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REMEDIAL INVESTIGATION/FEASIBILITY STUDY REPORT FOR THE DUBLIN NPL SITE DUBLIN BOROUGH, PENNSYLVANIA

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June 19, 1996

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REMEDIAL INVESTIGATION/FEASIBILITY STUDY REPORT FOR THE DUBLIN NPL SITE DUBLIN, PENNSYLVANIA

1. INTRODUCTION

Geraghty & Miller, Inc. was retained by Sequa Corporation (Sequa) in 1991 to prepare and execute a work plan for a remedial investigation and feasibility study (RI/FS) at the Dublin NPL Site in Dublin Borough, Bucks County, Pennsylvania. The RI/FS was performed in compliance with a U. S. Environmental Protection Agency (USEPA) Administrative Order on Consent (RI/FS Consent Order) entered into by Sequa on August 22, 1991. The RI/FS was designed to supplement an RI conducted under a consent order with the Pennsylvania Department of Environmental Protection (PADEP), the results of which were presented in a report submitted to the PADEP (Geraghty & Miller, Inc. 1992a). The USEPA has named Sequa, along with Mr. John Thompson, the present owner of the 120 Mill Street property, and Athlone Industries, Inc. as Potentially Responsible Parties (PRPs) for the Dublin NPL Site. Correspondence pertinent to this RI/FS is included in Appendix A.

1.1 PURPOSE

The RI/FS was conducted to characterize the extent of contamination and the nature and extent of human health and environmental risks associated with the Dublin NPL Site and to develop, evaluate, and select potential remedial alternatives. The specific goals were as follows:

- Characterize the geology and hydrogeology of the site. Determine the nature and extent of the contamination at or from the site. Characterize all existing ecological zones.

- Determine and evaluate alternatives for remedial action to prevent risk to human health and the environment, consistent with the risk assessment performed for the site.

1.2 SITE BACKGROUND

The Dublin NPL Site is located in Dublin Borough in Bucks County, Pennsylvania (Figures 1-1 and 1-2). Trichloroethene (TCE) was detected as a dissolved constituent in groundwater in the Dublin area during routine sampling conducted in June 1986 by the Bucks County Health Department (BCHD). Several parties subsequently investigated various areas in Dublin Borough and it was inferred from limited data that the 120 Mill Street property may be a possible historic source of TCE (TechLaw, Inc. 1987).

The current owner of the 120 Mill Street property, Mr. John Thompson, uses the property for the storage and restoration of antique race cars. A lessee uses part of the property for the physical testing of metallic items. As owner of the property, Mr. Thompson entered into a Consent Agreement and Order (Thompson Consent Order) with the USEPA on June 8, 1987. This Consent Order requires Mr. Thompson to provide routine sampling of the water-supply wells in the affected area and adequate water treatment where necessary.

TCE was used in the operations of Kollsman Motor Company (KMC), which occupied the property from 1959 to 1972 (TechLaw, Inc. 1987). KMC manufactured miniature electro-mechanical components for use in the aerospace industry. The manufacturing components were reportedly degreased with TCE. KMC is related to Sequa through corporate succession as described in Section 1.2.2 (Ownership History of the 120 Mill Street property) of this report. Dudley Sports Company (Dudley Sports), a division of Athlone Industries, Inc. and a manufacturer of softballs, occupied the property from 1973 to 1986. Dudley Sports used solvent material containing TCE to clean the softballs prior to packaging (TechLaw, Inc. 1987).

Geraghty & Miller was retained by Sequa in May 1989 to prepare a work plan for the investigation of the affected bedrock aquifer and potential on-site contaminant sources (Geraghty & Miller, Inc. 1989). On June 4, 1990, Sequa entered into a Consent Order and Agreement with the Pennsylvania Department of Environmental Resources (PADER) (PADER Consent Order), to investigate the aquifer and propose potential methods of remediation. In 1995, the PADER changed its name to the PADEP. References in this report to the PADEP will mean either the PADER or the PADEP. Geraghty & Miller submitted reports on the PADEP investigation in 1990 (Geraghty & Miller, Inc. 1990) and in 1992 (Geraghty & Miller, Inc. 1992a).

On August 22, 1991, Sequa entered into a Consent Order with the USEPA to conduct an RI/FS on the Dublin NPL Site. The RI/FS Work Plan (Geraghty & Miller, Inc. 1992b) and its associated documents, the Field Sampling Plan (FSP) (Geraghty & Miller, Inc. 1992c), Quality Assurance Project Plan (QAPP) (Geraghty & Miller, Inc. 1992d), and Health and Safety Plan (HASP) (Geraghty & Miller, Inc. 1992e), were prepared to satisfy the requirements of the RI/FS Consent Order.

1.2.1 Site Description

The 4.5-acre facility at the 120 Mill Street property in Dublin Borough, which includes a one-story brick building, has been identified as a potential source of TCE. The Dublin NPL Site is defined as the 120 Mill Street property, the building located at 120 Mill Street as well as all adjacent areas to which site-related contaminants have migrated (USEPA 1995a).

1.2.2 Ownership History of the 120 Mill Street Property

The property currently referred to as 120 Mill Street (Figure 1-3) was originally three separate parcels, as determined from a title search conducted by TechLaw, Inc. (1987). The three parcels, according to earliest records, were as follows: an approximately 3.5-acre parcel

owned by Mary Ellen and Jacob M. Kooker; an approximately 1-acre parcel owned by Dublin Mill Company; and an approximately 0.15-acre parcel owned by Adela and Alvin W. Moyer.

The largest parcel, owned by the Kookers, was sold to Gertrude and Ernest Flach on April 25, 1945. It is not known how either of these parties used the property. The parcel was sold to Dublin Hosiery Mills, Inc. on November 13, 1945. According to an employee of the mill, a piece of machinery was degreased with some type of detergent or solvent, and the waste was probably allowed to run into floor drains (TechLaw, Inc. 1987). On March 15, 1956, this same parcel was sold to Home Window Company of Pennsylvania, Inc. and was used for the manufacture of aluminum doors and windows. TCE was not reported to have been used in the operation (TechLaw, Inc. 1987). On April 9, 1959, KMC purchased this parcel.

The approximately 1-acre parcel, owned by Dublin Mill Company, was sold to the Dublin Improvement Association on February 11, 1937. There is no information about the activities performed on the property while it was owned by either of these parties. On October 4, 1942, the Dublin Improvement Association sold the parcel to Willard Hosiery Mills, Inc. On May 12, 1948, Willard Hosiery Mills, Inc. changed its name to Nilbud Hosiery Mills, Inc., and on March 14, 1956, Nilbud Hosiery Mills, Inc. granted the parcel to Memie and Benjamin Altweis and George Brommer. On April 9, 1959, the property was acquired by KMC.

As of April 9, 1959, KMC owned two of the three parcels of the property currently referred to as 120 Mill Street. On July 20, 1960, Adela and Alvin W. Moyer granted a 0.15-acre parcel of adjacent land to KMC. KMC used the 120 Mill Street property for the manufacture of miniature precision motors, gear trains, clutches, brakes, and related electro-mechanical components for use in the aerospace industry. TCE reportedly was used to degrease the machined parts produced at the site (TechLaw, Inc. 1987).

KMC transferred the 120 Mill Street property to Kollsman Instrument Corporation (KIC) on December 31, 1971. KIC was a wholly owned subsidiary of Standard Kollsman Industries, Inc. until Sun Chemical Corporation acquired Standard Kollsman Industries, Inc. in 1972. Sun Chemical Corporation then granted the property to the Bucks County Industrial Development Authority (BCIDA) on August 28, 1973. On May 8, 1987, Sun Chemical Corporation changed its name to Sequa Corporation.

On August 31, 1973, BCIDA sold the property to Athlone Industries, Inc. The property was occupied by Dudley Sports, a division of Athlone Industries, Inc. Athlone Industries, Inc. is now known as ARI Acquisition Corporation. Dudley Sports used the property for the storage, stamping, and packaging of softballs. In 1988, Environ Corporation (Environ) reported that Dudley Sports used solvents containing TCE and 1,1,1-trichloroethane (TCA) (Environ Corporation 1988).

On January 30, 1986, Mr. John H. Thompson acquired the 120 Mill Street property. Mr. Thompson is the current owner and uses the majority of the property for the restoration and storage of antique race cars. Building 4 is currently leased to Laboratory Testing, Inc., an independent material testing laboratory (Figure 1-3).

1.2.3 Project History

Site investigative activities began in 1986; several previous studies were undertaken from 1986 through mid-1990. From 1990 through 1995, PADEP and the USEPA initiated several regulatory activities that led to the requirements for this RI/FS and determined its contents.

1.2.3.1 Previous Investigations

During June 1986, the BCHD initiated routine sampling of water-supply wells in the Dublin area. TCE was detected in 36 supply wells at levels ranging from 1 microgram per

liter (ug/L) to 10,000 ug/L. Several other volatile organic compounds (VOCs) were detected at much lower concentrations in one or more of the samples. These compounds included 1,1-dichloroethene (1,1-DCE), 1,2-dichloroethene (1,2-DCE), TCA, tetrachloroethene (PCE), and vinyl chloride. In addition to TCE, only 1,2-DCE, which was detected in two samples at concentrations of 9.0 and 11.0 ug/L, was found to be present at concentrations exceeding the USEPA maximum contaminant level (MCL).

On June 8, 1987, Mr. Thompson, current owner of the 120 Mill Street property, entered into a Consent Order with the USEPA (Thompson Consent Order). The Thompson Consent Order required Mr. Thompson to retain a qualified contractor, provide and maintain treatment systems to all residents and commercial employees exposed to TCE levels greater than 5 ug/L, and conduct periodic monitoring of several other wells. Mr. Thompson retained BCM, Inc. (BCM) as a consultant and installed treatment systems on all residential and commercial supply wells with TCE concentrations in excess of 5 ug/L. All wells in the affected area were categorized by the USEPA as Tier I, II, III, or IV wells based on TCE concentrations.

Tier I wells were those with concentrations of TCE greater than non-detect but less than 5 ug/L. The Thompson Consent Order required that these wells be sampled semiannually.

Tier II wells were designated as those with concentrations of TCE ranging from 5 to 75 ug/L. The corrective action prescribed for these wells was at the discretion of the user; either bottled water would be supplied or a granular activated carbon (GAC) treatment system would be installed at the tap used for cooking and drinking. The Thompson Consent Order required that treated tap water from Tier II wells be sampled quarterly and untreated well water be sampled semiannually.

Tier III wells were designated as those with TCE concentrations ranging from 76 to 260 ug/L. The corrective action prescribed for Tier III wells was that a water system GAC unit would be installed at all residential dwellings and either bottled water would be supplied or GAC treatment would be installed on the tap used for drinking water at businesses. The Thompson Consent Order required that treated tap water and untreated well water be sampled quarterly, and that at those wells with treatment units in place, samples be collected before and after treatment.

Tier IV wells were designated as those with TCE concentrations in excess of 260 ug/L. The corrective action prescribed for Tier IV wells was the same as for Tier III. The Thompson Consent Order required the same monitoring as Tier III wells.

TechLaw, Inc., under contract to the USEPA, submitted a report, entitled "Final Report, Dublin Water Supply Site, Potentially Responsible Party Search," on August 21, 1987 (TechLaw, Inc. 1987). In the report, TechLaw concluded that the 120 Mill Street property was the probable source of TCE groundwater contamination. TechLaw listed Dublin Hosiery Mills, Home Window Company of Pennsylvania, Inc., Sun Chemical Corporation, BCIDA, Athlone Industries, Inc., Mr. John H. Thompson, and Laboratory Testing, Inc. as PRPs for the site because they were all either owners and/or operators of the 120 Mill Street property. The report recommended further research into the financial ability of the listed PRPs to pay for remedial measures at the site and that efforts be made to contact other past employees (TechLaw, Inc. 1987).

In November 1987, BCM submitted the results of a soil-vapor study performed at the 120 Mill Street property between September 15 and October 1, 1987. Samples were collected from 35 locations and at an on-site underground storage tank (UST), and were analyzed with a Photovac 10S50 portable gas chromatograph (GC). The sample results are discussed in Section 5.0 (Soil Conditions). Based on the results of the soil-vapor study, BCM recommended a subsurface soil sampling program consisting of five soil borings (BCM, Inc. 1987).

On December 18, 1987, TRC Environmental Consultants (TRC) collected liquid samples from eight separate drums and 5-gallon containers, some of which were labeled indicating the contents. Safety solvent No. 2, 95D cleaning solvent, Amazon solvent, ECO-Clean, Sterigent, and Superlode were the labelled drummed liquids. Details of the chemical contents of these drums are included in Section 5.1 (Previous Work).

On January 21, 1988, Roy F. Weston Inc. (Weston), representing the attorneys for the Whistlewood Commons Apartment Complex, conducted a site visit. While on-site, Weston representatives collected four soil samples and three liquid samples. Three of the soil samples were collected from the area of the cement pad behind (north) the quonset hut and the fourth was collected from the floor of the storage shed behind Building 1 (Figure 1-4). The liquid samples were collected from two 5-gallon containers and from a 55-gallon drum left in the quonset hut by Dudley Sports (Roy F. Weston, Inc. 1988). The soil samples were split with representatives of TRC, who had been retained by Sequa's attorneys (Myers 1988). The results indicated the presence of high concentrations of TCA and TCE in the drums and low concentrations of these compounds in the soil samples collected from the former drum storage area. The analytical results are discussed in Section 5.0 (Soil Conditions).

On February 15, 1988, Weston submitted a report entitled "Assessment of Source Contamination in Whistlewood Apartment Complex Water Supply Well" (Roy F. Weston, Inc. 1988). As part of its investigation, Weston collected samples from three containers reportedly left on the 120 Mill Street property by Dudley Sports. Laboratory analysis indicated the presence of high concentrations of TCA, TCE, and PCE. In addition to the limited sampling program, Weston reviewed available documents and literature. The report concluded that the waste disposal practices of KMC and Dudley Sports caused and/or contributed to the contamination of the Whistlewood Commons Apartment Complex well and other wells in Dublin Borough (Roy F. Weston, Inc. 1988).

BCM submitted a report entitled "Results of Soil Sampling Program, 120 Mill Street, Dublin, Pennsylvania" to Mr. Thompson in March 1988 (BCM, Inc. 1988a). ~~The program~~

~~was part of a phased hydrogeologic investigation conducted by BCM.~~ **(See response to Comment No. 1 in RI/FS Addendum).** The soil sampling phase, which consisted of five soil borings drilled to depths between 6 and 10 feet, was conducted in December 1987 (Figure 1-4). The results indicated the presence of TCE in six of the 11 samples. In this report, BCM recommended the installation of two monitoring wells on the 120 Mill Street property.

On March 1, 1988, Environ, representing the attorneys for Dudley Sports, submitted a report entitled "Assessment of the Potential for Ground Water Contamination Associated with Activities at 120 Mill Street, Dublin, Pennsylvania" (Environ Corporation 1988). Environ conducted a site visit, reviewed available data, and interviewed several individuals. No sampling was conducted. Environ reported that Dudley Sports used limited volumes of solvents containing TCE and TCA (Environ Corporation 1988).

Between March 28 and April 20, 1988, eight monitoring wells were installed as part of an investigation that Geraghty & Miller conducted for Sequa. The wells were installed by the air-rotary drilling method and were completed with open-hole sections in the bedrock to total depths varying from 100 to 281 feet. Construction details for each of the monitoring wells are included in Table 1-1, and the geologic and construction logs are contained in Appendix B. Figure 1-2 shows the location of each of the wells, which are identified as Monitoring Wells MW-1 through MW-8.

The eight monitoring wells were sampled on May 19, 1988, and the analytical data revealed the presence of TCE in all but one well. Other compounds detected included trans-1,2-DCE, TCA, and PCE. The analytical results are discussed in Section 8.1 (Summary of Previous Groundwater Sampling Results).

In May 1988, BCM installed and sampled two on-site monitoring wells as part of its groundwater investigation. The two wells were constructed as 6-inch diameter, 100-foot

deep, open-hole bedrock wells with 20 feet of black steel casing. In October 1988, BCM submitted a report entitled "Results of Groundwater Investigation, 120 Mill Street, Dublin, Pennsylvania" to Mr. Thompson (BCM, Inc. 1988b). The report described the installation of the two on-site monitoring wells (Monitoring Wells BCM-1 and BCM-2), the monitoring of static water levels in these wells, the collection of groundwater samples, and the results of sample analysis (BCM, Inc. 1988b). The drilling logs for the BCM monitoring wells are included in Appendix B. The analyses revealed the presence of TCE in water samples from both Monitoring Wells BCM-1 and BCM-2. The sample from Monitoring Well BCM-1 also indicated the presence of PCE, chloroform, 1,1-DCE, trans-1,2-DCE, 1,1,2-TCA, and vinyl chloride.

On December 23, 1988, NUS Corporation, under contract to the USEPA, submitted a report, entitled "Preliminary Assessment of Dublin Water Supply Site," which summarized the results of a site visit (NUS Corporation 1988).

In May 1989, Geraghty & Miller was retained by Sequa to prepare a work plan for a source investigation at the 120 Mill Street property and to recommend a remedial plan for the bedrock aquifer. In June 1989, Geraghty & Miller submitted a report entitled "Source Investigation Work Plan, 120 Mill Street Site, and Conceptual Remedial Alternatives for the Bedrock Aquifer Underlying Dublin Borough, Pennsylvania" to Sequa (Geraghty & Miller, Inc. 1989). This work plan was subsequently submitted to the PADEP by Sequa and was incorporated in the June 4, 1990 PADEP Consent Order.

On October 26, 1989, the USEPA proposed that the Dublin NPL Site be placed on the National Priorities List (NPL). The proposed listing was partly based on a Hazard Ranking Score (HRS) prepared by NUS for the USEPA (NUS Corporation 1989). On December 20, 1989, Sequa filed a public comment in response to the proposed NPL listing (Sequa Corporation 1989). A major point included in the comment was that NUS had used a generic population estimate of 3.8 average persons per residence, when a 1988 Bucks County Planning Commission study showed the average to be between 2.6 and 2.9 (Junker 1989

pers. comm.). Geraghty & Miller independently prepared another HRS score based on the site-specific data. The change in population estimates resulted in an HRS score of 25.95 as compared to the 28.90 computed by NUS.

On October 31, 1989, the PADEP approved the source investigation portion of the work plan Sequa had submitted (Geraghty & Miller, Inc. 1989). Between December 1989 and February 1990, Geraghty & Miller conducted a source investigation at the 120 Mill Street property. The investigation included a magnetometer survey, soil vapor sampling, exploratory borings, and soil sampling. In June 1990, Geraghty & Miller submitted a report entitled "Results of Source Investigation, 120 Mill Street Site. Dublin, Pennsylvania" to Sequa (Geraghty & Miller, Inc. 1990). The magnetometer survey portion of the Source Investigation was conducted to identify magnetic anomalies, which could potentially result from buried metal at the 120 Mill Street property. Magnetic field and vertical gradient data were recorded at stations established every 10 feet along a 100- by 100-foot grid, utilizing a GSM-19 magnetometer/gradiometer. Seven anomalies were detected. Four of the seven anomalies were attributed to nearby interferences. A survey utilizing a Metromag Ferromagnetic Locator was conducted over the anomalies identified with the magnetometer. The results showed that three of the anomalies were associated with buildings, and the fourth was caused by a UST (Geraghty & Miller, Inc. 1990). The three remaining anomalies were investigated in the soil boring program discussed below.

The soil vapor survey portion of the Source Investigation consisted of the installation and sampling of 20 soil vapor well points at the 120 Mill Street property. To monitor vapor from the fractured bedrock as well as the overburden, the vapor well points were installed near the bedrock overburden interface, with total depths ranging from 5 to 9.5 feet. Several of the vapor well points were found to contain water. This water may have been due to perching at the bedrock overburden interface, the low permeability of the soil, or proximity to nearby utilities (storm sewers, sanitary sewers). When water was found in the soil vapor survey point, it was evacuated and a vapor sample was collected. If the point continued to recharge with water, a sample was not collected. Three rounds of samples were collected

between December 1989 and February 1990, and eight of the 20 points were never sampled due to recharging water. Several VOCs were detected in the samples from the remaining 12 points, but with the exception of TCE, none of the concentrations exceeded 1 part per million (ppm). TCE was detected at seven locations at concentrations of 0.3 to 100 ppm. The analytical results are presented in Section 5 (Soil Conditions) of this report. The majority of the locations found to contain TCE were in and around the area between Buildings 1 and 2 and the quonset hut.

The soil boring investigation was conducted to further confirm areas with elevated vapor results and with magnetic anomalies. The majority of the borings were drilled in the former drum storage area and in the area between the main building and the quonset hut. Two borings (Soil Borings B-3 and B-4) (Figure 1-5) were drilled in the area of the largest anomaly identified during the magnetometer survey. The investigation included the collection of 15 soil samples, as shown on Figure 1-5. TCE was detected in four of the 15 soil samples.

1.2.3.2 Regulatory Events

On June 4, 1990, the PADEP and Sequa executed a Consent Order for the investigation of the bedrock aquifer. Following execution of the PADEP Consent Order, on June 15, 1990, Sequa filed a supplemental public comment regarding the proposed NPL listing (Sequa Corporation 1990). The comment stated that investigatory work required by an NPL listing would be a duplication of the work being carried out under the PADEP Consent Order.

On August 3, 1990, Sequa mailed access agreement forms to 47 Dublin residents whose permission for access to perform work related to the PADEP Consent Order was required. A second set of access agreement forms was mailed on August 29, 1990. The original list of approximately 47 residential properties was reduced to 11. Subsequent third, fourth, and fifth mailings to the residents on the shortened list failed to result in complete

access. Access to all the properties on the reduced list was finally obtained on October 14, 1991. However, since the delay in obtaining complete access extended over a 1-year period, two of the original access agreements subsequently expired. Two mailings of renewal requests were necessary to gain complete access. All access agreements were completed as of November 1, 1991.

On August 4, 1990, Sequa submitted a reply to a "Draft Borough Well Drilling Ordinance," under consideration by Dublin (Dublin Borough 1990). The ordinance outlined construction specifications for wells in several classifications. Well permit fees were proposed with each classification. In anticipation of the potential installation of recovery wells under the PADEP Consent Order, Sequa's response questioned several of the technical aspects, as well as the permit fees (Teitel 1990).

On August 27, 1990, Sequa received notification from the USEPA of the agency's decision to consider the Dublin NPL Site a Superfund site. The site was finalized on the NPL on August 30, 1990.

The original June 8, 1987 Consent Order between Thompson and the USEPA was modified on April 25, 1991 (American Resource Consultants, Inc. 1991). This modification included the revision of the well categorization system from the original four tiers to a three-tier system. Existing Tier I wells remained as Tier I; however, a provision was added to upgrade wells to Tier II if a concentration of 5 ppb or greater was detected. Tier II and III wells were combined into a single Tier II, and Tier IV wells became Tier III.

As of the June 1991 quarterly sampling event, sampling under the Thompson Consent Order was taken over by American Resource Consultants, Inc. (ARC) of Doylestown, Pennsylvania. This sampling event included 54 supply wells of which 12 were Tier I, 30 were Tier II, and 12 were Tier III. The analytical results of groundwater samples from supply wells in Dublin Borough are discussed in Section 8 (Groundwater Quality).

On July 11 and July 31, 1991, Sequa and the USEPA held meetings aimed at outlining the objectives of an RI/FS of the Dublin NPL Site. The major points of these meetings were summarized in a letter from Sequa to the USEPA dated August 1, 1991 (Bunin 1991). The USEPA acknowledged receipt of Sequa's summary in a letter dated August 6, 1991 (Walker 1991a).

A Focused Feasibility Study (FFS) for Alternate Water Supply for the Dublin NPL Site was completed on August 6, 1991 by the USEPA (USEPA 1991a). The FFS identified and evaluated remedial alternatives for the supply of drinking water to the affected and potentially affected residences and businesses. On August 8, 1991, the Proposed Plan for Early Action for the Dublin NPL Site (Proposed Plan) was released by the USEPA (USEPA 1991b). The Proposed Plan was prepared to provide the public with the highlights of the FFS. The Proposed Plan identified the USEPA's preferred remedial alternative and explained the rationale behind the decision. The Early Action component for an Alternate Water Supply is now referred to as Operable Unit One (OU 1) of the Dublin NPL Site.

The USEPA's preferred alternative was the treatment of water from a new or existing well within the plume, with air stripping and vapor-phase carbon adsorption. A 30-day public comment period began August 8, 1991 and was extended by the USEPA to October 9, 1991. A public meeting to discuss the remedial alternatives was held by the USEPA on August 26, 1991 in Dublin Borough, Pennsylvania. Sequa submitted its written response to the FFS and Proposed Plan on September 23, 1991 (Sequa Corporation 1991).

On August 22, 1991, Sequa entered into a Consent Order with the USEPA to conduct an RI/FS of the Dublin NPL Site (RI/FS Consent Order). This USEPA Consent Order addresses the investigation and remediation of groundwater, soil, and sediment at the site and is referred to as Operable Unit Two (OU 2). Throughout this report "RI/FS" will refer to the OU 2 work required by the 1991 USEPA Consent Order. On August 30, 1991, Sequa notified the USEPA of its selection of Geraghty & Miller as primary contractor (Galiszewski

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1991). The USEPA accepted Geraghty & Miller as Sequa's primary contractor in correspondence dated September 5, 1991 (Walker 1991b).

On November 7, 1991, Sequa submitted the work plan documents for the Dublin NPL Site to the USEPA, in accordance with the RI/FS Consent Order (Galiszewski 1991b). The submittal consisted of draft revisions of the RI/FS Work Plan, and its associated documents, the FSP, the QAPP, and the HASP.

The Final Record of Decision (ROD) for Early Action for Operable Unit 1 (OU 1) at the Dublin NPL Site was signed on December 30, 1991 (USEPA 1991b). The ROD stated that OU 1, which is the first operable unit of at least two operable units planned for the Dublin NPL Site, is to provide a permanent, clean drinking water supply for the residences and businesses whose groundwater has been or may become affected by TCE. The major components of the remedy selected in the ROD were the development, construction, and operation of a new supply well within the plume of contamination, or operation of an existing well within the plume of contamination; the construction and operation of an air stripping and vapor-phase carbon adsorption system (or similar treatment technology) for treatment of the extracted water prior to distribution; the expansion of the existing Dublin public water distribution system to provide clean water to the affected and potentially affected residences and businesses; the monitoring of residential and commercial wells not addressed by the public water supply, but which have the potential to be affected by the TCE plume, until a final remedy is implemented; and the operation and maintenance of the selected remedy.

On January 2, 1992, the USEPA requested a "good faith" offer from Sequa, Mr. John Thompson, and Athlone Industries to complete the remedial design/remedial action (RD/RA) for OU 1 as specified in the ROD.

Notification of the USEPA's disapproval of the RI/FS work plan documents was sent to Sequa on January 29, 1992 (Walker 1992a). The USEPA's comments with regard to the

documents were attached to the transmittal. In accordance with the RI/FS Consent Order, Sequa was provided 30 days within which to resubmit amended documents.

A meeting between the USEPA, Sequa, and Geraghty & Miller, to discuss the USEPA comments regarding the work plan documents, was held on February 11, 1992. A Memorandum of Understanding, which summarized the issues that were discussed and agreed upon at the meeting, was submitted by Geraghty & Miller on behalf of Sequa to the USEPA on February 14, 1992 (Minster et al. 1992a).

On February 20, 1992, Geraghty & Miller submitted a letter to the USEPA further describing the technical approach for measuring vertical head distribution of groundwater through packer testing (Minster et al. 1992b). This submittal had been requested by the USEPA during the February 11, 1992 meeting.

The USEPA acknowledged receipt of the February 14 and February 20, 1992 documents and clarified several points in a letter dated March 3, 1992 (Walker 1992b). In this letter, the USEPA stated that as long as the packer tests would be conducted every 20 feet, or at major water-bearing zones, whichever distance is shorter, they agreed with the technical approach. In a subsequent telephone conversation, the USEPA agreed to a Geraghty & Miller proposal to packer test one well at 20-foot intervals or major water-bearing zones (Walker pers. comm. 1992c). The USEPA agreed that the results from this first well would be compared to borehole logging data from the same well and that the remaining surveys would be planned around the degree of correlation between the two data sets.

The revised work plan documents were submitted to the USEPA on March 6, 1992 (Minster et al. 1992c). In an attachment to these documents, several issues that had previously arisen during meetings and telephone conversations and their subsequent resolutions were described.

~~On March 6, 1992, Sequa submitted a good faith offer to the USEPA to conduct the RD/RA for OU-1 in accordance with the ROD (Judge 1992).~~ **(See response to Comment No. 2 in RI/FS Addendum)** Sequa received a letter of response from the USEPA on March 20, 1992 (Duchovnay 1992). The USEPA rejected the offer and elected to have their contractor, CH2M Hill, complete the work. CH2M Hill completed the design for a portion of the work, including the water mains to be situated along Main Street, Mill Street, and Elephant Road (CH2M Hill 1992).

On April 22, 1992, the USEPA submitted a letter with an attachment outlining several issues that remained to be addressed in the RI/FS Work Plan and FSP (Walker 1992d). The USEPA requested that the final RI/FS Work Plan and FSP be submitted to the USEPA within 15 days of receipt of their letter. Geraghty & Miller responded to the USEPA in a letter dated April 29, 1992 that contained individual responses to each of the issues outlined by the USEPA (Minster et al. 1992d). As requested during a telephone conversation with the USEPA, Geraghty & Miller provided revisions to the groundwater modeling text of the work plan in a letter dated May 1, 1992 (Minster et al. 1992e).

The Final RI/FS Work Plan, FSP (Geraghty & Miller, Inc. 1992b), HASP (Geraghty & Miller, Inc. 1992e), and QAPP (Geraghty & Miller, Inc. 1992d) were submitted to the USEPA on May 7, 1992. Although the April 22, 1992 USEPA correspondence had only required revisions to the RI/FS Work Plan and the FSP, those required changes impacted portions of the HASP and the QAPP; therefore, appropriate modifications to these documents were made as well. The USEPA notified Sequa Corporation of USEPA's acceptance of the RI/FS work plan and associated documents in correspondence dated June 3, 1992.

Bids for the construction of the water main and service connections were solicited by the USEPA in December 1993, and the bid was awarded in 1994. The U.S. Bureau of Reclamation was selected by the USEPA to oversee the construction. Water main construction was completed in 1995.

CH2M Hill was retained by the USEPA to prepare the remedial design of the remaining portions of the work to complete the ROD. The design was completed and is presented in the document entitled "Final Design Documents: Water Treatment System, Operable Unit One, Dublin NPL Site, Bucks County, Pennsylvania" (CH2M Hill 1995). The design included the selection of the Dublin Borough Monitoring Well No. 1 (DBMW-1) (previously known as the TCE Monitoring Well) as the sole source of water supply for the remedial action. The Final Design was included as a requirement of the Order on Remedial Action (Remedial Action Order) issued by the USEPA on August 25, 1995. The USEPA issued the Remedial Action Order to John Thompson and Sequa to complete the construction pursuant to the Final Design. In general, this work included construction of a treatment system for Monitoring Well DBMW-1, connection of residences and businesses to the municipal water supply, abandonment of private wells, and removal of obsolete individual carbon treatment systems.

On October 3, 1995, Sequa and its representatives met with the USEPA to address the requirements of the Remedial Action Order, but cited several issues and questions requiring further discussion or clarification. In correspondence dated October 23, 1995, Sequa responded that they would comply with the Remedial Action Order (Drinker, Biddle & Reath 1995a). The USEPA replied that it was uncertain whether Sequa intended to implement the remedial action as specified in the Remedial Action Order (USEPA 1995a). Sequa confirmed its intent to comply in correspondence to the USEPA dated November 17, 1995 (Drinker, Biddle & Reath 1995b). The USEPA subsequently approved Sequa's Project Coordinator on November 21, 1995 (USEPA 1995b).

2. REMEDIAL INVESTIGATION/FEASIBILITY STUDY TASKS

The following tasks were executed as components of the RI/FS:

- Task 1. Project Planning.
- Task 2. Community Relations.
- Task 3. Field Investigation.
- Task 4. Sample Analysis/Validation.
- Task 5. Data Evaluation.
- Task 6. Assessment of Risks.
- Task 7. Treatability Study/Pilot Testing.
- Task 8. Remedial Investigation Reports.
- Task 9. Remedial Alternatives Screening.
- Task 10. Detailed Evaluation of Remedial Alternatives.
- Task 11. Feasibility Study Report.

A detailed description of each of the tasks is presented in the following sections.

2.1 TASK 1: PROJECT PLANNING

Project planning involved tasks executed prior to RI/FS initiation. This task consisted of the following:

- Kickoff meeting (scoping session).

- Obtaining easement, permits, and/or site access.
- Refinement of Data Quality Objectives (DQOs).
- Refinement of project plans (RI/FS Work Plan, QAPP, FSP, and HASP).
- Initiation of subcontractor procurement.
- Initiation of coordination with analytical laboratories.
- Task management and quality control.

The project planning task was defined as complete when the work plan and supplemental plans were approved. Monthly progress reports have been submitted to the USEPA beginning 30 days after the date of work plan approval. Generally, progress reports consisted of a description of all activities conducted since the previous report; the results of all sampling, analytical data, and other information received; anticipated issues and recommended solutions; and a description of the schedule and anticipated activities for the following 30-day period.

2.2 TASK 2: COMMUNITY RELATIONS

The USEPA developed the Community Relations Plan for the Dublin NPL Site. Pursuant to Section 300.430 of the National Contingency Plan (NCP), the USEPA informed Sequa that all community relations will be handled by the USEPA (40 CFR 300). Sequa responded that they would cooperate with the USEPA in implementation of the Community Relations Plan as appropriate.

2.3 TASK 3: FIELD INVESTIGATION

The field investigation was conducted in two phases. Phase I consisted of subtasks, specifically Tasks 1 through 8 of the Proposed Investigation for Evaluation of the Recovery

Well System in the "Source Investigation Work Plan for the 120 Mill Street Site and Conceptual Remedial Alternatives for the Bedrock Aquifer Underlying Dublin Borough, Pennsylvania" (Geraghty & Miller, Inc. 1989), which was submitted to the PADEP and made part of the PADEP Consent Order. These tasks were re-identified for the RI/FS as Subtasks 3-1 through 3-8.

Subtasks 3-1 through 3-5 were completed prior to the submittal of the RI/FS Work Plan documents. A draft report entitled "Report on the Results of the Preliminary Hydrogeologic Investigation at the Dublin TCE Site - Dublin, Pennsylvania," which presented the results of these Phase I subtasks, was submitted in draft form to the PADEP on April 14, 1992 (Geraghty & Miller, Inc. 1992a). The remaining Phase I subtasks were incorporated into the Phase II field investigation.

The Phase II field investigation consisted of subtasks designed to integrate the results of Phase I and provide the additional information necessary to meet the DQOs of the RI/FS. The following subtasks comprised the two phases of the field investigation for the Dublin NPL Site:

PHASE I

- Subtask 3-1. Review of Well Records.
- Subtask 3-2. Analysis of Lineaments.
- Subtask 3-3. Performance of Geophysical Survey.
- Subtask 3-4. Monitoring of Water Levels.
- Subtask 3-5. Groundwater Modeling.
- Subtask 3-6. Design and Construction of Test Well(s).

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- Subtask 3-7. Performance of Aquifer Pumping Tests.
- Subtask 3-8. Analysis of Data and Preparation of Report.

PHASE II

- Subtask 3-9. Investigation of Subsurface Conditions.
- Subtask 3-10. Survey of Land and Water Use.
- Subtask 3-11. Performance of Geophysical Survey.
- Subtask 3-12. Monitoring of Air Quality.
- Subtask 3-13. Ecological Investigation.
- Subtask 3-14. Sampling of Drainage Ditch Sediment.
- Subtask 3-15. Sampling of Groundwater.
- Subtask 3-16. Logging of Existing Monitoring and Supply Wells.
- Subtask 3-17. Monitoring of Water Levels.
- Subtask 3-18. Revision of Groundwater Model.
- Subtask 3-19. Selection of Monitoring Network.
- Subtask 3-20. Design and Construction of Test Well(s) and/or Monitoring Wells.
- Subtask 3-21. Logging of New Well(s).
- Subtask 3-22. Performance of Packer Tests.
- Subtask 3-23. Abandonment or Retrofitting of Wells.

- Subtask 3-24. Installation of Observation Wells.
- Subtask 3-25. Performance of Aquifer Pumping Tests.
- Subtask 3-26. Finalization of Groundwater Model.

All field activities were conducted in accordance with the health and safety protocols outlined in the site-specific HASP (Geraghty & Miller, Inc. 1992e). All sampling efforts generally complied with the protocols outlined in the site-specific FSP (Geraghty & Miller, Inc. 1992c). Any modifications to field tasks as described in the FSP were approved by the USEPA prior to execution. Sample handling and analysis were conducted in compliance with the site-specific QAPP (Geraghty & Miller, Inc. 1992d). A description of the execution of each subtask follows.

2.3.1 Phase I Field Investigation

Phase I consisted of subtasks originally proposed in the bedrock aquifer investigation work plan (Geraghty & Miller, Inc. 1989). The following subtasks were performed as part of the Phase I field investigation.

2.3.1.1 Subtask 3-1: Review of Well Records

A complete review of records and data pertaining to water-supply and monitoring wells in Dublin Borough was performed. Well drilling logs for well construction information, analytical data for water-quality information, and existing pumping test results to evaluate aquifer characteristics were also reviewed.

The sources investigated for information pertaining to the existing water-supply and monitoring wells were as follows:

- Dublin Borough.
- BCHD.
- PADEP.
- U.S. Geological Survey (USGS).

Geraghty & Miller reviewed several existing site and regional reports on the geology and water resources of the area (International Exploration, Inc. 1985; Rooney 1986; T.H. Cahill and Associates and J.K. Adams and Associates 1987; and Mercuri and Associates 1988, 1989, 1991) and available well/drilling logs. This material was reviewed to develop an understanding of the local geology. During this review, attempts were made to correlate units of varying geologic characteristics (e.g., lithology, degree of weathering/competency, matrix grain size, degree of fracturing) between wells in the area of interest.

Existing analytical data for samples collected from water-supply and monitoring wells were reviewed. These data were summarized to evaluate the current and past distribution of TCE, and the change of TCE concentrations over time. The analytical results of all samples collected from residential supply wells in accordance with the Thompson Consent Order are discussed in Section 8.2.3 (Residential Well Sampling).

Records of past pumping tests conducted in the area were analyzed. These data were used to provide preliminary insight into aquifer characteristics and were also used in model development.

2.3.1.2 Subtask 3-2: Analysis of Lineaments

A lineament analysis was conducted to identify features of the underlying bedrock, such as fractures, joints, and faults, that generally influence groundwater flow. The lineament study consisted of a detailed analysis of aerial photographs and topographic maps

of the area. The aerial photographs consisted of pairs of black-and-white stereographic prints from 1958, 1964, 1973, 1978, and 1985 (Table 2-1). Side-looking airborne radar (SLAR) and infrared (IR) aerial photographs were also analyzed.

When an aerial photograph analysis is conducted, cultural features, such as roadways, property lines, field boundaries, and drainage channels, may be misinterpreted as fracture traces. On Tuesday, November 12, 1991, a fracture-trace field verification survey was conducted in an effort to locate fracture traces mapped from the aerial photographs and eliminate those that were related to cultural features. The verification was conducted only in a limited area (Phase I geophysical survey area). Much of the land surface area has been cultivated and/or developed. The Dublin area has historically been an agricultural community and has become more developed since the 1970s. These cultural interferences have greatly reduced the ability to confirm in the field the fracture traces identified on earlier aerial photographs. Several of the features identified from aerial photographs could be observed in the field. All of the field-verified features were located northwest of the center of Dublin Borough where there has been less disturbance. Others were not present or were cultural features.

A survey of the bedrock units in the Blooming Glen Quarry in Hilltown, Pennsylvania, was conducted on January 15, 1992. The quarry, which mines and processes rock for use as aggregate, is located approximately 1.5 miles west of Dublin Borough. Exposures of the gray and black siltstone and shale and interbedded reddish-brown sandy siltstone units are visible to depths of approximately 150 feet below grade.

2.3.1.3 Subtask 3-3: Performance of Geophysical Survey

A geophysical survey utilizing electromagnetic (EM) conductivity, electrical resistivity, and seismic refraction methods was conducted. The objective of the survey was to obtain information regarding the bedrock surface configuration and major fractures and/or fracture zones. The survey was completed in an area in the northern part of Dublin

(Figure 2-1). This survey area is referred to as the Phase I geophysical survey. Additional areas were subsequently surveyed as part of Subtask 3-11. A complete description of the procedures, results, and conclusions of the survey are presented in Appendix C.

Prior to conducting the EM survey, a survey grid with dimensions of approximately 2,800 by 1,200 feet was established by a licensed Pennsylvania surveyor. Grid lines were established at 400-foot intervals and data collection stations were set up every 15 feet along the grid lines.

The EM survey was conducted from November 12 to 19, 1991. A Geonics EM34-3XL dual coil electromagnetic conductivity measuring device was used. The coils were spaced 20 meters (approximately 65 feet) apart and oriented in the vertical dipole mode. This setup measures conductivities at depths of approximately 100 feet. Characteristic anomalies were observed when the transmitter unit passed over a conductive feature, such as a water-bearing fracture or fracture zone. To orient and confirm the presence of such features, offset survey traverses were executed parallel to traverses that exhibited anomalous data.

The EM field data showed many anomalies characteristic of conductive features. The large number of anomalies made correlation of the anomalies difficult. An azimuthal electrical resistivity survey was conducted December 4 and 5, 1991 to clarify the orientation of the conductive features detected in the EM survey. The electrical resistivity survey consisted of measurements obtained from a series of four grounded electrodes aligned in a Schlumberger array. The linear array was rotated about a central point and readings were taken every 20 degrees. A linear feature such as a fracture appears as an anomaly with the short axis parallel to the strike of the feature. Twelve resistivity arrays were conducted proximal to anomalies identified during the EM survey.

A seismic refraction survey was conducted December 6 to 8, 1991, along four traverses within the Phase I survey area after completion of the EM and electrical resistivity

surveys. The optimal orientation for these traverses was determined using data from the EM and electrical resistivity surveys. The seismic refraction method utilizes a linear array of 20 geophones that measure the velocity of sound waves created by a seismic source (either a sledge hammer or a small explosive charge). Wave-form anomalies, as detected in the geophones, are the result of variations in subsurface characteristics. These anomalies, interpreted as fractures/fracture zones, were on or near fracture/fracture zones interpreted from the EM and resistivity survey data.

2.3.1.4 Subtask 3-4: Monitoring of Water Levels

The long-term water-level monitoring program was initiated on December 9, 1991. Stevens Type F continuous water-level recorders were installed on Monitoring Wells MW-1 and MW-4. The recorders were set on 16-day time scales and inspected every 14 to 15 days. After approval of the RI/FS work plan documents, water-level measurements were collected under Subtask 3-17: Monitoring of Water Levels.

2.3.1.5 Subtask 3-5: Groundwater Modeling

The USGS modular three-dimensional finite-difference flow model (MODFLOW) was used to simulate flow patterns within the natural hydrologic boundaries of the Morris Run and Deep Run Watersheds (McDonald and Harbaugh 1988). The model code is well documented, publicly available, and widely used for evaluation of groundwater systems. The five-layer model utilizes a variable-spaced grid with the most detailed spacing in the vicinity of Dublin Borough. This finer detail provides for more accurate simulation of aquifer response to existing supply well pumpage and potential alternate supply/recovery-well pumping scenarios.

Advective transport of groundwater containing dissolved TCE was analyzed through the use of a three-dimensional particle-tracking program called MODPATH (Pollock 1989). MODPATH uses steady-state output from MODFLOW as input to track particles from

recharge areas to their eventual discharge location. The particles do not correspond to a concentration, but they can be interpreted as the advective path of contaminated groundwater movement within the flow field described by MODFLOW. The particle-tracking technique was used to evaluate the effectiveness of recovery-well contaminant recovery schemes in terms of contaminant mass reduction and hydraulic containment of the TCE plume.

2.3.1.6 Subtask 3-6: Design and Construction of Test Well(s)

The USEPA deferred the performance of this subtask in a letter to Sequa dated September 10, 1992 (Walker 1992e). This subtask was incorporated into Subtasks 3-20 and 3-24.

2.3.1.7 Subtask 3-7: Performance of Aquifer Pumping Tests

The USEPA deferred performance of this subtask in a letter to Sequa dated September 10, 1992 (Walker 1992e). This subtask was incorporated into Subtask 3-25.

2.3.1.8 Subtask 3-8: Analysis of Data and Preparation of Report

A draft of the "Report on the Results of the Preliminary Hydrogeologic Investigation at the Dublin TCE Site" (Geraghty & Miller, Inc., 1992a) was submitted to the PADEP on April 14, 1992. A copy of this draft report was subsequently provided to the USEPA.

The USEPA deferred finalization of this subtask in a letter to Sequa dated September 10, 1992 (Walker 1992e). This subtask has been incorporated into Task 8: Remedial Investigation Reports.

2.3.2 Phase II Field Investigation

The following sections describe Phase II of Task 3: Field Investigation.

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2.3.2.1 Subtask 3-9: Investigation of Subsurface Conditions

Subtask 3-9 was initiated on July 6, 1992. The subtask involved both soil boring and test pit investigations. The soil boring investigation was divided into two phases based on the stated objectives. The first phase of the boring investigation was designed to obtain potential subsurface contamination; the second phase was designed to provide depth-to-bedrock information.

The first phase of the boring investigation and the test pit excavations was conducted between July 6 and July 14, 1992. A representative from Camp, Dresser, & McKee (CDM), the USEPA's oversight contractor, was present during the field activities.

A field GC was operated on-site for field screening samples from soil borings and test pits. Samples of material exhibiting elevated photoionization detector (PID) readings or other signs of potential contamination were analyzed using the field GC. A minimum of one sample per boring or test pit was submitted for laboratory analysis. Laboratory analytical data generated during this first phase of Subtask 3-9 are discussed in Section 5 (Soil Conditions).

Soil Borings SB-1 through SB-17 were drilled and sampled between July 6 and July 11, 1992. The coolers containing samples from Soil Borings SB-1 through SB-13 arrived at the laboratory at temperatures outside the range of quality assurance/quality control (QA/QC) limits. Samples were re-collected from these borings on July 10 and 11, 1992. For Soil Boring SB-2, the initial Soil Sample SB-2 collected on July 7 as well as the resampled SR2 were submitted for laboratory analysis since the field screening results recorded with the PID were different. Because of the proximity of underground and overhead utilities near the UST on the southern side of Building 3 (see Figure 1-3), only two borings, Soil Borings SB-9 and SB-10, as opposed to the four initially proposed, could be installed near the UST. Soil samples were identified in accordance with the alphanumeric identification system outlined in the QAPP (Geraghty & Miller, Inc. 1992d) and the FSP (Geraghty & Miller, Inc. 1992c). All samples collected from soil borings were identified by the matrix code "SB" followed by

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the soil boring number. Field GC samples were identified using the same system with two additional letters "GC" as the last two characters. The locations of the soil borings are presented on Figure 2-2.

The test pit investigation was conducted on July 13 and 14, 1992. Four test pits were excavated using a backhoe. The locations of the test pits are presented on Figure 2-2.

Test Pit TP-1 was excavated along the northern side of Building 1 in the area of an old septic tank. A clay pipe was encountered at approximately 2.5 feet below grade. A sample of the soil surrounding the pipe at a depth of approximately 2.5 feet was collected for laboratory analysis. This sample was identified as T01A040.

Test Pit TP-2 was excavated along what was believed to be the same septic transfer line encountered at Test Pit TP-1. A clay pipe was encountered at approximately 2 feet below grade. The clay pipe contained water and did not exhibit odor, sheen, nor elevated HNU readings. No soil samples were collected from Test Pit TP-2 because of the proximity of Test Pits TP-2 and TP-1. A sample of the water inside the pipe was collected for field GC analysis.

Test Pit TP-3 was excavated near the Fire Tower as close to Soil Boring B-2 as possible. Nearby electric, water, and sewer lines restricted access. A corrugated tin pipe was encountered at approximately 2 feet below grade. The pipe was oriented toward the nearby drainage ditch, which is believed to be a part of the storm-water drainage system. A small hole in the pipe made during the excavating activities was patched with a tin sheet. Test Pit TP-3 was excavated to 9.4 feet below ground surface. A backhoe bucket of material from 8.8 feet below grade was placed on plastic sheeting. This material was the deepest sample that could be collected from a discrete depth. A sample of it was collected for laboratory analysis and identified as T03A088.

Test Pit TP-4 was excavated southwest of the quonset hut, next to the concrete pad where the leachfield for a second septic system was believed to exist. A clay pipe was encountered at approximately 2 feet below grade. The pipe contained water, and a slight sheen was observed. Soil samples were collected for laboratory and field GC analysis. A sample of the water inside the clay pipe was submitted for field GC analysis. The excavation was extended to the south across the apparent leach field. Two more clay pipes were encountered. Some of the coarse gravel backfill surrounding the pipes appeared to be stained with a brown sticky substance. A sample of the gravel was collected and submitted for field GC analysis. All test pits were backfilled with the original material in accordance with approval from the USEPA.

The second phase of the soil boring investigation was conducted from August 24 to 28, 1992. As required by the QAPP (Geraghty & Miller, Inc. 1992d), a field audit was conducted on August 24, 1992. USEPA oversight was provided on August 27 and 28, 1992, by CDM. The second phase of the boring investigation consisted of the drilling of 14 borings (Soil Borings SB-18 to SB-31) through the overburden to the top of bedrock, and the collection of three samples of near-surface soils at three off-site locations to provide baseline soil quality data. The borings were drilled on a 100-foot grid in areas where borings had not been drilled during the first phase of the boring investigation. The locations of Soil Borings SB-18 through SB-31 are shown on Figure 2-2. The baseline soil sampling locations are presented on Figure 2-3. The range of bedrock depths encountered during the second phase of the boring investigation was 3.9 to 12.8 feet below land surface (bls). The average depth to bedrock was 6.5 feet bls.

At each soil boring location, split-spoon samples were collected continuously at 2-foot intervals. The contents of each split spoon were logged and scanned for the presence of VOCs with a PID. A split of one sample per boring exhibiting PID readings above 10 calibration standard equivalents was retained for laboratory VOC analysis. One sample was collected for laboratory analysis during the second phase of the soil boring investigation from the 6.5- to 7.0-foot interval at Soil Boring SB-19, located northwest of the former drum

storage area. This sample was identified as S19065 and was submitted for laboratory analysis of VOCs. All boring locations except Soil Boring SB-19 were backfilled with original material and sealed at the surface with a concrete grout. The entire length of Soil Boring SB-19 was backfilled with grout.

Samples of fill material (clay and gravel) were collected from within the two out-of-service septic tanks at the 120 Mill Street property on August 26, 1992. Septic tank locations are shown on Figure 2-2. Split-spoon samples were collected continuously to the bottom of each tank. One sample from the 0.5-foot interval above the bottom of each tank was submitted for laboratory analysis of VOCs and base neutral and acid extractable organic compounds (BNAs). The sample from Septic Tank 1 was collected from approximately the 7.7 to 8.2-foot below grade interval and was identified as ST10826. The sample from Septic Tank 2 was collected from the 7.0 to 7.5-foot below grade interval and was identified as ST20826. The results of the septic tank fill material samples are discussed in Section 5 (Soil Conditions) of this report.

Baseline soil samples were collected from three locations on August 26 and 28, 1992. Baseline soil sampling locations are shown on Figure 2-3. One sample was collected from one location at 106 North Main Street, and two samples were collected from two separate locations at 123 North Main Street. Samples were collected with a hand auger. The sample collected at 106 North Main Street was collected from the 1.5 to 2.0-foot interval below grade and was identified B01015. A sample collected from the property at 123 North Main Street between the main building and Route 313 was collected from the 1.3 to 1.8-foot interval below grade and was identified B02013. A second sample collected from the property at 123 North Main Street was collected from the 1.0 to 1.5-foot interval below grade and was identified B03010. All baseline soil samples were analyzed for VOCs, BNAs, pesticides/polychlorinated biphenyls (PCBs), and metals. The results of these analyses are discussed in Section 5 (Soil Conditions) of this report.

2.3.2.2 Subtask 3-10: Survey of Land and Water Use

This subtask consisted of gathering and interpreting records regarding the population of Dublin Borough and its interaction with the land and water of the area. The survey was expanded beyond Dublin Borough to include adjacent areas of Hilltown and Bedminster within a 0.25-mile distance north and west of the Dublin Borough. This subtask was completed and a final report was submitted to the USEPA on September 30, 1993; this report is provided in Appendix D.

2.3.2.3 Subtask 3-11: Performance of Geophysical Survey (Phase II)

Phase II of the surface geophysical survey was proposed to be conducted across two areas (Geraghty & Miller, Inc. 1992b). One area was located southeast of the area covered by the Phase I geophysical survey (Subtask 3-3), in the vicinity of Elephant Road. The second area was northwest of the Phase I area. The Phase II survey area was slightly modified from the proposed survey area because of constraints resulting from property access difficulties. The revised survey area is shown on Figure 2-1.

The first part of the Phase II geophysical survey was conducted between October 13 and October 16, 1992. Access to portions of the Phase II geophysical survey area across Rickerts Road in Bedminster Township was denied at this time. An EM survey was conducted at 16-foot intervals across a 400-foot by 400-foot grid on properties where access had been arranged.

The second part of the Phase II geophysical survey, a resistivity survey was completed on November 5, 1992. The resistivity survey was conducted in an attempt to define and confirm the orientation of suspected fracture zones indicated by the EM survey. The survey consisted of the collection of resistivity data from 21 stations throughout the survey area. Properties in Bedminster and Hilltown, other than St. Luke's Church property, were not part of this survey because access had been denied.

The third part of the Phase II geophysical survey, a seismic refraction survey, was conducted between December 7 and December 10, 1992 and was oriented along spreads selected based upon the results of the previously completed EM and resistivity surveys. Each spread was 230 feet long and made up of geophones spaced 10 feet apart. The seismic refraction survey was performed to determine the depth to bedrock and to confirm fracture or fracture zone locations interpreted from the fracture trace analysis and the previous geophysical surveys. Sequa was able to arrange access in February 1993 to four properties in Hilltown and Bedminster where access had previously been denied. A Phase IIA geophysical survey was conducted between February 20 and March 22, 1993 as an addendum to the Phase II survey to survey the four properties. The first area was the clover field located on the Moyer property, northwest of Rickerts Road. The second and third areas were located between Quarry Road and Rickerts Road and consisted of the area adjacent to the Landis Property (Tax Map Number [TMP]15-29-80) (opposite the State Police Barracks) and the Landis property which is a parcel of land behind the St. Luke's Church (TMP 15-29-80-12) (A. Kachline, 1996).

The procedures and results of this subtask were detailed in final reports attached to monthly reports submitted to the USEPA. These final reports are included in Appendix C.

2.3.2.4 Subtask 3-12: Monitoring of Air Quality

Subtask 3-12: Monitoring of Air Quality was conducted on August 26 and 27, 1992. Time-weighted air sampling was conducted using vacuum-pressurized Summa canisters. The Summa canisters were under a negative pressure of at least 28 inches of mercury and were equipped with a regulator. The regulator controlled the flow of air into the canister at a rate preset by the laboratory. When the canister was opened, the air flowed from the surrounding environment into the canister at an even rate over the 4-hour sampling period. A canister was positioned on the ground at each sampling location. Each sample canister was provided a unique alphanumeric identifier in accordance with the FSP (Geraghty & Miller, Inc. 1992c) and the QAPP (Geraghty & Miller, Inc. 1992d).

Samples were obtained from locations upwind, on-site, and downwind during intrusive site activities, and on-site and downwind during non-intrusive site activities. Wind speed and direction, as well as surface soil temperature, ambient air temperature, and barometric pressure were measured throughout the sampling. Wind speed and direction were monitored every 30 minutes using a three-cup anemometer and wind vane, respectively. If a shift in wind direction was observed, readings were taken every 15 minutes. If the wind shift was consistent over a 30-minute period, the sample canisters were relocated accordingly. Sample locations are shown on Figures 2-4 and 2-5. All canisters were shipped to Enseco - Air Toxics of City of Industry, California, and analyzed for VOCs. The results are discussed in Section 7 (Air Quality) of this report.

At the conclusion of sampling on August 26, 1992, the regulator on sample canister AR20826 was found to have been defective. The pressure on the canister had only decreased by 3 inches of mercury over the sampling period. The low pressure decrease meant that very little sample material (air) had been drawn into the canister. When the canister was received at the analytical laboratory, the pressure in the canister was ambient, indicating a defective seal or valve on the canister. Because of the defect, there was no sample obtained on-site during intrusive activities.

2.3.2.5 Subtask 3-13: Ecological Investigation

The ecological investigation was conducted on August 19, 1992. The objectives were to gather qualitative and semiquantitative information on the ecological communities present at the Dublin NPL Site, describe the pathways by which biological receptors could be exposed to media containing site-related constituents, and document any readily apparent evidence of stress on ecological communities at the Dublin NPL Site. The data obtained from the ecological investigation provide information on potential threats to the natural resources associated with constituents and/or activities (e.g, physical alterations) related to remediation of the Dublin NPL Site. The report for this subtask was submitted in draft form

to the USEPA on February 9, 1993 (Geraghty & Miller, Inc. 1993a). The report is included as Appendix E.

2.3.2.6 Subtask 3-14: Sampling of Drainage Ditch Sediment

Subtask 3-14: Sampling of Drainage Ditch Sediment was conducted on August 27 and 28, and October 28, 1992. USEPA oversight was provided on August 27 and 28, 1992, by CDM.

Of the seven sediment samples initially proposed in the RI/FS Work Plan (Geraghty & Miller, Inc. 1992b), one sample could not be collected due to physical and property access difficulties. The sediment sample from the drainage ditch that runs along the eastern side of Elephant Road proposed in the RI/FS Work Plan could not be collected due to property access denial at 149 and 151 Elephant Road. Relocation of this sample was unsuccessful because of limited exposure of the drainage ditch in proximity of the site. Upstream of the originally proposed sampling location, the ditch is channeled underground. The USEPA requested that a seventh sediment sample be collected from a location downstream (northwest) of location D02 (Walker 1992e). This additional sample, Sediment Sample D07, was collected on October 28, 1992.

The 120 Mill Street property is almost fully covered by impervious surfaces in the form of buildings and parking lots. Runoff from the property travels by overland flow or through drains to a drainage ditch that runs southwest to northeast along the northwestern boundary of the property. Seven samples of shallow sediment, identified as Sediment Samples D01 through D07, were collected from the bottom of the drainage ditch that runs to the northwest from the 120 Mill Street property and the drainage ditch that runs along Elephant Road (Figure 2-6).

Drainage ditch Sediment Samples D01 through D06 were collected on August 27 and 28, 1992. These samples were collected with a stainless-steel, 3-inch diameter hand auger.

Drainage ditch Sediment Sample D07 was collected with a stainless-steel trowel on October 28, 1992. All samples were collected from a 0.5-foot interval between 0.7 and 1.5 feet below the bottom of the drainage ditch. Samples were submitted for laboratory analysis of VOCs, BNAs, pesticides/PCBs, metals, total organic carbon (TOC), and grain size. Field blanks were collected on August 27, 1992 and October 28, 1992 and submitted for laboratory analysis of VOCs, BNAs, pesticides/PCBs, metals, and TOC. Samples were identified according to the alphanumeric system outlined in the FSP (Geraghty & Miller, Inc. 1992c) and the QAPP (Geraghty & Miller, Inc. 1992d). The results are discussed in Section 6 (Sediment Quality).

Samples were sent daily via courier to Enseco-East Laboratory of Somerset, New Jersey, in coolers chilled to approximately 4 degrees Celsius (°C). VOC samples were accompanied by a trip blank.

2.3.2.7 Subtask 3-15: Sampling of Groundwater

Subtask 3-15: Sampling of Groundwater was conducted on August 17, 1992 and October 14, 1992. This subtask was divided into two steps. The two-step approach for the sampling program was designed to allow for evaluation of the Step I results (near- and on-site wells) and for selection of sampling parameters before a more comprehensive sampling round (Step II) that included all proposed wells was performed **(For additional information, see response to Comment No. 3 in RI/FS Addendum)**. The results of the two steps of groundwater sampling are discussed in Section 8 (Groundwater Quality) of this report. Prior to sampling, wells were tested, if possible, for the presence of dense non-aqueous phase liquid (DNAPL). Water generated during performance of this subtask was containerized, treated on-site, sampled, and in accordance with an agreement with Dublin Borough, discharged to the Dublin Borough sanitary sewer.

2.3.2.7.1 DNAPL Monitoring

DNAPL monitoring was conducted on August 12, 1992, prior to groundwater sampling **(For additional information, see response to Comment No. 5 in RI/FS Addendum).** Geraghty and Miller Monitoring Wells MW-1 through MW-8, BCM Monitoring Wells BCM-1 and BCM-2, and the Thompson Production Well PW-1 were tested for the presence of DNAPL with a double-valved bailer or a product-water interface probe. The product-water interface probe could only be used on wells that were 100.3 feet depth or less. Therefore, the product-water interface probe was used on Monitoring Wells MW-3, MW-4, MW-6, BCM-1, and BCM-2. When the probe was lowered to the bottom of these wells, the instrument did not indicate the presence of DNAPL. The remaining wells were tested with a double-valved bailer and an HNU PID. Samples retrieved with a double-valved bailer from the bottom of the remaining wells did not register on the PID and did not show any visible or olfactory signs of DNAPL. **(For additional information, see response to Comment No. 6 in RI/FS Addendum).**

2.3.2.7.2 Step I Groundwater Sampling

Step I of Subtask 3-15 began on August 17, 1992. USEPA oversight was provided by CDM. The Step I monitoring wells were sampled in order of increasing historical TCE concentrations. The wells were sampled in the following order: Monitoring Wells MW-3, MW-4, and BCM-1, and Production Well PW-1. The remaining wells (the Fire Tower Well [FTW], the Farm Bureau Well, and Dublin Well No. 1) were supply wells that were already equipped with pumps; they were also sampled during Step I. Prior to sampling, all Step I wells, except Monitoring Wells MW-3 and MW-4, were evacuated of at least three well volumes and until field parameters (pH, specific conductance, and temperature) stabilized. Stabilization was achieved when the percent relative standard deviation (% RSD) was 20 percent for three consecutive measurements. Monitoring Wells MW-3 and MW-4 were purged dry prior to evacuation of three well volumes. **(For additional information, see response to Comment No. 8 in RI/FS Addendum).** Purge water from Dublin Well No. 1

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was pumped directly to the adjacent Dublin water tower. Purge water from the Farm Bureau Well was discharged through the existing carbon treatment system. Purge water from Monitoring Wells MW-3, MW-4, and BCM-1, Production Well PW-1, and the FTW was pumped to and stored in a 7,100-gallon tank located adjacent to the on-site GAC system at the 120 Mill Street property. Dublin Well No. 1 was subsequently replaced by the Lamelza Well as the background well because of the inability to gain access to Dublin Well No. 1 for borehole logging **(For additional information, see response to Comment No. 7 in RI/FS Addendum)**.

All Step I water samples were analyzed in the field for pH, specific conductance, and temperature. Laboratory samples were designated according to the alphanumeric system described in the FSP (Geraghty & Miller, Inc. 1992c) and the QAPP (Geraghty & Miller, Inc. 1992d). Samples were sent daily to Enseco-East Laboratory of Somerset, New Jersey, via laboratory courier. All Step I well samples and the field blank were submitted for the following analytical parameters: VOCs, BNAs, pesticides/PCBs, and metals (filtered and unfiltered). The trip blanks were analyzed for VOCs only. The analytical results are discussed in Section 8.2.1 (Step I Groundwater Sampling) of this report.

Because well purging protocols were not correctly executed during groundwater sampling of Dublin Well No. 1 on August 28, 1992, this well was resampled on September 1, 1992 after evacuation of three well volumes and after the field parameters stabilized. Laboratory analysis of the initial sample collected from Dublin Well No. 1 was canceled.

2.3.2.7.3 Step I Purge Water Treatment

Purge water generated during the Step I sampling was containerized in a 7,100-gallon stationary tank located at the 120 Mill Street property. The purge water was treated using the on-site GAC system. After treatment, a sample of the tank water was collected and analyzed for the following parameters: VOCs, BNAs, pesticides/PCBs, and metals (filtered and

unfiltered). The post-treatment sample was sent to QC Laboratory of Southampton, Pennsylvania for rush analysis. Constituents in this sample did not exceed federal drinking water standards. The laboratory results were provided to Dublin Borough and permission to discharge the water to the Dublin Borough Sanitary Sewer was received from Dublin Borough on September 14, 1992. The water was discharged on September 15, 1992.

2.3.2.7.4 Step II Groundwater Sampling (Monitoring Wells)

Step II of Subtask 3-15 began on October 5, 1992. USEPA oversight was provided by CDM. As outlined in the RI/FS Work Plan (Geraghty & Miller, Inc. 1992b), Step II consisted of sampling all the monitoring wells (Geraghty & Miller and BCM), selected residential supply wells (along Rickerts Road), and the St. Luke's Church supply well. The two-step approach for the sampling program was designed to allow for evaluation of the results from Step I. The analytical parameters of samples collected during the second step were reduced based on the contaminants of concern identified in Step I. A description of the wells chosen to be sampled during Step II, along with the selection criteria were submitted to the USEPA and was approved, prior to sampling. A list of the wells sampled during each step is presented in Table 2-2.

Prior to sampling, each Step II well (with the exception of Monitoring Wells MW-3, MW-4, MW-6, and BCM-2, and the residential/supply wells), was evacuated of at least three well volumes and until field parameters (pH, specific conductivity, and temperature) stabilized. The residential/supply wells were purged for a minimum of 10 minutes prior to sampling. Monitoring Wells MW-3, MW-4, MW-6, and BCM-2 were purged dry prior to evacuation of three well volumes. Purge water from all Step II monitoring wells was pumped to a 5,500-gallon tank truck.

All Step II monitoring well samples were analyzed in the field for pH, specific conductance, and temperature. Laboratory samples were designated according to the

alphanumeric system described in the FSP (Geraghty & Miller, Inc. 1992c) and the QAPP (Geraghty & Miller, Inc. 1992d). Samples were sent daily to Enseco-East Laboratory of Somerset, New Jersey, via laboratory courier. All Step II well samples and the field blank were submitted for analysis of VOCs and lead (filtered and unfiltered). These parameters were selected based on the Step I sampling results. The trip blanks were analyzed for VOCs only. Laboratory results are discussed in Section 8.2.2 (Step II Groundwater Sampling).

2.3.2.7.5 Step II Purge Water Treatment

Purge water generated from monitoring wells during the Step II sampling was treated daily. Purge water was pumped from the 5,500-gallon mobile tank truck, through the on-site GAC system, and into the on-site stationary 7,100-gallon tank.

After completion of treatment of the purge water, a post-treatment sample was collected from the 7,100-gallon tank and submitted to Enseco-East for VOC analysis. No VOCs in the treated purge water exceeded federal drinking water standards. Correspondence, including post-treatment water sample results, was sent to Dublin Borough requesting permission to discharge the treated water to the Borough sanitary sewer. Permission to discharge was received on October 15, 1992, and the water was discharged on October 15 and 16, 1992.

2.3.2.7.6 Step II Groundwater Sampling (Residential/Supply Wells)

The residential/supply well sampling portion of the Step II groundwater sampling event was conducted October 7 through October 14, 1992. USEPA oversight was provided by CDM. Wells were purged for a minimum of 10 minutes prior to sampling and until field parameters (pH, specific conductance, and temperature) stabilized. Purge water from the residential supply wells was discharged to the ground or to a sump pump in the basement of each home. These supply wells had not been previously sampled and, therefore, carbon treatment systems were not in place.

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All Step II residential/supply wells were sampled from a point prior to any treatment system. All the samples were analyzed for pH, specific conductance, and temperature in the field. Laboratory samples were designated according to the alphanumeric system described in the FSP (Geraghty & Miller, Inc. 1992c) and the QAPP (Geraghty & Miller, Inc. 1992d). All Step II residential/supply well samples were submitted to Enseco East of Somerset, New Jersey, via laboratory courier for VOC and lead (filtered and unfiltered) analyses. The trip blanks were analyzed for VOCs only.

In spite of a valid access agreement between Sequa and the Buchanan family, Geraghty and Miller personnel were denied access to the Buchanan property to sample Monitoring Well MW-7. Therefore, no sample was collected from this well.

One replicate sample was collected during the Step II sampling event from Monitoring Well BCM-1. No samples were collected from the St. Luke's Church septic tank or septic leach field. When the RI/FS Work Plan (Geraghty & Miller, Inc. 1992b) was developed, the septic system was overflowing and breaking out at the surface of the leach field. At the time sampling was conducted, the tank had been cleaned out and the overflow problem remedied. Because there was no longer a breakout at the surface of the leach field, no sample of the leachate could be taken; no tank sample was collected.

Residential Well R08 (Bedford) went dry during evacuation. The well was allowed to recover and was then sampled. Mr. George Bedford reported to sampling personnel that he had had problems with his well going dry. The VOC samples from Residential Well R06 (Britton) were not submitted for analysis because they had not been properly preserved; the well was resampled for VOCs on October 13, 1992.

2.3.2.8 Subtask 3-16: Logging of Existing Monitoring and Supply Wells

Existing Monitoring Wells MW-1 through MW-8, BCM-1, and BCM-2, the FTW, Monitoring Well DBMW-1, and the Lamelza Well were logged using geophysical and

television equipment on October 26 and 27, 1992 (Earth Data, Inc. 1992). These surveys were conducted to identify water-bearing fracture zones. The 12 wells were logged in accordance with the borehole logging protocol included in the FSP (Geraghty & Miller, Inc. 1992c). An initial downhole television survey was followed by four geophysical logs, which were run in the following sequence: temperature survey, natural gamma, spontaneous potential and single point resistance, and caliper log. The results of these surveys were used to plan the packer testing of these wells (Subtask 3-22).

2.3.2.9 Subtask 3-17: Monitoring of Water Levels

After approval of the work plan documents, monitoring of water levels was continued under Subtask 3-17: Monitoring of Water Levels. The long-term water-level monitoring program was initiated on December 9, 1991, with the installation of Stevens Type F continuous water-level recorders on Monitoring Wells MW-1 and MW-4. The monitoring network was expanded with the installation of continuous recorders on Monitoring Well MW-5 on December 19, 1992, on Monitoring Wells MW-2 and MW-8 on January 15, 1992, and on the Production Well PW-1 on February 6, 1992. The recorders were set on 16-day time scales and inspected every 14 to 15 days.

During the February 6, 1992 inspection, the recorder on Monitoring Well MW-4 was found to have been stolen. Because the water level in the well had not exhibited any significant fluctuations, the recorder was not replaced.

In addition to the continuous water-level monitoring, synoptic rounds of water-level measurements were collected during the regular inspection visits (every 14 to 15 days) on each of the monitoring wells that were not equipped with water-level recorders.

Precipitation records from the Fricks meteorological station, located at the corner of Hilltown Road and Chalfont Road approximately 4.7 miles from the 120 Mill Street

property, were acquired on a monthly basis (Appendix F). These precipitation records were used in the interpretation of water-level trends.

Hydrographs were generated from the Stevens Type F continuous water-level recorder charts. Precipitation was plotted on each of these figures. The hydrographs are presented in Appendix G. The hydrographs aided in the assessment of aquifer responses to current pumping and precipitation effects.

The preliminary results of the water-level monitoring program were presented to the PADEP, for whom the program had been initiated, in a document entitled "Report on the Results of the Preliminary Hydrogeologic Investigation at the Dublin TCE Site, Dublin, Pennsylvania" (Geraghty & Miller, Inc. 1992a). The report was submitted as a draft to the PADEP on April 14, 1992.

The continuous water-level recorders were changed from the 16-day scale to the 32-day scale on March 19, 1992. During a meeting with the USEPA on August 25, 1992, discussion regarding anomalously high water levels observed in Monitoring Well MW-4 resulted in an informal agreement to replace the recorder at that location. In response to this discussion, a recorder was moved from Production Well PW-1 to Monitoring Well MW-4 on October 16, 1992. On September 15, 1992, the Stevens recorder from Monitoring Well MW-2 was relocated to Monitoring Well DBMW-1.

The monitoring network consisted of the 12 Geraghty & Miller monitoring wells, two BCM monitoring wells, Production Well PW-1, and Monitoring Well DBMW-1. The location of each of these wells is shown on Figure 1-2 and construction details (except for Production Well PW-1) are provided in Table 1-1. Well construction logs for each of the monitoring network wells, except Production Well PW-1, are included in Appendix B. No log is available for Production Well PW-1.

2.3.2.10 Subtask 3-18: Revision of Groundwater Model

Following an analysis of the results from other subtasks and updated supply well pumping data, additional groundwater flow modeling was conducted. Aquifer hydraulic characteristics were used to refine the model created in Subtask 3-5. The refined model was used to simulate potential recovery-well scenarios and to select an optimum pumping rate for gaining hydraulic control of the portion of the aquifer with high TCE concentrations. A draft of the revised groundwater model was submitted to the USEPA on February 10, 1993. The construction and revision of the model are presented in Appendix H.

2.3.2.11 Subtask 3-19: Selection of Monitoring Network

The results from the preceding subtasks were used to select the network of wells for aquifer testing and monitoring. The existing data were reviewed not only to assess the adequacy of the existing monitoring network and the placement and design of new wells, but also to assess the existing supply wells and their adequacy for inclusion into the network. The Work Plan for the Selection of a Monitoring Network was submitted to the USEPA on April 27, 1993 (Geraghty & Miller, Inc. 1993b). The proposed monitoring network was approved in correspondence from the USEPA to Sequa on December 7, 1993.

2.3.2.12 Subtask 3-20: Design and Construction of Test Well(s) and/or Monitoring Wells

Four new monitoring wells (Monitoring Wells MW-9S, MW-9D, MW-10, and MW-11) were installed during this subtask to supplement the existing aquifer characterization. Monitoring Wells MW-9S and MW-9D are located near the downgradient edge of the TCE plume where a gap in water-level and water-quality data was identified. Monitoring Well MW-10 is located approximately in the middle of the TCE-affected area where there previously were no water-level reference points. Monitoring Well MW-11 is located downgradient of the affected area and was used to more fully define the extent of TCE.

The results of the completed RI/FS field investigation subtasks were used as a basis for the selection of this network of wells. These criteria were outlined in the Work Plan for the Selection of a Monitoring Network (Geraghty & Miller, Inc. 1993b). Following submission of this report to the USEPA, further correspondence with the USEPA resulted in an outline of the specific design and construction of these wells.

2.3.2.13 Subtask 3-21: Logging of New Wells

New Monitoring Wells MW-9S, MW-9D, MW-10, and MW-11, installed as part of Subtask 3-20, were logged using the same downhole geophysical methods described for Subtask 3-16. Logging of the new wells was conducted on April 6 and 7, 1994 (Earth Data, Inc. 1994).

2.3.2.14 Subtask 3-22: Performance of Packer Tests

Packer tests were conducted between April 4 and June 13, 1994 to assess the vertical component of groundwater flow and the vertical distribution of TCE. Packer tests were performed at Monitoring Wells MW-1 through MW-8, MW-9S, MW-9D, MW-10, MW-11, and BCM-1, and the FTW. Zones of interest in the open boreholes were identified from the downhole television and borehole geophysical survey results. These proposed target zones were submitted to the USEPA on January 5, 1994 for approval. The proposed zones were approved following the incorporation of comments provided by the USEPA in a March 14, 1994 letter. The results of the packer tests are summarized and discussed in Section 4.2.2.2 (Packer Testing Results) and 8.3 (Results from Packer Testing). Packer tests were performed by Earth Data, Inc. of Exton, Pennsylvania. A Geraghty & Miller hydrogeologist oversaw packer testing work and collected the groundwater samples for field and laboratory analyses. A detailed description of the packer testing field effort is provided in Appendix I.

As a test pressure head measurements were collected every 20 feet in the first well, Monitoring Well MW-8. At each 20-feet interval, the packers were inflated and the

hydraulic heads (water levels measured in feet below top of well casing) above, within, and below the packer zone were allowed to stabilize. These data were recorded on the data logger and subsequently downloaded to a laptop computer. After stabilization was complete, the packers were deflated and moved to the next 20-foot interval. The data were reviewed in conjunction with the borehole logging results to determine the approach for the remaining packer tests.

Some packer test zones isolated borehole features that produced little or no water. Evidence of these zones was observed on the real-time slug test response graph. The slug test response graph plotted depth-to-water versus time. A water-level increase followed by a static water level on the slug test response graph indicated that the packer test zone did not accept the 1-gallon slug of water and, therefore, would produce little or no water. A starting pumping rate of 1 gpm was used at these zones. These zones were evacuated of the volume of water above the pump intake (pumped dry) and then were allowed to recover for 30 minutes. The pump was turned on again and if the volume of water in the lift pipe could be evacuated before the zone was pumped dry, a sample was collected for field and laboratory analyses. However, if the field hydrogeologist determined that only water from the lift pipe was being evacuated prior to the zone being pumped dry, a sample was not collected. Eleven of the 50 zones evacuated did not produce enough water for a representative sample to be collected.

Samples for field and laboratory analysis were collected from a sample port at the top of the lift pipe. After three volumes of the packed zone had been evacuated, field parameters were measured to determine stabilization. The field parameters that were monitored were temperature, pH, and specific conductance. After these parameters stabilized, samples for laboratory analysis of VOCs were collected. Samples from three monitoring wells were also submitted for laboratory analysis of treatability parameters. The treatability parameters included alkalinity, calcium, hardness, iron, magnesium, manganese, total dissolved solids (TDS), and total suspended solids (TSS). The analytical results are discussed in Section 8 (Results from Packer Testing).

Samples were shipped every other day to Enseco-East of Somerset, New Jersey. The samples were shipped in a cooler and were accompanied by a trip blank. At least one field replicate sample was collected for each ten field samples. Chain-of-custody procedures were followed.

Water generated during packer testing was stored in temporary storage tanks staged at the 120 Mill Street property. Samples of this water were submitted for laboratory analysis of VOCs and TSS. Water with sample results below federal drinking water standards for VOCs was discharged to the Dublin Borough sanitary sewer following approval from the Borough. Water with sample results above standards was treated using the GAC system at the 120 Mill Street property. A post-treatment sample was also collected and submitted for laboratory analysis of VOCs and TSS. VOCs in this sample were below standards and the water was discharged to the Dublin Borough sanitary sewer following approval from the Borough.

2.3.2.15 Subtask 3-23: Abandonment or Retrofitting of Wells

Based on the results of earlier tasks, specifically the borehole logging and packer testing, and with a better understanding of the flow in the bedrock aquifer and the vertical extent of contamination, no abandonment or retrofitting of wells was warranted **(For additional information, see response to Comment No. 9 in RI/FS Addendum)**.

2.3.2.16 Subtask 3-24: Installation of Observation Wells

No observation wells have been installed. Geraghty & Miller proposed utilizing the existing supply wells and monitoring wells to comprise the observation well network for the aquifer pumping test. The USEPA approved this proposal on November 21, 1995 (USEPA 1995c).

2.3.2.17 Subtask 3-25: Performance of Aquifer Pumping Tests

The Aquifer Pumping Test Work Plan was submitted to the USEPA on August 25, 1994 (Geraghty & Miller, Inc. 1994a). A revised aquifer pumping test work plan addendum was submitted to the USEPA in March 1995 (Geraghty & Miller, Inc. 1995). Subsequent revisions to the work plan were required, primarily due to difficulties with access for the proposed pumping wells. Use of the FTW for the aquifer pumping test was approved by the USEPA in correspondence dated November 28, 1995 (USEPA 1995d). Originally a 72-hour duration test was proposed; the USEPA approved a subsequent proposal to conduct a 48-hour test.

A 5-hour step drawdown test was completed on December 12, 1995, and the aquifer pumping test was completed on December 13 to 15, 1995. Fifteen monitoring wells were observed for water-level changes and four monitoring wells were sampled for VOCs throughout the test.

2.3.2.18 Subtask 3-26: Finalization of Groundwater Model

The groundwater model constructed in Subtask 3-5 and refined in Subtask 3-18 was finalized after detailed analysis of the hydraulic characteristics obtained from the packer tests and the aquifer pumping test. The results of the finalization of the flow model are presented in Appendix H.

During the implementation of Task 10: Detailed Evaluation of Remedial Alternatives, the need arose for a more quantitative tool to evaluate the relative benefits of different potential groundwater containment scenarios. The three-dimensional flow model was supplemented by a solute transport model, using a three-dimensional solute transport model code called MT3D (Zheng 1992). This model code simulates advection, dispersion, and chemical reactions of dissolved constituents in groundwater. This solute transport model was used to predict the distribution of TCE concentrations at the Dublin NPL Site under different

recovery scenarios. The results of the modeling are discussed in Section 14.6.1 (Groundwater Modeling Results).

2.4 TASK 4: SAMPLE ANALYSIS/VALIDATION

All samples for laboratory analysis were collected in a manner consistent with the protocols outlined in the FSP (Geraghty & Miller, Inc. 1992c). The samples were handled and shipped to the selected analytical laboratory, as described in the FSP (Geraghty & Miller, Inc. 1992c). A complete set of laboratory data collected during the RI/FS has been sent to the USEPA under separate cover. All data were validated in accordance with USEPA Region III Guidelines (USEPA 1988c; 1992a). The following sections describe the sample media which were collected for laboratory analysis.

2.4.1 Soil Samples from Test Pits and Borings

One soil sample each from Test Pits 1, 3, and 4 and each of the initial soil borings (July 1992) drilled at the 120 Mill Street property were analyzed for VOCs, BNAs, pesticides, PCBs, and metals (Subtask 3-9). The sample exhibiting the highest VOC concentrations from the field GC analysis was submitted for full analysis. During the excavation of a test pit, if no VOCs were detected, one sample from the test pit was submitted for the full analysis. During the soil boring program, if no VOCs were detected from the field GC analysis, a sample from the 12- to 18-inch depth interval was submitted for full analysis. Baseline soil samples were also collected and analyzed for the same list of parameters. ~~One sample was collected from a Phase II soil boring (Soil Boring SB-19) and analyzed for VOCs only.~~ **(For additional information, see response to Comment No. 10 in RI/FS Addendum).** The analytical data from all soil samples were fully validated. The data validation reports were submitted to the USEPA on January 22, 1993 and August 19, 1993 (Geraghty & Miller, Inc. 1993c, 1993d).

2.4.2 Sediment Samples from Drainage Ditches

Samples of drainage ditch sediment were analyzed for VOCs, BNAs, pesticides, PCBs, metals, TOC, and grain-size distribution (Subtask 3-14). The analytical data were fully validated. The data validation report was submitted to the USEPA on August 19, 1993 (Geraghty & Miller, Inc. 1993d).

2.4.3 Air Quality Samples

Air samples were collected during several field activities and were analyzed for VOCs (Subtask 3-12). The data were fully validated. The data validation report was submitted to the USEPA on January 21, 1993 (Geraghty & Miller, Inc. 1993e).

2.4.4 Groundwater Samples from Monitoring and Residential Supply Wells

Groundwater samples were collected in two steps as part of Subtask 3-15. The samples collected during the first step, from Monitoring Wells MW-3, MW-4, and BCM-1; the FTW; Production Well PW-1; the Farm Bureau Well; and the background well (Dublin Well No. 1), were analyzed for VOCs, BNAs, pesticides, PCBs, and metals (filtered and unfiltered). The analytes for the second step were determined following review of the analytical results from the first step, which indicated that only VOCs and lead were detected at concentrations of concern. ~~Lead was not detected above the MCL (formerly referred to as a drinking water action level) in any of the samples.~~ **(See response to Comment No. 11 in RI/FS Addendum)** The samples collected during the second step, from all monitoring wells, selected residential wells, and the St. Luke's Church supply well, were analyzed for VOCs and lead (total and dissolved). All groundwater analytical data from samples collected during Subtask 3-15 were fully validated. Data validation reports were submitted to the USEPA on January 21, 1993, February 9, 1993, and January 5, 1994 (Geraghty & Miller, Inc. 1993f, 1993g, 1994b).

2.4.5 Drill Cuttings from Test Well and/or Monitoring Well Construction

The drill cuttings generated during the installation of the test wells (Subtask 3-20) were handled in a manner consistent with the waste handling protocols described in the RI/FS Work Plan (Geraghty & Miller, Inc. 1992b). Samples of the containerized cuttings were collected and analyzed for waste classification using appropriate USEPA methods after performing the Toxicity Characteristic Leachate Procedure (TCLP) to facilitate classification of the material. Because the analytical data were not used for site characterization or risk assessment, they were not validated.

2.4.6 Groundwater Samples from Packer Tests

During packer testing of monitoring wells, samples were collected and analyzed for VOCs and/or treatability parameters (Subtask 3-22). The analytical data were reviewed for adherence to critical QA/QC criteria such as holding times, calibration accuracy, and surrogate recovery.

2.4.7 Groundwater Samples from Aquifer Pumping Tests

A 48-hour constant rate pumping test was conducted on the FTW from 9:00 a.m. December 13, 1995 to 9:00 a.m. December 15, 1995. Monitoring Well BCM-1, and the FTW were sampled for VOCs every 12 hours. Selected samples from Monitoring Wells MW-4 and MW-8 were also analyzed for VOCs. Additional parameters BNAs; pesticides, including carbamates; PCBs; metals (filtered and unfiltered); herbicides; methane; coliform (fecal and total); nitrate; nitrite; radiological parameters (radon; gross alpha/beta, isotropic uranium, radium) surfactants; color; corrosivity; free cyanide; odor; pH; sulfate; fluoride; TDS; chloride; and turbidity, were collected from the FTW just prior to the completion of 48 hours of pumping, as required by the BCHD. The other remaining parameters (hardness, alkalinity, TSS, TOC, phosphate, hydrogen sulfide, and methane) were analyzed for design purposes.

Some analyses were performed slightly outside the holding time by the laboratory; a few parameters were analyzed severely outside holding time. Therefore, the aquifer pumping test was simulated on the FTW by pumping for approximately 48 hours from March 18 to March 20, 1995 and the parameters with exceedances of holding times were resampled. The results of the aquifer pumping test are discussed in Section 8.4 (Results from Aquifer Pumping Test) of this report.

The objectives of the sampling were to provide information for site characterization and treatability. The analytical data received full validation.

During the aquifer test, the discharge was treated at the well with a temporary GAC treatment system. Samples of the treatment system effluent were collected and analyzed for VOCs. These samples were used to confirm the adequacy of the treatment system. The treated water was discharged to the Dublin Borough sanitary sewer after receiving approval from the Borough.

2.5 TASK 5: DATA EVALUATION

As part of this task, the groundwater, soil. sediment, and air data were reduced and tabulated for use in the RI report. Data were plotted in figures to facilitate data interpretation.

2.6 TASK 6: ASSESSMENT OF RISKS

~~Geraghty & Miller received permission from the USEPA to conduct the baseline risk assessment for the Dublin NPL site.~~ **(See response to Comment No. 12 in RI/FS Addendum)** The risk assessment is included as Appendix J. The baseline risk assessment addressed the potential current and hypothetical future human-health and environmental impacts associated with the Dublin NPL Site under the no further action alternative, that is, in the absence of further remedial or corrective actions beyond the implementation of OU 1.

The methodologies used in the baseline risk assessment followed USEPA guidance for conducting risk assessments (USEPA 1989a, b, c; 1991c, d).

2.7 TASK 7: TREATABILITY STUDY/PILOT TESTING

Based on the consideration of widely applied and proven technologies for groundwater treatment, treatability studies and pilot testing were not required.

2.8 TASK 8: REMEDIAL INVESTIGATION REPORTS

The draft and final RI reports were prepared under this task.

2.9 TASK 9: REMEDIAL ALTERNATIVES SCREENING

The data developed during the RI and the baseline risks identified for the site formed the basis for the development and evaluation of potential remedial alternatives for the Dublin NPL site. The remedial alternatives screening was conducted in accordance with USEPA "Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA," (USEPA 1988a); this screening is presented in Section 14 (Evaluation of Technologies and Selection of Process Options) of this report. Under this task, remedial alternatives were developed to address unacceptable current and future hypothetical risks associated with the Dublin NPL Site as identified in the Baseline Risk Assessment.

This task included the following:

- Identification of remedial action objectives and general response actions.

- Identification of applicable or relevant and appropriate requirements (ARARs).

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- Identification and screening of remedial technologies and process options.

- Development of remedial action alternatives.

2.10 TASK 10: DETAILED EVALUATION OF REMEDIAL ALTERNATIVES

The remedial alternatives were evaluated by means of an in-depth technical analysis that refined each screened alternative individually and compared the anticipated performance against the evaluation criteria as specified in "Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA" (USEPA 1988a). This guidance identifies nine criteria to be used in the overall remedial alternatives analysis process. The detailed evaluation is presented in Section 15 (Development and Evaluation of Remedial Alternatives) of this report. A comparative analysis of the evaluation of the remedial alternatives is presented in Section 16.

2.11 TASK 11: FEASIBILITY STUDY REPORT

The draft and final FS report were prepared under this task. The FS report is presented as Sections 11 through 16 of this report.



3. SITE AREA DESCRIPTION

A description of topography, land and water use, ecology, and soils in the Dublin Borough area is provided in this section.

Land and water use in the area was evaluated as part of Subtask 3-10. A report entitled "Survey of Land and Water Use, Dublin TCE Site, Dublin, Pennsylvania" was submitted to the USEPA on September 30, 1993 and is included as Appendix D. An ecological investigation of the area was performed as part of Subtask 3-13. A draft report entitled "Ecological Investigation, Dublin TCE Site, Dublin, Pennsylvania" was submitted to the USEPA on February 10, 1993 and is included as Appendix E. Pertinent details of these reports are summarized in the appropriate sections below.

3.1 TOPOGRAPHY

Dublin Borough is located within the Triassic Lowlands section of the Piedmont Physiographic Province (Greenman 1955). The Borough is situated in an upland area within a region of flat to rolling hills (see Figure 1.1). The ground surface elevations in the Borough range from about 500 feet above sea level (asl) at the northwestern boundary to about 620 feet asl at the southeastern boundary, for a relief of approximately 120 feet. The nearest surface-water body to the 120 Mill Street property is a small, intermittent, unnamed tributary that originates near the northern corner of the Borough boundary. The tributary flows to the north into Bedminster Township, where it enters Deep Run. Deep Run flows to the northeast, where it enters Tohickon Creek. No other surface streams are present within the Borough (USGS 1983a; 1983b).

3.2 LAND AND WATER USE

According to the 1990 published figures on land use in Dublin Borough (Bucks County Planning Commission [BCPC] 1983), the population growth between 1970 and 1980

was accompanied by changes in land use. The land use characteristics for Dublin Borough, Bedminster, and Hilltown are presented in Table 3-1. Due to the construction of multi-family developments in the 1970s, the percentage of land used for residential purposes in Dublin Borough increased from 34.0 percent of the total land in 1970 to 39.2 percent in 1980, while land used for agriculture decreased from 37.8 to 19.7 percent of the total acreage, and vacant land decreased from 21.4 to 19.5 percent. In response to the increase in residential construction, trade/services development increased from 3.7 to 10.9 percent of the total, expanding the commercial base from small, community-oriented businesses to more regional businesses, such as a shopping center, an electronics store, several banks, and two restaurants. Although manufacturing/mining land use also increased from 2.0 to 3.0 percent, the total number of people employed by industry decreased by 43 percent. The growth in government services since 1970 consisted of the construction of a state police station and a municipal fire house (Dublin Borough 1985).

The proportions of various land uses in Dublin Borough are not expected to change substantially in the near future; further development will likely be limited by the amount of vacant land and by zoning plans designed to preserve the rural character of Dublin Borough (T.H. Cahill and Associates and J.K. Adams and Associates 1987).

According to April 1996 Dublin Borough records, there are 147 metered connections to the existing municipal water system. These connections serve an estimated 412 people, based on an average of 2.8 persons per household. The majority of the population of Dublin Borough currently depends on private wells for drinking water. Subtracting the total number of properties with metered connections to the municipal water system (147) and the estimated number of vacant lots without wells (9) from the total number of properties in Dublin Borough (344), it is estimated that there are 188 lots with private wells in Dublin Borough. An assumption of one well per lot yields an estimate of approximately 188 private wells in Dublin Borough. However, 133 of the estimated 188 lots with private wells are listed as flat-rate customers on the Dublin Borough municipal water system list. Flat-rate customers consist of owners of properties where municipal water service is available, but who have not

yet connected to the system. These properties apparently utilize private supply wells. Approximately 70 of the flat-rate customers will be connected to the system when the OU 1 supply well and treatment system is connected to the water distribution system.

