	-	-	-	-	-	-	-	-
Trichloroethylene	ug/l	-	-	-	-	-	-	-	-
Trichlorofluoromethane	ug/l	-	-	-	-	-	-	-	-
Vinyl chloride	ug/l	-	-	-	-	-	-	-	-
trans-1,3-Dichloropropylene	ug/l	-	-	-	-	-	-	-	-

100139

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ETC ENVIRONMENTAL TESTING and CERTIFICATION

**DATA MANAGEMENT SUMMARY REPORT
(DM-OH) - History of All Parameters Tested, Selected Sample Point**

DATE: 03/06
PAGE: 8

Chain of Custody Data Required for ETC Data Management Summary Report

See Below E.T. DUPONT
ETC Sample No.

DUPNEWGM
Facility

DMS
Sample Point

Date

Sample Points, Sampling Dates, and ETC Sample No.'s

Parameters	DMS 810521 V3610	DMS 810813 V3611	DMS 811118 V3612	DMS 820225 V3613	DMS 820514 V3614	DMS 820903 V3615	DMS 821008 V3616	DMS 830106 V3617
Miscellaneous Parameters								
Barium	.2	.2	.2	.2	.2	.2	.2	.2
Barium								
Cadmium	.0016	.01	.01	.01	.01	.01	.01	.01
Cadmium								
Depth to Water	4.9	5.5	5.9	4.3	6.1	5.7	6.7	6.1
Gross Alpha								
Gross Alpha								
Gross Beta								
Gross Beta								
Iron								
Sulfate as SO4	160	280	280	280	260	330	340	360
Sulfate as SO4								
Zinc	.35	.39	.23	.17	.22	.15	.29	.20
Zinc								
pH (Field)								

100140

**DATA MANAGEMENT SUMMARY REPORT
(DM-OH) - History of All Parameters Tested, Selected Sample Point**

DATE: 03/06/87
PAGE: 9

Chain of Custody Data Required for ETC Data Management Summary Report

See Below **E. I. DUPONT** **DUPONT** **DMS** See Below
ETC Sample No. Company Facility Sample Point Date

Sample Points, Sampling Dates, and ETC Sample No.'s

Parameters	Unit	DMS 830627 V3618	DMS 830921 V3619	DMS 831129 V3620	DMS 840109 V3621	DMS 840621 V3622	DMS 840814 V3623	DMS 841015 V3624	DMS 850122 V3625
Priority Pollutant Volatiles									
Acrolein	ug/l	-	-	-	-	-	-	-	-
Acrylonitrile	ug/l	-	-	-	-	-	-	-	-
Benzene	ug/l	-	-	-	-	-	-	-	-
bis(Chloromethyl)ether	ug/l	-	-	-	-	-	-	-	-
Bromoform	ug/l	-	-	-	-	-	-	-	-
Carbon tetrachloride	ug/l	-	-	-	-	-	-	-	-
Chlorobenzene	ug/l	-	-	-	-	-	-	-	-
Chlorodibromomethane	ug/l	-	-	-	-	-	-	-	-
Chloroethane	ug/l	-	-	-	-	-	-	-	-
2-Chloroethylvinyl ether	ug/l	-	-	-	-	-	-	-	-
Chloroform	ug/l	-	-	-	-	-	-	-	-
Dichlorobromomethane	ug/l	-	-	-	-	-	-	-	-
Dichlorodifluoromethane	ug/l	-	-	-	-	-	-	-	-
1,1-Dichloroethane	ug/l	-	-	-	-	-	-	-	-
1,2-Dichloroethane	ug/l	-	-	-	-	-	-	-	-
1,1-Dichloroethylene	ug/l	-	-	-	-	-	-	-	-
1,2-Dichloropropane	ug/l	-	-	-	-	-	-	-	-
cis-1,3-Dichloropropylene	ug/l	-	-	-	-	-	-	-	-
Ethylbenzene	ug/l	-	-	-	-	-	-	-	-
Methyl bromide	ug/l	-	-	-	-	-	-	-	-
Methyl chloride	ug/l	-	-	-	-	-	-	-	-
Methylene chloride	ug/l	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	ug/l	-	-	-	-	-	-	-	-
tetrachloroethylene	ug/l	-	-	-	-	-	-	-	-
Toluene	ug/l	-	-	-	-	-	-	-	-
1,2-Trans-dichloroethylene	ug/l	-	-	-	-	-	-	-	-
1,1,1-Trichloroethane	ug/l	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	ug/l	-	-	-	-	-	-	-	-
Trichloroethylene	ug/l	-	-	-	-	-	-	-	-
Trichlorofluoromethane	ug/l	-	-	-	-	-	-	-	-
Vinyl chloride	ug/l	-	-	-	-	-	-	-	-
trans-1,3-Dichloropropylene	ug/l	-	-	-	-	-	-	-	-

100141

DATA MANAGEMENT SUMMARY REPORT
(DM-OH) - History of All Parameters Tested, Selected Sample Point

DATE: 03/06/
 PAGE: 10

Chain of Custody Data Required for ETC Data Management Summary Report

See Below
 ETC Sample No.

DUPONT
 Facility

DMS
 Sample Point

See Below
 Sample Point Date

Sample Points, Sampling Dates, and ETC Sample No.'s

Parameters	Units	H DMS 830627 V3618	H DMS 830921 V3619	H DMS 831129 V3620	H DMS 840109 V3621	H DMS 840621 V3622	H DMS 840814 V3623	H DMS 841015 V3624	H DMS 850122 V3625
Miscellaneous Parameters									
Barium	mg/l	.2	.2	.5	.10	.25	.25	.10	.10
Barium	mg/l	.01	.004	.01	.01	.01	.01	.01	.01
Cadmium	mg/l	6.1	4.1	8.1	6.1	5.52	5.52	4.35	6.77
Depth to Water	Feet	-	-	-	-	-	-	-	-
Gross Alpha	pCi/l	-	-	-	-	-	-	-	-
Gross Alpha	pCi/l	-	-	-	-	-	-	-	-
Gross Beta	pCi/l	-	-	-	-	-	-	-	-
Gross Beta	pCi/l	-	-	-	-	-	-	-	-
Iron	ug/l	430	380	91	400	490	630	535	590
Sulfate as S04	mg/l	-	-	-	-	-	-	-	-
Sulfate as S04	mg/l	.38	.44	.33	.46	3.5	3.6	6.0	13
Zinc	mg/l	-	-	-	-	-	-	-	-
Zinc	mg/l	-	-	-	-	-	-	-	-
pH (Field)	std	-	-	-	-	-	-	-	-

100142

**DATA MANAGEMENT SUMMARY REPORT
(DM-OH) - History of All Parameters Tested, Selected Sample Point**

DATE: 03/06/
PAGE: 11

Chain of Custody Data Required for ETC Data Management Summary Report
 See Below: **E. I. DUPONT** **DUPONT** **DMS** See Below
 ETC Sample No. Company Facility Sample Point Date

Sample Points, Sampling Dates, and ETC Sample No.'s

Parameters	Units	DMS 850610 V3585	DMS 870211 R4839	Company	Facility	DMS	Sample Point	Date
Priority Pollutant Volatiles								
Acrolein	ug/l	-	20					
Acrylonitrile	ug/l	-	20					
Benzene	ug/l	-	2.0					
bis(Chloromethyl) ether	ug/l	-	.94					
Bromoform	ug/l	-	.56					
Carbon tetrachloride	ug/l	-	1.2					
Chlorobenzene	ug/l	-	.62					
Chlorodibromomethane	ug/l	-	2.0					
Chloroethane	ug/l	-	2.0					
2-Chloroethyl vinyl ether	ug/l	-	1.42					
Chloroform	ug/l	-	.44					
Dichlorobromomethane	ug/l	-	2.0					
Dichlorodifluoromethane	ug/l	-	2.0					
1,1-Dichloroethane	ug/l	-	.94					
1,2-Dichloroethane	ug/l	-	.56					
1,1-Dichloroethylene	ug/l	-	.56					
1,2-Dichloropropane	ug/l	-	1.2					
cis-1,3-Dichloropropylene	ug/l	-	1.0					
Ethylbenzene	ug/l	-	1.4					
Methyl bromide	ug/l	-	2.0					
Methyl chloride	ug/l	-	2.0					
Methylene chloride	ug/l	-	6.80					
1,1,2,2-Tetrachloroethane	ug/l	-	1.4					
Tetrachloroethylene	ug/l	-	103					
Toluene	ug/l	-	1.2					
1,2-Trans-dichloroethylene	ug/l	-	.43					
1,1,1-Trichloroethane	ug/l	-	.76					
1,1,2-Trichloroethane	ug/l	-	1.0					
Trichloroethylene	ug/l	-	11.8					
Trichlorofluoromethane	ug/l	-	2.0					
Vinyl chloride	ug/l	-	2.0					
trans-1,3-Dichloropropylene	ug/l	-	2.0					

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ETC ENVIRONMENTAL TESTING and CERTIFICATION

**DATA MANAGEMENT SUMMARY REPORT
(DM-OH) - History of All Parameters Tested, Selected Sample Point**

DATE: 03/06/
PAGE: 12

Chain of Custody Data Required for ETC Data Management Summary Report

See Below	E. I. DUPONT	DUPNEIGHAM	DMS	See Below
ETC Sample No.	Company	Facility	Sample Point	Date

Sample Points, Sampling Dates, and ETC Sample No.'s

Parameters	Unit	DMS	DMS
Miscellaneous Parameters		850610 V3585	870211 R4839
Barium	mg/l	.68	.560
Barium	mg/l	-	-
Cadmium	mg/l	.05	.50
Cadmium	mg/l	-	-
Depth to Water	Feet	5.80	-
Gross Alpha	pCi/l	-	4.6
Gross Alpha	pCi/l	-	4.8
Gross Beta	pCi/l	-	14
Gross Beta	pCi/l	-	5.1
Iron	ug/l	-	51800
Sulfate as SO4	mg/l	320	650
Sulfate as SO4	mg/l	-	-
Zinc	mg/l	27	88.3
Zinc	mg/l	-	-
pH (Field)	std	-	5.04

100144

DATA MANAGEMENT SUMMARY REPORT
(DM-OH) - History of All Parameters Tested, Selected Sample Point

DATE: 03/06/1
 PAGE: 1

Chain of Custody Data Required for ETC Data Management Summary Report
 E. I. DUPONT
 DUPNENGAM
 See Below
 DM6
 Sample Point
 Date