According to the USEPA "Proposed Plan for Early Action" for the Dublin NPL Site (USEPA 1991b), approximately 70 private wells in Dublin Borough were found to be affected or potentially affected by TCE during a routine drinking water survey conducted by the BCHD in the summer of 1986. In 1986, 54 wells at businesses and residences were shown to contain TCE concentrations above 5 ug/L. The residences were provided with carbon adsorption units, while the businesses were provided with either carbon adsorption units or bottled water. Forty-seven wells are currently being monitored for TCE, PCE, 1,1,1-TCA, and vinyl chloride. As a component of the remedial action, the USEPA has addressed the need for an alternate water supply for the approximately 70 affected and potentially affected residences and businesses in Dublin Borough (USEPA 1991a). The current municipal water supply system in Dublin is shown on Figure 3-1.

Drinking water in Bedminster is supplied primarily through private wells, with the exception of the Stonebridge Estates development, where, according to Bedminster officials, a municipal supply serves 290 households (which, based on an average of 2.5 persons per household, yields a total of 725 people) (Herstein, pers. comm. 1992). U.S. Census figures for this area cite an average of 2.8 persons per household and a total of 812 people served by municipal water (U.S. Bureau of Census 1991). The area of Bedminster north of Dublin Borough along Rickerts Road, which consists primarily of large agricultural plots, and the residential area on the eastern border of Dublin Borough are currently supplied by private wells (Herstein, pers. comm. 1992) (see Figure 3-2).

The areas of Hilltown adjacent to Dublin Borough are supplied by private wells. None of the five municipal water systems in Hilltown provides service to the areas near Dublin Borough (Aubertin, pers. comm. 1992).

3.3 ECOLOGY

A field investigation was conducted to characterize the ecological communities associated with the 120 Mill Street property and adjacent areas. Six terrestrial communities and two surface-water (lacustrine and riverine) systems were observed. The terrestrial communities and surface-water systems appear to have been disturbed as a result of human-induced activities (e.g., development, agricultural activities). However, one of the terrestrial communities, the mesic forest community, may be a second growth forest remnant of the original forest vegetation, as much of Bucks County historically had a dense cover of trees (U.S. Department of Agricultural and Soil Conservation Services [USDASCS] 1975).

With the exception of the mesic forest, plant and animal species at the site are commonly associated with disturbed conditions resulting from human-induced activities. In addition, several of the animal species are commonly found within areas of agricultural activity, including the mourning dove, American crow, blue jay, and cottontail rabbit.

A few areas of biotic stress exist, including the absence of foliage or dead foliage on several trees and insect infestation of several trees. It appears that this could be explained by natural causes or by agricultural operations, although the certainty with which observations can be associated with natural causes is limited by the qualitative nature of the investigation. Areas impacted by site-related constituents were not identified.

3.4 SOILS

Three distinct soil types exist in the Dublin Borough area. These soil types are the following: the Abbottstown Series, the Doylestown Series, and the Urban Land-Abbottstown Complex. The USDASCS (USDASCS 1985) characterizes these soils as follows:

- Abbottstown Series

The Abbottstown series consists of deep, somewhat poorly drained, nearly level to sloping soils on uplands. These soils are at the base of slopes, on side slopes, and on broad ridgetops. They formed in loamy material weathered from red and brown shale and sandstone.

In a representative profile in a cultivated area, the plow layer is dark-brown silt loam about 8 inches thick. The subsoil extends to a depth of about 42 inches. It is reddish-brown silt loam in the upper 7 inches and reddish-brown silt loam, shaly silt loam, and shaly clay loam in the lower part. The lower part has pink, yellow, brown, and gray mottles. Reddish-brown, mottled, very shaly silty clay loam is between depths of 42 and 46 inches and overlies fractured, red shale bedrock.

Runoff is slow, and the hazard of erosion is slight to moderate. The available water capacity is moderate, and permeability is slow. The water table generally rises to within 6 to 8 inches of land surface during wet seasons. Slow permeability and wetness are limitations to most nonfarm uses of these soils.

- Doylestown Series

The Doylestown series consists of deep, poorly drained, nearly level to gently sloping soils on uplands. These soils are on broad upland flats, in depressions, and at the base of slopes. They formed in silty material, chiefly windblown deposits, that overlie a variety of loamy materials generally weathered from shale and sandstone.

In a representative profile in a cultivated area, the plow layer is dark grayish-brown silt loam about 11 inches thick. The subsoil is 42 inches thick. The

upper 9 inches is grayish-brown silty clay loam that has light brownish-gray and strong-brown mottles. It is firm and has prismatic structure. The lower 33 inches is firm, dense, brittle, brown, dark-brown, and brown silty clay loam and silt loam. It has prismatic and platy structure and has many light brownish-gray and brown mottles. Fractured shale bedrock occurs at a depth below 53 inches.

Runoff is slow to medium, and the hazard of erosion is slight to moderate. Available water capacity is moderate, and permeability is slow. The surface layer is ponded at times, and the water table is at or very near the surface during wet seasons. Restricted permeability and wetness are limitations to most nonfarm uses of these soils.

- Urban Land-Abbottstown Complex

This complex is about 60 percent urban land, 35 percent Abbottstown silt loam, and 5 percent included soils. It is in partially built-up areas that are mainly underlain by shale bedrock. Areas are irregular in shape and 5 to 700 acres in size.

Included with this complex in mapping are some areas of Readington, Doylestown, Chalfont, Penn, Bowmansville, and Lawrenceville soils. Also included are some areas of fill of various sorts that are not presently developed.

The seasonal high water table and slow permeability limit most nonfarm uses. On-site investigation, however, is needed in open areas to determine the hazards and degree of limitation for specified uses.

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4. HYDROGEOLOGIC FRAMEWORK

This section presents the regional and site hydrogeology. Lithologic and water-level data collected by Geraghty & Miller and others were used to assess the site hydrogeology. Additional investigatory tools were used during the RI and are also discussed in this section, including a regional fracture-lineament analysis (which included surface geophysical surveys, aerial photograph review, and field measurements in a nearby quarry), downhole geophysics, packer testing, and aquifer pumping tests.

4.1 GEOLOGY

The geologic framework of eastern Bucks County, Pennsylvania has been described by several researchers. Published information on the regional geology was supplemented by site-specific investigations during the RI.

4.1.1 Regional Geology

Southeastern Pennsylvania is underlain by Triassic age, non-marine sedimentary rocks of the Newark Supergroup. In southeastern Pennsylvania, the Newark Supergroup is subdivided, in ascending order, into the Stockton Formation, the Lockatong Formation, and the Brunswick Group. These units occur in the Newark Basin, an elongated northeast-trending structural basin extending from northern Virginia to southeastern New York. The Newark Basin is one of a series of disconnected extensional basins along the Atlantic coast from Nova Scotia to North Carolina (Greenman 1955).

The sequence of rocks underlying Dublin Borough is part of a zone of interlayered units of the Lockatong Formation (see Figure 4-1). The interlayering is thought to be primary in origin, resulting from oscillations between lacustrine and fluvial conditions in a depositional basin environment (Greenman 1955). This interlayering results in sedimentary cycles (Olsen 1980). Two end-members were recognized in the range of short cycles in the Lockatong Formation: detrital and chemical. These cycles are approximately 10 to 16 feet

thick and are spatially continuous in the Lockatong Formation; individual detrital cycles can be traced over 12 miles (Olsen 1980). In southeastern Pennsylvania, at the southwestern edge of the Newark Basin, the Lockatong Formation is approximately 1,200 feet thick.

The Lockatong Formation in the Dublin area consists of two members, a thick-bedded gray and black siltstone and shale unit and a thinner reddish-brown interbedded sandy siltstone unit (see Figure 4-1). The thick-bedded, gray and black siltstones and shales predominate the Dublin area. The sediment of these units is believed to have been deposited in a lacustrine or swampy environment, under reducing conditions. Interbedded among the gray and black siltstones and shales are thinner, reddish-brown sandy siltstone units. The mixing of these reddish siltstone units with the gray and black siltstones and shales accounts for the interfingered red and gray layers that underlie the Dublin area. Since their deposition in the Triassic Period, these sedimentary units have been faulted on a small and large scale, jointed, and regionally tilted to the northwest (Olsen 1980).

The stratigraphic grouping of the red siltstones and black siltstone-shales as belonging to the Lockatong Formation was determined by Lyttle and Epstein (1987). Previous studies of this area of the Newark Basin have referred to the same interlayering of red siltstones and gray shales, but designated them as members of the Brunswick and Lockatong Formations, respectively (Greenman 1955). Lyttle and Epstein (1987) have reclassified the red siltstone unit as a member of the Lockatong Formation. For the purpose of the RI/FS, Geraghty & Miller will use this current classification of the local geology.

4.1.2 Geology of the Site

Geraghty & Miller utilized the results of the fracture-lineament analysis, the surface geophysical surveys, downhole geophysical logging (including downhole video), and field observations to describe the site-specific geologic framework of the Dublin area. A schematic geologic cross section of the bedrock underlying the Dublin area is presented on Figure 4-2 **(For additional information, see Revised Figure 4-2 and response to Comment No. 13 in RI\FS Addendum).** Based on the Geraghty & Miller and BCM drilling

logs, the area under the 120 Mill Street property shows the interbedded gray and red beds of the Lockatong Formation with an inferred dip to the northwest. This cross section is a dip section, meaning a line projected through the site area, oriented perpendicular to strike. The cross section identifies the major geologic units identified from drilling logs. There are three primary lithologic units identified on the cross section as follows: (1) overburden, which consists of 3 to 23 feet of dense silt and clay; (2) a dark gray, shaley siltstone, which attains a maximum thickness of 86 feet; and (3) a reddish brown siltstone, which attains a maximum thickness of 180 feet. A fourth, intermediary lithologic unit was also identified. This unit is a transitional one, characterized by a greater amount of interbedding of both the gray and red beds. Also indicated on Figure 4-2 **(See Revised Figure 4-2 in RI\FS Addendum),** are the major fracture zones identified during drilling (through the gain or loss of circulating drilling fluids); fractures identified from borehole caliper logs; and fractures identified from downhole video taping. Where possible, horizontal features are differentiated from vertical ones.

Marker beds identified from the borehole gamma logs are also indicated on the cross section. These marker beds can be used as a rough correlation tool, due to the highly interbedded nature of the dipping lithologies that make geologic correlation difficult. Several cyclic, lithologic successions can be correlated between boreholes, primarily in the northern areas of the site. Fracture zones identified in the boreholes are not cyclic, however. Horizontal features, which are most likely bedding plane partings, do not correlate well between boreholes. Figure 4-2 **(See Revised Figure 4-2 in RI\FS Addendum),** indicates a greater percentage of vertical fractures in the boreholes.

In the Dublin area, the bedding of the Lockatong Formation strikes between N40E and N75E and dips between 9 and 16 degrees to the northwest (T.H. Cahill and Associates and J.K. Adams and Associates 1987). Two well-defined joint sets have been identified within the study area. They appear to be conjugate; however, their orientation is somewhat variable and is probably related to the competency of the unit. The strike of the most prominent set varies from N15E to N75E, with a modal value near N40E. The strike of the

secondary joint set varies from N45W to N85W (see Figure 4-3). The dip of both joint sets is near vertical (T.H. Cahill and Associates and J.K. Adams and Associates 1987).

At the Blooming Glen Quarry, actual field measurements found the bedrock units to strike between N40E and N60E and dip between 10 and 12 degrees to the northwest. Field measurements of fractures exposed in the Blooming Glen Quarry exhibited a primary set striking approximately N53E, and secondary fractures striking from N48W to N60W **(For additional information, see response to Comment No. 14 in RI\FS Addendum).**

4.1.2.1 Borehole Geophysical Logging Results

Beginning in October 1992, borehole geophysical logging was completed on thirteen wells in, and adjacent to the Dublin NPL Site. Five parameters were measured in each well with the intention of better defining local geology, groundwater flow, and groundwater quality conditions. Specifically, the parameters measured included the following: natural gamma, single point resistance, spontaneous potential, caliper, and temperature. The wells were also logged using a downhole video camera. The borehole logging results are presented in Appendix K. **(For additional information, see response to Comment No. 146 in RI\FS Addendum).** The following is a brief description of the results.

4.1.2.1.1 Gamma Logs

Gamma logs are one of the most widely geophysical tools used in groundwater applications. Gamma logs identify changes in the lithology and the relative amounts of clay in sedimentary units. The gamma log provides a record of the total gamma radiation detected within a given energy range. In the sedimentary rocks underlying Dublin, gamma radiation is emitted by the radioisotopes potassium-40 and the daughter products of uranium and thorium decay.

The highly interbedded nature of the shales and siltstones underlying the site is a result of the transient environment in which these units were deposited. The resulting gamma

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response is an erratic, but cyclic signature. The gamma response is usually between 60 and 100 counts per second (cps) in the boreholes logged near the site. However, gamma "marker beds" are evident in the data. These marker beds are characterized by gamma readings two to three times greater (200 to 600 cps) than the normal background response, resulting in peaks on the response curve. The cross section presented on Figure 4-2, indicates the gamma marker beds identified in the borehole logs. A closer look at the response in between these marker beds indicates a cyclic gamma signature that can be correlated between the boreholes, in a down-dip direction. This is significant, because the interbedded nature of the geology in this area makes traditional geologic correlation difficult. The majority of the gamma marker beds exist within a few feet of the top or bottom of the darker shale/argillite rock unit. The marker beds are the result of a concentration of gamma-emitting radioisotopes during geologic deposition. These beds are indicative of a lower energy, muddier environment.

4.1.2.1.2 Caliper and Temperature Log

Caliper logs record borehole diameter and are useful indicators of changes in borehole diameter related to construction (such as casing or drilling-bit size) and fracturing or caving of rocks along the sides of the borehole (Williams 1990). Caliper logs do not provide information on the orientation of a borehole deviation, such as a fracture, or whether or not a fracture is providing or receiving groundwater. An aperture displayed on the caliper log often represents a zone associated with a fracture opening that was enlarged during drilling, creating an exaggerated enlargement of the borehole. Correlation of the caliper log with a temperature log, video log, and/or fluid resistivity log can indicate the location of water-bearing fractures.

Temperature logs record the water temperature in the borehole. Temperature logs are useful for the delineation of water-bearing fractures and identification of vertical flow between zones of differing hydraulic head. Flow between producing and receiving zones is indicated by temperature gradients of less than the regional geothermal gradient (which is about 1 degree Fahrenheit per 100 feet of depth). A temperature log run down a borehole with no fractures would be a constant, smooth curve, indicating gradual warming of the

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water. In the local geologic environment, a fracture producing groundwater into the borehole results in a "cold" shift of the temperature curve.

Details of the caliper and temperature log analysis are provided in the December 1992 and April 1994 reports by Earth Data Inc. (Appendix K). Temperature log deflections in a borehole where the caliper log indicates fractures shows that water is entering and leaving the borehole (for example, the logs of Monitoring Wells MW-5, MW-6, and MW-8, and the FTW). Similarly, boreholes that do not indicate significant variations in temperature indicate that there is little flow within the borehole, and that fractures are not very conductive (for example, the logs of Monitoring Wells MW-2, MW-3, and MW-4).

4.1.2.1.3 Single-Point Resistance and Spontaneous Potential Logs

Single-point resistance measures the resistance, in ohms, between two electrodes in the borehole. Conductive minerals and surface conduction on clay particles can contribute to the current flow in some rocks. The resistance log is generally interpreted as sandier lithologies giving a relatively high ohmic response, while clay and shale units will have a much lower ohmic value. The resistance logs obtained from the Dublin NPL Site area wells provide evidence of complex, erratic signatures, indicative of the highly interbedded nature of the Lockatong Formation lithologies. The resistance logs from the site did not provide additional information that significantly enhanced the understanding of the site geology; the value of the gamma logs and drilling observations were found to be much more informative.

The Spontaneous Potential log (SP) is a record of electrical potential differences or voltages that develop at the contacts between dissimilar lithologic units. The chief sources of spontaneous potential in a borehole are electrochemical, or streaming potentials and oxidation-reduction potentials. Both of these effects are the result of the migration of ions from a concentrated to a more dilute solution. The migration of the ions and their detection is mostly affected by clay or shale, which decrease anion mobility. Assuming water quality is consistent within the borehole, the SP log will follow the trends of the gamma log. In the site SP borehole logs, the SP response does tend to mimic the gamma response, but negative

responses are apparent near caliper/temperature anomalies; this is another indication of where water is flowing into the well.

4.1.2.1.4 Downhole Video Logs

The downhole video log is simply a record of visual observations made by an operator while reviewing the film of a small video camera that was lowered down a borehole. The camera is calibrated for depth prior to being lowered, and depth information is displayed on the film. The resulting video log is a tool that can provide information regarding the location, orientation, and size of fractures; poor well construction and plumbness of the well; and the movement of water into or from a fracture. The video logs obtained at the Dublin NPL Site were very beneficial, in providing "real" data to check and refine the fracture information obtained from the drilling, caliper, and temperature logs. For example, a deviation on the caliper log, indicating a potential fracture, may appear to be filled with calcite (and therefore not water producing) on the video log; and conversely, a rather small caliper deflection could in fact be a large water producing fracture (as evidenced by water movement on the video).

The video logs were used in conjunction with the other borehole logs to determine where the primary producing fracture zones were located in each borehole. These results are summarized for a select group of wells on the cross-section presented on Figure 4-2. Where possible, the orientation of the fractures is indicated (either horizontal or vertical). The results presented on Figure 4-2 indicate a greater number of vertical fractures in the boreholes than horizontal. The amount of both horizontal and vertical fracturing in the boreholes generally decreases with depth.

4.1.2.2 Site Lineament Analysis Results

From 1991 through 1993 Geraghty & Miller conducted several studies to identify features of the underlying bedrock, such as fractures, joints, and faults, that influence groundwater flow. These features can be expressed on the land surface as subtle, linear

changes in topography or vegetation that are apparent in aerial photographs as photo linears, and verified through the use of surface geophysics. Additional information on regional fracture trends was obtained by conducting a survey of the bedrock units exposed in the Blooming Glen Quarry in nearby Hilltown, Pennsylvania.

The fracture-trace study was conducted by analyzing a series of aerial photographs (spanning from 1958 to 1985). The older photographs provided the best sources to identify fracture traces, since there was less obstruction by development and cultural features. The identified fracture traces were transferred to a base map and are presented on Figure 4-3. An azimuth-frequency diagram, commonly known as a rose diagram, was created by plotting the azimuth of each mapped fracture trace on polar coordinate graph paper. The (rose) diagram (Figure 4-4) was useful in identifying trends and groupings of fracture traces. The predominant fracture trace orientation identified was N15W; a secondary set was identified with an orientation of N65E. The orientation of the secondary trace is within the range of primary fracture orientations reported by others; the predominant fracture trace orientation identified as N15W has not previously been reported. A fracture trace field verification was conducted in November 1991 to locate fracture traces mapped from the aerial photographs and eliminate those that were related to cultural features. Lineaments determined to be cultural features during the field verification were not incorporated into the rose diagram analysis. Additional verification was conducted through the use of surface geophysical surveys.

Geophysical surveys were employed, utilizing EM, electrical resistivity, and seismic refraction methods. The geophysical surveys were conducted in several areas north, northeast, and northwest of the 120 Mill Street property. The purpose of the surveys was to identify regional fractures that may be preferential groundwater flow paths that should be the focus of the placement of downgradient monitoring wells. The EM field data identified anomalies characteristic of conductive features such as water-bearing fractures (see Figure 4-3). To verify and reduce the large number of EM anomalies identified, azimuthal resistivity surveys were conducted in arrays near the EM anomalies. The resultant data indicated a relatively consistent northeast-southwest trend of conductive features. Figure 4-3

also summarizes the geophysical survey results and shows interpreted locations of possible conductive features.

~~Six linear conductive features were identified on the basis of EM and resistivity surveys.~~ **(See response to Comment No. 16 in RI\FS Addendum).** Along these features, specific locations were identified as possible fracture zones by the presence of a seismic anomaly, a bedrock surface topographic depression, or low resistivity values. Fracture zones were identified from the seismic data in areas where wave-form anomalies (and a corresponding lowering of the seismic velocities) were observed. ~~The linear features identified from all of the geophysical methods were oriented between N10E and N38E; this is consistent with the reported range of orientations and within the range of secondary features identified by Geraghty & Miller's fracture trace analysis of aerial photographs (see Figure 4-4).~~ **(See response to Comment No. 15 in RI\FS Addendum).**

A survey of the Blooming Glen Quarry in Hilltown, Pennsylvania was conducted in January 1992. Natural elevation grade at the quarry is 470 feet above mean sea level (ft msl), as compared to ground surface elevations in the Dublin area which range from 500 to 600 ft msl. The bedding of the units was found to strike N50E and dip approximately 10 to 12 degrees to the northwest. The bedrock exposures in the quarry exhibited near-vertical fracturing. These fractures were observed to range in length from short (1 to 2 feet) and discontinuous, to long (across visible sections of approximately 150 feet) continuous features. Vertical offsets of as much as 10 feet were observed across several of the larger, more continuous fractures. Numerous groundwater seeps were observed along bedding plane separations in the quarry. These seeps varied in their discharge rates, with the largest flows occurring at the intersections of bedding plane and vertical fractures. At the time, the quarry was dewatered by pumping approximately 100 to 200 gallons per minute (gpm) from a sump that collects the water seeping into the quarry. Field measurements were also taken on a small outcrop in the drainage ditch on the western corner of the Moyer Dairy Farm. These measurements indicated a bedding plane strike of approximately N57E. The orientation of the majority of the field-verified fracture traces fall within the ranges cited by T.H. Cahill and Associates and J.K. Adams and Associates (1987).

The documented predominance of vertical fractures is contrary to previous reports on the area, which suggested that horizontal, bedding plane partings were more prevalent. The predominance of vertical fractures is consistent with the observations made during the borehole video logging (presented on the cross section on Figure 4-2).

4.2 HYDROGEOLOGY

The regional hydrogeology and groundwater resources of Bucks County have been documented by several investigations. RI activities were designed to supplement published information to characterize site hydrogeologic conditions.

4.2.1 Regional Hydrogeology

The sequence of rocks underlying the Dublin area consists of varying units of the Lockatong Formation. The Lockatong Formation generally provides adequate supplies of water to wells for domestic uses (Rooney 1986).

The natural flow of groundwater in the study area is believed to be dominated by the joint and fracture systems and dipping bedding planes. In the more competent gray and black siltstone and shale units, the permeability has been inferred to be greater through the vertical joint systems than bedding plane partings and fractures, and storage is minor. In the reddish-brown sand and siltstone unit, it has been inferred that there is a greater component of groundwater flow parallel to the sedimentary layering, and there is relatively greater storage, due in part to the primary porosity of the siltstone and sandier layers. It has been reported that the permeability of the gray and black siltstones and shale units is an order of magnitude less than that of the reddish-brown sandy siltstone units (T.H. Cahill and Associates and J.K. Adams and Associates 1987). From the borehole geophysical data collected during the RI, it appears that the black siltstones and shales are fractured equally and in some places more intensely than the reddish brown silstone unit. Predominant fractures tend to be located near

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contours were established because this well did not appear to be hydraulically connected to other wells in the monitoring network **(For additional information, see response to Comment No. 18 in RI\FS Addendum)**.

A regional groundwater investigation conducted by Intex in 1984, identified groundwater flowing primarily in a northwesterly direction in the Dublin area, with a horizontal hydraulic gradient (calculated by Geraghty & Miller from Intex's water-level contour maps) of approximately 0.05 to 0.024, in the wet and dry seasons, respectively (Intex 1985). ~~The lower gradients (0.05) were observed during measurements taken during the wet season.~~ **(See response to Comment No. 19 in RI\FS Addendum).** The difference in the direction of inferred groundwater flow, is most likely do to the greater number of wells that Intex used to contour data, showing a more regional flow direction, rather than Geraghty & Miller's site-specific data.

From Geraghty & Miller's monitoring, the lowest range in water elevations was observed on the September 1995 water-level contour map. Water elevations in September 1995 ranged between 395.11 and 500.59 ft msl. The highest water elevations observed occurred during the wet season in March 1993. Water-level elevations in March 1993 ranged between 420.79 and 521.37 ft msl. **(For additional information, see response to Comment No. 20 in RI\FS Addendum).**

Geraghty & Miller installed water level recorders at several wells in the study area in March 1992 in order to gather data on daily and long-term water level fluctuations. Hydrographs obtained from these recorders are presented in Appendix G. The hydrographs from Monitoring Wells MW-1, MW-5, MW-8, and DBMW-1 exhibited regular and well-defined cyclic daily fluctuations. The pattern seen at each of these wells is the result of daytime drawdown in response to increased water pumpage, followed by nighttime recovery in response to decreased water pumpage. Partial water level recovery in the late morning and early afternoon is often discernible on the hydrographs from these wells. The daily fluctuations observed may be a result from the withdrawal of large volumes of groundwater from a single well, such as the Whistlewood Commons Apartment Complex supply well, or

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more likely a cumulative effect of the smaller withdrawals from the numerous residential and commercial wells within the densely developed center of Dublin Borough. It should be noted that hydrographs obtained from several wells in preparation for the December 1995 aquifer pumping test showed similar cyclicity, but the wells showed the withdrawal period during the night, with aquifer recovery occurring in the morning hours. During the background monitoring period prior to the December 1995 aquifer pumping test, Production Well PW-2 was in use by the tenants of Building 4 (Laboratory Testing). Peak water use by Laboratory Testing coincided with nighttime hours and may explain the time difference in cyclic daily fluctuation observed in 1992 compared to 1995.

The hydrographs from Monitoring Wells MW-2 and MW-4 did not exhibit cyclic daily fluctuations. This is probably related to the fact that these wells are shallower and contain a lesser degree of fracturing within their boreholes. Monitoring Well MW-4 has displayed an anomalous water-level response in monitoring conducted in 1992, 1995, and 1996. The well does not respond to precipitation or protracted dry periods as do other monitoring wells. The water level in Monitoring Well MW-4 remains fairly constant. For this reason, data from Monitoring Well MW-4 has not been included in water-level contour maps of the area. Continuous water-level data collected in December 1995 (prior to the aquifer pumping test) also indicated that shallower wells in the southern portion of the study area (namely Monitoring Wells MW-3, BCM-1 and BCM-2, and Production Wells PW-1and PW-2) were not greatly affected by the cyclic daily groundwater withdrawals. This is most likely related to the shallow depths of the wells and the predominance of the gray shale lithologies which dominate the southern portion of the study area, where fracturing is primarily vertical and less interconnected, than to the north where horizontal fractures are more predominant in the red silstone beds of the Lockatong.

Seasonal fluctuations were also observed in the hydrographs. The general trend observed at each of the wells, was an increasing water level from the lowest point at the beginning of the records, in December, to the highest point in June. A fairly rapid drop was observed in July, the month following the yearly-high groundwater elevations. This drop could be attributed to a combination of decreased rainfall and increased usage. Following

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this drop, the water-levels remained relatively stable with only slight decreases through the summer and into autumn **(For additional information, see response to Comment No. 21 in RI\FS Addendum)**.

In 1988, Mercuri and Associates conducted continuous water-level recording at several wells located over a larger geographical area than Geraghty & Miller's tests (Mercuri and Associates 1988). The purpose of the monitoring was to evaluate the impact from pumping at the Rosanelli Well (Dublin Well No. 3). This study concluded that wells located in the southern and central portions of Dublin Borough were not affected by pumping at the Rosanelli Well, located to the northwest. The study reported that effects were seen (as drawdown on the order of 1 to 14 feet) at wells located north and northwest of the Rosanelli Well. However, the wells used for water-level observation purposes were primarily residential supply wells. Throughout the pumping test the residents were allowed to use their wells. The reported drawdowns are the combined result of supply well use and effects of pumping of the Rosanelli Well.

4.2.2.1.2 Bedrock Hydraulic Characteristics

Groundwater flow in the siltstone and shale bedrock underlying Dublin Borough is dominated by flow through fractures. The bedrock aquifer is highly anisotropic and heterogeneous. In zones where fractures are concentrated, surface weathering can extend to significant depths, due to the enhancement of water movement and weathering by fracture permeability. This weathered zone typically extends to depths of approximately 35 feet (Mercuri and Associates 1988). Water is unconfined in the weathered zone, but in the deeper bedrock it in confined or semi-confined. Due to the low primary porosity and permeability of the bedrock, very little groundwater is contributed from storage in the geologic matrices themselves. This is evidenced by the time-drawdown pumping test curves from the December 1995 aquifer pumping test completed by Geraghty & Miller (this is discussed in greater detail in Section 4.2.2.4) **(For additional information, see response to Comment No. 23 in RI\FS Addendum)**.

Groundwater flows in the bedrock through both horizontal and vertical fractures. Horizontal fractures are related to bedding plane partings, whereas vertical fractures are the result of faulting and jointing from regional stresses. Previous geologic studies have indicated that there is an order of magnitude difference in the hydraulic conductivity of the two fractured rock units (Mercuri Associates 1989; T.H. Cahill and Associates and J.K. Adams and Associates 1987). Horizontal bedding plane fractures within the reddish-brown siltstone unit have a significantly higher hydraulic conductivity and storage coefficient than the more vertical fracture-dominated dark gray shale unit. This has been evidenced by previous pumping tests performed on wells in the alternating beds of the Lockatong Formation, where greater drawdown occurs in wells that are located along the strike of similar geologic units (T.H. Cahill and Associates and J.K. Adams and Associates 1987) **(For additional information, see response to Comment No. 22 in RI\FS Addendum).**

Aquifer testing completed by Geraghty & Miller at the 120 Mill Street property showed a more complex picture. Fractures occur in both the gray shale and red siltstone lithologies. While the occurrence of horizontal fractures does appear to be more significant in the red siltstone lithology, borehole geophysical data indicates that overall there is a relatively higher number of vertical fractures in the bedrock at and near the 120 Mill Street property (Earth Data, Inc. 1992; 1994). The highest values of hydraulic conductivity obtained from packer testing conducted during the RI (at Monitoring Wells MW-9D and MW-9S) were in horizontally fractured zones in the red siltstone, and at interbedded zones at the contact of the two lithologies (see Table 4-5). However, the greater number of vertical fractures results in a flow regime that is a complex lattice of interconnected vertical and horizontal fractures. In the upper portion of the aquifer, groundwater will flow, under the influence of hydraulic head, in a downward or down-dip direction. Groundwater will move laterally through a complex flow path, which is a combination of intersecting and short circuiting vertical fractures and horizontal fractures. Lithologic correlation with the aid of gamma marker beds allows for a detailed examination of the distribution of fractures and the relationship of these fractures between boreholes. While it is fairly easy to correlate gamma marker beds, these are not indicative of a correlation of fractures between wells.

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The intersecting sets of fractures observed at the site form a network of interconnected groundwater flow pathways. All fractures are ultimately interconnected; however, the degree of interconnection varies. The interconnection of fractures at the site area means that the majority of the aquifer responds to induced changes in hydraulic head (i.e., pumping stresses). Some portions of the aquifer, such as the northern and northwestern portion of the Dublin Borough, contain more conductive fractures.

4.2.2.2 Packer Testing Results

Packer testing was proposed as an RI task for the following reasons:

- To test the hydraulic conductivity of discrete zones where fractures were observed.
- To evaluate the vertical distribution of hydraulic head and the vertical component of groundwater flow.
- To collect depth-specific samples for VOC analysis.
- To evaluate the potential for preferential migration of groundwater and VOCs.

Packer testing was proposed at 14 monitoring wells in Dublin Borough. Test zones were selected by evaluating the borehole geophysical data. Selected fracture zones were packed off from the rest of the well, the static potentiometric head was measured, and the zone was pumped to determine hydraulic conductivity and to sample for VOCs. Table 4-5 presents a summary of the results of the packer testing at the Dublin NPL Site. **(See response to Comment No. 24 in RI\FS Addendum)**

Hydraulic conductivity values for discrete zones obtained during the packer testing varied between 0.15 feet per day (ft/day) at Monitoring Well MW-5 (150 to 170 ft bls) to 3,094 ft/day at Monitoring Well MW-9S (106 to 206 ft bls). Wells that exhibited the lowest hydraulic conductivities (between 0.15 and 6.98 ft/day) include Monitoring Wells MW-2,

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MW-3, MW-4, MW-5, MW-6, and MW-8. Higher values of hydraulic conductivity were observed in some fractured intervals at Monitoring Wells MW-1 (33.55 ft/day at 200 to 220 ft bls); and BCM-1 (30.4 ft/day at 70 to 100 ft bls); and the FTW (44 ft/day at 28 to 48 ft bls); and all measured intervals in Monitoring Wells MW-9S (from 24 to 3,094 ft/day) and MW-9D (110 to 475 ft/day at intervals between 82 and 320 ft bls). At wells where tests were run in both shallow and deep packer zones, higher values of hydraulic conductivity were observed in the upper zones. Hydraulic conductivity values were often an order of magnitude higher in packer zones that straddled interbedded zones at contacts between the gray shales and red siltstone beds, and in zones located entirely within the red siltstone.

The packer tests were also used to evaluate the vertical component of groundwater flow. Static measurements were taken before the packers were inflated, and also above, within, and below the packed interval, after inflation. Due to the tedious nature of the work, and the long periods needed for groundwater recovery in some intervals for sampling, all of the packer tests were not necessarily completed for each well within a given day. Consequently, the data is not synoptic, and comparisons of hydraulic head can only be made with data gathered at a single packed interval. However, this was sufficient to furnish information on vertical gradients for most of the wells tested.

A downward vertical gradient was observed (in all or the majority of the borehole) in several wells located in the southern, and northeastern portions of the study area, namely Monitoring Wells MW-1, MW-2, MW-8, and BCM-1 and the FTW. Mixed to slightly upward gradients were identified in the center and northwestern portions of the study area, specifically at Monitoring Wells MW-4, MW-5, MW-9, MW-10, and MW-11. Upward gradients were often identified in the lower portions of these wells, with mixed gradients in the upper portions where producing fractures have been identified. The distribution of vertical gradients observed in monitoring wells in the study area is consistent with reports on groundwater flow in Dublin Borough, with the southeastern part of the Borough acting as a recharge area (downward gradients) and the northwestern portion acting as the discharge area (upward gradients).

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Packed zones that exhibited lower hydraulic head than zones above and below them are generally indicative of lower permeability (due to their poor recovery), and not necessarily a hydraulic "sink". An exception is the upper packed interval (28 to 48 ft bls) at the FTW and Monitoring Well MW-9D (82 to 180 ft bls and 235 to 255 ft bls), where higher hydraulic conductivity values were observed with a drop in hydraulic head. Similarly, packer zones that exhibited higher hydraulic head than zones above and below may be indicative of producing fractures. Care should be taken in this analysis however, because in some zones the pressure of the inflated packers caused an artificial rising of hydraulic head (these zones are indicated on Table 4-5).

As mentioned above, the observation of higher conductivities in some of the wells is lithology-dependent. Higher hydraulic conductivities were observed in packer zones in the red siltstone beds or in zones that straddled the fractured contact of the gray shale and red siltstone lithologies. However, in some wells, relatively higher conductivities were identified in the gray Lockatong unit. For example, the higher hydraulic conductivity zone identified in the shallow portion of the FTW is the result of vertical fractures in the gray shale siltstone unit; and the relatively higher hydraulic conductivity and head measured at Monitoring Well MW-11 (180 to 210 ft bls) are also the result of vertical fractures in the dark gray shale unit. The highest hydraulic conductivity values observed during the tests were found in the upper 300 feet of Monitoring Well MW-9D, and appear to be the result of relatively numerous intersecting vertical and bedding plane fractures in the red siltstone unit.

4.2.2.3 Aquifer Pumping Test at Monitoring Well DBMW-1

In January 1994 a 48-hour pumping test was performed by CH2M Hill on Monitoring Well DBMW-1. The pumping test was started at a pumping rate of 100 gpm, but had to be reduced due to the effect (i.e., lower water pressures) in the nearby Dublin Village Plaza Well. The pumping rate was subsequently reduced to 75 gpm after 24 hours into the pumping test. Furthermore, the pump failed 39 hours into the test, and was restarted after 10 hours, resulting in partial recovery of the water levels. A second period of pumping was

initiated for a duration of 21.5 hours. The reduction in pumpage after 24 hours, and the cessation of pumpage for 10 hours, created departures from the constant-rate conditions required for an aquifer well pumping test, which in turn creates severe limitations on the ability to analyze the pumping test data to derive aquifer characteristics. **(For additional information, see response to Comment No. 27 in RI\FS Addendum).** However, the data from the initial step-drawdown test (step-test) could be used to calculate hydraulic characteristics. The step test data were used to derive specific capacity estimates for the following pumping rate steps: 5.7 gallons per minute per foot of drawdown (gpm/ft) at a pumping rate of 25 gpm; 3.1 gpm/ft at a pumping rate of 60 gpm; 1.8 gpm/ft at a pumping rate of 90 gpm; 1.2 gpm/ft at pumping rates of both 120 and 100 gpm; and 1.4 gpm/ft at a pumping rate of 75 gpm. In addition, the pumping test helped in the identification of one residential well (162 Elephant Road) that was affected by the pumping. This well was added to the ROD list of wells to be hooked up to the public water supply.

Water-level impacts from the pumping were detected in only 3 of the 16 observation wells monitored during the aquifer testing activities. The three wells impacted were the first, second, and fourth closest wells to the pumping well. Drawdowns for the three impacted wells ranged in magnitude from 13 to 30 feet. **(For additional information, see response to Comment No. 28 in RI\FS Addendum).** Drawdown observed in these observation wells, formed an elliptical cone of depression, extending 490 feet to the northeast, 330 feet to the southwest, and 220 feet to the west. The axis of this radius of influence was oriented in a northeast trend, and may be related to preferential impact parallel to the strike of bedding. It should be noted that residential owners of the observation wells used in this study were allowed to use their wells during the study; the drawdown measured therefore, is most likely greater than it would have been in true static conditions **(For additional information, see response to Comment No. 25 in RI\FS Addendum).**

4.2.2.4 Aquifer Pumping Test at the FTW

A controlled aquifer pumping test was one of the key tasks of the RI. In December 1995, in preparation for the 48-hour pumping test, Geraghty & Miller conducted background

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water-level measurements on several observation wells near the site by using Stevens recorders and downhole pressure transducers. The wells were measured for a period of approximately 7 to 8 days. The results indicated significant daily fluctuations in water levels, in some wells as great as 6 feet. The fluctuations observed in the background water-level data (especially in Monitoring Wells MW-5, MW-8, and MW-10) were cyclic, with water levels dropping from approximately 8:00 p.m. through the night and recovery occurring through the morning hours. The order of magnitude of the change in water levels was cyclic, but not consistent, making it extremely difficult to predict accurate correction factors for pumping test data **(See response to Comment No. 29 in RI\FS Addendum).** This effect is most likely a cumulative effect from many production and residential wells pumping for industrial, agricultural, and home heating and plumbing needs. This is important because it indicated non-static conditions in some wells, limiting their utility as observation wells.

Prior to the 48-hour test, a step-drawdown test was conducted on the FTW to determine the optimal pumping rate for the test. Flow rates for the step test were established at 15, 25, 35, and 45 gpm. The resulting specific capacities (pumping rate divided by measured drawdown) obtained from the step drawdown tests are as follows: at 15 gpm - 0.29 gpm/ft; at 25 gpm - 0.21 gpm/ft; at 35 gpm - 0.18 gpm/ft; and at 45 gpm - 0.15 gpm/ft. Based on these results and the depth of the pump setting, a pumping rate of 25 gpm was selected for the 48-hour pumping test.

The 48-hour pumping test was conducted from 9:00 a.m. on December 13, 1995 until 9:00 a.m. on December 15, 1995. The time-drawdown curve for the pumping well (the FTW) is presented on Figure 4-7. From background water-level monitoring, it can be determined that this test began during a regional recovery period. Wells that were located at farther distances from the pumping well showed a more significant diurnal fluctuation than those located closer. For this reason, the analysis of the pumping test data was limited to drawdown measurements collected at Monitoring Wells MW-3, MW-4, BCM-1, and BCM-2; and Production Wells PW-1 and PW-2; and the pumping well.

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The pumping test data were analyzed using ~~two methods.~~ the Jacob Straight Line method. ~~and the Theis method (using the aquifer testing analytical software, AQTESOLVE).~~ The application of the~~two~~ methods is based on a number of simplifying assumptions concerning the aquifer and the discharging well. The Jacob Method employs analysis of a semilogarithmic plot of time versus drawdown **(See responses to Comment Nos. 30, 31, 32 and 34 in RI/FS Addendum).** ~~whereas the Theis Method employs analysis of a logarithmic plot of time versus drawdown. Solution by the Theis Method involves matching a "type curve" to the pumping test data plot. AQTESOLVE software performs the curve matching and solves the Theis equation for transmissivity and storage coefficient.~~

A Jacob method analysis completed on a semilogarithmic plot of time versus drawdown data for the FTW indicated a transmissivity of 508 gallons per day per foot (gpd/ft). Jacob analysis performed on the observation wells mentioned above, with the exception of Monitoring Well MW-4 produced the following transmissivity (T) and storage coefficient (S) values: Monitoring Well MW-3, T=1346 gpd/ft and S = 0.001897; Monitoring Well BCM-1, T = 2299 gpd/ft and S = 0.00546; Monitoring Well BCM-2, T = 2598 gpd/ft and S = 0.002777; Production Well PW-1, T = 2276 gpd/ft and S = 0.000795; and at Production Well PW-2, T = 1970 gpd/ft and S = 0.00289 (pumping test analysis results are summarized in Table 4-6). The average transmissivity calculated from these observation wells was 1832 gpd/ft and the average storage coefficient was 0.00224. These values are within published values of storage coefficient and transmissivity for a fractured sedimentary aquifer (Domenico and Schwartz 1990). The storage coefficient values, ranging from approximately 0.0008 to 0.002, are indicative of a semiconfined aquifer. The values of transmissivity and storage coefficient can be used to predict the amount of drawdown at a given distance from the pumping well for a specific pumping rate. The values can also be used to predict the amount of drawdown in the pumping well at a given pumping rate at any given duration of continuous pumping **(For additional information, see response to Comment No. 26 in RI\FS Addendum).**

It should be noted that there was no response (i.e., no drawdown) to pumping at Monitoring Well MW-4; this well is only located 110 feet from the pumping well. This

observation supports the earlier interpretation from water-level data that fracturing in the shallow bedrock is not uniform, and that shallow rock at Monitoring Well MW-4 is not interconnected with the fracture system through which groundwater is stored and moving.

The Jacob method pumping test analysis used for the shallow wells near 120 Mill Street property did not account for partial penetration of the observation wells. The FTW is 506 feet deep, while each of the observation wells used in the analysis are around 100 feet in depth. Partial penetration corrections are complex, and rely on a precise knowledge of the ratio of vertical to horizontal conductivity. ~~For this reason, an additional aquifer testing analysis was employed by using the Theis curve matching method with the curve matching software AQTESOLV.~~ **(See responses to Comment Nos. 30, 31, 32 and 34 in RI/FS Addendum).** A qualitative evaluation of the distribution of fractures and hydraulic conductivities from packer testing and geophysical logs in the FTW indicated that approximately 40 percent of the water in the well is contributed from fractures in the upper 200 feet (very little flow in bottom portion of the well and a high hydraulic conductivity zone at 28 to 48 ft bls and at 195 ft bls). ~~The pumping rate used in the Theis calculations was subsequently reduced by 40 percent to 10 gpm.~~ **(See response to Comment No. 33 in RI\FS Addendum)** ~~The resulting calculated transmissivities and storativities are as follows: Monitoring Well MW-3, T = 2895 gpd/ft and S = 0.00741; Monitoring Well BCM-1, T = 7837 gpd/ft and S = 0.01259; Monitoring Well BCM-2, T = 6501 gpd/ft and S = 0.01057; Production Well PW-1, T = 8,299 gpd/ft and S = 0.001203; and Production Well PW-2, T = 8,112 gpd/ft and S = 0.000525. The best curve match occurred with the data from Monitoring Well MW-3, the values of T and S calculated from this well are similar to those calculated by the Jacob analysis.~~ **(See responses to Comment Nos. 30, 31, 32 and 34 in RI/FS Addendum).**

The semilogarithmic distance drawdown plots for the observation wells are presented in Appendix L. The time-drawdown plots for the observation wells used in the aquifer calculations all have similarly shaped time drawdown curves. In general, the time drawdown plots have shapes characteristic of a confined aquifer. The late-time data indicates that there is very little leakage from the overlying shallow lower permeability lithologies (a

The semilogarithmic distance drawdown plots for the observation wells are presented in Appendix L. The time-drawdown plots for the observation wells used in the aquifer calculations all have similarly shaped time drawdown curves. In general, the time drawdown plots have shapes characteristic of a confined aquifer. The late-time data indicates that there is very little leakage from the overlying shallow lower permeability lithologies (a combination of the dense silt and clay overburden and the upper bedrock). The late time data for the observation wells indicates that water levels are declining faster than a theoretical "straight" line. This is indicative of the pumping cone of depression intersecting an impermeable barrier boundary or intersecting the cone of depression of another pumping well. The background water-level data did not indicate another competing cone of depression in the area near the FTW **(For additional information, see response to Comment No. 35 in RI\FS Addendum).** The late-time data are probably reflecting the intersection of the cone of depression with lower permeability rock in the upper 100 feet of the aquifer. The late-time data in these wells becomes parallel to semi-parallel around 200 minutes. This indicates the hydraulic gradient between the wells is remaining constant.

The early-time data indicates that there is a minimal contribution from well bore storage, and that the majority of groundwater flow is contributed from storage in the fractures. The medium-pumping time data indicates that the rock matrix is contributing an increasing rate of groundwater from fractures, but not enough to stabilize drawdown. This is indicative of a fractured, low permeability aquifer. The late-time data represents a quasi-steady-state condition. Drawdown has essentially stabilized. However, a more protracted period of pumping (72 hours or more) may demonstrate that steady-state conditions have not been achieved and that either a recharge or impermeable boundary will be intercepted resulting in no further drawdown or accelerated drawdown.

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5. SOIL CONDITIONS

As part of the RI, 32 soil borings were advanced and four test pits were excavated at the 120 Mill Street property. Selected soil samples were analyzed for a variety of parameters to identify potential sources of groundwater contamination. Prior to the RI, soil sampling had been conducted by Geraghty and Miller and several other firms between October 1987 and August 1992. The results of the previous investigations and those of the RI are discussed in this section.

5.1 PREVIOUS WORK

Prior to the RI, soil conditions at the 120 Mill Street property were investigated by BCM, Weston, TRC, and Geraghty and Miller. The analytical findings of each of their investigations are briefly discussed below.

In November 1987, BCM submitted results of a soil-vapor study performed at the 120 Mill Street property between September 15 and October 1, 1987. Samples were collected from 35 locations and at an on-site underground storage tank, and were analyzed with a Photovac 10S50 portable GC. Only three of the samples were found to contain TCE at concentration of greater than 1,000 (ug/L). The highest result, 43,000 ug/L, came from a sample collected from directly behind (north) Building 1 (Figure 1-3). Based on the results of the soil-vapor study, BCM recommended a subsurface soil sampling program consisting of five soil borings (BCM, Inc. 1987).

A soil boring investigation was conducted by BCM in December 1987. Five soil borings were drilled to depths between 6 and 10 feet (Figure 1-4). The results indicated the presence of TCE in six of the 11 samples, at concentrations ranging from 20 to 980 micrograms per kilogram (ug/kg) (see Table 5-1).

Soil samples were collected by Weston on January 21, 1988 and split with representatives of TRC. Weston results indicated the presence of 54 ug/kg of TCA in Soil Sample S-4 collected from the former drum storage area at the rear of the Building 1, and 13 ug/kg of TCE in Soil Sample S-3 collected from an area approximately 2 feet from the edge of the concrete pad located behind the Quonset Hut (Figure 1-4). The TRC split samples indicated the presence of 32 ug/kg of TCA but no TCE in Soil Sample S-3, and 54 ug/kg of TCE and no TCA in Soil Sample S-4 (Table 5-1).

TRC collected liquid samples from eight containers ranging in size from 5 to 55 gallons located in the Quonset Hut on December 18, 1987. These containers were left at the 120 Mill Street property by Dudley Sports. Fourteen VOCs were detected in Sample SEQPA-1, collected from the container of safety solvent Number 2, at concentrations ranging from 200,000 ug/L of trichlorofluoromethane to 14,000,000 ug/L of TCA. TCE was detected in samples SEQPA-1 and SEQPA-10 at concentrations of 6,000,000 and 2,200,000 ug/L, respectively. PCE concentrations in the drummed samples ranged from 500,000 to 13,000,000 ug/L. TCA concentrations ranged from 660,000 to 49,000,000 ug/L. The results are summarized in Table 5-2.

Weston also collected liquid samples from containers stored in the Quonset Hut from the 120 Mill Street property on January 21, 1988. The Weston results indicated the presence of TCA at concentrations ranging from 7,200,000 to 1,000,000,000 ug/L in the liquid samples that were collected from the drums. TCE was detected at 740,000 (Sample 1W) and 1,700,000 ug/L (Sample SS-2) (Table 5-2).

Between December 1989 and February 1990, Geraghty and Miller conducted a source investigation at the 120 Mill Street property. Twenty soil vapor samples were collected from 20 vapor well points and analyzed for TCE, vinyl chloride, toluene, and 1,2-DCE using a portable GC. The highest concentration reported was 100 parts per million by volume (ppmv) of TCE detected in a sample collected from Vapor Well Point VW-5, located

northwest of Building 1, behind the former drum storage area. All the results are summarized in Table 5-3.

Twenty exploratory soil borings were advanced on February 22 and 23, 1990 to confirm the soil vapor results. A total of 15 soil samples were collected and submitted for laboratory analysis. TCE was detected in four of the 15 soil samples, with the highest concentration (2,000 ug/L) detected in the sample from Soil Boring B-16 located north of the former drum storage area (Figure 1-5, Table 5-4).

5.2 REMEDIAL INVESTIGATION SOIL QUALITY RESULTS

Soil conditions at the site were evaluated by drilling 32 soil borings and digging four test pits during the RI. Seventeen soil borings (Soil Borings SB-1 through SB-17) were drilled and four test pits (Test Pits TP-1 through TP-4) were excavated during the first phase of soil sampling conducted between July 6 to 14, 1992. Fourteen soil borings (Soil Borings SB-18 to SB-31) were drilled during the second phase of soil sampling conducted between August 24 to 28, 1992. In all, soil samples were collected for analytical purposes at 19 soil boring locations, three test pit locations, and two septic tank locations during the RI. Additionally, three background samples were collected as part of the requirements for a baseline risk assessment. All of the soil borings were located at the 120 Mill Street property except for the background samples, which were collected from locations on North Main Street. The USEPA did not consider these samples collected as representative background conditions, because they believed these locations did not represent the conditions at the 120 Mill Street property prior to waste disposal. As stated in correspondence from the USEPA dated September 10, 1992 "organic background conditions in soil are assumed to be 0 or non-detect. If inorganics pose a problem, a background sampling program will need to be developed and approved by USEPA" (USEPA 1992a). The background samples collected were therefore, not used to represent background conditions at the 120 Mill Street property, with respect to organic compounds. However, the three background soil samples do provide reliable data regarding naturally occurring concentrations of metals in soil in the area. In

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addition, the pesticide concentrations in the background samples probably reflect areal impacts resulting from historic pesticide application practices and as such are useful for comparison purposes. The locations of each of the soil borings, test pits, septic tank sampling points, and the baseline samples are shown on Figures 2-2 and 2-3.

The samples collected from Soil Borings SB-1 through SB-4, SR-2 (resampled at the location of Soil Boring SB-2), and SB-19 were analyzed for target compound list (TCL) VOCs. Samples from Soil Borings SB-5 through SB-10 and the two septic tank locations were analyzed for TCL VOCs and BNAs. Samples from Soil Borings SB-11 through SB-17 were analyzed for TCL pesticides/PCBs and target analyte list (TAL) metals only. The three background samples and the three test pit samples were analyzed for TCL VOCs, BNAs, pesticides/PCBs, and TAL metals. All analyses for VOCs and BNAs included a library search to enumerate tentatively identified compounds (TICs). The analytical results of all soil samples and QA/QC samples collected as part of the RI are provided in Tables 5-5 through 5-22. Appropriate QA/QC samples were collected according to the specifications in the QAPP.

For screening purposes, the analytical results were compared to the PADEP Statewide Residential Human Health Standards for Soils, from hereon referred to as the PADEP standards. For each detected constituent, the most stringent value of the two exposure routes in the standards, ingestion and soil to groundwater pathway, was used for the comparison. The 95 percent upper confidence level (UCL) of each detected constituent was also compared to the USEPA Region III risk-based concentrations (RBCs) (USEPA 1995e) for residential exposure. The following sections discuss the screening of the detected constituents. Acetone, methylene chloride, bis-(2-ethlyhexyl)phthalate, di-n-butyl phthalate, and di-n-octyl phthalate results are not discussed; the presence of these compounds has been attributed to laboratory contamination and the results have been qualified "B" in accordance with the USEPA Region III Data Validation Guidelines (USEPA 1992a).

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5.2.1 Volatile Organic Compounds

The VOC results are presented on Figures 2-2 and 2-3 and in Tables 5-5 through 5-10. VOCs were detected in all of the soil samples. PADEP standards exist only for the following VOCs: benzene, bromodichloromethane, carbon disulfide, carbon tetrachloride, chloroform, 1,1-DCA, 1,2-dichloroethane (1,2-DCA), 1,1-DCE, cis- and trans-1,2-DCE, methylene chloride, ethylbenzene, styrene, 1,1,2,2-tetrachloroethane (PCA), PCE, 1,1,2-PCA, TCE, vinyl chloride, and total xylenes. The VOC concentrations detected were several orders of magnitude lower than the PADEP standards. The UCL of VOCs detected in soil were also compared to the USEPA Region III RBCs (USEPA 1995e). There were no exceedances of the RBCs for any of the VOCs detected.

TCE, PCE, and 1,2-DCE (total) were detected in 16 of the 19 soil borings. TCE was detected in all three test pit soil samples. These compounds were not detected in the background and septic tank samples. The highest concentration of TCE detected was 300 ug/kg in the sample collected from Soil Boring SB-19. The highest total concentration of chlorinated VOCs (TCE, PCE, and 1,2-DCE were the chlorinated compounds detected) was 403 ug/kg, detected in the sample collected from Soil Boring SB-11. Soil Borings SB-11 and SB-19 were drilled north of the former drum storage area.

One or more of the following compounds: benzene, toluene, ethylbenzene, and total xylenes (BTEX), were detected in Soil Borings SB-11, SB-16, SB-17, SB-19, and Septic Tank Samples ST-1 and ST-2. The highest concentration of total BTEX was 5,480 ug/kg, detected in Soil Boring SB-16. Soil Borings SB-16 was drilled under the concrete pad next to the quonset hut where drummed liquids had been stored by Dudley Sports (Roy F. Weston, Inc. 1988).

TICs were not detected in samples collected from Soil Borings SB-14, SB-15, and the three test pit locations. TICs were detected and reported for all other samples. Unknown

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hydrocarbons, substituted cyclohexane, 1,2-dichloro-1,1,2-trifluoroethane, octamethyl cyclotetrasiloxane, and unknown compounds were the reported TICs.

5.2.2 Base Neutral and Acid Extractable Organic Compounds

The BNA results are presented on Figure 5-1 and Tables 5-11 through 5-16. BNAs were detected in 15 of the 21 samples analyzed; however only one BNA was detected above the PADEP standards. There are standards for 16 of the 19 BNAs that were detected (carbazole, di-n-butylphthalate, and benzo[g,h,i]perylene do not have standards). Benzo(a)pyrene was detected in the field replicate of the sample collected at Soil Boring SB-11 (SB-11 FR) at a concentration of 1,600 ug/kg, above the standard of 600 ug/kg. The original sample did not show an exceedance. The other BNAs detected were polyaromatic hydrocarbons (PAHs) and carbazole, 1,4-dichlorobenzene, di-n-butylphthalate, and 2-methylnaphthalene. The PAHs detected were acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-cd pyrene), naphthalene, phenanthrene, and pyrene. The highest concentration of total targeted BNAs was 30,122 ug/kg reported for the field replicate of the sample collected at Soil Boring SB-11 (SB-11 FR).

The UCLs for BNAs detected in soil were compared to the USEPA Region III RBCs (USEPA 1995). Benzo(a)anthracene (RBC: 880 ug/kg), benzo(b)fluoranthene (RBC: 880 ug/kg), and dibenzo(a,h)anthracene (RBC: 88 ug/kg) exceeded the Region III RBCs for residential exposure to soil, These PAHs, and benzo(a)pyrene, are common constituents in asphalt and their presence could be due to entrainment of small asphalt particles in the soil samples. Nonetheless, the risks from the PAHs that had UCLs in excess of the RBCs were evaluated in the risk assessment.

TICs were not detected in samples collected from Soil Borings SB-10, SB-12, and one test pit location, TP-4. TICs were detected and reported for all other samples. Unknown

acids, unknown hydrocarbons, dimethyl naphthalene isomer, 2-ethyl hexanoic acid, bis(2-ethylhexyl)ester decanedoic acid, substituted hexanedioic acid, and unknowns were the reported TICs.

5.2.3 Pesticides and PCBs

There were no pesticide/PCB exceedances of the PADEP standards. Pesticides were detected in eight of the 13 samples analyzed for this fraction. The detected pesticides were alpha-BHC, gamma-BHC, alpha-chlordane, gamma-chlordane, 4,4-DDD, dieldrin, endosulfan I, endrin, endrin ketone, and heptachlor epoxide. The highest total concentration of pesticides was 5 ug/kg detected in background Soil Sample B1. Aroclor 1242 was detected in two of the 13 samples. The highest concentration of PCBs was 120 ug/kg detected in the sample from Soil Boring SB-16 (see Figure 5-2 and Tables 5-17 through 5-19).

The UCLs for pesticides and PCBs detected in soil were compared to the USEPA Region III RBCs (USEPA 1995e). The sample collected from Soil Boring SB-16 exceeded the RBC of 83 ug/kg for PCBs. Risk associated with PCBs was evaluated in the risk assessment.

5.2.4 Metals

Of the metals analyzed, only lead has a PADEP standard. Lead was not detected at concentrations above the standards in any of the 14 samples analyzed for metals. The following are the concentration ranges (in mg/kg) of detected metals (potassium, sodium, iron, magnesium, calcium, and manganese are commonly occurring non-toxic metals and therefore, are not included): aluminum (7,810 to 29,400), antimony (3.2 to 4.9), arsenic (3.5 to 17.2), barium (55.8 to 262), beryllium (0.51 to 1.6), cadmium (1.1 to 1.2), chromium (13.5 to 53.8), cobalt (7.5 to 40.6), copper (9.4 to 77.3), lead (11.9 to 142), mercury (0.07 to 0.22), nickel (6.8 to 101), selenium (0.86, detected only once), thallium (1.1, detected only once),

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vanadium (34 to 75), and zinc (25 to 262). The concentration of each metal varies from sample to sample by less than one order of magnitude in all cases, except zinc (see Figures 5-3 and Tables 5-20 through 5-22).

The highest concentrations of lead (142), selenium (0.86), and zinc (262) were detected in the background samples, which were not collected from the 120 Mill Street property (Table 5-21, Figure 2-3).

The UCLs for metals detected in soil were also compared to the USEPA Region III RBCs (USEPA 1995e). There are no exceedances of the RBCs. These metals are naturally occurring elements in rock and soil, and are not present at elevated concentrations with respect to background samples or to the range of concentrations normally found in the eastern United States (USGS 1984). Therefore, no metals in soil were evaluated in the baseline risk assessment.

5.3 SOIL TYPE AND THICKNESS

Based on the shallow subsurface borings drilled during the RI, the generalized geology of the site, from the surface downward, consists of the following three units: (1) fill, (2) silt/clay, and (3) bedrock. The stratigraphic units are classified based on the inferred depositional environment and the stratigraphic position of these units (**For additional information, see response to Comment No. 39 in RI\FS Addendum**).

5.3.1 Fill

The fill unit is the uppermost stratigraphic unit, extending across most of the 120 Mill Street property. The fill unit consists of asphalt and an underlying gravel bed. This unit is seen only in the paved portions of the property, and extends to a maximum depth of 2 ft bls.

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5.3.2 Silt/Clay

Underlying the fill in the paved areas, and comprising the first subsurface unit in the non-paved areas, is a unit of fine-grained unconsolidated deposits extending to a depth of 5 to 12 ft bls across the site. This unit is characterized by interbedded silt and clay layers; some sand and gravel are also present. The fine dense silt is frequently mottled, and red-brown or gray to black in color. In the southwest portions of the site, the unit is intermingled with layers of shale and rocks. In the northeast portions of the site, a zone predominantly composed of clay is found at depths varying from 8 to 12 ft bls, sandwiched between two silty zones. Across the property, the lower zone of the silt and clay unit contains weathered bedrock fragments and shale.

5.3.3 Bedrock

The depth to bedrock varies between 5 to 12 ft bls. A weathered rock horizon was encountered as the upper zone of this unit. The water table, as determined from the depth to water in on-site monitoring wells (October 1992, synoptic groundwater level measurements), occurs at a depth of 40 to 50 feet.

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6. SEDIMENT QUALITY

Seven sediment samples (Sediment Samples D1 through D7) were collected on August 27 and October 28, 1992, from the bottom of the stormwater drainage ditch that runs northwest from the 120 Mill Street property. The purpose of the sampling was to investigate the possibility that site activities may have historically impacted runoff transported by the drainage ditch. All sediment samples were collected from 0.7 to 1.5 feet below the bottom of the drainage ditch and were analyzed for VOCs, BNAs, pesticides/PCBs, metals, TOC, and grain size.

6.1 SEDIMENT ANALYTICAL RESULTS

Methylene chloride and acetone were the most frequently detected VOC compounds, and their presence is attributable to laboratory contamination. The results for methylene chloride and acetone have been qualified "B" in accordance with the Region III Data Validation Guidelines and are not discussed further. TCE was detected in Sediment Samples D2 and D4 at estimated concentrations of 3 and 4 ug/L, respectively. PCE was also detected in Sediment Sample D4 at an estimated concentration of 3 ug/L. 2-Butanone was detected in the field replicate of Sediment Sample D3 at an estimated concentration of 3 ug/L. The detected TCE and PCE concentrations are below the PADEP standard. There is no standard for 2-butanone. A total of five TICs identified as unknowns were also detected (Tables 6-1 and 6-2, Figure 2-3). Table 6-3 summarizes the VOC results in trip and field blanks collected along with the sediment samples.

Of the BNAs analyzed, only PAHs and phthalates were detected in Sediment Samples D1 through D6, all at concentrations well below the PADEP standards. The highest concentration of total BNAs detected was 3,950 ug/L detected in Sediment Sample D3 FR. TICs detected were reported as unknowns, hydrocarbons, and one unknown amide (see Figure 6-1 and Tables 6-4 and 6-5).

One or more pesticides were detected in all seven samples analyzed. All concentrations were below the PADEP standards. The range of pesticide concentrations detected was 0.11 to 31 ug/L in Sediment Samples D1, D2, D3, D4, D6, and D7. Sediment Sample D5 contained pesticides at concentrations several orders of magnitude greater; ranging from 39 ug/L of dieldrin to 2,600 ug/L of 4,4-DDT. Aroclor 1242 was the only PCB detected. The concentrations detected were 6 and 9.8 ug/L in Sediment Samples D4 and D6, respectively (see Figure 6-2 and Table 6-6). Table 6-7 summarizes the pesticide/PCB results in the field blank collected along with the sediment samples.

One or more metals were detected in all seven samples analyzed. Lead is the only metal with a PADEP standard, there were no exceedances of that standard. The following are the ranges in concentration (in mg/kg) of detected metals (potassium, sodium, iron, magnesium, calcium, and manganese are commonly occurring non-toxic metals and therefore, not included): aluminum (11,700 to 17,000), arsenic (4.6 to 13.4), barium (104 to 178), beryllium (1.3 to 1.8), cadmium (0.93 to 0.97), chromium (31.4 to 56.1), cobalt (16.7 to 23.8), copper (24.8 to 40), lead (13.4 to 354), mercury (0.07 to 0.18), nickel (20.7 to 29.1), selenium (0.76, detected only once), silver (1 to 1.4), vanadium (53.6 to 79.7), and zinc (66.7 to 285). The concentration of each metal is comparable, with a variation of less than one order of magnitude in all cases (see Figure 6-3, Table 6-8).

The highest concentrations (in mg/kg) of lead (354), arsenic (13.4), copper (40), mercury (0.18), and zinc (285) were detected in Sediment Sample D5. The second highest concentrations of chromium (55.5) and vanadium (78.3) were also detected in this sample (Table 6-8). Sample D-5 was collected off-site, along north Main Street. The UCLs of detected constituents were compared to the USEPA Region III RBCs (USEPA 1995e) for residential exposure to soil. 4,4-DDT and lead were detected at concentrations above the RBC. However, the 4,4-DDT concentrations are not related to site-specific activities. Much of the land surrounding the drainage ditch has been used for agriculture, and pesticide occurrences are related to areal practices, not activities at the 120 Mill Street property. The detection of metals in sediments are due to metals that occur naturally in soil (**For additional**

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information, see response to Comment No. 40 in RI\FS Addendum). — The lead concentrations detected in sediment may have been augmented by contributions from leaded gasoline prior to the 1970s. Since these constituents are not related to site-specific activities, no constituents in sediments have been evaluated in the risk assessment.

TOC concentrations in the seven samples ranged from 0.096 to 3.4 percent carbon (see Tables 6-9 and 6-10).

6.2 SEDIMENT TYPE

Based on the sediment samples collected, the 0 to 2 feet of sediment underlying the bottom of the drainage ditch is mainly composed of silt, clay, sand, gravel, and traces of brown to red shale. The grain size of samples was evaluated, the results indicate that the sediment samples range from well sorted gravels and well or poorly sorted sands to low plasticity silts. The results of the grain size analysis are presented in Appendix M.

AR301213

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7. AIR QUALITY

The quality of air at the site was monitored during the various subtasks of the field investigation with a PID. Time-weighted sampling of ambient air was also conducted on August 26 and 27, 1992. Air sampling was conducted to establish background conditions when there were no field activities underway at the site, and to evaluate the impact of intrusive activities (Subtask 3-9, Investigation of Subsurface Conditions). Sampling locations and the times sampled are indicated on Figures 2-4 and 2-5. Details of sample collection procedures are included in Section 2.3.2.4 (Subtask 3-12, Monitoring of Air Quality).

Samples AR10826 and AR30826 were collected during intrusive activities, upwind and downwind, respectively. Sample AR10826 was collected at an area upwind and upgradient of the 120 Mill Street property to establish background conditions. Sample AR20826 was collected on-site during intrusive activities; however, the sample was unusable due to a faulty valve on the Summa canister. Samples AR40827 and AR50827 (which is a replicate of AR40827) were collected on-site during non-intrusive activities. Sample AR60827 was collected downwind during non-intrusive site activities. At approximately 12:30 p.m. on August 27, 1992, the Geraghty & Miller sampling personnel observed workers at Laboratory Testing (Building 4, see Figure 1-3) spraying metal finisher on parts near the air sample canisters.

The five samples and replicate were collected in vacuum pressurized Summa canisters and submitted to the laboratory for analysis. The samples were analyzed for TCL VOCs by USEPA Method TO-14. A discussion of the detected compounds is presented below and the results are summarized on Table 7-1. Detected VOCs are also presented on Figures 2-4 and 2-5.

Acetone was detected in all five samples at concentrations ranging from 17 to 31 ppbv. Methylene chloride (AR60827) and carbon disulfide (AR10826) were detected in one sample each, collected downwind during non-intrusive activities and upwind during intrusive

activities, at concentrations of 9.8 and 11 ppbv, respectively. 2-Butanone was detected in the Sample AR60827, collected downwind during non-intrusive activities, at a concentration of 13 ppbv. 2-Hexanone was detected in Sample AR40827, collected on-site during non-intrusive activities, at a concentration of 9.4 ppbv.

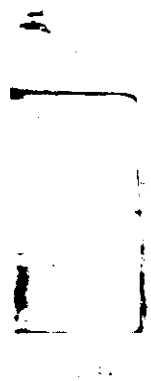
TCA was detected in four of the five air samples. TCA was detected in Samples AR30826 and AR60827 collected downwind and the sample/replicate pair AR40827/AR50827 collected on-site at concentrations ranging from 20 to 35 ppbv. PCE was also detected in Sample AR60827, collected downwind during non-intrusive activities, at a concentration of 5.5 ppbv.

BTEX was detected each in two or more samples. Benzene was detected in Samples AR30826 and AR60827, both of which were collected downwind during intrusive and non-intrusive activities respectively, at concentrations of 6.2 and 8.7 ppbv. Toluene was detected in all five samples at concentrations ranging from 3.2 to 92 ppbv. Ethylbenzene was detected in Samples AR30826 and AR60827, collected downwind during intrusive and non-intrusive activities, at concentrations of 3.4 and 7.3 ppbv, respectively. Xylenes were detected in Samples AR30826, AR60827, and AR50827 (replicate of AR40827) at concentrations of 13, 31, and 5.6 ppbv, respectively.

The highest concentration of each compound detected in the ambient air samples was from sample AR60827, collected downwind during non-intrusive activities. The list of detected compounds and the concentrations (in ppbv) detected are as follows: acetone (31), methylene chloride (9.8), 2-butanone (13), TCA (35), benzene (8.7), PCE (5.5), toluene (92), ethylbenzene (7.3), and xylenes (31).

The constituents detected were compared to USEPA Region III RBCs for ambient air (USEPA 1995e). Only methylene chloride, benzene, and PCE were detected in on-site samples at concentrations above the RBCs. The highest concentration of benzene, and the only detections of methylene chloride and PCE, were found in the sample that was impacted by the metal finisher spraying observed on August 27, 1992. This sample does not accurately

reflect ambient air quality (**For additional information, see response to Comment No. 41 in RI\FS Addendum**). —Furthermore, these constituents are not volatilizing from impacted groundwater. Therefore, constituents in air are not evaluated in the baseline risk assessment.



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8. GROUNDWATER QUALITY

Groundwater supply and monitoring wells in Dublin Borough have been sampled and analyzed for VOCs since 1986 by various parties. A list of these sampling events is outlined below.

- The BCHD sampled individual residential and commercial water supplies in Dublin Borough in the summer of 1986. Analytical results indicated the presence of several VOCs in samples from 36 wells at concentrations ranging from 1 to 10,000 ug/L.

- Residential and business wells in Dublin Borough are sampled quarterly and semi-annually by ARC in accordance with the Thompson Consent Order. This sampling program was initiated in June 1986.

- Groundwater quality in Dublin Borough has been investigated and evaluated by Geraghty and Miller since May 1988. A source investigation of VOCs in the existing monitoring wells (Monitoring Wells MW-1 through MW-8) and three supply wells (Production Wells PW-1 and PW-2 and the Whistlewood Supply Well) was conducted in May 1988 (Geraghty & Miller, Inc. 1992a). Geraghty and Miller also conducted groundwater sampling of selected monitoring and supply wells from August through September 1992 (referred to as Step I groundwater sampling) and in October 1992 (referred to as Step II groundwater sampling) as part of the RI.

- In 1988, Geraghty & Miller sampled the Whistlewood Commons Apartment Complex supply well; this sample was analyzed for the comprehensive Resource Conservation and Recovery Act (RCRA) Appendix IX analyte list. This list includes 252 organic, metallic, and other inorganic analytes; only TCE and trans-1,2-DCE were detected.

- Monitoring Wells BCM-1 and BCM-2 were sampled and evaluated by BCM Eastern Inc. in July 1988 (BCM 1988b).

- The USEPA conducted an independent sampling of 13 residential wells upgradient of the 120 Mill Street property during August and September 1991. TCE was not detected above the Pennsylvania MCL in any of these samples.

- Sampling of approximately 30 residential and business wells in Dublin Borough and Hilltown and Bedminster Townships has been conducted by Geraghty and Miller on a quarterly basis since June 1993 as part of the RI.

- Four residential wells were sampled along South Main Street, Maple Avenue, and Middle Road by Geraghty and Miller in January 1994, as proposed in the RI Work Plan for the selection of a "monitoring network".

- A supply well in the apple orchard owned by Mr. Wilmer Moyer was sampled on June 6, 1994 at the request of the owner.

- At the request of the USEPA, the supply wells of two residences on Cherry Lane were sampled on July 19, 1994.

- Packer tests were conducted by Geraghty and Miller between April and June 1994 and in September 1995 as part of the RI; samples were collected from discrete zones during these tests.

- An aquifer pumping test using the FTW was conducted by Geraghty and Miller in December 1995 as part of the RI.

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8.1 SUMMARY OF PREVIOUS GROUNDWATER SAMPLING RESULTS

The BCHD sampled individual residential and commercial water supplies in Dublin Borough in the summer of 1986. Analytical results indicated the presence of several VOCs in samples from 36 wells. TCE, the most prevalent compound, was detected in samples from 35 wells at concentrations up to 10,000 ug/L. The other VOCs detected were benzene, bromoform, bromodichloromethane, chloroform, 1,1-DCA, 1,1-DCE, 1,2-DCA, 1,2-DCE, 1,2-dichloropropane, methylene chloride, cis-1,3-dichloropropene, PCE, TCA, toluene, trans-1,2-DCE, trans-1,3-dichloropropene, and vinyl chloride.

Geraghty and Miller installed eight monitoring wells between March 28 and April 20, 1988 as part of an investigation conducted for Sequa Corporation. These eight monitoring wells (Monitoring Wells MW-1 through MW-8), Production Wells PW-1 and PW-2, and the Whistlewood Supply Well were sampled by Geraghty and Miller on May 19, 1988. The samples were analyzed for VOCs by USEPA Method 624.

TCE was detected in seven of the monitoring wells and three supply wells sampled, at concentrations ranging from 8 to 3,000 ug/L. In addition, trans-1,2-DCE (ranging in concentration from 7 to 240 ug/L), TCA (23 ug/L, detected once), and PCE (8 ug/L, detected once) were also detected in these samples. The highest concentration of TCE was detected in the sample collected from Production Well PW-1 (3,000 ug/L). These analytical results are summarized in Table 8-1.

In May 1988, BCM installed and sampled two on-site monitoring wells, identified as Monitoring Wells BCM-1 and BCM-2, as part of their groundwater investigation. The samples collected from these wells were analyzed for VOCs by USEPA Method 601. TCE was detected in Monitoring Wells BCM-1 and BCM-2 at concentrations of 17,500 and 673 ug/L, respectively. PCE (7.2 ug/L), vinyl chloride (5.7 ug/L) chloroform (58.4 ug/L), 1,1-DCE (8.7 ug/L), trans-1,2-DCE (43.4 ug/L), TCA (12.5 ug/L), and 1,1,2-TCA (7.2 ug/L) were detected in Monitoring Well BCM-1. Bromodichloromethane (2.4 ug/L) was detected in Monitoring Well BCM-2. These results are summarized in Table 8-2.

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8.2 GROUNDWATER SAMPLING ASSOCIATED WITH THE RI

As part of the RI, Geraghty and Miller used a two-step program, identified as Step I and Step II, to efficiently investigate groundwater contamination. Step I consisted of a limited round of sampling conducted in August and September 1992 for a comprehensive list of analytes. Three monitoring wells and four supply wells near the 120 Mill Street property were analyzed for the following expanded list of analytes: TCL VOCs, TCL BNAs, pesticides/PCBs, total and dissolved metals, and indicator parameters (hardness, alkalinity, TDS, and TSS). The results from this sampling round were used as the rationale for reducing the analytical requirements in Step II.

Ten monitoring and ten residential wells were sampled as part of Step II in October 1992. The samples collected in Step II were analyzed for VOCs and total and dissolved lead only, based on the results from Step I. Five samples collected during Step II were split with USEPA oversight personnel for independent analysis.

Packer tests were conducted by Geraghty and Miller between April and June 1994, in 13 monitoring wells and one supply well, to evaluate vertical differences in aquifer characteristics and TCE concentrations. Samples collected during the packer tests were analyzed for VOCs. Packer tests were conducted by Geraghty and Miller in September 1995 on one additional supply well and the water samples collected were analyzed for VOCs.

An aquifer pumping test was conducted in December 1995 on the FTW. Water samples were collected every 12 hours from the pumping well (the FTW) and Monitoring Wells BCM-1, MW-4, and MW-8 during the 48-hour pumping test. The FTW samples were analyzed for VOCs, treatability parameters, and other compounds regulated by the BCHD. Selected samples from Monitoring Wells MW-4 and MW-8 were analyzed only for VOCs. All of the samples collected from Monitoring Well BCM-1 were analyzed for VOCs.

Selected residential wells at the Dublin NPL Site have been sampled every quarter since June 1993 by Geraghty and Miller. There have been 11 rounds of quarterly sampling conducted at the time of this report. Samples collected each quarter were analyzed for VOCs by USEPA Method 524.2, Revision 3.0.

The findings of each of these sampling events is discussed in chronological order. To evaluate constituent concentrations at the site, analytical results were compared to the MCLs.

8.2.1 Step I Groundwater Sampling

As part of Step I, seven groundwater samples from three monitoring wells and four supply wells, one replicate, and three QA/QC samples were submitted for analysis. The groundwater samples were analyzed for TCL VOCs, BNAs, pesticides/PCBs, TAL metals, and miscellaneous inorganic constituents. The analytical results are discussed below and summarized in Tables 8-3 through 8-8. The bis(2-ethylhexyl)phthalate results in the samples are qualified "B" due to laboratory contamination, in accordance with the Region III Validation Guidelines. These results are attributable to blank contamination and not discussed further (see Table 8-4). Dublin Well No. 1 was sampled during Step I as the designated background well for the site. However, due to the inaccessibility of this well for borehole geophysical logging, the Lamelza Well was chosen to replace Dublin Well No. 1 as the background well. The analytical results from the Lamelza Well are discussed in Section 8.2.2: Step II Groundwater Sampling.

8.2.1.1 Organic Compounds

~~Step I VOC concentrations are summarized in Table 8-3. Of the seven monitoring and supply wells sampled for VOCs, six exceeded the MCL of 5 ug/L for TCE, two samples exceeded the MCL of 5 ug/L for PCE, and one sample exceeded the MCL of 170 ug/L for 1,2-DCE (total). 1,2-DCE is represented in two isomeric forms - cis-1,2-DCE and trans-1,2-DCE. MCLs are given for individual isomers. However, since the laboratory quantifies 1,2-~~

~~DCE as a total of the two isomers, the MCLs were totaled for comparison to laboratory reported results.~~ **(See response to Comment No. 42 in RI\FS Addendum).**

TCE exceedances ranged from 28 to 14,000 ug/L, with the highest concentration detected in the sample from Monitoring Well BCM-1. PCE exceedances ranged from 5.4 to 7.8 ug/L, with the highest concentration detected in the sample from Production Well PW-1. 1,2-DCE in excess of the MCL was detected in Monitoring Well MW-4 at 400 ug/L. The highest concentration of total VOCs detected was 14,093 ug/L in Monitoring Well BCM-1. Concentrations of VOCs detected in Step I are shown on Figure 8-1.

No BNAs were detected in any Step I groundwater samples.

8.2.1.2 Pesticides and PCBs

Pesticides were detected in five of the seven Step I groundwater samples. No PCBs were detected in any of the samples. None of the pesticide detections exceeded the MCLs. Alpha-BHC, gamma-BHC, heptachlor epoxide, alpha-chlordane, and gamma-chlordane were the pesticides detected at low concentrations (see Table 8-5).

8.2.1.3 Metals

Samples collected from the seven Step I wells were analyzed for total and dissolved metals. The MCL for antimony (6 ug/L) was exceeded in the samples analyzed for dissolved metals in the Farm Bureau Well, Monitoring Wells BCM-1 and MW-4, and the replicate of Production Well PW-1. The concentrations of dissolved antimony greater than the MCL ranged from 20 to 25.6 ug/L. Total lead in samples from the FTW, Monitoring Wells BCM-1 and MW-3, and Production Wells PW-1, and dissolved lead from Monitoring Well MW-3 (66.9 ug/L), were higher than 5 ug/L (see Tables 8-6 and 8-7). No other metals exceeded given MCLs. ~~Lead was detected above 5 ug/L, which is the primary MCL applicable only to bottled, vended, retail, and bulk water hauling systems.~~ **(See response to Comment No. 11**

in RI\FS Addendum). The metals detected in groundwater are naturally occurring, are not site-related activities, and will not be assessed in the baseline risk assessment.

8.2.1.4 Miscellaneous Inorganic Constituents

Groundwater samples collected from the seven Step I wells were analyzed for pH, TDS, TSS, hardness, and alkalinity. The secondary MCL of 500 mg/L for TDS was not exceeded (see Table 8-8). The pH was between 7.2 and 8.3, which is within the MCL (6.5 to 8.5). No MCLs are available for the other parameters.

8.2.2 Step II Groundwater Sampling

As part of the Step II groundwater sampling, 18 groundwater samples, one replicate sample, and seven QA/QC samples were submitted for analysis. These samples included groundwater samples collected from nine monitoring wells and nine residential wells located along Rickerts Road in Dublin Borough and Hilltown and Bedminster Townships. These samples were analyzed for TCL VOCs and total and dissolved lead. Lead was included as a parameter at the request of the USEPA based on its detection at concentrations above the MCL in several Step I wells. Samples collected at Monitoring Wells MW-2 and MW-8, St. Luke's Church, 3132 Rickerts Road, and 3232 Rickerts Road were split with USEPA personnel and analyzed at an independent laboratory. The Lamelza Well, the replacement background well, was sampled in June 1993. Monitoring Well MW-6 was also sampled for total and dissolved metals due to the observance of greenish water in the monitoring well at the time of sampling. During the packer testing conducted between April and June 1994, there was no evidence of green water in the water discharged from the well.

8.2.2.1 Volatile Organic Compounds

~~Of the nine groundwater samples collected from monitoring wells and analyzed for VOCs, seven exceeded the MCL of 5 ug/L for TCE and one sample exceeded the MCL of~~

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~~170 ug/L for 1,2 DCE (total).~~**(See response to Comment No. 42 in RI\FS Addendum).** VOC concentrations in Step II groundwater samples are provided in Table 8-9 and are shown on Figure 8-2.

TCE exceedances ranged from 31 to 15,000 ug/L in the groundwater samples, with the highest concentration detected in Monitoring Well BCM-1. 1,2-DCE in excess of the MCL was detected in Monitoring Well MW-4 at 240 ug/L. The highest concentration of total VOCs detected was 15,000 ug/L in Monitoring Well BCM-1.

Toluene was detected at an estimated concentration of 0.075 ug/L in the Lamelza Well. The Lamelza Well results are presented in Table 8-10.

8.2.2.2 Total and Dissolved Lead

~~Total lead was detected in six monitoring wells and three supply wells at concentrations above 5 ug/L. Dissolved lead was detected in two samples, one monitoring and one supply well sample, at concentrations greater than 5 ug/L. The lead concentrations (total and dissolved) detected above the MCL for bottled water ranged from 5.4 to 66.1 ug/L (see Tables 8-11 and 8-12).~~ **(See response to Comment No. 11 in RI\FS Addendum).** Some of the highest lead concentrations were detected in wells sampled along Rickerts Road, at the northern edge of Dublin Borough. This observation, and the lack of a pattern to the distribution of detected dissolved and total lead concentrations, indicates that lead concentrations detected in groundwater result from lead that occurs naturally in the matrix of the bedrock aquifer. Lead is not a site-related constituent **(For additional information, see response to Comment No. 43 in RI\FS Addendum).**

The sample collected from Monitoring Well MW-6 was analyzed for total and dissolved TAL metals. Aluminum, barium, calcium, copper, iron, magnesium, manganese, potassium, sodium, and zinc were detected. All concentrations were below the relevant MCLs (see Tables 8-13 and 8-14). All these metals occur naturally in the siltstones and

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shales that comprise the bedrock aquifer; the detected concentrations of these metals are considered to reflect background groundwater quality. Their presence in groundwater is not related to activities at the 120 Mill Street property.

8.2.2.3 USEPA Split Samples

Five samples collected during the Step II sampling were split with the USEPA oversight personnel for duplicate analyses at independent laboratories. A comparison between the Geraghty and Miller and USEPA sample results indicate that the data are accurate within 20 percent, with the following exception: TCE detected in the USEPA samples from Monitoring Wells MW-2 and MW-8 were 25 and 69 percent greater than that detected in respective Geraghty and Miller samples. The USEPA sample results are shown on Figure 8-2 and summarized in Table 8-15.

8.2.3 Residential Well Sampling

Residential well sampling in the Dublin Borough is conducted quarterly by Geraghty and Miller for Sequa Corporation and quarterly or semi-annually by ARC for John Thompson under the Thompson Consent Order (American Resource Consultants, Inc. 1995). These data are summarized in Tables 8-16 and 8-17.

Monitoring of the majority of the affected residential monitoring wells has been conducted regularly under the Thompson Consent Order. Currently, 49 monitoring wells along Mill Street, Elephant Road, and North Main Street are monitored. Wells are sampled quarterly or semiannually, depending on the magnitude of the TCE concentration detected in previous water samples. The most recent semiannual round of monitoring well sampling, conducted in December 1995, detected TCE at concentrations up to 731 ug/L in untreated samples from 43 of the 49 wells. TCE was detected in excess of 10 ug/L in 20 of the 43 samples (ARC 1995). A summary of the water quality data generated by the monitoring well sampling conducted under the Thompson Consent Order is contained in Table 8-17.

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Geraghty & Miller conducts quarterly sampling of 29 businesses and residences located along Rickerts and Quarry Roads, in Dublin Borough and Hilltown and Bedminster Townships. The first round of quarterly sampling from 30 businesses and residences was conducted in June 1993. One-time sampling of some additional properties along Cherry Lane was also completed at the request of USEPA. One-time sampling of four wells along South Main Street, Maple Avenue, and Middle Road was also conducted for the selection of a monitoring network in the Dublin Area. The list of residences/businesses sampled has changed over the past 3 years of monitoring. Residences that have been connected to the Dublin Borough municipal water system have been periodically taken off the sampling list. New wells have also been added to the sampling list at the request of the USEPA. The samples are submitted for laboratory analyses of TCL VOCs using USEPA Method 524.2. TCE has not been detected above 5 ug/L in any of the wells located along Rickerts and Quarry Roads in Dublin Borough and Hilltown and Bedminster Townships. These results are discussed below.

No VOCs were detected in any of the sampling rounds in the samples collected at the following six residences: 107 Cherry Lane, 140 Rickerts Road, 829 Quarry Road, 913 Quarry Road, 1014 Quarry Road, and 255 Dublin Pike (see Table 8-16).

TCE was not detected in any of the sampling events at the following ten residences: 106 Maple Avenue, 104 South Main Street, 106 South Main Street, 111 Maple Avenue, 132 Rickerts Road, 142 Rickerts Road, 144 Rickerts Road, 446 Bucks Road, 3126 Rickerts Road, 3132 Rickerts Road, 3206 Rickerts Road, and 3218 Rickerts Road.

The remaining wells monitored quarterly were found to contain TCE, at concentrations below the MCL of 5 ug/L. The detections during the quarterly samplings events are summarized in Table 8-16.

Figure 8-3 **(For additional information, see response to Comment No. 44 in RI\FS Addendum)** represents the distribution of TCE in the Dublin Borough since a sampling program was initiated in 1986. Each of the locations sampled by Geraghty and Miller and

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ARC are depicted on this figure showing the highest detected concentration and the result from the most recent sampling at each location.

8.3 RESULTS FROM PACKER TESTING

Geraghty and Miller performed packer tests as part of the RI to obtain data with regarding vertical differences in aquifer parameters and the vertical distribution of TCE.

8.3.1 Initial Packer Testing

Packer tests were conducted between April and June 1994. The tests were performed on Monitoring Wells BCM-1, MW-1 through MW-8, MW-9S, MW-9D, MW-10, and MW-11, and the FTW. Pre-determined zones were isolated by packers in each well to evaluate depth specific hydraulic parameters and sample discrete zones for TCE. Multiple samples (two to six) were collected at each well. The results are summarized in Table 8-18 and depicted on Figure 8-4.

TCE was detected in all 36 samples collected. TCE was detected above the MCL of 5 ug/L in 25 samples. The range of TCE concentrations in the monitoring wells is discussed below.

TCE concentrations detected in packer test samples ranged from 0.16 (130 to 151 ft interval) in Monitoring Well MW-9S to 55,000 ug/L (458 to 478 ft interval) in the FTW. The three wells in which the highest concentrations of TCE were detected were Monitoring Wells BCM-1 (13,000 ug/L in the 29 to 49 ft interval) and MW-4 (7,100 ug/L in the 40 to 60 ft interval), and the FTW as described above. All three of these wells are located at the 120 Mill Street property. Both Monitoring Wells BCM-1 and MW-4 are less than 100 feet in depth.

Two upgradient shallow wells were also packer tested. The upper zone (40 to 80 ft) in Monitoring Well MW-6 had a TCE concentration of 1.9 ug/L and the lower zone (80 to

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100 ft) had a TCE concentration of 0.095 ug/L. Composite sampling of Monitoring Well MW-6 in October 1992 had not detected the presence of TCE. The single zone (95 to 130 ft) from which a sample was collected at Monitoring Well MW-7 had a TCE concentration of 15 ug/L. Deeper wells (160 to 281 ft) located immediately downgradient of the 120 Mill Street property had TCE concentrations ranging from 0.45 (water table to 50 feet in Monitoring Well MW-2) to 2,900 ug/L (100 to 120 ft bls in Monitoring Well MW-2).

Several monitoring wells with depths ranging from 450 to 550 ft bls are located along Rickerts Road and at 123 North Main Street. TCE concentrations ranged from 0.11 (water table to 180 ft bls in Monitoring Well MW-9D) to 5.9 ug/L (422 to 452 ft bls in Monitoring Well MW-11). Excluding the 5.9 ug/L concentration, the maximum detected TCE concentration was 1.3 ug/L (440 to 460 ft bls in Monitoring Well MW-9D).

1,1-DCE was detected above the MCL of 7 ug/L in four samples. All four samples were collected from the FTW at various depths. The range of 1,1-DCE results exceeding the MCL was 9.4 to 19 ug/L.

~~1,2-DCE (total) was detected above the MCL of 170 (total of cis and trans isomer values) in seven samples; four of these were from the FTW. 1,2-DCE (total) also exceeded the MCL in Monitoring Wells MW-4 (at two depths) and MW-8. The range of 1,2-DCE (total) results exceeding the MCL was 290 to 780 ug/L.~~ **(See response to Comment No. 42 in RI\FS Addendum).**

1,1,2-TCA was detected above the MCL of 5 ug/L in three samples. All three samples were collected from the FTW at various depths. The range of 1,1,2-TCA results exceeding the MCL was 5.8 to 11 ug/L.

PCE was detected above the MCL of 5 ug/L in seven samples. Five of the exceedances were detected in the Monitoring Well BCM-1 and the FTW. PCE was also detected in Monitoring Wells MW-6 and MW-8 at concentrations marginally above the MCL. The range of PCE results exceeding the MCL was 5.6 to 18 ug/L.

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Vinyl chloride was detected above the MCL of 2 ug/L in six samples. Five of these samples were collected at various depths from the FTW. Vinyl chloride was also detected in Monitoring Well MW-4 at a concentration above the MCL. The range of vinyl chloride results exceeding the MCL was 3.8 to 25 ug/L.

The FTW showed the highest concentration of total VOCs, 55,910 ug/L at a depth of 458 to 478 feet.

8.3.2 Packer Testing of Dublin Village Plaza Well No. 2

Packer tests were conducted on the Dublin Village Plaza Well No. 2 (DVPW-2) on September 25 and 28, 1995. Two zones were tested and samples were collected at the following two specific intervals: 600 to 630 feet bls and 630 to 650 feet bls. Both samples were analyzed for VOCs. The results are presented in Table 8-19. MCLs were not exceeded in either sample. TCE was detected at 0.97 ug/L in the sample collected from the 630 to 650 feet zone and toluene was detected at a concentration of 3.6 ug/L in the sample collected from the 600 to 630 feet zone.

8.4 RESULTS FROM THE AQUIFER PUMPING TEST

A 48-hour constant-rate aquifer pumping test was conducted from December 13 to December 15, 1995 on the FTW. Samples were collected for analysis from the FTW, Monitoring Wells BCM-1, MW-4 and MW-8 at 12-hour intervals. The first sample collected at each of these wells was at the start of the pumping test and was identified as BCM-1, FTW-1, MW4-1, and MW8-1. Subsequent samples collected at 12-hour intervals were given the suffix 2, 3, 4, and 5, respectively. All samples from the Fire Tower Well and Monitoring Well BCM-1, and selected samples from Monitoring Wells MW-4 and MW-8 were analyzed for VOCs with the approval of the USEPA. Samples collected from the FTW at the beginning of the test and prior to ending the pumping test were also analyzed for other

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parameters for design purposes and to meet the BCHD requirements. **(See response to Comment No. 45 in RI\FS Adendum).**

8.4.1 Volatile Organic Compounds

The concentrations of VOCs detected in samples collected during the aquifer pumping test are presented in Table 8-20. TCE was detected in all wells sampled at concentrations above the MCL. The TCE concentrations ranged from 1,500 to 9,600 ug/L in the samples collected from the FTW and Monitoring Wells MW-4 and BCM-1. TCE concentrations ranged from 9.1 to 11 ug/L in Monitoring Well MW-8. In the FTW, the highest TCE concentration was detected in the first sample collected at the beginning of the pumping test, with progressively lower concentrations detected during the pumping test. At the pumping well, the progressive lowering of the TCE concentration with pumping reflects two related effects. First, standing water within the borehole was removed with pumping. Second, as pumping continued the cone of influence reached out to surrounding fractures contributing water with lower TCE concentrations.

~~Vinyl chloride (6.4 ug/L) was the only other compound that exceeded the MCL (2 ug/L).~~ **(See response to Comment No. 45 in RI\FS Addendum)**The other VOCs detected and the concentration ranges are as follows: carbon disulfide (0.61 to 1.2 ug/L), 1,1-DCE (1.3 to 6.1 ug/L), 1,1-DCA (0.58 to 1.40 ug/L), 1,2-DCE (total) (1.2 to 74 ug/L), chloroform (0.65 to 16 ug/L), TCA (0.74 to 5 ug/L), and PCE (0.56 to 4.2 ug/L).

Ethylene dibromide and 1,2-dibromo-3-chloropropane were analyzed in the last sample collected from the FTW prior to the completion of the test as required by the BCHD. These compounds were not detected.

8.4.2 Miscellaneous Compounds

As required by the BCHD, a sample collected from the FTW, FTW1-5, just prior to the completion of 48 hours of pumping, was analyzed for BNs, pesticides (including

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carbamates), PCBs, herbicides, metals (filtered and unfiltered), methane, coliform (fecal and total), nitrate, nitrite, radiological parameters (radon, gross alpha/beta, isotropic uranium, and radium) surfactants, color, corrosivity, free cyanide, odor, pH, sulfate, fluoride, TDS, surfactants, chloride, and turbidity. This sample was also analyzed for hardness, alkalinity, TSS, TOC, phosphate, hydrogen sulfide, and methane for design purposes. The miscellaneous compound data are presented in Table 8-21.

TDS, TSS, alkalinity, hardness, and radon analyses for some of the samples were analyzed outside the acceptable holding time. Therefore, the aquifer pumping test was simulated on the FTW by pumping for approximately 48 hours in the period from March 18 to March 20, 1996 and the parameters with holding times exceedance were resampled. The TDS, TSS, alkalinity, hardness, and radon results from the resampling are presented in Table 8-21.

Bis(2-ethylhexyl)phthalate, a common laboratory contaminant was the only BN detected in the samples at estimated concentrations of 0.7 and 0.9 ug/L. Pesticides (including carbamates), PCBs, and herbicides were not detected in the samples. Summarized below are the concentrations of the miscellaneous parameters detected in the samples and a comparison to relevant MCLs.

The sample collected from the FTW had a pH of 7.98, within the secondary MCL range of 6.5 to 8.5. The threshold odor number (TON) for the sample was 1, below the MCL of 3 TON. The halides: fluoride, and chloride, were detected at concentrations of 0.2 and 43 milligrams per liter (mg/L) which were below the MCLs of 2 and 250 mg/L, respectively. Sulfate, nitrate-nitrogen, and TDS were detected at concentrations of 50 mg/L, 0.63 mg/L, and 340 mg/L, which are below the MCLs for the respective parameters. Total hardness, alkalinity (at a pH of 4.5), and TSS were measured at concentrations of 249, 197, and 9 mg/L. No MCLs are available for these three parameters. Radionuclides were detected in the samples but the concentrations of gross alpha and combined radium and beta particles were below the MCLs. There are no MCLs for radon and isotropic uranium.

8.4.3 Metals

The metal concentrations are presented in Table 8-22. The following metals were detected in the water samples from the FTW. The concentration ranges detected in the four samples collected, including total and dissolved fractions are listed below. The concentrations were not found to vary with the progressive pumping and no significant differences between total and dissolved concentrations of the metals was observed. Where a given metal was detected only in either the dissolved or total fraction, this has been indicated in parentheses. Antimony (3.5 ug/L, detected once in the dissolved fraction only), barium (156 to 170 ug/L), chromium (0.66 to 0.89 ug/L), copper (7.2 to 12.1 ug/L, detected in the total fraction only), lead (2.2 to 7.7 ug/L), manganese (19.1 to 20.2 ug/L), nickel (0.57 to 1.3 ug/L), silver (0.82 ug/L, detected once in the total fraction only), and zinc (155 to 175 ug/L). All the above detected metals have primary or secondary MCLs (the lead and copper values are, however, for bottled water). None of the concentrations exceeded the MCLs.

8.5 SPATIAL DISTRIBUTION OF TCE

TCE comprises the large majority of the VOCs detected in Dublin Borough, so a discussion of the distribution of TCE incorporates the distribution of all chlorinated VOCs. The following sections discuss the horizontal and vertical distribution of TCE in the fractured bedrock aquifer underlying Dublin Borough.

8.5.1 Maximum Horizontal Extent of TCE in Groundwater

During groundwater sampling events carried out by Geraghty & Miller and others, TCE has been detected in more than 90 monitoring, production, and supply wells in Dublin Borough. The maximum TCE concentrations and the most current concentrations detected in individual wells are shown on Figure 8-3. **(See response to Comment No. 44 in RI\FS Addendum).** In the late 1980s, TCE concentrations greater than 1,000 ug/L extended approximately 1,100 feet from the 120 Mill Street property and concentrations greater than

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100 ug/L extended about 1,600 feet. TCE concentrations below the MCL (from 1 to 5 ug/L) were detected in monitoring wells located approximately 4,000 feet to the north, northwest, and west. It is uncertain whether the TCE at this distance is related to the 120 Mill Street property, based on the detection of other compounds not found at 120 Mill Street property and the effect of other influences such as individual septic systems (see Section 8.6 [Other VOCs Detected in the Dublin Area]). Widespread groundwater contamination with low levels of TCE and other chlorinated solvents has been documented in many towns in Bucks County, Pennsylvania and as well as, portions of New Jersey also underlain by Lockatong and Brunswick rocks.

The distribution of the maximum TCE concentrations detected in each Dublin Borough well suggests that TCE has migrated primarily in a 90 degree arc, extending from northwest to northeast (see Figure 8-3 **(See response to Comment No. 44 in RI\FS Addendum)**). The longest axis of the TCE plume is oriented in a northwesterly direction (approximately N 40 W), while shorter axes of the plume extend to the north and north-northeast. TCE is probably migrating in response to several factors, including the prevailing north and northwest direction of groundwater flow, preferential flow along fractures, influences from pumping stresses, and potential leakage from the Dublin Borough sanitary sewer.

Certain patterns emerge from examination of the maximum TCE concentrations detected. For concentrations greater than 1,000 ug/L, and between 5 and 100 ug/L, the longest extent of maximum TCE concentrations was in a direction of approximately N40W. For concentrations between 100 and 1,000 ug/L, the pattern is more complex.

The longest axis of the TCE plume was approximately coincident with the lower end of the total range of secondary fractures which extends from N45W to N85W that have been identified in exposed rock near the site. The secondary fractures are believed to be near vertical in orientation. The northwest orientation of the plume may also be related to historical pumping at the Whistlewood Apartments supply well, which pumped approximately 20,000 gallons per day (gpd) since the apartments were constructed in 1970.

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The northwest orientation of the plume may also be related in part to leakage of TCE-bearing wastewater from Dublin Borough's sanitary sewer, which is oriented parallel to North Main Street **(See response to Comment No. 46 in RI\FS Addendum)**. This sewer is constructed of vitrified clay, which becomes brittle over time. Leakage from this sewer may have acted as a conduit for VOC transport to the northwest from the inferred source area.

A shorter axis of the portion of the plume with TCE concentrations between 100 and 1,000 ug/L appears in a northerly direction, which is approximately parallel to the prevailing direction of groundwater flow (see Figure 4-6).

A third, shorter axis of the plume defined by maximum TCE concentrations in excess of 1,000 ug/L showed some elongation to the northeast (approximately N50E), which is approximately parallel to the orientation of primary vertical fractures that are oriented roughly parallel to the bedding plane strike. Past pumping stresses caused by the former Emico production wells (approximately 2,340 gpd) (T.H. Cahill and Associates, and J.K. Adams and Associates 1987) located at 123 North Main Street, within 1,200 feet of the 120 Mill Street property may have contributed to the northwest migration of TCE. These wells are currently not in use and are shown as #12 and #13 on Figure 8-3 **(See response to Comment No. 44 in RI\FS Addendum)**.

Several monitoring and residential supply wells located immediately upgradient of the 120 Mill Street property have shown TCE concentrations in groundwater ranging from several thousands of ug/L at a residential well on Mill Street and the Farm Bureau Well, to concentrations ranging from 10 to 1,000 ug/L at other residential wells (T.H. Cahill and Associates, and J.K. Adams and Associates 1987). The presence of TCE in these upgradient monitoring wells was probably related to pumping stresses created by residential supply wells.

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8.5.2 Vertical Extent of TCE Concentrations

From April to June 1994, packer tests were performed on thirteen monitoring wells and the FTW. Vertical zones for testing were selected based on examination of geophysical and television logs. Packers were inflated to isolate the select zones and attempts were made to run hydraulic conductivity tests and collect groundwater samples for VOC analysis. Some zones did not yield sufficient water to evaluate hydraulic conductivity, but a water sample could be collected; some zones were so low yielding that neither hydraulic conductivity data or water samples could be collected.

The results of the packer tests are shown on Figure 8-4. The TCE concentrations in the depth-specific groundwater samples indicate some vertical variations, but in almost every well sampled, the TCE concentrations at any two zones within a given well do not differ by more than an order of magnitude.

The depth-specific TCE concentration data collected during the packer tests are also very consistent with the monitoring well samples collected during sampling events in 1988, 1992, and 1995. These monitoring well samples represent an "average" TCE concentration over the entire borehole length. For example, the two depth-specific samples collected during the packer test on Monitoring Well BCM-1 had TCE concentrations of 13,000 and 5,100 ug/L; monitoring well samples collected in 1988, 1992, and 1995 showed TCE concentrations ranging from 8,200 to 8,600 ug/L. Another example is Monitoring Well MW-5, which showed depth-specific TCE concentrations of 8.7 and 130 ug/L; the two monitoring well samples collected in 1988 and 1992 showed TCE concentrations of 39 and 72 ug/L.

The depth-specific samples from the FTW showed TCE concentrations ranging from 7,400 to 55,000 ug/L. The higher range of these concentrations represents approximately 3 percent of the solubility of TCE (which is approximately 1,500 mg/L, or 1,500,000 ug/L); the presence of TCE concentrations in excess of 1 percent of the solubility suggests the presence of droplets of TCE as a pure phase, or DNAPL, in the FTW (USEPA 1992b). Samples

collected during sampling events in 1988 and 1992, and during the 1995 pumping test, showed TCE concentrations ranging from 1,600 to 6,000 ug/L. The lower concentrations in the composite well samples compared to packer test samples probably reflect dilution of the higher concentrations of TCE with less contaminated groundwater from other less contaminated fractures intercepting the FTW borehole.

The relative consistency in depth-specific TCE concentrations in a given well **(See response to Comment No. 48 in RI\FS Addendum)**, and the consistency of these packer test results with the composite samples collected from the same wells, indicates that the TCE transport mechanism is primarily horizontal. The data do not indicate that TCE is being transported preferentially downward or upward along bedding plane fractures **(For additional information, see response to Comment No. 47 in RI\FS Addendum)**. For example, six different zones were tested in the FTW. The range of TCE concentrations was 7,400 (370 to 390 ft bls) to 55,000 ug/L (458 to 478 ft bls). Excluding the 370 to 390 ft interval, the TCE concentration ranges was 20,000 to 55,000 ug/L. TCE concentrations drop off exponentially in horizontal directions from the FTW and the TCE concentration in a discrete fracture zone in a given well is dependent primarily on its horizontal distance and direction from the FTW, not its vertical position relative to a bedding plane orientation **(For additional information, see response to Comment No. 49 in RI\FS Addendum)**.

8.6 OTHER VOCS DETECTED IN THE DUBLIN AREA

Several VOCs that are not related to TCE were detected at low concentrations, below applicable MCLs, in groundwater samples collected from supply and monitoring wells outside of the 120 Mill Street property. These VOCs are as follows: carbon disulfide, methylene chloride, 2-butanone, toluene, xylenes, chloroform, bromoform, bromodichloromethane, dibromochloromethane, and PCE. Some of the compounds were detected upgradient of the 120 Mill Street property, whereas other compounds were detected downgradient at significant distances from the 120 Mill Street property.

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Carbon disulfide and methylene chloride were detected at concentrations of 0.37 ug/L and 0.28 ug/L in the samples collected from the residences at 104 Middle Road and 829 Quarry Road, respectively. Methylene chloride was also detected at a concentration of 0.4 ug/L at 3218 Rickerts Road. 2-Butanone was detected at a concentration of 1.1 ug/L in the sample collected from the residence at the corner of Route 313 and Quarry Road. Carbon disulfide, methylene chloride, and 2-butanone are common laboratory contaminants and analytical artifacts.

Toluene was detected at low estimated concentrations of 0.075 ug/L in a background well, the Lamelza Well (see Figure 8-3), and 3.6 ug/L in the Dublin Village Plaza Well at 161 North Main Street. Toluene is a constituent of many petroleum products, is used as a solvent, and is a raw material in the manufacture of many organic compounds, such as benzaldehyde and benzoic acid (but not chlorinated aliphatic compounds, such as TCE). Toluene was not detected in wells located between 120 Mill Street and Dublin Village Plaza. Therefore, the toluene is probably not related to past or present operations at 120 Mill Street, but is more likely related to activities in the vicinity of Dublin Village Plaza.

Xylenes were detected at a concentration of 0.12 ug/L in a sample collected from the residence at 104 Middle Road. Xylenes are constituents in many petroleum products.

Chloroform was detected in 13 residences along Quarry Road, Rickerts Road, Middle Road, Cherry Lane, and North Main Street at concentrations ranging from 0.056 to 2.4 ug/L. Bromoform, bromodichloromethane, and dibromochloromethane were detected at concentrations of 6.6, 4.2, and 5.4 ug/L, respectively, in a sample collected from the residence at 808B Quarry Road. Chloroform, bromoform, bromodichloromethane, and dibromodichloromethane as a group are referred to as trihalomethanes, and are common byproducts of the chlorination of water supplies for disinfection. ~~Their presence in groundwater may be indicative of leakage from public water supply lines or sewers.~~ These constituents can also be formed by the reaction of chlorine-containing products (e.g., bleach) with naturally occurring organic compounds in water. ~~The presence of trihalomethanes in groundwater may represent evidence of migration of sanitary waste from sewers or septic~~

~~systems to the aquifer. These wastes may have also contained commonly used solvents, such as TCE. Therefore, the low concentrations of TCE detected in the northern part of the study area may have originated in septic systems or sewers in that area, rather than have migrated from the 120 Mill Street property~~ **(For additional information, see response to Comment No. 50 in RI\FS Addendum).**

PCE was detected at four residences along Rickerts Road, Maple Avenue, Middle Road, and Cherry Lane at concentrations ranging from 0.060 to 0.29 ug/L. PCE has not been detected in supply wells in between these wells and the 120 Mill Street property. Similar to the trihalomethanes, these detections may be indicative of leakage from sewers or septic systems.

The presence of bromoform, bromodichloromethane, and dibromochloromethane at residences in Hilltown (Quarry Road) and Bedminster Townships (Rickerts Road), as well as toluene, chloroform, PCE, and xylenes in groundwater at other locations, is not related to the TCE detected at the 120 Mill Street property and is therefore indicative of other sources of groundwater contamination.

8.7 TCE DISTRIBUTION OVER TIME

For additional information, see responses to Comment Nos. 51 and 65 in RI\FS Addendum). Groundwater samples were collected over a 9-year period (1986 to 1995). Domestic and commercial well sampling results are summarized in Table 8-17; sampling results for monitoring wells and other wells sampled by Geraghty & Miller are summarized in Table 8-23. The most recent sampling data indicate a reduction in TCE concentrations over time in most wells. The portion of the plume with TCE concentrations exceeding 1,000 ug/L has shrunk to a small fraction of its historically maximum extent of approximately 1,100 feet. Recent groundwater sampling (1995 pumping test) indicated that only the FTW, Production Well PW-1, and Monitoring Wells MW-4 and BCM-1, which are all in the immediate vicinity of the 120 Mill Street property, contain TCE concentrations in groundwater in excess of 1,000 ug/L. The area encompassing TCE concentrations in excess

of 100 ug/L has also shrunk with time, particularly in the north and northeast directions. Many wells that formerly showed TCE concentrations in excess of 100 and 1,000 ug/L have shown decreases of approximately one order of magnitude or more. Monitoring Well MW-8, approximately half way between the 120 Mill Street property and the Whistlewood Apartments Complex, has shown a decrease from 3,300 ug/L in 1992 to 11 ug/L during the 1995 pumping test (see Table 8-23). In the elongated portion of the plume to the northwest, with historical concentrations in the range of 5 to 100 ug/L, decreases of roughly one order of magnitude have also been observed, and several wells in Bedminster Township that once showed low (less than 5 ug/L) TCE concentrations have most recently shown no detectable TCE. These trends indicate that the TCE plume is certainly not growing, and appears to be shrinking over time. The processes that could be contributing to this reduction in TCE concentrations include attenuation, dispersion, sorption to aquifer materials, flushing of portions of the aquifer with clean groundwater, changes in pumping stresses, and anaerobic biodegradation of TCE **(For additional information, see response to Comment Nos. 51 and 52 in RI\FS Addendum).**

8.8 REVISED CONCEPTUAL MODEL

The first conceptual model for the Dublin NPL Site was described in the RI/FS Work Plan (Geraghty & Miller, Inc. 1992b). This initial model depicted the bedrock aquifer as the only significantly contaminated medium, and groundwater within the affected area of the aquifer as being the principal exposure pathway of concern. One of the objectives of the RI was to collect data that could be used to verify or modify the initial conceptual site model and support the selection of a viable remedial alternative. Through analysis of the RI data, the conceptual site model has been refined to more accurately describe the movement of TCE from the 120 Mill Street property. The data generated from the packer tests carried out between April and June 1994 contributed significantly to the refinement of the conceptual model.

Dublin Borough is underlain by an interbedded sequence of gray shale and red siltstone beds. The bedding planes of this sequence strike approximately northeast (N50E).

These rocks are transected by numerous near-vertical fractures; the primary sets are oriented approximately parallel and perpendicular to the strike of bedding.

Groundwater is stored and transmitted through fractures in the bedrock. The entire bedrock sequence is transected by the near-vertical fractures described in the previous paragraph; in addition, the red siltstone beds contain fractures that dip gently to the northwest, parallel to the dip of bedding planes. The red siltstone lithology has an overall permeability approximately one order of magnitude higher than the gray shale units. The fractured nature of the bedrock creates an anisotropic behavior to groundwater flow; however, all fractures in the system are interconnected to greater or lesser degrees **(For additional information, see response to Comment No. 53 in RI\FS Addendum)**.

Based on water-level elevations, groundwater in Dublin Borough generally flows to the north and north-northwest. As to the vertical component of flow, the packer test data indicated that there is no vertical component to flow in the upper portion of the aquifer in much of the borough; in some areas a slight downward component was observed. Some deeper zones do exhibit a strong upward component **(For additional information, see response to Comment No. 54 in RI\FS Addendum)**. The primary vector considering both horizontal and vertical components of groundwater flow is therefore horizontal, to the north and north-northwest, despite the presence of bedding plane fractures.

The highest TCE concentrations have been detected in the area of the FTW; which is inferred to be near the source area. The TCE source may have been in the southern portion of the 120 Mill Street property, and may have initially impacted one of the shallow Thompson production wells, perhaps Production Well PW-1. In this well, TCE could have moved downward, but also laterally through interconnected vertical and horizontal fractures. The migration of TCE in the upper bedrock may have continued until it intersected the FTW, a relatively deep well extending to a depth of approximately 500 feet, which intersects several water-bearing zones in different lithologic units.

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The discrete zone samples collected from the FTW show that the TCE is evenly distributed throughout the vertical section of the well. TCE concentrations were 29,000 ug/L in a sample from the 28- to 48-foot zone of the well and 24,000 ug/L in a sample from the 478- to 506-foot zone of the well. TCE concentrations ranged from a low of 7,400 ug/L in the 370- to 390-foot interval to 55,000 ug/L in the 458- to 478-foot interval of the well. The consistently high TCE concentrations observed vertically throughout the majority of the FTW suggests that this well could have acted as a conduit to transport high TCE concentrations, and perhaps droplets of pure TCE (as DNAPL), downward to deeper intervals in the bedrock.

Based on these results, a revised conceptual model envisions the FTW as historically having allowed for the rapid downward transport of high TCE concentrations, and perhaps droplets of TCE as a DNAPL, from the overburden or shallow bedrock, through the vertical extent of the well. The borehole of the FTW then would have acted as a vertical "line source." Groundwater, migrating horizontally from upgradient to downgradient (approximately south to north) through the fractures and bedding planes in the area of the FTW source, would have proceeded to transport TCE in the dissolved form downgradient. As is the case in most groundwater contamination incidents involving chlorinated VOCs, a steep concentration gradient developed, and the TCE continued to migrate downgradient from this line source under the natural gradient of the aquifer, and in response to the numerous stresses imposed by the intermittent pumping of the many supply wells in the area. The plume has reached its maximum extent and now natural attenuation processes are acting to reduce TCE concentrations over the majority of the plume **(For additional information, see response to Comment No. 56 in RI\FS Addendum)**.

Packer testing conducted at wells located at distances away from the inferred source area during the RI showed little vertical variation in TCE distribution; TCE concentrations generally did not vary by more than an order of magnitude within one well **(For additional information, see response to Comment No. 55 in RI\FS Addendum)**. Therefore, while there is some anisotropy to groundwater flow and TCE transport, TCE concentrations drop of exponentially in the horizontal direction, regardless of depth, and there do not appear to be

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any dipping bedding plane fractures that serve to transport high TCE concentrations significant distances. Overall, a steep TCE concentration prevails in the horizontal direction, regardless of depth.

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9. CONTAMINANT FATE AND TRANSPORT

The environmental fate and transport of constituents are dependent on the physical and chemical properties of the constituents, the environmental transformation processes affecting them, and the media through which the constituents are migrating. This section will describe the primary physical and chemical properties that affect the fate and transport of the compounds identified as the contaminants of concern (COCs) in groundwater at the site. Only those constituents that are potentially related to activities at the 120 Mill Street property are considered site-related COCs for the baseline risk assessment. For groundwater, these are bromoform, bromodichloromethane, dibromochloromethane, chloroform, 1,1-DCE, 1,2-DCE, PCE, TCE, vinyl chloride, and heptachlor epoxide. The only other potentially site-related COCs in other media were PAHs and PCBs in soil.

COCs in groundwater were selected by comparing the 95 percent upper confidence level (UCL) concentrations of the detected constituents to the USEPA Region III risk based concentrations (RBCs) (USEPA 1995e) for tap water. Constituents with an UCL above the RBC were retained as COCs. Constituents that were detected in less than five percent of the samples were not retained as COCs. Key chemical and physical properties of organic constituents discussed in this section include water solubility, specific gravity, vapor pressure, volatility, diffusivity, organic-carbon partition coefficient (K_{oc}), octanol-water partition coefficient (K_{ow}), bioconcentration factor (BCF), and half-lives. Physical and chemical properties of the organic constituents are summarized in Table 9-1 and each of the properties are discussed below.

Solubility is expressed in terms of the number of milligrams of a chemical that can dissolve in 1 liter of water (mg/L) under standard conditions of 25 °C and one atmosphere of pressure (atm). Solubilities of organic chemicals range from the low microgram per liter range to miscible, with most common organic chemicals having solubilities between 1 and 1,000,000 mg/L (Lyman et al. 1990). Of the COCs at the 120 Mill Street property, chloroform (9,600 mg/L) is the most soluble constituent. The other chlorinated COCs at the Dublin NPL Site have solubilities ranging from 150 to 6,400 mg/L, with PCE having the lowest solubility.

Specific gravity is the ratio of the density of a chemical in its pure state to the density of water. Except for vinyl chloride, all the COCs in groundwater at the Site have a specific gravity greater than 1, are denser than water, and will sink through the saturated zone. The pure forms of chlorinated VOCs such as PCE and TCE are referred to as DNAPLs.

Vapor pressure is another important property affecting the mobility and persistence of organic constituents. Vapor pressure is a measure of how readily a chemical will volatilize. Vapor pressure measurements range from about 0.001 to 760 millimeters of mercury (mm Hg) for liquids. 1,1-DCE has the highest vapor pressure (590 mm Hg) among COCs in groundwater at the Dublin NPL Site. PCE and TCE have far lower vapor pressures of 19 and 73 mm Hg, respectively.

The Henry's law constant is an indication of the tendency of a chemical to volatilize or "partition" from the aqueous phase to the vapor phase, and is dependent on the vapor pressure, molecular weight, and solubility of the constituent. Organic compounds with Henry's law constants in the range of 10^{-3} atmospheres-cubic meter per mole (atm-m^3/mol) and greater, and with molecular weights less than or equal to 200 grams per mole (g/mol), can be expected to readily volatilize from water (e.g., chlorinated VOCs); those with values ranging from 10^{-3} to 10^{-5} atm-m^3/mol are associated with possibly significant, but not facile, volatilization, while compounds with values less than 10^{-5} atm-m^3/mol (e.g., some PAHs) will volatilize from water to a limited extent. The COCs in groundwater at the Dublin NPL Site, with the exception of bromoform and bromodichloromethane, are expected to volatilize from water. It is unlikely, however, that volatilization from groundwater represents a viable exposure pathway. VOCs that volatilize into the vadose zone would not have ready access to ground surface or building basements because they would have to migrate upward through a tortuous network of fractures, and then through up to 12 feet of low permeability silt and clay. It is highly improbable that VOC migration in the vapor phase represents a completed exposure pathway, and is not considered in the baseline risk assessment.

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Molecular diffusion is determined by molecular properties (e.g., size and weight) and by the presence of a concentration gradient, i.e., molecules of a chemical will migrate to areas deficient in molecules of that compound. Diffusivity is measured in centimeters per second (cm^2/sec). 1,1-DCE has the highest diffusivity (0.1 cm^2/sec) among COCs in groundwater at the Dublin NPL Site. TCE has a diffusivity of 0.08 cm^2/sec.

Adsorption potential typically is expressed in terms of a partition coefficient K_{oc} or soil-to-water distribution coefficient (K_d). A partition coefficient is the ratio of the concentration of adsorbed constituent to the concentration of aqueous phase constituents and is expressed in units of milliliters per gram (mL/g). Higher values of K_{oc} (greater than 10,000 mL/g) indicate a greater potential for the constituent to adsorb to organic carbon in soil and aquifer materials. Constituents with low K_{oc} values (less than 1,000 mL/g) do not adsorb strongly to soil and aquifer materials (Ney 1990). Values of K_{oc} are shown in Table 9-1; the values typically are based on several different types of studies or element-specific parameters. The COCs in groundwater at the Dublin NPL Site, except for heptachlor epoxide, are characterized by low K_{oc}. These constituents do not tend to adsorb readily to organic soil or aquifer materials, and thus are characterized by high mobility in the environment. Heptachlor epoxide is not expected to be as mobile as the VOCs.

The K_{ow} often is used to estimate the extent to which a constituent will partition from water into lipophilic parts of organisms, for example, animal fat. Similarly, the K_{oc} reflects the propensity of a compound to adsorb to the organic matter found in soil or sediments. The BCF is the ratio of the concentration of the constituent in fish tissue to its concentration in water. As a group, the VOCs have low K_{ow}, K_{oc} values, and BCFs, indicating a tendency not to partition to soil from water. Heptachlor epoxide, however, has a strong tendency to partition from water and bioaccumulate in animal tissue.

Persistence is the lasting power of constituents and is commonly expressed in terms of half-lives ($T_{1/2}$) for specific environmental media. The half-life of a constituent is the period of time required for one-half of the mass of a compound to be transformed into other constituents from the time of its introduction to the environment. Half-lives of the COCs are presented in

Table 9-1 in ranges because the rate of degradation varies according to environmental conditions and concentration. Half-lives may be used to characterize the relative persistence of a constituent in various environmental media. The more persistent compounds detected at the site include PCE and TCE.

Biodegradation is the biological process by which microorganisms break down organic chemicals. Environmental factors such as moisture, pH, temperature, and available nutrients will affect the rate of biodegradation. Constituents with high water solubility, low K_{oc}, and low K_{ow} values will likely biodegrade (Ney 1990). Most of the VOCs have these properties; concentrations of organic COCs at the Site have actually been naturally attenuating over time, as discussed in Section 8.5.

Discussed below are some migration scenarios identified at the Dublin NPL Site. Mechanisms of migration and transport through air, soil, and sediment are not discussed here.

COCs can migrate to and through groundwater as phase-separated non-aqueous phase liquids (NAPLs). DNAPLs (chlorinated VOCs) are the primary COCs at the 120 Mill Street property. DNAPLs migrate vertically through soil and fractures in the bedrock under the influence of gravity. They may form globules and droplets and adhere to fracture surfaces and rock fragments.

Once present as globules or droplets below the water table, DNAPLs serve as a source of COCs to be dissolved in groundwater. At the 120 Mill Street property, the presence of TCE as a DNAPL is suspected in the borehole of the FTW. A steep concentration gradient forms in a downgradient direction from the FTW, as groundwater migrates through the DNAPL and dissolves the TCE. In the FTW, TCE concentrations ranged from 7,400 to 55,000 ug/L throughout the vertical section of the well with concentrations dropping off rapidly in downgradi directions.

All the organic COCs are subject to biodegradation to some extent **(For additional information, see response to Comment No. 57 in RI/FS Addendum)**. Chlorinated aliphatic

constituents (PCE and TCE) undergo reductive dechlorination (removal of chlorine with addition of hydrogen), under anaerobic conditions. The transformation is sequential with, for example, PCE (with four chlorines) yielding TCE (with three chlorines), which in turn, yields 1,1-DCE and/or 1,2-DCE (with two chlorines), which yields vinyl chloride (with one chlorine) and ultimately, ethene or ethane, which are noncarcinogenic. An evaluation of the most impacted groundwater samples collected at the 120 Mill Street property (Monitoring Well BCM-1, the FTW, and Production Well PW-1) indicate that TCE was detected in all 15 samples collected, with a highest concentration of 15,000 ug/L. 1,1-DCE was detected in six of the 15 samples with a highest concentration of 6.01 ug/L and 1,2-DCE was detected in seven of the 15 samples with a highest concentration of 97 ug/L. Vinyl chloride was detected only once at a concentration of 0.87 ug/L (it was also detected in the FTW during the aquifer pumping test at a concentration of 6.4 ug/L) **(For additional information, see response to Comment No. 59 in RI/FS Addendum).** ~~The presence of these breakdown products suggests biodegradation is taking place; the low concentrations relative to the corresponding TCE concentrations suggest the rate is very slow.~~ **(For additional information, see response to Comment No. 57 in RI/FS Addendum).** Other processes that could be contributing to the reduction in TCE concentrations include attenuation, dispersion, sorption to aquifer materials, flushing of portions of the aquifer with clean groundwater, and changes in pumping stresses.

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17. SUMMARY AND CONCLUSIONS

Based on the data presented in this RI Report, the following summary and conclusions for the Dublin NPL Site have been developed.

Dublin Borough is located in an upland area within the Triassic Lowlands section of the Piedmont Physiographic Province. Surface water in most of Dublin Borough drains to the north toward Deep Run, which flows into Tohickon Creek.

The majority of the population of Dublin Borough currently depends on private wells for water supply. As of April 1996, there were 147 metered connections to the existing municipal water system. Many of the properties currently utilizing private wells will be connected to the municipal water system when the OU 1 supply well and treatment system become operational.

Dublin Borough is underlain by Triassic sedimentary rocks belonging to the Lockatong Formation; the bedrock is overlain by 3 to 23 feet of overburden, primarily dense silt and clay. The Lockatong Formation in the Dublin area consists of two interlayered members, gray and black siltstone and shale, and reddish-brown sandy siltstone. These sedimentary rocks have been faulted, jointed, and regionally tilted to the northwest.

Two well-defined, near vertical joint sets have been identified in the Dublin area. The predominant set is oriented from N15E to N75E, roughly parallel to the strike of the bedding planes. The secondary set strikes from N45W to N85W. Aerial photograph interpretation and field measurements identified major fracture traces and lineaments in two orientations, N15W and N65E. Field investigation and borehole geophysical and video logs indicated that vertical fractures predominate over bedding plane fractures.

In the gray-black shale and siltstone, groundwater is transmitted primarily through vertical fractures. Vertical fractures in the reddish brown sand siltstone are supplemented by bedding plane fractures and primary porosity; it has been reported that the hydraulic conductivity of the

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reddish-brown siltstone is about an order of magnitude greater than that of the gray-black shale and siltstone.

Supply wells in the Dublin area range in depths from less than 100 to greater than 500 feet. The majority of residential wells are low yielding; documented well yields range from less than 1 to more than 175 gallons per minute (gpm). In 1981, the DRBC declared Dublin and surrounding areas as a groundwater protected area because withdrawals exceeded the aquifer's safe yield.

Slight downward vertical gradients were observed in the southern portion of the study area, while horizontal to slightly upward gradients were observed in the northern part of the study area. This is consistent with a conceptual model depicting the southeastern portion of Dublin Borough as a recharge area and the area to the north as a discharge area providing baseflow to streams. Vertical gradients are small compared to horizontal gradients, and flow through the bedrock aquifer is primarily horizontal.

Aquifer transmissivity values calculated from the FTW pumping test ranged from approximately 500 to 8,000 gpd/ft. The storage coefficient values ranged from approximately 0.001 to 0.003, indicative of semiconfined conditions.

During the RI, the depth to the water table at the 120 Mill Street property was observed to vary from 40 to 50 ft bls. The overburden deposits are unsaturated at almost all locations. The fractured bedrock unit is the principal aquifer underlying the site; groundwater is stored in and flows through a network of interconnected fractures both horizontal and vertical. Groundwater at the Dublin NPL Site generally flows north.

Several VOCs, including TCE, PCE, 1,2-DCE, benzene, toluene, ethylbenzene, and xylenes were detected in soil samples collected at the 120 Mill Street property during the RI, but at concentrations below PADEP and USEPA Region III soil screening levels. Several BNAs were detected in soil samples; only benzo(a)pyrene in one sample were detected above

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the applicable PADEP screening level, and only benzo(a)anthracene, benzo(b)fluoranthene, and dibenzo(a,h)anthracene were detected above USEPA Region III screening levels. These PAHs are constituents found in asphalt and other common materials in developed areas.

Metals were detected in all samples from the Dublin NPL Site. Higher concentrations of metals (lead, selenium, and zinc) were detected in the samples collected from North Main Street, that were intended to be background samples, than those collected from the 120 Mill Street property. All metal concentrations were within the established range of background metal concentrations in eastern Pennsylvania (USGS 1984).

Sediment samples were collected from the bottom of a drainage ditch that runs northwest from the 120 Mill Street property. PAHs, phthalates, pesticides, PCBs, and metals were detected in these samples; none of the detected concentrations exceeded PADEP screening levels.

TCE has been detected in groundwater samples collected from more than 90 monitoring and supply wells in the Dublin area, at concentrations up to 10,000 ug/L. Other VOCs have been detected in fewer wells and at much lower concentrations. The highest VOC concentrations have been detected on and in the vicinity of the 120 Mill Street property. The TCE has apparently migrated to the northwest and north.

Packer test results indicated TCE concentrations in individual zones in the Fire Tower Well at concentrations ranging from 7,400 to 55,000 ug/L; these concentrations suggest the possible presence of TCE droplets and globules in a pure form (as a DNAPL). Within a given well, the packer test results indicated that there is generally less than an order of magnitude variation in TCE concentrations in discrete vertical zones, suggesting TCE transport is primarily horizontal **(For additional information, see response to Comment No. 118 in RI/FS Addendum)**.

TCE concentrations in most wells have been declining over the 9-year sampling period. This indicates that the plume is not spreading and natural attenuation processes are contributing to the reduction in TCE concentrations over most of the plume.

~~The detection of constituents unrelated to the 120 Mill Street property (e.g., toluene, trihalomethanes) indicates that other sources of VOCs have impacted groundwater quality.~~ **(See response to Comment No. 119 in RI/FS Addendum).**

While the fractured nature of the bedrock aquifer creates anisotropic conditions, almost all of the fractures are interconnected to varying degrees **(See response to Comment No. 27 in RI/FS Addendum).** The primary vector of groundwater flow is horizontal. The FTW, having allowed high TCE concentrations and perhaps DNAPL to migrate downward 500 feet, now acts as a vertical "line source". TCE has been transported downgradient as groundwater migrates horizontally through the well. A steep concentration gradient has developed in a horizontal direction; there is little transport of TCE in the vertical direction **(See response to Comment No. 120 in RI/FS Addendum).**

The site-related COCs identified in soil that were evaluated in the baseline risk assessment were PAHs and PCBs. The site-related COCs identified in groundwater that were evaluated in the baseline risk assessment were chloroform, 1,1-DCE, 1,2-DCE, PCE, TCE, vinyl chloride, and heptachlor epoxide. There were no site-related COCs identified in air or sediment.

The risk of human exposure to untreated groundwater is highly unlikely because all impacted wells currently have treatment systems, and in the near future all residences in the Borough will be connected to the Dublin Borough municipal supply. The risk assessment indicated that the risk to on-site workers or off-site residences is below USEPA target levels.

Experiences at many sites, particularly those where DNAPL is present, has shown that it is technically impracticable to restore aquifers contaminated with chlorinated VOCs. Aquifer

restoration is therefore not a RAO. The RAOs include utilization of all groundwater pumped to meet water supply demands and avoids wasting groundwater, and prevention of further migration of the TCE plume.

In-situ technologies and physical barriers were eliminated as potential remedial technologies. Groundwater collection using wells is the only applicable recovery option. Air stripping was the only treatment technology that survived the screening process. Distribution of treated groundwater for potable use was the only disposal option retained in the FS.

A solute transport model was used to simulate four different pumping scenarios for comparison purposes. The modeling results indicated that the use of an additional well (either the FTW or the DGW) to supplement OU 1 pumpage does not result in restoration of any impacted portions of the aquifer, or any benefit relative to OU 1. Therefore, these process options utilizing an additional well to supplement OU 1 were not retained.

The two remedial alternatives identified for evaluation were 1) No Further Action (beyond OU 1), with Groundwater Monitoring and Natural Attenuation, and 2) Increased Groundwater Recovery and Treatment Using the OU 1 Supply Well and Treatment System, with Groundwater Monitoring and Natural Attenuation. Both alternatives satisfy the RAOs; Alternative 1 is the preferred alternative based on relative cost.

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Tables

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Table 1-1. Monitoring Well Construction Details, Dublin NPL Site, Dublin, Pennsylvania.

Monitoring Well ID	Date of Completion	Cased Interval (ft bls)	Casing Diameter (inches)	Casing Material	Overburden Total Thickness (ft)	Depth (ft)	Type of Protective Assembly
MW-1	04/01/88	0-20	8	Black steel	6	281	Stickup
MW-2	04/04/88	0-20	6	Black steel	10	161	Curb box
MW-3	03/29/88	0-20	6	Black steel	7.5	100	Curb box
MW-4	04/01/88	0-20	6	Black steel	10	100	Curb box
MW-5	04/20/88	0-20	6	Black steel	10	251	Curb box
MW-6	03/30/88	0-20	6	Black steel	7	100	Curb box
MW-7	04/18/88	0-20	6	Black steel	7	125	Curb box
MW-8	04/09/88	0-20	6	Black steel	6	230	Curb box
MW-9S	02/04/94	0-19	6	Black steel	6.5	150	Stickup
MW-9D	03/15/94	0-20	12	Black steel	7	550	Stickup
MW-10	02/11/94	0-19	10	Black steel	7	440	Stickup
MW-11	03/17/94	0-17	10	Black steel	7	550	Stickup
BCM-1	05/20/88	0-20	6	--	9	100	--
BCM-2	05/20/88	0-20	6	--	13	100	--

-- Not available.
BCM Monitoring well installed by BCM, Inc.
ft bgs Feet below land surface.

Table 2-1. Aerial Photographs Used for the Lineament Study, Dublin PL Site, Dublin, Pennsylvania.

Date	Source	Code
09/13/58	USDA ASCS	ARD-5R-78 ARD-5R-79
05/18/64	USDA ASCS	ARD-SEE-28 ARD-SEE-29
02/12/73	Keystone Air Photo	21 651 21 652 21 653
06/06/78	USDA ASCS	20 42017 378-26 20 42017 378-27
03/26/85	Keystone Air Photo	PA84-40 52-2049 PA84-40 52-2050 PA84-40 53-1987 PA84-40 53-1988 PA84-40 53-1989

USDA U.S. Department of Agriculture.
ASCS Agricultural Stabilization and Conservation Service.
Keystone Air Photo Northeast Philadelphia Airport, Philadelphia, PA 19114.

Table 2-2. Wells Sampled for Subtask 3-15, Groundwater Sampling, Dublin NPL Site, Dublin, Pennsylvania.

Well Designation	Step I	Step II
MW-1		•
MW-2		•
MW-3	•	•
MW-4	•	•
MW-5		•
MW-6		•
MW-7		•
MW-8		•
BCM-1	•	•
BCM-2		•
Production Well PW-1	•	
Dublin Well No. 1	•	
Farm Bureau Well	•	
Fire Tower Well	•	
Rickerts Road Residential Wells		•
St. Luke's Church Well		•

Table 3-1. Summary of 1990 U.S. Census Housing Data for the Dublin NPL Site, Dublin, Pennsylvania.

	Dublin	Bedminster	Hilltown
Total housing units	840	1,733	3,659
Type of Housing Units			
1 unit, detached	235	1,311	2,744
1 unit, attached	112	202	442
2 to 4 unit complex	82	114	186
5 to 9 unit complex	183	14	100
10 or more unit complex	216	20	71
Mobile home, trailer, other	12	72	116
Total occupied housing units	803	1,660	3,568
Total vacant housing units	37	73	91

Source: 1990 U.S. Census (U.S. Bureau of Census 1991)

Table 4-1. Supply Well Database for the Dublin Area, Dublin NPL Site, Dublin, Pennsylvania.

Tax Map Location	Source	Owner	Address	Cahill #	Intex #	USGS #	PADEP #	Completion Date	Comments
10-004-123-002	CAHILL,PADEP	RAMOS, ALBINO	104 CHERRY LN	28	--	--	4145	--	PREVIOUSLY KOOKER
10-004-023-001	CAHILL,INTEX,PADEP	HAYMANS, JEANNIE	105 CHERRY LN	12	--	--	1266	1969	PREVIOUSLY THEODORE KOHL
10-004-123-003	CAHILL,PADEP	JURIN, SUSAN	110 CHERRY LN	7	--	--	441	1969	PREVIOUSLY DEYER
10-004-005	BCM	PASQUA, RICHARD	111 CHERRY LN	--	--	--	--	--	---
10-004-005-001	BCM	ALLEN, FLOYD	115 CHERRY LN	--	--	--	--	--	---
10-004-002	CAHILL,BCM	MYERS, IRENE	120 CHERRY LN	50	15	--	--	--	---
10-002-001-001	CAHILL,INTEX	MOYER, GARY	121 CHERRY LN	51	16	--	--	--	---
10-004-078	CAHILL,INTEX	BOEHRET, RUTH	119 DEEP RUN RD	54	19	--	--	--	---
---	USGS,CAHILL,INTEX	STONE BRIDGE #1	ELEPHANT RD	67	50	4317	--	09/78	---
---	USGS,CAHILL	STONE BRIDGE #9 (Bedminster No. 9)	ELEPHANT RD	69	--	4315	--	11/78	---
---	USGS,CAHILL,INTEX	STONE BRIDGE #4	ELEPHANT RD	63	44	4320	--	09/78	---
---	USGS	STONE BRIDGE #8	ELEPHANT RD	--	--	4319	--	09/78	ABANDONED
---	USGS,CAHILL,INTEX	STONE BRIDGE #10	ELEPHANT RD	66	49	4314	--	11/78	---
---	USGS	STONE BRIDGE #7	ELEPHANT RD	--	--	4321	--	09/78	ABANDONED
---	USGS,CAHILL	STONE BRIDGE #2 (Bedminster No. 2)	ELEPHANT RD	68	--	4318	--	09/78	---
002-015-001	CAHILL,INTEX	HAGER, DONALD	153 ELEPHANT RD	52	17	--	--	--	---
---	CAHILL,INTEX	COUNTRYSIDE CONDO.	178 ELEPHANT RD	53	18	--	--	--	---
---	CAHILL,INTEX	COUNTRYSIDE CONDO.	178 ELEPHANT RD	56	43	--	--	--	PREVIOUSLY DUBLIN NEWS
10-004-086	BCM	MILLER, MARGARET	113 ELEPHANT RD	--	--	--	--	--	PREVIOUSLY DUBLIN NEWS
10-004-078	CAHILL,PADEP	SLAYMAKER, WALTER,JR.	114 ELEPHANT RD	13	--	--	1267	1969	PREVIOUSLY LOAN & BLDG. DUPLEX
10-004-083	BCM	GRACE, ALBERT	115 ELEPHANT RD	--	--	--	--	--	---
10-004-075	BCM	BLACK	116 ELEPHANT RD	--	--	--	--	--	---
10-002-019	BCM	MEYERS, MERRILL	139 ELEPHANT RD	--	--	--	--	--	---
10-002-010	CAHILL,PADEP,BCM	MOYER, CLARENCE	146 ELEPHANT RD	29	--	--	4146	--	---
10-002-011	CAHILL,PADEP,BCM	DETWEILER, IRMA	150 ELEPHANT RD	35	--	--	4156	--	---
10-002-012	CAHILL,PADEP,BCM	RUSH, PAUL	152 ELEPHANT RD	34	--	--	4155	--	---
10-002-014-004	CAHILL,INTEX	SMITH, WILLIAM	168 ELEPHANT RD	58	47	--	--	--	---
10-002-014-005	CAHILL,INTEX	REIFF, WESLEY	170 ELEPHANT RD	57	46	--	--	--	---
10-005-001-003	CAHILL,PADEP	LEVY, ROY	172 ELEPHANT RD	4	--	--	267	1966	PREVIOUSLY EDNA VALENTINE
10-002-028-001	CAHILL,PADEP	HARRIS	215 FRONTIER AVE	33	--	--	4150	--	PREVIOUSLY DANIEL FRANK
10-004-113	CAHILL,PADEP,BORO	JOHNSON, ERIC	119 HIGH ST	17	--	--	4134	1973	PREVIOUSLY AMERICAN ENG
10-004-104	CAHILL,PADEP,BORO	FRENK, CRAIG	108 HIGH ST	18	--	--	4135	--	PREVIOUSLY JOHN MCPHERSON
---	CAHILL,INTEX	DUBLIN BOROUGH #4	130 HIGH ST	60	58	--	--	--	STAUFFER TEST WELL

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See last page for footnotes.

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Table 4-1. Supply Well Database for the Dublin Area, Dublin NPL Site, Dublin, Pennsylvania.

Tax Map Location	Source	Owner	Address	Cahill #	Intex #	USGS #	PADEP #	Completion Date	Comments
---	CAHILL INTEX	DUBLIN BOROUGH #1	HIGHLAND AVE	39	--	1190	--	7/79	---
---	CAHILL,INTEX	DUBLIN BOROUGH #2	HIGHLAND AVE	42	5	842	--	1964	---
10-004-088	BCM	DUBLIN INN	101 S MAIN ST	--	7	--	--	--	
10-004-057	CAHILL,INTEX,BORO	HIRST; TENANT - BEIGLER	130 S MAIN ST	46	7	--	--	--	PREVIOUSLY OSTERMAN
10-004-098	CAHILL,PADEP	RUPERT, DAVID	133 S MAIN ST	19	--	--	4136	--	PREVIOUSLY ROBERT HUNT
10-004-101	BCM	ALCOTT, JOHN	137 S MAIN ST	--	7	--	--	--	PREVIOUSLY SCHMELL
10-004-062	CAHILL,PADEP	MEYERS, ANNA	148 S MAIN ST	23	--	--	4140	--	---
10-004-063	CAHILL,INTEX	HALLMAN, GERALD	150 S MAIN ST	45	6	--	--	--	---
10-004-120	CAHILL,PADEP	KENAS, JOSEPH	155 S MAIN ST	16	--	--	4133	--	PREVIOUSLY GODSHALK
10-004-066-003	CAHILL,PADEP	HENDRICKSON, JOHN	162 S MAIN ST	8	--	--	453	1966	PREVIOUSLY JAMES WHITE
10-004-066-002	CAHILL,INTEX	COLEFLESH, JOHN	164 S MAIN ST	44	3	--	--	--	---
10-004-122	CAHILL,PADEP,INTEX	LANDIS, LINWOOD	167 S MAIN ST	15	1	--	1269	1969	---
10-004-068	CAHILL,INTEX	FRAY HOSIERY	174 S MAIN ST	43	2	--	--	--	---
10-004-010	BCM	DAIRY QUEEN	106 N MAIN ST	--	--	--	--	--	OWNER JOHN KNISLEY
10-004-070	BCM	DUBLIN HARDWARE	105 N MAIN ST	--	--	--	--	--	OWNER DR. EUGENE DELLABADIA, JR.
10-004-008-001	CAHILL,PADEP,BCM	RHINE'S GULF	112 N MAIN ST	5	--	--	288	1966	PREVIOUSLY ATLANTIC GAS
10-004-071	BCM	HINSDALE, DAVID	113 N MAIN ST	--	--	--	--	--	---
10-004-072	BCM	BOYLE, B.	115 N MAIN ST	--	--	--	--	--	---
10-004-009	BCM	OCCHI, CESARE	116 N MAIN ST	--	--	--	--	--	TENANT - HANSEL
10-004-073	BCM	BUCHANAN, K.	117 N MAIN ST	--	--	--	--	--	---
10-004-074	BCM	HIRST, W.	119 N MAIN ST	--	--	--	--	--	---
10-002-006	BCM	RUFE, ROBERT	122 N MAIN ST	--	--	--	--	--	---
10-002-009	CAHILL,BCM	EMICO	123 N MAIN ST	1	--	224	--	4/47	PREVIOUSLY H.DAROFF & SONS
10-002-009	---	EMICO	123 N MAIN ST	--	--	848	--	1952	PREVIOUSLY H.DAROFF & SONS
10-002-005	CAHILL,PADEP	TUTTLE, MICHAEL	124 N MAIN ST	14	--	--	1268	1969	TENANT - MYERS
10-002-004	CAHILL,PADEP,INTEX	MEYERS, PHILIP	126 N MAIN ST	47	8	--	--	--	---
10-002-003	CAHILL,PADEP	FLUCK, RON	128 N MAIN ST	36	--	--	4157	--	---
10-002-032-001A	CAHILL,PADEP	MOYER, WILMER	130 N MAIN ST	10	--	--	1263	1970	---
10-002-008-002	BCM	DUBLIN POST OFFICE	131 N MAIN ST	--	--	--	--	--	---
10-002-008-001	BCM	JACOBS AUTO PARTS	133 N MAIN ST	--	--	--	--	--	---
10-002-008	BCM	DUBLIN FAMILY REST.	133 N MAIN ST	--	--	--	--	--	---
10-002-032-001B	BCM	MOYERS AUTO BODY	134 N MAIN ST	--	--	--	--	--	---
10-002-032	CAHILL,PADEP,BCM	MOYER, CLARENCE	138 N MAIN ST	29	--	--	4146	--	FLOWER SHOP
10-002-007	BCM	BISHOP, DENNIS	139 N MAIN ST	--	--	--	--	--	DUBLIN GARAGE

See last page 'ootnotes.

Table 4-1. Supply Well Database for the Dublin Area, Dublin NPL Site, Dublin, Pennsylvania.

Tax Map Location	Source	Owner	Address	Cahill #	Intex #	USGS #	PADEP #	Completion Date	Comments
10-002-032-002	PADEP,CAHILL,BCM	FIRST FEDERAL S & L	142 N MAIN ST	30	--	--	4147	--	PREVIOUSLY DUBLIN BLDG & LOAN
10-002-030	PADEP,CAHILL,BCM	WHISTLEWOOD APT.	146 N MAIN ST	31	--	--	4148	--	---
10-002-037	CAHILL,INTEX,BCM	SCMELL, SAM	149 N MAIN ST	51	16	--	--	--	PREVIOUSLY FRANCIS GRADY G.MOYER
10-002-036	BCM	MYRICK, LLOYD	153 N MAIN ST	--	--	--	--	--	PREVIOUSLY NESTER
10-002-035	BCM	DUBLIN VILLAGE PLAZA	161 N MAIN ST	--	--	--	--	--	OWNER WILLIAM GOLDSTEIN
10-002-034-001	BCM	LOUIS MARKS (7-11)	169 N MAIN ST	--	--	--	--	--	---
10-002-029-001	PADEP,CAHILL,BCM	G&T CO., INC.- BUNTING	170 N MAIN ST	32	--	--	4149	--	PREVIOUSLY GENERAL STATE AUTHORITY
10-002-029-002	BCM	FAMILY HEALTH CARE (DOYLESTOWN FEDERAL S&L)	174 N MAIN ST	--	--	--	--	--	PREVIOUSLY DALE JAMES
10 002-033	---	MOYER, CLIFFORD	183 N MAIN ST						
10-002-028-002	CAHILL,INTEX,BCM	DUBLIN FIRE CO.	194 N MAIN ST	9	10	--	1262	1970	---
---	CAHILL,PADEP	NEEBE, C.	MAPLE AVE	41	--	--	353	4/9/84	---
10-004-012	BCM	BUCHANAN BEAUTY SHOP	104 MAPLE AVE	--	--	--	--	--	---
10-004-015	BCM	KLEMCO ENGINEERING	112 MAPLE AVE	--	--	--	--	--	PREVIOUSLY PEACE VALLEY CABINET
10-004-034	CAHILL,PADEP	GUSTAFSON, OSCAR	113 MAPLE AVE	27	--	--	4144	--	---
10-004-016	BCM	KLEMBETH, JOHN	114 MAPLE AVE	--	--	--	--	--	---
10-004-018	BCM	DRAKE	118 MAPLE AVE	--	--	--	--	--	PREVIOUSLY HILLTOWN INVESTMENT GROUP
10-004-033	BCM	BOROUGH HALL	119 MAPLE AVE	--	--	--	--	--	---
10-004-019	BCM	DETWEILER, ARTHUR	120 MAPLE AVE	--	--	--	--	--	PREVIOUSLY STILLINGS
10-004-032	CAHILL,PADEP	DETWEILER, MARVIN	121 MAPLE AVE	11	--	--	1264	1969	---
10-004-020	CAHILL,INTEX,BCM	VASCONEZ, JOHN	122 MAPLE AVE	49	12	--	--	--	PREVIOUSLY NESTER
10-004-021	BCM	SHADDINGER, C.	126 MAPLE AVE	--	--	--	--	--	PREVIOUSLY MORGAN
10-004-030	CAHILL,PADEP	WINGATE, RUSSELL	127 MAPLE AVE	26	--	--	4143	--	PREVIOUSLY ED CLINTON
10-004-022	BCM	SCHILLING, WALTER	134 MAPLE AVE	--	--	--	--	--	PREVIOUSLY KULP
10-004-023	CAHILL,PADEP	KOHL,T.P.	136 MAPLE AVE	6	--	--	440	1967	---
10-004-001	BCM	BINSBERGER, ED	148 MAPLE AVE	--	--	--	--	--	---
10-004-008	PADEP	FARM BUREAU	104 MILL ST	--	--	1360	UL1360	4/86	---
10-004-006	---	THOMPSON	120 MILL ST	--	--	792	--	1960	PREVIOUSLY KOLLSMAN MOTOR CO.
10-004-006	CAHILL,BCM	THOMPSON	120 MILL ST	2	--	225	--	1937	PREVIOUSLY DUBLIN HOSIERY #1
10-004-006	CAHILL,BCM	THOMPSON	120 MILL ST	3	--	226	--	1945	PREVIOUSLY DUBLIN HOSIERY #2

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ble 4-1. Supply Well Database for the Dublin Area, Dublin NPL Site, Dublin, Pennsylvania.

ix Map cation	Source	Owner	Address	Cahill #	Intex #	USGS #	PADEP #	Completion Date	Comments
0-004-036	BCM	KRAMER,W. #2	104 MIDDLE RD	--	--	--	--	--	PREVIOUSLY FRANKLIN,M
0-004-036	BCM	KRAMER,W. #1	104 MIDDLE RD	--	--	--	--	--	PREVIOUSLY FRANKLIN,M
0-004-038	CAHILL,PADEP	RIEGEL,WILLIAM	124 MIDDLE RD	38	--	--	1702	1970	PREVIOUSLY TLUSZCZ
0-004-039	CAHILL,PADEP	WOODS EDGE APT. #2	126 MIDDLE RD	37	--	--	1701	1970	OWNER ED BEHR
0-004-039	CAHILL,PADEP	WOODS EDGE APT.	126 MIDDLE RD	21	--	--	4138	--	OWNER ED BEHR
0-004-039	CAHILL,PADEP	WOODS EDGE APT. #1	126 MIDDLE RD	22	--	--	4139	--	OWNER ED BEHR
0-004-040	CAHILL,PADEP	DUBLIN VILLAGE APT. #2	136 MIDDLE RD	24	--	--	4141	--	OWNER HOWARD KOENIG
0-004-040	CAHILL,PADEP	DUBLIN VILLAGE APT. #1	136 MIDDLE RD	20	--	--	4137	--	OWNER HOWARD KOENIG
0-004-045	CAHILL,INTEX	OTTO, ROBERT	137 MIDDLE RD	55	42	--	--	--	---
0-002-028-003	BCM	STATE POLICE	135 RICKERTS RD	--	--	--	--	--	---
0-005-009	PADEP,CAHILL,INTEX	ROSANELLI (OLD WELL)	142 RICKERTS RD	40	56	355	UL0355	6/28/84	---
0-005-020	MERCURI	DUBLIN BOROUGH #3	142 RICKERTS RD	--	--	--	--	8/88	---
0-002-001	---	GREENLAWN HOSIERY	---	--	--	227	--	1927	---
---	CAHILL,INTEX	LAMELZA #1	---	48	9	--	--	--	---
---	CAHILL	LAMELZA #2	---	61	--	--	--	--	---
---	---	MOYER, SAM	---	--	--	816	--	1958	PUMP TEST

CM BCM, Inc.
ORO Borough of Dublin.
AHILL T.H. Cahill and Associates and J.K. Adams Associates (1987).
pm Gallons per minute.
ITEX International Exploration, Inc.
IERCURI Mercuri and Associates.
ADEP Pennsylvania Department of Environmental Protection.
SGS United States Geological Survey.
Information not available.
Number.

AR301275

Table 4-2. Hydraulic Data for Supply Wells in the Dublin Area, Dublin NPL Site, Dublin, Pennsylvania.

Tax Map Location	Source	Owner	Address	Yield (gpm)	Draw-Down (feet)	Specific Capacity (gpm/foot)	Pump Period (hours)	Fracture Zone Depths (feet)	Elevation (feet)	Well Depth (feet)	Diameter (inches)
10-004-123-002	CAHILL,PADEP	RAMOS, ALBINO	104 CHERRY LN	0	300	0.00	6	---	--	310	6
10-004-023-001	CAHILL,INTEX,PADEP	HAYMANS, JEANNIE	105 CHERRY LN	30	160	0.19	3	75-125-225	370	230	6
10-004-123-003	CAHILL,PADEP	JURIN, SUSAN	110 CHERRY LN	4	--	--	8	80-200	570	300	6
10-004-005	BCM	PASQUA, RICHARD	111 CHERRY LN	--	--	--	--	---	--	85	--
10-004-005-001	BCM	ALLEN, FLOYD	115 CHERRY LN	--	--	--	--	---	--	130	--
10-004-002	CAHILL,BCM	MYERS, IRENE	120 CHERRY LN	--	--	--	--	---	560	155	--
10-002-001-001	CAHILL,INTEX	MOYER, GARY	121 CHERRY LN	--	--	--	--	---	555	165	--
10-004-078	CAHILL,INTEX	BOEHRET, RUTH	119 DEEP RUN RD	--	--	--	--	---	550	310	--
---	USGS,CAHILL,INTEX	STONE BRIDGE #1	ELEPHANT RD	12	--	--	--	45-60-210	490	400	--
---	USGS,CAHILL	STONE BRIDGE #9 (Bedminster No. 9)	ELEPHANT RD	75	--	--	--	45-150	--	300	8
---	USGS,CAHILL,INTEX	STONE BRIDGE #4	ELEPHANT RD	6	--	--	--	126-285	490	300	--
---	USGS	STONE BRIDGE #8	ELEPHANT RD	15	--	--	--	95-220	--	300	--
---	USGS,CAHILL,INTEX	STONE BRIDGE #10	ELEPHANT RD	75	--	--	--	265-280	460	300	--
---	USGS	STONE BRIDGE #7	ELEPHANT RD	0	--	--	--	105-110-140	--	300	--
---	USGS,CAHILL	STONE BRIDGE #2 (Bedminster No. 2)	ELEPHANT RD	37	--	--	--	115-300	--	400	8
10-002-015-001	CAHILL,INTEX	HAGER, DONALD	153 ELEPHANT RD	--	--	--	--	---	530	470	--
---	CAHILL,INTEX	COUNTRYSIDE CONDO.	178 ELEPHANT RD	--	--	--	--	---	505	310	--
---	CAHILL,INTEX	COUNTRYSIDE CONDO.	178 ELEPHANT RD	--	--	--	--	---	500	--	--
10-004-086	BCM	MILLER, MARGARET	113 ELEPHANT RD	--	--	--	--	---	--	--	--
10-004-076	CAHILL,PADEP	SLAYMAKER, WALTER,JR.	114 ELEPHANT RD	20	85	0.24	6	75-85-110	540	115	6
10-004-083	BCM	GRACE, ALBERT	115 ELEPHANT RD	--	--	--	--	---	--	170	--
10-004-075	BCM	BLACK	116 ELEPHANT RD	18	--	--	--	---	--	160	--
10-002-019	BCM	MEYERS, MERRILL	139 ELEPHANT RD	--	--	--	--	---	--	245	
10-002-010	CAHILL,PADEP,BCM	MOYER, CLARENCE	146 ELEPHANT RD	15	240	--	6	85-150-200	--	250	6
10-002-011	CAHILL,PADEP,BCM	DETWEILER, IRMA	150 ELEPHANT RD	8	280	0.03	8	205-275	--	290	6
10-002-012	CAHILL,PADEP,BCM	RUSH, PAUL	152 ELEPHANT RD	4	350	0.01	6	85-260-320	--	350	6
10-002-014-004	CAHILL,INTEX	SMITH, WILLIAM	168 ELEPHANT RD	--	--	--	--	---	480	--	
10-002-014-005	CAHILL,INTEX	REIFF, WESLEY	170 ELEPHANT RD	--	--	--	--	---	505	--	
10-005-001-003	CAHILL,PADEP	LEVY, ROY	172 ELEPHANT RD	20	155	--	2	135-155	510	155	6
10-002-028-001	CAHILL,PADEP	HARRIS	215 FRONTIER AVE	30	400	0.08	8	---	--	550	6
10-004-113	CAHILL,PADEP,BORO	JOHNSON, ERIC	119 HIGH ST	25	140	0.18	3	50-105-130	-	145	6
10-004-104	CAHILL,PADEP,BORO	FRENK, CRAIG	106 HIGH ST	40	145	0.28	4	---	--	245	6
---	CAHILL,INTEX	DUBLIN BOROUGH #4	130 HIGH ST	--	--	--	--	--	582	500	

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See last page for footnotes.

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Table 4-2. Hydraulic Data for Supply Wells in the Dublin Area, Dublin NPL Site, Dublin, Pennsylvania.

Tax Map Location	Source	Owner	Address	Yield (gpm)	Draw-Down (feet)	Specific Capacity (gpm/foot)	Pump Period (hours)	Fracture Zone Depths (feet)	Elevation (feet)	Well Depth (feet)	Diameter (inches)
---	CAHILL INTEX	DUBLIN BOROUGH #1	HIGHLAND AVE	100	300	0.33	--	---	615	350	6
---	CAHILL,INTEX	DUBLIN BOROUGH #2	HIGHLAND AVE	40	80	0.50	7	---	615	290	6
10-004-088	BCM	DUBLIN INN	101 S MAIN ST	--	--	--	--	---	--	90	--
10-004-057	CAHILL,INTEX,BORO	HIRST; TENANT - BEIGLER	130 S MAIN ST	4	--	--	--	---	590	200	--
10-004-098	CAHILL,PADEP	RUPERT, DAVID	133 S MAIN ST	22	175	0.13	4	70-85-175	--	185	6
10-004-101	BCM	ALCOTT, JOHN	137 S MAIN ST	--	--	--	--	---	--	--	--
10-004-062	CAHILL,PADEP	MEYERS, ANNA	148 S MAIN ST	20	--	--	4	105-120	--	125	6
10-004-063	CAHILL,INTEX	HALLMAN, GERALD	150 S MAIN ST	--	--	--	--	---	610	250	--
10-004-120	CAHILL,PADEP	KENAS, JOSEPH	155 S MAIN ST	20	85	0.24	4	85-145-160	--	115	6
10-004-066-003	CAHILL,PADEP	HENDRICKSON, JOHN	162 S MAIN ST	12	--	--	--	100-125	615	135	6
10-004-066-002	CAHILL,INTEX	COLEFLESH, JOHN	164 S MAIN ST	--	--	--	--	---	622	580	--
10-004-122	CAHILL,PADEP,INTEX	LANDIS, LINWOOD	167 S MAIN ST	6	170	0.04	8	75-115-130	615	530	6
10-004-068	CAHILL,INTEX	FRAY HOSIERY	174 S MAIN ST	--	--	--	--	---	618	145	--
10-004-010	BCM	DAIRY QUEEN	106 N MAIN ST	--	--	--	--	---	--	100	--
10-004-070	BCM	DUBLIN HARDWARE	105 N MAIN ST	13	--	--	--	---	--	200	--
10-004-008-001	CAHILL,PADEP,BCM	RHINE'S GULF	112 N MAIN ST	6	74	0.08	4	185-200-240	560	245	6
10-004-071	BCM	HINSDALE, DAVID	113 N MAIN ST	--	--	--	--	---	--	--	--
10-004-072	BCM	BOYLE, B.	115 N MAIN ST	--	--	--	--	---	--	150	--
10-004-009	BCM	OCCHI, CESARE	116 N MAIN ST	--	--	--	--	---	--	--	--
10-004-073	BCM	BUCHANAN, K.	117 N MAIN ST	--	--	--	--	---	--	--	--
10-004-074	BCM	HIRST, W.	119 N MAIN ST	--	--	--	--	---	--	--	--
10-002-006	BCM	RUFE, ROBERT	122 N MAIN ST	1.5	--	--	--	---	--	245	--
10-002-009	CAHILL,BCM	EMICO	123 N MAIN ST	25	--	--	--	---	540	168	--
10-002-009	---	EMICO	123 N MAIN ST	3	--	--	--	---	542	215	6
10-002-005	CAHILL,PADEP	TUTTLE, MICHAEL	124 N MAIN ST	7	160	0.04	6	---	540	225	--
10-002-004	CAHILL,PADEP,INTEX	MEYERS, PHILIP	126 N MAIN ST	--	--	--	--	---	545	225	--
10-002-003	CAHILL,PADEP	FLUCK, RON	128 N MAIN ST	22	--	--	--	140-155-160	--	165	6
10-002-032-001A	CAHILL,PADEP	MOYER, WILMER	130 N MAIN ST	25	205	0.12	4	80-220	550	240	6
10-002-008-002	BCM	DUBLIN POST OFFICE	131 N MAIN ST	--	--	--	--	---	--	--	--
10-002-008-001	BCM	JACOBS AUTO PARTS	133 N MAIN ST	--	--	--	--	---	--	--	--
10-002-008	BCM	DUBLIN FAMILY REST.	133 N MAIN ST	--	--	--	--	---	--	200	--
10-002-032-001B	BCM	MOYERS AUTO BODY	134 N MAIN ST	--	--	--	--	---	--	140	--
10-002-032	CAHILL,PADEP,BCM	MOYER, CLARENCE	138 N MAIN ST	15	240	0.06	6	85-150-200	--	250	6
10-002-007	BCM	BISHOP, DENNIS	139 N MAIN ST	--	--	--	--	---	--	270	--

See last page for notes.

ible 4-2. Hydraulic Data for Supply Wells in the Dublin Area, Dublin NPL Site, Dublin, Pennsylvania.

ıx Map ocation	Source	Owner	Address	Yield (gpm)	Draw-Down (feet)	Specific Capacity (gpm/foot)	Pump Period (hours)	Fracture Zone Depths (feet)	Elevation (feet)	Well Depth (feet)	Diameter (inches)
0 002-032-002	PADEP,CAHILL,BCM	FIRST FEDERAL S & L	142 N MAIN ST	7	150	0.05	6	40-75-110	--	170	6
0-002-030	PADEP,CAHILL,BCM	WHISTLEWOOD APT.	146 N MAIN ST	70	250	0.28	6	80-250-320	--	370	6
0-002-037	CAHILL,INTEX,BCM	SCMELL, SAM	149 N MAIN ST	--	--	--	--	---	555	165	--
0 002-036	BCM	MYRICK, LLOYD	153 N MAIN ST	--	--	--	--	---	--	90	--
0-002-035	BCM	DUBLIN VILLAGE PLAZA	161 N MAIN ST	--	--	--	--	---	--	--	--
0 002-034-001	BCM	LOUIS MARKS (7-11)	169 N MAIN ST	--	--	--	--	---	--	--	--
0 002-029-001	PADEP,CAHILL,BCM	G&T CO., INC.- BUNTING	170 N MAIN ST	55	53	1.04	46	---	--	450	8
0 002 029-002	BCM	FAMILY HEALTH CARE (DOYLESTOWN FEDERAL S&L)	174 N MAIN ST	100	--	--	--	---	--	145	--
0-002-033	---	MOYER, CLIFFORD	183 N MAIN ST	--	--	--	--	---	--	--	--
0 002-028-002	CAHILL,INTEX,BCM	DUBLIN FIRE CO.	194 N MAIN ST	100	155	0.65	4	80-160-210	500	220	6
---	CAHILL,PADEP	NEEBE, C.	MAPLE AVE	3	335	0.01	--	300-375	--	390	6
0-004-012	BCM	BUCHANAN BEAUTY SHOP	104 MAPLE AVE	--	--	--	--	---	--	100	--
0-004-015	BCM	KLEMCO ENGINEERING	112 MAPLE AVE	--	--	--	--	---	--	--	--
0-004-034	CAHILL,PADEP	GUSTAFSON, OSCAR	113 MAPLE AVE	9	240	0.04	4	215-240	--	250	6
0 004-016	BCM	KLEMBETH, JOHN	114 MAPLE AVE	--	--	--	--	---	--	--	--
0-004-018	BCM	DRAKE	118 MAPLE AVE	--	--	--	--	---	--	--	--
0-004-033	BCM	BOROUGH HALL	119 MAPLE AVE	--	--	--	--	---	--	--	--
0 004-019	BCM	DETWEILER, ARTHUR	120 MAPLE AVE	--	--	--	--	---	--	--	--
0-004-032	CAHILL,PADEP	DETWEILER, MARVIN	121 MAPLE AVE	50	--	--	6	170-300-350	580	355	6
0 004-020	CAHILL,INTEX,BCM	VASCONEZ, JOHN	122 MAPLE AVE	--	--	--	--	---	575	310	--
0-004-021	BCM	SHADDINGER, C.	126 MAPLE AVE	--	--	--	--	---	--	--	--
0-004-030	CAHILL,PADEP	WINGATE, RUSSELL	127 MAPLE AVE	5	240	0.02	6	120-210	--	240	6
0 004-022	BCM	SCHILLING, WALTER	134 MAPLE AVE	--	--	--	--	---	--	--	--
0 004-023	CAHILL,PADEP	KOHL,T.P.	136 MAPLE AVE	10	160	0.063	4	85-130-200	575	215	6
0-004-001	BCM	BINSBERGER, ED	148 MAPLE AVE	--	--	--	--	---	--	130	--
0-004-008	PADEP	FARM BUREAU	104 MILL ST	50	--	--	--	---	--	200	6
0-004-006	---	THOMPSON	120 MILL ST	50	--	--	--	---	545	500	6
0-004-006	CAHILL,BCM	THOMPSON	120 MILL ST	20	--	--	--	---	540	90	6
0 004-006	CAHILL,BCM	THOMPSON	120 MILL ST	18	--	--	--	---	535	140	6

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Table 4-2. Hydraulic Data for Supply Wells in the Dublin Area, Dublin NPL Site, Dublin, Pennsylvania.

Tax Map Location	Source	Owner	Address	Yield (gpm)	Draw-Down (feet)	Specific Capacity (gpm/foot)	Pump Period (hours)	Fracture Zone Depths (feet)	Elevation (feet)	Well Depth (feet)	Diameter (inches)
10-004-036	BCM	KRAMER,W. #2	104 MIDDLE RD	--	--	--	--	---	--	22	--
10-004-036	BCM	KRAMER,W. #1	104 MIDDLE RD	--	--	--	--	---	--	315	--
10-004-038	CAHILL,PADEP	RIEGEL,WILLIAM	124 MIDDLE RD	10	--	--	6	100-160-170	590	190	6
10-004-039	CAHILL,PADEP	WOODS EDGE APT. #2	126 MIDDLE RD	100	235	0.43	8	105-250-300	600	306	6
10-004-039	CAHILL,PADEP	WOODS EDGE APT.	126 MIDDLE RD	45	180	0.25	6	110-150	--	190	6
10-004-039	CAHILL,PADEP	WOODS EDGE APT. #1	126 MIDDLE RD	45	285	0.16	6	80-140-230	--	310	6
10-004-040	CAHILL,PADEP	DUBLIN VILLAGE APT. #2	136 MIDDLE RD	15	100	0.15	4	---	--	205	6
10-004-040	CAHILL,PADEP	DUBLIN VILLAGE APT. #1	136 MIDDLE RD	80	170	0.47	6	---	--	190	6
10-004-045	CAHILL,INTEX	OTTO, ROBERT	137 MIDDLE RD	--	--	--	--	---	600	--	--
10-002-028-003	BCM	STATE POLICE	135 RICKERTS RD	--	--	--	--	---	--	560	--
10-005-009	PADEP,CAHILL,INTEX	ROSANELLI (OLD WELL)	142 RICKERTS RD	150	--	--		160-185-210	500	250	6
10-005-020	MERCURI	DUBLIN BOROUGH #3	142 RICKERTS RD	178	27.83	6.40	24	---	500	450	10
10-002-001	---	GREENLAWN HOSIERY	---	10	--	--	--	---	520	80	6
---	CAHILL,INTEX	LAMELZA #1	---	--	--	--	--	---	590	370	--
---	CAHILL	LAMELZA #2	---	--	--	--	--	---	570	--	--
---	---	MOYER, SAM	---	60	--	--	--	---	610	135	6

BCM BCM, Inc.
BORO Borough of Dublin.
CAHILL T.H. Cahill and Associates and J.K. Adams Associates (1987).
gpm Gallons per minute.
INTEX International Exploration, Inc.
MERCURI Mercuri and Associates.
PADEP Pennsylvania Department of Environmental Protection.
USGS United States Geological Survey.
--- Information not available.
Number.
gpm Gallons per minute.
gpm/foot Gallons per minute per foot.

ible 4-3. *Summary of Historical Aquifer Test Results for Wells in the Dublin Area, Dublin NPL Site, Dublin, Pennsylvania.*

Well Identification	Date of Test	Duration (t) (hours:minutes)	Yield (Q) (gpm)	Specific Capacity (Q/s) (gpm/ft)	Drawdown (s) (feet)	Transmissivity (T) (gpd/ft)	Storage Coefficient (S) *(dimensionless)*	*Comments*
Supply Wells								
Sedminster No. 2	June 1980	48:00	100	0.93	108 (1)	NA	NA	
Sedminster No. 9	June 1980	48:00	175	1.48	118 (1)	NA	NA	
Dublin No. 1	8/28/79	48:00	90	1.08	83.59	NA	NA	
	January 1984	49:00	60	1.24	48.2	NA	NA	
Dublin No. 2	4/20/79	7:00	55	0.69	80	NA	NA	
Dublin No. 3 Rosanelli Well	8/29/88	48:40	178	6.62	26.9 (1)	10,928	8.63×10^{5}	Storage Coefficient estimated from water-level data from a well 500 ft north of pumping well. (2)
Monitoring Wells								
MW-1	5/19/88	2:30	15	1.11	13.5	NA	NA	Values calculated from well sampling evacuation data. (2)
MW-2	5/19/88	1:10	9	0.13	68	NA	NA	Values calculated from well sampling evacuation data. (2)
MW-7	5/19/88	0:26	14	0.21	67	NA	NA	Values calculated from well sampling evacuation data. (2)
MW-8	5/19/88	1:24	11	0.07	155	NA	NA	Values calculated from well sampling evacuation data. (2)
DBMW-1	8/1/90	4:00	78 (average)	1.91	40.9	NA	NA	Equipment malfunction; pump not working for 19 minutes. Pumping rate 85 gpm first minute, then 75 80 gpm.
DBMW-1	11/16/93	23:56	100	1.2	83.5	NA	NA	

gpd Gallons per day.
gpm Gallons per minute.
MW Monitoring well.
NA Not available.
(1) *Deviations from a consistent* downward water-level trend suggest interference from pumpage of other wells.
(2) Data recorded during monitoring well sampling conducted by Geraghty & Miller, Inc.

Table 4-4. Summary of Groundwater Elevation Data, Dublin NPL Site, Dublin, Pennsylvania.

Well ID	Measuring-Point Elevation (ft msl)	11/13/91		12/09/91		12/18/91		01/02/92		01/23/92	
		DTW (ft)	Water-Level Elevation (ft msl)	DTW (ft)	Water-Level Elevation (ft msl)	DTW (ft)	Water-Level Elevation (ft msl)	DTW (ft)	Water-Level Elevation (ft msl)	DTW (ft)	Water-Level Elevation (ft msl)
MW - 1	516.37	46.38	469.99	45.28	471.09	38.91	477.46	43.33	473.04	35.06	481.31
MW - 2	532.23	45.04	487.19	39.62	492.61	35.48	496.75	35.25	496.98	27.41	504.82
MW - 3	542.93	52.08	490.85	53.93	489.00	51.46	491.47	49.07	493.86	45.43	497.50
MW - 4	540.63	15.34	525.29	15.49	525.14	15.30	525.33	15.30	525.33	15.48	525.15
MW - 5	532.02	59.56	472.46	63.87	468.15	56.50	475.52	63.79	468.23	50.80	481.22
MW - 6	554.87	49.78	505.09	50.35	504.52	49.14	505.73	48.10	506.77	45.78	509.09
MW - 7	557.81	64.60	493.21	68.94	488.87	66.39	491.42	63.99	493.82	59.88	497.93
MW - 8	527.52	50.42	477.10	39.45	488.07	33.81	493.71	47.65	479.87	31.67	495.85
MW-9S	485.86	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
MW-9D	485.67	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
MW-10	527.84	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
MW-11	511.35	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
PW-1	549.62	--	--	--	--	--	--	55.25	494.37	51.80	497.82
BCM - 1	546.42	55.58	490.84	57.43	488.99	54.99	491.43	52.76	493.66	49.00	497.42
BCM - 2	550.82	59.22	491.60	61.01	489.81	58.61	492.21	56.33	494.49	52.58	498.24
DBMW-1	509.24	--	--	--	--	--	--	--	--	--	--

See last page for footnotes.

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Table 4-4. Summary of Groundwater Elevation Data, Dublin NPL Site, Dublin, Pennsylvania.

Well ID	Measuring-Point Elevation (ft msl)	02/06/92		02/19/92		03/04/92		03/19/92		04/16/92	
		DTW (ft)	Water-Level Elevation (ft msl)	DTW (ft)	Water-Level Elevation (ft msl)	DTW (ft)	Water-Level Elevation (ft msl)	DTW (ft)	Water-Level Elevation (ft msl)	DTW (ft)	Water-Level Elevation (ft msl)
MW - 1	516.37	36.72	479.65	38.83	477.54	32.56	483.81	29.38	486.99	22.05	494.32
MW - 2	532.23	26.68	505.55	29.78	502.45	24.54	507.69	21.08	511.15	17.90	514.33
MW - 3	542.93	43.05	499.88	43.21	499.72	41.13	501.80	38.44	504.49	32.38	510.55
MW - 4	540.63	15.84	524.79	14.87	525.76	14.83	525.80	13.62	527.01	12.41	528.22
MW - 5	532.02	48.32	483.70	50.23	481.79	48.90	483.12	49.89	482.13	36.54	495.48
MW - 6	554.87	45.20	509.67	45.11	509.76	44.15	510.72	42.48	512.39	38.98	515.89
MW - 7	557.81	58.72	499.09	58.33	499.48	56.29	501.52	53.54	504.27	47.79	510.02
MW - 8	527.52	32.98	494.54	33.77	493.75	28.55	498.97	26.00	501.52	21.13	506.39
MW-9S	485.86	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
MW-9D	485.67	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
MW-10	527.84	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
MW-11	511.35	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
PW-1	549.62	49.87	499.75	49.55	500.07	47.96	501.66	45.02	504.60	39.33	510.29
BCM - 1	546.42	--	--	--	--	--	--	--	--	--	--
BCM - 2	550.82	50.82	500.00	50.58	500.24	48.78	502.04	46.15	504.67	40.26	510.56
DBMW-1	509.24	--	--	--	--	--	--	--	--	--	--

See last page for footnotes.

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Table 4-4. Summary of Groundwater Elevation Data, Dublin NPL Site, Dublin, Pennsylvania.

Well ID	Measuring-Point Elevation (ft msl)	04/30/92		05/28/92		06/17/92		07/16/92		08/12/92	
		DTW (ft)	Water-Level Elevation (ft msl)	DTW (ft)	Water-Level Elevation (ft msl)	DTW (ft)	Water-Level Elevation (ft msl)	DTW (ft)	Water-Level Elevation (ft msl)	DTW (ft)	Water-Level Elevation (ft msl)
MW - 1	516.37	23.48	492.89	20.07	496.30	19.76	496.61	33.15	483.22	30.75	485.62
MW - 2	532.23	17.20	515.03	16.96	515.27	17.04	515.19	22.63	509.60	24.32	507.91
MW - 3	542.93	31.89	511.04	31.25	511.68	29.94	512.99	35.83	507.10	38.56	504.37
MW - 4	540.63	12.24	528.39	12.13	528.50	12.08	528.55	13.02	527.61	13.79	526.84
MW - 5	532.02	35.50	496.52	33.45	498.57	32.80	499.22	48.02	484.00	43.04	488.98
MW - 6	554.87	38.78	516.09	38.62	516.25	38.23	516.64	--	--	--	--
MW - 7	557.81	47.25	510.56	47.42	510.39	46.74	511.07	51.97	505.84	53.82	503.99
MW - 8	527.52	21.19	506.33	19.85	507.67	19.40	508.12	30.00	497.52	26.45	501.07
MW-9S	485.86	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
MW-9D	485.67	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
MW-10	527.84	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
MW-11	511.35	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
PW-1	549.62	38.79	510.83	39.15	510.47	38.51	511.11	44.04	505.58	45.72	503.90
BCM - 1	546.42	--	--	--	--	--	--	40.80	505.62	42.66	503.76
BCM - 2	550.82	39.78	511.04	39.63	511.19	39.09	511.73	44.45	506.37	46.53	504.29
DBMW-1	509.24	--	--	--	--	--	--	--	--	--	--

See last page for footnotes.

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Table 4-4. Summary of Groundwater Elevation Data, Dublin NPL Site, Dublin, Pennsylvania.

Well ID	Measuring-Point Elevation (ft msl)	09/10/92		10/15/92		11/04/92		12/03/92		12/31/92	
		DTW (ft)	Water-Level Elevation (ft msl)	DTW (ft)	Water-Level Elevation (ft msl)	DTW (ft)	Water-Level Elevation (ft msl)	DTW (ft)	Water-Level Elevation (ft msl)	DTW (ft)	Water-Level Elevation (ft msl)
MW - 1	516.37	31.70	484.67	32.59	483.78	35.71	480.66	23.50	492.87	19.66	496.71
MW - 2	532.23	23.84	508.39	32.79	499.44	32.84	499.39	24.00	508.23	18.97	513.26
MW - 3	542.93	40.56	502.37	42.57	500.36	41.79	501.14	37.90	505.03	31.51	511.42
MW - 4	540.63	14.39	526.24	16.84	523.79	16.41	524.22	15.45	525.18	11.50	529.13
MW - 5	532.02	44.43	487.59	47.64	484.38	48.69	483.33	37.60	494.42	32.47	499.55
MW - 6	554.87	42.86	512.01	43.59	511.28	43.52	511.35	43.42	511.45	37.47	517.40
MW - 7	557.81	55.70	502.11	56.50	501.31	56.75	501.06	--	--	46.84	510.97
MW - 8	527.52	27.67	499.85	39.14	488.38	36.50	491.02	23.20	504.32	18.78	508.74
MW-9S	485.86	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
MW-9D	485.67	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
MW-10	527.84	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
MW-11	511.35	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
PW-1	549.62	47.24	502.38	47.97	501.65	--	--	44.30	505.32	38.53	511.09
BCM - 1	546.42	44.36	502.06	45.31	501.11	45.23	501.19	41.80	504.62	35.41	511.01
BCM - 2	550.82	47.98	502.84	49.03	501.79	49.01	501.81	44.40	506.42	39.22	511.60
DBMW-1	509.24	--	--	94.18	415.06	94.16	415.08	92.60	416.64	88.57	420.67

See last page for footnotes.

able 4-4. Summary of Groundwater Elevation Data, Dublin NPL Site, Dublin, Pennsylvania.

Vell	Measuring-Point Elevation (ft msl)	01/27/93 DTW (ft)	01/27/93 Water-Level Elevation (ft msl)	02/24/93 DTW (ft)	02/24/93 Water-Level Elevation (ft msl)	03/25/93 DTW (ft)	03/25/93 Water-Level Elevation (ft msl)	04/21/93 DTW (ft)	04/21/93 Water-Level Elevation (ft msl)	05/20/93 DTW (ft)	05/20/93 Water-Level Elevation (ft msl)
MW - 1	516.37	15.67	500.70	16.68	499.69	13.25	503.12	13.07	503.30	17.40	498.97
MW - 2	532.23	16.54	515.69	17.66	514.57	14.72	517.51	11.96	520.27	18.40	513.83
MW - 3	542.93	27.89	515.04	28.52	514.41	25.64	517.29	19.96	522.97	23.10	519.83
MW - 4	540.63	9.92	530.71	10.86	529.77	7.97	532.66	8.09	532.54	10.00	530.63
MW - 5	532.02	29.40	502.62	31.12	500.90	26.56	505.46	24.60	507.42	28.20	503.82
MW - 6	554.87	35.10	519.77	35.68	519.19	33.50	521.37	30.50	524.37	31.50	523.37
MW - 7	557.81	42.97	514.84	43.75	514.06	41.31	516.50	37.31	520.50	39.60	518.21
MW - 8	527.52	16.27	511.25	17.48	510.04	14.54	512.98	13.47	514.05	18.20	509.32
MW-9S	485.86	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
MW-9D	485.67	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
MW-10	527.84	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
MW-11	511.35	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
PW-1	549.62	34.62	515.00	35.34	514.28	31.74	517.88	29.19	520.43	30.50	519.12
BCM - 1	546.42	31.84	514.58	32.76	513.66	30.11	516.31	25.84	520.58	27.90	518.52
BCM - 2	550.82	35.74	515.08	36.52	514.30	33.92	516.90	29.72	521.10	31.80	519.02
DBMW-1	509.24	86.70	422.54	89.17	420.07	88.54	420.70	83.84	425.40	80.70	428.54

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Table 4-4. Summary of Groundwater Elevation Data, Dublin NPL Site, Dublin, Pennsylvania.

Well ID	Measuring Point Elevation (ft msl)	06/17/93 DTW (ft)	06/17/93 Water-Level Elevation (ft msl)	07/15/93 DTW (ft)	07/15/93 Water-Level Elevation (ft msl)	08/12/93 DTW (ft)	08/12/93 Water-Level Elevation (ft msl)	09/08/93 DTW (ft)	09/08/93 Water-Level Elevation (ft msl)	10/06/93 DTW (ft)	10/06/93 Water-Level Elevation (ft msl)
MW - 1	516.37	29.72	486.65	39.33	477.04	42.14	474.23	50.24	466.13	44.31	472.06
MW - 2	532.23	24.27	507.96	32.57	499.66	40.95	491.28	47.18	485.05	43.49	488.74
MW - 3	542.93	33.32	509.61	40.74	502.19	46.32	496.61	50.01	492.92	52.83	490.10
MW - 4	540.63	12.73	527.90	--	--	16.40	524.23	16.21	524.42	15.38	525.25
MW - 5	532.02	43.44	488.58	48.77	483.25	52.94	479.08	59.28	472.74	56.39	475.63
MW - 6	554.87	39.32	515.55	44.48	510.39	--	--	--	--	48.33	506.54
MW - 7	557.81	49.68	508.13	56.92	500.89	62.71	495.10	68.07	489.74	67.87	489.94
MW - 8	527.52	27.41	500.11	41.62	485.90	45.70	481.82	57.49	470.03	43.75	483.77
MW-9S	485.86	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
MW-9D	485.67	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
MW-10	527.84	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
MW-11	511.35	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
PW-1	549.62	40.80	508.82	48.40	501.22	53.87	495.75	59.18	490.44	60.16	489.46
BCM - 1	546.42	41.50	504.92	45.51	500.91	50.88	495.54	56.46	489.96	56.51	489.91
BCM - 2	550.82	37.32	513.50	49.25	501.57	54.57	496.25	59.71	491.11	60.14	490.68
DBMW-1	509.24	87.11	422.13	94.09	415.15	100.70	408.54	104.55	404.69	103.24	406.00

See last page for footnotes.

ıble 4-4. Summary of Groundwater Elevation Data, Dublin NPL Site, Dublin, Pennsylvania.

ell	Measuring-Point Elevation (ft msl)	11/03/93 DTW (ft)	11/03/93 Water-Level Elevation (ft msl)	09/08/95 DTW (ft)	09/08/95 Water-Level Elevation (ft msl)	4/23/96 DTW (ft)	4/23/96 Water-Level Elevation (ft msl)
MW - 1	516.37	38.05	478.32	63.58	452.79	14.48	501.89
MW - 2	532.23	36.81	495.42	54.67	477.56	18.50	513.73
MW - 3	542.93	47.66	495.27	59.88	483.05	25.88	517.05
MW - 4	540.63	14.43	526.20	22.12	518.51	10.56	530.07
MW - 5	532.02	51.90	480.12	67.13	464.89	26.67	505.35
MW - 6	554.87	44.46	510.41	54.28	500.59	36.44	518.43
MW - 7	557.81	63.42	494.39	--	--	43.79	514.02
MW - 8	527.52	31.65	495.87	72.42	455.10	12.70	514.82
MW-9S	485.86	NI	NI	--	--	82.26	403.60
MW-9D	485.67	NI	NI	--	--	82.45	403.22
MW-10	527.84	NI	NI	--	--	20.31	507.53
MW-11	511.35	NI	NI	--	--	82.98	428.37
PW-1	549.62	54.90	494.72	--	--	35.36	514.26
BCM - 1	546.42	51.80	494.62	--	--	31.99	514.43
BCM - 2	550.82	55.45	495.37	--	--	36.72	514.10
DBMW-1	509.24	99.75	409.49	114.13*	395.11	84.60	424.60

Measured on 9/14/95.
Measurement not taken.
BMW-1 Previously known as TCE Monitoring Well.
TW Depth to water.
Feet.
msl Feet above mean sea level.
Not installed.

Table 4-6. Results of Packer Testing, Dublin NPL Site, Dublin, Pennsylvania.