Parameters	Units	Sample Points, Sampling Dates, and ETC Sample No.'s							
		H DM6 770701 V3626	H DM6 770810 V3627	H DM6 771014 V3628	H DM6 780330 V3629	H DM6 780615 V3630	H DM6 780927 V3631	H DM6 781115 V3632	H DM6 790321 V3633
Priority Pollutant Volatiles									
Acrolein	ug/l								
Acrylonitrile	ug/l								
Benzene	ug/l								
bis(Chloromethyl)ether	ug/l								
Bromoform	ug/l								
Carbon tetrachloride	ug/l								
Chlorobenzene	ug/l								
Chlorodibromomethane	ug/l								
Chloroethane	ug/l								
2-Chloroethylvinyl ether	ug/l								
Chloroform	ug/l								
Dichlorobromomethane	ug/l								
Dichlorodifluoromethane	ug/l								
1,1-Dichloroethane	ug/l								
1,2-Dichloroethane	ug/l								
1,1-Dichloroethylene	ug/l								
1,2-Dichloropropane	ug/l								
cis-1,3-Dichloropropylene	ug/l								
Ethylbenzene	ug/l								
Methyl bromide	ug/l								
Methyl chloride	ug/l								
Methylene chloride	ug/l								
1,1,2,2-Tetrachloroethane	ug/l								
Tetrachloroethylene	ug/l								
Toluene	ug/l								
1,2-Trans-dichloroethylene	ug/l								
1,1,1-Trichloroethane	ug/l								
1,1,2-Trichloroethane	ug/l								
Trichloroethylene	ug/l								
Trichlorofluoromethane	ug/l								
Vinyl chloride	ug/l								
trans-1,3-Dichloropropylene	ug/l								

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ETC ENVIRONMENTAL TESTING and CERTIFICATION

DATA MANAGEMENT SUMMARY REPORT
(DM-OH) - History of All Parameters Tested, Selected Sample Point

DATE: 03/06/
 PAGE: 2

Chain of Custody Data Required for ETC Data Management Summary Report

See Below	E. I. DUPONT	DUPNENGAM	DM6	See Below
ETC Sample No.	Company	Facility	Sample Point	Date

Parameters	Sample Points, Sampling Dates, and ETC Sample No.'s							
	DM6 770701 V3626	DM6 770810 V3627	DM6 771014 V3628	DM6 780330 V3629	DM6 780615 V3630	DM6 780927 V3631	DM6 781115 V3632	DM6 790321 V3633
Miscellaneous Parameters								
Barium	.48	.31	.48	.7	-	.2	.2	.2
Barium	.010	.010	.04	.016	.004	.003	.005	.019
Cadmium	2.1	2.3	2.1	2	.1	.8	.4	.2
Depth to Water	-	-	-	-	-	-	-	-
Gross Alpha	-	-	-	-	-	-	-	-
Gross Beta	-	-	-	-	-	-	-	-
Gross Beta	-	-	-	-	-	-	-	-
Iron	-	-	-	-	-	-	-	-
Sulfate as S04	-	-	-	-	-	-	-	-
Sulfate as S04	5.57	7.75	4.9	5.0	.82	.66	.3	4.0
Zinc	-	-	-	-	-	-	-	-
Zinc	-	-	-	-	-	-	-	-
pH (Field)	-	-	-	-	-	-	-	-

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Footnotes: BMDL=Below Method Detection Limit ND=Parameter not detected -=-Parameter not tested

DATA MANAGEMENT SUMMARY REPORT
(DM-OH) - History of All Parameters Tested, Selected Sample Point

DATE: 03/06/81
 PAGE: 3

Chain of Custody Data Required for ETC Data Management Summary Report

See below E.T.C. Sample No. **E. I. DUPONT** Company **DUPONT** Facility **DUPONT** Sample Point **DM6** Date **See Below**

Sample Points, Sampling Dates, and ETC Sample No.'s

Parameters	Units	DM6 790601 V3634	DM6 790717 V3635	DM6 791017 V3636	DM6 800212 V3637	DM6 800221 V3638	DM6 800228 V3639	DM6 800502 V3640	DM6 800619 V3641
Priority Pollutant Volatiles									
Acrolein	ug/l	-	-	-	-	-	-	-	-
Acrylonitrile	ug/l	-	-	-	-	-	-	-	-
Benzene	ug/l	-	-	-	-	-	-	-	-
bis(Chloromethyl)ether	ug/l	-	-	-	-	-	-	-	-
Bromoform	ug/l	-	-	-	-	-	-	-	-
Carbon tetrachloride	ug/l	-	-	-	-	-	-	-	-
Chlorobenzene	ug/l	-	-	-	-	-	-	-	-
Chlorodibromomethane	ug/l	-	-	-	-	-	-	-	-
Chloroethane	ug/l	-	-	-	-	-	-	-	-
2-Chloroethylvinyl ether	ug/l	-	-	-	-	-	-	-	-
Chloroform	ug/l	-	-	-	-	-	-	-	-
Dichlorobromomethane	ug/l	-	-	-	-	-	-	-	-
Dichlorodifluoromethane	ug/l	-	-	-	-	-	-	-	-
1,1-Dichloroethane	ug/l	-	-	-	-	-	-	-	-
1,2-Dichloroethane	ug/l	-	-	-	-	-	-	-	-
1,1,1-Dichloroethylene	ug/l	-	-	-	-	-	-	-	-
1,2-Dichloropropane	ug/l	-	-	-	-	-	-	-	-
cis-1,3-Dichloropropylene	ug/l	-	-	-	-	-	-	-	-
Ethylbenzene	ug/l	-	-	-	-	-	-	-	-
Methyl bromide	ug/l	-	-	-	-	-	-	-	-
Methyl chloride	ug/l	-	-	-	-	-	-	-	-
Methylene chloride	ug/l	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	ug/l	-	-	-	-	-	-	-	-
Tetrachloroethylene	ug/l	-	-	-	-	-	-	-	-
Toluene	ug/l	-	-	-	-	-	-	-	-
1,2-Trans-dichloroethylene	ug/l	-	-	-	-	-	-	-	-
1,1,1-Trichloroethane	ug/l	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	ug/l	-	-	-	-	-	-	-	-
Trichloroethylene	ug/l	-	-	-	-	-	-	-	-
Trichlorofluoromethane	ug/l	-	-	-	-	-	-	-	-
Vinyl chloride	ug/l	-	-	-	-	-	-	-	-
trans-1,3-Dichloropropylene	ug/l	-	-	-	-	-	-	-	-

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ETC ENVIRONMENTAL TESTING and CERTIFICATION

**DATA MANAGEMENT SUMMARY REPORT
(DM-OH) - History of All Parameters Tested, Selected Sample Point**

DATE: 03/06
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Chain of Custody Data Required for ETC Data Management Summary Report
 See Below E.I. DUPONT DUPNEWGAM DM6 See Below
 ETC Sample No. Company Facility Sample Point Date

Parameters	Units	DM6 790501 V3634	DM6 790717 V3635	DM6 791017 V3636	DM6 800212 V3637	DM6 800221 V3638	DM6 800228 V3639	DM6 800502 V3640	DM6 800619 V3641
Sample Points, Sampling Dates, and ETC Sample No's									
Miscellaneous Parameters									
Barium	mg/l	.5	.2	.2	2.1	-	-	130	.2
Barium	mg/l	.015	.010	.040	.015	-	-	.050	.005
Cadmium	mg/l	.6	0	1.1	.6	-	-	-	.1
Depth to Water	Feet	-	-	-	-	-	-	-	-
Gross Alpha	pCi/l	-	-	-	-	-	-	-	-
Gross Alpha	pCi/l	-	-	-	-	-	-	-	-
Gross Beta	pCi/l	-	-	-	-	-	-	-	-
Gross Beta	pCi/l	-	-	-	-	-	-	-	-
Iron	ug/l	-	-	-	-	-	-	-	-
Sulfate as SO4	mg/l	-	-	-	5	-	-	-	23
Sulfate as SO4	mg/l	2.1	.59	4.2	1.3	-	-	-	.15
Zinc	mg/l	-	-	-	-	-	-	-	-
Zinc	mg/l	-	-	-	-	-	-	-	-
pH (Field)	std	-	-	-	-	-	-	-	-

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**DATA MANAGEMENT SUMMARY REPORT
(DM-OH) - History of All Parameters Tested, Selected Sample Point**

Chain of Custody Data Required for ETC Data Management Summary Report

See Below E. I. DUPONT Company DUPNENGM DM6 See Below
ETC Sample No. Facility Sample Point Date

Sample Points, Sampling Dates, and ETC Sample No's

Parameters	Units	DM6 800714 V3642	DM6 800715 V3643	DM6 800911 V3644	DM6 801114 V3645	DM6 810210 V3646	DM6 810313 V3647	DM6 810521 V3648	DM6 810813 V3649
Priority Pollutant Volatiles									
Acrolein	ug/l								
Acrylonitrile	ug/l								
Benzene	ug/l								
bis(Chloromethyl)ether	ug/l								
Bromoforn	ug/l								
Carbon tetrachloride	ug/l								
Chlorobenzene	ug/l								
Chlorodibromomethane	ug/l								
Chloroethane	ug/l								
2-Chloroethylvinyl ether	ug/l								
Chloroform	ug/l								
Dichlorobromomethane	ug/l								
Dichlorodifluoromethane	ug/l								
1,1-Dichloroethane	ug/l								
1,2-Dichloroethane	ug/l								
1,1-Dichloroethylene	ug/l								
1,2-Dichloropropane	ug/l								
cis-1,3-Dichloropropylene	ug/l								
Ethylbenzene	ug/l								
Methyl bromide	ug/l								
Methyl chloride	ug/l								
Methylene chloride	ug/l								
1,1,2,2-Tetrachloroethane	ug/l								
Tetrachloroethylene	ug/l								
Toluene	ug/l								
1,2-Trans-dichloroethylene	ug/l								
1,1,1-Trichloroethane	ug/l								
1,1,1,2-Trichloroethane	ug/l								
Trichloroethylene	ug/l								
Trichlorofluoromethane	ug/l								
Vinyl chloride	ug/l								
trans-1,3-Dichloropropylene	ug/l								

ETC ENVIRONMENTAL TESTING and CERTIFICATION

**DATA MANAGEMENT SUMMARY REPORT
(DM-OH) - History of All Parameters Tested, Selected Sample Point**

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Chain of Custody Data Required for ETC Data Management Summary Report

See Below	E. I. DUPONT	DUPNEWMGM	DM6	See Below
ETC Sample No.	Company	Facility	Sample Point	Date

Parameters	Sample Points, Sampling Dates, and ETC Sample No's							
	DM6 800714 V3642	DM6 800715 V3643	DM6 800911 V3644	DM6 801114 V3645	DM6 810210 V3646	DM6 810313 V3647	DM6 810521 V3648	DM6 810813 V3649
Miscellaneous Parameters								
Barium			33	1.7	.2	.2		.4
Barium					.2			
Cadmium			.01	.01	.002	.0001		.01
Cadmium			1.7		.01			
Depth to Water								
Gross Alpha								
Gross Alpha								
Gross Beta								
Gross Beta								
Iron								
Sulfate as SO4			32	280	28	19	20.1	24
Sulfate as SO4					25			
Zinc			1.03	.32	.19	.15	.23	2.7
Zinc					.17			
pH (Field)								

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ETC ENVIRONMENTAL TESTING and CERTIFICATION

**DATA MANAGEMENT SUMMARY REPORT
(DM-OH) - History of All Parameters Tested, Selected Sample Point**

DATE: 03/06/1
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Chain of Custody Data Required for ETC Data Management Summary Report

See Below E. I. DUPONT

DUPNENGAM

DM6

See Below

ETC Sample No.