Well ID Packed Zone (ft bmp)	Sample ID	Zone	Date Sampled	Comments	Preinflation Static Water Level (ft bmp)	Water Level Above Packer Zone (ft bmp)	Water Level Within Packer Zone (ft bmp)	Water Level Below Packer Zone (ft bmp)	Pumping Rate (gpm)	Hydraulic Conductivity (ft/day)	TCE Concentration (ug/l)	Lithology
MW-1												
WL (18.9) - 36.9 *	NS	Z1	5/5/94	Not sampled/packed zone did not recover after purging	17.00	NA	15.33	16.62	2.4	NA	NS	R
105 - 125	P01125	Z2	5/6/94	Sampled	16.44	15.10	11.71	17.91	1.3	NA	120	G
200 - 220	P01220	Z3	5/6/94	Sampled	16.66	15.24	15.93	16.39	10.2	33.55	300	G/R
254 - bottom (281) *	P01281	Z4	5/9/94	Sampled	18.03	18.04	16.70	NA	10.1	20.51	160	R
MW-2												
WL (11) - 50 *	P02011	Z1	4/19/94	Sampled, low yield	11.68	11.42	11.45	17.58	3.0	NA	0.45	G/R
100 - 120	P02100	Z2	4/20/94	Sampled, vials froze	16.58	14.58	19.20	16.95	3.0	6.98	NA	G/R
128 - bottom (181) *	P02128	Z3	4/20/94	Sampled, vials froze, low yield	17.02	17.31	17.08	17.13	1.1	NA	NA	R
WL (11) - 50 *	P02050	Z1	4/25/94	Resampled	NM	NM	NM	NM	NM	NM	41	G/R
100 - 120	P02100	Z2	4/26/94	Resampled	NM	NM	NM	NM	NM	NM	2,900	G/R
128 - 148	P02128	Z3	4/26/94	Resampled	NM	NM	NM	NM	NM	NM	940	R

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Table 4-5. Results of Packer Testing, Dublin NPL Site, Dublin, Pennsylvania.

Well ID Packed Zone (ft bmp)	Sample ID	Zone	Date Sampled	Comments	Preinflation Static Water Level (ft bmp)	Water Level Above Packer Zone (ft bmp)	Water Level Within Packer Zone (ft bmp)	Water Level Below Packer Zone (ft bmp)	Pumping Rate (gpm)	Hydraulic Conductivity (ft/day)	TCE Concentration (ug/l)	Lithology
MW-3												
50 - 70	NS	Z1	4/15/94	Leak/not sampled Lowered tools 4 ft	NA	NA	NA	NA	1.1	NA	NS	M
54 - 74	NS	Z1A	4/15/94	Not sampled/packed zone did not recover after purging.	27.03	25.71	16.87	27.53	1.0	NA	NS	M
80 - bottom (100) *	P03080	Z2	4/18/94	Sampled, low yield	24.26	23.31	27.12	NA	1.0	NA	20	R
MW-4												
WL (10) - 30	P04020	Z1	4/22/94	Sampled, low yield	9.28	NA	9.46	9.28	1.1	4.52	6,900	G
40 - 60	P04040	Z2	4/22/94	Sampled, low yield	11.24	10.94	4.25	10.46	2.0	NA	7,100	G
65 - 85	P04065	Z3	4/25/94	Sampled, low yield	10.72	10.54	3.71	2.14	1.1	NA	6,700	G/R
MW-5												
90 - 110	NS	Z1	4/12/94	Not sampled/packed zone did not recover after purging.	29.26	27.69	19.91	36.09	0.7	NA	NS	G
150 - 170	NS	Z2	4/12&13/94	Not sampled/packed zone did not recover after purging.	33.73	31.75	24.56	34.47	0.5 - 9.0	0.15	NS	R

See last page for footnotes.

Table 4-5. Results of Packer Testing, Dublin NPL Site, Dublin, Pennsylvania.

Well ID Packed Zone (ft bmp)	Sample ID	Zone	Date Sampled	Comments	Preinflation Static Water Level (ft bmp)	Water Level Above Packer Zone (ft bmp)	Water Level Within Packer Zone (ft bmp)	Water Level Below Packer Zone (ft bmp)	Pumping Rate (gpm)	Hydraulic Conductivity (ft/day)	TCE Concentration (ug/l)	Lithology
195 - 215	P05195	Z3	4/13/94	Sampled	31.79	29.70	26.72	31.39	0.8	0.48	8.7	R
222 - bottom (258) *	P05222	Z4	4/14/94	Sampled	NA	28.86	32.50	32.50	5.4	2.93	130	G/R
MW-6												
40 - 80	P06040	Z2	4/8/94	Sampled	36.38	36.30	26.93	36.19	0.7	1.06	1.9	R
80 - bottom (100) *	P06040B	Z1	4/8/94	Sampled	36.56	35.51	36.53	NA	2.9	5.90	0.095	R
MW-7												
75 - 95	NS	Z1	6/13/94	Not sampled/packed zone did not recover after purging.	44.25	42.88	39.78	44.13	1.8	NA	NS	R
95 - bottom (130) *	P07130	Z2	6/13/94	Sampled	44.07	42.98	44.48	44.41	4.0	13.29	15	M
MW-8												
WL (14) - 45 *	P08014A	Z4	4/7/94	Sampled	24.45	NA	22.52	24.98	0.5	NA	14	G
100 - 120	P08100B	Z3	4/8/94	Sampled, low yield	26.21	23.91	18.91	28.91	0.7	NA	21	G
125 - 145	P08125A	Z2	4/8/94	Sampled, low yield	NA	15.06	27.58	27.83	0.2	NA	240	G/R
199 - bottom (230) *	P08199A	Z1	4/5/94	Sampled	17.54	15.34	26.51	NA	2.6	0.80	370	R/G

See last page for footnotes.

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Table 4-5. Results of Packer Testing, Dublin NPL Site, Dublin, Pennsylvania.

Well ID Packed Zone (ft bmp)	Sample ID	Zone	Date Sampled	Comments	Preinflation Static Water Level (ft bmp)	Water Level Above Packer Zone (ft bmp)	Water Level Within Packer Zone (ft bmp)	Water Level Below Packer Zone (ft bmp)	Pumping Rate (gpm)	Hydraulic Conductivity (ft/day)	TCE Concentration (ug/l)	Lithology
BCM-1												
WL (29) - 49	PBCM1049	Z1	4/27/94	Sampled	30.02	NA	29.05	29.64	1.0	7.74	13,000	G
70 - bottom (100)	PBCM1070	Z2	4/27/94	Sampled	29.91	29.81	28.97	29.76	12.4	30.40	5,100	G/R
Fire Tower Well												
WL (28) - 48 *	PFT048	Z1	4/28/94	Sampled	27.24	NA	27.08	27.30	5.4	43.97	29,000	G
150 - 170	PFT170	Z2	4/29/94	Sampled	27.61	27.39	27.45	27.72	4.4	2.91	20,000	M
370 - 390	PFT390	Z3	4/29/94	Sampled	27.60	27.5	27.2	28.2	2.2	0.55	7,400	G
408 - 428	PFT428	Z4	5/2/94	Sampled, low yield	26.70	26.5	24.2	27.1	1.8	NA	34,000	G
458 - 478	PFT478	Z5	5/2/94	Sampled	27.00	26.7	27.2	43.0	2.8	2.28	55,000	G
478 - bottom (506)	PFT506	Z6	5/4/94	Sampled	27.30	27.0	40.6	NA	4.8	1.07	24,000	G
MW-9S												
WL (82) - 102 *	NS	Z1	5/24/94	Not sampled/packed zone did not recover after purging	82.00	81.66	81.48	81.78	3.2	NA	NS	R
106 - 126	P9S126	Z2	5/25/94	Sampled	82.43	81.98	82.12	82.05	76.0	3,094	0.17	R
130.5 - bottom (151) *	P9S151	Z3	5/26/94	Sampled	82.30	82.36	82.26	82.27	68.0	110.74	0.16	R

See last page for footnc

Table 4-6. Results of Packer Testing, Dublin NPL Site, Dublin, Pennsylvania.

Well ID Packed Zone (ft bmp)	Sample ID	Zone	Date Sampled	Comments	Preinflation Static Water Level (ft bmp)	Water Level Above Packer Zone (ft bmp)	Water Level Within Packer Zone (ft bmp)	Water Level Below Packer Zone (ft bmp)	Pumping Rate (gpm)	Hydraulic Conductivity (ft/day)	TCE Concentration (ug/l)	Lithology
MW-9D												
WL (82) - 180 *	P9D180	Z1	5/31/94	Sampled	82.82	81.49	81.36	81.64	29.5	161.74	0.11	R
235 - 255	P9D255	Z2	6/1/94	Sampled	82.51	81.32	81.14	81.15	48.0	110.10	0.16	R
255 - 275	P9D275	Z3	6/2/94	Sampled	83.20	81.94	81.9	81.8	104.0	475.74	ND	R/G
300 - 320	P9D320	Z4	6/3/94	Sampled	83.00	82.9	82.9	82.9	9.8	725.42	0.21	R
360 - 380	P9D380	Z5	6/3/94	Sampled, low yield	82.70	82.70	82.50	82.50	2.1	0.60	1.2	G
440 - 460	P9D460	Z6	6/6/94	Sampled	83.40	83.50	83.20	83.20	1.4	0.33	1.3	G/R
480 - bottom (539) *	NS	Z7	6/6/94	Not sampled/packed zone did not recover after purging.	83.10	82.90	81.60	81.60	1.5	NA	NS	M
MW-10												
60 - 80	P10080	Z1	5/12/94	Sampled	28.64	21.98	18.24	22.08	5.6	12.67	0.89	R/G
170 - 200	NS	Z2	5/16/94	Not sampled/packed zone did not recover after purging	20.60	18.95	17.11	25.67	4.4	NA	NS	G/R
285 - 295	P10295	Z3	5/16/94	Sampled	21.3	19.34	26.1	0.80 **	5.3	5.23	1.1	M
430 - bottom (450) *	NS	Z4	5/17/94	Not sampled/packed zone did not recover after purging.	20.6	20.4	17.10 **	17.00 **	3.1	0.16	NS	M

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Table 4-5. Results of Packer Testing, Dublin NPL Site, Dublin, Pennsylvania.

Well ID Packed Zone (ft bmp)	Sample ID	Zone	Date Sampled	Comments	Preinflation Static Water Level (ft bmp)	Water Level Above Packer Zone (ft bmp)	Water Level Within Packer Zone (ft bmp)	Water Level Below Packer Zone (ft bmp)	Pumping Rate (gpm)	Hydraulic Conductivity (ft/day)	TCE Concentration (ug/l)	Lithology
MW-11												
180 - 210	P11210	Z1	5/18/94	Sampled	88.51	88.71	88.91	60.24 **	9.4	17.01	0.34	R/G
285 - 315	NS	Z2	5/19/94	Not sampled/packed zone did not recover after purging.	88.9	89.2	77.80 **	55.00 **	2.9	NA	NS	R
422 - 452	P11452	Z3	5/19/94	Sampled, low yield	89.3	89.3	58.20 **	55.20 **	1.8	NA	5.9	R
452 - bottom (550) *	NS	Z4	5/20/94	Not sampled/packed zone did not recover after purging.	88.9	88.8	84.9	84.9	3.0	NA	NS	R/G

* Single packer.

** Elevated head caused by pressure of inflating packers above a portion of borehole with low hydraulic conductivity.

ft bmp Feet below measuring point (usually top of casing).

ft/day Feet per day.

gpm Gallons per minute.

NA Not applicable.

NM Not measured.

NS Not sampled.

ug/l micrograms per liter

TCE Trichloroethene.

WL Water level.

Lithology Indicates lithology in borehole for packed interval.

R Red siltstone beds of the Lockatong.

G Gray shale/siltstones of the Lockatong.

M Interbedded and mixed zone.

Table 4-6. Summary of Aquifer Pumping Test Results, December 1995 Pumping Test at the Fire Tower Well, Duplin NPL Site, Dublin, Pennsylvania.

Analytical Method	Well	Comments	Transmissivity (gpd/ft)	Storage Coefficient (dimensionless)
Jacob Straight Line	Fire Tower Well	Pumping well	69 gpd/ft (mid-time data) 508 gpd/ft (late-time data)	Not calculated Not calculated
Jacob Straight Line	MW-3	Observation well	1,346 gpd/ft	0.0019
Theis		Pumping stress = 25 gpm	7,237 gpd/ft	0.018
Theis		Pumping stress = 10 gpm	2,895 gpd/ft	0.0074
Jacob Straight Line	BCM-1	Observation well	2,299 gpd/ft	0.0055
Theis		Pumping stress = 25 gpm	19,594 gpd/ft	0.031
Theis		Pumping stress = 10 gpm	7,837 gpd/ft	0.013
Jacob Straight Line	BCM-2	Observation well	2,598 gpd/ft	0.0028
Theis		Pumping stress = 25 gpm	16,255 gpd/ft	0.026
Theis		Pumping stress = 10 gpm	6,501 gpd/ft	0.011
Jacob Straight Line	PW-1	Observation well	2,276 gpd/ft	0.0008
Theis		Pumping stress = 25 gpm	20,747 gpd/ft	0.00301
Theis		Pumping stress = 10 gpm	8,299 gpd/ft	0.0012
Jacob Straight Line	PW-2	Observation well	1,970 gpd/ft	0.00029
Theis		Pumping stress = 25 gpm	20,283 gpd/ft	0.0013
Theis		Pumping stress = 10 gpm	8,112 gpd/ft	0.00053

gpd/ft Gallons per day per ~~feet~~ ft of drawdown.
gpm Gallons per minute.

able 5-1. Concentrations of Volatile Organic Compounds in Soil Samples Collected by TRC Environmental Consultants, Roy F. Weston, Inc., and BCM, Inc. on December 21, 1987 and January 21, 1988, from the 120 Mill Street Property, Dublin NPL Site, Dublin, Pennsylvania.

Parameter	Sample I.D.:	S-1	S-1	S-2	S-2	S-3	S-3	S-4	S-4	SB-1	SB-1	SB-2	SB-2
	Date :	01/21/88	01/21/88	01/21/88	01/21/88	01/21/88	01/21/88	01/21/88	01/21/88	12/21/87	12/21/87	12/21/87	12/21/87
	Sampled By :	RFW**	TRC	RFW**	TRC	RFW**	TRC	RFW**	TRC	BCM	BCM	BCM	BCM
	Sample Interval (ft bgs):		Surface *		0 - 0.2		0.8 - 1.0		0 - 0.2	1.5-2.0	5.0 - 5.5	4.0 - 6.0	6.0 - 8.0
,3-Dichlorobenzene		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
,4-Dichlorobenzene		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
,1-Dichloroethane		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
hlorobenzene		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
hloroform		ND	ND	ND	ND	ND	7	ND	ND	NA	NA	NA	NA
thylbenzene		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
lethylene chloride		ND	14JB	ND	35B	ND	97	ND	26B	ND	ND	70B	210B
oluene		ND	ND	4J	12	ND	ND	12	ND	ND	70	ND	ND
etrachloroethene		ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
ans-1,2-Dichloroethene		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
,1,1-Trichloroethane		ND	ND	1J	ND	ND	32	54	ND	ND	20B	20B	40B
richloroethene		ND	ND	ND	ND	13	ND	ND	54	40	ND	ND	20
richlorofluoromethane		ND	ND	ND	ND	ND	ND	ND	ND	20	ND	ND	ND
inyl chloride		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
otal xylenes		ND	ND	3J				8	ND	ND	ND		
ICs		ND	300	ND	67	ND	665	ND	26	NA	NA	NA	NA
otal volatile organics		ND	300	8	79	13	801	74	80	60	70	0	20

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able 5-1. Concentrations of Volatile Organic Compounds in Soil Samples Collected by TRC Environmental Consultants, Roy F. Weston, Inc., and BCM, Inc. on December 21, 1987 and January 21, 1988, from the 120 Mill Street Property, Dublin NPL Site, Dublin, Pennsylvania.

Parameter	Sample I.D.:	SB-3	SB-3	SB-4	SB-4	SB-4	SB-5	SB-5	SB-5
	Date :	12/21/87	12/21/87	12/21/87	12/21/87	12/21/87 Duplicate	12/21/87	12/21/87	12/21/87
	Sampled By :	BCM	BCM	BCM	BCM	BCM	BCM	BCM	BCM
	Sample Interval (ft bgs):	5.5 - 6.0	6.5 - 7.0	1.5-2.0	8.0 - 9.0	8.0 - 9.0	1.5 - 2.0	6.0-6.5	9.0 - 9.5
,3-Dichlorobenzene		ND	ND	ND	ND	ND	ND	510	100
,4-Dichlorobenzene		ND	ND	ND	ND	ND	250	ND	40
,1-Dichloroethane		ND	ND	ND	ND	20	40	ND	ND
hlorobenzene		ND	ND	ND	ND	ND	ND	40	ND
hloroform		NA	NA	NA	NA	NA	NA	NA	NA
thylbenzene		ND	ND	ND	ND	ND	400	140	130
ethylene chloride		110B	20B	180B	80B	120B	ND	ND	ND
oluene		ND	ND	ND	ND	ND	330	150	90
etrachloroethene		NA	NA	NA	NA	NA	NA	NA	NA
ans-1,2-Dichloroethene		ND	ND	ND	ND	430	90	ND	ND
,1,1-Trichloroethane		ND	40B	30B	ND	20B	ND	ND	ND
richloroethene		ND	110	ND	820	980	30	30	140
richlorofluoromethane		ND	ND	ND	ND	ND	ND	ND	ND
inyl chloride		ND	ND	ND	ND	ND	320	40B	ND
ICs		NA	NA	NA	NA	NA	NA	NA	NA
otal volatile organics		0	110	0	820	1430	1,466	870	500

nly compounds detected are listed.
oncentrations reported in micrograms per kilogram (ug/kg).
Collected 0 to 7.5 inches into a surficial dirt pile.
• Samples collected by Roy F. Weston, Inc.(RFW), Pennsylvania; samples analyzed by Lionville Analytical Laboratory of Pennsylvania.
Samples were analyzed by U.S. Environmental Protection Agency (USEPA) Method 8240.
bgs Feet below ground surface.
D Not detected.
Below method detection limit.
Analyte also found in method blank indicating possible/probable laboratory blank contamination.
A Not analyzed.
CIs Tentatively identified compounds.
RC TRC Environmental Consultants of Somerset, New Jersey; samples analyzed by Accutest Laboratories of Dayton, New Jersey.
Samples were analyzed for priority pollutant volatile organics plus 15 additional peaks, in accordance with USEPA Method 624.
CM BCM, Inc. of Trenton, New Jersey; samples analyzed by BCM Laboratory Division of Norristown, Pennsylvania.
Samples were analyzed for volatile organic compounds by USEPA Methods 601 and 602.

ources: BCM, (1988a) and Myers (1988).

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Table 5-2. Concentrations of Volatile Organic Compounds in Liquid Samples Collected by TRC Environmental Consultants on December 18, 1987 and Roy F. Weston, Inc. on January 21, 1988 from the 120 Mill Street Property, Dublin NPL Site, Dublin, Pennsylvania.

Parameter	Sample ID : Description:	1W* 95 D Cleaning Solvent	2W* Amazon Solvent	SEQPA-1** Safety Solvent No. 2	SEQPA-3** Drum No. 1 Superfoda	SEQPA-4** Unlabeled 5-Gallon Container	SEQPA-6** Cleaning Solvent 95 D 5-Gallon Container	SEQPA-7** Sterigent 1-Gallon Container	SEQPA-8** Amazon Solvent 5-Gallon Container	SEQPA-9** Drum No. 7 Unlabeled	SEQPA-10** Eco-Clean 5-Gallon Container	SS-2* Safety Solvent No. 2
Chloroform		NA	NA	340,000	ND	ND	ND	ND	ND	ND	62,000	NA
1,1-Dichloroethane		NA	NA	360,000	ND	ND	ND	ND	ND	ND	ND	NA
1,2-Dichloroethane		NA	NA	870,000	ND	ND	ND	ND	ND	ND	30,000	NA
1,2-Dichloroethene		NA	NA	4,200,000	ND	ND	ND	ND	ND	ND	790,000	NA
Ethylbenzene		NA	NA	1,700,000	410,000	ND	ND	370,000	370,000	ND	160,000	NA
Methylene chloride		NA	NA	6,300,000	57,000 B	210,000 B	190,000 B	ND	230,000 B	ND	4,400,000 B	NA
Tetrachloroethene		4,700,000	130,000	13,000,000	500,000	ND	ND	ND	750,000	ND	2,900,000	5,700,000
Toluene		NA	NA	8,500,000	110,000 B	26,000 B	ND	390,000 B	6,700,000 B	ND	1,600,000 B	NA
1,1,1-Trichloroethane		30,000,000	7,200,000	14,000,000	3,100,000	1,200,000	660,000	13,000,000	13,000,000	ND	49,000,000	1,000,000,000
1,1,2-Trichloroethane		NA	NA	520,000	ND	ND	ND	ND	ND	ND	ND	NA
Trichloroethene		740,000	ND	6,000,000	ND	ND	ND	ND	ND	ND	2,200,000	1,700,000
Trichlorofluoromethane		NA	NA	200,000	ND	ND	ND	ND	ND	ND	90,000	NA
m-Xylene		NA	NA	4,800,000	970,000	ND	ND	ND	1,100,000	2,200	ND	NA
p,o-Xylene		NA	NA	4,400,000	1,500,000	ND	ND	ND	530,000	3,300	260,000	NA

Results are reported in units of micrograms per liter (ug/L).

Samples were analyzed for priority pollutant volatile organic compounds by U.S. Environmental Protection Agency Method 624. Only those compounds detected are listed.

ID Identification.

ND Not detected.

NA Not analyzed

B Analyte detected in method blank indicating possible/probable laboratory contamination.

* The samples were analyzed for trichloroethane, trichloroethene, and tetrachloroethene only.

** All three samples contained acetone, dichloroethenes, methylisobutylketone, toluene, and xylenes at the parts per million level. None of these results were quantified (Roy F. Weston, Inc. 1988). Therefore, the results are indicated as NA.

TRC Environmental Consultants (TRC) (1988).

AR301297

Table 5-3. Concentrations of Volatile Organic Compounds in Soil Vapor Samples Collected from Vapor Well Points at the 120 Mill Street Property, Dublin NPL Site, Dublin, Pennsylvania.

Well ID	Date Sampled	Compounds and Detection Limits								Well Location	Comments
		TCE	DL	VC	DL	TOL	DL	DCE	DL		
VW-1	12/27/89	**	**	**	**	**	**	**	**	North of Building 1. Near former drum storage area; near storm sewer.	No sample. Water in well point.
	01/29/90	**	**	**	**	**	**	**	**		No sample. Water in well point.
	02/09/90	**	**	**	**	**	**	**	**		No sample. Water in well point.
VW-2	12/27/89	ND	0.3	0.9	0.6	0.7	0.2	ND	0.1	Northwest of quonset hut.	Sample collected.
	12/27/89	ND	0.3	0.6	0.6	0.7	0.2	ND	0.1		Duplicate sample collected.
	01/29/90	**	**	**	**	**	**	**	**		No sample. Water in well point.
	02/09/90	ND	0.2	ND	0.5	ND	0.2	ND	0.2		Evacuated water. Collected sample.
VW-3	12/27/89	ND	0.3	2.0	0.6	0.2	0.2	ND	0.1	Northwest of Building 3. Near storm sewer; up-gradient of magnetic anomaly.	Sample collected.
	01/29/90	**	**	**	**	**	**	**	**		No sample. Water in well point.
	02/09/90	ND	0.2	ND	0.5	ND	0.2	ND	0.2		Evacuated water. Collected sample.
VW-4	12/27/89	ND	0.3	ND	0.6	1.0	0.2	ND	0.1	Southeast of quonset hut.	Sample collected.
	01/29/89	**	**	**	**	**	**	**	**		No sample. Water in well point.
	02/09/90	ND	0.2	ND	0.5	ND	0.2	ND	0.2		Evacuated water. Collected sample.
VW-5	12/27/89	7	0.3	ND	0.6	ND	0.2	ND	0.1	Northwest of Building 1. Behind former drum storage area.	Sample collected.

See last page for footnotes.

AR301299

Table 5-3. Concentrations of Volatile Organic Compounds in Soil Vapor Samples Collected from Vapor Well Points at the 120 Mill Street Property, Dublin NPL Site, Dublin, Pennsylvania.

Well ID	Date Sampled	Compounds and Detection Limits								Well Location	Comments
		TCE	DL	VC	DL	TOL	DL	DCE	DL		
VW-5 (con't.)	01/29/89	••	••	••	••	••	••	••	••		No sample. Water in well point.
	02/09/90	100	0.2	ND	0.5	0.5	0.2	0.2	0.2		Water evacuated. Sample collected.
	02/09/90	60	0.2	ND	0.5	0.4	0.2	0.2	0.2		Duplicate sample collected.
VW-6	01/29/89	••	••	••	••	••	••	••	••	West of Building 4.	No sample. Water in well point.
	02/09/90	ND	0.2	ND	0.5	ND	0.2	ND	0.2		Water evacuated. Sample collected.
VW-7	01/29/89	••	••	••	••	••	••	••	••	Northwest of Building 4.	No sample. Water in well point.
	02/09/90	ND	0.2	ND	0.5	ND	0.2	ND	0.2		Water evacuated. Sample collected.
VW-8	01/29/89	••	••	••	••	••	••	••	••	Northwest of Building 4. Near sewer cleanout pipe.	No sample. Water in well point.
	02/09/90	••	••	••	••	••	••	••	••		No sample. Water in well point.
VW-9	01/29/90	••	••	••	••	••	••	••	••	Northwest of Building 4. Near sewer cleanout pipe.	No sample. Water in well point.
	02/09/90	••	••	••	••	••	••	••	••		No sample. Water in well point.
VW-10	01/29/89	••	••	••	••	••	••	••	••	West of Building 4. Downgradient of magnetic anomaly.	No sample. Water in well point.
	02/09/90	••	••	••	••	••	••	••	••		No sample. Water in well point.

See last pa[illegible] ootnotes.

Table 5-3. Concentrations of Volatile Organic Compounds in Soil Vapor Samples Collected from Vapor Well Points at the 120 Mill Street Property, Dublin NPL Site, Dublin, Pennsylvania.

Well ID	Date Sampled	Compounds and Detection Limits								Well Location	Comments
		TCE	DL	VC	DL	TOL	DL	DCE	DL		
VW-11	01/29/89	••	••	••	••	••	••	••	••	Northwest of Building 3. Downgradient of magnetic anomaly.	No sample. Water in well point.
	02/09/90	••	••	••	••	••	••	••	••		No sample. Water in well point.
VW-12	01/29/89	••	••	••	••	••	••	••	••	Southwest of quonset hut. Between quonset hut and magnetic anomaly.	No sample. Water in well point.
	02/09/90	2	0.2	ND	0.5	ND	0.2	ND	0.2		Water evacuated. Sample collected.
VW-13	01/29/89	••	••	••	••	••	••	••	••	North of quonset hut.	No sample. Water in well point.
	02/09/90	2	0.2	ND	0.5	ND	0.2	ND	0.2		Water evacuated. Sample collected.
VW-14	01/29/90	••	••	••	••	••	••	••	••	Northwest of Building 1. Near former drum storage area.	No sample. Water in well point.
	02/09/90	•	•	•	•	•	•	•	•		Water evacuated. Sample collected.
VW-15	01/29/90	••	••	••	••	••	••	••	••	South of fire tower.	No sample. Water in well point.
	02/09/90	••	••	••	••	••	••	••	••		No sample. Water in well point.
VW-16	01/29/89	••	••	••	••	••	••	••	••	East of fire tower. Near storm sewer.	No sample. Water in well point.
	02/09/90	••	••	••	••	••	••	••	••		No sample. Water in well point

See last page for footnotes.

AR301301

Table 5-3. Concentrations of Volatile Organic Compounds in Soil Vapor Samples Collected from Vapor Well Points at the 120 Mill Street Property, Dublin NPL Site, Dublin, Pennsylvania.

Well ID	Date Sampled	Compounds and Detection Limits								Well Location	Comments
		TCE	DL	VC	DL	TOL	DL	DCE	DL		
VW-17	01/29/90	ND	0.3	ND	0.6	ND	0.2	ND	0.1	Southwest of fire tower. Near storm sewer.	Sample collected.
	02/09/90	ND	0.2	ND	0.5	ND	0.2	ND	0.2		Water evacuated. Sample collected.
VW-18	01/29/90	0.6	0.3	ND	0.6	ND	0.2	ND	0.1	Northwest of Building 4 Near back of property.	Sample collected.
	02/09/90	ND	0.2	ND	0.5	ND	0.2	ND	0.2		Water evacuated. Sample collected.
VW-19	01/29/90	••	••	••	••	••	••	••	••	Northwest of Building 2. Near front of property. Near storm sewer.	No sample. Water in well point.
	02/09/90	0.3	0.2	ND	0.5	ND	0.2	ND	0.2		Sample collected.
VW-20	01/29/90	••	••	••	••	••	••	••	••	Northeast of Building 1.	No sample. Water in well point.
	02/09/90	••	••	••	••	••	••	••	••		No sample. Water in well point.

Concentrations reported in parts per million.

DL Detection limit.
ND Not detected.
TCE Trichloroethene.
VC Vinyl chloride.
TOL Toluene.
DCE 1,2-Dichloroethene.
• TCE and DCE present in sample, but could not be quantified.
•• Well point contained water and was not sampled.

Table 5-4. Concentrations of Volatile Organic Compounds in Soil Samples Collected on February 22 and 23, 1990, Dublin NPL Site, Dublin, Pennsylvania.

Parameter	Boring I.D. / Sample Depth: (ft bls) / Date:	B-1 0.5 - 1.0 02/22/90	B-2 0.8 - 1.3 02/23/90	B-3 1.1 - 1.6 02/22/90	B-4 0.9 - 1.4 02/22/90	B-6 2.5 - 3.0 02/22/90	B-7 2.4 - 2.9 02/22/90	B-8 0.9 - 1.4 02/22/90	B-10 0.5 - 1.0 02/23/90
Chloromethane		<5	<5	<5	<5	<5	<5	<5	<5
Vinyl chloride		<5	<5	<5	<5	<5	<5	<5	<5
Chloroethane		<5	<5	<5	<5	<5	<5	<5	<5
Methylene chloride		<5	<5	<5	<5	<5	<5	<5	<5
1,1-Dichloroethene		<5	<5	<5	<5	<5	<5	<5	<5
1,1-Dichloroethane		<5	<5	<5	<5	<5	<5	<5	<5
trans-1,2-Dichloroethene		<5	<5	<5	<5	<5	<5	<5	<5
Chloroform		<5	<5	<5	<5	<5	<5	<5	<5
1,2-Dichloroethane		<5	<5	<5	<5	<5	<5	<5	<5
1,1,1-Trichloroethane		<5	<5	<5	<5	<5	<5	<5	<5
Carbon tetrachloride		<5	<5	<5	<5	<5	<5	<5	<5
Bromodichloromethane		<5	<5	<5	<5	<5	<5	<5	<5
1,2-Dichloropropane		<5	<5	<5	<5	<5	<5	<5	<5
trans-1,3-Dichloropropene		<5	<5	<5	<5	<5	<5	<5	<5
Trichloroethene		<5	<5	<5	<5	<5	<5	<5	<5
Dibromochloromethane		<5	<5	<5	<5	<5	<5	<5	<5
1,1,2-Trichloroethane		<5	<5	<5	<5	<5	<5	<5	<5
cis-1,3-Dichloropropene		<5	<5	<5	<5	<5	<5	<5	<5
Bromoform		<5	<5	<5	<5	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane		<5	<5	<5	<5	<5	<5	<5	<5
Tetrachloroethene		<5	<5	<5	<5	<5	<5	<5	<5
Chlorobenzene		<5	<5	<5	<5	<5	<5	<5	<5

See last page for footnotes.

AR301302

AR301303

Table 5-4. Concentrations of Volatile Organic Compounds in Soil Samples Collected on February 22 and 23, 1990, Dublin NPL Site, Dublin, Pennsylvania.

Parameter	Boring I.D.: / Sample Depth: (ft bls) / Date:	B-11 4.3 - 4.8 02/22/90	B-12 0.5 - 1.0 02/23/90	B-13 2.5 - 3.0 02/23/90	B-14C 2.7 - 3.2 02/23/90	B-15 0.5 - 1.0 02/23/90	B-16 2.5 - 3.0 02/23/90	B-17 2.5 - 3.0 02/23/90	B-5 (Field Blank) 02/22/90
Chloromethane		<5	<5,000	<5	<5	<500	<250	<5	<5
Vinyl chloride		<5	<5,000	<5	<5	<500	<250	<5	<5
Chloroethane		<5	<5,000	<5	<5	<500	<250	<5	<5
Methylene chloride		<5	<5,000	<5	<5	<500	<250	<5	<5
1,1-Dichloroethene		<5	<5,000	<5	<5	<500	<250	<5	<5
1,1-Dichloroethane		<5	<5,000	<5	<5	<500	<250	<5	<5
trans-1,2-Dichloroethene		<5	<5,000	<5	6	<500	<250	<5	<5
Chloroform		<5	<5,000	<5	<5	<500	<250	<5	<5
1,2-Dichloroethane		<5	<5,000	<5	<5	<500	<250	<5	<5
1,1,1-Trichloroethane		<5	<5,000	<5	<5	<500	<250	<5	<5
Carbon tetrachloride		<5	<5,000	<5	<5	<500	<250	<5	<5
Bromodichloromethane		<5	<5,000	<5	<5	<500	<250	<5	<5
1,2-Dichloropropane		<5	<5,000	<5	<5	<500	<250	<5	<5
trans-1,3-Dichloropropene		<5	<5,000	<5	<5	<500	<250	<5	<5
Trichloroethene		17	<5,000	<5	13	<500	2,000	18	<5
Dibromochloromethane		<5	<5,000	<5	<5	<500	<250	<5	<5
1,1,2-Trichloroethane		<5	<5,000	<5	<5	<500	<250	<5	<5
cis-1,3-Dichloropropene		<5	<5,000	<5	<5	<500	<250	<5	<5
Bromoform		<5	<5,000	<5	<5	<500	<250	<5	<5
1,1,2,2-Tetrachloroethane		<5	<5,000	<5	<5	<500	<250	<5	<5
Tetrachloroethene		<5	<5,000	<5	<5	<500	<250	<5	<5
Chlorobenzene		<5	<5,000	<5	<5	<500	<250	<5	<5

Concentrations reported in micrograms per kilogram (ug/kg).
< Concentration was below the detection limit.
ft bls Feet below land surface.
Samples analyzed by U.S. Environmental Protection Agency (USEPA) Method 8240.
Analyses performed by NET Atlantic, Cambridge Division, Bedford, Massachusetts.
Sample B-12 and B-15 were not analyzed at greater sensitivity due to the presence of high levels of aromatic volatile organics.
Sample B-12 contained approximately 60,000 ug/kg of combined ethylbenzene and xylene.
Sample B-15 contained approximately 3,000 ug/kg of xylenes.

able 5-5. Concentrations of Volatile Organic Compounds in Soil Samples Collected in July 1992, Dublin NPL Site, Dublin, Pennsylvania.

Analyte	Sample ID: / Date:	SB-1 (1.0-1.5') (SR01010) 10-Jul-92	SB-2 (11.5-12.0') (SO2115) 7-Jul-92	SB-3 (13.5-14.0') (SR03135) 11-Jul-92	SB-4 (9.5-10.0') (SR04095) 11-Jul-92	SB-5 (1.0-1.5') (SR05010) 11-Jul-92	SB-6 (1.0-1.5') (SR06010) 11-Jul-92	SB-7 (1.0-1.5') (SR07010) 11-Jul-92	SB-8 (5.5-6.0') (SR08055) 11-Jul-92	SB-9 (1.0-1.5') (SR09010) 11-Jul-92	SB-10 (1.0-1.5') (SR10010) 11-Jul-92	SB-11 (0.5-1.0') (SR11005) 11-Jul-92	SB-11 FR (0.5-1.0') (SR73005) 11-Jul-92	SB-12 (6.5-7.0') (SR12065) 11-Jul-92
hloromethane		11 U	1400 U	12 U	11 U	12 U	15 U	12 U	11 U	11 U	11 U	24 U	13 U	12 U
romomethane		11 U	1400 U	12 U	11 U	12 U	15 U	12 U	11 U	11 U	11 U	24 U	13 U	12 U
nyl chloride		11 U	1400 U	12 U	11 U	12 U	15 U	12 U	11 U	11 U	11 U	24 U	7 J	12 U
hloroethane		11 U	1400 U	12 U	11 U	12 U	15 U	12 U	11 U	11 U	11 U	24 U	13 U	12 U
ethylene chloride		90 B	780 B	16 B	47 B	24 B	73 B	76 B	74 B	37 B	38 B	35 B	57 B	39 B
cetone		110 B	1900 B	77 B	54 B	9 B	110 B	55 B	77 B	33 B	50 B	30 B	210	9 B
rbon disulfide		11 U	1400 U	12 U	11 U	12 U	15 U	12 U	11 U	11 U	11 U	24 U	13 U	12 U
,1-Dichloroethene		11 U	1400 U	12 U	11 U	12 U	15 U	12 U	11 U	11 U	11 U	24 U	13 U	12 U
,1-Dichloroethane		11 U	1400 U	12 U	11 U	12 U	15 U	12 U	11 U	11 U	11 U	24 U	13 U	12 U
,2-Dichloroethene (cis/trans)		11 U	1400 U	12 U	11 U	12 U	15 U	12 U	11 U	11 U	11 U	280	200	12 U
hloroform		11 U	1400 U	12 U	11 U	12 U	15 U	12 U	11 U	11 U	11 U	24 U	1 J	12 U
,2-Dichloroethane		11 U	1400 U	12 U	11 U	12 U	15 U	12 U	11 U	11 U	11 U	24 U	13 U	12 U
Butanone		11 U	1400 U	12 U	11 U	12 U	15 U	12 U	11 U	11 U	11 U	6 B	28 B	12 U
,1,1-Trichloroethane		11 U	1400 U	12 U	11 U	12 U	15 U	12 U	11 U	11 U	11 U	24 U	13 U	12 U
arbon tetrachloride		11 U	1400 U	12 U	11 U	12 U	15 U	12 U	11 U	11 U	11 U	24 U	13 U	12 U
romodichloromethane		11 U	1400 U	12 U	11 U	12 U	15 U	12 U	11 U	11 U	11 U	24 U	13 U	12 U
,2-Dichloropropane		11 U	1400 U	12 U	11 U	12 U	15 U	12 U	11 U	11 U	11 U	24 U	13 U	12 U
s-1,3-Dichloropropene		11 U	1400 U	12 U	11 U	12 U	15 U	12 U	11 U	11 U	11 U	24 U	13 U	12 U
richloroethene		2 J	180 J	22	8 J	12 U	23	12 U	1 J	1 J	11 U	120	52	2 J
ibromochloromethane		11 U	1400 U	12 U	11 U	12 U	15 U	12 U	11 U	11 U	11 U	24 U	13 U	12 U
,1,2-Trichloroethane		11 U	1400 U	12 U	11 U	12 U	15 U	12 U	11 U	11 U	11 U	24 U	13 U	12 U
enzene		11 U	1400 U	12 U	11 U	12 U	15 U	12 U	1 J	11 U	11 U	24 U	13 U	12 U
ans-1,3-Dichloropropene		11 U	1400 U	12 U	11 U	12 U	15 U	12 U	11 U	11 U	11 U	24 U	13 U	12 U
romoform		11 U	1400 U	12 U	11 U	12 U	15 U	12 U	11 U	11 U	11 U	24 U	13 U	12 U
Methyl-2-pentanone		11 U	1400 U	12 U	11 U	12 U	15 UJ	12 U	11 U	11 U	11 U	24 U	13 U	12 U
Hexanone		11 U	1400 U	12 U	11 U	12 U	15 UJ	12 U	11 U	11 U	11 U	30	13 U	12 U
,1,2,2-Tetrachloroethane		11 U	1400 U	12 U	11 U	12 U	15 UJ	12 U	11 U	11 U	11 U	24 U	13 U	12 U
etrachloroethene		11 U	1400 U	12 U	11 U	12 U	15 UJ	12 U	11 U	11 U	11 U	3 J	13 U	12 U
oluene		11 U	1400 U	12 U	11 U	12 U	15 UJ	12 U	1 J	2 J	11 U	15 J	15	12 U
hlorobenzene		11 U	1400 U	12 U	11 U	12 U	15 UJ	12 U	11 U	1 J	11 U	24 U	13 U	12 U
thylbenzene		11 U	1400 U	12 U	11 U	12 U	15 UJ	12 U	11 U	11 U	11 U	4 J	7 J	12 U
tyrene		11 U	1400 U	12 U	11 U	12 U	15 UJ	12 U	11 U	11 U	11 U	24 U	13 U	12 U
ylenes (total)		11 U	1400 U	12 U	11 U	12 U	15 UJ	12 U	11 U	11 U	11 U	45	30	12 U

nalyte concentrations in micrograms per kilogram (parts per billion [ppb]).
nalyses were performed by Enseco-East of Somerset, New Jersey, using March 1990 Contract Laboratory Program (CLP) protocols.

The compound was also detected in the associated method blank.
Compound concentration was determined at a secondary dilution factor.
Estimated result.
The compound was analyzed for, but not detected at the corresponding reporting limits.
R Field replicate of previous sample.

AR301305

ible 5-5. Concentrations of Volatile Organic Compounds in Soil Samples Collected in July 1992, Dublin NPL Site, Dublin, Pennsylvania.

Analyte	Sample ID: SB-13 (9.0-9.5') (SR13090)	SB-14 (12.5-13.0') (S14125)	SB-15 (10.5-11.0') (S15105)	SB-16 (0.5-1.0') (S16005)	SB-17 (1.5-2.0') (S17015)	SB-17 FR (1.5-2.0') (S72015)	SR-2 (11.5-12.0') (SR02115)	Test Pit 1 (4.0-4.5') (T01A040)	Test Pit 3 (8.8-9.3') (T03A088)	Test Pit 4 (TO4A020)
Date:	11-Jul-92	10-Jul-92	10-Jul-92	10-Jul-92	10-Jul-92	10-Jul-92	10-Jul-92	13-Jul-92	13-Jul-92	14-Jul-92
hloromethane	14 U	11 U	12 U	20 J	12 U	12 U	11 U	16 U	12 U	13 U
romomethane	14 U	11 U	12 U	62 U	12 U	12 U	11 U	16 U	12 U	13 U
nyl chloride	14 U	11 U	12 U	62 U	12 U	12 U	11 U	16 U	12 U	13 U
hloroethane	14 U	11 U	12 U	62 U	12 U	12 U	11 U	16 U	12 U	13 U
lethylene chloride	63 B	27 B	26 B	170 B	36 B	39 B	49 B	23 B	45 B	35 B
cetone	78 B	18 B	20 B	180 B	79 B	81 B	54 B	41 B	130 B	120 B
arbon disulfide	14 U	11 U	12 U	62 U	12 U	12 U	11 U	16 U	12 U	13 U
,1-Dichloroethene	14 U	11 U	12 U	62 U	12 U	12 U	11 U	16 U	12 U	13 U
,1-Dichloroethane	14 U	11 U	12 U	62 U	12 U	12 U	11 U	16 U	12 U	13 U
,2-Dichloroethene (cis/trans)	6 J	11 U	12 U	15 J	3 J	1 J	11 U	16 U	12 U	13 U
hloroform	14 U	11 U	12 U	62 U	12 U	12 U	11 U	16 U	12 U	13 U
,2-Dichloroethane	14 U	11 U	12 U	62 U	12 U	12 U	11 U	16 U	12 U	13 U
Butanone	3 B	11 U	12 U	11 B	20 B	17 B	11 U	16 U	5 B	13 U
,1,1-Trichloroethane	14 U	11 U	12 U	62 U	12 U	12 U	11 U	16 U	12 U	13 U
arbon tetrachloride	14 U	11 U	12 U	62 U	12 U	12 U	11 U	16 U	12 U	13 U
romodichloromethane	14 U	11 U	12 U	62 U	12 U	12 U	11 U	16 U	12 U	13 U
,2-Dichloropropane	14 U	11 U	12 U	62 U	12 U	12 U	11 U	16 U	12 U	13 U
s-1,3-Dichloropropene	14 U	11 U	12 U	62 U	12 U	12 U	11 U	16 U	12 U	13 U
richloroethene	150 D	1 J	8 J	7 J	3 J	2 J	30	3 J	17	6 J
ibromochloromethane	14 U	11 U	12 U	62 U	12 U	12 U	11 U	16 U	12 U	13 U
,1,2-Trichloroethane	14 U	11 U	12 U	62 U	12 U	12 U	11 U	16 U	12 U	13 U
enzene	14 U	11 U	12 U	62 U	12 U	12 U	11 U	16 U	12 U	13 U
ans-1,3-Dichloropropene	14 U	11 U	12 U	62 U	12 U	12 U	11 U	16 U	12 U	13 U
romoform	14 U	11 U	12 U	62 U	12 U	12 U	11 U	16 U	12 U	13 U
Methyl-2-pentanone	14 U	11 U	12 U	62 U	12 U	12 U	11 U	16 U	12 U	13 U
Hexanone	14 U	11 U	12 U	62 U	12 U	12 U	11 U	16 U	12 U	13 U
,1,2,2-Tetrachloroethane	14 U	11 U	12 U	62 U	12 U	12 U	11 U	16 U	12 U	13 U
etrachloroethene	3 J	11 U	12 U	83	12 U	12 U	11 U	16 U	12 U	13 U
oluene	14 U	11 U	12 U	370 DJ	6 J	7 J	11 U	16 U	12 U	13 U
hlorobenzene	14 U	11 U	12 U	62 U	12 U	12 U	11 U	16 U	12 U	13 U
thylbenzene	14 U	11 U	12 U	510 DJ	2 J	3 J	11 U	16 U	12 U	13 U
tyrene	14 U	11 U	12 U	62 U	12 U	12 U	11 U	16 U	12 U	13 U
ylenes (total)	14 U	11 U	12 U	4600 D	7 J	13	11 U	16 U	12 U	13 U

nalyte concentrations in micrograms per kilogram (parts per billion [ppb]).
nalyses were performed by Enseco-East of Somerset, New Jersey, using March 1990 Contract Laboratory Program (CLP) protocols.

The compound was also detected in the associated method blank.
Compound concentration was determined at a secondary dilution factor.
Estimated result.
The compound was analyzed for, but not detected at the corresponding reporting limits.
Field replicate of previous sample.

Table 5-6. Concentrations of Tentatively Identified Volatile Organic Compounds in Soil Samples Collected in July 1992, Dublin NPL Site, Dublin, Pennsylvania.

Analyte	Sample ID: / Date:	SB-1 (1.0-1.5') (SR01010) 10-Jul-92	SB-2 (11.5-12.0') (S02115) 7-Jul-92	SB-3 (13.5-14.0') (SR03135) 11-Jul-92	SB-4 (9.5-10.0') (SR04095) 11-Jul-92	SB-5 (1.0-1.5') (SR05010) 11-Jul-92	SB-6 (1.0-1.5') (SR06010) 11-Jul-92	SB-7 (1.0-1.5') (SR07010) 11-Jul-92	SB-8 (5.5-6.0') (SR08055) 11-Jul-92	SB-9 (1.0-1.5') (SR09010) 11-Jul-92	SB-10 (1.0-1.5') (SR10010) 11-Jul-92	SB-11 (0.5-1.0') (SR11005) 11-Jul-92	SB-11 FR (0.5-1.0') (SR73005) 11-Jul-92	SB-12 (6.5-7.0') (SR12065) 11-Jul 92
Unknown Record 14		16 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hydrocarbon Record 1		NA	820 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hydrocarbon Record 2		NA	2500 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hydrocarbon Record 3		NA	960 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Unknown Record 1		NA	1100 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hydrocarbon Record 4		NA	2600 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hydrocarbon Record 5		NA	960 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C13H14 Isomer Record 1		NA	NA	18 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C13H14 Isomer Record 2		NA	NA	18 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hydrocarbon Record 26		NA	NA	NA	32 J	NA	NA	NA	NA	NA	NA	NA	NA	NA
Unknown Record 35		NA	NA	NA	10 J	NA	NA	NA	NA	NA	NA	NA	NA	NA
C12H16 Isomer		NA	NA	NA	6 J	NA	NA	NA	NA	NA	NA	NA	NA	NA
C12H12 Isomer		NA	NA	NA	21 J	NA	NA	NA	NA	NA	NA	NA	NA	NA
Octamethyl cyclotetrasiloxane		NA	NA	NA	NA	11 J	NA	NA	10 J	27 J	13 J	NA	NA	18 J
Unknown Record 36		NA	NA	NA	NA	45 J	NA	NA	NA	NA	NA	NA	NA	NA
Unknown Record 37		NA	NA	NA	NA	NA	7 J	NA	NA	NA	NA	NA	NA	NA
Unknown Record 39		NA	NA	NA	NA	NA	NA	7 J	NA	NA	NA	NA	NA	NA
Unknown Record 40		NA	NA	NA	NA	NA	NA	NA	15 J	NA	NA	NA	NA	NA
Unknown Record 41		NA	NA	NA	NA	NA	NA	NA	NA	40 J	NA	NA	NA	NA
Unknown Record 42		NA	NA	NA	NA	NA	NA	NA	NA	NA	18 J	NA	NA	NA
Hydrocarbon Record 27		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	580 J	NA	NA
Hydrocarbon Record 28		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1000 J	NA	NA
Hydrocarbon Record 29		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	450 J	NA	NA
Hydrocarbon Record 30		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2900 J	NA	NA
Hydrocarbon Record 31		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1200 J	NA	NA
Unknown Record 43		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	740 J	NA	NA
Hydrocarbon Record 32		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	550 J	NA	NA
Hydrocarbon Record 33		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1700 J	NA	NA
Hydrocarbon Record 34		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	980 J	NA	NA
Hydrocarbon Record 35		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	470 J	NA	NA
1,2-dichloro-1,1,2-trifluoro Ethane		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	66 J	NA
C8H16 Isomer		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	22 J	NA
Unknown Record 46		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	32 J	NA
Hydrocarbon Record 44		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	77 J	NA
C9H12 Isomer Record 1		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	25 J	NA
Butyl Cyclohexane		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	23 J	NA
C9H12 Isomer Record 2		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	39 J	NA
Hydrocarbon Record 45		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	68 J	NA
Unknown Record 47		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	44 J	NA
Hydrocarbon Record 46		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	29 J	NA

Analyte concentrations in micrograms per kilogram (parts per billion [ppb]).
Analyses were performed by Enseco-East of Somerset, New Jersey, using March 1990 Contract Laboratory Program (CLP) protocols.

J Estimated result.
FR Field replicate of previous sample.
NA Not applicable.

AR301306

AR301307

Table 5-6. Concentrations of Tentatively Identified Volatile Organic Compounds in Soil Samples Collected in July 1992, Dublin NPL Site, Dublin, Pennsylvania.

Analyte	Sample ID: / Date:	SB-1 (1.0-1.5') (SR01010) 10-Jul-92	SB-2 (11.5-12.0') (SO2115) 7-Jul-92	SB-3 (13.5-14.0') (SR03135) 11-Jul-92	SB-4 (9.5-10.0') (SR04095) 11-Jul-92	SB-5 (1.0-1.5') (SR05010) 11 Jul-92	SB-6 (1.0-1.5') (SR06010) 11-Jul-92	SB-7 (1.0-1.5') (SR07010) 11-Jul-92	SB-8 (5.5-6.0') (SR08055) 11-Jul-92	SB-9 (1.0-1.5') (SR09010) 11-Jul-92	SB-10 (1.0-1.5') (SR10010) 11-Jul-92	SB-11 (0.5-1.0') (SR11005) 11-Jul-92	SB-11 FR (0.5-1.0') (SR73005) 11-Jul-92	SB-12 (6.5-7.0') (SR12065) 11-Jul-92
Unknown Record 44		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	49 J
Hydrocarbon Record 36		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl Ethyl Cyclohexane		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hydrocarbon Record 37		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hydrocarbon Record 38		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hydrocarbon Record 39		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hydrocarbon Record 40		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Unknown Record 45		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hydrocarbon Record 41		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hydrocarbon Record 42		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hydrocarbon Record 43		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Unknown Record 17		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hydrocarbon Record 13		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hydrocarbon Record 14		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C9H12 Isomer Record 3		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hydrocarbon Record 48		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C9H12 Isomer Record 4		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C10 H20 Isomer		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Unknown Record 18		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hydrocarbon Record 49		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hydrocarbon Record 15		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hydrocarbon Record 9		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hydrocarbon Record 10		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hydrocarbon Record 11		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Unknown Record 12		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hydrocarbon Record 12		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Unknown Record 13		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hydrocarbon Record 6		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hydrocarbon Record 7		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Unknown Record 9		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Unknown Record 10		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hydrocarbon Record 8		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Unknown Record 11		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Unknown Record 15		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Unknown Record 16		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Analyte concentrations in micrograms per kilogram (parts per billion [ppb]).
Analyses were performed by Enseco-East of Somerset, New Jersey, using March 1990 Contract Laboratory Program (CLP) protocols.

J Estimated r
FR Field replic[illegible] previous sample.
NA Not applicab[illegible].

able 5-6. Concentrations of Tentatively Identified Volatile Organic Compounds in Soil Samples Collected in July 1992, Dublin NPL Site, Dublin, Pennsylvania.

Analyte	Sample ID: / Date:	SB-13 (9.0-9.5') (SR13090) 11-Jul-92	SB-16 (0.5-1.0') (S16005) 10-Jul-92	SB-17 (1.5-2.0') (S17015) 10-Jul-92	SB-17 FR (1.5-2.0') (S72015) 10-Jul-92	SR-2 (11.5-12.0') (SR02115) 10-Jul-92
Unknown Record 14		NA	NA	NA	NA	NA
Hydrocarbon Record 1		NA	NA	NA	NA	NA
Hydrocarbon Record 2		NA	NA	NA	NA	NA
Hydrocarbon Record 3		NA	NA	NA	NA	NA
Unknown Record 1		NA	NA	NA	NA	NA
Hydrocarbon Record 4		NA	NA	NA	NA	NA
Hydrocarbon Record 5		NA	NA	NA	10 J	NA
C13H14 Isomer Record 1		NA	NA	NA	NA	NA
C13H14 Isomer Record 2		NA	NA	NA	NA	NA
Hydrocarbon Record 26		NA	NA	NA	NA	NA
Unknown Record 35		NA	NA	NA	NA	NA
C12H16 Isomer		NA	NA	NA	NA	NA
C12H12 Isomer		NA	NA	NA	NA	NA
Octamethyl cyclotetrasiloxane		NA	NA	NA	NA	NA
Unknown Record 36		NA	NA	NA	NA	NA
Unknown Record 37		NA	NA	NA	NA	NA
Unknown Record 39		NA	NA	NA	NA	NA
Unknown Record 40		NA	NA	NA	NA	NA
Unknown Record 41		NA	NA	NA	NA	NA
Unknown Record 42		NA	NA	NA	NA	NA
Hydrocarbon Record 27		NA	NA	NA	NA	NA
Hydrocarbon Record 28		NA	NA	NA	NA	NA
Hydrocarbon Record 29		NA	NA	NA	NA	NA
Hydrocarbon Record 30		NA	NA	NA	NA	NA
Hydrocarbon Record 31		NA	NA	NA	NA	NA
Unknown Record 43		NA	NA	NA	NA	NA
Hydrocarbon Record 32		NA	NA	NA	NA	NA
Hydrocarbon Record 33		NA	NA	NA	NA	NA
Hydrocarbon Record 34		NA	NA	NA	NA	NA
Hydrocarbon Record 35		NA	NA	NA	NA	NA
1,2-dichloro-1,1,2-trifluoro Ethane		NA	NA	NA	NA	NA
C8H16 Isomer		NA	NA	NA	NA	NA
Unknown Record 46		NA	NA	NA	NA	NA
Hydrocarbon Record 44		NA	NA	NA	NA	NA
C9H12 Isomer Record 1		NA	NA	NA	NA	NA
Butyl Cyclohexane		NA	NA	NA	NA	NA
C9H12 Isomer Record 2		NA	NA	NA	NA	NA
Hydrocarbon Record 45		NA	NA	NA	NA	NA
Unknown Record 47		NA	NA	NA	NA	NA
Hydrocarbon Record 46		NA	NA	NA	NA	NA

Analyte concentrations in micrograms per kilogram (parts per billion [ppb]).
Analyses were performed by Enseco-East of Somerset, New Jersey, using March 1990 Contract Laboratory Program (CLP) protocols.

J Estimated result.
FR Field replicate of previous sample.
NA Not applicable.

AR301308

ARJ01309

Table 5-6. Concentrations of Tentatively Identified Volatile Organic Compounds in Soil Samples Collected in July 1992, Dublin NPL Site, Dublin, Pennsylvania.

Analyte	Sample ID: / Date:	SB-13 (9.0-9.5') (SR13090) 11-Jul-92	SB-16 (0.5-1.0') (S16005) 10-Jul-92	SB-17 (1.5-2.0') (S17015) 10-Jul-92	SB-17 FR (1.5-2.0') (S72015) 10-Jul-92	SR-2 (11.5-12.0') (SR02115) 10-Jul-92
Unknown Record 44		NA	NA	NA	NA	NA
Hydrocarbon Record 36		14 J	NA	NA	NA	NA
Methyl Ethyl Cyclohexane		14 J	NA	NA	NA	NA
Hydrocarbon Record 37		40 J	NA	NA	NA	NA
Hydrocarbon Record 38		19 J	NA	NA	NA	NA
Hydrocarbon Record 39		150 J	NA	NA	NA	NA
Hydrocarbon Record 40		46 J	NA	NA	NA	NA
Unknown Record 45		28 J	NA	NA	NA	NA
Hydrocarbon Record 41		21 J	NA	NA	NA	NA
Hydrocarbon Record 42		97 J	NA	NA	NA	NA
Hydrocarbon Record 43		14 J	NA	NA	NA	NA
Unknown Record 17		NA	940 J	NA	NA	NA
Hydrocarbon Record 13		NA	1600 J	NA	NA	NA
Hydrocarbon Record 14		NA	3600 J	NA	NA	NA
C9H12 Isomer Record 3		NA	760 J	NA	NA	NA
Hydrocarbon Record 48		NA	1100 J	NA	NA	NA
C9H12 Isomer Record 4		NA	1200 J	NA	NA	NA
C-10 H-20 Isomer		NA	790 J	NA	NA	NA
Unknown Record 18		NA	940 J	NA	NA	NA
Hydrocarbon Record 49		NA	870 J	NA	NA	NA
Hydrocarbon Record 15		NA	2200 J	NA	NA	NA
Hydrocarbon Record 9		NA	NA	9 J	NA	NA
Hydrocarbon Record 10		NA	NA	21 J	NA	NA
Hydrocarbon Record 11		NA	NA	11 J	NA	NA
Unknown Record 12		NA	NA	6 J	NA	NA
Hydrocarbon Record 12		NA	NA	16 J	NA	NA
Unknown Record 13		NA	NA	9 J	NA	NA
Hydrocarbon Record 6		NA	NA	NA	24 J	NA
Hydrocarbon Record 7		NA	NA	NA	12 J	NA
Unknown Record 9		NA	NA	NA	8 J	NA
Unknown Record 10		NA	NA	NA	8 J	NA
Hydrocarbon Record 8		NA	NA	NA	19 J	NA
Unknown Record 11		NA	NA	NA	12 J	NA
Unknown Record 15		NA	NA	NA	NA	9 J
Unknown Record 16		NA	NA	NA	NA	47 J

Analyte concentrations in micrograms per kilogram (parts per billion [ppb]).
Analyses were performed by Enseco-East of Somerset, New Jersey, using March 1990 Contract Laboratory Program (CLP) protocols.

J Estimated
FR Field replik f previous sample.
NA Not applicable.

Table 5-7. Concentrations of Volatile Organic Compounds in Soil Samples Collected in August 1992, Dublin NPL Site, Dublin, Pennsylvania

Analyte	Sample ID: Background Soil 1 1.5-2.0' Date: 26-Aug-92	Background Soil 2 1.0-1.5' 28-Aug-92	Background Soil 3 1.0-1.5' 28-Aug-92	SB 19 (S19065) 26-Aug-92
Chloromethane	12 U	12 U	12 U	13 U
Bromomethane	12 U	12 U	12 U	13 U
Vinyl chloride	12 U	12 U	12 U	13 U
Chloroethane	12 U	12 U	12 U	13 U
Methylene chloride	54 B	30 B	35 B	28 B
Acetone	160 B	23 B	10 B	4 B
Carbon disulfide	2 B	12 U	12 U	13 U
1,1-Dichloroethene	12 U	12 U	12 U	13 U
1,1-Dichloroethane	12 U	12 U	12 U	13 U
1,2-Dichloroethene (cis/trans)	12 U	12 U	12 U	31
Chloroform	12 U	12 U	12 U	13 U
1,2-Dichloroethane	12 U	12 U	12 U	13 U
2-Butanone	43 J	12 U	12 U	13 U
1,1,1-Trichloroethane	12 U	12 U	12 U	13 U
Carbon tetrachloride	12 U	12 U	12 U	13 U
Bromodichloromethane	12 U	12 U	12 U	13 U
1,2-Dichloropropane	12 U	12 U	12 U	13 U
cis-1,3-Dichloropropene	12 U	12 U	12 U	13 U
Trichloroethene	12 U	12 U	12 U	330 D
Dibromochloromethane	12 U	12 U	12 U	13 U
1,1,2-Trichloroethane	12 U	12 U	12 U	2 J
Benzene	12 U	12 U	12 U	13 U
trans-1,3-Dichloropropene	12 U	12 U	12 U	13 U
Bromoform	12 U	12 U	12 U	13 U
4-Methyl-2-pentanone	12 U	12 U	12 U	13 U
2-Hexanone	12 U	12 U	12 U	13 U
1,1,2,2-Tetrachloroethane	12 U	12 U	12 U	13 U
Tetrachloroethene	12 U	12 U	12 U	2 J
Toluene	12 U	12 U	12 U	13 U
Chlorobenzene	12 U	12 U	12 U	13 U
Ethylbenzene	12 U	12 U	12 U	13 U
Styrene	12 U	12 U	12 U	13 U
Xylenes (total)	12 U	12 U	12 U	4 J

Analyte concentrations in micrograms per kilogram (ug/kg).
Analyses were performed by Enseco East of Somerset, New Jersey, using March 1990 Contract Laboratory Program (CLP) protocols

B Analyte is detected in the laboratory blank.
D Analyte identified at a secondary dilution.
J Result is detected below the reporting limit and/or is an estimated concentration.
U Compound or element analyzed for, but not detected at the corresponding reporting limit.

AR301310

AR301311

Table 5-8. Concentrations of Volatile Organic Compounds in Septic Tank Samples Collected in August 1992, Dublin NPL Site, Dublin, Pennsylvania.

Analyte	Sample ID: Septic Tank 1 (ST10826) Date: 26-Aug-92	Septic Tank 2 (ST20826) 26-Aug-92
Chloromethane	13 U	13 U
Bromomethane	13 U	13 U
Vinyl chloride	13 U	13 U
Chloroethane	13 U	13 U
Methylene chloride	20 B	18 B
Acetone	22 B	25 B
Carbon disulfide	4 B	13 U
1,1-Dichloroethene	13 U	13 U
1,1-Dichloroethane	13 U	13 U
1,2-Dichloroethene (cis/trans)	13 U	13 U
Chloroform	13 U	13 U
1,2-Dichloroethane	13 U	13 U
2-Butanone	12 J	8 B
1,1,1-Trichloroethane	13 U	13 U
Carbon tetrachloride	13 U	13 U
Bromodichloromethane	13 U	13 U
1,2-Dichloropropane	13 U	13 U
cis-1,3-Dichloropropene	13 U	13 U
Trichloroethene	13 U	13 U
Dibromochloromethane	13 U	13 U
1,1,2-Trichloroethane	13 U	13 U
Benzene	13 U	38
trans-1,3-Dichloropropene	13 U	13 U
Bromoform	13 U	13 U
4-Methyl-2-pentanone	13 U	13 U
2-Hexanone	13 U	13 U
1,1,2,2-Tetrachloroethane	13 U	13 U
Tetrachloroethene	13 U	13 U
Toluene	13 U	13 U
Chlorobenzene	13 U	300 D
Ethylbenzene	2 J	13 U
Styrene	13 U	13 U
Xylenes (total)	9 J	13 U

Analyte concentrations in micrograms per kilogram (parts per billion [ppb]).
Analyses were performed by Enseco-East of Somerset, New Jersey, using March 1990 Contract Laboratory Program (CLP) protocols.

B The compound was also detected in the associated method blank.
D Compound concentration was determined at a secondary dilution factor.
J Estimated result.
U The compound was analyzed for, but not detected at the corresponding reporting limits.

able 5-9. Concentrations of Volatile Organic Compounds in the Field Blanks and the Trip Blanks Collected in July 1992, Dublin NPL Site, Dublin, Pennsylvania.

Analyte	Sample ID: / Date:	Field Blank (F170710) 10-Jul-92	Field Blank (F040711) 11-Jul-92	Trip Blank (K010710) 10-Jul-92	Trip Blank (K010711) 11-Jul-92	Trip Blank (K010713) 13-Jul-92	Trip Blank (K010714) 14-Jul-92
hloromethane		10 U	10 U	10 U	10 U	10 U	10 U
romomethane		10 U	10 U	10 U	10 U	10 U	10 U
inyl chloride		10 U	10 U	10 U	10 U	10 U	10 U
hloroethane		10 U	10 U	10 U	10 U	10 U	10 U
ethylene chloride		10 U	10 U	2 B	10 U	10 U	10 U
cetone		10 U	10 U	10 U	10 U	10 U	10 U
arbon disulfide		10 U	10 U	10 U	10 U	10 U	10 U
,1-Dichloroethene		10 U	10 U	10 U	10 U	10 U	10 U
,1-Dichloroethane		10 U	10 U	10 U	10 U	10 U	10 U
,2-Dichloroethene (cis/trans)		10 U	10 U	10 U	10 U	10 U	10 U
hloroform		10 U	10 U	10 U	10 U	10 U	10 U
,2-Dichloroethane		10 U	10 U	10 U	10 U	10 U	10 U
-Butanone		10 U	10 U	10 U	10 U	10 U	10 U
,1,1-Trichloroethane		10 U	10 U	10 U	10 U	10 U	10 U
arbon tetrachloride		10 U	10 U	10 U	10 U	10 U	10 U
romodichloromethane		10 U	10 U	10 U	10 U	10 U	10 U
,2-Dichloropropane		10 U	10 U	10 U	10 U	10 U	10 U
rans-1,3-Dichloropropene		10 U	10 U	10 U	10 U	10 U	10 U
richloroethene		10 U	10 U	10 U	10 U	10 U	10 U
ibromochloromethane		10 U	10 U	10 U	10 U	10 U	10 U
,1,2-Trichloroethane		10 U	10 U	10 U	10 U	10 U	10 U
enzene		10 U	10 U	10 U	10 U	10 U	10 U
is-1,3-Dichloropropene		10 U	10 U	10 U	10 U	10 U	10 U
romoform		10 U	10 U	10 U	10 U	10 U	10 U
-Methyl-2-pentanone		10 U	10 U	10 U	10 U	10 U	10 U
-Hexanone		10 U	10 U	10 U	10 U	10 U	10 U
,1,2,2-Tetrachloroethane		10 U	10 U	10 U	10 U	10 U	10 U
etrachloroethene		10 U	10 U	10 U	10 U	10 U	10 U
oluene		10 U	10 U	10 U	10 U	10 U	10 U
hlorobenzene		10 U	10 U	10 U	10 U	10 U	10 U
thylbenzene		10 U	10 U	10 U	10 U	10 U	10 U
tyrene		10 U	10 U	10 U	10 U	10 U	10 U
ylenes (total)		10 U	10 U	10 U	10 U	10 U	10 U

Analyte concentrations in micrograms per liter (*parts per billion [ppb]*).
Analyses were performed by Enseco-East of Somerset, New Jersey, using March 1990 Contract Laboratory Program (CLP) protocols.

B The compound was also detected in the associated method blank.
U The compound was analyzed for, but not detected at the corresponding reporting limits.

AR301312

ible 5-10. Concentrations of Tentatively Identified Volatile Organic Compounds in the Trip Blanks Collected in July 1992, Dublin NPL Site, Dublin, Pennsylvania.

	Sample ID:	Trip Blank (K010710)	Trip Blank (K010713)
Analyte	Date:	10-Jul-92	13-Jul-92
Unknown Record 8		7 J	NA
Dimethyl Silanol		NA	13 J

Analyte concentrations in micrograms per liter (parts per billion [ppb]).
Analyses were performed by Enseco East of Somerset, New Jersey, using March 1990 Contract Laboratory Program (CLP) protocols.

J Estimated result.
NA Not applicable.

AR301313

able 5-11. Concentrations of Base Neutral and Acid Extractable Organic Compounds in Soil Samples Collected in July 1992, Dublin NPL Site, Dublin, Pennsylvania.

Analyte	Sample ID: / Date:	SB-5 (1.0-1.5') (SR05010) 11-Jul-92	SB-6 (1.0-1.5') (SR06010) 11-Jul-92	SB-7 (1.0-1.5') (SR07010) 11-Jul-92	SB-8 (5.5-6.0') (SR08055) 11-Jul-92	SB 9 (1.0-1.5') (SR09010) 11-Jul-92	SB-10 (1.0-1.5') (SR10010) 11-Jul-92	SB-11 (0.5-1.0') (SR11005) 11-Jul-92	SB-11 FR (0.5-1.0') (SR73005) 11-Jul-92	SB-12 (6.5-7.0') (SR12065) 11-Jul-92	SB-13 (9.0-9.5') (SR13090) 11-Jul-92	SB-14 (12.5-13.0') (S14125) 10-Jul-92	SB-15 (10.5-11.0') (S15105) 10-Jul-92	SB-16 (0.5-1.0') (S16005) 10-Jul-92
cenaphthene		400 U	410 U	400 U	370 U	53 J	370 U	400 U	800 J	380 U	380 U	390 U	390 U	12000 U
cenaphthylene		400 U	410 U	400 U	370 U	370 U	370 U	400 U	63 J	380 U	380 U	390 U	390 U	12000 U
nthracene		400 U	410 U	400 U	370 U	71 J	370 U	400 U	1800	380 U	380 U	390 U	390 U	12000 U
H-Carbazole		400 U	410 U	400 U	370 U	44 J	370 U	400 U	740	380 U	380 U	390 U	390 U	12000 U
enzo(a)anthracene		400 U	410 U	90 J	370 U	140 J	370 U	77 J	2600	380 U	43 J	390 U	390 U	12000 U
enzo(a)pyrene		400 U	410 U	72 J	370 U	110 J	370 U	400 U	1600	380 U	380 U	390 U	390 U	12000 U
enzo(b)fluoranthene		400 U	77 J	110 J	370 U	180 J	370 U	96 J	2200	380 U	49 J	390 U	390 U	12000 U
enzo(g,h,i)perylene		400 U	410 U	400 U	370 U	78 J	370 U	400 U	600	380 U	380 U	390 U	390 U	12000 U
enzo(k)fluoranthene		400 U	410 U	400 U	370 U	62 J	370 U	60 J	760 J	380 U	380 U	390 U	390 U	12000 U
Bromophenyl phenyl ether		400 U	410 U	400 U	370 U	370 U	370 U	400 U	410 U	380 U	380 U	390 U	390 U	12000 U
utyl benzyl phthalate		400 U	410 U	400 U	370 U	370 U	370 U	400 U	410 U	380 U	380 U	390 U	390 U	12000 U
Chloroaniline		400 U	410 U	400 U	370 U	370 U	370 U	400 U	410 U	380 U	380 U	390 U	390 U	12000 U
is(2-Chloroethoxy)methane		400 U	410 U	400 U	370 U	370 U	370 U	400 U	410 U	380 U	380 U	390 U	390 U	12000 U
is(2-Chloroethyl)ether		400 U	410 U	400 U	370 U	370 U	370 U	400 U	410 U	380 U	380 U	390 U	390 U	12000 U
is(2-Chloroisopropyl)ether		400 U	410 U	400 U	370 U	370 U	370 U	400 U	410 U	380 U	380 U	390 U	390 U	12000 U
Chloro-3-methylphenol		400 U	410 U	400 U	370 U	370 U	370 U	400 U	410 U	380 U	380 U	390 U	390 U	12000 U
Chloronaphthalene		400 U	410 U	400 U	370 U	370 U	370 U	400 U	410 U	380 U	380 U	390 U	390 U	12000 U
Chlorophenol		400 U	410 U	400 U	370 U	370 U	370 U	400 U	410 U	380 U	380 U	390 U	390 U	12000 U
Chlorophenyl phenyl ether		400 U	410 U	400 U	370 U	370 U	370 U	400 U	410 U	380 U	380 U	390 U	390 U	12000 U
hrysene		400 U	55 J	89 J	370 U	140 J	370 U	79 J	1900	380 U	46 J	390 U	390 U	12000 U
Di-n-butyl phthalate		400 U	410 U	400 U	370 U	40 J	370 U	400 U	410 U	380 U	380 U	390 U	390 U	12000 U
ibenz(a,h)anthracene		400 U	410 U	400 U	370 U	370 U	370 U	400 U	110 J	380 U	380 U	390 U	390 U	12000 U
Dibenzofuran		400 U	410 U	400 U	370 U	370 U	370 U	400 U	410 U	380 U	380 U	390 U	390 U	12000 U
1,2-Dichlorobenzene		400 U	410 U	400 U	370 U	370 U	370 U	400 U	410 U	380 U	380 U	390 U	390 U	12000 U
1,3-Dichlorobenzene		400 U	410 U	400 U	370 U	370 U	370 U	400 U	410 U	380 U	380 U	390 U	390 U	12000 U
1,4-Dichlorobenzene		400 U	410 U	400 U	370 U	370 U	370 U	400 U	410 U	380 U	380 U	390 U	390 U	12000 U
3,3'-Dichlorobenzidine		400 U	410 U	400 U	370 U	370 U	370 U	400 U	860 U	380 U	380 U	390 U	390 U	12000 U
2,4-Dichlorophenol		400 U	410 U	400 U	370 U	370 U	370 U	400 U	410 U	380 U	380 U	390 U	390 U	12000 U
Diethyl phthalate		400 U	410 U	400 U	370 U	370 U	370 U	400 U	410 U	380 U	380 U	390 U	390 U	12000 U
2,4-Dimethylphenol		400 U	410 U	400 U	370 U	370 U	370 U	400 U	410 U	380 U	380 U	390 U	390 U	12000 U
Dimethyl phthalate		400 U	410 U	400 U	370 U	370 U	370 U	400 U	410 U	380 U	380 U	390 U	390 U	12000 U
4,6-Dinitro-2-methylphenol		970 U	980 U	970 U	900 U	910 U	910 U	980 U	980 U	930 U	920 U	930 U	940 U	30000 U
2,4-Dinitrophenol		970 U	980 U	970 U	900 U	910 U	910 U	980 U	980 U	930 U	920 U	930 U	940 U	30000 U
2,4-Dinitrotoluene		400 U	410 U	400 U	370 U	370 U	370 U	400 U	410 U	380 U	380 U	390 U	390 U	12000 U
2,6-Dinitrotoluene		400 U	410 U	400 U	370 U	370 U	370 U	400 U	410 U	380 U	380 U	390 U	390 U	12000 U
Di-n-octyl phthalate		400 U	410 U	400 U	370 U	370 U	370 U	400 U	410 U	380 U	380 U	390 U	390 U	12000 U
is(2-Ethylhexyl)phthalate		400 U	410 U	400 U	46 B	370 U	370 U	56 B	52 B	380 U	380 U	61 B	72 B	12000 U

Analyte concentrations in micrograms per kilogram (parts per billion [ppb]).
Analyses were performed by Enseco-East of Somerset, New Jersey, using March 1990 Contract Laboratory Program (CLP) protocols.

B The compound was also detected in the associated method blank.
D Compound concentration was determined at a secondary dilution factor.
J Estimated result.
U The compound was analyzed for, but not detected at the corresponding reporting limits.
FR Field replicate of previous sample.

AR301314

AR301315

Table 5-11. Concentrations of Base Neutral and Acid Extractable Organic Compounds in Soil Samples Collected in July 1992, Dublin NPL Site, Dublin, Pennsylvania.

Analyte	Sample ID: / Date:	SB-5 (1.0-1.5') (SR05010) 11-Jul-92	SB-6 (1.0-1.5') (SR06010) 11-Jul-92	SB-7 (1.0-1.5') (SR07010) 11-Jul-92	SB-8 (5.5-6.0') (SR08055) 11-Jul-92	SB-9 (1.0-1.5') (SR09010) 11-Jul-92	SB-10 (1.0-1.5') (SR10010) 11-Jul-92	SB-11 (0.5-1.0') (SR11005) 11-Jul-92	SB-11 FR (0.5-1.0') (SR73005) 11-Jul-92	SB-12 (6.5-7.0') (SR12065) 11-Jul-92	SB-13 (9.0-9.5') (SR13090) 11-Jul-92	SB-14 (12.5-13.0') (SI4125) 10-Jul-92	SB-15 (10.5-11.0') (SI5105) 10-Jul-92	SB-16 (0.5-1.0') (SI6005) 10-Jul-92
Fluoranthene		400 U	120 J	190 J	370 U	360 J	370 U	140 J	5500 D	380 U	95 J	390 U	390 U	12000 U
Fluorene		400 U	410 U	400 U	370 U	38 J	370 U	400 U	860	380 U	380 U	390 U	390 U	12000 U
Hexachlorobenzene		400 U	410 U	400 U	370 U	370 U	370 U	400 U	410 U	380 U	380 U	390 U	390 U	12000 U
Hexachlorobutadiene		400 U	410 U	400 U	370 U	370 U	370 U	400 U	410 U	380 U	380 U	390 U	390 U	12000 U
Hexachlorocyclopentadiene		400 U	410 U	400 U	370 U	370 U	370 U	400 U	410 U	380 U	380 U	390 U	390 U	12000 U
Hexachloroethane		400 U	410 U	400 U	370 U	370 U	370 U	400 U	410 U	380 U	380 U	390 U	390 U	12000 U
Indeno(1,2,3-cd)pyrene		400 U	410 U	43 J	370 U	74 J	370 U	400 U	700	380 U	380 U	390 U	390 U	12000 U
Isophorone		400 U	410 U	400 U	370 U	370 U	370 U	400 U	410 U	380 U	380 U	390 U	390 U	12000 U
2-Methylnaphthalene		400 U	410 U	400 U	370 U	370 U	370 U	380 J	670	380 U	380 U	390 U	390 U	12000 U
2-Methylphenol		400 U	410 U	400 U	370 U	370 U	370 U	400 U	410 U	380 U	380 U	390 U	390 U	12000 U
4-Methylphenol		400 U	410 U	400 U	370 U	370 U	370 U	400 U	410 U	380 U	380 U	390 U	390 U	12000 U
Naphthalene		400 U	410 U	400 U	370 U	38 J	370 U	69 J	230 J	380 U	380 U	390 U	390 U	12000 U
2-Nitroaniline		970 U	980 U	970 U	900 U	910 U	910 U	980 U	980 U	930 U	920 U	930 U	940 U	30000 U
3-Nitroaniline		970 U	980 U	970 U	900 U	910 U	910 U	980 U	980 U	930 U	920 U	930 U	940 U	30000 U
4-Nitroaniline		970 U	980 U	970 U	900 U	910 U	910 U	980 U	980 U	930 U	920 U	930 U	940 U	30000 U
Nitrobenzene		400 U	410 U	400 U	370 U	370 U	370 U	400 U	410 U	380 U	380 U	390 U	390 U	12000 U
2-Nitrophenol		400 U	410 U	400 U	370 U	370 U	370 U	400 U	410 U	380 U	380 U	390 U	390 U	12000 U
4-Nitrophenol		970 U	980 U	970 U	900 U	910 U	910 U	980 U	980 U	930 U	920 U	930 U	940 U	30000 U
N-Nitrosodiphenylamine		400 U	410 U	400 U	370 U	370 U	370 U	400 U	410 U	380 U	380 U	390 U	390 U	12000 U
N-Nitroso-di-n-propylamine		400 U	410 U	400 U	370 U	370 U	370 U	400 U	410 U	380 U	380 U	390 U	390 U	12000 U
Pentachlorophenol		970 U	980 U	970 U	900 U	910 U	910 U	980 U	980 U	930 U	920 U	930 U	940 U	30000 U
Phenanthrene		400 U	68 J	110 J	370 U	330 J	370 U	150 J	6900 D	380 U	50 J	390 U	390 U	12000 U
Phenol		400 U	410 U	400 U	370 U	370 U	370 U	400 U	410 U	380 U	380 U	390 U	390 U	12000 U
Pyrene		400 U	89 J	140 J	370 U	260 J	370 U	130 J	4700 D	380 U	62 J	390 U	390 U	12000 U
1,2,4-Trichlorobenzene		400 U	410 U	400 U	370 U	370 U	370 U	400 U	410 U	380 U	380 U	390 U	390 U	12000 U
2,4,5-Trichlorophenol		970 U	980 U	970 U	900 U	910 U	910 U	980 U	980 U	930 U	920 U	930 U	940 U	30000 U
2,4,6-Trichlorophenol		400 U	410 U	400 U	370 U	370 U	370 U	400 U	410 U	380 U	380 U	390 U	390 U	12000 U

Analyte concentrations in micrograms per kilogram (parts per billion [ppb]).
Analyses were performed by Enseco-East of Somerset, New Jersey, using March 1990 Contract Laboratory Program (CLP) protocols.

B The compound was also detected in the associated method blank.
D Compound concentration was determined at a secondary dilution factor.
J Estimated result.
U The compo was analyzed for, but not detected at the corresponding reporting limits.
FR Field replic f previous sample.

able 5-11. Concentrations of Base Neutral and Acid Extractable Organic Compounds in Soil Samples Collected in July 1992, Dublin NPL Site, Dublin, Pennsylvania.

Analyte	Sample ID: SB-17 (1.5-2.0') (S17015) Date: 10-Jul-92	SB-17 FR (1.5-2.0') (S72015) 10-Jul-92	Test Pit 1 (4.0-4.5') (T01A040) 13-Jul-92	Test Pit 3 (8.8-9.3') (T03A088) 13-Jul-92	Test Pit 4 (TO4A020) 14-Jul-92
Acenaphthene	13000 U	11000 U	520 U	390 U	430 U
Acenaphthylene	13000 U	11000 U	520 U	390 U	430 U
Anthracene	13000 U	11000 U	520 U	390 U	430 U
9H-Carbazole	13000 U	11000 U	520 U	390 U	430 U
Benzo(a)anthracene	13000 U	11000 U	520 U	390 U	430 U
Benzo(a)pyrene	13000 U	11000 U	520 U	390 U	430 U
Benzo(b)fluoranthene	13000 U	11000 U	520 U	390 U	58 J
Benzo(g,h,i)perylene	13000 U	11000 U	520 U	390 U	430 U
Benzo(k)fluoranthene	13000 U	11000 U	520 U	390 U	430 U
4-Bromophenyl phenyl ether	13000 U	11000 U	520 U	390 U	430 U
Butyl benzyl phthalate	13000 U	11000 U	520 U	390 U	430 U
4-Chloroaniline	13000 U	11000 U	520 U	390 U	430 U
Bis(2-Chloroethoxy)methane	13000 U	11000 U	520 U	390 U	430 U
Bis(2-Chloroethyl)ether	13000 U	11000 U	520 U	390 U	430 U
Bis(2-Chloroisopropyl)ether	13000 U	11000 U	520 U	390 U	430 U
4-Chloro-3-methylphenol	13000 U	11000 U	520 U	390 U	430 U
2-Chloronaphthalene	13000 U	11000 U	520 U	390 U	430 U
2-Chlorophenol	13000 U	11000 U	520 U	390 U	430 U
4-Chlorophenyl phenyl ether	13000 U	11000 U	520 U	390 U	430 U
Chrysene	13000 U	11000 U	520 U	390 U	430 U
Di-n-butyl phthalate	13000 U	11000 U	520 U	390 U	430 U
Dibenz(a,h)anthracene	13000 U	11000 U	520 U	390 U	430 U
Dibenzofuran	13000 U	11000 U	520 U	390 U	430 U
1,2-Dichlorobenzene	13000 U	11000 U	520 U	390 U	430 U
1,3-Dichlorobenzene	13000 U	11000 U	520 U	390 U	430 U
1,4-Dichlorobenzene	13000 U	11000 U	520 U	390 U	430 U
3,3'-Dichlorobenzidine	13000 U	11000 U	520 U	390 U	430 U
2,4-Dichlorophenol	13000 U	11000 U	520 U	390 U	430 U
Diethyl phthalate	13000 U	11000 U	520 U	390 U	430 U
2,4-Dimethylphenol	13000 U	11000 U	520 U	390 U	430 U
Dimethyl phthalate	13000 U	11000 U	520 U	390 U	430 U
4,6-Dinitro-2-methylphenol	32000 U	28000 U	1300 U	950 U	1000 U
2,4 Dinitrophenol	32000 U	28000 U	1300 U	950 U	1000 U
2,4 Dinitrotoluene	13000 U	11000 U	520 U	390 U	430 U
2,6-Dinitrotoluene	13000 U	11000 U	520 U	390 U	430 U
Di-n-octyl phthalate	13000 U	11000 U	520 U	390 U	430 U
Bis(2-Ethylhexyl)phthalate	13000 U	11000 U	520 U	120 B	430 U

Analyte concentrations in micrograms per kilogram (parts per billion [ppb])
Analyses were performed by Enseco-East of Somerset, New Jersey, using March 1990 Contract Laboratory Program (CLP) protocols.

B The compound was also detected in the associated method blank.
D Compound concentration was determined at a secondary dilution factor.
J Estimated result.
U The compound was analyzed for, but not detected at the corresponding reporting limits.
FR Field replicate of previous sample.

AR301316

AR301317

Table 5-11. Concentrations of Base Neutral and Acid Extractable Organic Compounds in Soil Samples Collected in July 1992, Dublin NPL Site, Dublin, Pennsylvania.

Analyte	Sample ID: / Date:	SB-17 (1.5-2.0') (S17015) 10-Jul-92	SB-17 FR (1.5-2.0') (S72015) 10-Jul-92	Test Pit 1 (4.0-4.5') (T01A040) 13-Jul-92	Test Pit 3 (8.8-9.3') (T03A088) 13-Jul-92	Test Pit 4 (T04A020) 14-Jul-92
Fluoranthene		13000 U	11000 U	520 U	390 U	83 J
Fluorene		13000 U	11000 U	520 U	390 U	430 U
Hexachlorobenzene		13000 U	11000 U	520 U	390 U	430 U
Hexachlorobutadiene		13000 U	11000 U	520 U	390 U	430 U
Hexachlorocyclopentadiene		13000 U	11000 U	520 U	390 U	430 U
Hexachloroethane		13000 U	11000 U	520 U	390 U	430 U
Indeno(1,2,3-cd)pyrene		13000 U	11000 U	520 U	390 U	430 U
Isophorone		13000 U	11000 U	520 U	390 U	430 U
2-Methylnaphthalene		13000 U	11000 U	520 U	390 U	430 U
2-Methylphenol		13000 U	11000 U	520 U	390 U	430 U
4-Methylphenol		13000 U	11000 U	520 U	390 U	430 U
Naphthalene		13000 U	11000 U	520 U	390 U	430 U
2-Nitroaniline		32000 U	28000 U	1300 U	950 U	1000 U
3-Nitroaniline		32000 U	28000 U	1300 U	950 U	1000 U
4-Nitroaniline		32000 U	28000 U	1300 U	950 U	1000 U
Nitrobenzene		13000 U	11000 U	520 U	390 U	430 U
2-Nitrophenol		13000 U	11000 U	520 U	390 U	430 U
4-Nitrophenol		32000 U	28000 U	1300 U	950 U	1000 U
N-Nitrosodiphenylamine		13000 U	11000 U	520 U	390 U	430 U
N-Nitroso-di-n-propylamine		13000 U	11000 U	520 U	390 U	430 U
Pentachlorophenol		32000 U	28000 U	1300 U	950 U	1000 U
Phenanthrene		13000 U	11000 U	520 U	390 U	48 J
Phenol		13000 U	11000 U	520 U	390 U	430 U
Pyrene		13000 U	11000 U	520 U	390 U	64 J
1,2,4-Trichlorobenzene		13000 U	11000 U	520 U	390 U	430 U
2,4,5-Trichlorophenol		32000 U	28000 U	1300 U	950 U	1000 U
2,4,6-Trichlorophenol		13000 U	11000 U	520 U	390 U	430 U

Analyte concentrations in micrograms per kilogram (parts per billion [ppb]).
Analyses were performed by Enseco-East of Somerset, New Jersey, using March 1990 Contract Laboratory Program (CLP) protocols.

B The compound was also detected in the associated method blank.
D Compound concentration was determined at a secondary dilution factor.
J Estimated result.
U The compou[illegible] was analyzed for, but not detected at the corresponding reporting limits.
FR Field replic[illegible] previous sample.

Table 5-12. Concentrations of Tentatively Identified Base Neutral and Acid Extractable Organic Compounds in Soil Samples Collected in July 1992, Dublin NPL Site, Dublin, Pennsylvania.

Analyte	Sample ID: / Date:	SB-5 (1.0-1.5') (SR05010) 11-Jul-92	SB-6 (1.0-1.5') (SR06010) 11-Jul-92	SB-7 (1.0-1.5') (SR07010) 11-Jul-92	SB-8 (5.5-6.0') (SR08055) 11-Jul-92	SB-9 (1.0-1.5') (SR09010) 11-Jul-92	SB-11 (0.5-1.0') (SR11005) 11-Jul-92	SB-11 FR (0.5-1.0') (SR73005) 11-Jul-92	SB-13 (9.0-9.5') (SR13090) 11-Jul-92	SB-14 (12.5-13.0') (S14125) 10-Jul-92	SB-15 (10.5-11.0') (S15105) 10-Jul-92	SB-16 (0.5-1.0') (S16005) 10-Jul-92	SB-17 (1.5-2.0') (S17015) 10-Jul-92	SB-17 FR (1.5-2.0') (S72015) 10-Jul-92
Unknown Acid Record 1		81 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hydrocarbon Record 47		81 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Unknown Acid Record 2		NA	82 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Unknown Record 48		NA	82 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Unknown Record 49		NA	82 B	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Unknown Acid Record 3		NA	120 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hydrocarbon Record 48		NA	120 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hydrocarbon Record 49		NA	160 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Unknown Acid Record 4		NA	NA	81 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hydrocarbon Record 50		NA	NA	160 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hydrocarbon Record 51		NA	NA	200 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Unknown Record 50		NA	NA	240 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Unknown Record 51		NA	NA	NA	110 B	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-20 H-12 Isomer		NA	NA	NA	NA	75 J	NA	NA	NA	NA	NA	NA	NA	NA
Hydrocarbon Record 52		NA	NA	NA	NA	NA	860 J	NA	NA	NA	NA	NA	NA	NA
Hydrocarbon Record 53		NA	NA	NA	NA	NA	1200 J	NA	NA	NA	NA	NA	NA	NA
Hydrocarbon Record 54		NA	NA	NA	NA	NA	2700 J	NA	NA	NA	NA	NA	NA	NA
Hydrocarbon Record 55		NA	NA	NA	NA	NA	1600 J	NA	NA	NA	NA	NA	NA	NA
Unknown Record 52		NA	NA	NA	NA	NA	570 J	NA	NA	NA	NA	NA	NA	NA
Unknown Record 53		NA	NA	NA	NA	NA	780 J	NA	NA	NA	NA	NA	NA	NA
Hydrocarbon Record 56		NA	NA	NA	NA	NA	860 J	NA	NA	NA	NA	NA	NA	NA
Hydrocarbon Record 57		NA	NA	NA	NA	NA	740 J	NA	NA	NA	NA	NA	NA	NA
Hydrocarbon Record 58		NA	NA	NA	NA	NA	2700 J	NA	NA	NA	NA	NA	NA	NA
Hydrocarbon Record 59		NA	NA	NA	NA	NA	530 J	NA	NA	NA	NA	NA	NA	NA
Hydrocarbon Record 60		NA	NA	NA	NA	NA	3000 J	NA	NA	NA	NA	NA	NA	NA
Hydrocarbon Record 61		NA	NA	NA	NA	NA	1100 J	NA	NA	NA	NA	NA	NA	NA
Unsaturated Hydrocarbon Record 1		NA	NA	NA	NA	NA	490 J	NA	NA	NA	NA	NA	NA	NA
Cyclo Hydrocarbon		NA	NA	NA	NA	NA	450 J	1400 J	NA	NA	NA	NA	NA	NA
Hydrocarbon Record 62		NA	NA	NA	NA	NA	690 J	NA	NA	NA	NA	NA	NA	NA
Hydrocarbon Record 63		NA	NA	NA	NA	NA	1200 J	NA	NA	NA	NA	NA	NA	NA
Hydrocarbon Record 64		NA	NA	NA	NA	NA	3100 J	NA	NA	NA	NA	NA	NA	NA
Unknown Record 54		NA	NA	NA	NA	NA	1100 J	NA	NA	NA	NA	NA	NA	NA
Unknown Record 55		NA	NA	NA	NA	NA	820 J	NA	NA	NA	NA	NA	NA	NA
Hydrocarbon Record 84		NA	NA	NA	NA	NA	NA	1200 J	NA	NA	NA	NA	NA	NA
Hydrocarbon Record 85		NA	NA	NA	NA	NA	NA	1600 J	NA	NA	NA	NA	NA	NA
Hydrocarbon Record 86		NA	NA	NA	NA	NA	NA	900 J	NA	NA	NA	NA	NA	NA
Hydrocarbon Record 87		NA	NA	NA	NA	NA	NA	900 J	NA	NA	NA	NA	NA	NA
Hydrocarbon Record 88		NA	NA	NA	NA	NA	NA	3200 J	NA	NA	NA	NA	NA	NA
Hydrocarbon Record 89		NA	NA	NA	NA	NA	NA	3600 J	NA	NA	NA	NA	NA	NA

Analyte concentrations in micrograms per kilogram (parts per billion [ppb]).
Analyses were performed by Enseco-East of Somerset, New Jersey, using March 1990 Contract Laboratory Program (CLP) protocols.

B The compound was also detected in the associated method blank.
J Estimated result.
FR Field replicate of previous sample.
NA Not applicable.

AR301318

AR301319

Table 5-12. Concentrations of Tentatively Identified Base Neutral and Acid Extractable Organic Compounds in Soil Samples Collected in July 1992, Dublin NPL Site, Dublin, Pennsylvania.

Analyte	Sample ID: / Date:	SB-5 (1.0-1.5') (SR05010) 11-Jul-92	SB-6 (1.0-1.5') (SR06010) 11-Jul-92	SB-7 (1.0-1.5') (SR07010) 11-Jul-92	SB-8 (5.5-6.0') (SR08055) 11-Jul-92	SB 9 (1.0-1.5') (SR09010) 11-Jul-92	SB-11 (0.5-1.0') (SR11005) 11-Jul-92	SB-11 FR (0.5-1.0') (SR73005) 11-Jul-92	SB-13 (9.0-9.5') (SR13090) 11-Jul-92	SB-14 (12.5-13.0') (S14125) 10-Jul-92	SB-15 (10.5-11.0') (S15105) 10-Jul-92	SB-16 (0.5-1.0') (S16005) 10-Jul-92	SB-17 (1.5-2.0') (S17015) 10-Jul-92	SB-17 FR (1.5-2.0') (S72015) 10-Jul-92
Hydrocarbon Record 90		NA	NA	NA	NA	NA	NA	1400 J	NA	NA	NA	NA	NA	NA
Hydrocarbon Record 91		NA	NA	NA	NA	NA	NA	780 J	NA	NA	NA	NA	NA	NA
Hydrocarbon Record 92		NA	NA	NA	NA	NA	NA	1500 J	NA	NA	NA	NA	NA	NA
Hydrocarbon Record 93		NA	NA	NA	NA	NA	NA	6100 J	NA	NA	NA	NA	NA	NA
Dimethyl Naphthalene Isomer (18.71)		NA	NA	NA	NA	NA	NA	860 J	NA	NA	NA	NA	NA	NA
Dimethyl Naphthalene Isomer (18.97)		NA	NA	NA	NA	NA	NA	980 J	NA	NA	NA	NA	NA	NA
Unknown Record 56		NA	NA	NA	NA	NA	NA	900 J	NA	NA	NA	NA	NA	NA
Hydrocarbon Record 94		NA	NA	NA	NA	NA	NA	1200 J	NA	NA	NA	NA	NA	NA
Unknown Record 57		NA	NA	NA	NA	NA	NA	980 J	NA	NA	NA	NA	NA	NA
Unknown Record 58		NA	NA	NA	NA	NA	NA	980 J	NA	NA	NA	NA	NA	NA
Unknown Record 59		NA	NA	NA	NA	NA	NA	900 J	NA	NA	NA	NA	NA	NA
Unknown Record 60		NA	NA	NA	NA	NA	NA	2600 J	NA	NA	NA	NA	NA	NA
Unknown Record 61		NA	NA	NA	NA	NA	NA	3400 J	NA	NA	NA	NA	NA	NA
Hydrocarbon Record 65		NA	NA	NA	NA	NA	NA	NA	230 J	NA	NA	NA	NA	NA
Hydrocarbon Record 66		NA	NA	NA	NA	NA	NA	NA	350 J	NA	NA	NA	NA	NA
Hydrocarbon Record 67		NA	NA	NA	NA	NA	NA	NA	230 J	NA	NA	NA	NA	NA
Hydrocarbon Record 68		NA	NA	NA	NA	NA	NA	NA	620 J	NA	NA	NA	NA	NA
Hydrocarbon Record 69		NA	NA	NA	NA	NA	NA	NA	270 J	NA	NA	NA	NA	NA
Hydrocarbon Record 70		NA	NA	NA	NA	NA	NA	NA	580 J	NA	NA	NA	NA	NA
Hydrocarbon Record 71		NA	NA	NA	NA	NA	NA	NA	270 J	NA	NA	NA	NA	NA
Hydrocarbon Record 72		NA	NA	NA	NA	NA	NA	NA	890 J	NA	NA	NA	NA	NA
Hydrocarbon Record 73		NA	NA	NA	NA	NA	NA	NA	310 J	NA	NA	NA	NA	NA
Hydrocarbon Record 74		NA	NA	NA	NA	NA	NA	NA	270 J	NA	NA	NA	NA	NA
Hydrocarbon Record 75		NA	NA	NA	NA	NA	NA	NA	270 J	NA	NA	NA	NA	NA
Hydrocarbon Record 76		NA	NA	NA	NA	NA	NA	NA	230 J	NA	NA	NA	NA	NA
Hydrocarbon Record 77		NA	NA	NA	NA	NA	NA	NA	150 J	NA	NA	NA	NA	NA
Hydrocarbon Record 78		NA	NA	NA	NA	NA	NA	NA	150 J	NA	NA	NA	NA	NA
Hydrocarbon Record 79		NA	NA	NA	NA	NA	NA	NA	150 J	NA	NA	NA	NA	NA
Hydrocarbon Record 80		NA	NA	NA	NA	NA	NA	NA	150 J	NA	NA	NA	NA	NA
Hydrocarbon Record 81		NA	NA	NA	NA	NA	NA	NA	190 J	NA	NA	NA	NA	NA
Hydrocarbon Record 82		NA	NA	NA	NA	NA	NA	NA	150 J	NA	NA	NA	NA	NA
Hydrocarbon Record 83		NA	NA	NA	NA	NA	NA	NA	150 J	NA	NA	NA	NA	NA
Unknown and Hydrocarbon Record 1		NA	NA	NA	NA	NA	NA	NA	190 J	NA	NA	NA	NA	NA
2-ethyl Hexanoic Acid		NA	NA	NA	NA	NA	NA	NA	NA	120 J	120 J	NA	NA	NA
Unknown Amide Record 4		NA	NA	NA	NA	NA	NA	NA	NA	160 B	NA	NA	NA	NA
Unknown Amide Record 5		NA	NA	NA	NA	NA	NA	NA	NA	NA	200 B	NA	NA	NA
Unknown Record 19		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3600 J	NA	NA
Hydrocarbon Record 16		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7200 J	NA	NA

Analyte concentrations in micrograms per kilogram (parts per billion [ppb]).
Analyses were performed by Enseco-East of Somerset, New Jersey, using March 1990 Contract Laboratory Program (CLP) protocols.

B The compound was also detected in the associated method blank.
J Estimated result.
FR Field replicate of previous sample.
NA Not applicable.

Table 5-12. Concentrations of Tentatively Identified Base Neutral and Acid Extractable Organic Compounds in Soil Samples Collected in July 1992, Dublin NPL Site, Dublin, Pennsylvania.

Analyte	Sample ID: / Date:	SB-5 (1.0-1.5') (SR05010) 11-Jul-92	SB-6 (1.0-1.5') (SR06010) 11-Jul-92	SB-7 (1.0-1.5') (SR07010) 11-Jul-92	SB-8 (5.5-6.0') (SR08055) 11-Jul-92	SB-9 (1.0-1.5') (SR09010) 11-Jul-92	SB-11 (0.5-1.0') (SR11005) 11-Jul-92	SB-11 FR (0.5-1.0') (SR73005) 11-Jul-92	SB-13 (9.0-9.5') (SR13090) 11-Jul-92	SB-14 (12.5-13.0') (S14125) 10-Jul-92	SB-15 (10.5-11.0') (S15105) 10-Jul-92	SB-16 (0.5-1.0') (S16005) 10-Jul-92	SB-17 (1.5-2.0') (S17015) 10-Jul-92	SB-17 FR (1.5-2.0') (S72015) 10-Jul-92
Hydrocarbon Record 17		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3600 J	NA	NA
Hydrocarbon Record 18		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3600 J	NA	NA
Hydrocarbon Record 19		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	9600 J	NA	NA
Unknown Record 20		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2400 J	NA	NA
Hydrocarbon Record 20		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2400 J	NA	NA
Hydrocarbon Record 21		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	19000 J	NA	NA
Hydrocarbon Record 22		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	16000 J	NA	NA
Hydrocarbon Record 23		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	8400 J	NA	NA
Hydrocarbon Record 24		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4800 J	NA	NA
Hydrocarbon Record 25		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2400 J	NA	NA
Unknown Record 21		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4800 J	NA	NA
Unknown Record 22		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3600 J	NA	NA
Unknown Record 23		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2500 J	NA
Unknown Record 24		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3800 B	NA
Unknown Record 25		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5100 B	NA
bis(2-ethylhexyl)ester Decanedioic acid		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6300 J	NA
Unknown Record 26		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2200 B
Unknown Record 27		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5600 B
Unknown Record 28		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3300 J
Unknown Record 29		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2200 J
Unknown Record 30		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4500 J
Unknown Record 31		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3700 J
Unknown Record 32		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	11000 J
Unknown Record 33		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	16000 J
Unknown Record 34		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	16000 J
1,1,2,2-Tetrachloroethane		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Unknown Record 2		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Unknown Record 3		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Unknown Record 4		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Unknown Record 5		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Unknown Record 6		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Unknown Record 7		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Substituted Hexanedioic Acid		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Analyte concentrations in micrograms per kilogram (parts per billion [ppb]).
Analyses were performed by Enseco-East of Somerset, New Jersey, using March 1990 Contract Laboratory Program (CLP) protocols.

B The compound was also detected in the associated method blank.
J Estimated result.
FR Field replicate of previous sample.
NA Not applicable.

AR301320

AR301321

Table 5-12. Concentrations of Tentatively Identified Base Neutral and Acid Extractable Organic Compounds in Soil Samples Collected in July 1992, Dublin NPL Site, Dublin, Pennsylvania.

Analyte	Sample ID: / Date:	Test Pit 1 (4.0-4.5') (T01A040) 13-Jul-92	Test Pit 3 (8.8-9.3') (T03A088) 13-Jul-92
Unknown Acid Record 1		NA	NA
Hydrocarbon Record 47		NA	NA
Unknown Acid Record 2		NA	NA
Unknown Record 48		NA	NA
Unknown Record 49		NA	NA
Unknown Acid Record 3		NA	NA
Hydrocarbon Record 48		NA	NA
Hydrocarbon Record 49		NA	NA
Unknown Acid Record 4		NA	NA
Hydrocarbon Record 50		NA	NA
Hydrocarbon Record 51		NA	NA
Unknown Record 50		NA	NA
Unknown Record 51		NA	NA
C-20 II-12 Isomer		NA	NA
Hydrocarbon Record 52		NA	NA
Hydrocarbon Record 53		NA	NA
Hydrocarbon Record 54		NA	NA
Hydrocarbon Record 55		NA	NA
Unknown Record 52		NA	NA
Unknown Record 53		NA	NA
Hydrocarbon Record 56		NA	NA
Hydrocarbon Record 57		NA	NA
Hydrocarbon Record 58		NA	NA
Hydrocarbon Record 59		NA	NA
Hydrocarbon Record 60		NA	NA
Hydrocarbon Record 61		NA	NA
Unsaturated Hydrocarbon Record 1		NA	NA
Cyclo Hydrocarbon		NA	NA
Hydrocarbon Record 62		NA	NA
Hydrocarbon Record 63		NA	NA
Hydrocarbon Record 64		NA	NA
Unknown Record 54		NA	NA
Unknown Record 55		NA	NA
Hydrocarbon Record 84		NA	NA
Hydrocarbon Record 85		NA	NA
Hydrocarbon Record 86		NA	NA
Hydrocarbon Record 87		NA	NA
Hydrocarbon Record 88		NA	NA
Hydrocarbon Record 89		NA	NA

Analyte concentrations in micrograms per kilogram (parts per billion (ppb))
Analyses were performed by Ensoco-East of Somerset, New Jersey, using March 1990 Contract Laboratory Program (CLP) protocols.

B The compound was also detected in the associated method blank.
J Estimated result.
FR Field replicate of previous sample.
NA Not applicable.

Table 5-12. Concentrations of Tentatively Identified Base Neutral and Acid Extractable Organic Compounds in Soil Samples Collected in July 1992, Dublin NPL Site, Dublin, Pennsylvania.

Analyte	Sample ID: / Date:	Test Pit 1 (4.0-4.5') (T01A040) 13-Jul-92	Test Pit 3 (8.8-9.3') (T03A088) 13-Jul-92
Hydrocarbon Record 90		NA	NA
Hydrocarbon Record 91		NA	NA
Hydrocarbon Record 92		NA	NA
Hydrocarbon Record 93		NA	NA
Dimethyl Naphthalene Isomer (18.71)		NA	NA
Dimethyl Naphthalene Isomer (18.97)		NA	NA
Unknown Record 56		NA	NA
Hydrocarbon Record 94		NA	NA
Unknown Record 57		NA	NA
Unknown Record 58		NA	NA
Unknown Record 59		NA	NA
Unknown Record 60		NA	NA
Unknown Record 61		NA	NA
Hydrocarbon Record 65		NA	NA
Hydrocarbon Record 66		NA	NA
Hydrocarbon Record 67		NA	NA
Hydrocarbon Record 68		NA	NA
Hydrocarbon Record 69		NA	NA
Hydrocarbon Record 70		NA	NA
Hydrocarbon Record 71		NA	NA
Hydrocarbon Record 72		NA	NA
Hydrocarbon Record 73		NA	NA
Hydrocarbon Record 74		NA	NA
Hydrocarbon Record 75		NA	NA
Hydrocarbon Record 76		NA	NA
Hydrocarbon Record 77		NA	NA
Hydrocarbon Record 78		NA	NA
Hydrocarbon Record 79		NA	NA
Hydrocarbon Record 80		NA	NA
Hydrocarbon Record 81		NA	NA
Hydrocarbon Record 82		NA	NA
Hydrocarbon Record 83		NA	NA
Unknown and Hydrocarbon Record 1		NA	NA
2-ethyl Hexanoic Acid		NA	NA
Unknown Amide Record 4		NA	NA
Unknown Amide Record 5		NA	NA
Unknown Record 19		NA	NA
Hydrocarbon Record 16		NA	NA

Analyte concentrations in micrograms per kilogram (parts per billion [ppb]).
Analyses were performed by Enseco-East of Somerset, New Jersey, using March 1990 Contract Laboratory Program (CLP) protocols.

B The compound was also detected in the associated method blank.
J Estimated result.
FR Field replicate of previous sample.
NA Not applicable.

AR301322

AR301323

Table 5-12. Concentrations of Tentatively Identified Base Neutral and Acid Extractable Organic Compounds in Soil Samples Collected in July 1992, Dublin NPL Site, Dublin, Pennsylvania.

Analyte	Sample ID: Test Pit 1 (4.0-4.5') (T01A040)	Test Pit 3 (8.8-9.3') (T03A088)
Date:	13-Jul-92	13-Jul-92
Hydrocarbon Record 17	NA	NA
Hydrocarbon Record 18	NA	NA
Hydrocarbon Record 19	NA	NA
Unknown Record 20	NA	NA
Hydrocarbon Record 20	NA	NA
Hydrocarbon Record 21	NA	NA
Hydrocarbon Record 22	NA	NA
Hydrocarbon Record 23	NA	NA
Hydrocarbon Record 24	NA	NA
Hydrocarbon Record 25	NA	NA
Unknown Record 21	NA	NA
Unknown Record 22	NA	NA
Unknown Record 23	NA	NA
Unknown Record 24	NA	NA
Unknown Record 25	NA	NA
bis(2-ethylhexyl)ester Decanedioic acid	NA	NA
Unknown Record 26	NA	NA
Unknown Record 27	NA	NA
Unknown Record 28	NA	NA
Unknown Record 29	NA	NA
Unknown Record 30	NA	NA
Unknown Record 31	NA	NA
Unknown Record 32	NA	NA
Unknown Record 33	NA	NA
Unknown Record 34	NA	NA
1,1,2,2-Tetrachloroethane	110 J	NA
Unknown Record 2	110 J	NA
Unknown Record 3	110 J	NA
Unknown Record 4	160 J	NA
Unknown Record 5	NA	79 J
Unknown Record 6	NA	79 J
Unknown Record 7	NA	120 J
Substituted Hexanedioic Acid	NA	120 B

Analyte concentrations in micrograms per kilogram (parts per billion [ppb]).
Analyses were performed by Enseco-East of Somerset, New Jersey, using March 1990 Contract Laboratory Program (CLP) protocols.

B The compound was also detected in the associated method blank.
J Estimated re
FR Field replic previous sample.
NA Not applica

ible 5-13. Concentrations of Base Neutral and Acid Extractable Organic Compounds in Soil Samples Collected in August 1992, Dublin NPL Site, Dublin, Pennsylvania.

Analyte	Sample ID: / Date:	Background Soil 1 1.5 -2.0' (B1015) 26-Aug-92	Background Soil 2 1.0 -1.5' (B2013) 28-Aug-92	Background Soil 3 1.0 -1.5' (B3010) 28-Aug-92
cenaphthene		410 UJ	390 UJ	410 U
cenaphthylene		410 UJ	390 UJ	410 U
nthracene		410 UJ	390 UJ	410 U
H-Carbazole		410 UJ	390 UJ	410 U
enzo(a)anthracene		97 J	390 UJ	410 U
enzo(a)pyrene		110 J	390 UJ	410 U
enzo(b)fluoranthene		150 J	390 UJ	410 U
enzo(g,h,i)perylene		51 J	390 UJ	410 U
enzo(k)fluoranthene		48 J	390 UJ	410 U
Bromophenyl phenyl ether		R	R	410 U
utyl benzyl phthalate		R	R	410 U
Chloroaniline		R	R	410 U
is(2-Chloroethoxy)methane		R	R	410 U
is(2-Chloroethyl)ether		R	R	410 U
is(2-Chloroisopropyl)ether		R	R	410 U
Chloro-3-methylphenol		R	R	410 U
Chloronaphthalene		R	R	410 U
Chlorophenol		R	R	410 U
Chlorophenyl phenyl ether		R	R	410 U
hrysene		150 J	390 UJ	410 U
i-n-butyl phthalate		R	R	410 U
ibenz(a,h)anthracene		R	R	410 U
ibenzofuran		R	R	410 U
,2-Dichlorobenzene		R	R	410 U
,3-Dichlorobenzene		R	R	410 U
,4-Dichlorobenzene		R	R	410 U
,3'-Dichlorobenzidine		R	R	410 U
,4-Dichlorophenol		R	R	410 U
iethyl phthalate		R	R	410 U
,4-Dimethylphenol		R	R	410 U
imethyl phthalate		R	R	410 U
,6-Dinitro-2-methylphenol		R	R	990 U
,4-Dinitrophenol		R	R	990 U
,4-Dinitrotoluene		R	R	410 U
,6-Dinitrotoluene		R	R	410 U
i-n-octyl phthalate		R	R	410 UJ
is(2-Ethylhexyl)phthalate		R	R	61 B
luoranthene		210 J	390 UJ	410 U

nalyte concentrations in micrograms per kilogram (parts per billion [ppb]).
nalyses were performed by Enseco-East of Somerset, New Jersey, using March 1990 Contract Laboratory Program (CLP) protocols.

The compound was also detected in the associated method blank.
Estimated result.
The compound was analyzed for, but not detected at the corresponding reporting limits.
Result rejected.

AR301324

AR301325

ble 5-13 Concentrations of Base Neutral and Acid Extractable Organic Compounds in Soil Samples Collected in August 1992, Dublin NPL Site, Dublin, Pennsylvania.

Analyte	Sample ID: / Date:	Background Soil 1 1.5 -2.0' (B1015) 26-Aug-92	Background Soil 2 1.0 -1.5' (B2013) 28-Aug-92	Background Soil 3 1.0 -1.5' (B3010) 28-Aug-92
...orene		410 UJ	390 UJ	410 U
...xachlorobenzene		R	R	410 U
...xachlorobutadiene		R	R	410 U
...xachlorocyclopentadiene		R	R	410 U
...xachloroethane		R	R	410 U
...eno(1,2,3-cd)pyrene		72 J	R	410 U
...phorone		R	R	410 U
...Methylnaphthalene		R	R	410 U
...Methylphenol		R	R	410 U
...Methylphenol		R	R	410 U
...phthalene		R	R	410 U
...Nitroaniline		R	R	990 U
...Nitroaniline		R	R	990 U
...Nitroaniline		R	R	990 U
...robenzene		R	R	410 U
...Nitrophenol		R	R	410 U
...Nitrophenol		R	R	990 U
N-Nitrosodiphenylamine		R	R	410 U
N-Nitroso-di-n-propylamine		R	R	410 U
...ntachlorophenol		R	R	990 U
...enanthrene		120 J	390 UJ	410 U
...enol		R	R	410 U
...rene		240 J	390 UJ	410 U
1,2,4-Trichlorobenzene		R	R	410 U
2,4,5-Trichlorophenol		R	R	990 U
2,4,6-Trichlorophenol		R	R	410 U

...alyte concentrations in micrograms per kilogram (parts per billion [ppb]).
...alyses were performed by Enseco-East of Somerset, New Jersey, using March 1990 Contract Laboratory Program (CLP) protocols.

The compound was also detected in the associated method blank.
Estimated result
The compound analyzed for, but not detected at the corresponding reporting limits.
Result rejected

ible 5-14. Concentrations of Base Neutral and Acid Extractable Organic Compounds in Septic Tank Samples Collected in August 1992, Dublin NPL Site, Dublin, Pennsylvania.

Analyte	Sample ID:	Septic Tank 1 (ST10826)	Septic Tank 2 (ST20826)
	Date:	26-Aug-92	26-Aug-92
cenaphthene		860 UJ	440 UJ
cenaphthylene		860 UJ	440 UJ
nthracene		860 UJ	440 UJ
H-Carbazole		860 UJ	440 UJ
nzo(a)anthracene		120 J	60 J
nzo(a)pyrene		860 UJ	59 J
nzo(b)fluoranthene		150 J	96 J
nzo(g,h,i)perylene		860 UJ	440 UJ
nzo(k)fluoranthene		860 UJ	440 UJ
Bromophenyl phenyl ether		R	R
utyl benzyl phthalate		R	R
Chloroaniline		R	R
s(2-Chloroethoxy)methane		R	R
s(2-Chloroethyl)ether		R	R
s(2-Chloroisopropyl)ether		R	R
Chloro-3-methylphenol		R	R
Chloronaphthalene		R	R
Chlorophenol		R	R
Chlorophenyl phenyl ether		R	R
hrysene		120 J	75 J
i-n-butyl phthalate		R	R
ibenz(a,h)anthracene		860 UJ	440 UJ
ibenzofuran		R	R
2-Dichlorobenzene		R	R
3-Dichlorobenzene		R	R
4-Dichlorobenzene		180 J	65 J
3'-Dichlorobenzidine		R	R
4-Dichlorophenol		R	R
iethyl phthalate		R	R
4-Dimethylphenol		R	R
imethyl phthalate		R	R
6-Dinitro-2-methylphenol		R	R
4-Dinitrophenol		R	R
4-Dinitrotoluene		R	R
6-Dinitrotoluene		R	R
i-n-octyl phthalate		R	R
s(2-Ethylhexyl)phthalate		110 J	120 J
luoranthene		290 J	440 UJ
luorene		860 UJ	440 UJ

nalyte concentrations in micrograms per kilogram (parts per billion [ppb])
nalyses were performed by Enseco-East of Somerset, New Jersey, using March 1990 Contract Laboratory Program (CLP) protocols

Estimated result.
The compound was analyzed for, but not detected at the corresponding reporting limits.
Result rejected.

GERAGHTY & MILLER, INC.

AR301326

AR301327

Table 5-14. Concentrations of Base Neutral and Acid Extractable Organic Compounds in Septic Tank Samples Collected in August 1992, Dublin NPL Site, Dublin, Pennsylvania.

Analyte	Sample ID: / Date:	Septic Tank 1 (ST10826) 26-Aug-92	Septic Tank 2 (ST20826) 26-Aug-92
Hexachlorobenzene		R	R
Hexachlorobutadiene		R	R
Hexachlorocyclopentadiene		R	R
Hexachloroethane		R	R
Indeno(1,2,3-cd)pyrene		860 UJ	440 UJ
Isophorone		R	R
2-Methylnaphthalene		R	R
2-Methylphenol		R	R
4-Methylphenol		R	R
Naphthalene		860 UJ	440 UJ
2-Nitroaniline		R	R
3-Nitroaniline		R	R
4-Nitroaniline		R	R
Nitrobenzene		R	R
2-Nitrophenol		R	R
4-Nitrophenol		R	R
N-Nitrosodiphenylamine		R	R
N-Nitroso-di-n-propylamine		R	R
Pentachlorophenol		R	R
Phenanthrene		860 UJ	51 J
Phenol		R	R
Pyrene		220 J	120 J
1,2,4-Trichlorobenzene		R	R
2,4,5-Trichlorophenol		R	R
2,4,6-Trichlorophenol		R	R

Analyte concentrations in micrograms per kilogram (parts per billion [ppb]).
Analyses were performed by Enseco-East of Somerset, New Jersey, using March 1990 Contract Laboratory Program (CLP) protocols.

J Estimated result.
U The compound was analyzed for, but not detected at the corresponding reporting limits.
R Result reject

Table 5-15. Concentrations of Base Neutral and Acid Extractable Organic Compounds in the Field Blanks Collected in July 1992, Dublin NPL Site, Dublin, Pennsylvania.

Analyte	Sample ID: / Date:	Field Blank (F170710) 10-Jul-92	Field Blank (F040711) 11-Jul-92
Acenaphthene		10 U	10 U
Acenaphthylene		10 U	10 U
Anthracene		10 U	10 U
9H-Carbazole		10 U	10 U
Benzo(a)anthracene		10 U	10 U
Benzo(b)fluoranthene		10 U	10 U
Benzo(k)fluoranthene		10 U	10 U
Benzo(g,h,i)perylene		10 U	10 U
Benzo(a)pyrene		10 U	10 U
4-Bromophenyl phenyl ether		10 U	10 U
Butyl benzyl phthalate		10 U	10 U
4-Chloroaniline		10 U	10 U
bis(2-Chloroethoxy)methane		10 U	10 U
bis(2-Chloroethyl)ether		10 U	10 U
bis(2-Chloroisopropyl)ether		10 U	10 U
4-Chloro-3-methylphenol		10 U	10 U
2-Chloronaphthalene		10 U	10 U
2-Chlorophenol		10 U	10 U
4-Chlorophenyl phenyl ether		10 U	10 U
Chrysene		10 U	10 U
Dibenz(a,h)anthracene		10 U	10 U
Dibenzofuran		10 U	10 U
Di-n-butyl phthalate		10 U	10 U
1,2-Dichlorobenzene		10 U	10 U
1,3-Dichlorobenzene		10 U	10 U
1,4-Dichlorobenzene		10 U	10 U
3,3'-Dichlorobenzidine		10 U	10 U
2,4-Dichlorophenol		10 U	10 U
Diethyl phthalate		10 U	10 U
2,4-Dimethylphenol		10 U	10 U
Dimethyl phthalate		10 U	10 U
4,6-Dinitro-2-methylphenol		25 U	26 U
2,4-Dinitrophenol		25 U	26 U
2,4-Dinitrotoluene		10 U	10 U
2,6-Dinitrotoluene		10 U	10 U
Di-n-octyl phthalate		10 U	10 U
bis(2-Ethylhexyl)phthalate		2 B	3 B
Fluoranthene		10 U	10 U
Fluorene		10 U	10 U
Hexachlorobenzene		10 U	10 U

Analyte concentrations in micrograms per liter (parts per billion [ppb]).
Analyses were performed by Enseco-East of Somerset, New Jersey, using March 1990 Contract Laboratory Program (CLP) protocols.

B The compound was also detected in the associated method blank.
U The compound was analyzed for, but not detected at the corresponding reporting limits.

AR301328

AR301329

ible 5-15. Concentrations of Base Neutral and Acid Extractable Organic Compounds in the Field Blanks Collected in July 1992, Dublin NPL Site, Dublin, Pennsylvania.

Analyte	Sample ID:	Field Blank (F170710)	Field Blank (F040711)
	Date:	10-Jul-92	11-Jul-92
exachlorobutadiene		10 U	10 U
exachlorocyclopentadiene		10 U	10 U
exachloroethane		10 U	10 U
leno(1,2,3-cd)pyrene		10 U	10 U
phorone		10 U	10 U
Methylnaphthalene		10 U	10 U
Methylphenol		10 U	10 U
Methylphenol		10 U	10 U
aphthalene		10 U	10 U
Nitroaniline		25 U	26 U
Nitroaniline		25 U	26 U
Nitroaniline		25 U	26 U
itrobenzene		10 U	10 U
Nitrophenol		10 U	10 U
Nitrophenol		25 U	26 U
Nitrosodiphenylamine		10 U	10 U
Nitroso-di-n-propylamine		10 U	10 U
ntachlorophenol		25 U	26 U
enanthrene		10 U	10 U
enol		10 U	10 U
rene		10 U	10 U
2,4-Trichlorobenzene		10 U	10 U
4,5-Trichlorophenol		25 U	26 U
4,6-Trichlorophenol		10 U	10 U

nalyte concentrations in micrograms per liter (parts per billion [ppb]).
nalyses were performed by Enseco-East of Somerset, New Jersey, using March 1990 Contract Laboratory Program (CLP) protocols.

The compound was also detected in the associated method blank.
The compound analyzed for, but not detected at the corresponding reporting limits.

ible 5-16. Concentrations of Tentatively Identified Base Neutral and Acid Extractable Organic Compounds in the Field Blanks Collected in July 1992, Dublin NPL Site, Dublin, Pennsylvania.

Analyte	Sample ID:	Field Blank (F170710)	Field Blank (F040711)
	Date:	10-Jul-92	11-Jul-92
nknown Amide Record 1		9 J	NA
nknown Amide Record 2		2 J	NA
nknown Amide Record 3		4 J	NA
nknown Amide Record 6		NA	12 J
nknown Amide Record 7		NA	3 J
nknown Amide Record 8		NA	5 J

nalyte concentrations in micrograms per liter (parts per billion [ppb])
nalyses were performed by Enseco East of Somerset, New Jersey, using March 1990 Contract Laboratory Program (CLP) protocols.

Estimated result.
A Not applicable.

AR301330

AR301331

Table 5-17. Concentrations of Pesticides and Polychlorinated Biphenyls in Soil Samples Collected in July 1992, Dublin NPL Site, Dublin, Pennsylvania.

Analyte	Sample ID: / Date:	SB-11 (0.5-1.0') (SR11005) 11-Jul-92	SB-11 FR (0.5-1.0') (SR73005) 11-Jul-92	SB-12 (6.5-7.0') (SR12065) 11-Jul-92	SB-13 (9.0-9.5') (SR13090) 11-Jul-92	SB-14 (12.5-13.0') (S14125) 10-Jul-92	SB-15 (10.5-11.0') (S15105) 10-Jul-92	SB-16 (0.5-1.0') (S16005) 10-Jul-92	SB-17 (1.5-2.0') (S17015) 10-Jul-92	SB-17 FR (1.5-2.0') (S72015) 10-Jul-92	Test Pit 1 (4.0-4.5') (T01A040) 13-Jul-92	Test Pit 3 (8.8-9.3') (T03A088) 13-Jul-92	Test Pit 4 (T04A020) 14-Jul-92
alpha-BHC		2.0 JP	0.87 J	0.98 JP	2.1 U	2 U	2 U	2.0 U	2.1 U	1.9 U	0.020 J	2 UL	2.3 UL
beta-BHC		2.2 U	2.1 U	1.9 U	2.1 U	2 U	2 U	2.0 U	2.1 U	1.9 U	2.3 UL	2 UL	2.3 UL
delta-BHC		2.2 U	2.1 U	1.9 U	2.1 U	2 U	2 U	2.0 U	2.1 U	1.9 U	2.3 UL	2 UL	2.3 UL
gamma-BHC (Lindane)		2.2 U	2.1 U	0.28 JP	2.1 U	2 U	2 U	2.0 U	2.1 U	1.9 U	2.3 UL	2 UL	0.38 JP
Heptachlor		2.2 U	2.1 U	1.9 U	2.1 U	2 U	2 U	2.0 U	2.1 U	1.9 U	2.3 UL	2 UL	2.3 UL
Aldrin		2.2 U	2.1 U	1.9 U	2.1 U	2 U	2 U	2.0 U	2.1 U	1.9 U	2.3 UL	2 UL	2.3 UL
Heptachlor epoxide		2.2 U	1.1 JP	1.9 U	2.1 U	2 U	2 U	2.0 U	2.1 U	1.9 U	2.3 UL	2 UL	2.3 UL
Endosulfan I		2.2 U	2.1 U	1.9 U	2.1 U	2 U	2 U	2.0 U	2.1 U	7.1 P	2.3 UL	2 UL	2.3 UL
Dieldrin		4.2 U	4.1 U	3.7 U	4.0 U	3.9 U	3.9 U	8.8 P	4.2 U	3.8 U	4.4 UL	3.9 UL	4.5 UL
4,4'-DDE		4.2 U	4.1 U	3.7 U	4.0 U	3.9 U	3.9 U	4.0 U	4.2 U	3.8 U	4.4 UL	3.9 UL	4.5 UL
Endrin		4.2 U	4.1 U	3.7 U	4.0 U	3.9 U	3.9 U	8.9 P	4.2 U	3.8 U	4.4 UL	3.9 UL	4.5 UL
Endosulfan II		4.2 U	4.1 U	3.7 U	4.0 U	3.9 U	3.9 U	4.0 U	4.2 U	3.8 U	4.4 UL	3.9 UL	4.5 UL
4,4'-DDD		4.2 U	4.1 U	3.7 U	4.0 U	3.9 U	3.9 U	4.0 U	4.2 U	3.8 U	4.4 UL	3.9 UL	4.5 UL
Endosulfan sulfate		4.2 U	4.1 U	3.7 U	4.0 U	3.9 U	3.9 U	4.0 U	4.2 U	3.8 U	4.4 UL	3.9 UL	4.5 UL
4,4'-DDT		4.2 U	4.1 U	3.7 U	4.0 U	3.9 U	3.9 U	4.0 U	4.2 U	3.8 U	4.4 UL	3.9 UL	4.5 UL
Methoxychlor		22 U	21 U	19 U	21 U	20 U	20 U	20 U	21 U	19 U	23 UL	20 UL	23 UL
Endrin ketone		4.2 U	4.1 U	3.7 U	4.0 U	3.9 U	3.9 U	4.0 U	4.2 U	1.3 JP	4.4 UL	3.9 UL	4.5 UL
Endrin aldehyde		4.2 U	4.1 U	3.7 U	4.0 U	3.9 U	3.9 U	4.0 U	4.2 U	3.8 U	4.4 UL	3.9 UL	4.5 UL
alpha-Chlordane		2.2 U	0.16 J	1.9 U	2.1 U	2 U	2 U	2.0 U	2.1 U	1.9 U	2.3 UL	2 UL	2.3 UL
gamma-Chlordane		2.2 U	2.1 U	1.9 U	2.1 U	2 U	2 U	3.7 P	2.1 U	1.9 U	2.3 UL	2 UL	2.3 UL
Toxaphene		220 U	210 U	190 U	210 U	200 U	200 U	200 U	210 U	190 U	230 UL	200 UL	230 UL
Aroclor 1016		42 U	41 U	37 U	40 U	39 U	39 U	40 U	42 U	38 U	44 UL	39 UL	45 UL
Aroclor 1221		86 U	82 U	76 U	82 U	79 U	79 U	80 U	85 U	77 U	89 UL	78 UL	91 UL
Aroclor 1232		42 U	41 U	37 U	40 U	39 U	39 U	40 U	42 U	38 U	44 UL	39 UL	45 UL
Aroclor 1242		42 U	41 U	37 U	40 U	39 U	39 U	120 P	13 JP	38 U	44 UL	39 UL	45 UL
Aroclor 1248		42 U	41 U	37 U	40 U	39 U	39 U	40 U	42 U	38 U	44 UL	39 UL	45 UL
Aroclor 1254		42 U	41 U	37 U	40 U	39 U	39 U	40 U	42 U	38 U	44 UL	39 UL	45 UL
Aroclor 1260		42 U	41 U	37 U	40 U	39 U	39 U	40 U	42 U	38 U	44 UL	39 UL	45 UL

Analyte concentrations in micrograms per kilogram (parts per billion [ppb]).
Analyses were performed by Enseco-East of Somerset, New Jersey, using March 1990 Contract Laboratory Program (CLP) protocols.

J Estimated result.
L Reported value may be biased low. Actual value is expected to be higher.
P Percent difference between detected concentrations from quantitation and confirmation columns is out of control limits.
U The compound was analyzed for, but not detected at the corresponding reporting limits.
FR Field replicate of previous sample.

ble 5-18. Concentrations of Pesticides and Polychlorinated Biphenyls in Soil Samples Collected in August 1992, Dublin NPL Site, Dublin, Pennsylvania

Analyte	Sample ID: / Date:	Background Soil 1 1.5 -2.0' (B1015) 26-Aug-92	Background Soil 2 1.0 -1.5' (B2013) 28-Aug-92	Background Soil 3 1.0 -1.5' (B3010) 28-Aug-92
ha-BHC		0.4 JP	2 UL	2.1 UL
a-BHC		2.1 UJ	2 UL	2.1 UL
ta-BHC		2.1 UJ	2 UL	2.1 UL
amma-BHC (Lindane)		2.1 UJ	2 UL	2.1 UL
ptachlor		2.1 UJ	2 UL	2.1 UL
drin		2.1 UJ	2 UL	2.1 UL
ptachlor epoxide		2.1 UJ	2 UL	2.1 UL
dosulfan I		1.9 JP	0.11 JP	2.1 UL
ldrin		4.1 UJ	0.24 JP	0.25 JP
'-DDE		35 J	3.9 UL	4 UL
drin		4.1 UJ	3.9 UL	4 UL
dosulfan II		4.1 UJ	3.9 UL	4 UL
'-DDD		11 J	3.9 UL	4 UL
dosulfan sulfate		4.1 UJ	3.9 UL	4 UL
'-DDT		4.9 J	3.9 UL	4 UL
thoxychlor		21 UJ	20 UL	21 UL
drin ketone		4.1 UJ	3.9 UL	4 UL
drin aldehyde		4.1 UJ	3.9 UL	4.1 UL
ha-Chlordane		1.5 JP	2 UL	2.1 UL
amma-Chlordane		2.1 UJ	2 UL	2.1 UL
xaphene		210 UJ	200 UL	210 UL
clor 1016		41 UJ	39 UL	40 UL
clor 1221		83 UJ	80 UL	82 UL
clor 1232		41 UJ	39 UL	40 UL
clor 1242		41 UJ	39 UL	40 UL
clor 1248		41 UJ	39 UL	40 UL
clor 1254		41 UJ	39 UL	40 UL
clor 1260		41 UJ	39 UL	40 UL

alyte concentrations in micrograms per kilogram (parts per billion [ppb]).
alyses were performed by Enseco-East of Somerset, New Jersey, using March 1990 Contract Laboratory Program (CLP) protocols.

Estimated result.
Reported value may be biased low. Actual value is expected to be higher.
Percent difference between detected concentrations from quantitation and confirmation columns is out of control limits.
The compound was analyzed for, but not detected at the corresponding reporting limits.

AR301332

AR301333

ble 5-19. Concentrations of Pesticides and Polychlorinated Biphenyls Collected in the Field Blanks Collected in July 1992, Dublin NPL Site, Dublin, Pennsylvania.

Analyte	Sample ID: / Date:	Field Blank (F170710) 10-Jul-92	Field Blank (F040711) 11-Jul-92
lpha-BHC		0.05 UL	0.05 UL
eta-BHC		0.05 UL	0.05 UL
elta-BHC		0.05 UL	0.05 UL
amma-BHC (Lindane)		0.05 UL	0.05 UL
eptachlor		0.05 UL	0.05 UL
ldrin		0.05 UL	0.05 UL
eptachlor epoxide		0.05 UL	0.05 UL
ndosulfan I		0.05 UL	0.05 UL
ieldrin		0.1 UL	0.1 UL
4'-DDE		0.1 UL	0.1 UL
ndrin		0.1 UL	0.1 UL
ndosulfan II		0.1 UL	0.1 UL
4'-DDD		0.1 UL	0.1 UL
ndosulfan sulfate		0.1 UL	0.1 UL
4'-DDT		0.1 UL	0.1 UL
ethoxychlor		0.5 UL	0.5 UL
ndrin ketone		0.1 UL	0.1 UL
ndrin aldehyde		0.1 UL	0.1 UL
lpha-Chlordane		0.05 UL	0.05 UL
amma-Chlordane		0.05 UL	0.05 UL
oxaphene		5 UL	5 UL
roclor 1016		1 UL	1 UL
roclor 1221		2 UL	2 UL
roclor 1232		1 UL	1 UL
roclor 1242		1 UL	1 UL
roclor 1248		1 UL	1 UL
roclor 1254		1 UL	1 UL
roclor 1260		1 UL	1 UL

nalyte concentrations in micrograms per liter (parts per billion [ppb]).
nalyses were performed by Enseco-East of Somerset, New Jersey, using March 1990 Contract Laboratory Program (CLP) protocols.

Reported value may be biased low. Actual value is expected to be higher.
The compound was analyzed for, but not detected at the corresponding reporting limits.

Table 5-20. Concentrations of Metals in Soil Samples Collected in July 1992, Dublin NPL Site, Dublin, Pennsylvania.

Analyte	Sample ID: / Date:	SB-11 (0.5-1.0') (SR11005) 11-Jul-92	SB-11 FR (0.5-1.0') (SR73005) 11-Jul-92	SB-12 (6.5-7.0') (SR12065) 11-Jul-92	SB-13 (9.0-9.5') (SR13090) 11-Jul-92	SB-14 (12.5-13.0') (S14125) 10-Jul-92	SB-15 (10.5-11.0') (S15105) 10-Jul-92	SB-16 (0.5-1.0') (S16005) 10-Jul-92	SB-17 (1.5-2.0') (S17015) 10-Jul-92	SB-17 FR (1.5-2.0') (S72015) 10-Jul-92	Test Pit 1 (4.0-4.5') (T01A040) 13-Jul-92	Test Pit 3 (8.8-9.3') (T03A088) 13-Jul-92	Test Pit 4 (T04A020) 14-Jul-92
Aluminum		13900	15300	16700	29400	17400	12300	9490	10700	10300	13600	15900	7810
Antimony		3.8 B	4 B	4.2 B	3 U	3.5 B	3.2 B	3 U	3.2 U	3 U	4.9 B	4.6 B	3.4 U
Arsenic		9.3	4.7	6.4	3.5	17.2 K	3.6	3.9	3.6	6.3	4.1	6.3	4.1
Barium		110	105	186	262	153	133	55.8	92.4	102	123	135	76.3
Beryllium		0.98 B	1.2 B	1.4	2	1.6	1.2	0.51 B	0.7 B	0.7 B	1.2 B	1.2	0.53 B
Cadmium		0.74 U	0.79 U	0.7 U	0.7 U	0.71 U	0.7 U	0.7 U	1.1 B	1.2	0.95 U	0.72 U	0.79 U
Calcium		2200	2980	1460	1380	2690	1810	2020	1950	2920	2360	890 B	6590
Chromium		27.3	36.8	39.8	53.8	45.7	34	21.1	21.8	46.4	26.4	34.3	13.5
Cobalt		13.7	17.6	40.6	22.7	22.8	27.6	11.5 B	11.1 B	14.2	14.4 B	20.9	8 B
Copper		23	33.7	29.5	69.5	33.5	25.3	15.6	19.4	77.3	21.8	26	9.4
Iron		28400	33400	44600	46700	44600	40800	23800	24000	23800	26300	37800	18200
Lead		26.6	35.8	13.2	13.2	18.3	13.6	11.9 LS	53.2	48.5	24.1	16.3	16.2
Magnesium		3690	5510	5560	12600	7730	4470	2140	2420	3020	3060	3420	3810
Manganese		670	642	3390	1660	953	1610	441	553	686	382	719	435
Mercury		0.07 B	0.17	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.22	0.13 B	0.06 U	0.07 U
Nickel		18.7	24.1	28.7	46.9	35.1	24.1	10.9	12.4	101	17.8	25.2	6.8 B
Potassium		832 B	991 B	1480	12800	695 B	1070 B	510 B	660 B	714 B	783 B	1410	478 B
Selenium		0.5 U	0.53 U	0.47 U	0.47 U	0.48 U	0.47 U	0.47 U	0.49 U	0.46 U	0.63 U	0.48 U	0.53 U
Silver		0.74 U	0.79 U	0.7 U	0.7 U	0.71 U	0.7 U	0.7 U	0.74 U	0.69 U	0.95 U	0.72 U	0.79 U
Sodium		335 U	355 U	316 U	315 U	321 U	316 U	314 U	334 U	310 U	428 U	323 U	357 U
Thallium		0.74 U	0.79 U	0.7 U	1.1 B	0.71 U	0.7 U	0.7 U	0.74 U	0.69 U	0.95 U	0.72 U	0.79 U
Vanadium		48.9	63.1	75	59.3	65.9	65.6	36.6	39.9	39.7	49.7	56.2	33.9
Zinc		56.5	85.5	78.5	93.3	77.2	55.3	30.8	71.9	116	61.2	63.1	25.3

Analyte concentrations in milligrams per kilogram (parts per million [ppm]).
Analyses were performed by Enseco-East of Somerset, New Jersey, using March 1990 Contract Laboratory Program (CLP) protocols.

B Concentration is between the instrument detection limit (IDL) and the contract required detection limit (CRDL).
K Reported value may be biased high. Actual value is expected to be lower.
L Reported value may be biased low. Actual value is expected to be higher.
S Reported value was determined by the Method of Standard Additions (MSA).
U The analyte was analyzed for, but not detected at the corresponding reporting limits.
FR Field replicate of previous sample.

AR301334

AR301335

Table 5-21. Concentrations of Metals in Soil Samples Collected in August 1992, Dublin NPL Site, Dublin, Pennsylvania.

Analyte	Sample ID: / Date:	Background Soil J 1.5 -2.0' (B1015) 26-Aug-92	Background Soil J 1.0 -1.5' (B2013) 28-Aug-92	Background Soil J 1.0 -1.5' (B3010) 28-Aug-92
Aluminum		17300	13800	17800
Antimony		4.7 U	4.7 U	5.1 U
Arsenic		6.1	6.2	6.5
Barium		175	91.3	61.6
Beryllium		1.5	0.97	0.72
Cadmium		0.71 UL	0.7 UL	0.76 UL
Calcium		2470	3610	587
Chromium		34.3 L	26.2 L	14.6 L
Cobalt		22.8	10.7	7.5
Copper		32	27.3	19.5
Iron		33900	22100	31500
Lead		142 J	55.7 J	14.7 L
Magnesium		3780	3890	2900
Manganese		1010	516	129
Mercury		0.08	0.06 U	0.06 U
Nickel		24.7	20.8	13.7
Potassium		1390	894	710
Selenium		0.47 UL	0.47 UL	0.86 L
Silver		1	0.93 U	1 U
Sodium		115	145	84.2
Thallium		0.71 U	0.7 U	0.76 U
Vanadium		60.5	40	56.8
Zinc		262	57.9	39

Analyte concentrations in milligrams per kilogram (parts per million [ppm]).
Analyses were performed by Enseco-East of Somerset, New Jersey, using USEPA Method 200.7.

J Estimated result.
L Reported value may be biased low. Actual value is expected to be higher.
U The analyte was analyzed for, but not detected at the corresponding reporting limits

able 5-22. Concentrations of Metals in Field Blanks Collected in July 1992, Dublin NPL Site, Dublin, Pennsylvania.

Analyte	Sample ID:	Field Blank (F170710)	Field Blank (F040711)
	Date:	10-Jul-92	11-Jul-92
luminum		35 U	35 U
ntimony		13 U	13 U
rsenic		2 U	2 U
arium		1 U	1 U
eryllium		1 U	1 U
admium		3 U	3 U
alcium		40.6 B	43.6 B
hromium		3 U	3 U
obalt		3 U	3 U
opper		3 U	3 U
ead		1 U	1 U
agnesium		32 U	32 U
anganese		2.7 B	1.5 B
ercury		0.1 U	0.1 U
ickel		9 U	9 U
otassium		484 UJ	484 U
elenium		2 U	2 U
ilver		3 U	3 U
odium		1350 U	1350 U
hallium		3 U	3 U
anadium		3 U	3 U
inc		5.8 B	6.5 B

nalyte concentrations in micrograms per liter (parts per billion [ppb]).
nalyses were performed by Enseco-East of Somerset, New Jersey, using March 1990 Contract Laboratory Program (CLP) protocols.

Concentration is between the instrument detection limit (IDL) and the contract required detection limit (CRDL).
Estimated result.
The analyte was analyzed for, but not detected at the corresponding reporting limits.

AR301336

AR301337

Table 6-1. Concentrations of Volatile Organic Compounds in Sediment Samples Collected in August and October 1992, Dublin NPL Site, Dublin, Pennsylvania.

Analyte	Sample ID: D1 (D01010)	D2 (D02010)	D3 (D03007)	D3 FR (D71007)	D4 (D04010)	D5 (D05008)	D6 (D06007)	D7 (D07005)
Date:	27-Aug-92	28-Aug-92	28-Aug-92	28-Aug-92	27-Aug-92	27-Aug-92	27-Aug-92	28-Oct-92
Chloromethane	13 U	12 U	12 U	11 U	13 U	12 U	13 U	14 U
Bromomethane	13 U	12 U	12 U	11 U	13 U	12 U	13 U	14 U
Vinyl chloride	13 U	12 U	12 U	11 U	13 U	12 U	13 U	14 U
Chloroethane	13 U	12 U	12 U	11 U	13 U	12 U	13 U	14 U
Methylene chloride	34 B	32 B	33 B	44 B	25 B	38 B	18 B	14 U
Acetone	13 B	10 B	3 B	21 B	3 B	3.6 B	1.3 B	14 U
Carbon disulfide	13 U	12 U	12 U	11 U	13 U	12 U	13 U	14 U
1,1-Dichloroethene	13 U	12 U	12 U	11 U	13 U	12 U	13 U	14 U
1,1-Dichloroethane	13 U	12 U	12 U	11 U	13 U	12 U	13 U	14 U
1,2-Dichloroethene (cis/trans)	13 U	12 U	12 U	11 U	13 U	12 U	13 U	14 U
Chloroform	13 U	12 U	12 U	11 U	13 U	12 U	13 U	14 U
1,2-Dichloroethane	13 U	12 U	12 U	11 U	13 U	12 U	13 U	14 U
2-Butanone	13 U	12 U	12 U	3 J	13 U	12 U	13 U	14 U
1,1,1-Trichloroethane	13 U	12 U	12 U	11 U	13 U	12 U	13 U	14 U
Carbon tetrachloride	13 U	12 U	12 U	11 U	13 U	12 U	13 U	14 U
Bromodichloromethane	13 U	12 U	12 U	11 U	13 U	12 U	13 U	14 U
1,2-Dichloropropane	13 U	12 U	12 U	11 U	13 U	12 U	13 U	14 U
cis-1,3-Dichloropropene	13 U	12 U	12 U	11 U	13 U	12 U	13 U	14 U
Trichloroethene	13 U	3 J	12 U	11 U	4 J	12 U	13 U	14 U
Dibromochloromethane	13 U	12 U	12 U	11 U	13 U	12 U	13 U	14 U
1,1,2-Trichloroethane	13 U	12 U	12 U	11 U	13 U	12 U	13 U	14 U
Benzene	13 U	12 U	12 U	11 U	13 U	12 U	13 U	14 U
trans-1,3-Dichloropropene	13 U	12 U	12 U	11 U	13 U	12 U	13 U	14 U
Bromoform	13 U	12 U	12 U	11 U	13 U	12 U	13 U	14 U
4-Methyl-2-pentanone	13 U	12 U	12 U	11 U	13 U	12 U	13 U	14 U
2-Hexanone	13 U	12 U	12 U	11 U	13 U	12 U	13 U	14 U
1,1,2,2-Tetrachloroethane	13 U	12 U	12 U	11 U	13 U	12 U	13 U	14 U
Tetrachloroethene	13 U	12 U	12 U	11 U	3 J	12 U	13 U	14 U
Toluene	13 U	12 U	12 U	11 U	13 U	12 U	13 U	14 U
Chlorobenzene	13 U	12 U	12 U	11 U	13 U	12 U	13 U	14 U
Ethylbenzene	13 U	12 U	12 U	11 U	13 U	12 U	13 U	14 U
Styrene	13 U	12 U	12 U	11 U	13 U	12 U	13 U	14 U
Xylenes (total)	13 U	12 U	12 U	11 U	13 U	12 U	13 U	14 U

Analyte concentrations in micrograms per kilogram (parts per billion [ppb]).
Analyses were performed by Enseco-East of Somerset, New Jersey, using March 1990 Contract Laboratory Program (CLP) protocols.

B The compound was also detected in the associated method blank.
J Estimated result.
U The compound was analyzed for, but not detected at the corresponding reporting limits.
FR Field replicate of previous sample.

Table 6-2. Concentrations of Tentatively Identified Volatile Organic Compounds in Soil Samples Collected in August 1992, Dublin NPL Site, Dublin, Pennsylvania.

Analyte	Sample ID: D1 (D01010) Date: 27-Aug-92	D2 (D02010) 28-Aug-92	D3 (D03007) 28-Aug-92	D5 (D05008) 27-Aug-92
Unknown Record 195	16 J	NA	NA	NA
Unknown Record 154	NA	24 J	NA	NA
Unknown Record 155	NA	NA	19 J	NA
Unknown Record 208	NA	NA	NA	20 J
Unknown Record 209	NA	NA	NA	250 J

Analyte concentrations in micrograms per kilogram (ug/kg).
Analyses were performed by Enseco-East of Somerset, New Jersey, using March 1990 Contract Laboratory Program (CLP) protocols.

J Result is detected below the reporting limit and/or is an estimated concentration.
NA Not applicable.

AR301338

ARJ01339

Table 6-3. Concentrations of Volatile Organic Compounds in the Field Blanks and Trip Blanks Collected in August and October 1992, Dublin NPL Site, Dublin, Pennsylvania.

Analyte	Sample ID: / Date:	Field Blank (F190826) 26-Aug-92	Field Blank (F040827) 27-Aug-92	Field Blank (F071028) 28-Oct-92	Trip Blank (K010827) 26-Aug-92	Trip Blank (K020827) 27-Aug-92	Trip Blank (K010828) 28-Aug-92	Trip Blank (K011028) 28-Oct-92
Chloromethane		10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromomethane		10 U	10 U	10 U	10 U	10 U	10 U	10 U
Vinyl chloride		10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chloroethane		10 U	10 U	10 U	10 U	10 U	10 U	10 U
Methylene chloride		16 B	4 B	10 U	3 B	7 B	1 B	10 U
Acetone		16 B	5 B	10 U	20 B	26 B	23 B	10 U
Carbon disulfide		6 J	2 J	10 U	1 J	10 U	10 U	10 U
1,1-Dichloroethene		10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1-Dichloroethane		10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichloroethene (cis/trans)		10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chloroform		10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichloroethane		10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Butanone		10 U	10 U	10 U	10 U	10 U	10 U	3 B
1,1,1-Trichloroethane		10 U	10 U	10 U	10 U	10 U	10 U	10 U
Carbon tetrachloride		10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromodichloromethane		10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichloropropane		10 U	10 U	10 U	10 U	10 U	10 U	10 U
trans-1,3-Dichloropropene		10 U	10 U	10 U	10 U	10 U	10 U	10 U
Trichloroethene		10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibromochloromethane		10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1,2-Trichloroethane		10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzene		10 U	10 U	10 U	10 U	10 U	10 U	10 U
cis-1,3-Dichloropropene		10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromoform		10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Methyl-2-pentanone		10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Hexanone		10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1,2,2-Tetrachloroethane		10 U	10 U	10 U	10 U	10 U	10 U	10 U
Tetrachloroethene		10 U	10 U	10 U	10 U	10 U	10 U	10 U
Toluene		10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chlorobenzene		10 U	10 U	10 U	10 U	10 U	10 U	10 U
Ethylbenzene		10 U	10 U	10 U	10 U	10 U	10 U	10 U
Styrene		10 U	10 U	10 U	10 U	10 U	10 U	10 U
Xylenes (total)		10 U	10 U	10 U	10 U	10 U	10 U	10 U

Analyte concentrations in micrograms per liter (parts per billion [ppb]).
Analyses were performed by Enseco-East of Somerset, New Jersey, using March 1990 Contract Laboratory Program (CLP) protocols.

B The compound was also detected in the associated method blank.
J Estimated result.
U The compound was analyzed for, but not detected at the corresponding reporting limits.

able 6-4. Concentrations of Base Neutral and Acid Extractable Organic Compounds in Sediment Samples Collected in August and October 1992, Dublin NPL Site, Dublin, Pennsylvania.

Analyte	Sample ID: / Date:	D1 (D01010) 27-Aug-92	D2 (D02010) 28-Aug-92	D3 (D03007) 28-Aug-92	D3 FR (D71007) 28-Aug-92	D4 (D04010) 27-Aug-92	D5 (D05008) 27-Aug-92	D6 (D06007) 27-Aug-92	D7 (DO7005) 28-Oct-92
cenaphthene		400 UJ	380 UJ	760 U	1500 U	420 UJ	390 UJ	420 UJ	450 UL
cenaphthylene		400 UJ	380 UJ	760 U	1500 U	420 UJ	390 UJ	420 UJ	450 UL
nthracene		400 UJ	380 UJ	760 U	1500 U	420 UJ	390 UJ	420 UJ	450 UL
H-Carbazole		400 UJ	380 UJ	760 U	1500 U	420 UJ	390 UJ	420 UJ	450 UL
enzo(a)anthracene		46 J	62 J	220 J	280 J	420 UJ	150 J	97 J	450 UL
enzo(a)pyrene		74 J	59 J	250 J	350 J	43 J	170 J	100 J	450 UL
enzo(b)fluoranthene		110 J	82 J	480 J	600 J	46 J	290 J	170 J	46 J
enzo(g,h,i)perylene		76 J	380 UJ	170 J	300 J	420 UJ	64 J	420 UJ	450 UL
enzo(k)fluoranthene		400 UJ	380 UJ	120 J	1500 U	420 UJ	91 J	86 J	450 UL
Bromophenyl phenyl ether		R	R	760 U	1500 U	420 UJ	R	R	450 UL
utyl benzyl phthalate		R	R	760 U	1500 U	420 UJ	1100 B	100 B	450 UL
Chloroaniline		R	R	760 U	1500 U	420 UJ	R	R	450 UL
is(2-Chloroethoxy)methane		R	R	760 U	1500 U	420 UJ	R	R	450 UL
is(2-Chloroethyl)ether		R	R	760 U	1500 U	420 UJ	R	R	450 UL
is(2-Chloroisopropyl)ether		R	R	760 U	1500 U	420 UJ	R	R	450 UL
Chloro-3-methylphenol		R	R	760 U	1500 U	420 UJ	R	R	450 UL
Chloronaphthalene		R	R	760 U	1500 U	420 UJ	R	R	450 UL
Chlorophenol		R	R	760 U	1500 U	420 UJ	R	R	450 UL
Chlorophenyl phenyl ether		R	R	760 U	1500 U	420 UJ	R	R	450 UL
hrysene		70 J	64 J	280 J	340 J	51 J	200 J	130 J	450 UL
n butyl phthalate		R	R	760 U	1500 U	420 UJ	230 B	420 UJ	450 UL
ibenz(a,h)anthracene		400 UJ	380 UJ	760 U	1500 U	420 UJ	390 UJ	420 UJ	450 UL
ibenzofuran		R	R	760 U	1500 U	420 UJ	R	R	450 UL
2-Dichlorobenzene		R	R	760 U	1500 U	420 UJ	R	R	450 UL
3-Dichlorobenzene		R	R	760 U	1500 U	420 UJ	R	R	450 UL
4-Dichlorobenzene		R	R	760 U	1500 U	420 UJ	R	R	450 UL
3'-Dichlorobenzidine		R	R	760 U	1500 U	420 UJ	R	R	450 UL
4-Dichlorophenol		R	R	760 U	1500 U	420 UJ	R	R	450 UL
iethyl phthalate		R	R	760 U	1500 U	420 UJ	R	R	450 UL
4-Dimethylphenol		R	R	760 U	1500 U	420 UJ	R	R	450 UL
imethyl phthalate		R	R	760 U	1500 U	420 UJ	R	R	450 UL
6-Dinitro-2-methylphenol		R	R	1900 U	3700 U	1000 UJ	R	R	1100 UL
4-Dinitrophenol		R	R	1900 U	3700 U	1000 UJ	R	R	1100 UL
4-Dinitrololuene		R	R	760 U	1500 U	420 UJ	R	R	450 UL
6-Dinitrotoluene		R	R	760 U	1500 U	420 UJ	R	R	450 UL
i-n-octyl phthalate		R	R	760 U	1500 U	420 UJ	R	R	450 UL

nalyte concentrations in micrograms per kilogram (parts per billion [ppb]).
nalyses were performed by Enseco-East of Somerset, New Jersey, using March 1990 Contract Laboratory Program (CLP) protocols.

The compound was also detected in the associated method blank.
Estimated result.
Reported value may be biased low. Actual value is expected to be higher.
The compound was analyzed for, but not detected at the corresponding reporting limits.
Result rejected.
R Field replicate of previous sample.

AR301340

AR301341

ble 6-4. Concentrations of Base Neutral and Acid Extractable Organic Compounds in Sediment Samples Collected in August and October 1992, Dublin NPL Site, Dublin, Pennsylvania.

Analyte	Sample ID:	D1 (D01010)	D2 (D02010)	D3 (D03007)	D3 FR (D71007)	D4 (D04010)	D5 (D05008)	D6 (D06007)	D7 (D07005)
	Date:	27-Aug-92	28-Aug-92	28-Aug-92	28-Aug-92	27-Aug-92	27-Aug-92	27-Aug-92	28-Oct-92
.(2-Ethylhexyl)phthalate		130 B	130 B	380 B	310 B	110 B	200 B	420 UJ	450 UL
ioranthene		98 J	150 J	440 J	670 J	91 J	320 J	250 J	62 J
orene		400 UJ	380 UJ	760 U	1500 U	420 U	390 UJ	420 UJ	450 UL
xachlorobenzene		R	R	760 U	1500 U	420 U	R	R	450 UL
xachlorobutadiene		R	R	760 U	1500 U	420 U	R	R	450 UL
xachlorocyclopentadiene		R	R	760 U	1500 U	420 U	R	R	450 UL
xachloroethane		R	R	760 U	1500 U	420 U	R	R	450 UL
leno(1,2,3-cd)pyrene		400 UJ	40 J	180 J	240 J	420 U	85 J	54 J	450 UL
phorone		R	R	760 U	1500 U	420 U	R	R	450 UL
Methylnaphthalene		R	R	760 U	1500 U	420 U	R	R	450 UL
Methylphenol		R	R	760 U	1500 U	420 U	R	R	450 UL
Methylphenol		R	R	760 U	1500 U	420 U	R	R	450 UL
phthalene		400 UJ	380 UJ	760 U	1500 U	420 U	390 UJ	420 UJ	450 UL
Nitroaniline		R	R	1900 U	3700 U	1000 U	R	R	1100 UL
Nitroaniline		R	R	1900 U	3700 U	1000 U	R	R	1100 UL
Nitroaniline		R	R	1900 U	3700 U	1000 U	R	R	1100 UL
robenzene		R	R	760 U	1500 U	420 U	R	R	450 UL
Nitrophenol		R	R	760 U	1500 U	420 U	R	R	450 UL
Nitrophenol		R	R	1900 U	3700 U	1000 U	R	R	1100 UL
Nitrosodiphenylamine		R	R	760 U	1500 U	420 U	R	R	450 UL
Nitroso-di-n-propylamine		R	R	760 U	1500 U	420 U	R	R	450 UL
ntachlorophenol		R	R	1900 U	3700 U	1000 U	R	R	1100 UL
enanthrene		40 J	83 J	200 J	280 J	47 J	130 J	150 J	450 UL
enol		R	R	760 U	1500 U	420 U	R	R	450 UL
rene		90 J	130 J	470 J	580 J	71 J	290 J	210 J	53 J
2,4-Trichlorobenzene		R	R	760 U	1500 U	420 U	R	R	450 UL
2,5-Trichlorophenol		R	R	1900 U	3700 U	1000 U	R	R	1100 UL
2,6-Trichlorophenol		R	R	760 U	1500 U	420 U	R	R	450 UL

alyte concentrations in micrograms per kilogram (parts per billion [ppb]).
alyses were performed by Enseco-East of Somerset, New Jersey, using March 1990 Contract Laboratory Program (CLP) protocols.

The compound was also detected in the associated method blank.
Estimated result.
Reported value may be biased low. Actual value is expected to be higher.
The compound was analyzed for, but not detected at the corresponding reporting limits.
Result rejected.
Field replicate of vious sample.

Table 6-5. Concentrations of Base Neutral and Acid Extractable Organic Compounds in Field Blanks Collected in August and October 1992, Dublin NPL Site, Dublin, Pennsylvania.

Analyte	Sample ID: Field Blank (F040827) Date: 27-Aug-92	Field Blank (F071028) 28-Oct-92
Acenaphthene	11 U	10 U
Acenaphthylene	11 U	10 U
Anthracene	11 U	10 U
9H-Carbazole	11 U	10 U
Benzo(a)anthracene	11 U	10 U
Benzo(b)fluoranthene	11 U	10 U
Benzo(k)fluoranthene	11 U	10 U
Benzo(g,h,i)perylene	11 U	10 U
Benzo(a)pyrene	11 U	10 U
4-Bromophenyl phenyl ether	11 U	10 U
Butyl benzyl phthalate	11 U	10 U
4-Chloroaniline	11 U	10 U
bis(2-Chloroethoxy)methane	11 U	10 U
bis(2-Chloroethyl)ether	11 U	10 U
bis(2-Chloroisopropyl)ether	11 U	10 U
4-Chloro-3-methylphenol	11 U	10 U
2-Chloronaphthalene	11 U	10 U
2-Chlorophenol	11 U	10 U
4-Chlorophenyl phenyl ether	11 U	10 U
Chrysene	11 U	10 U
Dibenz(a,h)anthracene	11 U	10 U
Dibenzofuran	11 U	10 U
Di-n-butyl phthalate	11 U	10 U
1,2-Dichlorobenzene	11 U	10 U
1,3-Dichlorobenzene	11 U	10 U
1,4-Dichlorobenzene	11 U	10 U
3,3'-Dichlorobenzidine	11 U	10 U
2,4-Dichlorophenol	11 U	10 U
Diethyl phthalate	11 U	10 U
2,4-Dimethylphenol	11 U	10 U
Dimethyl phthalate	11 U	10 U
4,6-Dinitro-2-methylphenol	27 U	25 U
2,4-Dinitrophenol	27 U	25 U
2,4-Dinitrotoluene	11 U	10 U
2,6-Dinitrotoluene	11 U	10 U
Di-n-octyl phthalate	11 U	10 U
bis(2-Ethylhexyl)phthalate	8 B	7 B
Fluoranthene	11 U	10 U
Fluorene	11 U	10 U
Hexachlorobenzene	11 U	10 U

Analyte concentrations in micrograms per liter (parts per billion [ppb]).
Analyses were performed by Enseco-East of Somerset, New Jersey, using March 1990 Contract Laboratory Program (CLP) protocols.

B The compound was also detected in the associated method blank.
U The compound was analyzed for, but not detected at the corresponding reporting limits.

AR301342

AR301343

Table 6-5. Concentrations of Base Neutral and Acid Extractable Organic Compounds in Field Blanks Collected in August and October 1992, Dublin NPL Site, Dublin, Pennsylvania.

Analyte	Sample ID: Field Blank (F040827)	Field Blank (F071028)
Date:	27-Aug-92	28-Oct-92
Hexachlorobutadiene	11 U	10 U
Hexachlorocyclopentadiene	11 U	10 U
Hexachloroethane	11 U	10 U
Indeno(1,2,3-cd)pyrene	11 U	10 U
Isophorone	11 U	10 U
2-Methylnaphthalene	11 U	10 U
2-Methylphenol	11 U	10 U
3,4-Methylphenol	11 U	10 U
Naphthalene	11 U	10 U
2-Nitroaniline	27 U	25 U
3-Nitroaniline	27 U	25 U
4-Nitroaniline	27 U	25 U
Nitrobenzene	11 U	10 U
2-Nitrophenol	11 U	10 U
4-Nitrophenol	27 U	25 U
N-Nitrosodiphenylamine	11 U	10 U
N-Nitroso-di-n-propylamine	11 U	10 U
Pentachlorophenol	27 U	25 U
Phenanthrene	11 U	10 U
Phenol	11 U	10 U
Pyrene	11 U	10 U
1,2,4-Trichlorobenzene	11 U	10 U
2,4,5-Trichlorophenol	27 U	25 U
2,4,6-Trichlorophenol	11 U	10 U

Analyte concentrations in micrograms per liter (parts per billion [ppb]).
Analyses were performed by Enseco-East of Somerset, New Jersey, using March 1990 Contract Laboratory Program (CLP) protocols.

B The compound was also detected in the associated method blank.
U The compound was analyzed for, but not detected at the corresponding reporting limits.

Table 6-6. Concentrations of Pesticides and Polychlorinated Biphenyls in Sediment Samples Collected in August and October 1992, Dublin NPL Site, Dublin, Pennsylvania.

Analyte	Sample ID: D1 (D01010)	D2 (D02010)	D3 (D03007)	D3 FR (D71007)	D4 (D04010)	D5 (D05008)	D6 (D06007)	D7 (DO7005)
Date:	27-Aug-92	28-Aug-92	28-Aug-92	28-Aug-92	27-Aug-92	27-Aug-92	27-Aug-92	28-Oct-92
lpha-BHC	2 UJ	1.9 UL	2 U	2 U	2.1 UJ	40 UJ	2.1 UJ	0.48 JP
eta-BHC	2 UJ	1.9 UL	2 U	2 U	2.1 UJ	40 UJ	2.1 UJ	2.3 UL
lelta-BHC	2 UJ	1.9 UL	2 U	2 U	2.1 UJ	40 UJ	2.1 UJ	2.3 UL
amma-BHC (Lindane)	2 UJ	1.9 UL	0.11 JP	2 U	2.1 UJ	40 UJ	2.1 UJ	2.3 UL
Heptachlor	2 UJ	1.9 UL	2 U	2 U	2.1 UJ	40 UJ	2.1 UJ	2.3 UL
Aldrin	2 UJ	0.27 JP	2.1 P	2 U	2.1 UJ	40 UJ	2.1 UJ	2.3 UL
Heptachlor epoxide	1.1 JP	1.9 UL	2 U	2 U	2.1 UJ	40 UJ	2.1 UJ	2.3 UL
Endosulfan I	0.15 JP	1.9 UL	2 U	0.62 JP	2.1 UJ	40 UJ	2.1 UJ	2.3 UL
Dieldrin	4 UJ	3.8 UL	3.1 JP	3.8 U	4.2 UJ	39 J	3.9 J	0.53 JP
4,4'-DDE	0.52 JP	3.8 UL	1.9 JP	1.2 JP	4.3 P	86 J	27 J	3.3 J
Endrin	4 UJ	3.8 UL	3.8 U	3.8 U	4.2 UJ	78 UJ	4.1 UJ	4.5 UL
Endosulfan II	4 UJ	3.8 UL	3.4 JP	2.8 J	4.2 UJ	78 UJ	4.1 UJ	4.5 UL
4,4'-DDD	3.5 J	3.8 UL	6 P	6.5 P	1.4 JP	980 P	2.1 JP	4.5 UL
Endosulfan sulfate	4 UJ	3.8 UL	1.5 JP	0.82 JP	4.2 UJ	78 UJ	4.1 UJ	4.5 UL
4,4'-DDT	4 UJ	3.8 UL	13 P	9.4 P	4.2 UJ	2600 J	31 J	2.7 JP
Methoxychlor	20 UJ	19 UL	7.4 JP	5.5 JP	21 UJ	400 UJ	21 UJ	23 UL
Endrin ketone	4 UJ	3.8 UL	3.8 U	3.8 U	4.2 UJ	78 UJ	4.1 UJ	4.5 UL
Endrin aldehyde	4 UJ	3.8 UL	3.8 U	3.8 U	4.2 UJ	78 UJ	4.2 UJ	4.5 UL
Alpha-Chlordane	3.7 UJ	1.9 UL	5.5	4.7	2.1 UJ	40 UJ	2.1 UJ	0.51 J
Gamma-Chlordane	2.9 JP	1.9 UL	5.8 P	5 P	2.1 UJ	40 UJ	2.1 UJ	2.3 UL
Toxaphene	200 UJ	190 UL	200 U	200 U	210 UJ	4000 UJ	210 UJ	230 UL
Aroclor 1016	40 UJ	38 UL	38 U	38 U	42 UJ	780 UJ	41 UJ	45 UL
Aroclor 1221	80 UJ	77 UL	77 U	78 U	85 UJ	1600 UJ	84 UJ	92 UL
Aroclor 1232	40 UJ	38 UL	38 U	38 U	42 UJ	780 UJ	41 UJ	45 UL
Aroclor 1242	40 UJ	38 UL	38 U	38 U	6 JP	780 UJ	9.8 JP	45 UL
Aroclor 1248	40 UJ	38 UL	38 U	38 U	42 UJ	780 UJ	41 UJ	45 UL
Aroclor 1254	40 UJ	38 UL	38 U	38 U	42 UJ	780 UJ	41 UJ	45 UL
Aroclor 1260	40 UJ	38 UL	38 U	38 U	42 UJ	780 UJ	41 UJ	45 UL

Analyte concentrations in micrograms per kilogram (parts per billion [ppb]).
Analyses were performed by Enseco-East of Somerset, New Jersey, using March 1990 Contract Laboratory Program (CLP) protocols.

J Estimated result.
L Reported value may be biased low. Actual value is expected to be higher.
P Percent difference between detected concentrations from quantitation and confirmation columns is out of control limits.
U The compound was analyzed for, but not detected at the corresponding reporting limits.
FR Field replicate of previous sample.

AR301344

AR301345

able 6-7. Concentrations of Pesticides and Polychlorinated Biphenyls in the Field Blanks and Trip Blank Collected in August and October 1992, Dublin NPL Site, Dublin, Pennsylvania.

Analyte	Sample ID: / Date:	Field Blank (F040827) 27-Aug-92	Field Blank (F071028) 28-Oct-92	Trip Blank (K011028) 28-Oct-92
lpha-BHC		0.052 UL	0.05 U	0.05 UL
eta-BHC		0.052 UL	0.05 U	0.05 UL
elta-BHC		0.052 UL	0.05 U	0.05 UL
amma-BHC (Lindane)		0.052 UL	0.05 U	0.05 UL
eptachlor		0.052 UL	0.05 U	0.05 UL
ldrin		0.052 UL	0.05 U	0.05 UL
eptachlor epoxide		0.052 UL	0.05 U	0.05 UL
ndosulfan I		0.052 UL	0.05 U	0.05 UL
ieldrin		0.1 UL	0.1 U	0.10 UL
,4'-DDE		0.1 UL	0.1 U	0.10 UL
ndrin		0.1 UL	0.1 U	0.10 UL
ndosulfan II		0.1 UL	0.1 U	0.10 UL
,4'-DDD		0.1 UL	0.1 U	0.10 UL
ndosulfan sulfate		0.1 UL	0.1 U	0.10 UL
,4'-DDT		0.1 UL	0.1 U	0.10 UL
ethoxychlor		0.52 UL	0.5 U	0.50 UL
ndrin ketone		0.1 UL	0.1 U	0.10 UL
ndrin aldehyde		0.1 UL	0.1 U	0.10 UL
lpha-Chlordane		0.052 UL	0.05 U	0.05 UL
amma-Chlordane		0.052 UL	0.05 U	0.05 UL
oxaphene		5.2 UL	5 U	5 UL
roclor 1016		1 UL	1 U	1 UL
roclor 1221		2.1 UL	2 U	2 UL
roclor 1232		1 UL	1 U	1 UL
roclor 1242		1 UL	1 U	1 UL
roclor 1248		1 UL	1 U	1 UL
roclor 1254		1 UL	1 U	1 UL
roclor 1260		1 UL	1 U	1 UL

nalyte concentrations in micrograms per liter (parts per billion [ppb]).
nalyses were performed by Enseco-East of Somerset, New Jersey, using March 1990 Contract Laboratory Program (CLP) protocols.

. Reported value may be biased low. Actual value is expected to be higher.
) The compound was analyzed for, but not detected at the corresponding reporting limits.

ible 6-8. Concentrations of Metals in Sediment Samples Collected in August and October 1992, Dublin NPL Site, Dublin, Pennsylvania.

Analyte	Sample ID: / Date:	D1 (D01010) 27-Aug-92	D2 (D02010) 28-Aug-92	D3 (D03007) 28-Aug-92	D3 FR (D71007) 28-Aug-92	D4 (D04010) 27-Aug-92	D5 (D05008) 27-Aug-92	D6 (D06007) 27-Aug-92	D7 (DO7005) 28-Oct-92
luminum		16100	13200	14400	11700	14000	17000	14500	14200
ntimony		4.9 UL	4.7 UL	4.6 UL	4.5 UL	4.7 UL	4.8 UL	5 UL	6.1 UL
rsenic		8	6.2	8.2	9.7	11	13.4	4.6	13.3
arium		142	136	178	176	117	121	120	104
eryllium		1.3	1.4	1.3	1.3	1.8	1.8	1.7	1.3
admium		0.73 U	0.7 U	0.69 U	0.97	0.7 U	0.71 U	0.76 U	0.93
alcium		3750	1090	7010	6980	1700	2360	1870	2200
hromium		39.4 L	31.6 L	31.5 L	31.4 L	46 L	55.5 L	56.1 L	36.9
obalt		20.3	18.1	16.7	17.3	19.3	23.8	19.5	21
opper		24.8	29.9	37.9	39.3	38.7	40	32.5	30.1
on		38200	33400	32600	31300	48500	51200	47300	36000
ead		47.4 J	13.4 J	107 J	112 J	107 J	354 J	70.4 J	73.6 J
lagnesium		3950	5540	6700	6550	3310	5670	4420	3790
langanese		1440	904	2720	2680	733	1090	1370	1400
ercury		0.06 U	0.06 U	0.06 U	0.06 U	0.12	0.18	0.07	0.08 U
ickel		20.7	29.1	22	21	24.9	26.5	27.6	24.8
otassium		1270	1460	1710	1450	1190	1490	1470	761
elenium		0.49 U	0.47 U	0.46 UW	0.45 UW	0.47 UW	0.48 UW	0.5 U	0.76 L
ilver		1	0.93 U	0.92 U	0.91 U	1.4	1.1	1.2	1.2
odium		83	194	317	226	135	134	99.1	178
hallium		0.73 U	0.7 U	0.69 U	0.68 UW	0.7 U	0.71 U	0.76 U	0.91 U
anadium		59.6	53.8	53.8	53.6	70.8	78.3	79.7	62.5
inc		96.2 J	66.7 J	281 J	268 J	230 J	285 J	164 J	154

nalyte concentrations in milligrams per kilogram (parts per million [ppm]).
nalyses were performed by Enseco-East of Somerset, New Jersey, using standard U.S. Environmental Protection Agency methodology.

Estimated result.
Reported value may be biased low. Actual value is expected to be higher.
J The analyte was analyzed for, but not detected at the corresponding reporting limits.
V Post-digestion spike for graphite furnace atomic absorption (GFAA) out of control limits.
R Field replicate of previous sample.

AR301346

AR301347

able 6-9. Concentrations of Total Organic Carbon in Sediment Samples Collected in August and October 1992, Dublin NPL Site, Dublin, Pennsylvania.

	Sample ID:	D1 (D01010)	D2 (D02010)	D3 (D03007)	D3 FR (D71007)	D4 (D04010)	D5 (D05008)	D6 (D06007)	D7 (DO7005)
Analyte	Date:	27-Aug-92	28-Aug-92	28-Aug-92	28-Aug-92	27-Aug-92	27-Aug-92	27-Aug-92	28-Oct-92
otal Organic Carbon		0.92	0.096	3.4	1.5	0.62	0.97	0.79	1.8

nalyte concentrations in percent carbon (% Carbon).
nalyses were performed by Enseco-East of Somerset, New Jersey, using standard U.S. Environmental Protection Agency methodology.

R Field replicate of previous sample.

Table 6-10. Concentrations of Total Organic Carbon in Field Blanks Collected in August and October 1992, Dublin NPL Site, Dublin, Pennsylvania.

	Sample ID:	Field Blank (F040827)	Field Blank (F071028)
Analyte	Date:	27-Aug-92	28-Oct-92
Total Organic Carbon		3	1 U

Analyte concentrations in milligrams per liter (parts per million [ppm]).
Analyses were performed by Enseco-East of Somerset, New Jersey, using USEPA Method 415.2.

U The compound was analyzed for, but not detected at the corresponding reporting limits.

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Table 7-1. Concentrations of Volatile Organic Compounds in Air Samples Collected in August 1992, *Dublin NPL Site, Dublin, Pennsylvania.*

Analyte	Sample ID: AR 10826 Upwind Date: 26-Aug-92	AR 30826 Downwind 26-Aug-92	AR 40827 On-Site 27-Aug-92	AR 50827 On-Site (AR 40827 FR) 27-Aug-92	AR 60827 Downwind 27-Aug-92
Chloromethane	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Bromomethane	3 U	3 U	3 U	3 U	3 U
Vinyl chloride	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Chloroethane	5 U	5 U	5 U	5 U	5 U
Methylene chloride	4 U	4 U	4 U	4 U	9.8
Acetone	17	24	27	25	31
Carbon disulfide	11	10 U	10 U	10 U	10 U
1,1-Dichloroethene	2 U	2 U	2 U	2 U	2 U
1,1-Dichloroethane	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
1,2-Dichloroethene (cis/trans)	4 U	2 U	2 U	2 U	2 U
Chloroform	2 U	2 U	2 U	2 U	2 U
1,2-Dichloroethane	2 U	2 U	2 U	2 U	2 U
2-Butanone	3 U	7.4 U	3 U	3 U	13
1,1,1-Trichloroethane	2 U	20	33	30	35
Carbon tetrachloride	2 U	2 U	2 U	2 U	2 U
Bromodichloromethane	2 U	2 U	2 U	2 U	2 U
1,2-Dichloropropane	8 U	8 U	8 U	8 U	8 U
cis-1,3-Dichloropropene	3 U	3 U	3 U	3 U	3 U
Trichloroethene	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Dibromochloromethane	3 U	3 U	3 U	3 U	3 U
1,1,2-Trichloroethane	3 U	3 U	3 U	3 U	3 U
Benzene	3 U	6.2	3 U	3 U	8.7
trans-1,3-Dichloropropene	3 U	3 U	3 U	3 U	3 U
Bromoform	2 U	2 U	2 U	2 U	2 U
4-Methyl-2-pentanone	3 U	3 U	3 U	3 U	3 U
2-Hexanone	5 U	5 U	9.4	5 U	5 U
1,1,2,2-Tetrachloroethane	4 U	4 U	4 U	4 U	4 U
Tetrachloroethene	3 U	3 U	3 U	3 U	5.5
Toluene	3.2	25	4.5	12	92
Chlorobenzene	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Ethylbenzene	2.5 U	3.4	2.5 U	2.5 U	7.3
Styrene	7 U	7 U	7 U	7 U	7 U
Xylenes (total)	5 U	13	5 U	5.6	31

Analyte concentrations in parts per billion by volume (ppbv).
Analyses were performed by Enseco-Air Toxics of City of Industry, California using U.S. Environmental Protection Agency (USEPA) Method TO-14.

U The compound was analyzed for, but not detected at the corresponding reporting limits.
FR Field replicate of previous sample.

Table 8-1. Concentrations of Volatile Organic Compounds in Groundwater Samples Collected from Monitoring and Supply Wells, May 19, 1988, Dublin NPL Site, Dublin, Pennsylvania.

Sample ID	Sample Date	trans-1,2-DCE	TCA	TCE	PCE
MW-1	05/19/88	7	ND	190	ND
MW-2	05/19/88	ND	ND	8	ND
MW-9 (a)	05/19/88	ND	ND	9	ND
MW-3	05/19/88	11	23	190	ND
MW-4	05/19/88	240	ND	640	8
MW-5	05/19/88	ND	ND	39	ND
MW-6	05/19/88	ND	ND	ND	ND
MW-7	05/19/88	ND	ND	93	ND
MW-8	05/19/88	ND	ND	470	ND
PW-1	05/19/88	ND	ND	3000	ND
PW-2	05/19/88	ND	ND	390	ND
WSW-1	05/19/88	19	ND	530	ND
Trip blank	05/19/88	ND	ND	ND	ND
Field blank	05/19/88	ND	ND	ND	ND

Concentrations are reported in micrograms per liter (ug/L).

MW	Monitoring well.
ND	Not detected.
PW	Production well.
WSW	Whistlewood Supply Well.
a	Replicate of MW-2.
1,1-DCE	1,1-Dichloroethene.
trans 1,2-DCE	trans 1,2-Dichloroethene.
TCA	1,1,1-Trichloroethane.
TCE	*Trichloroethene.*
PCE	Tetrachloroethene.

Samples were analyzed by U.S. Environmental Protection Agency (USEPA) Method 624 for 30 volatile organic compounds; only those compounds detected in one or more samples are reported. Analyses performed by Lancaster Laboratories, Inc. of Lancaster, Pennsylvania.

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Table 8-2. Concentrations of Volatile Organic Compounds in Groundwater Samples Collected from Monitoring Wells at the 120 Mill Street Property by BCM, Inc. on July 6, 1988, Dublin NPL Site, Dublin, Pennsylvania.

Parameter	Sample I.D.: Sample Date:	BCM-1 07/06/88	BCM-2 07/06/88	BCM-2 Duplicate 07/06/88	Field Blank 07/06/88	Trip Blank 07/06/88
Trichloroethene		17,500	313	673	5.8	ND
Tetrachloroethene		7.2	ND	ND	ND	ND
Vinyl chloride		5.7	ND	ND	15.4	ND
Chloroform		58.4	ND	ND	ND	ND
1,1-Dichloroethene		8.7	ND	ND	ND	ND
trans-1,2-Dichloroethene		43.4	ND	ND	ND	ND
1,1,1-Trichloroethane		12.5	ND	ND	ND	ND
1,1,2-Trichloroethane		7.2	ND	ND	ND	ND
Bromodichloromethane		ND	ND	2.4	ND	ND

Concentrations reported in micrograms per liter (ug/L).
ND Not detected.
Samples were analyzed by U.S. Environmental Protection Agency (USEPA) Method 601 for volatile organic compounds; only those compounds detected in one or more samples are reported.
Analyses performed by BCM Laboratory Division of Norristown, Pennsylvania.
Source: BCM, Inc. (1988b).

Table 8-3. *Concentrations of Volatile Organic Compounds in Groundwater Samples Collected in August and September 1992, Dublin NPL Site, Dublin, Pennsylvania.*

Analyte / Sample ID:	BCM-1 (MB10819)	Dublin Well No. 1 (R040901)	Farm Bureau Well (R030817)	Fire Tower Well (R020818)	MW-3 (M030817)	MW-4 (M040818)	PW-1 (R010818)	PW-1 FR (R710818)	Field Blank (FB10819)	Trip Blank (K010818)	Trip Blank (K010819)	Trip Blank (K010901)
Date:	19-Aug-92	1-Sep-92	17-Aug-92	18-Aug-92	17-Aug-92	18-Aug-92	18-Aug-92	18-Aug-92	19-Aug-92	18-Aug-92	19-Aug-92	1-Sep-92
Chloromethane	0.5 U	0.5 U	10 Uu	50 Uu	0.5 UJ	100 Uu	50 Uu	50 Uu	0.5 UJ	0.5 U	0.5 UJ	0.5 U
Bromomethane	0.5 U	0.5 U	10 U	50 U	0.5 U	100 U	50 U	50 U	0.5 U	0.5 U	0.5 U	0.5 U
Vinyl chloride	0.87	0.5 U	10 U	50 U	0.5 U	100 U	50 U	50 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroethane	0.5 U	0.5 UJ	10 U	50 U	0.5 U	100 U	50 U	50 U	0.5 U	0.5 U	0.5 U	0.5 UJ
Methylene chloride	0.72 B	0.74 B	9.7 B	45 B	0.46 B	100 U	34 B	33 B	0.49 B	0.55 B	0.58 B	8.7 B
Acetone	11 B	2 U	40 U	200 U	14 B	400 U	200 U	200 U	2 U	2 U	11 B	12 J
Carbon disulfide	4.2 B	0.63 B	10 U	18 J	0.5 U	100 U	50 U	50 U	0.5 U	0.5 U	0.5 U	2.2
1,1-Dichloroethene	5.9	0.5 U	10 U	50 U	0.33 J	100 U	50 U	50 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane	0.46 J	0.5 U	10 U	50 U	2.2	100 U	50 U	50 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethene (cis/trans)	27	0.5 U	10 U	97	3.5	400	50 U	50 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroform	26	0.5 U	10 U	4.7 J	0.34 B	100 U	50 U	50 U	0.076 B	0.096 J	0.5 U	0.5 U
1,2-Dichloroethane	0.5 U	0.5 U	10 U	50 U	0.5 U	100 U	50 U	50 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Butanone	2 U	2 U	40 U	200 U	2 U	400 U	200 U	200 U	2 U	2 U	2 U	2 U
1,1,1-Trichloroethane	9.2	0.5 U	4.8 J	3.8 J	20	100 U	21 J	21 J	0.5 U	0.5 U	0.5 U	0.5 U
Carbon tetrachloride	0.5 U	0.5 U	10 U	50 U	0.5 U	100 U	50 U	50 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromodichloromethane	0.5 U	0.5 U	10 U	50 U	0.5 U	100 U	50 U	50 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloropropane	0.5 U	0.5 U	10 U	50 U	0.5 U	100 U	50 U	50 U	0.5 U	0.5 U	0.5 U	0.5 U
cis-1,3-Dichloropropene	0.5 U	0.5 U	10 U	50 U	0.5 U	100 U	50 U	50 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichloroethene	14,000 D	0.5 U	1,400 D	6,200 D	28	8,600 D	4,600 D	4,100 D	0.5 U	0.5 U	0.5 U	0.5 U
Dibromochloromethane	0.5 U	0.5 U	10 U	50 U	0.5 U	100 U	50 U	50 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2-Trichloroethane	0.5 U	0.5 U	10 U	50 U	0.5 U	100 U	50 U	50 U	0.5 U	0.5 U	0.5 U	0.5 U
Benzene	0.12 J	0.5 U	10 U	50 U	0.5 U	100 U	50 U	50 U	0.5 U	0.5 U	0.5 U	0.5 U
trans-1,3-Dichloropropene	0.5 U	0.5 U	10 U	50 U	0.5 U	100 U	50 U	50 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromoform	0.5 UJ	0.5 U	10 UJ	50 UJ	0.5 U	100 UJ	50 UJ	50 UJ	0.5 U	0.5 UJ	0.5 U	0.5 U
4-Methyl-2-pentanone	2 U	2 U	40 U	200 U	2 U	400 U	200 U	200 U	2 U	2 U	2 U	2 U
2-Hexanone	R	R	40 U	200 U	2 U	400 U	200 U	200 U	R	2 U	R	R
1,1,2,2-Tetrachloroethane	0.5 U	0.5 U	10 U	50 U	0.5 U	100 U	50 U	50 U	0.5 U	0.5 U	0.5 U	0.5 U
Tetrachloroethene	6.4	0.5 U	10 U	50 U	0.079 J	100 U	7.8 J	5.4 J	0.5 U	0.5 U	0.5 U	0.5 U
Toluene	0.58	0.5 U	10 U	50 U	0.55	100 U	50 U	50 U	0.5 U	0.5 U	0.5 U	0.5 U
Chlorobenzene	0.5 U	0.5 U	10 U	50 U	0.5 U	100 U	50 U	50 U	0.5 U	0.5 U	0.5 U	0.5 U
Ethylbenzene	0.5 U	0.5 U	10 U	50 U	0.5 U	100 U	50 U	50 U	0.5 U	0.5 U	0.5 U	0.5 U
Styrene	0.5 U	0.5 U	10 U	50 U	0.5 U	100 U	50 U	50 U	0.5 U	0.5 U	0.5 U	0.5 U
Xylenes (total)	0.36 J	0.5 U	10 U	50 U	0.5 U	100 U	50 U	50 U	0.5 U	0.5 U	0.5 U	0.5 U

Analyte concentrations in micrograms per liter (parts per billion [ppb]).
Analyses were performed by Enseco-East of Somerset, New Jersey, using U.S. Environmental Protection Agency Method 524.2, revision 3.0.