Company

Facility

Sample Point

Date

Sample Points, Sampling Dates, and ETC Sample No.'s

Parameters	Units	DM6 811118 V3650	DM6 820226 V3651	DM6 820514 V3652	DM6 820903 V3653	DM6 821008 V3654	DM6 830106 V3655	DM6 830627 V3656	DM6 830921 V3657
Priority Pollutant Volatiles									
Acrolein	ug/l	-	-	-	-	-	-	-	-
Acrylonitrile	ug/l	-	-	-	-	-	-	-	-
Benzene	ug/l	-	-	-	-	-	-	-	-
bis(Chloromethyl)ether	ug/l	-	-	-	-	-	-	-	-
Bromoform	ug/l	-	-	-	-	-	-	-	-
Carbon tetrachloride	ug/l	-	-	-	-	-	-	-	-
Chlorobenzene	ug/l	-	-	-	-	-	-	-	-
Chlorodibromomethane	ug/l	-	-	-	-	-	-	-	-
Chloroethane	ug/l	-	-	-	-	-	-	-	-
2-Chloroethylvinyl ether	ug/l	-	-	-	-	-	-	-	-
Chloroform	ug/l	-	-	-	-	-	-	-	-
Dichlorobromomethane	ug/l	-	-	-	-	-	-	-	-
Dichlorodifluoromethane	ug/l	-	-	-	-	-	-	-	-
1,1-Dichloroethane	ug/l	-	-	-	-	-	-	-	-
1,2-Dichloroethane	ug/l	-	-	-	-	-	-	-	-
1,1,2-Dichloroethylene	ug/l	-	-	-	-	-	-	-	-
1,2-Dichloropropane	ug/l	-	-	-	-	-	-	-	-
cis-1,3-Dichloropropylene	ug/l	-	-	-	-	-	-	-	-
Ethylbenzene	ug/l	-	-	-	-	-	-	-	-
Methyl bromide	ug/l	-	-	-	-	-	-	-	-
Methyl chloride	ug/l	-	-	-	-	-	-	-	-
Methylene chloride	ug/l	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	ug/l	-	-	-	-	-	-	-	-
Tetrachloroethylene	ug/l	-	-	-	-	-	-	-	-
Toluene	ug/l	-	-	-	-	-	-	-	-
1,2-Trans-dichloroethylene	ug/l	-	-	-	-	-	-	-	-
1,1,1-Trichloroethane	ug/l	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	ug/l	-	-	-	-	-	-	-	-
Trichloroethylene	ug/l	-	-	-	-	-	-	-	-
Trichlorofluoromethane	ug/l	-	-	-	-	-	-	-	-
Vinyl chloride	ug/l	-	-	-	-	-	-	-	-
trans-1,3-Dichloropropylene	ug/l	-	-	-	-	-	-	-	-

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ETC ENVIRONMENTAL TESTING and CERTIFICATION

**DATA MANAGEMENT SUMMARY REPORT
(DM-OH) - History of All Parameters Tested, Selected Sample Point**

DATE: 03/06/1
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Chain of Custody Data Required for ETC Data Management Summary Report

See Below	E. I. DUPONT	DUPNEIGHAM	DMG	See Below
ETC Sample No.	Company	Facility	Sample Point	Date

Parameters	Sample Points, Sampling Dates, and ETC Sample No.'s							
	DMG 811118 V3650	DMG 820225 V3651	DMG 820514 V3652	DMG 820903 V3653	DMG 821008 V3654	DMG 830106 V3655	DMG 830627 V3656	DMG 830921 V3657
Miscellaneous Parameters								
Barium	.2	.2	.2	.2	.2	.2	.1	.2
Barium	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
Cadmium	.01	.02	.07	.05	.01	.02	.01	.002
Cadmium	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
Depth to Water		1.8	.1	2.7	2.7			
Gross Alpha								
Gross Alpha	pCi/l	pCi/l	pCi/l	pCi/l	pCi/l	pCi/l	pCi/l	pCi/l
Gross Beta								
Gross Beta	pCi/l	pCi/l	pCi/l	pCi/l	pCi/l	pCi/l	pCi/l	pCi/l
Iron								
Iron	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
Sulfate as SO4	18	36	44	41	18	12	16	6.0
Sulfate as SO4	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
Zinc	.14	1.9	6.1	3.5	.65	.68	1.0	.10
Zinc	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
Zinc	std	std	std	std	std	std	std	std
pH (Field)								

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DATA MANAGEMENT SUMMARY REPORT
(DM-OH) - History of All Parameters Tested, Selected Sample Point

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Chain of Custody Data Required for ETC Data Management Summary Report

See Below	E. I. DUPONT	DUPNENGAM	DM6	See Below
ETC Sample No.	Company	Facility	Sample Point	Date

Sample Points, Sampling Dates, and ETC Sample No.'s

Parameters	Units	H DM6 831129 V3658	H DM6 840109 V3659	H DM6 840621 V3660	H DM6 840814 V3661	H DM6 841015 V3662	H DM6 850122 V3663	H DM6 850610 V3664	H DM6 850910 V3665
Priority Pollutant Volatiles									
Acrolein	ug/l	-	-	-	-	-	-	-	-
Acrylonitrile	ug/l	-	-	-	-	-	-	-	-
Benzene	ug/l	-	-	-	-	-	-	-	-
bis(Chloromethyl)ether	ug/l	-	-	-	-	-	-	-	-
Bromoform	ug/l	-	-	-	-	-	-	-	-
Carbon tetrachloride	ug/l	-	-	-	-	-	-	-	-
Chlorobenzene	ug/l	-	-	-	-	-	-	-	-
Chlorodibromomethane	ug/l	-	-	-	-	-	-	-	-
Chloroethane	ug/l	-	-	-	-	-	-	-	-
2-Chloroethylvinyl ether	ug/l	-	-	-	-	-	-	-	-
Chloroform	ug/l	-	-	-	-	-	-	-	-
Dichlorobromomethane	ug/l	-	-	-	-	-	-	-	-
Dichlorodifluoromethane	ug/l	-	-	-	-	-	-	-	-
1,1-Dichloroethane	ug/l	-	-	-	-	-	-	-	-
1,2-Dichloroethane	ug/l	-	-	-	-	-	-	-	-
1,1-Dichloroethylene	ug/l	-	-	-	-	-	-	-	-
1,2-Dichloropropane	ug/l	-	-	-	-	-	-	-	-
cis-1,3-Dichloropropylene	ug/l	-	-	-	-	-	-	-	-
Ethylbenzene	ug/l	-	-	-	-	-	-	-	-
Methyl bromide	ug/l	-	-	-	-	-	-	-	-
Methyl chloride	ug/l	-	-	-	-	-	-	-	-
Methylene chloride	ug/l	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	ug/l	-	-	-	-	-	-	-	-
Tetrachloroethylene	ug/l	-	-	-	-	-	-	-	-
Toluene	ug/l	-	-	-	-	-	-	-	-
1,2-Trans-dichloroethylene	ug/l	-	-	-	-	-	-	-	-
1,1,1-Trichloroethane	ug/l	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	ug/l	-	-	-	-	-	-	-	-
Trichloroethylene	ug/l	-	-	-	-	-	-	-	-
Trichlorofluoromethane	ug/l	-	-	-	-	-	-	-	-
Vinyl chloride	ug/l	-	-	-	-	-	-	-	-
trans-1,3-Dichloropropylene	ug/l	-	-	-	-	-	-	-	-

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ETC ENVIRONMENTAL TESTING and CERTIFICATION

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**DATA MANAGEMENT SUMMARY REPORT
(DM-OH) - History of All Parameters Tested, Selected Sample Point**

Chain of Custody Data Required for ETC Data Management Summary Report

See Below E. I. DUPONT
ETC Sample No.

DUPNEWGM DM6 See Below
Facility Sample Point Data

Sample Points, Sampling Dates, and ETC Sample No.'s

Parameters	DM6 831129 V3658	DM6 840109 V3659	DM6 840621 V3660	DM6 840814 V3661	DM6 841016 V3662	DM6 850122 V3663	DM6 850610 V3664	DM6 850910 V3665
Miscellaneous Parameters								
Barium	.5	.20	.26	.19	.18	.16	.12	.18
Barium	.01	.01	.03	.03	.02	.01	.02	.01
Cadmium	-	-	-	-	-	-	-	-
Depth to Water	-	-	-	-	-	-	-	-
Gross Alpha	-	-	-	-	-	-	-	-
Gross Alpha	-	-	-	-	-	-	-	-
Gross Beta	-	-	-	-	-	-	-	-
Gross Beta	-	-	-	-	-	-	-	-
Iron	20	16	43	46	44	43	6.4	59
Sulfate as S04	1.2	1.2	8.8	4.3	2.8	2.8	5.5	2.5
Sulfate as S04	-	-	-	-	-	-	-	-
Zinc	-	-	-	-	-	-	-	-
pH (Field)	-	-	-	-	-	-	-	-

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**DATA MANAGEMENT SUMMARY REPORT
(DM-OH) - History of All Parameters Tested, Selected Sample Point**

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Chain of Custody Data Required for ETC Data Management Summary Report

See Below E. I. DUPONT

DUPNEWGAM

DM6

See Below

ETC Sample No.

Company

Facility

Sample Point

Date

Sample Points, Sampling Dates, and ETC Sample No.'s

Parameters	Units	DM6 851226 V3666	DM6 860225 V3667	DM6 860429 V3668	DM6 860731 V3669	DM6 870210 R4848
Priority Pollutant Volatiles						
Acrolein	ug/l	-	-	-	-	20
Acrylonitrile	ug/l	-	-	-	-	20
Benzene	ug/l	-	-	-	-	2.0
bis(Chloromethyl)ether	ug/l	-	-	-	-	.94
Bromoform	ug/l	-	-	-	-	.56
Carbon tetrachloride	ug/l	-	-	-	-	1.2
Chlorobenzene	ug/l	-	-	-	-	.62
Chlorodibromomethane	ug/l	-	-	-	-	2.0
Chloroethane	ug/l	-	-	-	-	2.0
2-Chloroethylvinyl ether	ug/l	-	-	-	-	.32
Chloroform	ug/l	-	-	-	-	.44
Dichlorobromomethane	ug/l	-	-	-	-	2.0
Dichlorodifluoromethane	ug/l	-	-	-	-	.94
1,1-Dichloroethane	ug/l	-	-	-	-	.56
1,2-Dichloroethane	ug/l	-	-	-	-	.56
1,1-Dichloroethylene	ug/l	-	-	-	-	1.2
1,2-Dichloropropane	ug/l	-	-	-	-	1.0
cis-1,3-Dichloropropylene	ug/l	-	-	-	-	1.4
Ethylbenzene	ug/l	-	-	-	-	2.0
Methyl bromide	ug/l	-	-	-	-	2.0
Methyl chloride	ug/l	-	-	-	-	.832
Methylene chloride	ug/l	-	-	-	-	1.4
1,1,2,2-Tetrachloroethane	ug/l	-	-	-	-	1.08
Tetrachloroethylene	ug/l	-	-	-	-	1.2
Toluene	ug/l	-	-	-	-	.32
1,2-Trans-dichloroethylene	ug/l	-	-	-	-	.76
1,1,1-Trichloroethane	ug/l	-	-	-	-	1.0
1,1,2-Trichloroethane	ug/l	-	-	-	-	1.411
Trichloroethylene	ug/l	-	-	-	-	2.0
Trichlorofluoromethane	ug/l	-	-	-	-	2.0
Vinyl chloride	ug/l	-	-	-	-	2.0
trans-1,3-Dichloropropylene	ug/l	-	-	-	-	2.0

DATA MANAGEMENT SUMMARY REPORT
(DM-OH) - History of All Parameters Tested, Selected Sample Point

DATE: 03/06/87
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Chain of Custody Data Required for ETC Data Management Summary Report

See Below ETC Sample No.	E. I. DUPONT	DUPNEMGAM	DM6	See Below
	Company	Facility	Sample Point	Date

Parameter	Units	Sample Points, Sampling Dates, and ETC Sample No.'s				
		H DM6 851226 V3666	H DM6 860226 V3667	H DM6 860429 V3668	H DM6 860731 V3669	H DM6 870210 R4848
Miscellaneous Parameters						
Barium	mg/l	.18	.18	.19	.15	.14
Barium	mg/l					
Cadmium	mg/l	.01	.02	.02	.01	.013
Cadmium	mg/l					
Depth to Water	Feet					
Gross Alpha	pCi/l					5.4
Gross Alpha	pCi/l					2.2
Gross Beta	pCi/l					6
Gross Beta	pCi/l					1.9
Iron	ug/l					10000
Sulfate as S04	mg/l	63	69	82	68	44
Sulfate as S04	mg/l	3.0	3.9	3.9	3.1	3.52
Zinc	mg/l					5.26
Zinc	mg/l					
pH (Field)	std					

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DATA MANAGEMENT SUMMARY REPORT
 (DM-OH) - History of All Parameters Tested, Selected Sample Point

DATE: 03/06/87
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Chain of Custody Data Required for ETC Data Management Summary Report

See Below	E. I. DUPONT	DUPNEWGM	DML7	See Below
ETC Sample No.	Company	Facility	Sample Point	Date

Sample Points, Sampling Dates, and ETC Sample No.'s

Parameters	Units	811118 V3691	820225 V3692	820514 V3693	820903 V3694	821008 V3695	830106 V3696	830627 V3697	830920 V3698
Miscellaneous Parameters									
Barium	mg/l	4	2	4	2	2	2	2	2
Cadmium	mg/l	.01	.01	.01	.01	.01	.01	.01	.001
Depth to Water	Feet	8.5	8.2	7.2	8.7	9.1	6.1	7.1	8.1
Gross Alpha	pCi/l	-	-	-	-	-	-	-	-
Gross Alpha	pCi/l	-	-	-	-	-	-	-	-
Gross Beta	pCi/l	-	-	-	-	-	-	-	-
Gross Beta	pCi/l	-	-	-	-	-	-	-	-
Iron	ug/l	40	51	56	42	40	39	22	35
Sulfate as S04	mg/l	.12	.06	.30	.05	.05	.06	.43	.14
Zinc	mg/l	-	-	-	-	-	-	-	-
pH (Field)	std	-	-	-	-	-	-	-	-

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**DATA MANAGEMENT SUMMARY REPORT
(DM-OH) - History of All Parameters Tested, Selected Sample Point**

DATE: 03/06/87
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Chain of Custody Data Required for ETC Data Management Summary Report
 See Below E.I. DUPONT DUPNENGAM See Below
 ETC Sample No. Company Facility Sample Point Date

Parameters	Sample Points, Sampling Dates, and ETC Sample No.'s							
	DML7 831129 V3699	DML7 840109 V3700	DML7 840521 V3701	DML7 840816 V3702	DML7 841016 V3703	DML7 850116 V3704	DML7 850610 V3705	DML7 850910 V3706
Miscellaneous Parameters								
Barium								
Cadmium								
Depth to Water								
Gross Alpha								
Gross Alpha								
Gross Beta								
Iron								
Sulfate as SO4								
Zinc								
pH (Field)								
mg/l	.5	.46	.24	.21	.30	.10	.66	.16
mg/l	.01	.01	.01	.01	.01	.01	.01	.01
Feet	8.1	8.1	7.05	7.38	8.13	7.3	7.25	7.93
pCi/l	-	-	-	-	-	-	-	-
pCi/l	-	-	-	-	-	-	-	-
pCi/l	-	-	-	-	-	-	-	-
pCi/l	-	-	-	-	-	-	-	-
ug/l	320	31	32	14	19	26	25	24
mg/l	.13	.10	.69	.07	.14	.07	.05	.05
mg/l	-	-	-	-	-	-	-	-
std	-	-	-	-	-	-	-	-

100158

**DATA MANAGEMENT SUMMARY REPORT
(DM-OH) - History of All Parameters Tested, Selected Sample Point**

Chain of Custody Data Required for ETC Data Management Summary Report

See Below	E. I. DUPONT	DUPNEMGAM	DML7	See Below
ETC Sample No.	Company	Facility	Sample Point	Date

Sample Points, Sampling Dates, and ETC Sample No.'s

Parameters	Unit	W DML7 851226 V3707	W DML7 860225 V3708	W DML7 860429 V3709	W DML7 860731 V3710	W DML7 870211 R4841
Priority Pollutant Volatiles						
Acrolein	ug/l	-	-	-	-	20
Acrylonitrile	ug/l	-	-	-	-	20
Benzene	ug/l	-	-	-	-	2.0
bis(Chloromethyl)ether	ug/l	-	-	-	-	.94
Bromoform	ug/l	-	-	-	-	.56
Carbon tetrachloride	ug/l	-	-	-	-	1.2
Chlorobenzene	ug/l	-	-	-	-	.62
Chlorodibromomethane	ug/l	-	-	-	-	2.0
Chloroethane	ug/l	-	-	-	-	2.0
2-Chloroethylvinyl ether	ug/l	-	-	-	-	.32
Chloroform	ug/l	-	-	-	-	.44
Dichlorobromomethane	ug/l	-	-	-	-	2.0
Dichlorodifluoromethane	ug/l	-	-	-	-	.94
1,1-Dichloroethane	ug/l	-	-	-	-	.56
1,2-Dichloroethane	ug/l	-	-	-	-	1.2
1,1-Dichloroethylene	ug/l	-	-	-	-	1.0
1,2-Dichloropropane	ug/l	-	-	-	-	1.4
cis-1,3-Dichloropropylene	ug/l	-	-	-	-	2.0
Ethylbenzene	ug/l	-	-	-	-	.62
Methyl bromide	ug/l	-	-	-	-	1.4
Methyl chloride	ug/l	-	-	-	-	2.0
Methylene chloride	ug/l	-	-	-	-	.62
1,1,2,2-Tetrachloroethane	ug/l	-	-	-	-	1.82
Tetrachloroethylene	ug/l	-	-	-	-	1.2
Toluene	ug/l	-	-	-	-	.32
1,2-trans-dichloroethylene	ug/l	-	-	-	-	.76
1,1,1-Trichloroethane	ug/l	-	-	-	-	1.0
1,1,2-Trichloroethane	ug/l	-	-	-	-	.38
Trichloroethylene	ug/l	-	-	-	-	2.0
Trichlorofluoromethane	ug/l	-	-	-	-	2.0
Vinyl chloride	ug/l	-	-	-	-	2.0
trans-1,3-Dichloropropylene	ug/l	-	-	-	-	2.0

100159

DATA MANAGEMENT SUMMARY REPORT
(DM-OH) - History of All Parameters Tested, Selected Sample Point

DATE: 03/06/81
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Chain of Custody Data Required for ETC Data Management Summary Report

See Below	E. I. DUPONT	DUPREXGMA	DML7	See Below
ETC Sample No.	Company	Facility	Sample Point	Date

Parameters	Sample Points, Sampling Dates, and ETC Sample No.'s				
	DML7 861226 V3707	DML7 860226 V3708	DML7 860429 V3709	DML7 860731 V3710	DML7 870211 R4841
Miscellaneous Parameters					
Barium					
Cadmium					
Depth to Water					
Gross Alpha					
Gross Beta					
Gross Beta					
Iron					
Sulfate as SO4					
Zinc					
pH (Field)					

091007

DATA MANAGEMENT SUMMARY REPORT
 (DM-OH) - History of All Parameters Tested, Selected Sample Point

DATE: 03/06/8
 PAGE: 2

Chain of Custody Data Required for ETC Data Management Summary Report

See Below	E. I. DUPONT	DUPNEBAM	DMU7	See Below
ETC Sample No.	Company	Facility	Sample Point	Date

Sample Points, Sampling Dates, and ETC Sample No.'s

Parameters	DMU7 811118 V3711	DMU7 820225 V3712	DMU7 820514 V3713	DMU7 820903 V3714	DMU7 821008 V3715	DMU7 830106 V3716	DMU7 830627 V3717	DMU7 830920 V3718
Miscellaneous Parameters								
Barium	2	2	2	2	2	2	2	2
Cadmium	.01	.01	.01	.01	.01	.01	.01	.01
Depth to Water	8.0	7.9	7.1	8.4	8.8	7.8	4.8	8.8
Gross Alpha	-	-	-	-	-	-	-	-
Gross Alpha	-	-	-	-	-	-	-	-
Gross Beta	-	-	-	-	-	-	-	-
Gross Beta	-	-	-	-	-	-	-	-
Iron	21	20	11	10	13	12	9	7.4
Sulfate as SO4	.22	.19	.18	.12	.15	.17	.36	.16
Zinc	-	-	-	-	-	-	-	-
pH (Field)	-	-	-	-	-	-	-	-