B	Analyte is detected in the laboratory blank.
D	Analyte identified at a secondary dilution.
J	Result is detected below the reporting limit and/or is an estimated concentration.
U	Compound or element analyzed for, but not detected at the corresponding reporting limit.
u	All reporting limits raised due to high levels of target analytes.
R	Result rejected.
FR	Field replicate of previous sample.

Table 8-4. Concentrations of Base Neutral and Acid Extractable Organic Compounds in Groundwater Samples Collected in August and September 1992, Dublin NPL Site, Dublin, Pennsylvania.

Analyte	Sample ID: / Date:	BCM-1 (MB10819) 19-Aug-92	Dublin Well No. 1 (R040901) 1-Sep-92	Farm Bureau Well (R030817) 17-Aug-92	Fire Tower Well (R020818) 18-Aug-92	MW-3 (M030817) 17-Aug-92	MW-4 (M040818) 18-Aug-92	PW-1 (R010818) 18-Aug-92	PW-1 FR (R710818) 18-Aug-92	Field Blank (FB10819) 19-Aug-92
Acenaphthene		11 U	10 U	10 U	10 U	12 U	10 U	10 U	9.8 U	10 U
Acenaphthylene		11 U	10 U	10 U	10 U	12 U	10 U	10 U	9.8 U	10 U
Anthracene		11 U	10 U	10 U	10 U	12 U	10 U	10 U	9.8 U	10 U
9H-Carbazole		11 U	10 U	10 U	10 U	12 U	10 U	10 U	9.8 U	10 U
Benzo(a)anthracene		11 U	10 U	10 U	10 U	12 U	10 U	10 U	9.8 U	10 U
Benzo(b)fluoranthene		11 U	10 U	10 U	10 U	12 U	10 U	10 U	9.8 U	10 U
Benzo(k)fluoranthene		11 U	10 U	10 U	10 U	12 U	10 U	10 U	9.8 U	10 U
Benzo(g,h,i)perylene		11 U	10 U	10 U	10 U	12 U	10 U	10 U	9.8 U	10 U
Benzo(a)pyrene		11 U	10 U	10 U	10 U	12 U	10 U	10 U	9.8 U	10 U
4-Bromophenyl phenyl ether		11 U	10 U	10 U	10 U	12 U	10 U	10 U	9.8 U	10 U
Butyl benzyl phthalate		11 U	10 U	10 U	10 U	12 U	10 U	10 U	9.8 U	10 U
4-Chloroaniline		11 U	10 U	10 U	10 U	12 U	10 U	10 U	9.8 U	10 U
bis(2-Chloroethoxy)methane		11 U	10 U	10 U	10 U	12 U	10 U	10 U	9.8 U	10 U
bis(2-Chloroethyl)ether		11 U	10 U	10 U	10 U	12 U	10 U	10 U	9.8 U	10 U
bis(2-Chloroisopropyl)ether		11 U	10 U	10 U	10 U	12 U	10 U	10 U	9.8 U	10 U
4-Chloro-3-methylphenol		11 U	10 U	10 U	10 U	12 U	10 U	10 UL	9.8 U	10 U
2-Chloronaphthalene		11 U	10 U	10 U	10 U	12 U	10 U	10 U	9.8 U	10 U
2-Chlorophenol		11 U	10 U	10 U	10 U	12 U	10 U	10 UL	9.8 U	10 U
4-Chlorophenyl phenyl ether		11 U	10 U	10 U	10 U	12 U	10 U	10 U	9.8 U	10 U
Chrysene		11 U	10 U	10 U	10 U	12 U	10 U	10 U	9.8 U	10 U
Dibenz(a,h)anthracene		11 U	10 U	10 U	10 U	12 U	10 U	10 U	9.8 U	10 U
Dibenzofuran		11 U	10 U	10 U	10 U	12 U	10 U	10 U	9.8 U	10 U
Di-n-butyl phthalate		11 U	10 U	10 U	10 U	12 U	10 U	10 U	9.8 U	10 U
1,2-Dichlorobenzene		11 U	10 U	10 U	10 U	12 U	10 U	10 U	9.8 U	10 U
1,3-Dichlorobenzene		11 U	10 U	10 U	10 U	12 U	10 U	10 U	9.8 U	10 U
1,4-Dichlorobenzene		11 U	10 U	10 U	10 U	12 U	10 U	10 U	9.8 U	10 U
3,3'-Dichlorobenzidine		11 U	10 U	10 U	10 U	12 U	10 U	10 U	9.8 U	10 U
2,4-Dichlorophenol		11 U	10 U	10 U	10 U	12 U	10 U	10 UL	9.8 U	10 U
Diethyl phthalate		11 U	10 U	10 U	10 U	12 U	10 U	10 U	9.8 U	10 U
2,4-Dimethylphenol		11 U	10 U	10 U	10 U	12 U	10 U	10 UL	9.8 U	10 U
Dimethyl phthalate		11 U	10 U	10 U	10 U	12 U	10 U	10 U	9.8 U	10 U
4,6-Dinitro-2-methylphenol		28 U	25 U	26 U	25 U	29 U	26 U	25 UL	24 U	26 U
2,4-Dinitrophenol		28 U	25 U	26 U	25 U	29 U	26 U	25 UL	24 U	26 U
2,4-Dinitrololuene		11 U	10 U	10 U	10 U	12 U	10 U	10 U	9.8 U	10 U
2,6-Dinitrotoluene		11 U	10 U	10 U	10 U	12 U	10 U	10 U	9.8 U	10 U
Di-n-octyl phthalate		11 U	10 U	10 U	10 U	12 U	10 U	10 U	9.8 U	10 U
bis(2-Ethylhexyl)phthalate		33 B	10 U	3 B	6 B	4 B	5 B	11 B	3 B	5 B
Fluoranthene		11 U	10 U	10 U	10 U	12 U	10 U	10 U	9.8 U	10 U

Analyte concentrations in micrograms per liter (parts per billion [ppb]).
Analyses were performed by Enseco-East of Somerset, New Jersey, using March 1990 Contract Laboratory Program (CLP) protocols.

B The compound was also detected in the associated method blank.
L Reported value may be biased low. Actual value is expected to be higher.
U The compound was analyzed for, but not detected at the corresponding reporting limits.
FR Field replicate of previous sample.

AR301354

Table 8-4. Concentrations of Base Neutral and Acid Extractable Organic Compounds in Groundwater Samples Collected in August and September 1992, Dublin NPL Site, Dublin, Pennsylvania.

Analyte	Sample ID: / Date:	BCM-1 (MB10819) 19-Aug-92	Dublin Well No. 1 (R040901) 1-Sep-92	Farm Bureau Well (R030817) 17-Aug-92	Fire Tower Well (R020818) 18-Aug-92	MW-3 (M030817) 17-Aug-92	MW-4 (M040818) 18-Aug-92	PW-1 (R010818) 18-Aug-92	PW-1 FR (R710818) 18-Aug-92	Field Blank (FB10819) 19-Aug-92
Fluorene		11 U	10 U	10 U	10 U	12 U	10 U	10 U	9.8 U	10 U
Hexachlorobenzene		11 U	10 U	10 U	10 U	12 U	10 U	10 U	9.8 U	10 U
Hexachlorobutadiene		11 U	10 U	10 U	10 U	12 U	10 U	10 U	9.8 U	10 U
Hexachlorocyclopentadiene		11 U	10 U	10 U	10 U	12 U	10 U	10 U	9.8 U	10 U
Hexachloroethane		11 U	10 U	10 U	10 U	12 U	10 U	10 U	9.8 U	10 U
Indeno(1,2,3-cd)pyrene		11 U	10 U	10 U	10 U	12 U	10 U	10 U	9.8 U	10 U
Isophorone		11 U	10 U	10 U	10 U	12 U	10 U	10 U	9.8 U	10 U
2-Methylnaphthalene		11 U	10 U	10 U	10 U	12 U	10 U	10 U	9.8 U	10 U
2-Methylphenol		11 U	10 U	10 U	10 U	12 U	10 U	10 UL	9.8 U	10 U
4-Methylphenol		11 U	10 U	10 U	10 U	12 U	10 U	10 UL	9.8 U	10 U
Naphthalene		11 U	10 U	10 U	10 U	12 U	10 U	10 U	9.8 U	10 U
2-Nitroaniline		28 U	25 U	26 U	25 U	29 U	26 U	25 U	24 U	26 U
3-Nitroaniline		28 U	25 U	26 U	25 U	29 U	26 U	25 U	24 U	26 U
4-Nitroaniline		28 U	25 U	26 U	25 U	29 U	26 U	25 U	24 U	26 U
Nitrobenzene		11 U	10 U	10 U	10 U	12 U	10 U	10 U	9.8 U	10 U
2-Nitrophenol		11 U	10 U	10 U	10 U	12 U	10 U	10 UL	9.8 U	10 U
4-Nitrophenol		28 U	25 U	26 U	25 U	29 U	26 U	25 UL	24 U	26 U
N-Nitrosodiphenylamine		11 U	10 U	10 U	10 U	12 U	10 U	10 U	9.8 U	10 U
N-Nitroso-di-n-propylamine		11 U	10 U	10 U	10 U	12 U	10 U	10 U	9.8 U	10 U
Pentachlorophenol		28 U	25 U	26 U	25 U	29 U	26 U	25 UL	24 U	26 U
Phenanthrene		11 U	10 U	10 U	10 U	12 U	10 U	10 U	9.8 U	10 U
Phenol		11 U	10 U	10 U	10 U	12 U	10 U	10 UL	9.8 U	10 U
Pyrene		11 U	10 U	10 U	10 U	12 U	10 U	10 U	9.8 U	10 U
1,2,4-Trichlorobenzene		11 U	10 U	10 U	10 U	12 U	10 U	10 U	9.8 U	10 U
2,4,5-Trichlorophenol		28 U	25 U	26 U	25 U	29 U	26 U	25 UL	24 U	26 U
2,4,6-Trichlorophenol		11 U	10 U	10 U	10 U	12 U	10 U	10 UL	9.8 U	10 U

Analyte concentrations in micrograms per liter (parts per billion [ppb]).
Analyses were performed by Enseco-East of Somerset, New Jersey, using March 1990 Contract Laboratory Program (CLP) protocols.

B The compound was also detected in the associated method blank.
L Reported value may be biased low. Actual value is expected to be higher.
U The comp[illegible] was analyzed for, but not detected at the corresponding reporting limits.
FR Field repl[illegible] previous sample.

Table 8-5. Concentrations of Pesticides and Polychlorinated Biphenyls in Groundwater Samples Collected in August and September 1992, Dublin NPL Site, Dublin, Pennsylvania.

Analyte	Sample ID: / Date:	BCM-1 (MB10819) 19-Aug-92	Dublin Well No. 1 (R040901) 1-Sep-92	Farm Bureau Well (R030817) 17-Aug-92	Fire Tower Well (R020818) 18-Aug-92	MW-3 (M030817) 17-Aug-92	MW-4 (M040818) 18-Aug-92	PW-1 (R010818) 18-Aug-92	PW-1 FR (R710818) 18-Aug-92	Field Blank (FB10819) 19-Aug-92
alpha-BHC		0.0057 L	0.066 U	0.054 UL	0.0053 L	0.054 UL	0.0046 L	0.052 UL	0.049 U	0.05 UL
beta-BHC		0.05 UL	0.066 U	0.054 UL	0.05 UL	0.054 UL	0.055 UL	0.052 UL	0.049 U	0.05 UL
delta-BHC		0.05 UL	0.066 U	0.054 UL	0.05 UL	0.054 UL	0.055 UL	0.052 UL	0.049 U	0.05 UL
gamma-BHC (Lindane)		0.05 UL	0.066 U	0.054 UL	0.05 UL	0.054 UL	0.055 UL	0.024 L	0.049 U	0.05 UL
Heptachlor		0.05 UL	0.066 U	0.054 UL	0.05 UL	0.054 UL	0.055 UL	0.052 UL	0.049 U	0.05 UL
Aldrin		0.05 UL	0.066 U	0.054 UL	0.05 UL	0.054 UL	0.055 UL	0.052 UL	0.049 U	0.05 UL
Heptachlor epoxide		0.05 UL	0.066 U	0.054 UL	0.05 UL	0.01 L	0.055 UL	0.052 UL	0.049 U	0.05 UL
Endosulfan I		0.05 UL	0.066 U	0.054 UL	0.0047 L	0.054 UL	0.055 UL	0.052 UL	0.049 U	0.05 UL
Dieldrin		0.1 UL	0.13 U	0.11 UL	0.1 UL	0.11 UL	0.11 UL	0.1 UL	0.097 U	0.1 UL
4,4'-DDE		0.1 UL	0.13 U	0.11 UL	0.1 UL	0.11 UL	0.11 UL	0.1 UL	0.097 U	0.1 UL
Endrin		0.1 UL	0.13 U	0.11 UL	0.1 UL	0.11 UL	0.11 UL	0.1 UL	0.097 U	0.1 UL
Endosulfan II		0.1 UL	0.13 U	0.11 UL	0.1 UL	0.11 UL	0.11 UL	0.1 UL	0.097 U	0.1 UL
4,4'-DDD		0.1 UL	0.13 U	0.11 UL	0.1 UL	0.11 UL	0.11 UL	0.1 UL	0.097 U	0.1 UL
Endosulfan sulfate		0.1 UL	0.13 U	0.11 UL	0.1 UL	0.11 UL	0.11 UL	0.1 UL	0.097 U	0.1 UL
4,4'-DDT		0.1 UL	0.13 U	0.11 UL	0.1 UL	0.11 UL	0.11 UL	0.1 UL	0.097 U	0.1 UL
Methoxychlor		0.5 UL	0.66 U	0.54 UL	0.5 UL	0.54 UL	0.55 UL	0.52 UL	0.49 U	0.5 UL
Endrin ketone		0.1 UL	0.13 U	0.11 UL	0.1 UL	0.11 UL	0.11 UL	0.1 UL	0.097 U	0.1 UL
Endrin aldehyde		0.1 UL	0.13 U	0.11 UL	0.1 UL	0.11 UL	0.11 UL	0.1 UL	0.097 U	0.1 UL
alpha-Chlordane		0.05 UL	0.066 U	0.015 L	0.05 UL	0.0047 L	0.055 UL	0.052 UL	0.049 U	0.05 UL
gamma-Chlordane		0.05 UL	0.066 U	0.016 L	0.05 UL	0.006 L	0.055 UL	0.052 UL	0.049 U	0.05 UL
Toxaphene		5 UL	6.6 U	5.4 UL	5 UL	5.4 UL	5 UL	5.2 UL	4.9 U	5 UL
Aroclor 1016		1 UL	1.3 U	1.1 UL	1 UL	1.1 UL	1 UL	1 UL	0.97 U	1 UL
Aroclor 1221		2 UL	2.7 U	2.2 UL	2 UL	2.2 UL	2 UL	2.1 UL	1.9 U	2 UL
Aroclor 1232		1 UL	1.3 U	1.1 UL	1 UL	1.1 UL	1 UL	1 UL	0.97 U	1 UL
Aroclor 1242		1 UL	1.3 U	1.1 UL	1 UL	1.1 UL	1 UL	1 UL	0.97 U	1 UL
Aroclor 1248		1 UL	1.3 U	1.1 UL	1 UL	1.1 UL	1 UL	1 UL	0.97 U	1 UL
Aroclor 1254		1 UL	1.3 U	1.1 UL	1 UL	1.1 UL	1 UL	1 UL	0.97 U	1 UL
Aroclor 1260		1 UL	1.3 U	1.1 UL	1 UL	1.1 UL	1 UL	1 UL	0.97 U	1 UL

Analyte concentrations in micrograms per liter (parts per billion [ppb]).
Analyses were performed by Enseco-East of Somerset, New Jersey, using March 1990 Contract Laboratory Program (CLP) protocols.

L. Reported value may be biased low. Actual value is expected to be higher.
U The compound was analyzed for, but not detected at the corresponding reporting limits.
FR Field replicate of previous sample.

AR301356

Table 8-6. Concentrations of Total Metals in Groundwater Samples Collected in August and September 1992, Dublin NPL Site, Dublin, Pennsylvania.

Analyte	Sample ID: / Date:	BCM-1 (MB10819) 19-Aug-92	Dublin Well No. 1 (R040901) 1-Sep-92	Farm Bureau Well (R030817) 17-Aug-92	Fire Tower Well (R020818) 18-Aug-92	MW-3 (M030817) 17-Aug-92	MW-4 (M040818) 18-Aug-92	PW-1 (R010818) 18-Aug-92	PW-1 FR (R710818) 18-Aug-92	Field Blank (FB10819) 19-Aug-92
Aluminum		3820	32 U	32 UJ	41.1 J	1420 J	1110 J	731 J	507 J	32 U
Antimony		20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Arsenic		3	8.2	2 U	2 UW	12	2 U	2 U	2 U	2 U
Barium		274	43.8	206 J	175	258	103	145	140	1 U
Beryllium		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Cadmium		5	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U
Calcium		77200	56800	68100 J	59400 J	58700	59300 J	82600	76900 J	69.5
Chromium		7	4 U	4 U	4 U	4.6	4 U	4 U	4 U	4 U
Cobalt		13.9	4 U	4 U	4 U	23.3	4 U	4.3	4 U	4 U
Copper		73.2	4 U	4 U	27	23.3	9.3	14.2	15	4 U
Iron		10700	12.7	72.5 J	240	6880 J	9420 J	4330 J	3340 J	9.1
Lead		19.1	1 U	1 U	21.2	66.5	4.2	13	12.6	1 U
Magnesium		21800	24700	35500 J	27500	30200	25700	20700	20200	35 U
Manganese		13600	29.6	1.9	34 J	455	490	9240	7710	1 U
Mercury		0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Nickel		18	8 U	8 U	8 U	8 U	8 U	12.2	8 U	8 U
Potassium		2680	1110	1050	580	2130	1240	766	820	560 U
Selenium		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Silver		4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U
Sodium		17700 J	13700	22900 J	18700	17200	27800 J	26600	25600 J	900 U
Thallium		3 UL	3 UL	3 UL	3 UL	3 UL	3 UL	3 UL	3 UL	3 U
Vanadium		23	4 U	4 U	4 U	9.2	5.1	6.9	6.2	4 U
Zinc		123	19.8	8.8	725	71	17.3	110	97.5	2.2

Analyte concentrations in micrograms per liter (parts per billion [ppb]).
Analyses were performed by Enseco-East of Somerset, New Jersey, using standard U.S. Environmental Protection Agency methodology.

J Estimated result.
L Reported value may be biased low. Actual value is expected to be higher.
U The analyte was analyzed for, but not detected at the corresponding reporting limits.
W Post-digestion spike for graphite furnace atomic absorption (GFAA) out of control limits.
FR Field replicate of previous sample.

Table 8-7. Concentrations of Dissolved Metals in Groundwater Samples Collected in August and September 1992, Dublin NPL Site, Dublin, Pennsylvania.

Analyte	Sample ID: / Date:	BCM-1 (MB10819) 19-Aug-92	Dublin Well No. 1 (R040901) 1-Sep-92	Farm Bureau Well (R030817) 17-Aug-92	Fire Tower Well (R020818) 18-Aug-92	MW-3 (M030817) 17-Aug-92	MW-4 (M040818) 18-Aug-92	PW-1 (R010818) 18-Aug-92	PW-1 FR (R710818) 18-Aug-92	Field Blank (FB10819) 19-Aug-92
Aluminum		32 U	32 U	32 U	33.4	32 U	32 U	32 U	32 U	32 U
Antimony		25.6	20 U	25.6	20 U	20 U	20	20 U	24	20 U
Arsenic		2 U	7.8	2 UL	2 U	2.1 L	2 UL	2 UL	2 UL	2 U
Barium		90	42.5	228 J	186	198	87.8	48.8	51.9	1 U
Beryllium		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Cadmium		3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U
Calcium		81500	58300	79200 J	66500 J	63000	67100 J	85400	86200 J	33.5
Chromium		4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U
Cobalt		4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U
Copper		4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U
Iron		7 U	17.8	7 U	54.2	7.8	7 U	7 U	7 U	11.2
Lead		1 U	1 U	1 U	2.5	66.9	3.1	1 U	1 U	1 U
Magnesium		21500	25300	39500 J	29800	31100	27700	21100	21200	36.6
Manganese		2.1	30.3	1 U	48.9 J	114	493	1 U	1 U	2.1
Mercury		0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Nickel		8 U	8 U	8 U	8 U	8 U	8 U	8 U	8 U	8 U
Potassium		1510	728	1730	1540	2010	1700	1150	1400	598
Selenium		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Silver		4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U
Sodium		20400 J	14200	26800 J	21000	18800	31400 J	29000	28700 J	900 U
Thallium		3 UL	3 UL	3 UL	3 UL	3 UL	3 UL	3 UL	3 UL	3 U
Vanadium		4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U
Zinc		3.6	21.9	2 U	264	2.2	4.6	2 U	2 U	2 U

Analyte concentrations in micrograms per liter (parts per billion [ppb]).
Analyses were performed by Enseco-East of Somerset, New Jersey, using standard U.S. Environmental Protection Agency methodology.

J Estimated result.
L Reported value may be biased low. Actual value is expected to be higher.
U The analyte was analyzed for, but not detected at the corresponding reporting limits.
FR Field replicate of previous sample.

AR301357

AR301358

Table 8-8. Concentrations of Indicator Parameters in Groundwater Samples Collected in August and September 1992, Dublin NPL Site, Dublin, Pennsylvania.

Analyte	Units	Sample ID: BCM-1 (MB10819) Date: 19-Aug-92	Dublin Well No. 1 (R040901) 1-Sep-92	Farm Bureau Well (R030817) 17-Aug-92	Fire Tower Well (R020818) 18-Aug-92	MW-3 (M030817) 17-Aug-92	MW-4 (M040818) 18-Aug-92	PW-1 (R010818) 18-Aug-92	PW-1 FR (R710818) 18 Aug 92	Field Blank (FB10819) 19-Aug 92
pH	units	7.2 w	NA	7.6 w	7.4 w	7.8 w	7.2 w	7.4 w	7.4 w	8.3 w
Total Dissolved Solids	mg/L	380	340	NA	NA	NA	370	NA	NA	10 U
Total Suspended Solids	mg/L	195	10 U	NA	NA	NA	44	NA	NA	10 U
Hardness as CaCO3	mg/L	283	244	316	NA	NA	254	NA	NA	4 U
Alkalinity, Total as CaCO3 at pH 4.5	mg/L	220	187	224	NA	NA	231	NA	NA	5 U
Alkalinity, Bicarb. as CaCO3 at pH 4.5	mg/L	220	187	224	NA	NA	231	NA	NA	5 U
Alkalinity, Carb. as CaCO3 at pH 8.3	mg/L	5 U	5 U	5 U	NA	NA	5 U	NA	NA	5 U
Alkalinity, Hydrox. as CaCO3	mg/L	5 U	5 U	5 U	NA	NA	5 U	NA	NA	5 U

mg/L Analyte concentrations in milligrams per liter (parts per million (ppm)).
units Standard pH or color units.

Analyses were performed by Enseco-East of Somerset, New Jersey, using standard U.S. Environmental Protection Agency methodology.

U The compound was analyzed for, but not detected at the corresponding reporting limits.
w Analyzed day after collection.
FR Field replicate of previous sample.
NA Not applicable.

Table 8-9. Concentrations of Volatile Organic Compounds in Groundwater Samples Collected in October 1992, Dublin NPL Site, Dublin, Pennsylvania.

Analyte	Sample ID: / Date:	BCM-1 (MB11007) 8-Oct-92	BCM-1 FR (M731007) 8-Oct-92	BCM-2 (MB21007) 6-Oct-92	3212 Britton (R061013) 13-Oct-92	3304-Fluck (R101014) 14-Oct-92	MW-1 (M011006) 6-Oct-92	MW-2 (M021006) 6-Oct-92	MW-3 (M031006) 7-Oct-92	MW-4 (M041006) 7-Oct-92	MW-5 (M051006) 6-Oct-92	MW-6 (M061006) 5-Oct-92	MW-8 (M081006) 5-Oct-92	St. Lukes Church (R121008) 8-Oct-92
Chloromethane		250 Uu	250 Uu	10 Uu	0.5 U	0.5 U	0.5 U	25 Uu	0.5 U	50 Uu	2.5 Uu	0.5 U	0.5 U	0.5 U
Bromomethane		250 U	250 U	10 U	0.5 U	0.5 U	0.5 U	25 U	0.5 U	50 U	2.5 U	0.5 U	0.5 U	0.5 U
Vinyl chloride		250 U	250 U	10 U	0.5 U	0.5 U	0.5 U	25 U	0.5 U	50 U	2.5 U	0.5 U	0.5 UJ	0.5 U
Chloroethane		250 U	250 U	10 U	0.5 U	0.5 U	0.5 UJ	25 U	0.5 UJ	50 U	2.5 U	0.5 UJ	0.5 UJ	0.5 U
Methylene chloride		250 U	250 U	13	0.35 B	0.34 B	0.54 B	25 U	0.33 B	50 U	2.5 U	0.35 B	6.4 B	0.23 B
Acetone		1,000 U	1,000 U	40 U	2 U	2 U	2 U	100 U	2 U	200 U	10 U	2 U	2 U	2 U
Carbon disulfide		250 U	250 U	10 U	0.061 B	0.84 B	0.5 U	25 U	0.5 U	50 U	2.5 U	2 B	0.49 B	0.5 U
1,1-Dichloroethene		250 U	250 U	10 U	0.5 U	0.5 U	0.5 U	25 U	0.51	50 U	2.5 U	0.5 U	1.7	0.5 U
1,1-Dichloroethane		250 U	250 U	10 U	0.5 U	0.5 U	0.5 U	25 U	1.9	50 U	2.5 U	0.5 U	0.63	0.5 U
1,2-Dichloroethene (cis/trans)		250 U	250 U	10 U	0.5 U	0.5 U	0.9	54	2	<240>	3.5	0.5 U	81 D	0.12 J
Chloroform		250 U	250 U	10 U	0.5 U	0.5 U	0.5 U	25 U	0.22 B	50 U	2.5 U	0.5 U	0.6 B	0.5 U
1,2-Dichloroethane		250 U	250 U	10 U	0.5 U	0.5 U	0.5 U	25 U	0.5 U	50 U	2.5 U	0.5 U	0.5 U	0.5 U
2-Butanone		1,000 U	1,000 U	40 U	2 U	2 U	2 U	100 U	2 U	200 U	10 U	2 U	2 U	2 U
1,1,1-Trichloroethane		250 U	250 U	10 U	0.5 U	0.5 U	0.35 B	25 U	30	50 U	6.8	0.5 U	2.2	0.22 B
Carbon tetrachloride		250 U	250 U	10 U	0.5 U	0.5 U	0.5 U	25 U	0.5 U	50 U	2.5 U	0.5 U	0.5 U	0.5 U
Bromodichloromethane		250 U	250 U	10 U	0.5 U	0.5 U	0.5 U	25 U	0.5 U	50 U	2.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloropropane		250 U	250 U	10 U	0.5 U	0.5 U	0.5 U	25 U	0.5 U	50 U	2.5 U	0.5 U	0.5 U	0.5 U
cis-1,3-Dichloropropene		250 U	250 U	10 U	0.5 U	0.5 U	0.5 U	25 U	0.5 U	50 U	2.5 U	0.5 U	0.5 UJ	0.5 U
Trichloroethene		15,000	13,000	300	0.3 B	1.2 B	4.9	1,400	31	2,400	72	0.5 U	1,600 D	3.6
Dibromochloromethane		250 U	250 U	10 U	0.5 UJ	0.5 UJ	0.5 U	25 U	0.5 U	50 U	2.5 U	0.5 U	0.5 U	0.5 U
1,1,2-Trichloroethane		250 U	250 U	10 U	0.5 U	0.5 U	0.5 U	25 U	0.5 U	50 U	2.5 U	0.5 U	0.5 U	0.5 U
Benzene		250 U	250 U	10 U	0.5 U	0.5 U	0.5 U	25 U	0.068 J	50 U	2.5 U	0.5 U	0.5 U	0.5 U
trans-1,3-Dichloropropene		250 U	250 U	10 U	0.5 U	0.5 U	0.5 U	25 U	0.5 U	50 U	2.5 U	0.5 U	0.5 U	0.5 U
Bromoform		250 U	250 U	10 U	0.5 UJ	0.5 UJ	0.5 U	25 UJ	0.5 U	50 U	2.5 U	0.5 U	0.5 UJ	0.5 U
4-Methyl-2-pentanone		1,000 U	1,000 U	40 U	2 U	2 U	2 U	100 UJ	2 U	200 U	10 U	2 U	2 U	2 U
2-Hexanone		R	R	R	R	R	R	R	R	R	R	R	R	R
1,1,2,2-Tetrachloroethane		250 U	250 U	10 U	0.5 U	0.5 U	0.5 U	25 U	0.5 U	50 U	2.5 U	0.5 U	0.5 U	0.5 U
Tetrachloroethene		250 U	250 U	10 U	0.5 U	0.5 U	0.5 U	25 U	0.5 U	50 U	2.5 U	0.32 J	0.73	0.5 U
Toluene		250 U	250 U	4.1 J	0.5 U	0.5 U	0.44 J	25 U	0.4 J	50 U	2.7	0.072 J	0.07 J	0.5 U
Chlorobenzene		250 U	250 U	10 U	0.5 U	0.5 U	0.5 U	25 U	0.5 U	50 U	2.5 U	0.5 U	0.5 U	0.5 U
Ethylbenzene		250 U	250 U	10 U	0.5 U	0.5 U	0.5 U	25 U	0.5 U	50 U	2.5 U	0.5 U	0.5 U	0.5 U
Styrene		250 U	250 U	10 U	0.5 U	0.5 U	0.5 U	25 U	0.5 U	50 U	2.5 U	0.5 U	0.5 U	0.5 U
Xylenes (total)		250 U	250 U	10 U	0.5 U	0.5 U	0.5 U	25 U	0.5 U	50 U	2.5 U	0.5 U	0.5 U	0.5 U

Analyte concentrations in micrograms per liter (parts per billion [ppb]).
Analyses were performed by Enseco-East of Somerset, New Jersey, using U.S. Environmental Protection Agency Method 524.2, revision 3.0.

B	Analyte is detected in the laboratory blank.
D	Analyte identified at a secondary dilution.
J	Result is detected below the reporting limit and/or is an estimated concentration.
U	Compound or element analyzed for, but not detected at the corresponding reporting limit.
u	All reporting limits raised due to high levels of target analytes.
R	Result rejected.
FR	Field replicate of previous sample.

AR301360

Table 8-9. Concentrations of Volatile Organic Compounds in Groundwater Samples Collected in October 1992, Dublin NPL Site, Dublin, Pennsylvania.

Analyte	Sample ID: 135 Rickerts Rd. (R121007) Date: 7-Oct-92	3132 Rickerts Rd. (R051007) 7-Oct-92	3224 Rickerts Rd. (R071009) 9-Oct-92	3232 Rickerts Rd. (R081007) 7-Oct-92	3234 Rickerts Rd. (R091008) 8-Oct-92	Rt. 313 & Rickerts Rd. (R111007) 7-Oct-92	Field Blank (F021006) 6-Oct-92	Trip Blank (K011005) 5-Oct-92	Trip Blank (K011006) 6-Oct-92	Trip Blank (K011007) 7-Oct-92	Trip Blank (K021008) 8-Oct-92	Trip Blank (K011009) 9-Oct-92	Trip Blank (K011014) 14-Oct-92
Chloromethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
Bromomethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Vinyl chloride	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroethane	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 U
Methylene chloride	0.38 B	0.59 B	0.23 B	0.55 B	0.33 B	0.77 B	0.6 B	0.38 B	0.48 B	0.11 B	0.23 B	0.5 U	0.28 B
Acetone	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Carbon disulfide	3.6 B	2.1 B	0.5 U	0.5 U	0.15 B	0.5 U	3.8	1.9	0.5 U	0.67	0.22 J	0.5 U	0.1 J
1,1-Dichloroethene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethene (cis/trans)	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroform	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.077 J	0.5 U	0.078 J	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Butanone	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
1,1,1-Trichloroethane	0.28 B	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.21 J	0.5 U	0.5 U	0.5 U	0.5 U
Carbon tetrachloride	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromodichloromethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloropropane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
cis-1,3-Dichloropropene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichloroethene	2.3	0.5 U	4.2	0.76 B	3.6	0.38 B	0.5 U	0.5 U	0.34 J	0.1 J	0.5 U	0.5 U	0.5 U
Dibromochloromethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 UJ
1,1,2-Trichloroethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Benzene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
trans-1,3-Dichloropropene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromoform	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 UJ
4-Methyl-2-pentanone	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
2-Hexanone	R	R	R	R	R	R	R	R	R	R	R	R	R
1,1,2,2-Tetrachloroethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Tetrachloroethene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Toluene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chlorobenzene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Ethylbenzene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Styrene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Xylenes (total)	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

Analyte concentrations in micrograms per liter (parts per billion (ppb)).
Analyses were performed by Enseco-East of Somerset, New Jersey, using U.S. Environmental Protection Agency Method 524.2, revision 3.0.

B	Analyte is detected in the laboratory blank.
D	Analyte identified at a secondary dilution.
J	Result is detected below the reporting limit and/or is an estimated concentration.
U	Compound or element analyzed for, but not detected at the corresponding reporting limit.
u	All reporting limits raised due to high levels of target analytes.
R	Result rejected.
FR	Field replicate of previous sample.

Table 8-10. Concentrations of Volatile Organic Compounds in Groundwater Sample Collected in June 1993, Dublin NPL Site, Dublin, Pennsylvania.

Analyte	Sample ID: LAM0624 Date: 25-Jun-93
Chloromethane	0.5 U
Bromomethane	0.5 U
Vinyl chloride	0.5 U
Chloroethane	0.5 U
Methylene chloride	0.5 U
Acetone	2 U
Carbon disulfide	0.5 U
1,1-Dichloroethene	0.5 U
1,1-Dichloroethane	0.5 U
1,2-Dichloroethene (cis/trans)	0.5 U
Chloroform	0.5 U
1,2-Dichloroethane	0.5 U
2-Butanone	2 U
1,1,1-Trichloroethane	0.5 U
Carbon tetrachloride	0.5 U
Bromodichloromethane	0.5 U
1,2-Dichloropropane	0.5 U
cis-1,3-Dichloropropene	0.5 U
Trichloroethene	0.5 U
Dibromochloromethane	0.5 U
1,1,2-Trichloroethane	0.5 U
Benzene	0.5 U
trans-1,3-Dichloropropene	0.5 U
Bromoform	0.5 U
4-Methyl-2-pentanone	2 U
2-Hexanone	2 U
1,1,2,2-Tetrachloroethane	0.5 U
Tetrachloroethene	0.5 U
Toluene	0.075 J
Chlorobenzene	0.5 U
Ethylbenzene	0.5 U
Styrene	0.5 U
Xylenes (total)	0.5 U

Analyte concentrations in micrograms per liter (parts per billion (ppb).
Analyses were performed by Enseco-East of Somerset, New Jersey, using U.S. Environmental Protection Agency (USEPA) Method 524, revision 3.0.

J Result is detected below the reporting limit and/or is an estimated concentration.
U Compound or element analyzed for, but not detected at the corresponding reporting limit.

Table 8-11. Concentrations of Total Lead in Groundwater Samples Collected in October 1992, Dublin NPL Site, Dublin, Pennsylvania.

	Sample ID:	BCM-1 (MB11007)	BCM-1 FR (M731007)	BCM-2 (MB21007)	3212 Britton (R061013)	3304 Fluck (R101014)	MW-1 (M011006)	MW-2 (M021006)	MW-3 (M031007)	MW-4 (M041007)	MW-5 (M051006)	MW-6 (M061005)	MW-8 (M081005)	St. Luke's Church (R121008)
Analyte	Date:	8-Oct-92	8-Oct-92	6-Oct-92	13-Oct-92	14-Oct-92	6-Oct-92	6-Oct-92	7-Oct-92	7-Oct-92	6-Oct-92	5-Oct-92	5-Oct-92	8-Oct-92
Lead		4	4.9	20.5	1.9	1.3	5.6 L	5.4 L	11.6	3.2	18.8	1.4	13.3 L	1 U

Analyte concentrations in micrograms per liter (parts per billion [ppb]).
Analyses were performed by Enseco-East of Somerset, New Jersey, using March 1990 Contract Laboratory Program (CLP) protocols.

L Reported value may be biased low. Actual value is expected to be higher.
U The analyte was analyzed for, but not detected at the corresponding reporting limits.
FR Field replicate of previous sample.

AR301362

Table 8-11. Concentrations of Total Lead in Groundwater Samples Collected in October 1992, Dublin NPL Site, Dublin, Pennsylvania.

Analyte	Sample ID: / Date:	135 Rickerts Rd. (R121007) 7-Oct-92	3132 Rickerts Rd. (R051007) 7-Oct-92	3212 Rickerts Rd. (R061007) 6-Oct-92	3224 Rickerts Rd. (R071009) 9-Oct-92	3232 Rickerts Rd. (R081007) 7-Oct-92	3234 Rickerts Rd. (R091008) 8-Oct-92	Rt 313& Rickerts Rd. (R111007) 7-Oct-92	Field Blank (F021006) 6-Oct-92
Lead		2.3	1.7	66.1	2.6	22.3	15.7	1.2	1 UL

Analyte concentrations in micrograms per liter (parts per billion [ppb]).
Analyses were performed by Enseco-East of Somerset, New Jersey, using March 1990 Contract Laboratory Program (CLP) protocols.

L Reported value may be biased low. Actual value is expected to be higher.
U The analyte was analyzed for, but not detected at the corresponding reporting limits.
FR Field replicate of previous sample.

AR301363

Table 8-12. Concentrations of Dissolved Lead in Groundwater Samples Collected in October 1992, Dublin NPL Site, Dublin, Pennsylvania.

	Sample ID:	BCM-1 (MB11007)	BCM-1 FR (M731007)	BCM-2 (MB21007)	3212 Britton (R061013)	3304 Fluck (R101014)	MW-1 (M011006)	MW-2 (M021006)	MW-3 (M031007)	MW-4 (M041007)	MW-5 (M051006)	MW-6 (M061005)	MW-8 (M081005)	St. Luke's Church (R121008)
Analyte	Date:	8-Oct-92	8-Oct-92	6-Oct-92	13-Oct-92	14-Oct-92	6-Oct-92	6-Oct-92	7-Oct-92	7-Oct-92	6-Oct-92	5-Oct-92	5-Oct-92	8-Oct-92
Lead		1 UL	1 UL	1 U	1.3	1.3	1 U	1 U	1 U	1 U	6	1 U	1 U	1 UL

Analyte concentrations in micrograms per liter (parts per billion [ppb]).
Analyses were performed by Enseco-East of Somerset, New Jersey, using March 1990 Contract Laboratory Program (CLP) protocols.

L Reported value may be biased low. Actual value is expected to be higher.
U The analyte was analyzed for, but not detected at the corresponding reporting limits.
FR Field replicate of previous sample.

AR301364

Table 8-12. Concentrations of Dissolved Lead in Groundwater Samples Collected in October 1992, Dublin NPL Site, Dublin, Pennsylvania.

Analyte	Sample ID: / Date:	135 Rickerts Rd. (R121007) 7-Oct-92	3132 Rickerts Rd. (R051007) 7-Oct-92	3212 Rickerts Rd. (R061007) 6-Oct-92	3224 Rickerts Rd. (R071009) 9-Oct-92	3232 Rickerts Rd. (R081007) 7-Oct-92	3234 Rickerts Rd. (R091008) 8-Oct-92	Rt.313& Rickerts Rd. (R111007) 7-Oct-92	Field Blank (F021006) 6-Oct-92
Lead		1 U	1 UL	1 U	1 U	29.3	2.5	1.1	1 U

Analyte concentrations in micrograms per liter (parts per billion [ppb]).
Analyses were performed by Enseco-East of Somerset, New Jersey, using March 1990 Contract Laboratory Program (CLP) protocols.

L Reported value may be biased low. Actual value is expected to be higher.
U The analyte was analyzed for, but not detected at the corresponding reporting limits.
FR Field replicate of previous sample.

AR301365

Table 8-13. Concentrations of Total Metals in the Groundwater Sample Collected from Monitoring Well MW-6 in October 1992, Dublin NPL Site, Dublin, Pennsylvania.

Analyte	Sample ID: MW-6 (M061005) Date: 5-Oct-92
Aluminum	144 B
Antimony	20 U
Arsenic	2 U
Barium	375
Beryllium	1 U
Cadmium	3 U
Calcium	57700
Chromium	4 U
Cobalt	4 U
Copper	6.2 B
Iron	2060
Lead	1.4
Magnesium	34800
Manganese	47.2
Mercury	0.1 U
Nickel	8 U
Potassium	1490 B
Selenium	2 U
Silver	4 U
Sodium	22000
Thallium	3 U
Vanadium	4 U
Zinc	9.3 B

Analyte concentrations in micrograms per liter (parts per billion [ppb]).
Analyses were performed by Enseco-East of Somerset, New Jersey, using March 1990 Contract Laboratory Program (CLP) protocols.

B Concentration is between the instrument detection limit (IDL) and the contract required detection limit (CRDL).
U The analyte was analyzed for, but not detected at the corresponding reporting limits.

AR301366

Table 8-14. Concentrations of Dissolved Metals in the Groundwater Sample Collected from Monitoring Well MW-6 in October 1992, Dublin NPL Site, Dublin, Pennsylvania.

Analyte	Sample ID: MW-6 (M061005) Date: 5-Oct-92
Aluminum	32 U
Antimony	20 U
Arsenic	2 UW
Barium	374
Beryllium	1 U
Cadmium	3 U
Calcium	64900
Chromium	4 U
Cobalt	4 U
Copper	4 U
Iron	9 B
Lead	1 U
Magnesium	37400
Manganese	1 U
Mercury	0.1 U
Nickel	8 U
Potassium	1560 B
Selenium	2 UW
Silver	4 U
Sodium	24900
Thallium	3 U
Vanadium	4 U
Zinc	8.6 B

Analyte concentrations in micrograms per liter (parts per billion [ppb]).
Analyses were performed by Enseco-East of Somerset, New Jersey, using March 1990 Contract Laboratory Program (CLP) protocols.

B Concentration is between the instrument detection limit (IDL) and the contract required detection limit (CRDL).
U The analyte was analyzed for, but not detected at the corresponding reporting limits.
W Post-digestion spike for graphite furnace atomic absorption (GFAA) out of control limits.

AR301367

Table 8-15. Concentrations of Volatile Organic Compounds in Groundwater Samples Collected by the USEPA in October 1992, Dublin NPL Site, Dublin, Pennsylvania.

Analyte	Sample ID: MW-2 (USEPA) Date: 6-Oct-92	MW-8 (USEPA) 5-Oct-92	St. Lukes Church (USEPA) 8-Oct-92	3132 Rickerts Rd. (USEPA) 7-Oct-92	3232 Rickerts Rd. (USEPA) 7-Oct-92	3232 Rickerts Rd. FR (USEPA) 7-Oct-92	Trip Blank (USEPA) 6-Oct-92	Trip Blank (USEPA) 7-Oct-92
Chloromethane	0.6 B	1 U	1 B	0.8 B	1 B	1 B	0.6 J	5 J
Bromomethane	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Vinyl chloride	0.6 J	0.8 J	1 U	1 U	1 U	1 U	1 U	1 U
Chloroethane	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Methylene chloride	2 U	2 U	2 U	2 U	2 U	2 U	1	4
Acetone	930 BD	9 B	8 B	6 B	5 B	6 B	5 J	10
Carbon disulfide	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethene	1	4	1 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethane	0.9 J	0.9 J	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloroethene (cis)	64 DJ	150 DJ	1 U	1 U	1 U	1 U	1 U	1 U
Chloroform	2 B	1 B	1 U	1 U	1 U	1 U	33 D	2
1,2-Dichloroethane	0.6 B	1 U	2 B	1 B	1 B	2 B	1 U	2
2-Butanone	5 U	5 U	5 U	5 U	5 U	5 U	5 U	3 J
1,1,1-Trichloroethane	3 B	5	1 U	1 U	1 U	1 U	0.6 J	1 U
Carbon tetrachloride	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Bromodichloromethane	1 U	1 U	1 U	1 U	1 U	1 U	3	1 U
1,2-Dichloropropane	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
cis-1,3-Dichloropropene	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Trichloroethene	1,800 D	3,300 D	3	1 U	3	2	1 U	1 U
Dibromochloromethane	1 U	1 U	1 U	1 U	1 U	1 U	0.6 J	1 U
1,1,2-Trichloroethane	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Benzene	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
trans-1,3-Dichloropropene	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Bromoform	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
4-Methyl-2-pentanone	5 U	5 U	5 U	5 U	5 U	5 U	1 U	5 U
2-Hexanone	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	1 U	1 U	1 U	1 U	1 U	1 U	5 U	1 U
Tetrachloroethene	1	1	1 U	1 U	1 U	1 U	1 U	1 U
Toluene	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chlorobenzene	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Ethylbenzene	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Styrene	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Xylenes (total)	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloroethene (trans)	2	4	1 U	1 U	1 U	1 U	1 U	1 U

Analyte concentrations in micrograms per liter (parts per billion (ppb)).
Analyses were performed by Enseco-East of Somerset, New Jersey, using U.S. Environmental Protection Agency (USEPA) Method 524.2, revision 3.0.

B Analyte is detected in the laboratory blank.
D Analyte identified at a secondary dilution.
J Result is detected below the reporting limit and/or is an estimated concentration.
U Compound or element analyzed for, but not detected at the corresponding reporting limit.
FR Field replicate of previous sample.

Table 8-16. Summary of Volatile Organic Compounds Detected in Residential Groundwater Samples Collected from 1992 to 1995, Dublin NPL Site, Dublin, Pennsylvania.

CONSTITUENT: (Units in ug/L)	SITE:	0100_MAPLE	0104_SMAIN	0106_SMAIN	0107_CHERRY	0111_MAPLE	0119_CHERRY	0130_NMAIN_ORCH
	SAMPLE ID:	R940111	R950113	R920111	RC10719	R910111	RC20719	RWM0606
	DATE:	01/11/94	01/13/94	01/11/94	07/19/94	01/11/94	07/19/94	06/06/94
Chloromethane		< 0.050	< 0.050	0.66	< 0.50 J	< 0.050	< 0.50 J	< 2.5
Methylene chloride		0.17 JB	0.083 B	0.17 JB	R	0.2 JB	R	< 2.5
Acetone		< 2.0	< 2.0	< 2.0	< 2.0 J	< 2.0	< 2.0 J	< 10
Carbon disulfide		< 0.050	0.37 J	< 0.050	< 0.50 J	< 0.050	0.47 J	< 2.5
1,1-Dichloroethene		< 0.050	< 0.050	< 0.050	< 0.50 J	< 0.050	0.16 J	1.8 J
1,1-Dichloroethane		< 0.050	< 0.050	< 0.050	< 0.50 J	< 0.050	0.086 J	< 2.5
1,2-Dichloroethene		< 0.050	< 0.050	< 0.050	< 0.50 J	< 0.050	< 0.50 J	76
Chloroform		< 0.050	0.06 J	< 0.050	< 0.50 J	< 0.050	0.43 J	0.98 J
2-Butanone		< 2.0	< 2.0	< 2.0	< 2.0 J	< 2.0	< 2.0 J	< 10
1,1,1-Trichloroethane		< 0.050	< 0.050	< 0.050	< 0.50 J	0.068 J	1.4 J	5.4
Bromodichloromethane		< 0.050	< 0.050	< 0.050	< 0.50 J	< 0.050	< 0.50 J	< 2.5
Trichloroethene		< 0.050	< 0.050	< 0.050	< 0.50 J	< 0.050	0.4 J	1200 D
Dibromochloromethane		< 0.050	< 0.050	< 0.050	< 0.50 J	< 0.050	< 0.50 J	< 2.5 J
Benzene		< 0.050	< 0.050	< 0.050	0.14 JB	< 0.050	0.14 JB	< 2.5
Bromoform		< 0.050	< 0.050	< 0.050	< 0.50 J	< 0.050	< 0.50 J	< 2.5 J
Tetrachloroethene		0.29 J	0.062 J	< 0.050	< 0.50 J	< 0.050	0.24 J	< 2.5
Toluene		< 0.050	< 0.050	< 0.050	0.12 JB	< 0.050	0.14 JB	< 2.5
Total xylenes		< 0.050	0.12 J	< 0.050	< 0.50 J	< 0.050	< 0.50 J	< 2.5

ug/L Micrograms per liter.
J Estimated value.
R Unusable value.
B Constituent detected in associated blank.
D Compound concentration was determined at a secondary dilution.

AR301369

Table 8-16. Summary of Volatile Organic Compounds Detected in Residential Groundwater Samples Collected from 1992 to 1995, Dublin NPL Site, Dublin, Pennsylvania.

CONSTITUENT: (Units in ug/L)	SITE: SAMPLE ID DATE:	0132_RCKRTS R290922 09/22/93	0132_RCKRTS R290315 03/15/94	0132_RCKRTS R290622 06/22/94	0132_RCKRTS R290920 09/20/94	0132_RCKRTS R291220 12/20/94	0132_RCKRTS-DUP RR11220 12/20/94	0134_RCKRTS R300629 06/29/93
Chloromethane		< 0.050	< 0.050	< 0.50 J	< 0.50	< 1	< 1	< 0.050
Methylene chloride		0.39 B	< 0.050	< 0.50 J	< 0.50	1.1 B	1.3 B	0.22 J
Acetone		< 2.0	R	< 2.0 J	< 2.0	R	R	< 2.0
Carbon disulfide		< 0.050	< 0.050 J	0.065 J	0.08 J	< 1	< 1	< 0.050 J
1,1-Dichloroethene		< 0.050	< 0.050	< 0.50 J	< 0.50	< 1	< 1	< 0.050
1,1-Dichloroethane		< 0.050	< 0.050	< 0.50 J	< 0.50	< 1	< 1	< 0.050
1,2-Dichloroethene		< 0.050	< 0.050	< 0.50 J	< 0.50	< 1	< 1	< 0.050
Chloroform		0.071 J	< 0.050	< 0.50 J	< 0.50	< 1	< 1	< 0.050
2-Butanone		< 2.0	< 2.0	< 2.0 J	< 2.0	R	R	< 2.0
1,1,1-Trichloroethane		< 0.050	< 0.050	< 0.50 J	< 0.50	< 1	< 1	0.056 J
Bromodichloromethane		< 0.050 J	< 0.050 J	< 0.50 J	< 0.50	< 1	< 1	< 0.050 J
Trichloroethene		< 0.050	< 0.050	< 0.50 J	< 0.50	< 1	< 1	< 0.050
Dibromochloromethane		< 0.050 J	< 0.050 J	< 0.50 J	< 0.50	< 1	< 1	< 0.050 J
Benzene		< 0.050	< 0.050	< 0.50 J	< 0.50	< 1	< 1	< 0.050
Bromoform		< 0.050 J	< 0.050 J	< 0.50 J	< 0.50 J	< 1	< 1	< 0.050 J
Tetrachloroethene		< 0.050	< 0.050	< 0.50 J	< 0.50	< 1	< 1	< 0.050
Toluene		< 0.050	< 0.050	0.1 JB	< 0.50	< 1	< 1	< 0.050
Total xylenes		< 0.050	< 0.050	< 0.50 J	< 0.50	< 1	< 1	< 0.050

ug/L Micrograms per liter.
J Estimated value.
R Unusable value.
B Constituent detected in associated blank.
D Compound concentration was determined at a secondary dilution.

AR301370

Table 8-16. Summary of Volatile Organic Compounds Detected in Residential Groundwater Samples Collected from 1992 to 1995, Dublin NPL Site, Dublin, Pennsylvania.

CONSTITUENT: (Units in ug/L)	SITE: / SAMPLE ID / DATE:	0134_RCKRTS R300316 03/16/94	0134_RCKRTS R300621 06/21/94	0134_RCKRTS R300921 09/21/94	0134_RCKRTS R301220 12/20/94	0134_RCKRTS R300316 03/16/95	0135_RCKRTS R121007 10/07/92	0135_RCKRTS R130625 08/25/93
Chloromethane		< 0.050	< 0.50 J	< 0.50	< 1	< 0.5	< 0.050	< 0.050
Methylene chloride		0.16 J	< 0.50	< 0.50	1.7 B	< 0.5	0.38 B	0.15 B
Acetone		< 2.0	< 2.0	< 2.0	R	< 5 J	< 2.0	< 2.0
Carbon disulfide		< 0.050 J	< 0.50 J	< 0.50	< 1	< 1 J	3.6 B	< 0.050 J
1,1-Dichloroethene		< 0.050	< 0.50	< 0.50	< 1	< 0.5	< 0.050	< 0.050
1,1-Dichloroethene		< 0.050	< 0.50	< 0.50	< 1	< 0.5	< 0.050	< 0.050
1,2-Dichloroethene		< 0.050	< 0.50	< 0.50	< 1	< 0.5	< 0.050	< 0.050
Chloroform		< 0.050	< 0.50	< 0.50	< 1	< 0.5	< 0.050	< 0.050
2-Butanone		< 2.0	< 2.0	R	R	< 5 J	< 2.0	< 2.0
1,1,1-Trichloroethane		< 0.050	< 0.50	< 0.50	< 1	< 0.5	0.28 B	0.15 J
Bromodichloromethane		< 0.050 J	< 0.50	< 0.50	< 1	< 0.5	< 0.050	< 0.050 J
Trichloroethene		0.11 J	0.11 J	0.17 J	< 1	< 0.5	2.3	1.6
Dibromochloromethane		< 0.050 J	< 0.50	< 0.50	< 1	< 0.5	< 0.050	< 0.050 J
Benzene		< 0.050	0.21 JB	< 0.50	< 1	< 0.5	< 0.050	< 0.050
Bromoform		< 0.050 J	< 0.50 J	< 0.50	< 1	< 0.5	< 0.050	< 0.050 J
Tetrachloroethene		< 0.050	< 0.50	< 0.50	< 1	< 0.5	< 0.050	< 0.050
Toluene		< 0.050	0.16 JB	< 0.50	< 1	< 0.5	< 0.050	< 0.050
Total xylenes		< 0.050	< 0.50	< 0.50	< 1	< 1	< 0.050	< 0.050

ug/L Micrograms per liter.
J Estimated value.
R Unusable value.
B Constituent detected in associated blank.
D Compound concentration was determined at a secondary dilution.

AR301371

Table 8-16. Summary of Volatile Organic Compounds Detected in Residential Groundwater Samples Collected from 1992 to 1995, Dublin NPL Site, Dublin, Pennsylvania.

CONSTITUENT: (Units in ug/L)	SITE: SAMPLE ID DATE:	0135_RCKRTS R130923 09/23/93	0135_RCKRTS R13-1220 12/20/93	0135_RCKRTS R130317 03/17/94	0135_RCKRTS R130621 06/21/94	0135_RCKRTS R130920 09/20/94	0135_RCKRTS R131222 12/22/94	0135_RCKRTS R130315 03/15/95
Chloromethane		< 0.050	< 0.050	< 0.050	< 0.50 J	< 0.50	< 1	< 0.5
Methylene chloride		0.15 B	< 0.050	< 0.050	< 0.50	< 0.50	1.1 B	< 0.5
Acetone		< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	R	< 5 J
Carbon disulfide		< 0.050	0.099 J	< 0.050 J	< 0.50 J	< 0.50	< 1	< 1 J
1,1-Dichloroethene		< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 1	< 0.5
1,1-Dichloroethane		< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 1	< 0.5
1,2-Dichloroethene		< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 1	< 0.5
Chloroform		< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 1	< 0.5
2-Butanone		< 2.0	< 2.0	< 2.0	< 2.0	R	R	< 5 J
1,1,1-Trichloroethane		0.11 J	0.1 J	0.086 J	0.12 J	< 0.50	< 1	< 0.5
Bromodichloromethane		< 0.050 J	< 0.050	< 0.050 J	< 0.50	< 0.50	< 1	< 0.5
Trichloroethene		2.0	1.5	0.83	0.45 J	0.38 J	< 1	1.3
Dibromochloromethane		< 0.050 J	< 0.050	< 0.050 J	< 0.50	< 0.50	< 1	< 0.5
Benzene		< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 1	< 0.5
Bromoform		< 0.050	< 0.050	R	< 0.50 J	< 0.50	< 1	< 0.5
Tetrachloroethene		0.064 J	< 0.050	< 0.050	< 0.50	< 0.50	< 1	< 0.5
Toluene		< 0.050	< 0.050	< 0.050	0.12 JB	< 0.50	< 1	< 0.5
Total xylenes		< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 1	< 1

ug/L Micrograms per liter.
J Estimated value.
R Unusable value.
B Constituent detected in associated blank.
D Compound concentration was determined at a secondary dilution.

AR301372

Table 8-16. Summary of Volatile Organic Compounds Detected in Residential Groundwater Samples Collected from 1992 to 1995, Dublin NPL Site, Dublin, Pennsylvania.

CONSTITUENT: (Units in ug/L)	SITE: SAMPLE ID DATE:	0135_RCKRTS R130619 08/19/95	0135_RCKRTS R130914 09/14/95	0135_RCKRTS R131220 12/20/95	0135_RCKRTS-DUP RR10315 03/15/95	0135_RCKRTS-DUP RR10619 08/19/95	0136_RCKRTS R310629 08/29/93	0136_RCKRTS R420623 06/23/94
Chloromethane		< 0.50	< 0.50	< 0.5	< 0.5	< 0.50	< 0.050	< 0.50
Methylene chloride		< 0.50	< 0.50	< 0.5	< 0.5	< 0.50	0.23 B	< 0.50
Acetone		< 2.0	R	R	< 5 J	< 2.0	< 2.0	< 2.0
Carbon disulfide		1.2 B	< 0.50	< 0.5	< 1 J	1.5 B	< 0.050	< 0.50
1,1-Dichloroethene		< 0.50	< 0.50	< 0.5	< 0.5	< 0.50	< 0.050	< 0.50
1,1-Dichloroethane		< 0.50	< 0.50	< 0.5	< 0.5	< 0.50	< 0.050	< 0.50
1,2-Dichloroethene		< 0.50	< 0.50	< 0.5	< 0.5	< 0.50	< 0.050	< 0.50
Chloroform		< 0.50	< 0.50	< 0.5	< 0.5	< 0.50	< 0.050	< 0.50
2-Butanone		R	R	R	< 5 J	R	< 2.0	< 2.0
1,1,1-Trichloroethane		< 0.50	< 0.50	< 0.5	< 0.5	< 0.50	< 0.050	< 0.50
Bromodichloromethane		< 0.50	< 0.50	< 0.5	< 0.5	< 0.50	< 0.050 J	< 0.50
Trichloroethene		1.1	1.5	< 0.5	1.3	0.97	< 0.050	< 0.50
Dibromochloromethane		< 0.50	< 0.50	< 0.5	< 0.5	< 0.50	< 0.050 J	< 0.50
Benzene		< 0.50	< 0.50	< 0.5	< 0.5	< 0.50	< 0.050	< 0.50
Bromoform		< 0.50	< 0.50	< 0.5	< 0.5	< 0.50	< 0.050 J	< 0.50 J
Tetrachloroethene		< 0.50	< 0.50	< 0.5	< 0.5	< 0.50	< 0.050	< 0.50
Toluene		< 0.50	< 0.50	< 0.5	< 0.5	< 0.50	< 0.050	0.12 JB
Total xylenes		< 1.0	< 1.0	< 1	< 1	< 1.0	< 0.050	< 0.50

ug/L Micrograms per liter.
J Estimated value.
R Unusable value.
B Constituent detected in associated blank.
D Compound concentration was determined at a secondary dilution.

AR301373

Table 8-16. Summary of Volatile Organic Compounds Detected in Residential Groundwater Samples Collected from 1992 to 1995, Dublin NPL Site, Dublin, Pennsylvania.

CONSTITUENT: (Units in ug/L)	SITE: SAMPLE ID DATE:	0136_RCKRTS R420921 09/21/94	0136_RCKRTS-DUP R420315 03/15/94	0138_RCKRTS R320629 06/29/93	0138_RCKRTS R320314 03/14/94	0138_RCKRTS R320623 06/23/94	0138_RCKRTS R320920 09/20/94	0138_RCKRTS R321220 12/20/94
Chloromethane		< 0.50	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 1
Methylene chloride		< 0.50	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	1.3 B
Acetone		< 2.0	< 2.0	< 2.0	R	4.5 B	< 2.0	R
Carbon disulfide		< 0.50	< 0.050	< 0.050 J	< 0.050 J	< 0.50	< 0.50	< 1
1,1-Dichloroethene		< 0.50	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 1
1,1-Dichloroethane		< 0.50	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 1
1,2-Dichloroethene		< 0.50	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 1
Chloroform		< 0.50	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 1
2-Butanone		R	< 2.0	< 2.0	< 2.0	< 2.0	R	R
1,1,1-Trichloroethane		< 0.50	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 1
Bromodichloromethane		< 0.50	< 0.050 J	< 0.050 J	< 0.050 J	< 0.50	< 0.50	< 1
Trichloroethene		0.11 J	0.090 J	0.11 J	< 0.050	< 0.50	0.12 J	< 1
Dibromochloromethane		< 0.50	< 0.050 J	< 0.050 J	< 0.050 J	< 0.50	< 0.50	< 1
Benzene		< 0.50	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 1
Bromoform		< 0.50	< 0.050 J	< 0.050 J	< 0.050 J	< 0.50	< 0.50	< 1
Tetrachloroethene		< 0.50	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 1
Toluene		< 0.50	0.095 B	< 0.050	< 0.050	< 0.50	< 0.50	< 1
Total xylenes		< 0.50	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 1

ug/L Micrograms per liter.
J Estimated value.
R Unusable value.
B Constituent detected in associated blank.
Compound concentration was determined at a secondary dilution.

AR301374

Table 8-16. Summary of Volatile Organic Compounds Detected in Residential Groundwater Samples Collected from 1992 to 1995, Dublin NPL Site, Dublin, Pennsylvania.

CONSTITUENT: (Units in ug/L)	SITE: / SAMPLE ID / DATE:	0138_RCKRTS R320316 03/16/95	0140_RCKRTS R330628 06/28/93	0142_RCKRTS R340629 06/29/93	0142_RCKRTS R340315 03/15/94	0142_RCKRTS R340623 06/23/94	0142_RCKRTS R340922 09/22/94	0142_RCKRTS R340316 03/16/95
Chloromethane		< 0.5	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.5
Methylene chloride		< 0.5	< 0.050	< 0.050	< 0.050	< 0.50	0.17 B	< 0.5
Acetone		< 5 J	< 2.0	< 2.0	R	< 2.0	R	< 5 J
Carbon disulfide		< 1 J	< 0.050 J	< 0.050 J	< 0.050 J	< 0.50	< 0.50	< 1 J
1,1-Dichloroethene		< 0.5	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.5
1,1-Dichloroethane		< 0.5	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.5
1,2-Dichloroethene		< 0.5	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.5
Chloroform		< 0.5	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.5
2-Butanone		< 5 J	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5 J
1,1,1-Trichloroethane		< 0.5	< 0.050	0.078 J	< 0.050	< 0.50	< 0.50	< 0.5
Bromodichloromethane		< 0.5	< 0.050 J	< 0.050 J	< 0.050 J	< 0.50	< 0.50	< 0.5
Trichloroethene		< 0.5	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.5
Dibromochloromethane		< 0.5	< 0.050 J	< 0.050 J	< 0.050 J	< 0.50	< 0.50	< 0.5
Benzene		< 0.5	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.5
Bromoform		< 0.5	< 0.050 J	< 0.050 J	< 0.050 J	< 0.50 J	< 0.50	< 0.5
Tetrachloroethene		< 0.5	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.5
Toluene		< 0.5	< 0.050	< 0.050	< 0.050	0.11 JB	< 0.50	< 0.5
Total xylenes		< 1	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 1

ug/L Micrograms per liter.
J Estimated value.
R Unusable value.
B Constituent detected in associated blank.
D Compound concentration was determined at a secondary dilution.

AR301375

Table 8-16. Summary of Volatile Organic Compounds Detected in Residential Groundwater Samples Collected from 1992 to 1995, Dublin NPL Site, Dublin, Pennsylvania.

CONSTITUENT: (Units in ug/L)	SITE: SAMPLE ID DATE:	0144_RCKRTS R350624 06/24/93	0144_RCKRTS R350315 03/15/94	0144_RCKRTS R350622 06/22/94	0144_RCKRTS R350920 09/20/94	0144_RCKRTS R351222 12/22/94	0144_RCKRTS R350317 03/17/95	0144_RCKRTS R350619 06/19/95
Chloromethane		< 0.050	< 0.050	< 0.50 J	< 0.50	< 1	< 0.5	< 0.50
Methylene chloride		< 0.050	< 0.050	< 0.50 J	< 0.50	1.0 B	< 0.5	0.55 B
Acetone		< 2.0	< 2.0	< 2.0 J	< 2.0	R	< 5 J	< 2.0
Carbon disulfide		< 0.050 J	< 0.050	< 0.50 J	0.31 J	< 1	< 1 J	< 0.50
1,1-Dichloroethene		< 0.050	< 0.050 J	< 0.50 J	< 0.50	< 1	< 0.5	< 0.50
1,1-Dichloroethane		< 0.050	< 0.050	< 0.50 J	< 0.50	< 1	< 0.5	< 0.50
1,2-Dichloroethene		< 0.050	< 0.050	< 0.50 J	< 0.50	< 1	< 0.5	< 0.50
Chloroform		< 0.050	< 0.050	< 0.50 J	< 0.50	< 1	< 0.5	< 0.50
2-Butanone		< 2.0	< 2.0	< 2.0 J	< 2.0	R	< 5 J	R
1,1,1-Trichloroethane		< 0.050	< 0.050	< 0.50 J	< 0.50	< 1	< 0.5	< 0.50
Bromodichloromethane		< 0.050 J	< 0.050 J	< 0.50 J	< 0.50	< 1	< 0.5	< 0.50
Trichloroethene		< 0.050	< 0.050	< 0.50 J	< 0.50	< 1	< 0.5	< 0.50
Dibromochloromethane		< 0.050 J	< 0.050 J	< 0.50 J	< 0.50	< 1	< 0.5	< 0.50
Benzene		< 0.050	< 0.050	< 0.50 J	< 0.50	< 1	< 0.5	< 0.50
Bromoform		< 0.050 J	< 0.050 J	< 0.50 J	< 0.50 J	< 1	< 0.5	< 0.50
Tetrachloroethene		< 0.050	< 0.050	< 0.50 J	< 0.50	< 1	< 0.5	< 0.50
Toluene		< 0.050	< 0.050	0.12 JB	< 0.50	< 1	< 0.5	< 0.50
Total xylenes		< 0.050	< 0.050	< 0.50 J	< 0.50	< 1	< 1	< 1.0

ug/L Micrograms per liter.
J Estimated value.
R Unusable value.
B Constituent detected in associated blank.
D Compound concentration was determined at a secondary dilution.

AR301376

Table 8-16. Summary of Volatile Organic Compounds Detected in Residential Groundwater Samples Collected from 1992 to 1995, Dublin NPL Site, Dublin, Pennsylvania.

CONSTITUENT: (Units in ug/L)	SITE: SAMPLE ID DATE:	0144_RCKRTS R350912 09/12/95	0144_RCKRTS R351220 12/20/95	0446_BUCKS R390922 09/22/93	0446_BUCKS R390315 03/15/94	0446_BUCKS R390623 06/23/94	0446_BUCKS R390920 09/20/94	0446_BUCKS R391220 12/20/94
Chloromethane		< 0.50	< 0.5	< 0.050 J	< 0.050	< 0.50	< 0.50	< 1
Methylene chloride		< 0.50	< 0.5	0.24 B	< 0.050	< 0.50	< 0.50	1.2 B
Acetone		R	R	< 2.0	R	< 2.0	< 2.0	R
Carbon disulfide		< 0.50	< 0.5	0.13 B	< 0.050 J	< 0.50	< 0.50	< 1
1,1-Dichloroethene		< 0.50	< 0.5	< 0.050	< 0.050	< 0.50	< 0.50	< 1
1,1-Dichloroethane		< 0.50	< 0.5	< 0.050	< 0.050	< 0.50	< 0.50	< 1
1,2-Dichloroethene		< 0.50	< 0.5	< 0.050	< 0.050	< 0.50	< 0.50	< 1
Chloroform		< 0.50	< 0.5	< 0.050 J	< 0.050	< 0.50	< 0.50	< 1
2-Butanone		R	R	< 2.0	< 2.0	< 2.0	< 2.0	R
1,1,1-Trichloroethane		< 0.50	< 0.5	< 0.050	< 0.050	< 0.50	< 0.50	< 1
Bromodichloromethane		< 0.50	< 0.5	< 0.050	< 0.050 J	< 0.50	< 0.50	< 1
Trichloroethene		< 0.50	< 0.5	< 0.050	< 0.050	< 0.50	< 0.50	< 1
Dibromochloromethane		< 0.50	< 0.5	< 0.050	< 0.050 J	< 0.50	< 0.50	< 1
Benzene		< 0.50	< 0.5	< 0.050	< 0.050	0.14 JB	< 0.50	< 1
Bromoform		< 0.50	< 0.5	< 0.050	< 0.050 J	< 0.50	< 0.50 J	< 1
Tetrachloroethene		< 0.50	< 0.5	< 0.050 J	< 0.050	< 0.50	< 0.50	< 1
Toluene		< 0.50	< 0.5	< 0.050	0.068 J	0.14 JB	< 0.50	< 1
Total xylenes		< 1.0	< 1	< 0.050 J	< 0.050	< 0.50	< 0.50	< 1

ug/L Micrograms per liter.
J Estimated value.
R Unusable value.
B Constituent detected in associated blank.
D Compound concentration was determined at a secondary dilution.

AR301377

Table 8-16. Summary of Volatile Organic Compounds Detected in Residential Groundwater Samples Collected from 1992 to 1995, Dublin NPL Site, Dublin, Pennsylvania.

CONSTITUENT: (Units in ug/L)	SITE: SAMPLE ID DATE:	0446_BUCKS R390316 03/16/95	0446_BUCKS R390620 06/20/95	0446_BUCKS R390914 09/14/95	0446_BUCKS R391220 12/20/95	0717_QUARRY R511222 12/22/94	0717_QUARRY R510316 03/16/95	0717_QUARRY R510820 06/20/95
Chloromethane		< 0.5	< 0.50	< 0.50	< 0.5	< 1	< 0.5	< 0.50
Methylene chloride		< 0.5	< 0.50	< 0.50	< 0.5	1.0 B	< 0.5	< 0.50
Acetone		< 5 J	< 2.0	R	R	R	< 5 J	< 2.0
Carbon disulfide		< 1 J	< 0.50	< 0.50	< 0.5	< 1	< 1 J	0.37 B
1,1-Dichloroethene		< 0.5	< 0.50	< 0.50	< 0.5	< 1	< 0.5	< 0.50
1,1-Dichloroethane		< 0.5	< 0.50	< 0.50	< 0.5	< 1	< 0.5	< 0.50
1,2-Dichloroethene		< 0.5	< 0.50	< 0.50	< 0.5	< 1	< 0.5	< 0.50
Chloroform		< 0.5	< 0.50	< 0.50	< 0.5	< 1	< 0.5	< 0.50
2-Butanone		< 5 J	R	R	R	R	< 5 J	R
1,1,1-Trichloroethane		< 0.5	< 0.50	< 0.50	< 0.5	< 1	< 0.5	< 0.50
Bromodichloromethane		< 0.5	< 0.50	< 0.50	< 0.5	< 1	< 0.5	< 0.50
Trichloroethene		< 0.5	< 0.50	< 0.50	< 0.5	< 1	1.3	0.49 J
Dibromochloromethane		< 0.5	< 0.50	< 0.50	< 0.5	< 1	< 0.5	< 0.50
Benzene		< 0.5	< 0.50	< 0.50	< 0.5	< 1	< 0.5	< 0.50
Bromoform		< 0.5	< 0.50	< 0.50	< 0.5	< 1	< 0.5	< 0.50
Tetrachloroethene		< 0.5	< 0.50	< 0.50	< 0.5	< 1	< 0.5	< 0.50
Toluene		< 0.5	< 0.50	< 0.50	< 0.5	< 1	< 0.5	< 0.50
Total xylenes		< 1	< 1.0	< 1.0	< 1	< 1	< 1	< 1.0

ug/L Micrograms per liter.
J Estimated value.
R Unusable value.
B Constituent detected in associated blank.
Compound concentration was determined at a secondary dilution.

AR301378

Table 8-16. Summary of Volatile Organic Compounds Detected in Residential Groundwater Samples Collected from 1992 to 1995, Dublin NPL Site, Dublin, Pennsylvania.

CONSTITUENT: (Units in ug/L)	SITE: / SAMPLE ID / DATE:	0717_QUARRY R510912 09/12/95	0717_QUARRY R511218 12/18/95	0717_QUARRY-DUP RR20318 03/16/95	0729_QUARRY R520316 03/16/94	0729_QUARRY R520621 06/21/94	0729_QUARRY R520921 09/21/94	0729_QUARRY R521221 12/21/94
Chloromethane		< 0.50	< 0.5 J	< 0.5	< 0.050	< 0.50 J	< 0.50	< 1
Methylene chloride		< 0.50	< 0.5	< 0.5	0.15 J	< 0.50	< 0.50	< 1
Acetone		R	R	< 5 J	< 2.0	< 2.0	R	R
Carbon disulfide		< 0.50	< 0.5	< 1 J	< 0.050 J	0.17 J	0.21 J	< 1
1,1-Dichloroethene		< 0.50	< 0.5 J	< 0.5	< 0.050	< 0.50	< 0.50	< 1
1,1-Dichloroethane		< 0.50	< 0.5	< 0.5	< 0.050	< 0.50	< 0.50	< 1
1,2-Dichloroethene		< 0.50	< 0.5 J	< 0.5	< 0.050	< 0.50	< 0.50	< 1
Chloroform		< 0.50	< 0.5 J	< 0.5	< 0.050	< 0.50	< 0.50	< 1
2-Butanone		R	R	< 5 J	< 2.0	< 2.0	< 2.0	R
1,1,1-Trichloroethane		< 0.50	< 0.5 J	< 0.5	< 0.050	< 0.50	< 0.50	< 1
Bromodichloromethane		< 0.50	< 0.5 J	< 0.5	< 0.050 J	< 0.50	< 0.50	< 1
Trichloroethene		0.46 J	0.75	1.1	0.77	0.59	0.53	< 1
Dibromochloromethane		< 0.50	< 0.5 J	< 0.5	< 0.050	< 0.50	< 0.50	< 1
Benzene		< 0.50	< 0.5	< 0.5	< 0.050	0.12 JB	< 0.50	< 1
Bromoform		< 0.50	< 0.5 J	< 0.5	< 0.050 J	< 0.50	< 0.50	< 1
Tetrachloroethene		< 0.50	< 0.5 J	< 0.5	< 0.050	< 0.50	< 0.50	< 1
Toluene		< 0.50	< 0.5 J	< 0.5	< 0.050	0.14 JB	0.13 J	< 1
Total xylenes		< 1.0	< 1 J	< 1	< 0.050	< 0.50	< 0.50	< 1

ug/L Micrograms per liter.
J Estimated value.
R Unusable value.
B Constituent detected in associated blank.
D Compound concentration was determined at a *secondary dilution.*

AR301379

Table 8-16. Summary of Volatile Organic Compounds Detected in Residential Groundwater Samples Collected from 1992 to 1995, Dublin NPL Site, Dublin, Pennsylvania.

CONSTITUENT: (Units in ug/L)	SITE: SAMPLE ID DATE:	0729_QUARRY R520315 03/15/95	0729_QUARRY R520619 06/19/95	0729_QUARRY R520912 09/12/95	0729_QUARRY R521218 12/18/95	0805_QUARRY R530316 03/16/94	0805_QUARRY R530622 06/22/94	0805_QUARRY R530922 09/22/94
Chloromethane		< 0.5	< 0.50	< 0.50	< 0.5 J	< 0.050	< 0.50 J	< 0.50
Methylene chloride		< 0.5	0.35 B	< 0.50	< 0.5	< 0.050	< 0.50 J	< 0.50
Acetone		< 5 J	< 2.0	R	R	< 2.0	< 2.0 J	R
Carbon disulfide		< 1 J	< 0.50	< 0.50	< 0.5	< 0.050 J	0.068 J	0.13 J
1,1-Dichloroethene		< 0.5	< 0.50	< 0.50	< 0.5 J	< 0.050	< 0.50 J	< 0.50
1,1-Dichloroethane		< 0.5	< 0.50	< 0.50	< 0.5	< 0.050	< 0.50 J	< 0.50
1,2-Dichloroethene		< 0.5	< 0.50	< 0.50	< 0.5 J	< 0.050	< 0.50 J	< 0.50
Chloroform		< 0.5	< 0.50	< 0.50	< 0.5 J	< 0.050	< 0.50 J	< 0.50
2-Butanone		< 5 J	R	R	R	< 2.0	< 2.0 J	< 2.0
1,1,1-Trichloroethane		< 0.5	< 0.50	< 0.50	< 0.5 J	< 0.050	< 0.50 J	< 0.50
Bromodichloromethane		< 0.5	< 0.50	< 0.50	< 0.5 J	< 0.050 J	< 0.50 J	< 0.50
Trichloroethene		< 0.5	0.54	0.57	0.58	0.79	0.74 J	0.53
Dibromochloromethane		< 0.5	< 0.50	< 0.50	< 0.5 J	< 0.050 J	< 0.50 J	< 0.50
Benzene		< 0.5	< 0.50	< 0.50	< 0.5	< 0.050	0.13 JB	< 0.50
Bromoform		< 0.5	< 0.50	< 0.50	< 0.5 J	< 0.050 J	< 0.50 J	< 0.50
Tetrachloroethene		< 0.5	< 0.50	< 0.50	< 0.5 J	< 0.050	< 0.50 J	< 0.50
Toluene		< 0.5	< 0.50	< 0.50	< 0.5 J	< 0.050	0.12 JB	< 0.50
Total xylenes		< 1	< 1.0	< 1.0	< 1 J	< 0.050	< 0.50 J	< 0.50

ug/L Micrograms per liter.
J Estimated value.
R Unusable value.
B Constituent detected in associated blank.
D Compound concentration was determined at a secondary dilution.

AR301380

Table 8-16. Summary of Volatile Organic Compounds Detected in Residential Groundwater Samples Collected from 1992 to 1995, Dublin NPL Site, Dublin, Pennsylvania.

CONSTITUENT: (Units in ug/L)	SITE: / SAMPLE ID: / DATE:	0805_QUARRY R531220 12/20/94	0805_QUARRY R530315 03/15/95	0805_QUARRY R530620 06/20/95	0805_QUARRY R530912 09/12/95	0805_QUARRY R531218 12/18/95	0805_QUARRY-DUP RR10912 09/12/95	0813_QUARRY R210628 06/28/93
Chloromethane		< 1	< 0.5	< 0.50	< 0.50	< 0.5 J	< 0.50	< 0.050
Methylene chloride		9.0 B	< 0.5	< 0.50	< 0.50	< 0.5	< 0.50	< 0.050
Acetone		R	< 5 J	< 2.0	R	R	R	< 2.0
Carbon disulfide		< 1	< 1 J	< 0.50	< 0.50	< 0.5	< 0.50	< 0.050 J
1,1-Dichloroethene		< 1	< 0.5	< 0.50	< 0.50	< 0.5 J	< 0.50	< 0.050
1,1-Dichloroethane		< 1	< 0.5	< 0.50	< 0.50	< 0.5	< 0.50	< 0.050
1,2-Dichloroethene		< 1	< 0.5	< 0.50	< 0.50	< 0.5 J	< 0.50	< 0.050
Chloroform		< 1	< 0.5	< 0.50	< 0.50	< 0.5 J	< 0.50	< 0.050
2-Butanone		R	< 5 J	R	R	R	R	< 2.0
1,1,1-Trichloroethane		< 1	< 0.5	< 0.50	< 0.50	< 0.5 J	< 0.50	0.099 J
Bromodichloromethane		< 1	< 0.5	< 0.50	< 0.50	< 0.5 J	< 0.50	< 0.050 J
Trichloroethene		0.38 J	< 0.5	0.38 J	0.35 J	< 0.5	0.37 J	1.8
Dibromochloromethane		< 1	< 0.5	< 0.50	< 0.50	< 0.5 J	< 0.50	< 0.050 J
Benzene		< 1	< 0.5	< 0.50	< 0.50	< 0.5	< 0.50	< 0.050
Bromoform		< 1	< 0.5	< 0.50	< 0.50	< 0.5 J	< 0.50	< 0.050 J
Tetrachloroethene		< 1	< 0.5	< 0.50	< 0.50	< 0.5 J	< 0.50	< 0.050
Toluene		< 1	< 0.5	< 0.50	< 0.50	< 0.5 J	< 0.50	< 0.050
Total xylenes		< 1	< 1	< 1.0	< 1.0	< 1 J	< 1.0	< 0.050

ug/L Micrograms per liter.
J Estimated value.
R Unusable value.
B Constituent detected in associated blank.
Compound concentration was determined at a secondary dilution.

AR301381

Table 8-16. Summary of Volatile Organic Compounds Detected in Residential Groundwater Samples Collected from 1992 to 1995, Dublin NPL Site, Dublin, Pennsylvania.

CONSTITUENT: (Units in ug/L)	SITE: SAMPLE ID DATE:	0813_QUARRY R210314 03/14/94	0813_QUARRY R210623 06/23/94	0813_QUARRY R210921 09/21/94	0813_QUARRY R211221 12/21/94	0813_QUARRY R210317 03/17/95	0813_QUARRY R210620 06/20/95	0813_QUARRY-DUP RR30317 03/17/95
Chloromethane		< 0.050	< 0.50	< 0.50	< 1	< 0.5	< 0.50	< 0.5
Methylene chloride		0.28 B	< 0.50	< 0.50	1.3 B	< 0.5	< 0.50	< 0.5
Acetone		R	< 2.0	R	R	< 5 J	< 2.0	< 5 J
Carbon disulfide		< 0.050	< 0.50	1.9	< 1	< 1 J	< 0.50	< 1 J
1,1-Dichloroethene		< 0.050	< 0.50	< 0.50	< 1	< 0.5	< 0.50	< 0.5
1,1-Dichloroethane		< 0.050	< 0.50	< 0.50	< 1	< 0.5	< 0.50	< 0.5
1,2-Dichloroethene		< 0.050	< 0.50	< 0.50	< 1	< 0.5	< 0.50	< 0.5
Chloroform		0.28 J	< 0.50	0.16 J	< 1	< 0.5	< 0.50	< 0.5
2-Butanone		< 2.0	< 2.0	< 2.0	R	< 5 J	R	< 5 J
1,1,1-Trichloroethane		0.062 J	< 0.50	0.12 J	< 1	< 0.5	< 0.50	< 0.5
Bromodichloromethane		< 0.050 J	< 0.50	< 0.50	< 1	< 0.5	< 0.50	< 0.5
Trichloroethene		1.1	0.88	1.6	1.6	< 0.5	1.7	< 0.5
Dibromochloromethane		< 0.050 J	< 0.50	< 0.50	< 1	< 0.5	< 0.50	< 0.5
Benzene		< 0.050	< 0.50	< 0.50	< 1	< 0.5	< 0.50	< 0.5
Bromoform		< 0.050 J	< 0.50	< 0.50	< 1	< 0.5	< 0.50	< 0.5
Tetrachloroethene		< 0.050	< 0.50	< 0.50	< 1	< 0.5	< 0.50	< 0.5
Toluene		0.25	< 0.50	< 0.50	< 1	< 0.5	< 0.50	< 0.5
Total xylenes		0.12 J	< 0.50	< 0.50	< 1	< 1	< 1.0	< 1

ug/L Microgreme per liter.
J Estimated value.
R Unuseble value.
B Constituent detected in associated blank.
D Compound concentration was determined at a secondary dilution.

AR301382

Table 8-16. Summary of Volatile Organic Compounds Detected in Residential Groundwater Samples Collected from 1992 to 1995, Dublin NPL Site, Dublin, Pennsylvania.

CONSTITUENT: (Units in ug/L)	SITE: SAMPLE ID DATE:	0821_QUARRY R220628 06/28/93	0821_QUARRY R220621 06/21/95	0821_QUARRY R220912 09/12/95	0821_QUARRY R221218 12/18/95	0829_QUARRY R230628 06/28/93	0829_QUARRY R230922 09/22/94	0829_QUARRY R230620 06/20/95
Chloromethane		< 0.050	< 0.50	< 0.50	< 0.5 J	< 0.050	< 0.50	< 0.50
Methylene chloride		< 0.050	< 0.50	< 0.50	< 0.5	0.28 B	< 0.50	< 0.50
Acetone		< 2.0	< 2.0	R	R	< 2.0	R	< 2.0
Carbon disulfide		< 0.050 J	< 0.50	< 0.50	< 0.5	< 0.050 J	< 0.50	< 0.50
1,1-Dichloroethene		< 0.050	< 0.50	< 0.50	< 0.5 J	< 0.050	< 0.50	< 0.50
1,1-Dichloroethane		< 0.050	< 0.50	< 0.50	< 0.5	< 0.050	< 0.50	< 0.50
1,2-Dichloroethene		< 0.050	< 0.50	< 0.50	< 0.5 J	< 0.050	< 0.50	< 0.50
Chloroform		< 0.050	< 0.50	< 0.50	< 0.5 J	< 0.050	< 0.50	< 0.50
2-Butanone		< 2.0	R	R	R	< 2.0	< 2.0	R
1,1,1-Trichloroethane		< 0.050	< 0.50	< 0.50	< 0.5 J	< 0.050	< 0.50	< 0.50
Bromodichloromethane		< 0.050 J	< 0.50	< 0.50	< 0.5 J	< 0.050 J	< 0.50	< 0.50
Trichloroethene		1.0	1.6	< 0.50	0.65	< 0.050	< 0.50	< 0.50
Dibromochloromethane		< 0.050 J	< 0.50	< 0.50	< 0.5 J	< 0.050 J	< 0.50	< 0.50
Benzene		< 0.050	< 0.50	< 0.50	< 0.5	< 0.050	< 0.50	< 0.50
Bromoform		< 0.050 J	< 0.50	< 0.50	< 0.5 J	< 0.050 J	< 0.50	< 0.50
Tetrachloroethene		< 0.050	< 0.50	< 0.50	< 0.5 J	< 0.050	< 0.50	< 0.50
Toluene		< 0.050	< 0.50	< 0.50	< 0.5 J	< 0.050	< 0.50	< 0.50
Total xylenes		< 0.050	< 1.0	< 1.0	< 1 J	< 0.050	< 0.50	< 1.0

ug/L Micrograms per liter.
J Estimated value.
R Unusable value.
B Constituent detected in associated blank.
D Compound concentration was determined at a secondary dilution.

AR301383

Table 8-16. Summary of Volatile Organic Compounds Detected in Residential Groundwater Samples Collected from 1992 to 1995, Dublin NPL Site, Dublin, Pennsylvania.

CONSTITUENT: (Units in ug/L)	SITE: SAMPLE ID DATE:	0829_QUARRY R230912 09/12/95	0829_QUARRY R231218 12/18/95	0901_QUARRY R240628 06/28/93	0901_QUARRY R240316 03/16/94	0901_QUARRY R240621 06/21/94	0901_QUARRY R240920 09/20/94	0901_QUARRY R241221 12/21/94
Chloromethane		< 0.50	< 0.5 J	< 0.050	< 0.050	< 0.50 J	< 0.50	< 1
Methylene chloride		< 0.50	< 0.5	< 0.050	< 0.050	< 0.50	< 0.50	1.1 B
Acetone		R	R	< 2.0	< 2.0	< 2.0	< 2.0	R
Carbon disulfide		< 0.50	< 0.5	< 0.050 J	< 0.050 J	< 0.50 J	< 0.50	< 1
1,1-Dichloroethene		< 0.50	< 0.5 J	< 0.050	< 0.050	< 0.50	< 0.50	< 1
1,1-Dichloroethane		< 0.50	< 0.5	< 0.050	< 0.050	< 0.50	< 0.50	< 1
1,2-Dichloroethene		< 0.50	< 0.5 J	0.11 J	< 0.050	< 0.50	< 0.50	< 1
Chloroform		< 0.50	< 0.5 J	< 0.050	< 0.050	< 0.50	< 0.50	< 1
2-Butanone		R	R	< 2.0	< 2.0	< 2.0	< 2.0	R
1,1,1-Trichloroethane		< 0.50	< 0.5 J	0.081 J	0.084 J	0.11 J	< 0.50	< 1
Bromodichloromethane		< 0.50	< 0.5 J	< 0.050 J	< 0.050 J	< 0.50	< 0.50	< 1
Trichloroethene		< 0.50	< 0.5	2.8	2.8	2.8	3.1	2.5
Dibromochloromethane		< 0.50	< 0.5 J	< 0.050 J	< 0.050 J	< 0.50	< 0.50	< 1
Benzene		< 0.50	< 0.5	< 0.050	< 0.050	< 0.50	< 0.50	< 1
Bromoform		< 0.50	< 0.5 J	< 0.050 J	< 0.050	< 0.50 J	< 0.50 J	< 1
Tetrachloroethene		< 0.50	< 0.5 J	< 0.050	< 0.050	< 0.50	< 0.50	< 1
Toluene		< 0.50	< 0.5 J	< 0.050	0.051 B	0.12 JB	< 0.50	< 1
Total xylenes		< 1.0	< 1 J	< 0.050	< 0.050	< 0.50	< 0.50	< 1

ug/L Micrograms per liter.
J Estimated value.
R Unusable value.
B Constituent detected in associated blank.
Compound concentration was determined at a secondary dilution.

AR301384

Table 8-16. Summary of Volatile Organic Compounds Detected in Residential Groundwater Samples Collected from 1992 to 1995, Dublin NPL Site, Dublin, Pennsylvania.

CONSTITUENT: (Units in ug/L)	SITE: / SAMPLE ID / DATE:	0901_QUARRY R240317 03/17/95	0901_QUARRY R240620 06/20/95	0901_QUARRY R240912 09/12/95	0901_QUARRY R241218 12/18/95	0913_QUARRY R570912 09/12/95	0913_QUARRY R571218 12/18/95	0914_QUARRY R540316 03/16/94
Chloromethane		< 0.5	< 0.50	< 0.50	< 0.5 J	< 0.50	< 0.5 J	< 0.050
Methylene chloride		< 0.5	< 0.50	< 0.50	< 0.5	< 0.50	< 0.5	< 0.050
Acetone		< 5 J	< 2.0	R	R	R	R	< 2.0
Carbon disulfide		< 1 J	< 0.50	< 0.50	< 0.5	< 0.50	< 0.5	0.074 J
1,1-Dichloroethene		< 0.5	< 0.50	< 0.50	< 0.5 J	< 0.50	< 0.5 J	< 0.050
1,1-Dichloroethane		< 0.5	< 0.50	< 0.50	< 0.5	< 0.50	< 0.5	< 0.050
1,2-Dichloroethene		< 0.5	< 0.50	< 0.50	< 0.5 J	< 0.50	< 0.5 J	< 0.050
Chloroform		< 0.5	< 0.50	< 0.50	< 0.5 J	< 0.50	< 0.5 J	< 0.050
2-Butanone		< 5 J	R	R	R	R	R	< 2.0
1,1,1-Trichloroethane		< 0.5	< 0.50	< 0.50	< 0.5 J	< 0.50	< 0.5 J	< 0.050 J
Bromodichloromethane		< 0.5	< 0.50	< 0.50	< 0.5 J	< 0.50	< 0.5 J	< 0.050 J
Trichloroethene		2.6	2.4	2.6	2	0.55	< 0.5	0.37 J
Dibromochloromethane		< 0.5	< 0.50	< 0.50	< 0.5 J	< 0.50	< 0.5 J	< 0.050 J
Benzene		< 0.5	< 0.50	< 0.50	< 0.5	< 0.50	< 0.5	< 0.050
Bromoform		< 0.5	< 0.50	< 0.50	< 0.5 J	< 0.50	< 0.5 J	< 0.050
Tetrachloroethene		< 0.5	< 0.50	< 0.50	< 0.5 J	< 0.50	< 0.5 J	< 0.050
Toluene		< 0.5	< 0.50	< 0.50	< 0.5 J	< 0.50	< 0.5 J	< 0.050
Total xylenes		< 1	< 1.0	< 1.0	< 1 J	< 1.0	< 1 J	< 0.050

ug/L Micrograms per liter.
J Estimated value.
R *Unusable value.*
B Constituent detected in associated blank.
D Compound concentration was determined at a secondary dilution.

AR301385

Table 8-16. Summary of Volatile Organic Compounds Detected in Residential Groundwater Samples Collected from 1992 to 1995, Dublin NPL Site, Dublin, Pennsylvania.