100101

100193

ETC ENVIRONMENTAL TESTING and CERTIFICATION

DATE: 03/06/87
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**DATA MANAGEMENT SUMMARY REPORT
(DM-OH) - History of All Parameters Tested, Selected Sample Point**

Chain of Custody Data Required for ETC Data Management Summary Report

See Below	E. I. DUPONT	DUPNENGAM	DMU7	See Below
ETC Sample No.	Company	Facility	Sample Point	Date

Parameters	Sample Points, Sampling Dates, and ETC Sample No.'s									
	DMU7 831129 V3719	DMU7 840109 V3720	DMU7 840621 V3721	DMU7 840815 V3722	DMU7 841015 V3723	DMU7 850115 V3724	DMU7 850610 V3725	DMU7 850910 V3726	DMU7 850910 V3726	DMU7 850910 V3726
Miscellaneous Parameters										
Barium	1.0	.36	.20	.32	.11	.18	.21	.20	.20	.20
Cadmium	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01
Depth to Water	8.3	7.8	7.6	7.94	7.44	8.68	7.62	7.52	7.52	7.52
Gross Alpha	-	-	-	-	-	-	-	-	-	-
Gross Alpha	-	-	-	-	-	-	-	-	-	-
Gross Beta	-	-	-	-	-	-	-	-	-	-
Gross Beta	-	-	-	-	-	-	-	-	-	-
Iron	5	10	10	13	21	11	13	10	10	10
Sulfate as SO4	.06	.10	.18	.09	.05	.08	.16	.16	.16	.16
Zinc	-	-	-	-	-	-	-	-	-	-
pH (Field)	-	-	-	-	-	-	-	-	-	-

291001

DATA MANAGEMENT SUMMARY REPORT
(DM-OH) - History of All Parameters Tested, Selected Sample Point

DATE: 03/06/87
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Chain of Custody Data Required for ETC Data Management Summary Report

See Below E. I. DUPONT

DUPONT

DMU7

See Below

ETC Sample No.

Company

Facility

Sample Point

Date

Sample Points, Sampling Dates, and ETC Sample No's

Parameters	Units	DMU7 851226 V3727	DMU7 860225 V3728	DMU7 860429 V3729	DMU7 860731 V3730	DMU7 870211 R4838
Priority Pollutant Volatiles						
Acrolein	ug/l	-	-	-	-	20
Acrylonitrile	ug/l	-	-	-	-	20
Benzene	ug/l	-	-	-	-	2
bis(Chloromethyl) ether	ug/l	-	-	-	-	0.94
Bromoform	ug/l	-	-	-	-	56
Carbon tetrachloride	ug/l	-	-	-	-	1.2
Chlorobenzene	ug/l	-	-	-	-	2.0
Chlorodibromomethane	ug/l	-	-	-	-	2.0
Chloroethane	ug/l	-	-	-	-	32
2-Chloroethylvinyl ether	ug/l	-	-	-	-	44
Chloroform	ug/l	-	-	-	-	2.0
Dichlorobromomethane	ug/l	-	-	-	-	0.94
Dichlorodifluoromethane	ug/l	-	-	-	-	56
1,1-Dichloroethane	ug/l	-	-	-	-	56
1,2-Dichloroethane	ug/l	-	-	-	-	1.2
1,1-Dichloroethylene	ug/l	-	-	-	-	1.0
1,2-Dichloropropane	ug/l	-	-	-	-	1.4
cis-1,3-Dichloropropylene	ug/l	-	-	-	-	2.0
Ethylbenzene	ug/l	-	-	-	-	1.4
Methyl bromide	ug/l	-	-	-	-	2.0
Methyl chloride	ug/l	-	-	-	-	2.0
Methylene chloride	ug/l	-	-	-	-	3.48
1,1,2,2-Tetrachloroethane	ug/l	-	-	-	-	1.4
Tetrachloroethylene	ug/l	-	-	-	-	71
Toluene	ug/l	-	-	-	-	2
1,2-Trans-dichloroethylene	ug/l	-	-	-	-	32
1,1,1-Trichloroethane	ug/l	-	-	-	-	76
1,1,2-Trichloroethane	ug/l	-	-	-	-	1.0
Trichloroethylene	ug/l	-	-	-	-	2.87
Trichlorofluoromethane	ug/l	-	-	-	-	2.0
Vinyl chloride	ug/l	-	-	-	-	2.0
trans-1,3-Dichloropropylene	ug/l	-	-	-	-	2.0

100163

DATA MANAGEMENT SUMMARY REPORT
(DM-OH) - History of All Parameters Tested, Selected Sample Point

Chain of Custody Data Required for ETC Data Management Summary Report

See Below	E. I. DUPONT	DUPNENGAM	DMU7	See Below
ETC Sample No.	Company	Facility	Sample Point	Date

Parameters	Units	DMU7 851226 V3727	DMU7 860226 V3728	DMU7 860429 V3729	DMU7 860731 V3730	DMU7 870211 R4838
Miscellaneous Parameters						
Barium	mg/l	.28	.22	.26	.17	.347
Cadmium	mg/l	.01	.01	.01	.01	.0052
Depth to Water	Feet	7.52	7.77	7.54	7.35	1.2
Gross Alpha	pCi/l	-	-	-	-	+/- 2.1
Gross Alpha	pCi/l	-	-	-	-	+/- 1.4
Gross Beta	pCi/l	-	-	-	-	22300
Gross Beta	pCi/l	-	-	-	-	7
Iron	ug/l	12	5	8.6	41	.059
Sulfate as SO4	mg/l	.05	.05	.07	.07	6.38
Zinc	mg/l	-	-	-	-	-
pH (Field)	std	-	-	-	-	-

100164

ETC ENVIRONMENTAL TESTING and CERTIFICATION

**DATA MANAGEMENT SUMMARY REPORT
(DM-OH) - History of All Parameters Tested, Selected Sample Point**

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Chain of Custody Data Required for ETC Data Management Summary Report

See Below	E. I. DUPONT	DUPNEHGM	DMB	See Below
ETC Sample No.	Company	Facility	Sample Point	Date

Parameters	Sample Points, Sampling Dates, and ETC Sample No.'s									
	DMB 030624 V3670	DMB 811118 V3671	DMB 820205 V3672	DMB 820225 V3673	DMB 820514 V3674	DMB 820903 V3675	DMB 821008 V3676	DMB 830106 V3677		
Miscellaneous Parameters										
Barium	1	.2	.2	.2	.2	.2	.2	.2	.2	.2
Cadmium	.26	.13	.12	.12	.15	.19	.20	.25	.25	.25
Depth to Water	6.7	-	13.4	12.7	8.1	8.3	8.7	8.3	8.3	8.3
Gross Alpha	-	-	-	-	-	-	-	-	-	-
Gross Alpha	-	-	-	-	-	-	-	-	-	-
Gross Beta	-	-	-	-	-	-	-	-	-	-
Gross Beta	-	-	-	-	-	-	-	-	-	-
Iron	-	-	-	-	-	-	-	-	-	-
Sulfate as SO4	65	40	50	51	51	44	67	69	69	69
Zinc	7.0	4.9	4.9	4.6	5.8	7.0	3.5	7.8	7.8	7.8
pH (Field)	-	-	-	-	-	-	-	-	-	-

100165

ETC ENVIRONMENTAL TESTING and CERTIFICATION

DATA MANAGEMENT SUMMARY REPORT
(DM-OH) - History of All Parameters Tested, Selected Sample Point

DATE: 03/06/8
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Chain of Custody Data Required for ETC Data Management Summary Report

See Below	E. I. DUPONT	DMB	See Below
ETC Sample No.	Company	Facility	Sample Point Date

Parameters	Sample Points, Sampling Dates, and ETC Sample No.'s						
	DMB 830920 V3678	DMB 831129 V3679	DMB 840109 V3680	DMB 840621 V3681	DMB 840815 V3682	DMB 850115 V3684	DMB 850610 V3685
Miscellaneous Parameters							
Barium	2	5	17	15	10	10	10
Cadmium	.20	.29	.25	.19	.17	.13	.15
Depth to Water	7.7	7.7	8.7	6.7	6.58	7.99	7.85
Gross Alpha	-	-	-	-	-	-	-
Gross Beta	-	-	-	-	-	-	-
Gross Beta	-	-	-	-	-	-	-
Iron	-	-	-	-	-	-	-
Sulfate as SO4	67	110	100	33	69	67	59
Zinc	7.0	10.5	8.4	6.5	6.0	4.8	5.5
pH (Field)	-	-	-	-	-	-	-

100166

Footnote: BMDL=Below Method Detection Limit ND=Parameter not detected -=-=Parameter not tested

ETC ENVIRONMENTAL TESTING and CERTIFICATION

**DATA MANAGEMENT SUMMARY REPORT
(DM-OH) - History of All Parameters Tested, Selected Sample Point**

DATE: 03/06/87
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Chain of Custody Data Required for ETC Data Management Summary Report

See Below	E. I. DUPONT	DUPNENGAM	DM8	See Below
ETC Sample No.	Company	Facility	Sample Point	Date

Parameters	Units	Sample Points, Sampling Dates, and ETC Sample No.'s					
		DM8 850910 V3686	DM8 851226 V3687	DM8 860226 V3688	DM8 860429 V3689	DM8 860731 V3690	DM8 870210 R4844
Priority Pollutant Volatiles							
Acrolein	ug/l	-	-	-	-	-	20
Acrylonitrile	ug/l	-	-	-	-	-	20
Benzene	ug/l	-	-	-	-	-	20
bis(Chloromethyl)ether	ug/l	-	-	-	-	-	94
Bromoform	ug/l	-	-	-	-	-	56
Carbon tetrachloride	ug/l	-	-	-	-	-	12
Chlorobenzene	ug/l	-	-	-	-	-	62
Chlorodibromomethane	ug/l	-	-	-	-	-	20
Chloroethane	ug/l	-	-	-	-	-	20
2-Chloroethylvinyl ether	ug/l	-	-	-	-	-	32
Chloroform	ug/l	-	-	-	-	-	44
Dichlorobromomethane	ug/l	-	-	-	-	-	20
Dichlorodifluoromethane	ug/l	-	-	-	-	-	94
1,1-Dichloroethane	ug/l	-	-	-	-	-	56
1,2-Dichloroethane	ug/l	-	-	-	-	-	56
1,1-Dichloroethylene	ug/l	-	-	-	-	-	12
1,2-Dichloropropane	ug/l	-	-	-	-	-	10
cis-1,3-Dichloropropylene	ug/l	-	-	-	-	-	14
Ethylbenzene	ug/l	-	-	-	-	-	20
Methyl bromide	ug/l	-	-	-	-	-	20
Methyl chloride	ug/l	-	-	-	-	-	56
Methylene chloride	ug/l	-	-	-	-	-	56
1,1,2,2-Tetrachloroethane	ug/l	-	-	-	-	-	46
Tetrachloroethylene	ug/l	-	-	-	-	-	5
Toluene	ug/l	-	-	-	-	-	12
1,2-Trans-dichloroethylene	ug/l	-	-	-	-	-	4
1,1,1-Trichloroethane	ug/l	-	-	-	-	-	79
1,1,2-Trichloroethane	ug/l	-	-	-	-	-	10
Trichloroethylene	ug/l	-	-	-	-	-	6
Trichlorofluoromethane	ug/l	-	-	-	-	-	20
Vinyl chloride	ug/l	-	-	-	-	-	20
trans-1,3-Dichloropropylene	ug/l	-	-	-	-	-	20