CONSTITUENT: (Units in ug/L)	SITE: SAMPLE ID DATE:	0914_QUARRY R540623 06/23/94	0914_QUARRY R540922 09/22/94	0914_QUARRY R541222 12/22/94	0914_QUARRY R540315 03/15/95	0914_QUARRY R540620 06/20/95	0914_QUARRY R540912 09/12/95	0914_QUARRY R541218 12/18/95
Chloromethane		< 0.50	< 0.50	< 1	< 0.5	< 0.50	< 0.50	< 0.5 J
Methylene chloride		< 0.50	< 0.50	1.0 B	< 0.5	< 0.50	< 0.50	< 0.5
Acetone		< 2.0	R	R	< 5 J	< 2.0	R	R
Carbon disulfide		0.089 J	< 0.50	< 1	< 1 J	0.44 B	< 0.50	< 0.5
1,1-Dichloroethene		< 0.50	< 0.50	< 1	< 0.5	< 0.50	< 0.50	< 0.5 J
1,1-Dichloroethane		< 0.50	< 0.50	< 1	< 0.5	< 0.50	< 0.50	< 0.5
1,2-Dichloroethene		< 0.50	< 0.50	< 1	< 0.5	< 0.50	< 0.50	< 0.5 J
Chloroform		< 0.50	< 0.50	< 1	< 0.5	< 0.50	< 0.50	< 0.5 J
2-Butanone		< 2.0	< 2.0	R	< 5 J	R	R	R
1,1,1-Trichloroethane		< 0.50	< 0.50	< 1	< 0.5	< 0.50	< 0.50	< 0.5 J
Bromodichloromethane		< 0.50	< 0.50	< 1	< 0.5	< 0.50	< 0.50	< 0.5 J
Trichloroethene		0.44 J	0.50	< 1	< 0.5	0.33 J	0.31 J	< 0.5
Dibromochloromethane		< 0.50 J	< 0.50	< 1	< 0.5	< 0.50	< 0.50	< 0.5 J
Benzene		0.13 JB	< 0.50	< 1	< 0.5	< 0.50	< 0.50	< 0.5
Bromoform		< 0.50 J	< 0.50	< 1	< 0.5	< 0.50	< 0.50	< 0.5 J
Tetrachloroethene		< 0.50	< 0.50	< 1	< 0.5	< 0.50	< 0.50	< 0.5 J
Toluene		0.11 JB	< 0.50	< 1	< 0.5	< 0.50	< 0.50	< 0.5 J
Total xylenes		< 0.50	< 0.50	< 1	< 1	< 1.0	< 1.0	< 1 J

ug/L Micrograms per liter.
J Estimated value.
R Unusable value.
B Constituent detected in associated blank.
D Compound concentration was determined at a secondary dilution.

AR301386

Table 8-16. Summary of Volatile Organic Compounds Detected in Residential Groundwater Samples Collected from 1992 to 1995, Dublin NPL Site, Dublin, Pennsylvania.

CONSTITUENT: (Units in ug/L)	SITE: SAMPLE ID DATE:	0919_QUARRY R260629 06/29/93	0919_QUARRY R260620 06/20/95	0919_QUARRY R260912 09/12/95	0919_QUARRY R261220 12/20/95	0919_QUARRY-DUP RR31220 12/20/95	1006_QUARRY R270628 06/28/93	1006_QUARRY R270315 03/15/94
Chloromethane		1.2 J	< 0.50	< 0.50	< 0.5	< 0.5	< 0.050	< 0.050
Methylene chloride		< 0.050	< 0.50	< 0.50	< 0.5	< 0.5	0.29 B	< 0.050
Acetone		< 2.0	< 2.0	R	R	R	< 2.0	< 2.0
Carbon disulfide		< 0.050	< 0.50	< 0.50	< 0.5	< 0.5	< 0.050 J	< 0.050
1,1-Dichloroethene		< 0.050	< 0.50	< 0.50	< 0.5	< 0.5	< 0.050	< 0.050 J
1,1-Dichloroethane		< 0.050	< 0.50	< 0.50	< 0.5	< 0.5	< 0.050	< 0.050
1,2-Dichloroethene		< 0.050	< 0.50	< 0.50	< 0.5	< 0.5	< 0.050	< 0.050
Chloroform		< 0.050	< 0.50	< 0.50	< 0.5	< 0.5	0.068 J	< 0.050
2-Butanone		< 2.0	R	R	R	R	< 2.0	< 2.0
1,1,1-Trichloroethane		< 0.050	< 0.50	< 0.50	< 0.5	< 0.5	< 0.050	< 0.050
Bromodichloromethane		< 0.050	< 0.50	< 0.50	< 0.5	< 0.5	< 0.050 J	< 0.050 J
Trichloroethene		1.6	1.6	1.4	1.2	1.4	0.35 J	0.31 J
Dibromochloromethane		< 0.050 J	< 0.50	< 0.50	< 0.5	< 0.5	< 0.050 J	< 0.050 J
Benzene		< 0.050	< 0.50	< 0.50	< 0.5	< 0.5	< 0.050	< 0.050
Bromoform		< 0.050 J	< 0.50	< 0.50	< 0.5	< 0.5	< 0.050 J	< 0.050 J
Tetrachloroethene		< 0.050	< 0.50	< 0.50	< 0.5	< 0.5	< 0.050	< 0.050
Toluene		< 0.050	< 0.50	< 0.50	< 0.5	< 0.5	< 0.050	< 0.050
Total xylenes		< 0.050	< 1.0	< 1.0	< 1	< 1	< 0.050	< 0.050

ug/L Micrograms per liter.
J Estimated value.
R Unusable value.
B Constituent detected in associated blank.
D Compound concentration was determined at a secondary dilution.

AR301387

Table 8-16. Summary of Volatile Organic Compounds Detected in Residential Groundwater Samples Collected from 1992 to 1995, Dublin NPL Site, Dublin, Pennsylvania.

CONSTITUENT: (Units in ug/L)	SITE: SAMPLE ID DATE:	1006_QUARRY R270621 06/21/94	1006_QUARRY R270920 09/20/94	1006_QUARRY R271221 12/21/94	1006_QUARRY R270315 03/15/95	1006_QUARRY R270620 06/20/95	1006_QUARRY R270912 09/12/95	1006_QUARRY R271219 12/19/95
Chloromethane		< 0.50	< 0.50	< 1	< 0.5	< 0.50	< 0.50	< 0.5
Methylene chloride		< 0.50	< 0.50	1.2 B	< 0.5	< 0.50	< 0.50	< 0.5
Acetone		< 2.0	< 2.0	R	< 5 J	< 2.0	R	R
Carbon disulfide		< 0.50	< 0.50	< 1	< 1 J	0.78 B	< 0.50	< 0.5
1,1-Dichloroethene		< 0.50	< 0.50	< 1	< 0.5	< 0.50	< 0.50	< 0.5
1,1-Dichloroethane		< 0.50	< 0.50	< 1	< 0.5	< 0.50	< 0.50	< 0.5
1,2-Dichloroethene		< 0.50	< 0.50	< 1	< 0.5	< 0.50	< 0.50	< 0.5
Chloroform		0.082 J	< 0.50	< 1	< 0.5	< 0.50	< 0.50	< 0.5
2-Butanone		< 2.0	< 2.0	R	< 5 J	R	R	R
1,1,1-Trichloroethane		< 0.50	< 0.50	< 1	< 0.5	< 0.50	< 0.50	< 0.5
Bromodichloromethane		< 0.50	< 0.50	< 1	< 0.5	< 0.50	< 0.50	< 0.5
Trichloroethene		0.43 J	0.50	< 1	< 0.5	< 0.50	< 0.50	< 0.5
Dibromochloromethane		< 0.50	< 0.50	< 1	< 0.5	< 0.50	< 0.50	< 0.5
Benzene		< 0.50	< 0.50	< 1	< 0.5	< 0.50	< 0.50	< 0.5
Bromoform		< 0.50 J	< 0.50 J	< 1	< 0.5	< 0.50	< 0.50	< 0.5
Tetrachloroethene		< 0.50	< 0.50	< 1	< 0.5	< 0.50	< 0.50	< 0.5
Toluene		0.12 JB	< 0.50	< 1	< 0.5	< 0.50	< 0.50	< 0.5
Total xylenes		< 0.50	< 0.50	< 1	< 1	< 1.0	< 1.0	< 1

ug/L Micrograms per liter.
J Estimated value.
R Unusable value.
B Constituent detected in associated blank.
D Compound concentration was determined at a secondary dilution.

AR301388

Table 8-16. Summary of Volatile Organic Compounds Detected in Residential Groundwater Samples Collected from 1992 to 1995, Dublin NPL Site, Dublin, Pennsylvania.

CONSTITUENT: (Units in ug/L)	SITE: / SAMPLE ID / DATE:	1006_QUARRY-DUP RR20620 06/20/95	1014_QUARRY R580620 06/20/95	1014_QUARRY R580912 09/12/95	255_DUBLINPIKE R560621 06/21/95	255_DUBLINPIKE R560913 09/13/95	255_DUBLINPIKE R56010596 01/05/96	3126_RCKRTS R360628 06/28/93
Chloromethane		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.050
Methylene chloride		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.050
Acetone		< 2.0	< 2.0	R	< 2.0	R	R	< 2.0
Carbon disulfide		< 0.50	0.61 B	< 0.50	1.2 B	< 0.50	< 0.50	< 0.050 J
1,1-Dichloroethene		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.050
1,1-Dichloroethane		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.050
1,2-Dichloroethene		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.050
Chloroform		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	0.17 J
2-Butanone		R	R	R	R	R	R	< 2.0
1,1,1-Trichloroethane		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.050
Bromodichloromethane		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.050 J
Trichloroethene		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.050
Dibromochloromethane		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50 J	< 0.050 J
Benzene		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.050
Bromoform		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50 J	< 0.050 J
Tetrachloroethene		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.050
Toluene		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.050
Total xylenes		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 0.050

ug/L Micrograms per liter.
J Estimated value.
R Unusable value.
B Constituent detected in associated blank.
D Compound concentration was determined at a secondary dilution.

AR301389

Table 8-16. Summary of Volatile Organic Compounds Detected in Residential Groundwater Samples Collected from 1992 to 1995, Dublin NPL Site, Dublin, Pennsylvania.

CONSTITUENT: (Units in ug/L)	SITE: SAMPLE ID DATE:	3126_RCKRTS R360315 03/15/94	3126_RCKRTS R360622 06/22/94	3126_RCKRTS R360922 09/22/94	3126_RCKRTS R361221 12/21/94	3126_RCKRTS R360316 03/16/95	3126_RCKRTS R360619 06/19/95	3126_RCKRTS R360914 09/14/95
Chloromethane		< 0.050	< 0.50 J	< 0.50	< 1	< 0.5	< 0.50	< 0.50
Methylene chloride		< 0.050	< 0.50 J	< 0.50	< 1	< 0.5	0.53 B	< 0.50
Acetone		R	< 2.0 J	R	R	< 5 J	< 2.0	R
Carbon disulfide		< 0.050 J	< 0.50 J	< 0.50	< 1	< 1 J	< 0.50	< 0.50
1,1-Dichloroethene		< 0.050	< 0.50 J	< 0.50	< 1	< 0.5	< 0.50	< 0.50
1,1-Dichloroethane		< 0.050	< 0.50 J	< 0.50	< 1	< 0.5	< 0.50	< 0.50
1,2-Dichloroethene		< 0.050	< 0.50 J	< 0.50	< 1	< 0.5	< 0.50	< 0.50
Chloroform		< 0.050	< 0.50 J	0.068 J	< 1	< 0.5	< 0.50	< 0.50
2-Butanone		< 2.0	< 2.0 J	< 2.0	R	< 5 J	R	R
1,1,1-Trichloroethane		< 0.050	< 0.50 J	< 0.50	< 1	< 0.5	< 0.50	< 0.50
Bromodichloromethane		< 0.050 J	< 0.50 J	< 0.50	< 1	< 0.5	< 0.50	< 0.50
Trichloroethene		< 0.050	< 0.50 J	< 0.50	< 1	< 0.5	< 0.50	< 0.50
Dibromochloromethane		< 0.050 J	< 0.50 J	< 0.50	< 1	< 0.5	< 0.50	< 0.50
Benzene		< 0.050	< 0.50 J	< 0.50	< 1	< 0.5	< 0.50	< 0.50
Bromoform		< 0.050 J	< 0.50 J	< 0.50	< 1	< 0.5	< 0.50	< 0.50
Tetrachloroethene		< 0.050	< 0.50 J	< 0.50	< 1	< 0.5	< 0.50	< 0.50
Toluene		< 0.050	< 0.50 J	< 0.50	< 1	< 0.5	< 0.50	< 0.50
Total xylenes		< 0.050	< 0.50 J	< 0.50	< 1	< 1	< 1.0	< 1.0

ug/L Micrograms per liter.
J Estimated value.
R Unusable value.
B Constituent detected in associated blank.
Compound concentration was determined at a secondary dilution.

AR301390

Table 8-16. Summary of Volatile Organic Compounds Detected in Residential Groundwater Samples Collected from 1992 to 1995, Dublin NPL Site, Dublin, Pennsylvania.

CONSTITUENT: (Units in ug/L)	SITE: SAMPLE ID DATE:	3126_RCKRTS R361219 12/19/95	3126_RCKRTS R36010596 01/05/96	3126_RCKRTS-DUP RR30914 09/14/95	3132_RCKRTS R051007 10/07/92	3132_RCKRTS R050629 06/29/93	3132_RCKRTS R050621 06/21/94	3132_RCKRTS R050920 09/20/94
Chloromethane		< 0.5	< 0.50	< 0.50	< 0.050	< 0.050	< 0.50 J	< 0.50
Methylene chloride		< 0.5	< 0.50	< 0.50	0.59 B	< 0.050	< 0.50	< 0.50
Acetone		R	R	R	< 2.0	< 2.0	< 2.0	< 2.0
Carbon disulfide		< 0.5	< 0.50	< 0.50	2.1 B	< 0.050 J	< 0.50 J	0.21 J
1,1-Dichloroethene		< 0.5	< 0.50	< 0.50	< 0.050	< 0.050	< 0.50	< 0.50
1,1-Dichloroethane		< 0.5	< 0.50	< 0.50	< 0.050	< 0.050	< 0.50	< 0.50
1,2-Dichloroethene		< 0.5	< 0.50	< 0.50	< 0.050	< 0.050	< 0.50	< 0.50
Chloroform		< 0.5	< 0.50	< 0.50	< 0.050	< 0.050	0.076 J	0.087 J
2-Butanone		R	R	R	< 2.0	< 2.0	< 2.0	< 2.0
1,1,1-Trichloroethane		< 0.5	< 0.50	< 0.50	< 0.050	< 0.050	< 0.50	< 0.50
Bromodichloromethane		< 0.5	< 0.50	< 0.50	< 0.050	< 0.050 J	< 0.50	< 0.50
Trichloroethene		< 0.5	< 0.50	< 0.50	< 0.050	< 0.050	< 0.50	< 0.50
Dibromochloromethane		< 0.5	< 0.50 J	< 0.50	< 0.050	< 0.050 J	< 0.50	< 0.50
Benzene		< 0.5	< 0.50	< 0.50	< 0.050	< 0.050	< 0.50	< 0.50
Bromoform		< 0.5	< 0.50 J	< 0.50	< 0.050	< 0.050 J	< 0.50	< 0.50 J
Tetrachloroethene		< 0.5	< 0.50	< 0.50	< 0.050	< 0.050	< 0.50	< 0.50
Toluene		< 0.5	< 0.50	< 0.50	< 0.050	< 0.050	0.1 JB	< 0.50
Total xylenes		< 1	< 1.0	< 1.0	< 0.050	< 0.050	< 0.50	< 0.50

ug/L Micrograms per liter.
J Estimated value.
R Unusable value.
B Constituent detected in associated blank.
Compound concentration was determined at a secondary dilution.

AR301391

Table 8-16. Summary of Volatile Organic Compounds Detected in Residential Groundwater Samples Collected from 1992 to 1995, Dublin NPL Site, Dublin, Pennsylvania.

CONSTITUENT: (Units in ug/L)	SITE: SAMPLE ID DATE:	3132_RCKRTS R051221 12/21/94	3132_RCKRTS R050316 03/16/95	3132_RCKRTS R050820 06/20/95	3132_RCKRTS R050913 09/13/95	3132_RCKRTS R051219 12/19/95	3206_RCKRTS R750923 09/23/93	3206_RCKRTS R75-1220 12/20/93
Chloromethane		< 1	< 0.5	< 0.50	< 0.50	< 0.5	< 0.050	< 0.050
Methylene chloride		< 1	< 0.5	< 0.50	< 0.50	< 0.5	0.19 B	0.11 J
Acetone		R	< 5 J	< 2.0	R	R	< 2.0	< 2.0
Carbon disulfide		< 1	< 1 J	< 0.50	< 0.50	< 0.5	< 0.050	< 0.050
1,1-Dichloroethene		< 1	< 0.5	< 0.50	< 0.50	< 0.5	< 0.050	< 0.050
1,1-Dichloroethane		< 1	< 0.5	< 0.50	< 0.50	< 0.5	< 0.050	< 0.050
1,2-Dichloroethene		< 1	< 0.5	< 0.50	< 0.50	< 0.5	< 0.050	< 0.050
Chloroform		< 1	< 0.5	< 0.50	< 0.50	< 0.5	0.088 J	< 0.050
2-Butanone		R	< 5 J	R	R	R	< 2.0	< 2.0
1,1,1-Trichloroethane		< 1	< 0.5	< 0.50	< 0.50	< 0.5	< 0.050	< 0.050
Bromodichloromethane		< 1	< 0.5	< 0.50	< 0.50	< 0.5	< 0.050 J	< 0.050
Trichloroethene		< 1	< 0.5	< 0.50	< 0.50	< 0.5	< 0.050	< 0.050
Dibromochloromethane		< 1	< 0.5	< 0.50	< 0.50	< 0.5	< 0.050	< 0.050
Benzene		< 1	< 0.5	< 0.50	< 0.50	< 0.5	< 0.050	< 0.050
Bromoform		< 1	< 0.5	< 0.50	< 0.50	< 0.5	< 0.050	< 0.050
Tetrachloroethene		< 1	< 0.5	< 0.50	< 0.50	< 0.5	< 0.050	< 0.050
Toluene		< 1	< 0.5	< 0.50	< 0.50	< 0.5	< 0.050	< 0.050
Total xylenes		< 1	< 1	< 1.0	< 1.0	< 1	< 0.050	0.071 J

ug/L Micrograms per liter.
J Estimated value.
R Unusable value.
B Constituent detected in associated blank.
Compound concentration was determined at a secondary dilution.

AR301392

Table 8-16. Summary of Volatile Organic Compounds Detected in Residential Groundwater Samples Collected from 1992 to 1995, Dublin NPL Site, Dublin, Pennsylvania.

CONSTITUENT: (Units in ug/L)	SITE: / SAMPLE ID: / DATE:	3206_RCKRTS R750316 03/16/94	3206_RCKRTS R750621 06/21/94	3206_RCKRTS R750921 09/21/94	3206_RCKRTS R751221 12/21/94	3206_RCKRTS R750316 03/16/95	3206_RCKRTS R750913 09/13/95	3206_RCKRTS R751220 12/20/95
Chloromethane		< 0.050	< 0.50 J	< 0.50	< 1	< 0.5	< 0.50	< 0.5
Methylene chloride		0.28 J	0.17 JB	< 0.50	< 1	< 0.5	< 0.50	< 0.5
Acetone		< 2.0	< 2.0	< 2.0	R	< 5 J	R	R
Carbon disulfide		< 0.050 J	< 0.50 J	< 0.50	< 1	< 1 J	< 0.50	< 0.5
1,1-Dichloroethene		< 0.050	< 0.50	< 0.50	< 1	< 0.5	< 0.50	< 0.5
1,1-Dichloroethane		< 0.050	< 0.50	< 0.50	< 1	< 0.5	< 0.50	< 0.5
1,2-Dichloroethene		< 0.050	< 0.50	< 0.50	< 1	< 0.5	< 0.50	< 0.5
Chloroform		< 0.050	< 0.50	< 0.50	< 1	< 0.5	< 0.50	< 0.5
2-Butanone		< 2.0	< 2.0	R	R	< 5 J	R	R
1,1,1-Trichloroethane		< 0.050	< 0.50	0.051 J	< 1	< 0.5	< 0.50	< 0.5
Bromodichloromethane		< 0.050 J	< 0.50	< 0.50	< 1	< 0.5	< 0.50	< 0.5
Trichloroethene		< 0.050	< 0.50	< 0.50	< 1	< 0.5	< 0.50	< 0.5
Dibromochloromethane		< 0.050 J	< 0.50	< 0.50	< 1	< 0.5	< 0.50	< 0.5
Benzene		< 0.050	0.14 JB	< 0.50	< 1	< 0.5	< 0.50	< 0.5
Bromoform		< 0.050 J	< 0.50	< 0.50	< 1	< 0.5	< 0.50	< 0.5
Tetrachloroethene		< 0.050	< 0.50	< 0.50	< 1	< 0.5	< 0.50	< 0.5
Toluene		< 0.050	0.13 JB	< 0.50	< 1	< 0.5	< 0.50	< 0.5
Total xylenes		0.16	< 0.50	< 0.50	< 1	< 1	< 1.0	< 1

ug/L *Micrograms per liter.*
J Estimated value.
R Unusable value.
B Constituent detected in associated blank.
D Compound concentration was determined at a secondary dilution.

AR301393

Table 8-16. Summary of Volatile Organic Compounds Detected in Residential Groundwater Samples Collected from 1992 to 1995, Dublin NPL Site, Dublin, Pennsylvania.

CONSTITUENT: (Units in ug/L)	SITE: SAMPLE ID DATE:	3212_RCKRTS R061013 10/13/92	3212_RCKRTS R060624 06/24/93	3212_RCKRTS R060922 09/22/93	3212_RCKRTS R06-1221 12/21/93	3212_RCKRTS R060314 03/14/94	3212_RCKRTS R060623 06/23/94	3212_RCKRTS R060921 09/21/94
Chloromethane		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50
Methylene chloride		0.35 B	0.16 B	0.13 B	0.11 JB	< 0.050	< 0.50	< 0.50
Acetone		< 2.0	< 2.0	< 2.0	< 2.0	R	1.8 JB	< 2.0
Carbon disulfide		0.061 B	< 0.050 J	0.14 B	< 0.050	< 0.050 J	< 0.50	< 0.50
1,1-Dichloroethene		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50
1,1-Dichloroethane		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50
1,2-Dichloroethene		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50
Chloroform		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50
2-Butanone		< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	R
1,1,1-Trichloroethane		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50
Bromodichloromethane		< 0.050	< 0.050 J	< 0.050 J	< 0.050	< 0.050 J	< 0.50	< 0.50
Trichloroethene		0.3 B	0.089 J	< 0.050	0.22 J	0.17 J	0.22 J	0.26 J
Dibromochloromethane		< 0.050 J	< 0.050 J	< 0.050 J	< 0.050	< 0.050 J	< 0.50 J	< 0.50
Benzene		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	0.16 JB	< 0.50
Bromoform		< 0.050 J	< 0.050 J	< 0.050 J	< 0.050	< 0.050 J	< 0.50 J	< 0.50
Tetrachloroethene		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50
Toluene		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	0.14 JB	< 0.50
Total xylenes		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50

ug/L Micrograms per liter.
J Estimated value.
R Unusable value.
B Constituent detected in associated blank.
D Compound concentration was determined at a secondary dilution.

AR301394

Table 8-16. Summary of Volatile Organic Compounds Detected in Residential Groundwater Samples Collected from 1992 to 1995, Dublin NPL Site, Dublin, Pennsylvania.

CONSTITUENT: (Units in ug/L)	SITE: / SAMPLE ID / DATE:	3212_RCKRTS R061221 12/21/94	3212_RCKRTS R060316 03/16/95	3212_RCKRTS R060619 06/19/95	3212_RCKRTS R060913 09/13/95	3212_RCKRTS R061219 12/19/95	3218_RCKRTS R400625 06/25/93	3218_RCKRTS R400316 03/16/94
Chloromethane		< 1	< 0.5	< 0.50	< 0.50	< 0.5	< 0.050	< 0.050
Methylene chloride		< 1	< 0.5	0.43 B	< 0.50	< 0.5	< 0.050	0.40 J
Acetone		R	< 5 J	< 2.0	R	R	< 2.0	< 2.0
Carbon disulfide		< 1	< 1 J	< 0.50	< 0.50	< 0.5	< 0.050 J	< 0.050 J
1,1-Dichloroethene		< 1	< 0.5	< 0.50	< 0.50	< 0.5	< 0.050	< 0.050
1,1-Dichloroethane		< 1	< 0.5	< 0.50	< 0.50	< 0.5	< 0.050	< 0.050
1,2-Dichloroethene		< 1	< 0.5	< 0.50	< 0.50	< 0.5	< 0.050	< 0.050
Chloroform		< 1	< 0.5	< 0.50	< 0.50	< 0.5	< 0.050	< 0.050
2-Butanone		R	< 5 J	R	R	R	< 2.0	< 2.0
1,1,1-Trichloroethane		< 1	< 0.5	< 0.50	< 0.50	< 0.5	< 0.050	< 0.050
Bromodichloromethane		< 1	< 0.5	< 0.50	< 0.50	< 0.5	< 0.050 J	< 0.050 J
Trichloroethene		< 1	< 0.5	< 0.50	< 0.50	< 0.5	< 0.050	< 0.050
Dibromochloromethane		< 1	< 0.5	< 0.50	< 0.50	< 0.5	< 0.050 J	< 0.050 J
Benzene		< 1	< 0.5	< 0.50	< 0.50	< 0.5	< 0.050	< 0.050
Bromoform		< 1	< 0.5	< 0.50	< 0.50	< 0.5	< 0.050 J	< 0.050 J
Tetrachloroethene		< 1	< 0.5	< 0.50	< 0.50	< 0.5	< 0.050	< 0.050
Toluene		< 1	< 0.5	< 0.50	< 0.50	< 0.5	< 0.050	0.21 J
Total xylenes		< 1	< 1	< 1.0	< 1.0	< 1	< 0.050	< 0.050

ug/L Micrograms per liter.
J Estimated value.
R Unusable value.
B Constituent detected in associated blank.
D Compound concentration was determined at a secondary dilution.

AR301395

Table 8-16. Summary of Volatile Organic Compounds Detected in Residential Groundwater Samples Collected from 1992 to 1995, Dublin NPL Site, Dublin, Pennsylvania.

CONSTITUENT: (Units in ug/L)	SITE: SAMPLE ID DATE:	3218_RCKRTS R400622 06/22/94	3218_RCKRTS R400921 09/21/94	3218_RCKRTS R401220 12/20/94	3218_RCKRTS R400318 03/16/95	3218_RCKRTS R400619 06/19/95	3218_RCKRTS R400913 09/13/95	3218_RCKRTS R40010596 01/05/96
Chloromethane		< 0.50 J	< 0.50	< 1	< 0.5	< 0.50	< 0.50	< 0.50
Methylene chloride		< 0.50 J	< 0.50	9.7 B	< 0.5	0.47 B	< 0.50	< 0.50
Acetone		< 2.0 J	< 2.0	R	< 5 J	< 2.0	R	R
Carbon disulfide		< 0.50 J	< 0.50	< 1	< 1 J	< 0.50	< 0.50	< 0.50
1,1-Dichloroethene		< 0.50 J	< 0.50	< 1	< 0.5	< 0.50	< 0.50	< 0.50
1,1-Dichloroethane		< 0.50 J	< 0.50	< 1	< 0.5	< 0.50	< 0.50	< 0.50
1,2-Dichloroethene		< 0.50 J	< 0.50	< 1	< 0.5	< 0.50	< 0.50	< 0.50
Chloroform		< 0.50 J	< 0.50	< 1	< 0.5	< 0.50	< 0.50	< 0.50
2-Butanone		< 2.0 J	R	R	< 5 J	R	R	R
1,1,1-Trichloroethane		< 0.50 J	< 0.50	< 1	< 0.5	< 0.50	< 0.50	< 0.50
Bromodichloromethane		< 0.50 J	< 0.50	< 1	< 0.5	< 0.50	< 0.50	< 0.50
Trichloroethene		< 0.50 J	< 0.50	< 1	< 0.5	< 0.50	< 0.50	< 0.50
Dibromochloromethane		< 0.50 J	< 0.50	< 1	< 0.5	< 0.50	< 0.50	< 0.50 J
Benzene		< 0.50 J	< 0.50	< 1	< 0.5	< 0.50	< 0.50	< 0.50
Bromoform		< 0.50 J	< 0.50	< 1	< 0.5	< 0.50	< 0.50	< 0.50 J
Tetrachloroethene		< 0.50 J	< 0.50	< 1	< 0.5	< 0.50	< 0.50	< 0.50
Toluene		0.11 JB	< 0.50	< 1	< 0.5	< 0.50	< 0.50	< 0.50
Total xylenes		< 0.50 J	< 0.50	< 1	< 1	< 1.0	< 1.0	< 1.0

ug/L Micrograms per liter.
J Estimated value.
R Unusable value.
B Constituent detected in associated blank.
DA Compound concentration was determined at a secondary dilution.

AR301396

Table 8-16. Summary of Volatile Organic Compounds Detected in Residential Groundwater Samples Collected from 1992 to 1995, Dublin NPL Site, Dublin, Pennsylvania.

CONSTITUENT: (Units in ug/L)	SITE: SAMPLE ID DATE:	3224_RCKRTS R071009 10/09/92	3224_RCKRTS R070825 06/25/93	3224_RCKRTS R070922 09/22/93	3224_RCKRTS R07-1220 12/20/93	3224_RCKRTS R070315 03/15/94	3224_RCKRTS R070622 06/22/94	3224_RCKRTS R070920 09/20/94
Chloromethane		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.50 J	< 0.50
Methylene chloride		0.23 B	< 0.050	0.12 B	0.13 J	< 0.050	< 0.50 J	< 0.50
Acetone		< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0 J	< 2.0
Carbon disulfide		< 0.050	< 0.050 J	0.12 B	0.082 J	< 0.050	< 0.50 J	0.15 J
1,1-Dichloroethene		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050 J	< 0.50 J	< 0.50
1,1-Dichloroethane		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.50 J	< 0.50
1,2-Dichloroethene		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.50 J	< 0.50
Chloroform		< 0.050	< 0.050	< 0.050	< 0.050	0.056 J	< 0.50 J	< 0.50
2-Butanone		< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0 J	< 2.0
1,1,1-Trichloroethane		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	0.061 JB	< 0.50
Bromodichloromethane		< 0.050	< 0.050 J	< 0.050 J	< 0.050	< 0.050 J	< 0.50 J	< 0.50
Trichloroethene		4.2	3.4	< 0.050	< 0.050	< 0.050	< 0.50 J	< 0.50
Dibromochloromethane		< 0.050	< 0.050 J	< 0.050 J	< 0.050	< 0.050 J	< 0.50 J	< 0.50
Benzene		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	0.14 JB	< 0.50
Bromoform		< 0.050	< 0.050 J	< 0.050 J	< 0.050	< 0.050 J	< 0.50 J	< 0.50 J
Tetrachloroethene		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.50 J	< 0.50
Toluene		< 0.050	< 0.050	0.33 J	0.11 J	0.11 J	0.12 JB	< 0.50
Total xylenes		< 0.050	< 0.050	< 0.050	0.071 J	< 0.050	< 0.50 J	< 0.50

ug/L Micrograms per liter.
J Estimated value.
R Unusable value.
B Constituent detected in associated blank.
D Compound concentration was determined at a secondary dilution.

DAR301397

Table 8-16. Summary of Volatile Organic Compounds Detected in Residential Groundwater Samples Collected from 1992 to 1995, Dublin NPL Site, Dublin, Pennsylvania.

CONSTITUENT: (Units in ug/L)	SITE: / SAMPLE ID / DATE:	3224_RCKRTS R071221 12/21/94	3224_RCKRTS R070317 03/17/95	3224_RCKRTS R070619 06/19/95	3224_RCKRTS R070913 09/13/95	3224_RCKRTS R071220 12/20/95	3224_RCKRTS-DUP RR20913 09/13/95	3232_RCKRTS R081007 10/07/92
Chloromethane		< 1	< 0.5	< 0.50	< 0.50	< 0.5	< 0.50	< 0.050
Methylene chloride		< 1	< 0.5	< 0.50	< 0.50	< 0.5	< 0.50	0.55 B
Acetone		R	< 5 J	< 2.0	R	R	R	< 2.0
Carbon disulfide		< 1	< 1 J	9.1	< 0.50	< 0.5	< 0.50	< 0.050
1,1-Dichloroethene		< 1	< 0.5	< 0.50	< 0.50	< 0.5	< 0.50	< 0.050
1,1-Dichloroethane		< 1	< 0.5	< 0.50	< 0.50	< 0.5	< 0.50	< 0.050
1,2-Dichloroethene		< 1	< 0.5	< 0.50	< 0.50	< 0.5	< 0.50	< 0.050
Chloroform		< 1	< 0.5	< 0.50	< 0.50	< 0.5	< 0.50	< 0.050
2-Butanone		R	< 5 J	R	R	R	R	< 2.0
1,1,1-Trichloroethane		< 1	< 0.5	< 0.50	< 0.50	< 0.5	< 0.50	< 0.050
Bromodichloromethane		< 1	< 0.5	< 0.50	< 0.50	< 0.5	< 0.50	< 0.050
Trichloroethene		< 1	< 0.5	< 0.50	< 0.50	< 0.5	< 0.50	0.76 B
Dibromochloromethane		< 1	< 0.5	< 0.50	< 0.50	< 0.5	< 0.50	< 0.050
Benzene		< 1	< 0.5	< 0.50	< 0.50	< 0.5	< 0.50	< 0.050
Bromoform		< 1	< 0.5	< 0.50	< 0.50	< 0.5	< 0.50	< 0.050
Tetrachloroethene		< 1	< 0.5	< 0.50	< 0.50	< 0.5	< 0.50	< 0.050
Toluene		< 1	< 0.5	< 0.50	< 0.50	< 0.5	< 0.50	< 0.050
Total xylenes		< 1	< 1	< 1.0	< 1.0	< 1	< 1.0	< 0.050

ug/L Micrograms per liter.
J Estimated value.
R Unusable value.
B Constituent detected in associated blank.
Compound concentration was determined at a secondary dilution.

AR301398

Table 8-16. Summary of Volatile Organic Compounds Detected in Residential Groundwater Samples Collected from 1992 to 1995, Dublin NPL Site, Dublin, Pennsylvania.

CONSTITUENT: (Units in ug/L)	SITE: SAMPLE ID DATE:	3232_RCKRTS R080625 06/25/93	3232_RCKRTS R080922 09/22/93	3232_RCKRTS R08-1221 12/21/93	3232_RCKRTS R080316 03/16/94	3232_RCKRTS R080622 06/22/94	3232_RCKRTS R080921 09/21/94	3232_RCKRTS R081221 12/21/94
Chloromethane		< 0.050	< 0.050 J	< 0.050	< 0.050	< 0.50 J	< 0.50	< 1
Methylene chloride		0.66 B	0.24 B	0.11 B	0.18 J	< 0.50 J	< 0.50	< 1
Acetone		< 2.0	< 2.0	< 2.0	2.9	1.5 J	< 2.0	R
Carbon disulfide		< 0.050 J	< 0.050 J	0.16 J	< 0.050 J	< 0.50 J	< 0.50	< 1
1,1-Dichloroethene		< 0.050	< 0.050 J	< 0.050	< 0.050	< 0.50 J	< 0.50	< 1
1,1-Dichloroethane		< 0.050	< 0.050 J	< 0.050	< 0.050	< 0.50 J	< 0.50	< 1
1,2-Dichloroethene		< 0.050	< 0.050 J	< 0.050	< 0.050	< 0.50 J	< 0.50	< 1
Chloroform		< 0.050	0.21 J	0.059 J	< 0.050	< 0.50 J	0.076 J	< 1
2-Butanone		< 2.0	< 2.0 J	< 2.0	< 2.0	< 2.0 J	R	R
1,1,1-Trichloroethane		< 0.050	< 0.050 J	< 0.050	< 0.050	< 0.50 J	< 0.50	< 1
Bromodichloromethane		< 0.050 J	< 0.050	< 0.050	< 0.050 J	< 0.50 J	< 0.50	< 1
Trichloroethene		1.3	< 0.050 J	< 0.050	< 0.050	< 0.50 J	< 0.50	< 1
Dibromochloromethane		< 0.050 J	< 0.050	< 0.050	< 0.050 J	< 0.50 J	< 0.50	< 1
Benzene		< 0.050	< 0.050 J	< 0.050	< 0.050	< 0.50 J	< 0.50	< 1
Bromoform		< 0.050 J	< 0.050	< 0.050	< 0.050 J	< 0.50 J	< 0.50	< 1
Tetrachloroethene		< 0.050	0.13 B	< 0.050	< 0.050	< 0.50 J	< 0.50	< 1
Toluene		0.56	10 J	1.8	0.73	0.57 JB	0.37 J	< 1
Total xylenes		1.2	< 0.050 J	< 0.050	< 0.050	< 0.50 J	< 0.50	< 1

ug/L Micrograms per liter.
J Estimated value.
R Unusable value.
B Constituent detected in associated blank.
D Compound concentration was determined at a secondary dilution.

AR301399

Table 8-16. Summary of Volatile Organic Compounds Detected in Residential Groundwater Samples Collected from 1992 to 1995, Dublin NPL Site, Dublin, Pennsylvania.

CONSTITUENT: (Units in ug/L)	SITE: SAMPLE ID DATE:	3232_RCKRTS R080315 03/15/95	3232_RCKRTS R080619 06/19/95	3232_RCKRTS R080913 09/13/95	3232_RCKRTS R081220 12/20/95	3234_RCKRTS R091008 10/08/92	3234_RCKRTS R090624 06/24/93	3234_RCKRTS R090921 09/21/93
Chloromethane		< 0.5	< 0.50	< 0.50	< 0.5	< 0.050 J	< 0.050	< 0.050 J
Methylene chloride		< 0.5	0.57 B	< 0.50	< 0.5	0.33 B	2.2 B	< 0.050
Acetone		< 5 J	< 2.0	R	R	< 2.0	< 2.0	< 2.0
Carbon disulfide		< 1 J	< 0.50	< 0.50	< 0.5	0.15 B	< 0.050 J	< 0.050 J
1,1-Dichloroethene		< 0.5	< 0.50	< 0.50	< 0.5	< 0.050	< 0.050	< 0.050
1,1-Dichloroethane		< 0.5	< 0.50	< 0.50	< 0.5	< 0.050	< 0.050	< 0.050
1,2-Dichloroethene		< 0.5	< 0.50	< 0.50	< 0.5	< 0.050	< 0.050	< 0.050
Chloroform		< 0.5	< 0.50	< 0.50	< 0.5	< 0.050	< 0.050	< 0.050 J
2-Butanone		< 5 J	R	R	R	< 2.0	< 2.0	< 2.0
1,1,1-Trichloroethane		< 0.5	< 0.50	< 0.50	< 0.5	< 0.050	< 0.050	< 0.050
Bromodichloromethane		< 0.5	< 0.50	< 0.50	< 0.5	< 0.050	< 0.050 J	< 0.050
Trichloroethene		< 0.5	< 0.50	< 0.50	< 0.5	3.6	0.81	0.58
Dibromochloromethane		< 0.5	< 0.50	< 0.50	< 0.5	< 0.050 J	< 0.050 J	< 0.050
Benzene		< 0.5	< 0.50	< 0.50	< 0.5	< 0.050	< 0.050	< 0.050
Bromoform		< 0.5	< 0.50	< 0.50	< 0.5	< 0.050 J	< 0.050 J	< 0.050
Tetrachloroethene		< 0.5	< 0.50	< 0.50	< 0.5	< 0.050	< 0.050	< 0.050 J
Toluene		< 0.5	< 0.50	< 0.50	< 0.5	< 0.050	< 0.050	0.56 B
Total xylenes		< 0.5	< 1.0	< 1.0	< 1	< 0.050	< 0.050	< 0.050 J

ug/L Micrograms per liter.
J Estimated value.
R Unusable value.
B Constituent detected in associated blank.
D Compound concentration was determined at a secondary dilution.

AR301400

Table 8-16. Summary of Volatile Organic Compounds Detected in Residential Groundwater Samples Collected from 1992 to 1995, Dublin NPL Site, Dublin, Pennsylvania.

CONSTITUENT: (Units in ug/L)	SITE: SAMPLE ID DATE:	3234_RCKRTS R09-1220 12/20/93	3234_RCKRTS R090316 03/16/94	3234_RCKRTS R090622 06/22/94	3234_RCKRTS R090920 09/20/94	3234_RCKRTS R091221 12/21/94	3234_RCKRTS R090315 03/15/95	3234_RCKRTS R090620 06/20/95
Chloromethane		< 0.050	< 0.050	< 0.50 J	< 0.50	< 1	< 0.5	< 0.50
Methylene chloride		0.14 J	< 0.050	< 0.50 J	< 0.50	0.77 B	< 0.5	< 0.50
Acetone		< 2.0	< 2.0	< 2.0 J	< 2.0	R	< 5 J	< 2.0
Carbon disulfide		< 0.050	< 0.050 J	< 0.50 J	< 0.50	< 1	< 1 J	< 0.50
1,1-Dichloroethene		< 0.050	< 0.050	< 0.50 J	< 0.50	< 1	< 0.5	< 0.50
1,1-Dichloroethane		< 0.050	< 0.050	< 0.50 J	< 0.50	< 1	< 0.5	< 0.50
1,2-Dichloroethene		< 0.050	< 0.050	< 0.50 J	< 0.50	< 1	< 0.5	< 0.50
Chloroform		< 0.050	< 0.050	< 0.50 J	< 0.50	< 1	< 0.5	< 0.50
2-Butanone		< 2.0	< 2.0	< 2.0 J	R	R	< 5 J	R
1,1,1-Trichloroethane		< 0.050	< 0.050 J	< 0.50 J	< 0.50	< 1	< 0.5	< 0.50
Bromodichloromethane		< 0.050	< 0.050 J	< 0.50 J	< 0.50	< 1	< 0.5	< 0.50
Trichloroethene		< 0.050	0.13 J	< 0.50 J	< 0.50	< 1	< 0.5	< 0.50
Dibromochloromethane		< 0.050	< 0.050 J	< 0.50 J	< 0.50	< 1	< 0.5	< 0.50
Benzene		< 0.050	< 0.050	0.2 JB	< 0.50	< 1	< 0.5	< 0.50
Bromoform		< 0.050	< 0.050	< 0.50 J	< 0.50	< 1	< 0.5	< 0.50
Tetrachloroethene		< 0.050	< 0.050	< 0.50 J	< 0.50	< 1	< 0.5	< 0.50
Toluene		< 0.050	< 0.050	0.16 JB	< 0.50	< 1	< 0.5	< 0.50
Total xylenes		< 0.050	< 0.050	< 0.50 J	< 0.50	< 1	< 1	< 1.0

ug/L Micrograms per liter.
J Estimated value.
R Unusable value.
B Constituent detected in associated blank.
D Compound concentration was determined at a secondary dilution.

AR301401

Table 8-16. Summary of Volatile Organic Compounds Detected in Residential Groundwater Samples Collected from 1992 to 1995, Dublin NPL Site, Dublin, Pennsylvania.

CONSTITUENT: (Units in ug/L)	SITE: / SAMPLE ID / DATE:	3234_RCKRTS R090913 09/13/95	3234_RCKRTS R091219 12/19/95	3234_RCKRTS-DUP RR21221 12/21/94	3304_RCKRTS R101014 10/14/92	3304_RCKRTS R100828 08/28/93	3304_RCKRTS R100923 09/23/93	3304_RCKRTS R10-1221 12/21/93
Chloromethane		< 0.50	< 0.5	< 1	< 0.050	< 0.050	< 0.050	< 0.050
Methylene chloride		< 0.50	< 0.5	1.2 B	0.34 B	< 0.050	0.13 B	0.3 JB
Acetone		R	R	R	< 2.0	< 2.0	< 2.0	< 2.0
Carbon disulfide		< 0.50	< 0.5	< 1	0.84 B	< 0.050 J	< 0.050	< 0.050
1,1-Dichloroethene		< 0.50	< 0.5	< 1	< 0.050	< 0.050	< 0.050	< 0.050
1,1-Dichloroethane		< 0.50	< 0.5	< 1	< 0.050	< 0.050	< 0.050	< 0.050
1,2-Dichloroethene		< 0.50	< 0.5	< 1	< 0.050	< 0.050	< 0.050	< 0.050
Chloroform		< 0.50	< 0.5	< 1	< 0.050	< 0.050	< 0.050	< 0.050
2-Butanone		R	R	R	< 2.0	< 2.0	< 2.0	< 2.0
1,1,1-Trichloroethane		< 0.50	< 0.5	< 1	< 0.050	< 0.050	< 0.050	< 0.050
Bromodichloromethane		< 0.50	< 0.5	< 1	< 0.050	< 0.050 J	< 0.050 J	< 0.050
Trichloroethene		< 0.50	< 0.5	< 1	1.2 B	< 0.050	1.4	1.2
Dibromochloromethane		< 0.50	< 0.5	< 1	< 0.050 J	< 0.050 J	< 0.050 J	< 0.050
Benzene		< 0.50	< 0.5	< 1	< 0.050	< 0.050	< 0.050	< 0.050
Bromoform		< 0.50	< 0.5	< 1	< 0.050 J	< 0.050 J	< 0.050	< 0.050
Tetrachloroethene		< 0.50	< 0.5	< 1	< 0.050	< 0.050	< 0.050	< 0.050
Toluene		< 0.50	< 0.5	< 1	< 0.050	0.06 J	< 0.050	< 0.050
Total xylenes		< 1.0	< 1	< 1	< 0.050	< 0.050	< 0.050	< 0.050

ug/L Micrograms per liter.
J Estimated value.
R Unusable value.
B Constituent detected in associated blank.
D Compound concentration was determined at a secondary dilution.

AR301402

Table 8-16. Summary of Volatile Organic Compounds Detected in Residential Groundwater Samples Collected from 1992 to 1995, Dublin NPL Site, Dublin, Pennsylvania.

CONSTITUENT: (Units in ug/L)	SITE: / SAMPLE ID / DATE:	3304_RCKRTS R100322 03/21/94	3304_RCKRTS R100822 06/22/94	3304_RCKRTS R101222 12/22/94	3304_RCKRTS R100619 06/19/95	3304_RCKRTS R100913 09/13/95	3304_RCKRTS R101219 12/19/95	3304_RCKRTS-DUP RR21219 12/19/95
Chloromethane		< 0.050	< 0.50 J	< 1	< 0.50	< 0.50	< 0.5	< 0.5
Methylene chloride		< 0.050	< 0.50 J	0.92 B	0.47 B	< 0.50	< 0.5	< 0.5
Acetone		< 2.0	< 2.0 J	R	< 2.0	R	R	R
Carbon disulfide		< 0.050 J	< 0.50 J	< 1	< 0.50	< 0.50	< 0.5	< 0.5
1,1-Dichloroethene		< 0.050	< 0.50 J	< 1	< 0.50	< 0.50	< 0.5	< 0.5
1,1-Dichloroethane		< 0.050	< 0.50 J	< 1	< 0.50	< 0.50	< 0.5	< 0.5
1,2-Dichloroethene		< 0.050	< 0.50 J	< 1	< 0.50	< 0.50	< 0.5	< 0.5
Chloroform		< 0.050	< 0.50 J	< 1	< 0.50	0.31 J	< 0.5	< 0.5
2-Butanone		< 2.0	< 2.0 J	R	R	R	R	R
1,1,1-Trichloroethane		< 0.050	< 0.50 J	< 1	< 0.50	< 0.50	< 0.5	< 0.5
Bromodichloromethane		< 0.050 J	< 0.50 J	< 1	< 0.50	< 0.50	< 0.5	< 0.5
Trichloroethene		0.71	0.81 J	1.4	1.1	< 0.50	< 0.5	< 0.5
Dibromochloromethane		< 0.050 J	< 0.50 J	< 1	< 0.50	< 0.50	< 0.5	< 0.5
Benzene		< 0.050	0.13 JB	< 1	< 0.50	< 0.50	< 0.5	< 0.5
Bromoform		< 0.050	< 0.50 J	< 1	< 0.50	< 0.50	< 0.5	< 0.5
Tetrachloroethene		< 0.050	< 0.50 J	< 1	< 0.50	< 0.50	< 0.5	< 0.5
Toluene		< 0.050	0.11 JB	< 1	< 0.50	3.9	< 0.5	< 0.5
Total xylenes		< 0.050	< 0.50 J	< 1	< 1.0	< 1.0	< 1	< 1

ug/L Micrograms per liter.
J Estimated value.
R Unusable value.
B Constituent detected in associated blank.
D Compound concentration was determined at a *secondary dilution*.

AR301403

Table 8-16. Summary of Volatile Organic Compounds Detected in Residential Groundwater Samples Collected from 1992 to 1995, Dublin NPL Site, Dublin, Pennsylvania.

CONSTITUENT: (Units in ug/L)	SITE: SAMPLE ID DATE:	808B_QUARRY R590619 06/19/95	808B_QUARRY R590912 09/12/95	808B_QUARRY R591218 12/18/95	808B_QUARRY-DUP RR11218 12/18/95	AGWAYDUBLINPIKE R410628 06/28/93	AGWAYDUBLINPIKE R370315 03/15/94	AGWAYDUBLINPIKE R370622 06/22/94
Chloromethane		< 0.50	< 0.50	< 0.5 J	< 0.5 J	< 0.050	< 0.050	< 0.50 J
Methylene chloride		< 0.50	< 0.50	< 0.5	< 0.5	0.17 B	< 0.050	< 0.50 J
Acetone		< 2.0	R	R	R	< 2.0	< 2.0	< 2.0 J
Carbon disulfide		< 0.50	< 0.50	< 0.5	< 0.5	0.064 J	< 0.050	< 0.50 J
1,1-Dichloroethene		< 0.50	< 0.50	< 0.5 J	< 0.5 J	< 0.050	< 0.050 J	< 0.50 J
1,1-Dichloroethane		< 0.50	< 0.50	< 0.5	< 0.5	< 0.050	< 0.050	< 0.50 J
1,2-Dichloroethene		< 0.50	< 0.50	< 0.5 J	< 0.5 J	< 0.050	< 0.050	< 0.50 J
Chloroform		< 0.50	2.4	< 0.5 J	< 0.5 J	< 0.050	< 0.050	< 0.50 J
2-Butanone		R	R	R	R	< 2.0	< 2.0	< 2.0 J
1,1,1-Trichloroethane		< 0.50	< 0.50	< 0.5 J	< 0.5 J	0.062 J	< 0.050	0.051 JB
Bromodichloromethane		< 0.50	4.2	< 0.5 J	< 0.5 J	< 0.050 J	< 0.050 J	< 0.50 J
Trichloroethene		0.59	0.43 J	< 0.5	0.58	1.7	0.59 J	2.1 J
Dibromochloromethane		< 0.50	5.4	< 0.5 J	< 0.5 J	< 0.050 J	< 0.050 J	< 0.50 J
Benzene		< 0.50	< 0.50	< 0.5	< 0.5	< 0.050	< 0.050	0.13 JB
Bromoform		< 0.50	6.6	< 0.5 J	< 0.5 J	< 0.050 J	< 0.050 J	< 0.50 J
Tetrachloroethene		< 0.50	< 0.50	< 0.5 J	< 0.5 J	< 0.050	< 0.050	< 0.50 J
Toluene		< 0.50	< 0.50	< 0.5 J	< 0.5 J	< 0.050	< 0.050	0.13 JB
Total xylenes		< 1.0	< 1.0	< 1 J	< 1 J	< 0.050	< 0.050	< 0.50 J

ug/L Micrograms per liter.
J Estimated value.
R Unusable value.
B Constituent detected in associated blank.
D Compound concentration was determined at a secondary dilution.

AR301404

Table 8-18. Summary of Volatile Organic Compounds Detected in Residential Groundwater Samples Collected from 1992 to 1995, Dublin NPL Site, Dublin, Pennsylvania.

CONSTITUENT: (Units in ug/L)	SITE: / SAMPLE ID: / DATE:	AGWAYDUBLINPIKE R370922 09/22/94	AGWAYDUBLINPIKE R371222 12/22/94	AGWAYDUBLINPIKE R370317 03/17/95	AGWAYDUBLINPIKE R370621 06/21/95	AGWAYDUBLINPIKE R370913 09/13/95	AGWAYDUBLINPIKE R371219 12/19/95	DUBLIN_WELL_01 R040901 09/01/92
Chloromethane		< 0.50	< 1	< 0.5	< 0.50	< 0.50	< 0.5	< 0.050
Methylene chloride		< 0.50	< 1	< 0.5	< 0.50	< 0.50	< 0.5	0.74 B
Acetone		R	R	< 5 J	< 2.0	R	R	< 2.0
Carbon disulfide		< 0.50	< 1	< 1 J	< 0.50	< 0.50	< 0.5	0.63 B
1,1-Dichloroethene		< 0.50	< 1	< 0.5	< 0.50	< 0.50	< 0.5	< 0.050
1,1-Dichloroethane		< 0.50	< 1	< 0.5	< 0.50	< 0.50	< 0.5	< 0.050
1,2-Dichloroethene		< 0.50	< 1	< 0.5	< 0.50	< 0.50	< 0.5	< 0.050
Chloroform		< 0.50	< 1	< 0.5	< 0.50	< 0.50	< 0.5	< 0.050
2-Butanone		< 2.0	R	< 5 J	R	R	R	< 2.0
1,1,1-Trichloroethane		< 0.50	< 1	< 0.5	< 0.50	< 0.50	< 0.5	< 0.050
Bromodichloromethane		< 0.50	< 1	< 0.5	< 0.50	< 0.50	< 0.5	< 0.050
Trichloroethene		0.78	0.89 J	2.1	1.2	< 0.50	0.75	< 0.050
Dibromochloromethane		< 0.50	< 1	< 0.5	< 0.50	< 0.50	< 0.5	< 0.050
Benzene		< 0.50	< 1	< 0.5	< 0.50	< 0.50	< 0.5	< 0.050
Bromoform		< 0.50	< 1	< 0.5	< 0.50	< 0.50	< 0.5	< 0.050
Tetrachloroethene		< 0.50	< 1	< 0.5	< 0.50	< 0.50	< 0.5	< 0.050
Toluene		< 0.50	< 1	< 0.5	< 0.50	0.44 J	< 0.5	< 0.050
Total xylenes		< 0.50	< 1	< 1	< 1.0	< 1.0	< 1	< 0.050

ug/L Micrograms per liter.
J Estimated value.
R Unusable value.
B Constituent detected in associated blank.
D Compound concentration was determined at a secondary dilution.

AR301405

Table 8-16. Summary of Volatile Organic Compounds Detected in Residential Groundwater Samples Collected from 1992 to 1995, Dublin NPL Site, Dublin, Pennsylvania.

CONSTITUENT: (Units in ug/L)	SITE: / SAMPLE ID / DATE:	RT313-RCKRT-DUP RR31222 12/22/94	RT313-QUARY-DUP RR20619 06/19/95	RT_313-QUARRY R121008 10/08/92	RT_313-QUARRY R120624 06/24/93	RT_313-QUARRY R120922 09/22/93	RT_313-QUARRY R12-1220 12/20/93	RT_313-QUARRY R120314 03/14/94
Chloromethane		< 1	< 0.50	< 0.050	< 0.050	< 0.050 J	< 0.050	< 0.050
Methylene chloride		1.0 B	< 0.50	0.23 B	0.25 B	0.19 B	0.1 J	< 0.050
Acetone		R	< 2.0	< 2.0	< 2.0	< 2.0	0.86 J	R
Carbon disulfide		< 1	< 0.50	< 0.050	< 0.050 J	< 0.050 J	0.21 J	< 0.050 J
1,1-Dichloroethene		< 1	< 0.50	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
1,1-Dichloroethane		< 1	< 0.50	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
1,2-Dichloroethene		< 1	< 0.50	0.12 J	< 0.050	0.14 J	0.083 J	< 0.050
Chloroform		< 1	< 0.50	< 0.050	0.07 J	< 0.050 J	< 0.050	< 0.050
2-Butanone		R	R	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
1,1,1-Trichloroethane		< 1	< 0.50	0.22 B	0.16 J	0.092 J	0.17 J	0.14 J
Bromodichloromethane		< 1	< 0.50	< 0.050	< 0.050 J	< 0.050	< 0.050	< 0.050 J
Trichloroethene		< 1	3.8	3.6	3.7	0.26 J	3.1	3.0
Dibromochloromethane		< 1	< 0.50	< 0.050	< 0.050 J	< 0.050	< 0.050	< 0.050 J
Benzene		< 1	< 0.50	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Bromoform		< 1	< 0.50	< 0.050	< 0.050 J	< 0.050	< 0.050	< 0.050 J
Tetrachloroethene		< 1	< 0.50	< 0.050	< 0.050	0.29 B	0.058 J	< 0.050
Toluene		< 1	< 0.50	< 0.050	< 0.050	< 0.050 J	< 0.050	< 0.050
Total xylenes		< 1	< 1.0	< 0.050	< 0.050	< 0.050 J	< 0.050	< 0.050

ug/L Micrograms per liter.
J Estimated value.
R Unusable value.
B Constituent detected in associated blank.
D Compound concentration was determined at a secondary dilution.

AR301406

Table 8-16. Summary of Volatile Organic Compounds Detected in Residential Groundwater Samples Collected from 1992 to 1995, Dublin NPL Site, Dublin, Pennsylvania.

CONSTITUENT: (Units in ug/L)	SITE: / SAMPLE ID / DATE:	RT_313-QUARRY R120621 06/21/94	RT_313-QUARRY R120921 09/21/94	RT_313-QUARRY R121222 12/22/94	RT_313-QUARRY R120317 03/17/95	RT_313-QUARRY R120619 06/19/95	RT_313-QUARRY R120913 09/13/95	RT_313-QUARRY R121220 12/20/95
Chloromethane		< 0.50 J	< 0.50	< 1	< 0.5	< 0.50	< 0.50	< 0.5
Methylene chloride		< 0.50	< 0.50	1.1 B	< 0.5	< 0.50	< 0.50	< 0.5
Acetone		< 2.0	< 2.0	R	< 5 J	< 2.0	R	R
Carbon disulfide		0.56 J	0.13 J	< 1	< 1 J	< 0.50	< 0.50	< 0.5
1,1-Dichloroethene		< 0.50	< 0.50	< 1	< 0.5	< 0.50	< 0.50	< 0.5
1,1-Dichloroethane		< 0.50	< 0.50	< 1	< 0.5	< 0.50	< 0.50	< 0.5
1,2-Dichloroethene		0.1 J	< 0.50	< 1	< 0.5	< 0.50	< 0.50	< 0.5
Chloroform		< 0.50	< 0.50	< 1	< 0.5	< 0.50	< 0.50	< 0.5
2-Butanone		1.1 J	R	R	< 5 J	R	R	R
1,1,1-Trichloroethane		0.18 J	0.24 J	< 1	< 0.5	< 0.50	< 0.50	< 0.5
Bromodichloromethane		< 0.50	< 0.50	< 1	< 0.5	< 0.50	< 0.50	< 0.5
Trichloroethene		2.8	3.7	2.9	3.2	3.0	3	2.6
Dibromochloromethane		< 0.50	< 0.50	< 1	< 0.5	< 0.50	< 0.50	< 0.5
Benzene		0.14 JB	< 0.50	< 1	< 0.5	< 0.50	< 0.50	< 0.5
Bromoform		< 0.50	< 0.50	< 1	< 0.5	< 0.50	< 0.50	< 0.5
Tetrachloroethene		0.093 J	< 0.50	< 1	< 0.5	< 0.50	< 0.50	< 0.5
Toluene		0.09 JB	< 0.50	< 1	< 0.5	< 0.50	< 0.50	< 0.5
Total xylenes		< 0.50	< 0.50	< 1	< 1	< 1.0	< 1.0	< 1

ug/L Micrograms per liter.
J Estimated value.
R Unusable value.
B Constituent detected in associated blank.
D Compound concentration was determined at a secondary dilution.

AR301407

Table 8-16. Summary of Volatile Organic Compounds Detected in Residential Groundwater Samples Collected from 1992 to 1995, Dublin NPL Site, Dublin, Pennsylvania.

CONSTITUENT: (Units in ug/L)	SITE: SAMPLE ID DATE:	RT_313-RCKRTS R111007 10/07/92	RT_313-RCKRTS R110624 06/24/93	RT_313-RCKRTS R110923 09/23/93	RT_313-RCKRTS R11-1220 12/20/93	RT_313-RCKRTS R110314 03/14/94	RT_313-RCKRTS R110622 06/22/94	RT_313-RCKRTS R110922 09/22/94
Chloromethane		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.50 J	< 0.50
Methylene chloride		0.77 B	< 0.050	0.19 B	< 0.050	< 0.050	< 0.50 J	< 0.50
Acetone		< 2.0	< 2.0	< 2.0	< 2.0	R	< 2.0 J	R
Carbon disulfide		< 0.050	< 0.050 J	< 0.050	0.81	< 0.050 J	< 0.50 J	0.059 J
1,1-Dichloroethene		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.50 J	< 0.50
1,1-Dichloroethane		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.50 J	< 0.50
1,2-Dichloroethene		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.50 J	< 0.50
Chloroform		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.50 J	< 0.50
2-Butanone		< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0 J	< 2.0
1,1,1-Trichloroethane		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.50 J	< 0.50
Bromodichloromethane		< 0.050	< 0.050 J	< 0.050 J	< 0.050	< 0.050 J	< 0.50 J	< 0.50
Trichloroethene		0.38 B	0.43 J	0.37 J	0.39 J	0.34 J	0.38 J	0.38 J
Dibromochloromethane		< 0.050	< 0.050 J	< 0.050 J	< 0.050	< 0.050 J	< 0.50 J	< 0.50
Benzene		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	0.12 JB	< 0.50
Bromoform		< 0.050	< 0.050 J	< 0.050	< 0.050	< 0.050 J	< 0.50 J	< 0.50
Tetrachloroethene		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.50 J	< 0.50
Toluene		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	0.11 JB	< 0.50
Total xylenes		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.50 J	< 0.50

ug/L Micrograms per liter.
J Estimated value.
R Unusable value.
B Constituent detected in associated blank.
D Compound concentration was determined at a secondary dilution.

AR301408

Table 8-16. Summary of Volatile Organic Compounds Detected in Residential Groundwater Samples Collected from 1992 to 1995, Dublin NPL Site, Dublin, Pennsylvania.

CONSTITUENT: (Units in ug/L)	SITE: SAMPLE ID DATE:	RT_313-RCKRTS R111222 12/22/94	RT_313-RCKRTS R110317 03/17/95	RT_313-RCKRTS R110619 06/19/95	RT_313-RCKRTS R110913 09/13/95	RT_313-RCKRTS R111219 12/19/95
Chloromethane		< 1	< 0.5	< 0.50	< 0.50	< 0.5
Methylene chloride		1.2 B	< 0.5	< 0.50	< 0.50	< 0.5
Acetone		R	< 5 J	< 2.0	R	R
Carbon disulfide		< 1	< 1 J	< 0.50	< 0.50	< 0.5
1,1-Dichloroethene		< 1	< 0.5	< 0.50	< 0.50	< 0.5
1,1-Dichloroethane		< 1	< 0.5	< 0.50	< 0.50	< 0.5
1,2-Dichloroethene		< 1	< 0.5	< 0.50	< 0.50	< 0.5
Chloroform		< 1	< 0.5	< 0.50	< 0.50	< 0.5
2-Butanone		R	< 5 J	R	R	R
1,1,1-Trichloroethane		< 1	< 0.5	< 0.50	< 0.50	< 0.5
Bromodichloromethane		< 1	< 0.5	< 0.50	< 0.50	< 0.5
Trichloroethene		< 1	< 0.5	< 0.50	< 0.50	< 0.5
Dibromochloromethane		< 1	< 0.5	< 0.50	< 0.50	< 0.5
Benzene		< 1	< 0.5	< 0.50	< 0.50	< 0.5
Bromoform		< 1	< 0.5	< 0.50	< 0.50	< 0.5
Tetrachloroethene		< 1	< 0.5	< 0.50	< 0.50	< 0.5
Toluene		< 1	< 0.5	< 0.50	< 0.50	< 0.5
Total xylenes		< 1	< 1	< 1.0	< 1.0	< 1

ug/L Micrograms per liter.
J Estimated value.
R Unusable value.
B Constituent detected in associated blank.
D Compound concentration was determined at a secondary dilution.

AR301409

Table 8.17 Summary of the Results of the Supply Well Sampling and Analysis Program Conducted by Thompson and Others, June 1986 through December 1995, Dublin NPL Site, Dublin, Pennsylvania

Reference Number	Address	Name	Well Depth (ft)	Sample Date	Lab	TCE	PCE	1,1,1-TCA	trans 1,2-DCE	1,2-DCE	1,1-DCA	1,2-DCA	1,1-DCE	Chloroform	Toluene	Vinyl chloride	Methylene chloride	1,2-Dichloropropane	trans-1,3-Dichloropropene	cis 1,3-Dichloropropene	Bromodichloromethane	Dibromochloromethane	Bromoform	Benzene	Quantitation Limit (ug/L)
1	120 Mill St	Thompson Plant Well #1	121	03/07/89	PQS																				
				12/05/88	BCM D	2880.0	ND									ND									<1
				12/05/88	BCM	5340.0	ND									ND									<1
				09/06/88	-- Well was dry --																				
			**	06/07/88	BCM D	5900.0	ND									ND									NA
				06/07/88	BCM	5600.0	ND									ND									<1
				02/29/88	BCM D	5871.0	10.2									ND									<1
				02/29/88	BCM	5127.0	12.2									ND									<1
				11/30/87	BCM	4800.0	ND	ND	ND		ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND		<100
				11/26/86	BCM	514.0	ND	2.0	ND		ND	ND	ND	ND		ND	1.2	ND	ND	ND	ND	ND	ND		NA
				07/15/86	DER	10000.0	ND	25.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<20
				06/23/86	DER	5000.0	* 8.6	27.0	ND	20.0	1.8	ND	11.0	1.6	6.8	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA
3	120 Mill St.	Thompson Plant Well #2	117	12/05/95	QC	297.0	0.6	1.9								ND									<0.5 (R)
				09/06/95	QC	359.0	0.5									ND									<0.5
				09/06/95	QC	NA	NA									ND									<0.5
				09/06/95	QC	NA	NA									NA									<0.5
				06/06/95	QC	437.0	0.8									4.6									<0.5
				06/06/95	QC	NA	NA									NA									<0.5
				03/06/95	QC	130.0	ND	0.9								ND									<0.5
				12/05/94	QC	393.0	NA									NA									<0.5
				09/14/94	QC	382.0	ND	3.4								ND									<0.5
				06/13/94	QC	400.0	ND	7.0								ND									<0.5
				03/14/94	QC	680.0	0.8	6.5								ND									<0.5
				12/14/93	QC	280.0	ND	2.3								ND									<0.5
				12/14/93	QC		ND									NA									<0.5
				09/14/93	QC	550.0	ND	5.4								ND									<0.5
				06/23/93	QC	NA	ND									NA									<0.5
				06/23/93	QC	700.0	0.8	5.8								ND									<0.5
				03/23/93	QC	310.0	ND	8.4								ND									<0.5
				12/08/92	QC	240.0	ND	ND								ND									<0.5
				09/16/92	QC	450.0	ND	ND								ND									<0.5
				06/09/92	QC	370.0	ND	ND								ND									<0.5
				03/09/92	QC	330.0	ND	ND								ND									<0.5
				12/03/91	QC	285.0	ND	ND								ND									<5
				09/10/91	QC	716.0	ND	ND								ND									<25 (1)
				06/06/91	QC	349.0	ND	ND								ND									<5 (1)
				03/04/91	BCM	186.0	ND									ND									<1
				03/04/91	BCM D	188.0	ND									ND									<1
				12/04/90	BCM	295.0	ND									ND									<1

Footnotes can be found at the end of this table

AR301410

Table 8-17. Summary of the Results of the Supply Well Sampling and Analysis Program Conducted by Thompson and Others, June 1986 through December 1995, Dublin NPL Site, Dublin, Pennsylvania.

Reference Number	Address	Name	Well Depth (ft)	Sample Date	Lab	TCE	PCE	1,1,1-TCA	trans 1,2-DCE	1,2-DCE	1,1-DCA	1,2-DCA	1,1-DCE	Chloroform	Toluene	Vinyl chloride	Methylene chloride	1,2-Dichloropropane	trans-1,3-Dichloropropene	cis-1,3-Dichloropropene	Bromodichloromethane	Dibromochloromethane	Bromoform	Benzene	Quantitation Limit (ug/L)
				12-03-90	BCM	349.0	ND									ND									<5
				09-04-90	BCM	587.0	ND									ND									<5
				06-05-90	BCM	191.0	ND									ND									<5
				03-05-90	BCM	277.0	ND									ND									<1
				12-05-89	BCM D	431.0	ND									ND									<1
				12-05-89	BCM	426.0	ND									ND									<1
				09-05-89	BCM	243.0	ND									ND									<10
				06-02-89	BCM	141.0	ND									ND									<1
				03-06-89	BCM	77.4	ND									ND									<1
				12-05-88	BCM	10.1	ND									ND									<1
			**	06-07-88	BCM	117.0	ND									ND									NA
				06-07-88	BCM D	235.0	ND									ND									<1
				02-29-88	BCM D	183.0	ND									ND									<1
				02-29-88	BCM	208.0	ND									ND									<1
				11-30-87	BCM D	236.0	ND	3.6	2.5		ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND		<1
				11-30-87	BCM	368.0	ND	2.6	2.4		ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND		<1
				11-26-86	BCM	3900.0	ND	18.0	8.0		ND	ND	2.3	ND		ND	1.2	ND	ND	ND	ND	ND	ND		<1
				06-23-86	DER	100.0	ND	2.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA
3	104 Mill St.	Mar-Van Industries (formerly Farm Bureau)	200	12-05-95	QC	731.0	0.6	1.6								ND									<0.5 U
				09-06-95	QC	486.0	0.6									ND									<0.5
				06-06-95	QC	1510.0	1.2	3.9								ND									<0.5
				03-06-95	QC	1860.0	1.2	5.8								ND									<0.5
				12-05-94	QC	1160.0	0.8									ND									<0.5
				09-14-94	QC	1980.0	0.8	4.0								ND									<0.5
				06-13-94	QC	940.0	ND	2.2								ND									<0.5
				03-14-94	QC	2500.0	1.5	7.9								ND									<0.5
				12-14-93	QC	73.0	ND	ND								ND									<0.5
				09-14-93	QC	9.3	ND	ND								ND									<0.5
				06-23-93	QC	3000.0	2.1	7.4								ND									<0.5
				06-23-93	QC D	2900.0	2.3	7.2								ND									
				03-23-93	QC	2100.0	ND	6.9								ND									<0.5
				12-08-92	QC	3700.0	ND	ND								ND									<0.5
				09-15-92	QC	2800.0	ND	ND								ND									<0.5
				06-10-92	QC D	3600.0	ND	ND								ND									<0.5
				06-10-92	QC	2700.0	ND	ND								ND	NA								NA
				03-09-92	QC	2300.0	ND	ND								ND									<0.5
				12-03-91	QC	2510.0	ND	ND								ND									<25
				09-10-91	QC	2850.0	ND	ND								ND									<100 U
				06-07-91	QC D	1742.0	ND	ND								ND									<5 U

Footnotes can be found at the end of this table.

AR301411

Table 8 17 Summary of the Results of the Supply Well Sampling and Analysis Program Conducted by Thompson and Others, June 1986 through December 1995, Dublin NPL Site, Dublin, Pennsylvania

Reference Number	Address	Name	Well Depth (ft)	Sample Date	Lab	TCE	PCE	1,1,1-TCA	trans 1,2-DCE	1,2-DCE	1,1-DCA	1,2-DCA	1,1-DCE	Chloroform	Toluene	Vinyl chloride	Methylene chloride	1,2-Dichloropropane	trans 1,3-Dichloropropene	cis-1,3-Dichloropropene	Bromodichloromethane	Dibromochloromethane	Bromoform	Benzene	Quantitation Limit (ug/L)
				06-07-91	QC	1733 0	ND	ND								ND									< 5 [2
				03-04-91	BCM	3740 0	ND									ND									< 20
				12-03-90	BCM	4620 0	ND									ND									< 1
				09-04-90	BCM D	1930 0	ND									ND									< 5
				06-04-90	BCM	1930 0	ND									ND									< 1
				06-04-90	BCM	NA																			NA
				03-05-90	BCM D	15 7	ND									ND									< 1
				03-05-90	BCM	12 6	ND									ND									< 1
				12 05-89	BCM	15 1	ND									ND									< 1
				09 06-89	BCM	932 0	ND									ND									< 10
				06-01-89	BCM	1460 0	ND									ND									< 1
				03-06-89	BCM	4450 0	2 3									ND									< 1
				12-05-88	BCM	ND	ND									ND									< 1
				09-07-88	BCM	3970 0	2 9									ND									< 1
				06-07-88	BCM	1911 0	1 1									ND									< 1
				02-29-88	BCM D	3189 0	ND									ND									< 10
				02-29-88	BCM	3260 0	4.0									ND									< 1
				11-30-87	BCM	1590 0	ND	ND	ND		ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND		< 100
				11-26-86	BCM	357 0	ND	2 1	4 7		ND	ND	ND	ND		ND	1 6	ND	ND	ND	ND	ND	ND		< 1
			**	06-26-86	DER	1000.0	1 4	6.0	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	NA
4	105 N. Main St.	Dublin Hardware/ Dublin Fast Tag & Notary	200	12-05-95	QC	24 0	ND									ND									< 0 5
				09-06-95	QC	14 0	ND									ND									< 0 5
				06-06-95	QC	11 0	ND	ND								ND									< 0 5
				03 06 95	QC	38 0	ND	ND								ND									< 0 5
				12-05-94	QC	18 0	ND	ND								ND									< 0 5
				12 05-94	QC	21 0	ND	ND								ND									< 0 5
				09-14-94	QC	13 0	ND	ND								ND									< 0 5
				06-13-94	QC	20 0	ND	ND								ND									< 0 5
				03-14 94	QC	90 0	ND	ND								ND									< 0 5
				12-13-93	QC	43 0	ND	ND								ND									< 0 5
				09 14 93	QC	38 0	ND	ND								ND									< 0 5
				06 22 93	QC	120 0	ND	ND								ND									< 0 5
				03 23 93	QC	250 0	ND	ND								ND									< 0 5
				12 07 92	QC	120 0	ND	ND								ND									< 0 5
				09 15 92	QC	35 0	ND	ND								ND									< 0 5
				06 08 92	QC	150 0	ND	ND								ND									< 0 5
				03 09 92	QC	281 0	ND	ND								ND									< 0 5
				12-03-91	QC	38 0	ND	ND								ND									< 0 5
				09 10-91	QC	42 0	ND	ND								ND									< 0 5 [1]

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Footnotes can be found at the end of this table

Table 8-17. Summary of the Results of the Supply Well Sampling and Analysis Program Conducted by Thompson and Others, June 1986 through December 1995, Dublin NPL Site, Dublin, Pennsylvania.

Reference Number	Address	Name	Well Depth (ft)	Sample Date	Lab	TCE	PCE	1,1,1-TCA	trans 1,2-DCE	1,2-DCE	1,1-DCA	1,2-DCA	1,1-DCE	Chloroform	Toluene	Vinyl chloride	Methylene chloride	1,2-Dichloropropane	trans-1,3-Dichloropropene	cis-1,3-Dichloropropene	Bromodichloromethane	Dibromochloromethane	Bromoform	Benzene	Quantitation Limit (ug/L)
				06-07-91	QC	112.0	ND	ND								ND									<5 (2)
				03-04-91	BCM	191.0	ND									ND									<1
				12-03-90	BCM	129.0	ND									ND									<5
				09-04-90	BCM	149.0	ND									ND									<5
				06-04-90	BCM	184.0	ND									ND									<5
				03-05-90	BCM	186.0	ND									ND									<1
				12-04-89	BCM	216.0	ND									ND									<1
				09-06-89	BCM	201.0	ND									ND									<1
				06-02-89	BCM	348.0	ND									ND									<1
				03-06-89	BCM	190.0	ND									ND									<1
				12-05-88	BCM	97.9	ND									ND									<1
				09-06-88	BCM	43.9	ND									ND									<1
				06-06-88	BCM	ND	ND									ND									<1
				03-01-88	BCM	14.3	ND									ND									<1
				12-01-87	BCM D	14.9	ND	ND	ND		ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND		<1
				12-01-87	BCM	9.6	ND	ND	ND		ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND		<1
				12-02-86	BCM	31.2	ND	ND	ND		ND	ND	ND	4.4		ND	ND	ND	ND	ND	ND	ND	ND		<1
				08-05-86	DER	27.0	2.0	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.5
S	112 N. Main St.	Rhines Gulf	245	12-05-95	QC	1.1	ND									ND									<0.5
				06-06-95	QC	1.0	ND	ND								ND									<0.5
				12-05-94	QC	ND	ND	ND								ND									<0.5
				06-13-94	QC	ND	ND	ND								ND									<0.5
				12-13-93	QC	0.6	ND	ND								ND									<0.5
				06-22-93	QC	0.8	ND	ND								ND									<0.5
				12-07-92	QC	1.6	ND	ND								ND									<0.5
				06-08-92	QC	ND	ND	ND								ND									<0.5
				12-03-91	QC D	1	ND	ND								ND									<0.5
				12-03-91	QC	1	ND	ND								ND									<0.5
				06-06-91	QC	1.5	ND	ND								ND									<0.5 (3)
				12-03-90	BCM	1.8	ND									ND									<1
				06-04-90	BCM	1.3	ND									ND									<1
				03-05-90	BCM	1.4	ND									ND									<1
				12-04-89	BCM	ND	ND									ND									<1
				09-05-89	BCM	ND	ND									ND									<1
				06-01-89	BCM	1.6	ND									ND									<1
				03-06-89	BCM	1.5	ND									ND									<1
				12-05-88	BCM	3.1	ND									ND									<1
				09-06-88	BCM	ND	ND									ND									<1
				06-07-88	BCM	ND	ND									ND									<1

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Footnotes can be found at the end of this table

Table 8-17 Summary of the Results of the Supply Well Sampling and Analysis Program Conducted by Thompson and Others, June 1986 through December 1995, Dublin NPL Site, Dublin, Pennsylvania.

Reference Number	Address	Name	Well Depth (ft)	Sample Date	Lab	TCE	PCE	1,1,1-TCA	trans 1,2-DCE	1,2-DCE	1,1-DCA	1,2-DCA	1,1-DCE	Chloroform	Toluene	Vinyl chloride	Methylene chloride	1,2-Dichloropropane	trans-1,3-Dichloropropene	cis-1,3-Dichloropropene	Bromodichloromethane	Dibromochloromethane	Bromoform	Benzene	Quantitation Limit (ug/L)
				02-29-88	BCM	2.6	ND									ND									NA
				12-01-87	BCM	2.2	ND	ND	ND		ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND		<1
				11-26-86	BCM	11.9	ND	ND	ND		ND	ND	ND	ND		ND	1.2	ND	ND	ND	ND	ND	ND		<1
				07-02-86	DER	4.5	ND	ND	ND	ND	ND	1.2	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.5
6	113 N. Main St.	Hinedale, Terry (UNOCCUPIED) (formerly Decker)	NA	12-11-95	QC	23.0	ND									ND									<0.5
				06-09-95	QC	14.0	ND	ND								ND									<0.5
				06-09-95	QC D	13.0	ND									ND									<0.5
				12-06-94	QC	8.7	ND									ND									<0.5
				06-14-94	QC	9.8	ND	ND								ND									<0.5
				12-15-93	QC	43.0	ND	ND								ND									<0.5
				06-22-93	NS																				
				12-07-92	NS																				
				06-08-92	NS																				
				12-03-91	NS																				<0.5
				06-06-91	QC	25.0	ND	ND								ND									<0.5 (5
				12-03-90	BCM	30.2	ND									ND									<1
				06-04-90	BCM	31.6	ND									ND									<1
				03-05-90	BCM	36.7	ND									ND									<1
				12-06-89	BCM	65.0	ND									ND									<1
				09-06-89	BCM	36.6	ND									ND									<1
				06-01-89	BCM	19.3	ND									ND									<1
				03-06-89	BCM	78.3	ND									ND									<1
				12-06-88	BCM	67.2	ND									ND									<1
				09-06-88	BCM	74.0	ND									ND									<1
				06-06-88	BCM	11.0	ND									ND									<1
				03-01-88	BCM	15.6	ND									ND									<1
				12-01-87	BCM D	34.5	ND	1.1	2.7		ND	ND	ND	ND		ND	1.5	ND	ND	ND	ND	ND	ND		<1
				12-02-86	BCM	17.3	ND	4.2	ND		ND	ND	ND	ND			ND	ND	ND	ND	ND	ND	ND		<1
			**	07-15-86	AP	9.4	ND	ND																	NA
7	115 N. Main St.	Boyle, Bernard and Peggy	150	12-07-95	QC	21.0	ND									ND									<0.5
				06-24-95	QC	23.0	ND	ND								ND									<0.5
				12-08-94	QC	15.0	ND									ND									<0.5
				06-14-94	QC	26.0	ND	ND								ND									<0.5
				12-13-93	NS																				
				06-24-93	QC	100.0	ND	ND								ND									<0.5
				12-08-92	NS																				<0.5
				06-18-92	QC	150.0	ND	ND								ND									<0.5
				12-03-91	NS																				

Footnotes can be found at the end of this table

AR301414

Table 8-17. Summary of the Results of the Supply Well Sampling and Analysis Program Conducted by Thompson and Others, June 1986 through December 1995, Dublin NPL Site, Dublin, Pennsylvania

Reference Number	Address	Name	Well Depth (ft)	Sample Date	Lab	TCE	PCE	1,1,1-TCA	trans 1,2-DCE	1,2-DCE	1,1-DCA	1,2-DCA	1,1-DCE	Chloroform	Toluene	Vinyl chloride	Methylene chloride	1,2-Dichloropropane	trans 1,3-Dichloropropene	cis-1,3-Dichloropropene	Bromodichloromethane	Dibromochloromethane	Bromoform	Benzene	Quantitation Limit (ug/L)
				06-06-91	QC	104 0	ND	ND								ND									< 5 (2
				12-04-90	BCM	112.0	ND									ND									< 1
				06-04-90	BCM	127 0	ND									ND									< 1
				03-05-90	BCM	237.0	ND									ND									< 5
				01-16-90	BCM	232 0	ND									ND									< 1
				09-06-89	BCM	98 1	ND									ND									< 1
				03-07-89	BCM	157 0	ND									ND									< 1
				12-06-88	BCM	96.8	ND									ND									< 1
				09-07-88	BCM	82 1	ND									ND									< 1
			**	07-07-88	BCM	82.1	ND									ND									NA
				03-01-88	BCM	82 2	ND									ND									< 20
				12-01-87	BCM	43 3	ND	ND	4 1	ND	ND	ND	ND	ND		ND	4 8	ND	ND	ND	ND	ND	ND		< 1
				08-05-86	DER	40 0	ND	ND	ND	2 5	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	< 0 5
8	116 N. Main St.	Occhi, Cesare	NA	12-05-95	NS																				
				09-07-95	NS																				
				06-06-95	QC	0 6	ND	ND								ND									< 0 5
				03-23-95	NS																				
				12-07-94	QC	ND	ND									ND									< 0 5
				09-14-94	QC	ND	ND	ND								ND									< 0 5
				06-13-94	QC	ND	ND	ND								ND									< 0 5
				03-14-94	NS																				
				12-15-93	QC	ND	ND	ND								ND									< 0 5
				09-14-93	QC	ND	ND	ND								ND									< 0 5
				06-23-93	QC	0 6	ND	ND								ND									< 0 5
				03-23-93	QC	0 9	ND	ND								ND									< 0 5
				12-08-92	QC	0 6	ND	ND								ND									< 0 5
				09-16-92	QC	ND	ND	ND								ND									< 0 5
				06-18 92	QC	ND	ND	ND								ND									< 0 5
				03-09-92	QC	ND	ND	ND								ND									< 0 5
				12-05-91	QC	0 6	ND	ND								ND									< 0 5
				09-10-91	QC	ND	ND	ND								ND									< 5 (4
				06-06-91	QC	ND	ND	ND								ND									< 0 5 (4
				03-04-91	BCM	10 4	ND									ND									< 5
				12-03-90	BCM	ND	ND									ND									< 5
				09-04-90	BCM	ND	ND									ND									< 1
				06-04-90	BCM	ND	ND									ND									< 1
				03-05-90	BCM	ND	ND									ND									< 1
				12-04-89	BCM	48 6	ND									ND									< 1
				09-06-89	BCM D	ND	ND									ND									< 1

Footnotes can be found at the end of this table

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Table B-17. Summary of the Results of the Supply Well Sampling and Analysis Program Conducted by Thompson and Others, June 1986 through December 1995, Dublin NPL Site, Dublin, Pennsylvania.

Reference Number	Address	Name	Well Depth (ft)	Sample Date	Lab	TCE	PCE	1,1,1-TCA	trans 1,2-DCE	1,2-DCE	1,1-DCA	1,2-DCA	1,1-DCE	Chloroform	Toluene	Vinyl chloride	Methylene chloride	1,2-Dichloropropane	trans 1,3-Dichloropropene	cis 1,3-Dichloropropene	Bromodichloromethane	Dibromochloromethane	Bromoform	Benzene	Quantitation Limit (ug/L)
				09-06-89	BCM	10.0	ND									ND									< 1
				06-01-89	BCM	288.0	ND									ND									< 1
				12-06-88	BCM	2.7	ND									ND									< 1
				06-06-88	BCM	1.4	ND	ND								ND									< 1
				11-30-87	BCM	ND	ND	ND	ND		ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND		< 1
				11-26-86	BCM	4.1	ND	ND	ND		ND	ND	ND	ND		ND	1.2	ND	ND	ND	ND	ND	ND		< 1
				07-02-86	DER	2.2	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	< 0.5
9	117 N. Main St.	Buchanan, Kenneth J and Martha	NA	12-11-95	QC	4.7	ND									ND									< 0.5
				12-11-95	QC D	4.4	ND									ND									< 0.5
				06-08-95	QC	2.5	ND	ND								ND									< 0.5
				12-08-94	QC	2.2	ND									ND									< 0.5
				06-16-94	QC	ND	ND	ND								ND									< 0.5
				06-16-94	QC D	ND	ND	ND								ND									< 0.5
				12-16-93	QC	1.3	ND	ND								ND									< 0.5
				06-24-93	QC	2.4	ND	ND								ND									< 0.5
				06-24-93	QC D	2.5	ND	ND								ND									< 0.5
				12-09-92	QC	2.8	ND	ND								ND									< 0.5
				06-18-92	QC	2.1	ND	ND								ND									< 0.5
				12-03-91	NS																				
				06-11-91	QC	9.1	ND	ND								ND									< 5
				12-04-90	BCM	11.4	ND									ND									< 5
				06-04-90	BCM	7.9	ND									ND									< 1
				12-04-89	BCM	14.3	ND									ND									< 1
				09-06-89	BCM	113.0	ND									ND									< 1
				06-01-89	BCM	3.6	ND									ND									< 1
				03-21-89	BCM	53.1	ND																		< 1
				12-06-88	BCM	27.0	ND									ND									< 1
				09-07-88	BCM	19.7	ND									ND									< 1
				06-07-88	BCM	4.8	ND									ND									< 1
				03-01-88	BCM	5.1	ND									ND									< 1
				12-01-87	BCM	7.8	ND	ND	1.4		ND	ND	ND	ND		ND	9.5	ND	ND	ND	ND	ND	ND		< 1
				11-26-86	BCM	10.2	ND	2.2	ND		ND	4.6	ND	ND		ND	1.5	6.4	ND	ND	ND	ND	ND		< 1
			**	07-15-86	PL	15.0		ND																	NA
10	119 N. Main St.	Hirst, William J and Marjorie Y	NA	12-05-95	NS																				
				06-09-95	QC	8.0	ND	ND								ND									< 0.5
				12-09-94	QC	7.8	ND									ND									< 0.5
				06-20-94	QC	3.8	ND	ND								ND									< 0.5
				12-15-93	QC	6.1	ND	ND								ND									< 0.5

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Footnotes can be found at the end of this table

Table 8-17. Summary of the Results of the Supply Well Sampling and Analysis Program Conducted by Thompson and Others, June 1986 through December 1995, Dublin NPL Site, Dublin, Pennsylvania.

Reference Number	Address	Name	Well Depth (ft)	Sample Date	Lab	TCE	PCE	1,1,1-TCA	trans 1,2-DCE	1,2-DCE	1,3-DCA	1,2-DCA	1,1-DCE	Chloroform	Toluene	Vinyl chloride	Methylene chloride	1,2-Dichloropropane	trans-1,3-Dichloropropene	cis-1,3-Dichloropropene	Bromodichloromethane	Dibromochloromethane	Bromoform	Benzene	Quantitation Limit (ug/L)
				12-15-93	QC D	6.1	ND	ND								ND									<0.5
				06-24-93	QC	9.0	ND	ND								ND									<0.5
				12-09-92	QC	12.0	ND	ND								ND									<0.5
				06-11-92	QC	15.0	ND	ND								ND									<0.5
				12-03-91	QC	14	ND	ND								ND									<0.5
				06-06-91	QC	9.1	ND	ND								ND									<5 (2)
				12-03-90	BCM	33.3	ND									ND									<1
				06-04-90	BCM	25.9	ND									ND									<1
				03-05-90	BCM	45.0	ND									ND									<1
				12-04-89	BCM	28.2	ND									ND									<1
				12-04-89	BCM D	NA	ND									ND									<1
				09-06-89	BCM	16.5	ND									ND									<1
				06-01-89	BCM	10.0	ND									ND									<1
				03-06-89	BCM	52.1	ND									ND									<1
				12-05-88	BCM	45.0	ND									ND									<1
				09-07-88	BCM D	43.0	ND									ND									<1
				09-07-88	BCM	40.4	ND									ND									<1
				06-06-88	BCM	20.0	ND									ND									<1
				03-01-88	BCM	19.3	ND									ND									<1
				12-01-87	BCM	5.6	ND	ND	4.8		ND	ND	ND	ND		ND	6.5	ND	ND	ND	ND	ND	ND		<1
				11-26-86	BCM	34.1	ND	ND	5.0		ND	ND	ND	ND		ND	1.5	ND	ND	ND	ND	ND	ND		<1
				11-26-86	BCM D	33.8	ND	ND	5.9		ND	ND	ND	ND		ND	1.6	ND	ND	ND	ND	ND	ND		NA
			**	07-11-86	PL	19.3	1.0	ND																	
11	122 N. Main St.	Rufe, H. Robert and Mary A.	245	12-05-95	QC	176.0	ND									ND									<0.5 (4)
				09-06-95	QC	197.0	ND									ND									<0.5
				06-06-95	QC	193.0	ND	ND								ND									<0.5
				06-06-95	QC D	250.0	ND									ND									<0.5
				03-08-95	QC	146.0	ND									ND									<0.5
				12-07-94	QC	171.0	ND									ND									<0.5
				09-16-94	QC	445.0	ND	ND								ND									<0.5
				06-13-94	QC	230.0	ND	ND								ND									<0.5
				03-14-94	QC	260.0	ND	ND								ND									<0.5
				12-14-93	QC	280.0	ND	ND								ND									<0.5
				09-14-93	QC	280.0	ND	ND								ND									<0.5
				06-23-93	QC	380.0	ND	ND								ND									<0.5
				03-23-93	QC	330.0	ND	0.6								ND									<0.5
				12-09-92	QC	340.0	ND	ND								ND									<0.5
				12-09-92	QC D	250.0	ND	ND								ND									<0.5
				09-15-92	QC	340.0	ND	ND								ND									<0.5

Footnotes can be found at the end of this table

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Table 8-17. Summary of the Results of the Supply Well Sampling and Analysis Program Conducted by Thompson and Others, June 1986 through December 1995, Dublin NPL Site, Dublin, Pennsylvania.