DATA MANAGEMENT SUMMARY REPORT
(DM-OH) - History of All Parameters Tested, Selected Sample Point

DATE: 03/06/87
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Chain of Custody Data Required for ETC Data Management Summary Report

See Below	E. I. DUPONT	DUPNENGMM	DMS	See Below
ETC Sample No.	Company	Facility	Sample Point	Date

		Sample Points, Sampling Dates, and ETC Sample No.'s					
Parameters	Units	DMB 850910 V3686	DMB 851226 V3687	DMB 850225 V3688	DMB 860429 V3689	DMB 860731 V3690	DMB 870210 R4644
Miscellaneous Parameters							
Barium	mg/l	10	1	1	10	10	060
Cadmium	mg/l	15	15	15	14	13	14
Depth to Water	Feet	7.28	7.33	6.66	6.87	6.74	-
Gross Alpha	pCi/l	-	-	-	-	-	1.4
Gross Alpha	pCi/l	-	-	-	-	-	1.1
Gross Beta	pCi/l	-	-	-	-	-	4.5
Gross Beta	pCi/l	-	-	-	-	-	1.6
Iron	ug/l	-	-	-	-	-	340
Sulfate as SO4	mg/l	52	57	46	41	33	28
Zinc	mg/l	4.8	4.8	4.8	4.7	4.4	4.34
pH (Field)	std	-	-	-	-	-	5.43

100168

Notes: BMDL=Below Method Detection Limit ND=Parameter not detected *-w=Parameter not tested

**DATA MANAGEMENT SUMMARY REPORT
(DM-OH) - History of All Parameters Tested, Selected Sample Point**

Chain of Custody Data Required for ETC Data Management Summary Report

See Below ETC Sample No. E. I. DUPONT DUPNECKAM WJ11 See Below Sample Point Date

Parameters	Units	WJ11 750603 V3915	WJ11 761215 V3916	WJ11 770113 V3917	WJ11 770218 V3918	WJ11 770304 V3919	WJ11 770506 V3920	WJ11 770527 V3921	WJ11 770614 V3922
Sample Points, Sampling Dates, and ETC Sample No.'s									
Miscellaneous Parameters									
Barium	mg/l	.05	.05	.1	.1	.17	.08	.05	.05
Barium	mg/l	-	-	-	-	-	-	-	-
Cadmium	mg/l	.02	.02	.03	.02	.028	.02	.009	.035
Cadmium	mg/l	-	-	-	-	-	-	-	-
Depth to Water	Feet	-	41	18	15	15	20	15	15
Gross Alpha	pCi/l	-	-	-	-	-	-	-	-
Gross Beta	pCi/l	-	-	-	-	-	-	-	-
Gross Beta	pCi/l	-	-	-	-	-	-	-	-
Iron	ug/l	-	-	-	-	-	-	-	-
Sulfate as S04	mg/l	-	-	-	-	-	-	-	-
Sulfate as S04	mg/l	.32	.012	4.01	2.30	2.53	.88	.74	1.22
Zinc	mg/l	-	-	-	-	-	-	-	-
Zinc	mg/l	-	-	-	-	-	-	-	-
pH (Field)	std	-	-	-	-	-	-	-	-

691001

DATA MANAGEMENT SUMMARY REPORT
(DM-OH) - History of All Parameters Tested, Selected Sample Point

Chain of Custody Data Required for ETC Data Management Summary Report

See Below E.I. DUPONT
ETC Sample No.

DUPNEIGHAM
Company Facility Sample Point Date

Sample Points, Sampling Dates, and ETC Sample No.'s

Parameters	Units	770808 770909 V3923	771014 V3925	771116 V3926	771209 V3927	780113 V3928	780224 V3929	780323 V3930
Miscellaneous Parameters								
Barium	mg/l	.11	.21	.05	.1	.05	1.10	.80
Barium	mg/l	.008	.010	.018	.007	.003	.005	.005
Cadmium	mg/l	20	21	20	20	20	20	20
Cadmium	mg/l	-	-	-	-	-	-	-
Depth to Water	Feet	-	-	-	-	-	-	-
Gross Alpha	pCi/l	-	-	-	-	-	-	-
Gross Beta	pCi/l	-	-	-	-	-	-	-
Iron	ug/l	-	-	-	-	-	-	-
Sulfate as S04	mg/l	-	-	-	-	-	-	-
Sulfate as S04	mg/l	1.01	1.7	2.2	.64	.45	.59	.5
Zinc	mg/l	-	-	-	-	-	-	-
Zinc	mg/l	-	-	-	-	-	-	-
pH (Field)	std	-	-	-	-	-	-	-

100170

Footnote: BMDL=Below Method Detection Limit ND=Parameter not detected "-"=Parameter not tested

DATA MANAGEMENT SUMMARY REPORT
 (DM-OH) - History of All Parameters Tested, Selected Sample Point

DATE: 03/06/87
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Chain of Custody Data Required for ETC Data Management Summary Report

See Below	E. I. DUPONT	DUPONT	See Below
ETC Sample No.	Company	Facility	Sample Point Date

Parameters	Sample Points, Sampling Dates, and ETC Sample No.'s									
	780407 V3931	780616 V3932	780727 V3933	801114 V3934	810210 V3935	810313 V3936	810521 V3937	810813 V3938	Units	
Miscellaneous Parameters										
Barium	.9	-	.05	1.4	.2	<	<	.2	mg/l	
Barium	.002	.003	.007	.004	.5	<	<	.007	mg/l	
Cadmium	-	-	-	-	.01	-	-	-	mg/l	
Depth to Water	20	26	31	23.1	.002	-	-	25.3	Feet	12.3
Gross Alpha	-	-	-	-	-	-	-	-	pCi/l	-
Gross Beta	-	-	-	-	-	-	-	-	pCi/l	-
Gross Beta	-	-	-	-	-	-	-	-	ug/l	-
Iron	-	-	-	7	7	3	4	10	mg/l	
Sulfate as SO4	-	-	-	1.8	.34	-	-	-	mg/l	.83
Sulfate as SO4	.49	.38	.30	-	.40	-	-	.76	mg/l	
Zinc	-	-	-	-	-	-	-	-	mg/l	
Zinc	-	-	-	-	-	-	-	-	std	
pH (Field)	-	-	-	-	-	-	-	-		

121001

Footnotes: BMDL Method Detection Limit ND=Parameter not detected -=-Parameter not tested

DATA MANAGEMENT SUMMARY REPORT
 (DM-OH) - History of All Parameters Tested, Selected Sample Point

DATE: 03/06/87
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Chain of Custody Data Required for ETC Data Management Summary Report

See Below	E. I. DUPONT	DUPNENGM	WH11	See Below
ETC Sample No.	Company	Facility	Sample Point	Date

Parameters	Units	Sample Points, Sampling Dates, and ETC Sample No.'s													
		811118 V3939	820225 V3940	820514 V3941	820903 V3942	821008 V3943	830106 V3944	830624 V3945	830921 V3946						
Miscellaneous Parameters															
Barium	mg/l	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.1	.2		
Barium	mg/l	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium	mg/l	.02	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01
Cadmium	mg/l	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Depth to Water	Feet	30.8	28.5	3.9	3.7	5.3	8.6	1.7	3.7	1.7	3.7	1.7	3.7	3.7	3.7
Gross Alpha	pCi/l	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross Beta	pCi/l	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross Beta	pCi/l	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron	ug/l	7	7	8.5	10	8.3	10	36	11	36	11	36	11	36	11
Sulfate as SO4	mg/l	1.6	1.3	.25	.11	.10	.23	.08	.09	.08	.09	.08	.09	.09	.09
Sulfate as SO4	mg/l	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	mg/l	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	mg/l	-	-	-	-	-	-	-	-	-	-	-	-	-	-
pH (Field)	std	-	-	-	-	-	-	-	-	-	-	-	-	-	-

100172

Footnotes: BMDL=Below Method Detection Limit ND=Parameter not detected "-"=Parameter not tested

DATA MANAGEMENT SUMMARY REPORT
(DM-OH) - History of All Parameters Tested, Selected Sample Point

Chain of Custody Data Required for ETC Data Management Summary Report

See Below	E. I. DUPONT	DUPONKAM	MA11	See Below
ETC Sample No.	Company	Facility	Sample Point	Date

Parameters	Sample Points, Sampling Dates, and ETC Sample No.'s									
	831129 V3947	840109 V3948	840621 V3949	840815 V3950	841015 V3951	850116 V3952	850610 V3953	850910 V3954		
Miscellaneous Parameters										
Barium	.5	.15	.10	.28	.19	.10	.10	.10		
Barium										
Cadmium	.01	.01	.01	.01	.01	.01	.01	.01		
Cadmium										
Depth to Water	3.7	3.7	3.89	1.78	2.53	3.53	2.80	3.03		
Gross Alpha										
Gross Beta										
Gross Beta										
Iron	9	5	5	6	5	6	6	6		
Sulfate as S04										
Sulfate as S04										
Zinc	.14	.10	.12	.18	.14	.10	.08	.09		
Zinc										
pH (Field)										

100173

Footnotes: BMDL = Method Detection Limit ND=Parameter not detected - = Parameter not tested

ETC ENVIRONMENTAL TESTING and CERTIFICATION

**DATA MANAGEMENT SUMMARY REPORT
(DM-OH) - History of All Parameters Tested, Selected Sample Point**

DATE: 03/06/8
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Chain of Custody Data Required for ETC Data Management Summary Report

See below ETC Sample No. E. I. DUPONT Company DUPNEVGM Facility W11 Sample Point Date See below

Sample Points, Sampling Dates, and ETC Sample No.'s

Parameters	Units	W W11 851226 V3955	W W11 860429 V3957	W W11 860731 V3958	W W11 870210 R4847
Priority Pollutant Volatiles					
Acrolein	ug/l	-	-	-	20
Acrylonitrile	ug/l	-	-	-	20
Benzene	ug/l	-	-	-	2.0
bis(Chloromethyl) ether	ug/l	-	-	-	.94
Bromoform	ug/l	-	-	-	2.72
Carbon tetrachloride	ug/l	-	-	-	1.2
Chlorobenzene	ug/l	-	-	-	.62
Chlorodibromomethane	ug/l	-	-	-	2.0
Chloroethane	ug/l	-	-	-	2.0
2-Chloroethyl vinyl ether	ug/l	-	-	-	.32
Chloroform	ug/l	-	-	-	.44
Dichlorobromomethane	ug/l	-	-	-	2.0
Dichlorodifluoromethane	ug/l	-	-	-	.94
1,1-Dichloroethane	ug/l	-	-	-	.56
1,2-Dichloroethane	ug/l	-	-	-	1.2
1,1-Dichloroethylene	ug/l	-	-	-	1.0
1,2-Dichloropropane	ug/l	-	-	-	1.4
cis-1,3-Dichloropropylene	ug/l	-	-	-	2.0
Ethylbenzene	ug/l	-	-	-	2.0
Methyl bromide	ug/l	-	-	-	1.94
Methyl chloride	ug/l	-	-	-	.82
Methylene chloride	ug/l	-	-	-	1.2
1,1,2,2-Tetrachloroethane	ug/l	-	-	-	.32
Tetrachloroethylene	ug/l	-	-	-	.76
Toluene	ug/l	-	-	-	1.0
1,2-Trans-dichloroethylene	ug/l	-	-	-	.556
1,1,1-Trichloroethane	ug/l	-	-	-	2.0
1,1,2-Trichloroethane	ug/l	-	-	-	2.0
Trichloroethylene	ug/l	-	-	-	1.0
Trichlorofluoromethane	ug/l	-	-	-	2.0
Vinyl chloride	ug/l	-	-	-	2.0
trans-1,3-Dichloropropylene	ug/l	-	-	-	2.0

Notes: BMDL=Below Method Detection Limit ND=Parameter not detected -=-=Parameter not tested

210017

DATA MANAGEMENT SUMMARY REPORT
(DM-OH) - History of All Parameters Tested, Selected Sample Point

DATE: 03/06/87
 PAGE: 12

Chain of Custody Data Required for ETC Data Management Summary Report

See Below	E. I. DUPONT	DUPONGM	W11	See Below
ETC Sample No.		Facility	Sample Point	Date

Parameters	Units	Sample Points, Sampling Dates, and ETC Sample No.'s				
		W W11 851226 V3955	W W11 860225 V3956	W W11 860429 V3957	W W11 860731 V3958	W W11 870210 R4847
Miscellaneous Parameters						
Barium	mg/l	.10	.10	.10	.10	.065
Barium	mg/l	-	-	-	-	-
Cadmium	mg/l	.01	.01	.01	.01	.0052
Cadmium	mg/l	-	-	-	-	-
Depth to Water	Feet	3.03	2.03	3.74	2.87	1.0
Gross Alpha	pCi/l	-	-	-	-	1.8
Gross Beta	pCi/l	-	-	-	-	1.4
Gross Beta	ug/l	-	-	-	-	6100
Iron	mg/l	5	5	5	5	5
Sulfate as SO4	mg/l	-	-	-	-	-
Sulfate as SO4	mg/l	.06	.05	.05	.07	.084
Zinc	mg/l	-	-	-	-	-
Zinc	mg/l	-	-	-	-	5.35
pH (Field)	std	-	-	-	-	-

100175

DATA MANAGEMENT SUMMARY REPORT
(DM-OH) - History of All Parameters Tested, Selected Sample Point

Chain of Custody Data Required for ETC Data Management Summary Report

See Below	E. I. DUPONT	DUPNEIGHAM	WM13	See Below
ETC Sample No.	Company	Facility	Sample Point	Date

Parameters	Sample Points, Sampling Dates, and ETC Sample No.'s									
	WM13 750610 V3959	WM13 761215 V3960	WM13 770113 V3961	WM13 770218 V3962	WM13 770304 V3963	WM13 770506 V3964	WM13 770527 V3965	WM13 770614 V3966		
Miscellaneous Parameters										
Barium	.05	.05	.1	.17	.08	.05	.05	.05	.05	.05
Cadmium	.02	.02	.03	.02	.02	.02	.02	.02	.02	.02
Depth to Water	-	-	-	-	-	-	-	-	-	-
Gross Alpha	-	-	-	-	-	-	-	-	-	-
Gross Beta	-	-	-	-	-	-	-	-	-	-
Gross Beta	-	-	-	-	-	-	-	-	-	-
Iron	-	-	-	-	-	-	-	-	-	-
Sulfate as S04	2.7	.012	4.01	2.30	2.53	.88	.74	1.22	1.22	1.22
Zinc	-	-	-	-	-	-	-	-	-	-
pH (Field)	-	-	-	-	-	-	-	-	-	-

100176

Footnotes: BMDL=Below Method Detection Limit ND=Parameter not detected -=-Parameter not tested

DATA MANAGEMENT SUMMARY REPORT
(DM-OH) - History of All Parameters Tested, Selected Sample Point

DATE: 03/06/87
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Chain of Custody Data Required for ETC Data Management Summary Report

See Below ETC Sample No. E. I. DUPONT Company DUPNEGAM Facility WM13 Sample Point Date See Below

Parameters	Sample Points, Sampling Dates, and ETC Sample No.'s							
	WM13 770808 V3967	WM13 770909 V3968	WM13 771014 V3969	WM13 771116 V3970	WM13 771209 V3971	WM13 780113 V3972	WM13 780224 V3973	WM13 780323 V3974
Miscellaneous Parameters								
Barium	.11	.09	.21	.05	.1	.05	1.10	.80
Cadmium	.008	.016	.010	.018	.007	.003	.005	.005
Depth to Water	20	20	21	20	20	20	20	20
Gross Alpha	-	-	-	-	-	-	-	-
Gross Beta	-	-	-	-	-	-	-	-
Gross Beta	-	-	-	-	-	-	-	-
Iron	-	-	-	-	-	-	-	-
Sulfate as SO4	1.01	3.29	1.7	2.2	.64	.45	.59	.5
Zinc	-	-	-	-	-	-	-	-
pH (Field)	-	-	-	-	-	-	-	-

100177

DATA MANAGEMENT SUMMARY REPORT
 (DM-OH) - History of All Parameters Tested, Selected Sample Point

DATE: 03/06/8
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Chain of Custody Data Required for ETC Data Management Summary Report

See Below ETC Sample No. E. I. DUPONT Company DUPNEGRAM Facility Sample Point Date See Below

Parameters	Sample Points, Sampling Dates, and ETC Sample No.'s							
	W 780407 V3975	W 780615 V3976	W 780727 V3977	W 780818 V3978	W 780927 V3979	W 781103 V3980	W 781117 V3981	W 781229 V3982
Miscellaneous Parameters								
Barium	9	-	.05	.05	.2	.2	.2	.2
Cadmium	.002	.026	.049	.022	.036	.033	.033	.002
Depth to Water	20	32	35	30	26	-	32	35
Gross Alpha	-	-	-	-	-	-	-	-
Gross Beta	-	-	-	-	-	-	-	-
Gross Beta	-	-	-	-	-	-	-	-
Iron	-	-	-	-	-	-	-	-
Sulfate as SO4	.49	4.10	3.1	3.08	4.8	-	3.4	.79
Zinc	-	-	-	-	-	-	-	-
pH (Field)	-	-	-	-	-	-	-	-

821001

Footnotes: BMDL=Below Method Detection Limit ND=Parameter not detected -=-Parameter not tested

ETC ENVIRONMENTAL TESTING and CERTIFICATION

DATA MANAGEMENT SUMMARY REPORT
(DM-OH) - History of All Parameters Tested, Selected Sample Point

DATE: 03/06/87
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Chain of Custody Data Required for ETC Data Management Summary Report

See Below	E. I. DUPONT	DUPNEWGAM	WM13	See Below
ETC Sample No.	Company	Facility	Sample Point	Date

Parameters	Sample Points, Sampling Dates, and ETC Sample No.'s									
	WM13 790106 V3983	WM13 790309 V3984	WM13 790320 V3985	WM13 790430 V3986	WM13 790604 V3987	WM13 790616 V3988	WM13 790719 V3989	WM13 790928 V3990		
Miscellaneous Parameters										
Barium	2	2	2	5	30	40	36	42		
Cadmium	.037	.036	.024	.042	.036	.036	.018	.011		
Depth to Water	26	30	25	28	-	-	-	-		
Gross Alpha	-	-	-	-	-	-	-	-		
Gross Beta	-	-	-	-	-	-	-	-		
Gross Beta	-	-	-	-	-	-	-	-		
Iron	-	-	-	-	-	-	-	-		
Sulfate as SO4	3.8	4.4	4.5	3.2	3.0	3.4	3.54	4.4		
Zinc	-	-	-	-	-	-	-	-		
pH (Field)	-	-	-	-	-	-	-	-		

621907

Footnotes: BMDL - Method Detection Limit ND=Parameter not detected -=-=Parameter not tested

**DATA MANAGEMENT SUMMARY REPORT
(DM-OH) - History of All Parameters Tested, Selected Sample Point**

DATE: 03/06/87
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Chain of Custody Data Required for ETC Data Management Summary Report

See Below	E. I. DUPONT	Company	W113	See Below
ETC Sample No.	DUPONT	Facility	800208	Sample Point
			V3995	Date

Parameters	Units	W113 791001 V3991	W113 791017 V3992	W113 791129 V3993	W113 800130 V3994	W113 800208 V3995	W113 800619 V3996	W113 800911 V3997	W113 801114 V3998
Priority Pollutant Volatiles									
Acrolein	ug/l	-	-	-	-	-	-	-	-
Acrylonitrile	ug/l	-	-	-	-	-	-	-	-
Benzene	ug/l	-	-	-	-	-	-	-	-
bis(Chloromethyl)ether	ug/l	-	-	-	-	-	-	-	-
Bromoform	ug/l	-	-	-	-	-	-	-	-
Carbon tetrachloride	ug/l	-	-	-	-	-	-	-	-
Chlorobenzene	ug/l	-	-	-	-	-	-	-	-
Chlorodibromomethane	ug/l	-	-	-	-	-	-	-	-
Chloroethane	ug/l	-	-	-	-	-	-	-	-
2-Chloroethylvinyl ether	ug/l	-	-	-	-	-	-	-	-
Chloroform	ug/l	-	-	-	-	-	-	-	-
Dichlorobromomethane	ug/l	-	-	-	-	-	-	-	-
Dichlorodifluoromethane	ug/l	-	-	-	-	-	-	-	-
1,1-Dichloroethane	ug/l	-	-	-	-	-	-	-	-
1,2-Dichloroethane	ug/l	-	-	-	-	-	-	-	-
1,1,2-Dichloroethane	ug/l	-	-	-	-	-	-	-	-
1,2-Dichloropropane	ug/l	-	-	-	-	-	-	-	-
cis-1,3-Dichloropropylene	ug/l	-	-	-	-	-	-	-	-
Ethylbenzene	ug/l	-	-	-	-	-	-	-	-
Methyl bromide	ug/l	-	-	-	-	-	-	-	-
Methyl chloride	ug/l	-	-	-	-	-	-	-	-
Methylene chloride	ug/l	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	ug/l	-	-	-	-	-	-	-	-
Tetrachloroethylene	ug/l	-	-	-	-	-	-	-	-
Toluene	ug/l	-	-	-	-	-	-	-	-
1,2-Trans-dichloroethylene	ug/l	-	-	-	-	-	-	-	-
1,1,1-Trichloroethane	ug/l	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	ug/l	-	-	-	-	-	-	-	-
Trichloroethylene	ug/l	-	-	-	-	-	-	-	-
Trichlorofluoromethane	ug/l	-	-	-	-	-	-	-	-
Vinyl chloride	ug/l	-	-	-	-	-	-	-	-
trans-1,3-Dichloropropylene	ug/l	-	-	-	-	-	-	-	-

For Use: BMDL=Below Method Detection Limit ND=Parameter not detected -=-Parameter not tested

8100

DATA MANAGEMENT SUMMARY REPORT
 (DM-OH) - History of All Parameters Tested, Selected Sample Point

DATE: 03/06/87
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Chain of Custody Data Required for ETC Data Management Summary Report

See Below ETC Sample No. E. I. DUPONT Company DUPNEUNGUM Facility W113 See Below Sample Point Date

Sample Points, Sampling Dates, and ETC Sample No.'s

Parameters	W113 791001 V3991	W113 791017 V3992	W113 791129 V3993	W113 800130 V3994	W113 800208 V3995	W113 800619 V3996	W113 800911 V3997	W113 801114 V3998
Miscellaneous Parameters								
Barium	2	2	2	-	2	2	2	5
Cadmium	045	023	039	-	048	030	030	003
Depth to Water	40	36	41	-	36	40	58.2	10.5
Gross Alpha	-	-	-	-	-	-	-	-
Gross Beta	-	-	-	-	-	-	-	-
Gross Beta	-	-	-	-	-	-	-	-
Iron	-	-	-	-	21	14	17	7
Sulfate as SO4	5.4	2.7	3.1	-	3.2	2.5	2.2	33
Zinc	-	-	-	-	-	-	-	-
pH (Field)	-	-	-	-	-	-	-	-

181001

Footnotes: BMDL Method Detection Limit ND=Parameter not detected -=-Parameter not tested

DATA MANAGEMENT SUMMARY REPORT
(DM-OH) - History of All Parameters Tested, Selected Sample Point

DATE: 03/06/12
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Chain of Custody Data Required for ETC Data Management Summary Report
 See Below E.T.C. DUPONT DUPREXOHM WMT3 See Below
 ETC Sample No. Company Facility Sample Point Date

Parameters	Sample Points, Sampling Dates, and ETC Sample No.'s									
	WMT3 810522 V3999	WMT3 810813 V4000	WMT3 811118 V4001	WMT3 820225 V4002	WMT3 820514 V4003	WMT3 820927 V4004	WMT3 821008 V4005	WMT3 830106 V4006		
Miscellaneous Parameters										
Barium	2	2	2	2	2	2	2	2	2	2
Cadmium	.0001	.01	.01	.01	.01	.01	.01	.01	.01	.01
Depth to Water	7.2	18.2	15.7	15.0	11.0	11.9	12.5	11.9	11.9	11.9
Gross Alpha	-	-	-	-	-	-	-	-	-	-
Gross Beta	-	-	-	-	-	-	-	-	-	-
Gross Beta	-	-	-	-	-	-	-	-	-	-
Iron	5	25	9	5	6.8	10	5	10	10	10
Sulfate as SO4	.59	.35	.14	.28	.10	.19	.17	.13	.13	.13
Zinc	-	-	-	-	-	-	-	-	-	-
pH (Field)	-	-	-	-	-	-	-	-	-	-

100182

Footnotes: BMDL=Below Method Detection Limit ND=Parameter not detected -=Parameter not tested

ETC ENVIRONMENTAL TESTING and CERTIFICATION

**DATA MANAGEMENT SUMMARY REPORT
(DM-OH) - History of All Parameters Tested, Selected Sample Point**

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Chain of Custody Data Required for ETC Data Management Summary Report

See Below ETC Sample No. E. I. DUPONT Company Facility Sample Point Date
 DUPONT WMT3 See Below
 DUPONT WMT3 Sample Point Date

Sample Points, Sampling Dates, and ETC Sample No.'s

Parameters	WMT3 830624 V4007	WMT3 830921 V4008	WMT3 831129 V4009	WMT3 840621 V4010	WMT3 840815 V4011	WMT3 840909 V4012	WMT3 841015 V4013	WMT3 850116 V4014
Miscellaneous Parameters								
Barium	1	2	8	10	10	10	20	10
Cadmium	.01	.01	.01	.01	.01	.01	.01	.01
Depth to Water	7.9	10.9	10.4	10.65	9.65	10.9	10.23	11.07
Gross Alpha	-	-	-	-	-	-	-	-
Gross Beta	-	-	-	-	-	-	-	-
Gross Iron	-	-	-	-	-	-	-	-
Sulfate as SO4	5	5	5	5	8	5	15	5
Zinc	.13	.11	.22	.15	.09	.13	.38	.12
pH (Field)	-	-	-	-	-	-	-	-

100183

Footnotes: BMDL - Method Detection Limit ND=Parameter not detected -=-Parameter not tested

ETC ENVIRONMENTAL TESTING and CERTIFICATION

**DATA MANAGEMENT SUMMARY REPORT
(DM-OH) - History of All Parameters Tested, Selected Sample Point**

DATE: 03/06/15
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Chain of Custody Data Required for ETC Data Management Summary Report

See Below	E. I. DUPONT	DUPNEMGAM	WH13	See Below
ETC Sample No.	Company	Facility	Sample Point	Date

Parameters	Unit	Sample Points, Sampling Dates, and ETC Sample No.'s					
		WH13 850610 V4015	WH13 851226 V4017	WH13 860226 V4018	WH13 860429 V4019	WH13 860731 V4020	WH13 870210 R4B46
Priority Pollutant Volatiles							
Acrolein	ug/l	-	-	-	-	-	20
Acrylonitrile	ug/l	-	-	-	-	-	20
Benzene	ug/l	-	-	-	-	-	2.0
bis(Chloromethyl)ether	ug/l	-	-	-	-	-	.94
Bromoform	ug/l	-	-	-	-	-	.56
Carbon tetrachloride	ug/l	-	-	-	-	-	1.2
Chlorobenzene	ug/l	-	-	-	-	-	.62
Chlorodibromomethane	ug/l	-	-	-	-	-	2.0
Chloroethane	ug/l	-	-	-	-	-	2.0
2-Chloroethylvinyl ether	ug/l	-	-	-	-	-	.32
Chloroform	ug/l	-	-	-	-	-	.44
Dichlorobromomethane	ug/l	-	-	-	-	-	2.0
Dichlorodifluoromethane	ug/l	-	-	-	-	-	.94
1,1-Dichloroethane	ug/l	-	-	-	-	-	.56
1,2-Dichloroethane	ug/l	-	-	-	-	-	.56
1,1-Dichloroethylene	ug/l	-	-	-	-	-	1.2
1,2-Dichloropropane	ug/l	-	-	-	-	-	1.0
cis-1,3-Dichloropropylene	ug/l	-	-	-	-	-	1.4
Ethylbenzene	ug/l	-	-	-	-	-	2.0
Methyl bromide	ug/l	-	-	-	-	-	2.0
Methyl chloride	ug/l	-	-	-	-	-	3.16
Methylene chloride	ug/l	-	-	-	-	-	1.4
1,1,2,2-Tetrachloroethane	ug/l	-	-	-	-	-	.82
Tetrachloroethylene	ug/l	-	-	-	-	-	1.2
Toluene	ug/l	-	-	-	-	-	.32
1,2-Trans-dichloroethylene	ug/l	-	-	-	-	-	.76
1,1,1-Trichloroethane	ug/l	-	-	-	-	-	1.0
1,1,2-Trichloroethane	ug/l	-	-	-	-	-	.38
Trichloroethylene	ug/l	-	-	-	-	-	2.0
Trichlorofluoromethane	ug/l	-	-	-	-	-	2.0
Vinyl chloride	ug/l	-	-	-	-	-	2.0
trans-1,3-Dichloropropylene	ug/l	-	-	-	-	-	2.0

106184

Footnote: BMDL=Below Method Detection Limit ND=Parameter not detected -=-Parameter not tested

ETC ENVIRONMENTAL TESTING and CERTIFICATION

**DATA MANAGEMENT SUMMARY REPORT
(DM-OH) - History of All Parameters Tested, Selected Sample Point**

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Chain of Custody Data Required for ETC Data Management Summary Report

See Below E. I. DUPONT

DUPNEGAM

WM13

See Below

ETC Sample No.

Company

Facility

Sample Point

Date

Sample Points, Sampling Dates, and ETC Sample No.'s

Parameters	WM13 850610 V4015	WM13 850910 V4016	WM13 851226 V4017	WM13 860225 V4018	WM13 860429 V4019	WM13 860731 V4020	WM13 870210 R4846
Miscellaneous Parameters							
Barium	10	10	10	10	10	10	10
Cadmium	.01	.01	.01	.01	.01	.01	.01
Depth to Water	10.80	11.15	10.82	9.98	9.40	10.90	1.0
Gross Alpha	-	-	-	-	-	-	3.1
Gross Beta	-	-	-	-	-	-	1.5
Gross Beta	-	-	-	-	-	-	3900
Iron	5	5	5	5	5	5	2
Sulfate as SO4	18	10	09	07	09	12	094
Zinc	-	-	-	-	-	-	5.66
pH (Field)	-	-	-	-	-	-	-

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Footnotes: BMDL =Below Method Detection Limit ND=Parameter not detected "-"=Parameter not tested