Reference Number	Address	Name	Well Depth (ft)	Sample Date	Lab	TCE	PCE	1,1,1-TCA	trans 1,2-DCE	1,2-DCE	1,1-DCA	1,2-DCA	1,1-DCE	Chloroform	Toluene	Vinyl chloride	Methylene chloride	1,2-Dichloropropane	trans-1,3-Dichloropropene	cis-1,3-Dichloropropene	Bromodichloromethane	Dibromochloromethane	Bromoform	Benzene	Quantitation Limit (ug/L)
				06-08-92	QC	340.0	ND	ND								ND									<0.5
				03-09-92	NS																				
				12-09-91	QC	221.0	ND	ND								ND									<2.5
				12-09-91	QC D	179.0	ND	ND								ND									<2.5
				09-10-91	QC	366.0	ND	ND								ND									<5 (4
				06-06-91	QC	NS	NS	NS								NS									
				03-04-91	BCM	332.0	ND									ND									<5
				12-03-90	BCM	366.0	ND									ND									<1
				09-04-90	BCM	368.0	ND									ND									<5
				06-04-90	BCM	447.0	ND									ND									<5
				03-06-90	BCM	375.0	ND									ND									<5
				01-16-90	BCM	487.0	ND									ND									NA
				12-04-89	BCM	386.0	ND									ND									<1
				11-01-89	BCM	294.0	ND									ND									NA
				09-05-89	BCM	342.0	ND									ND									<1
			**	08-10-89	BCM	263.0	ND									ND									NA
				07-21-89	BCM	163.0	ND									ND									<1
				06-01-89	BCM	516.0	ND									ND									<1
			**	05-16-89	BCM	546.0	ND									ND									NA
			**	04-25-89	BCM	488.0	ND									ND									NA
				03-06-89	BCM	479.0	ND									ND									<1
			**	02-23-89	BCM	333.0	ND									25.4									NA
			**	01-26-89	BCM	447.0	ND									ND									NA
				12-05-88	BCM	218.0	ND									ND									<1
			**	10-18-88	BCM	223.0	ND									ND									NA
				09-06-88	BCM	227.0	ND									ND									<1
			**	08-17-88	BCM	202.0	ND									ND									NA
			**	07-07-88	BCM	267.0	ND									ND									NA
				06-07-88	BCM	215.0	ND									ND									<1
			**	05-16-88	BCM	257.0	ND									ND									NA
			**	04-22-88	BCM	170.0	ND									ND									NA
				03-01-88	BCM	233.0	ND									ND									<1
				03-02-88	BCM D	248.0	ND									ND									<1
				02-23-88	BCM	287.0	ND		5.1		ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND		<1
				01-27-88	BCM	195.0	ND		ND		ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND		<1
				11-30-87	BCM	179.0	ND		7.2		ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND		<1
				12-02-86	BCM	283.0	ND	ND	5.5		ND	ND	ND	1.2		ND	1.4	ND	ND	ND	ND	ND	ND		<1
				07-02-86	DER	250.0	ND	ND	ND	4.9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.5

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Footnotes can be found at the end of this table.

Table 8-17. Summary of the Results of the Supply Well Sampling and Analysis Program Conducted by Thompson and Others, June 1986 through December 1995, Dublin NPL Site, Dublin, Pennsylvania.

Reference Number	Address	Name	Well Depth (ft)	Sample Date	Lab		TCE	PCE	1,1,1-TCA	trans 1,2-DCE	1,2-DCE	1,1-DCA	1,2-DCA	1,1-DCE	Chloroform	Toluene	Vinyl chloride	Methylene chloride	1,2-Dichloropropane	trans-1,3-Dichloropropene	cis-1,3-Dichloropropene	Bromodichloromethane	Dibromochloromethane	Bromoform	Benzene	Quantitation Limit (ug/L)
12	123 N. Main St.	Emico, Inc. Well #1	300	12-05-95	QC		134.0	ND	6.8								ND									
				09-07-95	QC		80.0	ND									ND									<0.5 (V
				09-07-95	QC	D	82.0	ND									ND									<0.5
				06-07-95	QC		93.0	ND	19.0								ND									<0.5
				03-07-95	QC		87.0	ND	8.0								ND									<0.5
				12-06-94	QC		51.0	ND									ND									<0.5
				09-16-94	QC		72.0	ND	6.4								ND									<0.5
				06-14-94	QC		61.0	ND	26.0								ND									<0.5
				03-15-94	QC		205.0	ND	7.6								ND									<0.5
				03-15-94	QC	D	150.0	ND	ND								ND									<0.5
				12-14-93	QC		280.0	ND	11.0								ND									<0.5
				09-14-93	QC		230.0	ND	4.6								ND									<0.5
				06-24-93	QC		200.0	ND	27.0								ND									<11.5
				03-30-93	QC		210.0	ND									ND									
				12-09-92	QC		240.0	ND	15.0								ND									<0.5
				09-15-92	QC		210.0	ND	3.3								ND									<0.5
				06-18-92	QC	D	270.0	ND	ND								ND									<0.5
				06-18-92	QC		220.0	ND	ND								ND									<0.5
				03-09-92	QC		310.0	ND	ND								ND									<0.5
				12-03-91	QC		176.0	ND	ND								ND									<2.5
				09-10-91	BCM		280.0	ND									ND									<10 (C
				09-10-91	QC	D	252.0	ND	ND								ND									<10 (C
				06-06-91	QC		212.0	ND	ND								ND									<5 (C
				03-04-91	BCM	D	238.0	ND									ND									<5
				03-04-91	BCM		221.0	ND									ND									<5
				12-03-90	BCM		206.0	ND									ND									<5
				09-04-90	BCM		223.0	ND									ND									<5
				06-04-90	BCM		258.0	ND									26.8									<1
				03-05-90	BCM		233.0	ND									ND									<1
				12-04-89	BCM		156.0	ND									ND									<1
				09-05-89	BCM		146.0	ND									ND									<10
				06-01-89	BCM		284.0	ND									ND									<1
				03-06-89	BCM		121.0	ND									ND									<1
				12-05-88	BCM		137.0	ND									ND									<1
				09-06-88	BCM	D	196.0	ND									ND									<1
				09-06-88	BCM		150.0	ND									ND									<1
				06-07-88	BCM		147.0	ND									ND									<1
				06-07-88	BCM	D	149.0	ND									ND									<1
				02-29-88	BCM		204.0	ND									ND									<10
				12-01-87	BCM		126.0	ND	ND	3.5		ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND		<1

Footnotes continued at the end of this table

AR301419

Table 8-17. Summary of the Results of the Supply Well Sampling and Analysis Program Conducted by Thompson and Others, June 1986 through December 1995, Dublin NPL Site, Dublin, Pennsylvania.

Reference Number	Address	Name	Well Depth (ft)	Sample Date	Lab	TCE	PCE	1,1,1-TCA	trans 1,2-DCE	1,2-DCE	1,1-DCA	1,2-DCA	1,1-DCE	Chloroform	Toluene	Vinyl chloride	Methylene chloride	1,2-Dichloropropane	trans-1,3-Dichloropropene	cis-1,3-Dichloropropene	Bromodichloromethane	Dibromochloromethane	Bromoform	Benzene	Quantitation Limit (ug/L)
				12-01-87	BCM D	157.0	ND	ND	3.9		ND	ND	ND	ND		ND	ND	ND	ND	2.8	ND	ND	ND		<1
				11-26-86	BCM	231.0	ND	1.9	4.3		ND	ND	ND	ND		ND	2.1	2.7	ND	ND	ND	ND	ND		<1
				06-23-86	DER	360.0 *	1.0	3.8	ND	8.7	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	NA
13	123 N. Main St.	Emico, Inc. Well #2	300	12-05-95	QC	152.0	ND	6.3								ND									<0.5 (9
				06-07-95	QC	82.0	ND	15.0								ND									<0.5
				12-06-94	QC	67.0	ND									ND									<0.5
				06-14-94	QC	67.0	ND	9.6								ND									<0.5
				12-14-93	QC	250.0	ND	9.1								ND									<0.5
				06-24-93	QC	190.0	ND	17.0								ND									<0.5
				12-09-92	QC	240.0	ND	ND								ND									<0.5
				06-18-92	QC	210.0	ND	62.0								ND									<0.5
				12-03-91	QC	183.0	ND	3.1								ND									<2.5
				06-06-91	QC	135.0	ND	11.0								ND									<5 (7
				12-03-90	BCM	169.0	ND									ND									<1
				06-04-90	BCM	238.0	ND									ND									<1
				03-05-90	BCM	220.0	ND									ND									<1
				03-05-90	BCM	220.0	ND									ND									<1
				12-04-89	BCM	182.0	ND									ND									<1
				09-05-89	BCM	197.0	ND									ND									<10
				06-01-89	BCM	159.0	ND									ND									<1
				03-06-89	BCM D	234.0	ND									ND									<1
				03-06-89	BCM	230.0	ND									ND									<1
				12-05-88	BCM	194.0	ND									ND									<1
				09-06-88	BCM D	188.0	ND									ND									<1
				09-07-88	BCM	167.0	ND									ND									<1
				06-07-88	BCM	132.0	ND									ND									<1
				06-07-88	BCM D	133.0	ND									ND									<1
				02-29-88	BCM	242.0	ND									ND									<1
				12-01-87	BCM	131.0	ND	15.8	2.3		ND	ND	ND	ND		ND	76.2	21.0	ND	ND	ND	ND	ND		<1
				11-26-86	BCM	156.0	ND	3.5	3.1		ND	ND	ND	ND		ND	9.6	ND	ND	ND	ND	ND	ND		<1
				06-23-86	DER	500.0 *	ND	5.9	ND	11.0	ND	ND	2.4	ND	ND		ND	4.8	ND	ND	ND	ND	ND	ND	NA
14	124 N. Main St.	Meyers Tenant	225	12-07-95	QC	107.0	ND	1.3								ND									<0.5
				09-06-95	QC	175.0	ND									ND									<0.5
				06-06-95	QC	194.0	ND	2.7								ND									<0.5
				06-06-95	QC D	169.0	ND									ND									<0.5
				03-07-95	QC	139.0	ND	2.2								ND									<0.5
				12-05-94	N5																				
				09-14-94	QC	156.0	ND	1.8								ND									<0.5

Footnotes can be found at the end of this table

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Table 8-17. Summary of the Results of the Supply Well Sampling and Analysis Program Conducted by Thompson and Others, June 1986 through December 1995, Dublin NPL Site, Dublin, Pennsylvania

Reference Number	Address	Name	Well Depth (ft)	Sample Date	Lab	TCE	PCE	1,1,1-TCA	trans 1,2-DCE	1,2-DCE	1,1-DCA	1,2-DCA	1,1-DCE	Chloroform	Toluene	Vinyl chloride	Methylene chloride	1,2-Dichloropropane	trans-1,3-Dichloropropene	cis-1,3-Dichloropropene	Bromodichloromethane	Dibromochloromethane	Bromoform	Benzene	Quantitation Limit (ug/L)
				06-13-94	QC D	98.0	ND	3.1								ND									<0.5
				06-13-94	QC	110.0	ND	2.7								ND									<0.5
				03-14-94	NS																				
				12-14-93	QC	170.0	ND	2.7								ND									<0.5
				12-14-93	QC D	180.0	ND	2.0								ND									<0.5
				09-14-93	NS																				
				06-23-93	NS																				
				03-23-93	QC	220.0	ND	2.8								ND									
				12-16-92	QC	180.0	ND	1.0								ND									<0.5
				09-16-92	QC	220.0	ND	ND								ND									<0.5
				06-09-92	QC	140.0	ND	ND								ND									<0.5
				03-09-92	QC	120.0	ND	ND								ND									<0.5
				12-05-91	QC	86.0	2.5	9.2								ND									<2.5
				09-10-91	QC	180.0	ND	ND								ND									
				06-06-91	QC	161.0	ND	ND																	
				03-04-91	BCM	166.0	ND																		
				12-03-90	BCM	174.0	ND																		
				09-04-90	BCM	193.0	ND									ND									<5
				06-04-90	BCM	255.0	ND									ND									<10
				03-05-90	BCM	172.0	ND									ND									<5
				01-16-90	BCM	209.0	ND									ND									NA
				01-16-90	BCM D	220.0	ND									ND									NA
				12-05-89	NS																				
				11-09-89	BCM	180.0	ND									ND									NA
				10-26-89	BCM	56.4	ND									ND									NA
				09-06-89	BCM	ND	ND									ND									<1
			**	08-10-89	BCM	277.0	ND									ND									NA
				07-21-89	BCM	124.0	ND									ND									<1
				06-01-89	BCM	397.0	ND									ND									<1
			**	05-16-89	BCM	ND	ND									ND									NA
			**	04-25-89	BCM	258.0	ND									ND									NA
				03-07-89	BCM	172.0	ND									ND									<1
				02-23-89	BCM	267.0	ND									12.3									NA
				01-26-89	BCM	151.0	ND									ND									NA
				12-06-88	BCM D	155.0	ND									ND									<1
				12-06-88	BCM	130.0	ND									ND									<1
				09-06-88	BCM	274.0	ND									ND									<1
				06-06-88	BCM	162.0	ND									ND									<1
				03-01-88	BCM	170.0	ND									ND									<1
				11-30-87	BCM	140.0	ND	ND	1.4		ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND		<1

Footnotes can be found at the end of this table

GERAGHTY & MILLER

AR301421

Table B-17. Summary of the Results of the Supply Well Sampling and Analysis Program Conducted by Thompson and Others, June 1986 through December 1995, Dublin NPL Site, Dublin, Pennsylvania.

Reference Number	Address	Name	Well Depth (ft)	Sample Date	Lab	TCE	PCE	1,1,1-TCA	trans 1,2-DCE	1,2-DCE	1,1-DCA	1,2-DCA	1,1-DCE	Chloroform	Toluene	Vinyl chloride	Methylene chloride	1,2-Dichloropropane	trans-1,3-Dichloropropene	cis-1,3-Dichloropropene	Bromodichloromethane	Dibromochloromethane	Bromoform	Benzene	Quantitation Limit (ug/L)
				11-26-86	BCM	179.0	ND	1.4	2.7		ND	ND	ND	ND		ND	1.3	ND	ND	ND	ND	ND	ND		<1
15	126 N. Main St.	Meyers, M. Philip and Alice M.	225	12-05-95	QC	83.0	ND	2.8								ND									<0.5 (a)
				06-06-95	QC	144.0	ND	3.3								ND									<0.5
				12-05-94	QC	104.0	ND									ND									<0.5
				06-13-94	QC	71.0	ND	2.6								ND									<0.5
				12-14-93	QC	70.0	ND	2.8								ND									<0.5
				06-23-93	QC	200.0	ND	8.2								ND									<0.5
				12-08-92	QC	120.0	ND	4.6								ND									<0.5
				06-09-92	QC	51.0	ND	2.9								ND									<0.5
				12-03-91	QC	205.0	ND	8.8								ND									<2.5
				06-06-91	QC	99.0	ND	ND								ND									<5 (b)
				06-06-91	QC D	102.0	ND	ND								ND									<5 (b)
				12-03-90	BCM	179.0	ND									ND									<5
				06-04-90	BCM	48.8	ND									ND									<1
				03-05-90	BCM	63.9	ND									ND									<1
				12-04-89	BCM	ND	ND									ND									<1
				09-05-89	BCM	145.0	ND									ND									<1
				06-01-89	BCM	61.2	ND									ND									<1
				03-06-89	BCM	ND	ND									ND									<1
				12-06-88	BCM	140.0	ND									ND									<1
				09-07-88	BCM	192.0	ND									ND									<1
				06-06-88	BCM	109.0	ND									ND									<1
				03-01-88	BCM	109.0	ND									ND									<1
				11-30-87	BCM	151.0	ND	9.8	ND		ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND		<1
				12-02-86	BCM	160.0	ND	12.7	6.7		ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND		<1
				07-02-86	DER	350.0	ND	27.0	ND	9.0	ND	ND	3.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.5
16	128 N. Main St.	Fluck, Ron and Barbara	165	12-5-95	NS																				
				09-06-95	QC	227.0	ND									ND									
				09-06-95	QC D	228.0	ND									ND									
				06-24-95	NS																				
				03-23-95	NS																				
				12-05-94	QC	170.0	ND									ND									<0.5
				09-14-94	QC	147.0	ND	2.0								ND									<0.5
				06-13-94	QC	270.0	ND	2.6								ND									<0.5
				03-16-94	QC	185.0	ND	4.8								ND									<0.5
				12-16-93	QC	320.0	ND	5.7								ND									<0.5
				12-16-93	QC D	310.0	ND	7.1								ND									<0.5
				09-16-93	QC	370.0	ND	5.9								ND									<0.5

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Footnotes can be found at the end of this table

Table 8-17. Summary of the Results of the Supply Well Sampling and Analysis Program Conducted by Thompson and Others, June 1986 through December 1995, Dublin NPL Site, Dublin, Pennsylvania.

Reference Number	Address	Name	Well Depth (ft)	Sample Date	Lab	TCE	PCE	1,1,1-TCA	trans 1,2-DCE	1,2-DCE	1,1-DCA	1,2-DCA	1,1-DCE	Chloroform	Toluene	Vinyl chloride	Methylene chloride	1,2-Dichloropropane	trans-1,3-Dichloropropene	cis-1,3-Dichloropropene	Bromodichloromethane	Dibromochloromethane	Bromoform	Benzene	Quantitation Limit (ug/L)
				06-23-93	QC	400.0	ND	5.8								ND									<0.5
				03-23-93	QC	430.0	ND	ND								ND									<0.5
				03-23-93	QC D	450.0	ND	ND								ND									<0.5
				12-08-92	QC D	400.0	ND	ND								ND									<0.5
				12-08-92	QC	400.0	ND	ND								ND									<0.5
				09-16-92	QC	420.0	ND									ND									<0.5
				09-16-92	QC D	1700.0	ND	ND								ND									<0.5
				06-09-92	QC	450.0	ND	6.7								ND									<0.5
				03-10-92	QC	590.0	ND	ND								ND									<0.5
				12-20-91	QC	556.0	1.6	87.0								ND									<5
				09-10-91	QC	457.0	ND	ND								ND									<5 (4
				06-07-91	QC	389.0	ND	ND								ND									<5 (2
				03-04-91	BCM	706.0	ND									ND									<10
				12-03-90	BCM	478.0	ND									ND									<10
				09-04-90	BCM	492.0	ND									ND									<5
				06-06-90	BCM	508.0	ND									ND									<1
				03-05-90	BCM	821.0	ND									ND									<10
				01-16-90	BCM	534.0	ND									ND									NA
				12-06-89	BCM	651.0	ND									ND									<1
				11-20-89	BCM	202.0	ND									ND									NA
				10-26-89	BCM	222.0	ND									ND									NA
				09-06-89	BCM	356.0	ND									ND									<1
			**	08-10-89	BCM	252.0	ND									ND									NA
			**	07-21-89	BCM	ND	ND									ND									<1
				06-23-89	BCM	219.0	ND									ND									<1
			**	05-16-89	BCM	446.0	ND									ND									NA
			**	04-25-89	BCM	420.0	ND									ND									NA
				03-06-89	BCM	352.0	3.1									ND									<1
				02-23-89	BCM	367.0	ND									ND									NA
				01-26-89	BCM	329.0	ND									ND									NA
				12-06-88	BCM	373.0	ND									ND									<1
				10-18-88	BCM	240.0	ND									ND									NA
				09-07-88	BCM	308.0	ND									ND									<1
			**	08-17-88	BCM	244.0	ND									ND									NA
			**	07-07-88	BCM	293.0	ND									16.2									NA
			**	07-07-88	BCM D	331.0	ND									ND									NA
				06-06-88	BCM	390.0	ND									ND									<1
				03-01-88	BCM	486.0	ND									ND									<1
				12-01-87	BCM	217.0	ND	2.7	10.6		ND	ND	ND	ND		ND	13.6	ND	ND	ND	ND	ND	ND		<1
				12-02-86	BCM	1.6	ND	ND	ND		ND	ND	ND	ND		ND	1.3	ND	ND	ND	ND	ND	ND		<1

Footnotes can be found at the end of this table

AR301423

Table 8-17. Summary of the Results of the Supply Well Sampling and Analysis Program Conducted by Thompson and Others, June 1986 through December 1995, Dublin NPL Site, Dublin, Pennsylvania

Reference Number	Address	Name	Well Depth (ft)	Sample Date	Lab	TCE	PCE	1,1,1-TCA	trans 1,2-DCE	1,2-DCE	1,1-DCA	1,2-DCA	1,1-DCE	Chloroform	Toluene	Vinyl chloride	Methylene chloride	1,2-Dichloropropane	trans-1,3-Dichloropropene	cis-1,3-Dichloropropene	Bromodichloromethane	Dibromochloromethane	Bromoform	Benzene	Quantitation Limit (ug/L)
				** 07-15-86	QC	237.0	ND	ND																	NA
17	130 N. Main St.	Moyer, Wilmer (Home) (A)	140	(A 12-06-95	QC	30.0	ND									ND									<0.5 [1]
		Moyer-Auto Body (B)		(B 12-06-95	QC	30.0	ND									ND									<0.5 [1]
		(Both sample ports are supplied		(A 06-06-95	QC	30.0	ND									ND									<0.5
		by the same well.)		(B 06-06-95	QC	30.0	ND	ND								ND									<0.5
				(A 12-05-94	QC	27.0	ND									ND									<0.5
				(B 12-05-94	QC	27.0	ND									ND									<0.5
				(B 06-13-94	QC	23.0	ND	ND								ND									<0.5
				(B 12-14-93	QC	32.0	ND	ND								ND									<0.5
				(B 06-23-93	QC	32.0	ND	ND								ND									<0.5
				(B 12-08-92	QC	38.0	ND	ND								ND									<0.5
				(B 06-10-92	QC	39.0	ND									ND									<0.5
				(A 12-03-91	QC	45.0	2.0									ND									<0.5
				(B 12-03-91	QC	45.0	1.4									ND									<0.5
				(A 06-06-91	QC	28.0	ND									ND									<5 [2]
				(B 06-06-91	QC	31.0	ND									ND									<5 [2]
				(A 12-03-90	NS																				
				(B 12-03-90	BCM	46.2	ND									ND									<1
				(A 06-04-90	NS																				
				(B 06-04-90	BCM	40.8	ND									ND									<1
				(A 03-05-90	BCM	37.9	ND									ND									<1
				(B 03-05-90	BCM	37.5	ND									ND									<1
				(A 01-16-90	BCM	40.8	ND									ND									NA
				(B 12-04-89	BCM	46.9	ND									ND									NA
				(A 09-05-89	BCM	NA	NA																		<1
				(B 09-05-89	BCM	54.0	ND									ND									<1
				(A 06-01-89	BCM	35.3	ND									ND									<1
				(B 06-01-89	BCM	44.5	ND									ND									<1
				(B 03-07-89	BCM	47.5	ND									ND									<1
				(A 12-05-88	BCM	43.8	ND									ND									<1
				(B 12-05-88	BCM	45.3	ND									ND									<1
				(A 09-07-88	BCM	NA	NA									NA									
				(B 09-07-88	BCM	60.3	ND									ND									<1
				(A 06-06-88	BCM	NA	NA									NA									
				(B 06-06-88	BCM	41.3	ND									ND									<1
				(A 03-01-88	BCM	45.7	ND									ND									<1
				(B 03-02-88	BCM	NA	NA									NA									
				(A 12-01-87	BCM	NA	NA									NA									
				(B 12-01-87	NS																				

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Footnotes can be found at the end of this table

Table 8-17. Summary of the Results of the Supply Well Sampling and Analysis Program Conducted by Thompson and Others, June 1986 through December 1995, Dublin NPL Site, Dublin, Pennsylvania

Reference Number	Address	Name	Well Depth (ft)	Sample Date	Lab	TCE	PCE	1,1,1 TCA	trans 1,2-DCE	1,2-DCE	1,1-DCA	1,2-DCA	1,1-DCE	Chloroform	Toluene	Vinyl chloride	Methylene chloride	1,2-Dichloropropane	trans-1,3-Dichloropropene	cis-1,3-Dichloropropene	Bromodichloromethane	Dibromochloromethane	Bromoform	Benzene	Quantitation Limit (ug/L)
				(A 11-30-87	NS																				
				(B 11-30-87	BCM	47.6	ND									ND									< 1
				(A 11-26-86	NS																				
				(B 11-26-86	BCM	55.1	ND									NA									< 1
				(A 06-23-86	NS																				
				(B 06-23-86	QC	ND	ND																		NA
18	133 N. Main St.	Jacobs Auto Supplies	NA	12-05-95	QC	14.0	ND	16.0								ND									< 0.5
				12-05-95	QC D	14.0	ND									ND									< 0.5
				06-06-95	QC	18.0	ND	16.0								ND									< 0.5
				12-05-94	QC	16.0	ND									ND									< 0.5
				06-13-94	QC	8.9	ND	18.0								ND									< 0.5
				12-13-93	QC	10.0	ND	16.0								ND									< 0.5
				06-22-93	QC	17.0	ND	19.0								ND									< 0.5
				12-07-92	QC	11.0	ND	18.0								ND									< 0.5
				06-09-92	QC	14.0	ND	22.0								ND									< 0.5
				12-03-91	QC	7.0	ND	11.0								ND									< 0.5
				06-06-91	QC	9.6	ND	11.0								ND									< 5 (2
				12-03-90	BCM	14.6	ND									ND									< 1
				06-04-90	BCM	128.0	ND									ND									< 1
				03-05-90	BCM	139.0	ND									ND									< 1
				12-04-89	BCM	121.0	ND									ND									< 1
				09-06-89	BCM	18.8	ND									ND									< 1
				06-01-89	BCM	22.7	ND									ND									< 1
				03-06-89	BCM	12.8	ND									ND									< 1
				12-05-88	BCM	12.1	ND									16.8									< 1
				09-07-88	BCM	16.7	ND									ND									< 1
				06-07-88	BCM	36.2	ND									ND									< 1
				02-29-88	BCM	174.0	ND									ND									< 1
				11-30-87	BCM	142.0	ND	4.2	10.5		ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND		< 1
				12-02-86	BCM	14.5	ND	29.3	ND		ND	ND	ND	ND		ND	1.7	10.3	ND	ND	ND	ND	ND		< 1
19	133 N. Main St.	McVaugh's Family Diner	200	12-05-95	QC	41.0	ND	1.9								ND									< 0.5 (1
				09-07-95	NS											ND									
				06-06-95	QC	51.0	ND	1.7								ND									< 0.5
				12-05-94	QC	35.0	ND									ND									< 0.5
				06-13-94	QC	44.0	ND	1.1								ND									< 0.5
				12-13-93	QC	76.0	ND	1.8								ND									< 0.5
				06-22-93	QC	78.0	ND	2.6								ND									< 0.5
				12-15-92	QC	160.0	ND	1.8								ND									< 0.5

Footnotes can be found at the end of this table

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Table 8 17 Summary of the Results of the Supply Well Sampling and Analysis Program Conducted by Thompson and Others, June 1986 through December 1995, Dublin NPL Site, Dublin, Pennsylvania.

Reference Number	Address	Name	Well Depth (ft)	Sample Date	Lab	TCE	PCE	1,1,1-TCA	trans 1,2-DCE	1,2-DCE	1,1-DCA	1,2-DCA	1,1-DCE	Chloroform	Toluene	Vinyl chloride	Methylene chloride	1,2-Dichloropropane	trans-1,3-Dichloropropene	cis-1,3-Dichloropropene	Bromodichloromethane	Dibromochloromethane	Bromoform	Benzene	Quantitation Limit (ug/L)
				06-09-92	QC	170 0	ND	4 7								ND									< 0 5
				12-03-91	QC	77 0	ND	ND								ND									< 2 5
				06-07-91	QC	168 0	ND	ND								ND									< 5 (2
				12-03-90	BCM	330 0	ND									ND									< 1
				06-04-90	BCM	66 5	ND									ND									< 1
				03 05 90	BCM	143 0	ND									ND									< 1
				12-04-89	BCM	168 0	ND									ND									< 1
				09-06 89	BCM	93 2	ND									ND									< 1
				06-01-89	BCM	ND	ND									ND									< 1
				03-06-89	BCM	115 0	ND									ND									< 5
				12-06-88	BCM	ND	ND									ND									< 1
				09-07-88	BCM D	ND																			< 1
				09-07-88	BCM	ND	ND									ND									< 1
				06-06-88	BCM	345 0	ND									ND									< 1
				03 01-88	BCM	96 2	ND									ND									< 1
				11-30-87	BCM	ND	ND	ND	1 5		ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	< 1
				11-26-86	BCM	64 6	ND	ND	1 9		ND	ND	ND	ND		ND	1 1	ND	ND	ND	ND	ND	ND	ND	< 1
				06-26-86	QC	58 9		2 3																	< 0 5
20	131 N Main St	Dublin Post Office	NA	12-05-95	QC	14 0	ND	17 0								ND									< 0 5
				06-06-95	QC	19 0	ND	16 0								ND									< 0 5
				12-05-94	QC	25 0	ND									ND									< 0 5
				06-13-94	QC	7 0	ND	14 0								ND									< 0 5
				12-13-93	QC	9 9	ND	17 0								ND									< 0 5
				06 22 93	QC	14 0	ND	16 0								ND									< 0 5
				12 07-92	QC D	10 0	ND	16 0								ND									< 0 5
				06-09 92	QC D	NA	NA	ND								NA									
				06-09 92	QC	14 0	ND	19 0								ND									< 0 5
				12 03-91	QC	ND	ND	ND								ND									< 0 5
				06 06-91	QC	13 0	ND	8 0								ND									< 5 (
				06 04 90	BCM D	160 0	ND									1 1									< 1
				06 04-90	BCM	154 0	ND									3 9									< 1
				03 05-90	BCM	123 0	ND									ND									< 1
				01 16 90	BCM	94 7	ND									ND									NA
				12-04 89	BCM	111 0	ND									ND									< 1
				09 05 89	BCM	10 6	ND									ND									1
				06 01 89	BCM	22 6	ND									ND									1
				03 06 89	BCM	13 2	ND									ND									< 1
				12-05 88	BCM	10 4	ND									16 5									< 1
				09-06-88	BCM	38 5	ND									ND									< 1

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Footnotes can be found at the end of this table

Table 8-17. Summary of the Results of the Supply Well Sampling and Analysis Program Conducted by Thompson and Others, June 1986 through December 1995, Dublin NPL Site, Dublin, Pennsylvania

Reference Number	Address	Name	Well Depth (ft)	Sample Date	Lab	TCE	PCE	1,1,1-TCA	trans 1,2-DCE	1,2-DCE	1,1-DCA	1,2-DCA	1,1-DCE	Chloroform	Toluene	Vinyl chloride	Methylene chloride	1,2-Dichloropropane	trans-1,3-Dichloropropene	cis-1,3-Dichloropropene	Bromodichloromethane	Dibromochloromethane	Bromoform	Benzene	Quantitation Limit (ug/L)
				06-06-88	BCM	34 4	ND									ND									< 1
				02-29-88	BCM	245 0	ND									ND									< 10
				11-30-87	BCM	73 5	ND	2 0	6 6		ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND		< 1
				12-02-86	BCM	33 7	ND	27 9	ND	9 1	ND	ND	ND	4 0		ND	ND	ND	ND	ND	ND	ND	ND		< 1
21	138 N. Main St	Moyer Flower Shop	250	12-06-95	QC	40 0	ND	1 3								ND									< 0 5 [1]
				06-06-95	QC	38 0	ND	1 2								ND									< 0 5
				12-05-94	QC	26 0	ND									ND									< 0 5
				06-14-94	QC	37 0	ND	ND								ND									< 0 5
				12-13-93	NS																				
				06-23-93	QC	50 0	ND	1 2								ND									< 0 5
				12-15-92	QC	27 0	ND	0 7								ND									< 0 5
				06-10-92	QC	27 0	ND	1 3								ND									< 0 5
				12-03-91	QC	143 0	6 3	7 8								ND									< 0 5
				06-06-91	QC	48 0	ND	ND								ND									< 5 [1]
				12-03-90	BCM	42 9	ND									ND									< 1
				06-04-90	BCM	61 2	ND									ND									< 1
				03-05-90	BCM	59 2	ND									ND									< 1
				12-05-89	BCM	58 9	ND									ND									< 1
				09-06-89	BCM	29 3	ND									ND									< 1
				06-02-89	BCM	ND	ND									ND									< 1
				03-07-89	BCM	ND	ND									ND									< 1
				12-06-88	BCM	48 4	ND									ND									< 1
				09-07-88	BCM	41 4	ND									ND									< 1
				06-06-88	BCM	54 6	ND									ND									< 1
				06 06 88	BCM D	52 7	ND									ND									< 1
				02 29 88	BCM	28 4	ND									ND									< 1
				11-30-87	BCM	258 0	ND	ND	5 0		ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND		< 1
				11-26-86	BCM	85 2	ND	ND	2 5		ND	ND	ND	ND		ND	2 4	ND	ND	ND	ND	ND	ND		< 1
				08-04-86	DER	50 0	ND	ND	ND	1 7	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	< 0 5
22	139 N. Main St.	Dublin Service Station	270	12 05 95	QC	9 4	ND									ND									
				06 06 95	QC	4 1	ND									ND									< 0 5
				12 05 94	QC	11 0	0 8									ND									< 0 5
				06-13-94	QC D	ND	ND	ND								ND									< 0 5
				06 13 94	QC	0 7	ND	ND								ND									< 0 5
				12-13-93	QC	12 0	ND	ND								ND									< 0 5
				06 22 93	QC	7 9	ND	ND								ND									< 0 5
				12-07 92	QC D	2 6	ND	ND								ND									< 0 5
				12-07-92	QC	2 6	ND	ND								ND									< 0 5

Footnotes can be [illegible] at the end of this table

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Table 8-17 Summary of the Results of the Supply Well Sampling and Analysis Program Conducted by Thompson and Others, June 1986 through December 1995, Dublin NPL Site, Dublin, Pennsylvania.

Reference Number	Address	Name	Well Depth (ft)	Sample Date	Lab	TCE	PCE	1,1,1-TCA	trans 1,2-DCE	cis 1,2-DCE	1,1-DCA	1,2 DCA	1,1-DCE	Chloroform	Toluene	Vinyl chloride	Methylene chloride	1,2-Dichloropropane	trans-1,3-Dichloropropene	cis-1,3-Dichloropropene	Bromodichloromethane	Dibromochloromethane	Bromoform	Benzene	Quantitation Limit (ug/L)
				06-09-92	QC	2.8	ND	ND								ND									<0.5
				12-09-91	QC	5.0	ND	ND								ND									<0.5
				06-06-91	QC	1.7	ND	ND								ND									<0.5 (5)
				12-03-90	BCM	ND	ND									ND									<1
				06-04-90	BCM	2.1	ND									ND									<1
				03-05-90	BCM	ND	ND									ND									<5
				12-05-89	BCM	2.9	ND									ND									<1
				09-05-89	BCM	2.0	ND									ND									<1
				06-01-89	BCM	2.0	ND									ND									<5
				03-06-89	BCM	5.0	ND									ND									<1
				12-05-88	BCM	10.8	ND									ND									<1
				09-06-88	BCM D	15.7	1.1									ND									<1
				06-06-88	BCM	3.0	ND									ND									<1
				02-29-88	BCM	5.1	ND									ND									<1
				12-21-87	BCM D	ND	ND									ND									NA
				12-21-87	BCM	4.1	ND	ND	ND		ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND		<1
				11-26-86	BCM	8.3	ND	ND	ND		ND	ND	ND	ND		ND	1.7	ND	ND	ND	ND	ND	ND		<1
				08-04-86	BCM	17.0	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND		<0.5
23	142 N Main St	First Federal Savings & Loan	170	12-05-95	QC	2.3	ND	2.1								ND									<0.5
				06-06-95	QC	1.8	ND	1.7								ND									<0.5
				12-05-94	QC	1.1	ND									ND									<0.5
				06-13-94	QC	ND	ND	1.0								ND									<0.5
				12-13-93	QC	0.9	ND	1.8								ND									<0.5
				06-22-93	QC	1.0	ND	1.8								ND									<0.5
				12-07-92	QC	ND	ND	ND								ND									<0.5
				06-10-92	QC	ND	ND	ND								ND									<0.5
				12-03-91	QC	1.4	ND	1.0								ND									<0.5
				06-06-91	QC	5.9	ND	ND								ND									<0.5 (5)
				12-03-90	BCM	ND	ND									ND									<1
				06-04-90	BCM	ND	ND									ND									<1
				03-05-90	BCM	ND	ND									ND									<1
				12-05-89	BCM	ND	ND									ND									<1
				09-05-89	BCM	ND	ND									ND									<1
				06-01-89	BCM	ND	ND									ND									<1
				03-06-89	BCM	5.3	1.6									ND									<1
				12-05-88	BCM	ND	ND									ND									<1
				09-06-88	BCM	ND	ND									ND									<1
				06-06-88	BCM	2.3	ND									ND									<1
				02-29-88	BCM	ND	ND									ND									<1

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Footnotes can be found at the end of this table

Table 8-17. Summary of the Results of the Supply Well Sampling and Analysis Program Conducted by Thompson and Others, June 1986 through December 1995, Dublin NPL Site, Dublin, Pennsylvania

Reference Number	Address	Name	Well Depth (ft)	Sample Date	Lab	TCE	PCE	1,1,1-TCA	trans 1,2-DCE	1,2-DCE	1,1-DCA	1,2-DCA	1,1-DCE	Chloroform	Toluene	Vinyl chloride	Methylene chloride	1,2-Dichloropropane	trans 1,3-Dichloropropene	cis-1,3-Dichloropropene	Bromodichloromethane	Dibromochloromethane	Bromoform	Benzene	Quantitation Limit (ug/L)
				11-30-87	BCM	ND	ND	2.0	ND		ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND		<1
				12-02-86	BCM	64.5	ND	ND	ND		ND	ND	ND	ND		ND	1.3	ND	ND	ND	ND	ND	ND		<1
				07-02-86	DER	1.0	ND	1.0	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	<0.5
14	145 N. Main St.	Bucks County Bank & Trust Co	NA	12-05-95	QC	236.0	ND	1.8								ND									<0.5 (B)
				09-06-95	QC	262.0	ND									ND									<0.5
				06-06-95	QC	370.0	ND	1.9								ND									<0.5
				03-06-95	QC	162.0	ND	2.5								ND									<0.5
				12-05-94	QC	183.0	ND									ND									<0.5
				09-23-94	QC	225.0	ND	1.3								ND									<0.5
				09-23-94	QC D	250.0	ND	1.9								ND									<0.5
				06-13-94	QC	240.0	ND	1.8								ND									<0.5
				03-14-94	QC	280.0	ND	4.0								ND									<0.5
				12-13-93	QC	220.0	ND	3.1								ND									<0.5
				09-14-93	QC	270.0	ND	2.4								ND									<0.5
				09-14-93	QC D	290.0	ND	ND								ND									<0.5
				06-22-93	QC	290.0	ND	3.5								ND									<0.5
				03-23-93	QC	300.0	ND	2.9								ND									<0.5
				12-07-92	QC	230.0	ND	2.0								ND									<0.5
				09-15-92	QC	270.0	ND	ND								ND									<0.5
				06-09-92	QC	300.0	ND	ND								ND									<0.5
				03-09-92	QC	270.0	ND	ND								ND									<0.5
				12-03-91	QC	163.0	ND	ND								ND									<2.5
				09-10-91	QC	281.0	ND	ND								ND									<5 (J)
				06-06-91	QC	240.0	ND	ND								ND									<5 (J)
				03-04-91	BCM	285.0	ND									ND									<5
				12-04-90	BCM	251.0	ND									ND									<1
				12-03-90	BCM	ND	ND									ND									<1
				09-04-90	BCM	336.0	ND									ND									<5
				06-04-90	BCM D	343.0	ND									ND									<5
				06-04-90	BCM	311.0	ND									ND									
				03-05-90	BCM D	259.0	ND									ND									<5
				03-05-90	BCM	234.0	ND									ND									<5
				12-05-89	BCM	358.0	ND									ND									<1
				09-05-89	BCM	289.0	ND									ND									<10 (J)
				06-01-89	BCM	288.0	ND									ND									<1
				03-06-89	BCM	271.0	ND									ND									<1
				12-05-88	BCM	278.0	ND									ND									<1
				09-06-88	BCM	255.0	ND									ND									<1
				06-06-88	BCM	416.0	ND									ND									<1

Footnotes can be found at the end of this table

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Table 8-17. Summary of the Results of the Supply Well Sampling and Analysis Program Conducted by Thompson and Others, June 1986 through December 1995, Dublin NPL Site, Dublin, Pennsylvania.

Reference Number	Address	Name	Well Depth (ft)	Sample Date	Lab		TCE	PCE	1,1,1-TCA	trans 1,2-DCE	1,2-DCE	1,1-DCA	1,2-DCA	1,1-DCE	Chloroform	Toluene	Vinyl chloride	Methylene chloride	1,2-Dichloropropane	trans-1,3-Dichloropropene	cis-1,3-Dichloropropene	Bromodichloromethane	Dibromochloromethane	Bromoform	Benzene	Quantitation Limit (ug/L)
				02-29-88	BCM		406.0	ND									ND									<10
				12-01-87	BCM		398.0	ND	3.3	7.4		ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND		<1
				11-26-86	BCM		222.0	ND	2.6	5.9		ND	ND	ND	1.6		ND	ND	ND	ND	ND	ND	ND	ND		<1
				06-26-86	QC		242.0	ND	8.8																	<0.5
25	146 N. Main St.	Whistlewood Commons Apts.	370	12-05-95	QC		373.0	ND	3.2								ND									<0.5
				09-07-95	QC		503.0	ND									ND									<0.5
				06-07-95	QC		361.0	ND	3.4								ND									<0.5
				06-07-95	QC	D	302.0	ND									ND									<0.5
				03-16-95	QC		235.0	ND	4.9								ND									<0.5
				03-06-95	QC		235.0	ND									ND									<0.5
				03-06-95	QC	D	279.0	ND									ND									<0.5
				12-06-94	QC		284.0	ND									ND									<0.5
				09-14-94	QC		247.0	ND	2.8								ND									<0.5
				06-14-94	QC		270.0	ND	3.4								ND									<0.5
				12-14-93	QC		360.0	ND	3.2								ND									<0.5
				09-14-93	QC		550.0	ND	7.1								ND									<0.5
				06-30-93	QC		460.0	ND	5.4								ND									<0.5
				03-30-93	QC		NS																			
				12-15-92	QC		NS																			
				09-16-92	QC		300.0	ND	4.6								ND									<0.5
				06-10-92	QC		270.0	ND	ND								ND									<0.5
				03-09-92	QC		440.0	ND	ND								ND									<0.5
				03-09-92	QC	D	290.0	ND	ND								ND									<0.5
				12-03-91	QC		368.0	ND	ND								ND									<5
				09-10-91	QC		397.0	ND	ND								ND									<5
				06-07-91	QC		133.0	ND	ND								ND									<5
				03-04-91	BCM		487.0	ND									ND									<5
				12-03-90	BCM		412.0	ND									ND									<10
				09-04-90	BCM		313.0	ND									ND									<1
				06-04-90	BCM		592.0	ND									ND									<1
				03-05-90	BCM		249.0	ND									ND									<1
				12-05-89	BCM		506.0	ND									ND									<1
				09-06-89	BCM		198.0	ND									ND									<10
				06-02-89	BCM		212.0	ND									ND									<1
				03-07-89	BCM		262.0	ND									ND									<1
				12-05-88	BCM		266.0	ND									ND									<1
				09-06-88	BCM		76.6	ND									ND									<1
				06-07-88	BCM		342.0	ND									ND									<1
			**	05-19-88	LAN		530.0	ND	ND	ND		ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	NA

Footnotes can be found at the end of this table.

AR301430

Table 8-17. Summary of the Results of the Supply Well Sampling and Analysis Program Conducted by Thompson and Others, June 1986 through December 1995, Dublin NPL Site, Dublin, Pennsylvania.

Reference Number	Address	Name	Well Depth (ft)	Sample Date	Lab		TCE	PCE	1,1,1-TCA	trans 1,2-DCE	1,2-DCE	1,1-DCA	1,2-DCA	1,1-DCE	Chloroform	Toluene	Vinyl chloride	Methylene chloride	1,2-Dichloropropane	trans-1,3-Dichloropropene	cis-1,3-Dichloropropene	Bromodichloromethane	Dibromochloromethane	Bromoform	Benzene	Quantitation Limit (ug/L)
				02-29-88	BCM		379.0	ND	NA								ND									<10
				12-22-87	BCM		306.0	ND	ND	11.6	ND	ND	ND	ND	ND		1.8	ND	ND	ND	ND	ND	ND	ND		<1
				04-15-87	QC		400.0	ND	ND																	NA
				03-18-87	QC		357.0	ND	0.8																	NA
				02-18-87	QC		404.0	ND	57.7																	NA
				01-21-87	QC		839.0	ND	2.8																	NA
				12-17-86	QC		2318.0	0.7	3.4																	NA
				11-26-86	BCM		11.9	ND	ND	ND	ND	ND	ND	ND	ND			1.3	ND	ND	ND	ND	ND	ND		<1
				11-19-86	QC		116.0	6.3	145.0																	NA
				10-15-86	QC		765.0	ND	ND																	NA
				10-08-86	QC		641.0	ND	7.8																	NA
				10-01-86	QC		609.0	ND	2.2																	NA
				09-24-86	QC		540.0	ND	10.7																	NA
				09-17-86	QC		478.0	ND	1.0																	NA
				09-16-86	QC		ND	ND	ND																	NA
				09-15-86	QC		ND	ND	ND																	NA
				09-12-86	QC		ND	ND	ND																	NA
				09-11-86	QC		109.0	ND	0.9																	NA
				06-25-86	QC		275.0	ND	ND																	NA
				06-18-86	QC		359.0	ND	ND																	NA
			**	06-17-86	DER		500.0	ND	ND																	NA
			**	06-11-86	DER		420.0	ND	3.0																	NA
26	149 N. Main St.	Grady, Francis E. (UNOCCUPIED)	165	12-07-95	QC		80.0	ND	0.5								ND									<0.5
				12-07-95	QC	D	77.0	ND									ND									
				06-08-95	QC		99.0	ND	0.8								ND									
				12-08-94	QC		72.0	ND																		
				12-08-94	QC	D	71.0	ND																		
				06-13-94	NS																					
				12-13-93	NS																					
				06-22-93	NS																					
				12-07-92	NS																					
				06-08-92	NS																					
				12-09-91	QC		92.0	3.1	10.0								ND									<2.5
				06-07-91	QC		89.0	ND	ND								ND									<0.5
				12-03-90	NS																					
				06-04-90	BCM		131.0	ND									ND									<5
				03-08-90	BCM		104.0	ND									ND									<1
				12-06-89	NS																					
				09-06-89	NS																					

Footnotes can be found at the end of this table.

AR301431

Table B 17 Summary of the Results of the Supply Well Sampling and Analysis Program Conducted by Thompson and Others, *June 1986 through December 1995, Dublin NPL Site, Dublin, Pennsylvania*

Reference Number	Address	Name	Well Depth (ft)	Sample Date	Lab	TCE	PCE	1,1,1-TCA	trans 1,2-DCE	1,2-DCE	1,1-DCA	1,2-DCA	1,1-DCE	Chloroform	Toluene	Vinyl chloride	Methylene chloride	1,2 Dichloropropane	trans 1,3-Dichloropropene	cis 1,3-Dichloropropene	Bromodichloromethane	Dibromochloromethane	Bromoform	Benzene	Quantitation Limit (ug/L)
				06-01-89	NS																				
				03-06-89	BCM	96 0	9 6									ND									< 5
				12-06-88	BCM	66.7	ND									ND									< 1
				09-06-88	BCM	129 0	ND									ND									< 1
				06-07-88	BCM	131 0	ND									ND									< 1
				03-01-88	BCM	127 0	ND									ND									< 1
				12-01-87	BCM	83 8	ND	1 5	5 2		1 7	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND		< 1
				11-26-86	BCM	ND	ND	ND	ND		ND	ND	ND	ND		ND	1 5	ND	ND	ND	ND	ND	ND		< 1
			**	07-15-86	QC	105 0	ND	ND																	NA
17	153 N Main St	Myrick, Lloyd and Faye E	90	12-07-95	QC	9 9	ND									ND									< 0 5
				06-07-95	QC	23 0	ND	ND								ND									< 0 5
				12-09-94	NS																				
				06-14-94	QC	12 0	ND	ND								ND									< 0 5
				12-28-93	QC	19 0	ND	ND								ND									< 0 5
				06-22-93	QC	21 0	ND	ND								ND									< 0 5
				12-07-92	QC	24 0	ND	ND								ND									< 0 5
				06-11-92	QC	23 0	ND	ND								ND									< 0 5
				12-03-91	NS																				
				06-06-91	QC	17 0	ND	ND								ND									< 5 0
				12-03-90	BCM	45 0	ND									ND									< 1
				06-04-90	BCM	29 9	ND									ND									< 1
				03-08-90	BCM D	35 2	ND									ND									< 1
				03-08-90	BCM	39 2	ND									ND									< 1
				12-05-89	BCM	47 6	ND									ND									< 1
				09-06-89	BCM	30 9	ND									ND									< 1
				06-02-89	BCM	14 3	ND									7 3									< 1
			**	03-07-89	BCM	36 7	ND									ND									NA
				12-06-88	BCM	2 8	ND									ND									< 1
				09-07-88	BCM	44 6	ND									ND									< 1
				06-06-88	BCM	35 4	ND									ND									< 1
				03-01-88	BCM	48 4	ND									ND									< 1
				11-30-87	BCM	19 6	ND	ND	1 9		ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND		< 1
				12-02-86	BCM	62 4	ND	ND	1 8		ND	ND	ND	ND		ND	1 3	ND	ND	ND	ND	ND	ND		< 1
			**	07-15-86	PL		ND	ND																	NA
18	161 N Main St	Dublin Village Plaza	NA	12-07-95	QC	20 0	ND									ND									< 0 5
				06-08-95	QC	28 0	ND									ND									< 0 5
				06-08-95	QC D	31 0	ND									ND									< 0 5
				12-06-94	QC	76 0	ND									ND									< 0 5

Footnotes can be found at the end of this table

AR301432

Table 8-17. Summary of the Results of the Supply Well Sampling and Analysis Program Conducted by Thompson and Others, June 1986 through December 1995, Dublin NPL Site, Dublin, Pennsylvania

Reference Number	Address	Name	Well Depth (ft)	Sample Date	Lab	TCE	PCE	1,1,1-TCA	trans 1,2-DCE	1,2-DCE	1,1-DCA	1,2-DCA	1,1-DCE	Chloroform	Toluene	Vinyl chloride	Methylene chloride	1,2-Dichloropropane	trans-1,3-Dichloropropene	cis 1,3-Dichloropropene	Bromodichloromethane	Dibromochloromethane	Bromoform	Benzene	Quantitation Limit (ug/L)
				12-06-94	QC D	28.0	ND									ND									<0.5
				06-14-94	QC	22.0	ND	ND								ND									<0.5
				12-13-93	QC	22.0	ND	ND								ND									<0.5
				12-13-93	QC D	23.0	ND	ND								ND									<0.5
				06-22-93	QC	32.0	ND	ND								ND									<0.5
				12-07-92	QC	24.0	ND	ND								ND									<0.5
				06-08-92	QC	35.0	ND	ND								ND									<0.5
				12-03-91	QC D	ND	ND	ND								ND									<0.5
				12-03-91	QC	ND	ND	ND								ND									<0.5
				06-07-91	QC	20.0	ND	ND								ND									<5 (2)
				12-03-90	BCM	23.3	ND									ND									<1
				06-05-90	BCM	ND	ND									ND									<1
				03-05-90	BCM	18.8	ND									ND									<1
				12-06-89	BCM	ND	ND									ND									<1
				12-06-89	BCM D	ND	ND									ND									<1
				09-06-89	BCM	21.3	ND									ND									NA
				06-01-89	BCM	19.1	ND									ND									<1
				03-06-89	BCM	16.8	ND									ND									<1
				12-06-88	BCM	15.3	ND									ND									<1
				09-06-88	BCM	16.6	ND									ND									<1
				06-06-88	BCM	24.1	ND									ND									<1
				03-01-88	BCM	12.9	ND									ND									<3
				11-30-87	BCM	5.9	ND	ND	ND		ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND		<1
				12-02-86	BCM	62.4	ND	ND	ND		ND	ND	ND	ND		ND	1.3	ND	ND	ND	ND	ND	ND		<1
				07-02-86	QC	ND	ND	ND																	<0.5
59	169 N. Main St.	Luberto Pizza	NA	12-05-95	NS																				
		(formerly 7-Eleven)	NA	06-07-95	QC	2.3	ND									ND									<0.5
				03-24-95	QC	2.1	ND	ND								ND									<0.5
				03-24-95	QC D	2.7	ND									ND									<0.5
				12-06-94	NS																				
				06-13-94	NS																				
				12-13-93	NS																				
				06-22-93	NS																				
				12-07-92	QC	2.5	ND	ND								ND									<0.5
				06-09-92	QC	4.3	ND	ND								ND									<0.5
				12-20-91	QC	37	1.3	ND								ND									<0.5
				06-06-91	QC	16.0	ND	ND								ND									<5 (2)
				12-03-90	BCM	3.1	ND									ND									<1
				06-04-90	BCM	3.6	ND									ND									<1

Footnotes can be found at the end of this table

AR301433

Table 8-17 Summary of the Results of the Supply Well Sampling and Analysis Program Conducted by Thompson and Others, June 1986 through December 1995, Dublin NPL Site, Dublin, Pennsylvania

Reference Number	Address	Name	Well Depth (ft)	Sample Date	Lab	TCE	PCE	1,1,1-TCA	trans 1,2-DCE	1,2-DCE	1,1-DCA	1,2-DCA	1,1-DCE	Chloroform	Toluene	Vinyl chloride	Methylene chloride	1,2-Dichloropropane	trans-1,3-Dichloropropene	cis 1,3-Dichloropropene	Bromodichloromethane	Dibromochloromethane	Bromoform	Benzene	Quantitation Limit (ug/L)
				12-04-89	BCM	3.3	ND									ND									< 1
				06-01-89	BCM	2.4	ND									ND									< 1
				12-05-88	BCM	3.0	ND									ND									< 1
				06-06-88	BCM	4.3	ND									ND									< 1
				12-01-87	BCM	2.8	ND	ND	ND		ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND		< 1
				12-02-86	BCM	3.8	ND	ND	ND		ND	ND	ND	5.8		ND	ND	ND	ND	ND	ND	ND	ND		< 1
10	170 N. Main St	Bunting (Tenant)	450	12-06-95	QC	ND	ND									ND									< 0.5
				06-07-95	QC	2.3	ND	ND								ND									< 0.5
				12-06-94	QC	1.5	ND									ND									< 0.5
				06-14-94	QC	1.0	ND	ND								ND									< 0.5
				12-13-93	QC	2.0	ND	ND								ND									< 0.5
				06-22-93	QC	2.7	ND									ND									< 0.5
				12-07-92	QC	1.6	ND	ND								ND									< 0.5
				06-30-92	QC	ND	ND									ND									< 0.5
				12-05-91	QC	2.9	ND	ND								ND									< 0.5
				06-07-91	QC	2.6	ND	ND								ND									< 0.5 (5
				12-03-90	BCM	2.4	ND									ND									< 1
				06-05-90	BCM	3.2	ND									ND									< 1
				12-05-89	BCM	4.4	ND									ND									< 1
				06-01-89	BCM	2.0	ND									ND									< 1
				12-06-88	BCM	4.2	ND									ND									< 1
				06-07-88	BCM	4.8	ND									ND									< 2
				11-30-87	BCM	3.9	ND	ND	ND		ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND		< 1
				12-02-86	BCM	2.2	ND	1.3	ND		ND	ND	ND	ND		ND	1.3	ND	ND	ND	ND	ND	ND		< 1
				08-04-86	DER	3.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	< 0.5
11	173 N. Main St	Myers, Harmon L. and Sylvia	NA	12-06-95	QC	1.4	ND									ND									
				06-07-95	QC	1.7	ND									ND									< 0.5
				12-06-94	QC	1.3	ND									ND									< 0.5
				06-13-94	QC	0.9	ND	ND								ND									< 0.5
				12-14-93	QC	1.9	ND	ND								ND									< 0.5
				06-22-93	QC	2.2	ND									ND									< 0.5
				06-22-93	QC D	2.2	ND									ND									< 0.5
				12-07-92	QC	1.3	ND	ND								ND									< 0.5
				06-10-92	QC	ND	ND									ND									
				12-03-91	NS																				
				06-06-91	NS																				
				12-03-90	NS																				
				06-04-90	BCM	2.1	ND									ND									< 1

Footnotes can be found at the end of this table

AR301434

Table 8-17. Summary of the Results of the Supply Well Sampling and Analysis Program Conducted by Thompson and Others, June 1986 through December 1995, Dublin NPL Site, Dublin, Pennsylvania

Reference Number	Address	Name	Well Depth (ft)	Sample Date	Lab	TCE	PCE	1,1,1-TCA	trans 1,2-DCE	1,2-DCE	1,1-DCA	1,2-DCA	1,1-DCE	Chloroform	Toluene	Vinyl chloride	Methylene chloride	1,2-Dichloropropane	trans-1,3-Dichloropropene	cis-1,3-Dichloropropene	Bromodichloromethane	Dibromochloromethane	Bromoform	Benzene	Quantitation Limit (ug/L)
				12-04-89	NS																				
12	174 N. Main St	Family Health Care	145	12-06-95	QC D	2.0	ND									ND									<0.5
				06-07-95	QC	2.0	ND	ND								ND									<0.5
				12-06-94	QC	1.4	ND									ND									<0.5
				06-13-94	QC	0.6	ND	ND								ND									<0.5
				12-13-93	NS																				
				06-24-93	QC	2.6	ND									ND									<0.5
				12-09-92	QC	1.6	ND	ND								ND									<0.5
				06-10-92	QC	ND	ND	ND								ND									<0.5
				12-05-91	QC	2.2	ND	ND								ND									<0.5
				06-07-91	QC	1.9	ND	ND								ND									<0.5 (5
				12-03-90	BCM	3.0	ND									ND									<1
				06-04-90	NS																				
				03-05-90	BCM	2.6	ND									ND									<1
				12-06-89	BCM	3.2	ND									ND									<1
				09-05-89	BCM	2.0	ND									ND									<1
				09-07-88	BCM	1.5	ND									ND									<1
				06-06-88	BCM	2.5	ND									ND									<1
				02-29-88	BCM	4.7	ND									ND									<1
				11-30-87	BCM	36.4	ND	3.3	2.9		ND	ND	ND	1.8		ND	ND	ND	ND	ND	ND	ND	ND		<1
				12-02-86	BCM	2.5	ND	1.4	ND		ND	ND	ND	ND		ND	1.3	ND	ND	ND	ND	ND	ND		<1
				06-23-86	DER	7.8	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.5
11	179 N. Main St.	Crouthamel, Allen W. and Gloria	190	12-05-95	NS																				
				06-07-95	QC	0.7	ND	ND								ND									<0.5
				12-06-94	QC	ND	ND									ND									<0.5
				06-14-94	QC	ND	ND	ND								ND									<0.5
				12-14-93	QC	ND	ND	ND								ND									<0.5
				06-22-84	QC	0.6	ND	ND								ND									<0.5
				12-08-92	QC	ND	ND	ND								ND									<0.5
				06-10-92	QC	ND	ND	ND								ND									<0.5
				12-20-91	QC	0.9	ND	ND								ND									<0.5
				06-06-91	NS																				
				12-04-90	NS																				
				06-05-90	BCM	7.4	ND									ND									<1
				12-05-89	BCM	2.8	ND									ND									<1
				06-07-88	BCM	ND	ND									ND									<1

Footnotes continued on page 3 at the end of this table

AR301435

Table 8-17. Summary of the Results of the Supply Well Sampling and Analysis Program Conducted by Thompson and Others, June 1986 through December 1995, Dublin NPL Site, Dublin, Pennsylvania

Reference Number	Address	Name	Well Depth (ft)	Sample Date	Lab	TCE	PCE	1,1,1-TCA	trans 1,2-DCE	1,2-DCE	1,1-DCA	1,2-DCA	1,1-DCE	Chloroform	Toluene	Vinyl chloride	Methylene chloride	1,2-Dichloropropane	trans-1,3-Dichloropropene	cis-1,3-Dichloropropene	Bromodichloromethane	Dibromochloromethane	Bromoform	Benzene	Quantitation Limit (ug/L)
14	183 N. Main St.	Moyer's Dairy Farm	NA	12-06-95	QC	0.8	ND									ND									<0.5
				06-07-95	QC	1.3	ND	ND								ND									<0.5
				12-07-94	QC	ND	ND									ND									<0.5
				06-14-94	QC	ND	ND	ND								ND									<0.5
				12-13-93	QC	0.5	ND	ND								ND									<0.5
				06-22-93	QC	3.3	ND	ND								ND									<0.5
				12-07-92	QC	0.7	ND	ND								ND									<0.5
				06-09-92	QC	3.1	ND	ND								ND									<0.5
				12-05-91	QC	1.1	ND	ND								ND									<0.5
				06-06-91	QC	9.0	ND	ND								ND									<5 (2)
				12-03-90	BCM	1.2	ND									ND									<1
				06-04-90	BCM	2.0	ND									ND									<1
				12-04-89	BCM	1.4	ND									ND									<1
15	194 N. Main St.	Dublin Volunteer Fire Co	220	12-06-95	QC	0.9	ND									ND									<0.5
				06-07-95	QC	0.7	ND	ND								ND									<0.5
				12-06-94	QC	ND	ND									ND									<0.5
				06-13-94	QC	ND	ND	ND								ND									<0.5
				12-13-93	QC	0.5	ND	ND								ND									<0.5
				06-22-93	QC	ND	ND	ND								ND									<0.5
				12-07-92	QC	ND	ND	ND								ND									<0.5
				06-11-92	QC	ND	ND	ND								ND									<0.5
				06-11-92	QC D	ND	ND	ND								ND									<0.5
				12-03-91	QC	0.6	ND	ND								ND									<0.5
				06-06-91	QC	ND	ND	ND								ND									<0.5 (2)
				12-03-90	BCM	ND	ND									ND									<1
				06-04-90	BCM	ND	ND									ND									<1
				03-05-90	BCM	ND	ND									ND									<1
				12-05-89	BCM	ND	ND									ND									<1
				09-05-89	BCM	ND	ND									ND									<1
				06-02-89	BCM	ND	ND									ND									<1
				03-07-89	BCM	2.0	ND									ND									<1
				12-06-88	BCM D	ND	ND									ND									<1
				12-06-88	BCM	2.7	ND									ND									<1
				09-07-88	BCM	ND	ND									ND									<1
				06-06-88	BCM	2.4	ND	ND								ND									<1
				11-30-87	BCM	8.6	ND	ND	ND		ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND		<1
				12-02-86	BCM	4.0	ND	ND	ND		ND	ND	ND	ND		ND	1.2	ND	ND	ND	ND	ND	ND		<1
				07-15-86	DER	2.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.0	<0.5

Footnotes can be found at the end of this table

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Table 8-17 Summary of the Results of the Supply Well Sampling and Analysis Program Conducted by Thompson and Others, June 1986 through December 1995, Dublin NPL Site, Dublin, Pennsylvania.

Reference Number	Address	Name	Well Depth (ft)	Sample Date	Lab	TCE	PCE	1,1,1-TCA	trans 1,2-DCE	1,2-DCE	1,1-DCA	1,2-DCA	1,1-DCE	Chloroform	Toluene	Vinyl chloride	Methylene chloride	1,2-Dichloropropane	trans-1,3-Dichloropropene	cis-1,3-Dichloropropene	Bromodichloromethane	Dibromochloromethane	Bromoform	Benzene	Quantitation Limit (ug/L)
36	N. Main & Mill Sts. (106 N.Main St.)	Dairy Queen	100	12-05-95	NS																				
				06-06-95	QC	ND	ND	ND								ND									<0.5
				12-05-94	NS																				
				06-13-94	QC	ND	ND	ND								ND									<0.5
				12-13-93	NS																				
				06-22-93	QC	47.0	ND	ND								ND									<0.5
				12-07-92	NS																				
				06-08-92	QC	15.0	ND	ND								ND									<0.5
				12-03-91	NS																				
				06-06-91	QC	ND	ND	ND								ND									<0.5 (5
				12-04-90	NS																				
				06-04-90	BCM	ND	ND									ND									<1
				06-06-90	BCM	1.2	ND									ND									<1
				06-01-89	BCM	ND	ND									ND									<1
			**	06-01-89	BCM D	1.2	ND									ND									NA
				06-06-88	BCM	ND	ND	ND								ND									<1
				06-26-86	DER	1.0	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.5
37	101 S. Main St.	Dublin Inn	90	12-05-95	NS																				
				06-07-95	NS																				
				12-07-94	NS																				
				06-13-94	NS																				
				12-13-93	NS																				
				06-24-93	NS																				
				12-08-92	NS																				
				06-18-92	NS																				
				12-03-91	NS																				
				06-07-91	NS																				
				12-03-90	NS																				
				06-04-90	NS																				
				12-05-89	NS																				
				06-01-89	NS																				
				12-01-88	NS																				
				09-06-88	NS																				
				12-21-87	BCM	1.2	ND		ND	ND	ND	ND	ND	2.8		ND	ND	ND	ND	3.7	49.0	ND	ND		<1
				09-09-86	DER	ND	ND	ND	ND	ND	ND	ND	ND	7.0	ND		ND	ND	ND	ND	3.0	3.5	1.4	ND	<0.5
18	137 S. Main St.	Alcott, John and Bryan	NA	12-02-86	BCM	ND	ND	ND	ND	ND	ND	ND	ND	5.1		ND	ND	ND	ND	ND	ND	ND	ND		<1

Footnotes can be found at the end of this table

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Table 8.17 Summary of the Results of the Supply Well Sampling and Analysis Program Conducted by Thompson and Others, June 1986 through December 1995, Dublin NPL Site, Dublin, Pennsylvania

Reference Number	Address	Name	Well Depth (ft)	Sample Date	Lab	TCE	PCE	1,1,1 TCA	trans 1,2- DCE	1,2- DCE	1,1- DCA	1,2- DCA	1,1- DCE	Chloro- form	Toluene	Vinyl chloride	Methylene chloride	1,2- Dichloro- propane	trans-1,3- Dichloro propene	cis-1,3- Dichloro- propene	Bromo- dichloro- methane	Dibromo- chloro- methane	Bromo- form	Benzene	Quantitation Limit (ug/l)
39	163 S. Main St.	Slaymaker, John H.	NA	12-06-89	BCM	ND	ND									ND									< 1
				06-02-89	BCM	ND	ND									ND									< 1
				12-06-88	BCM	ND	ND									ND									< 1
				06-07-88	BCM	ND	ND									ND									< 1
			**	07-01-86	PL	ND	ND	ND																	NA
40	Cherry Lane	Dublin Village Apts.	NA	09-03-86	DER	ND	ND	ND	ND	ND	ND	ND	ND	2.3	ND	ND	ND	ND	ND	ND	ND	3.1	3.4	1.2	ND	< 0.5
41	105 Cherry Lane	Heymans, Jeannie M.	230	06-26-86	DER	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.0
42	111 Cherry Lane	Pasqua, Richard M. and Jeannette	85	06-23-86	DER	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA
43	115 Cherry Lane	Allen, Floyd, Jr. and Harriet H.	130	08-05-86	DER	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA
44	120 Cherry Lane	Myers, Clarence H. and Irene	155	06-26-86	QC	ND	ND	ND																		< 0.5
45	111 Elephant Rd.	Hope, Marjorie	NA	12-07-95	QC	2.0	ND									ND									< 0.5
				06-08-95	QC	1.1	ND	ND								ND									< 0.5
				12-06-94	QC	2.0	ND									ND									< 0.5
				06-14-94	QC	ND	ND	ND								ND									< 0.5
				12-15-93	QC	1.3	ND	ND								ND									< 0.5
				06-24-93	QC	6.0	ND	ND								ND									< 0.5
				12-15-92	QC	6.9	ND	ND								ND									< 0.5
				06-08-92	QC	4.2	ND	ND								ND									< 0.5
				12-03-91	QC	6.1	ND	ND								ND									< 5
				12-03-91	QC D	5.5	ND	ND								ND									< 5
				06-06-91	QC	ND	ND	ND								ND									< 5
				12-04-90	BCM	7.3	ND									ND									< 1
				12-03-90	BCM	3.2	ND									ND									< 1
				06-04-90	BCM	4.9	ND									ND									< 1
				03-06-90	BCM	47.9	ND									ND									< 1
				12-05-89	BCM	ND	ND									ND									1
46	113 Elephant Rd.	Miller, Gary W. and Margaret A.	NA	12-06-95	QC	1.5	ND									ND									< 0.5
				06-07-95	QC	ND	ND	ND								ND									< 0.5
				12-06-94	QC	ND	ND									ND									< 0.5
				12-06-94	QC D	ND	ND									ND									< 0.5
				04-14-94	QC	ND	ND	ND								ND									< 0.5
				12-14-93	QC	3.1	ND	ND								ND									< 0.5

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Footnotes can be found at the end of this table

Table 8-17. Summary of the Results of the Supply Well Sampling and Analysis Program Conducted by Thompson and Others, June 1986 through December 1995, Dublin NPL Site, Dublin, Pennsylvania.

Reference Number	Address	Name	Well Depth (ft)	Sample Date	Lab	TCE	PCE	1,1,1-TCA	trans 1,2-DCE	1,2-DCE	1,1-DCA	1,2-DCA	1,1-DCE	Chloroform	Toluene	Vinyl chloride	Methylene chloride	1,2-Dichloropropane	trans-1,3-Dichloropropene	cis-1,3-Dichloropropene	Bromodichloromethane	Dibromochloromethane	Bromoform	Benzene	Quantitation Limit (ug/L)
				06-24-93	QC	7.4	ND	ND								ND									<0.5
				12-15-92	QC	25.0	ND	ND								ND									<0.5
				06-10-92	QC	ND	ND	ND								ND									<0.5
				12-03-91	QC	ND	ND	ND								ND									<0.5
				06-06-91	QC	4.7	ND	ND								ND									<0.5 (5)
				06-06-91	QC D	4.9	ND	ND								ND									<0.5 (5)
				12-03-90	BCM	ND	ND									ND									<1
				06-04-90	BCM	1.2	ND									ND									<1
				03-06-90	BCM	ND	ND									ND									<1
				12-06-89	BCM	42.4	ND									ND									<1
				09-05-89	BCM	ND	ND									ND									<1
				06-01-89	BCM	8.0	ND									ND									<1
				03-06-89	BCM	117.0	ND									ND									<1
				12-05-88	BCM	ND	ND									ND									<1
				09-07-88	BCM	ND	ND									ND									<1
				06-07-88	BCM	6.7	ND	ND								ND									<1
				12-01-87	BCM	3.8	ND	ND	ND		ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND		<1
				12-02-86	BCM	ND	ND	ND	ND		ND	ND	ND	5.0		ND	ND	ND	ND	ND	ND	ND	ND		<1
47	114 Elephant Rd.	Slaymaker (Kelener's Radish Processing)	115	12-07-95	QC	ND	ND									ND									
				06-07-95	QC	4.1	ND	ND								ND									
				12-07-94	QC	2.0	ND									ND									
				06-14-94	QC	ND	ND	ND								ND									
				12-15-93	QC	ND	ND	ND								ND									<0.5
				06-24-93	QC	1.8	ND	ND								ND									<0.5
				12-15-92	QC	ND	ND	ND								ND									<0.5
				06-08-92	QC	ND	ND	ND								ND									<0.5
				12-05-91	QC	ND	ND	ND								ND									<0.5
				12-04-91	QC D	NA	NA																		<0.5
				06-06-91	QC	ND	ND	ND								ND									<0.5 (5)
				12-03-90	BCM																				
				06-05-90	BCM	3.7	ND									ND									<1
				12-05-89	BCM	3.1	ND									ND									<1
				06-01-89	BCM	ND	ND									ND									<1
				12-05-88	BCM	ND	ND									ND									<1
				06-07-88	BCM	ND	ND									ND									<1
				11-30-87	BCM	ND	ND	ND	ND		ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND		<1
				11-26-86	BCM	ND	ND	ND	ND		ND	ND	ND	ND		ND	1.2	ND	ND	ND	ND	ND	ND		<1
			**	07-01-86	PL	ND	ND	ND																	NA

Footnotes can be found at the end of this table

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Table 8-17 Summary of the Results of the Supply Well Sampling and Analysis Program Conducted by Thompson and Others, June 1986 through December 1995, Dublin NPL Site, Dublin, Pennsylvania

Reference Number	Address	Name	Well Depth (ft)	Sample Date	Lab	TCE	PCE	1,1,1-TCA	trans 1,2-DCE	1,2-DCE	1,1-DCA	1,2 DCA	1,1-DCE	Chloroform	Toluene	Vinyl chloride	Methylene chloride	1,2-Dichloropropane	trans 1,3-Dichloropropene	cis 1,3-Dichloropropene	Bromodichloromethane	Dibromochloromethane	Bromoform	Benzene	Quantitation Limit (ug/L)
18	115 Elephant Rd.	Conrad, Jeffrey and Monica (Formerly Grace)	170	12-06-95	QC	2.5	ND									ND									<0.5
				06-07-95	QC	1.3	ND	ND								ND									<0.5
				12-06-94	QC	1.1	ND									ND									<0.5
				06-14-94	QC	ND	ND	ND								ND									<0.5
				12-14-93	QC	1.5	ND	ND								ND									<0.5
				06-22-93	QC	0.9	ND	ND								ND									<0.5
				12-09-92	QC	2.7	ND	ND								ND									<0.5
				06-18-92	QC	ND	ND	ND								ND									<0.5
				12-03-91	QC	ND	ND									ND									<0.5
				06-06-91	NS																				
				12-03-90	BCM	4.2	ND									ND									<1
				06-04-90	BCM	ND	ND									ND									<1
				03-06-90	BCM D	1.4	ND									ND									<1
				03-06-90	BCM	2.1	ND									ND									<1
				12-05-89	BCM	ND	ND									ND									<1
				09-05-89	BCM	ND	ND									ND									<1
				06-01-89	BCM	ND	ND									ND									<1
				03-07-89	BCM	15.9	ND									ND									<1
				12-05-88	BCM	ND	ND									ND									<1
				09-07-88	BCM	ND	ND									ND									<1
				06-07-88	BCM	ND	ND									ND									<1
				02-29-88	BCM	ND	ND									ND									<1
				12-01-87	BCM	ND	ND	ND	ND		ND	ND	ND	ND		ND	ND	ND	9.6	ND	ND	ND	ND		<1
				12-02-86	BCM	5.3	ND	1.5	ND		ND	ND	ND	2.5		ND	ND	ND	ND	ND	ND	ND	ND		<1
				06-26-86	QC	ND	ND	ND																	<0.5
49	116 Elephant Rd.	Black, Mable	160	12-07-95	QC	3.1	ND									ND									<0.5
				06-07-95	QC	4.8	ND	ND								ND									<0.5
				12-08-94	QC	3.6	ND									ND									<0.5
				06-14-94	QC	0.9	ND	ND								ND									<0.5
				12-14-93	QC	1.9	ND	ND								ND									<0.5
				06-24-93	QC	21.0	ND	ND								ND									<0.5
				12-09-92	QC	1.4	ND	ND								ND									<0.5
				06-08-92	QC	13.0	ND	ND								ND									<0.5
				12-03-91	QC	ND	ND	ND								ND									<0.5
				06-06-91	QC	58.0	ND	ND								ND									<5.0
				12-03-90	BCM D	1.6	ND									ND									<1
				12-03-90	BCM	1.8	ND									ND									<1
				06-04-90	BCM	168.0	ND									ND									1
				03-06-90	BCM	13.3	ND									ND									<1

Footnotes can be found at the end of this table.

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Table 8-17. Summary of the Results of the Supply Well Sampling and Analysis Program Conducted by Thompson and Others, June 1986 through December 1995, Dublin NPL Site, Dublin, Pennsylvania.

Reference Number	Address	Name	Well Depth (ft)	Sample Date	Lab	TCE	PCE	1,1,1-TCA	trans 1,2-DCE	1,2-DCE	1,1-DCA	1,2-DCA	1,1-DCE	Chloroform	Toluene	Vinyl chloride	Methylene chloride	1,2-Dichloropropane	trans-1,3-Dichloropropene	cis-1,3-Dichloropropene	Bromodichloromethane	Dibromochloromethane	Bromoform	Benzene	Quantitation Limit (ug/L)
				12-05-89	BCM	10.3	ND									ND									<1
				09-05-89	BCM	8.7	ND									ND									<1
				06-01-89	BCM D	21.7	ND									ND									<1
				06-01-89	BCM	22.4	ND									ND									NA
				03-07-89	BCM D	7.8	2.3									ND									<1
				03-07-89	BCM	11.0	ND									ND									<1
				12-05-88	BCM	1.4	ND									ND									<1
				09-07-88	BCM	2.4	ND									ND									<1
				06-07-88	BCM	2.0	ND									ND									<1
				02-29-88	BCM	ND	ND									ND									<1
				12-01-87	BCM	5.5	ND	ND	ND		ND	ND	ND	ND		ND	17.3	ND	ND	ND	ND	ND	ND		<1
				11-26-86	BCM	5.9	ND	ND	ND		ND	ND	ND	ND		ND	1.3	ND	ND	ND	ND	ND	ND		<1
				08-05-86	DER	5.6	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.5
50	118 Elephant Rd.	Lahs	NA	12-05-95	NS																				
				06-06-95	NS																				
				12-05-94	NS																				
				06-13-94	NS																				
				12-13-93	NS																				
				06-22-93	NS																				
				12-09-92	NS																				
				06-08-92	NS																				
				12-03-91	NS																				
				06-06-91	QC	60.0	ND	ND								ND									<5.0
				12-03-90	BCM	2.4	ND									ND									<1
				06-06-90	BCM D	72.9	ND									ND									<1
				06-06-90	BCM	72.2	ND									ND									<1
				03-06-90	BCM	18.2	ND									ND									<1
				12-06-89	BCM	7.7	ND									ND									<1
				09-05-89	BCM	25.5	ND									ND									<1
				06-01-89	BCM	14.8	ND									ND									<1
51	119 Elephant Rd.	Hess, Thomas A.	NA	12-11-95	QC	3.7	ND									ND									<0.5
				06-07-95	QC	3.5	ND	ND								ND									<0.5
				12-06-94	QC	2.9	ND									ND									<0.5
				06-14-94	QC	1.5	ND	ND								ND									<0.5
				12-15-93	QC	5.6	ND	ND								ND									<0.5
				06-23-93	QC	5.9	ND	ND								ND									<0.5
				06-23-93	QC D	7.8	ND	ND								ND									<0.5
				12-15-92	QC	6.8	ND	ND								ND									<0.5

Footnotes can be [illegible] at the end of this table.

AR301441

Table 8-17 Summary of the Results of the Supply Well Sampling and Analysis Program Conducted by Thompson and Others, June 1986 through December 1995, Dublin NPL Site, Dublin, Pennsylvania

Reference Number	Address	Name	Well Depth (ft)	Sample Date	Lab	TCE	PCE	1,1,1-TCA	trans 1,2-DCE	1,2-DCE	1,1-DCA	1,2-DCA	1,1-DCE	Chloroform	Toluene	Vinyl chloride	Methylene chloride	1,2-Dichloropropane	trans 1,3-Dichloropropene	cis 1,3-Dichloropropene	Bromodichloromethane	Dibromochloromethane	Bromoform	Benzene	Quantitation Limit (ug/L)
				06-18-92	QC	9.9	ND	ND								ND									<0.5
				12-09-91	QC	3.2	ND	ND								ND									<0.5
				06-06-91	QC	18.0	ND	ND								ND									<5 (2
				03-04-91	BCM	58.6	ND									ND									<5
				12-03-90	NS																				
				06-05-90	NS																				
				02-06-90	EPA	130.0																			NA
52	139 Elephant Rd.	Meyers, Merrill H	245	12-05-95	NS																				
				06-08-95	QC	4.4	ND	3.0								ND									<0.5
				12-09-94	NS																				
				06-14-94	QC	1.5	ND	2.0								ND									<0.5
				12-14-93	NS																				
				06-24-93	QC	6.4	ND	5.4								ND									<0.5
				12-15-92	QC	6.8	ND	8.6								ND									<0.5
				06-08-92	QC	5.4	ND	6.5								ND									<0.5
				12-09-91	QC	1.9	ND	1.3								ND									<0.5
				06-06-91	QC	2.6	ND	3.1								ND									<0.5 (5
				12-04-90	BCM	4.5	ND									ND									<1
				06-04-90	NS																				
				03-08-90	BCM	5.6	ND									ND									<1
				12-05-89	BCM	7.0	ND									ND									<1
				06-30-89	BCM	3.3	ND									ND									<1
				12-06-88	NS																				
				06-07-88	BCM	3.4	ND									ND									<1
				11-30-87	BCM	1.7	ND	5.1	ND		ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND		<1
				11-26-86	BCM	1.2	ND	ND	ND		ND	ND	ND	ND		ND	1.6	ND	ND	2.5	ND	ND	ND		<1
				09-09-86	DER	1.3	ND	2.7	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	<0.5
51	146 Elephant Rd	Moyer, Clarence G and	250	12-07-95	QC	92.0	ND									ND									<0.5 (4
				06-07-95	QC	143.0	ND	ND								ND									<0.5
				12-08-94	QC	84.0	ND									ND									<0.5
				06-14-94	QC	120.0	ND	ND								ND									<0.5
				06-14-94	QC D	130.0	ND	ND								ND									<0.5
				12-15-93	QC	150.0	ND	ND								ND									<0.5
				06-06-91	QC	115.0	ND	ND								ND									<5 (3
				12-03-90	BCM	135.0	ND									ND									<5
				06-05-90	BCM	159.0	ND									ND									<5
				03-06-90	BCM	135.0	ND									ND									<5
				12-05-89	BCM	151.0	ND									ND									<5

AR301442

Footnotes can be found at the end of this table

Table 8-17. Summary of the Results of the Supply Well Sampling and Analysis Program Conducted by Thompson and Others, June 1986 through December 1995, Dublin NPL Site, Dublin, Pennsylvania.

Reference Number	Address	Name	Well Depth (ft)	Sample Date	Lab	TCE	PCE	1,1,1-TCA	trans 1,2-DCE	1,2-DCE	1,1-DCA	1,2-DCA	1,1-DCE	Chloroform	Toluene	Vinyl chloride	Methylene chloride	1,2-Dichloropropane	trans 1,3-Dichloropropene	cis-1,3-Dichloropropene	Bromodichloromethane	Dibromochloromethane	Bromoform	Benzene	Quantitation Limit (ug/L)
				09-06-89	BCM	118.0	ND									ND									<1
				06-02-89	BCM	155.0	ND									ND									<1
				03-07-89	BCM	107.0	ND									ND									<1
				12-06-88	BCM	136.0	ND									ND									<1
				09-07-88	BCM	114.0	ND									ND									<1
				06-06-88	BCM	149.0	ND									ND									<1
				03-01-88	BCM	126.0	ND									ND									<1
				11-26-87	BCM	86.0	ND	ND	4.4		ND	ND	2.2	ND		ND	ND	ND	ND	ND	ND	ND	ND		<1
				11-26-86	BCM	106.0	ND	ND	2.6		ND	ND	ND	ND		ND	1.3	ND	ND	ND	ND	ND	ND		<1
				08-04-86	DER	150.0	ND	ND	ND	4.8	ND	ND	1.0	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	<0.5
54	150 Elephant Rd.	Detweiler, Irma T.	290	12-06-95	QC	9.2	ND									ND									<0.5
				06-07-95	QC	8.2	ND	ND								ND									<0.5
				12-07-94	QC	6.8	ND									ND									<0.5
				06-14-94	QC	4.5	ND	ND								ND									<0.5
				12-15-93	QC D	5.4	ND	ND								ND									<0.5
				12-15-93	QC	9.8	ND	ND								ND									<0.5
				06-23-93	QC	11.0	ND	ND								ND									<0.5
				12-15-92	QC D	7.7	ND	ND								ND									<0.5
				12-15-92	QC	11.0	ND	ND								ND									<0.5
				06-08-92	QC	11.0	ND	ND								ND									<0.5
				12-05-91	QC	8.3	ND	ND								ND									<0.5
				06-06-91	QC	8.7	ND	ND								ND									<5.0
				12-04-90	BCM	20.1	ND									ND									<1
				12-04-90	BCM	20.4	ND									ND									<1
				06-04-90	BCM	21.9	ND									ND									<1
				03-06-90	BCM	22.9	ND									ND									<1
				12-05-89	BCM	24.5	ND									ND									<1
				09-05-89	BCM D	22.3	ND									ND									<1
				09-05-89	BCM	17.4	ND									ND									<1
				06-01-89	BCM	5.5	ND									ND									<1
				03-06-89	BCM	12.2	ND									ND									<1
				12-05-88	BCM	17.4	ND									ND									<1
				09-07-88	BCM	9.3	ND									ND									<1
				06-06-88	BCM	8.0	ND	ND								ND									<1
				12-01-87	BCM	7.4	ND	ND	2.6		ND	ND	ND	ND		ND	16.6	ND	ND	ND	ND	ND	ND		<1
				11-26-86	BCM	2.2	ND	1.3	ND		ND	ND	ND	ND		ND	1.3	ND	ND	ND	ND	ND	ND		<1
				09-09-86	DER	2.0	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	<0.5

AR301443

Footnotes can be found at the end of this table

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Table 8-17 Summary of the Results of the Supply Well Sampling and Analysis Program Conducted by Thompson and Others, June 1986 through December 1995, Dublin NPL Site, Dublin, Pennsylvania

Reference Number	Address	Name	Well Depth (ft)	Sample Date	Lab	TCE	PCE	1,1,1-TCA	trans 1,2-DCE	1,2-DCE	1,1-DCA	1,2-DCA	1,1-DCE	Chloroform	Toluene	Vinyl chloride	Methylene chloride	1,2-Dichloropropane	trans-1,3-Dichloropropene	cis-1,3-Dichloropropene	Bromodichloromethane	Dibromochloromethane	Bromoform	Benzene	Quantitation Limit (ug/L)
55	152 Elephant Rd.	Rush, Paul L. and	350	12-06-95	QC	ND	ND									ND									<0.5
				06-07-95	QC	ND	ND	ND								ND									<0.5
				12-07-94	QC	ND	ND									ND									<0.5
				06-14-94	QC	ND	ND	ND								ND									<0.5
				12-15-93	QC	ND	ND	ND								ND									<0.5
				06-23-93	QC	ND	ND	ND								ND									<0.5
				06-23-93	QC	ND	ND	ND								ND									<0.5
				12-15-92	QC	ND	ND	ND								ND									<0.5
				06-08-92	QC	ND	ND	ND								ND									<0.5
				12-03-91	QC	ND	ND	ND								ND									<0.5
				06-06-91	QC	ND	ND	ND								ND									<0.5 (5)
				12-03-90	BCM	ND	ND									ND									<1
				06-04-90	BCM	ND	ND									ND									<1
				12-05-89	BCM	ND	ND									ND									<1
				06-02-89	BCM	ND	ND									ND									<1
				06-02-89	BCM D	ND	ND									ND									<1
				12-05-88	BCM	ND	ND									ND									<1
				06-07-88	BCM	ND	ND									ND									<1
				12-01-87	BCM	ND	ND	ND	ND		ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND		<1
				11-26-86	BCM	ND	ND	ND	ND		ND	ND	ND	ND		ND	1.3	ND	ND	ND	ND	ND	ND		<1
				08-04-86	DER	1.0	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.5
56	215 Frontier Rd.	Harris	550	12-05-95	QC	ND	ND									ND									
				06-07-95	QC	ND	ND	ND								ND									<0.5
				12-06-94	QC	ND	ND									ND									<0.5
				06-13-94	QC	ND	ND	ND								ND									<0.5
				12-13-93	NS																				
				06-22-93	QC	ND	ND	ND								ND									<0.5
				12-15-92	NS																				
				06-10-92	QC	ND	ND	ND								ND									<0.5
				12-03-91	QC	ND	ND																		<0.5
				06-07-91	QC	ND	ND	ND								ND									<0.5 (5)
				12-03-90	BCM	ND	ND									ND									1
				06-04-90	BCM	ND	ND									ND									<1
				12-06-89	NS																				
				06-01-89	NS																				
		Well A		12-05-88	BCM	ND	ND									ND									<1
		Well B		12-05-88	BCM	ND	ND									ND									<1
		Well A		06-07-88	BCM	ND	ND									ND									<1
		Well B		06-07-88	BCM	ND	ND									ND									<1

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Footnotes can be found at the end of this table

Table 8 17 Summary of the Results of the Supply Well Sampling and Analysis Program Conducted by Thompson and Others, June 1986 through December 1995, Dublin NPL Site, Dublin, Pennsylvania

Reference Number	Address	Name	Well Depth (ft)	Sample Date	Lab	TCE	PCE	1,1,1-TCA	trans 1,2-DCE	1,2-DCE	1,1-DCA	1,2-DCA	1,1 DCE	Chloroform	Toluene	Vinyl chloride	Methylene chloride	1,2-Dichloropropane	trans-1,3-Dichloropropene	cis-1,3-Dichloropropene	Bromodichloromethane	Dibromochloromethane	Bromoform	Benzene	Quantitation Limit (ug/L)
		Well B		12-01-87	BCM	ND	ND	ND	ND		ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND		<1
		Well A		12-02-86	BCM	ND	ND	1 3	ND		ND	ND	ND	ND		ND	1 2	ND	ND	ND	ND	ND	ND		<1
		Well B		12-02-86	BCM	ND	ND	ND	ND		ND	ND	ND	ND		ND	1 3	ND	ND	ND	ND	ND	ND		<1
		Well A		08-04-86	DER	1 0	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	<0 5
57	104 Maple Ave.	Beauty Shop	100	12-05-95	QC	385 0	0 7	1 6								ND									<0 5 (R
				09-06-95	QC	20 0	ND									ND									<0 5
				06-06 95	QC	23 0	ND									ND									<0 5
				03-06 95	QC	145 0	ND									ND									<0 5
				12-06 94	QC	44 0	ND									ND									<0 5
				09-14 94	QC	29 0	ND	ND								ND									<0 5
				06-14 94	QC	140 0	ND	ND								ND									<0 5
				03-16 94	QC	2 1	ND	ND								ND									<0 5
				12-14-93	QC	300 0	ND	0 7								ND									<0 5
				09-14-93	QC	140 0	ND	ND								ND									<0 5
				06-23-93	QC	87 0	ND	ND								ND									<0 5
				03-23 93	QC	660 0	ND	2 1								ND									<0 5
				12-08 92	QC	170 0	ND	ND								ND									<0 5
				09-15-92	QC	560 0	ND	# 6								ND									<0 5
				09-15-92	QC D	580 0	ND	# 6								ND									<0 5
				06-09 92	QC	1200 0	ND	ND								ND									<0 5
				03-09-92	QC	110 0	ND	ND								ND									<0 5
				12-03 91	QC	47 0	ND	ND								ND									<0 5
				09-10-91	QC	262 0	ND	ND								ND									<5 (J
				06-06-91	QC	212 0	ND	ND								ND									<5 (J
				03-05-91	BCM	518 0	ND									ND									<5
				12-03-90	BCM	545 0	ND									ND									<5
				09-04-90	BCM	190 0	ND									ND									<5
				06-05-90	BCM	314 0	ND									ND									<10
				03-06-90	BCM	573 0	1 9									ND									<1
				12-05-89	BCM	1201 0	2 2									ND									<1
				11-09-89	BCM	967 0	2 0									ND									NA
				10-26-89	BCM	436 0	ND									ND									NA
				09-05-89	BCM	102 0	ND									ND									<1
			**	08-10-89	BCM	296 0	ND									ND									NA
			**	07-21-89	BCM	392 0	ND									ND									<1
				06-01-89	BCM	700 0	1 2									ND									<1
			**	05-16-89	BCM	913 0	ND									ND									NA
			**	04-25-89	BCM	630 0	ND									ND									NA
				03-07-89	BCM	537 0	ND									ND									<1

Footnotes can be found at the end of this table

AR301445

Table 8-17 Summary of the Results of the Supply Well Sampling and Analysis Program Conducted by Thompson and Others, June 1986 through December 1995, Dublin NPL Site, Dublin, Pennsylvania.

Reference Number	Address	Name	Well Depth (ft)	Sample Date	Lab	TCE	PCE	1,1,1-TCA	trans 1,2-DCE	1,2-DCE	1,1-DCA	1,2-DCA	1,1-DCE	Chloroform	Toluene	Vinyl chloride	Methylene chloride	1,2-Dichloropropane	trans-1,3-Dichloropropene	cis-1,3-Dichloropropene	Bromodichloromethane	Dibromochloromethane	Bromoform	Benzene	Quantitation Limit (ug/L)
				** 02-23-89	BCM	606.0	ND									ND									NA
				** 01-26-89	BCM	690.0	3.6									ND									NA
				12-05-88	BCM D	1102.0	ND									ND									<1
				12-05-88	BCM	1230.0	ND									ND									<1
				** 10-18-88	BCM	246.0	ND									ND									NA
				09-07-88	BCM	501.0	ND									ND									<1
				** 07-07-88	BCM	266.0	ND									ND									NA
				06-07-88	BCM	2320.0	ND									ND									<1
				03-01-88	BCM	159.0	ND									ND									<1
				12-01-87	BCM	464.0	ND	1.5	ND		ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND		<1
				11-26-86	BCM	82.0	ND	2.9	ND		ND	ND	ND	ND		ND	1.3	ND	ND	ND	ND	ND	ND		<1
				11-26-86	BCM D	104.0	ND	ND	ND		ND	ND	ND	1.9		ND	1.4	ND	ND	ND	ND	ND	ND		NA
SR	112 Maple Ave	Australian Harvest (Formerly Dudley Corp Office)	NA	12-05-95	QC	ND	ND									ND									<0.5
				06-06-95	QC	ND	ND	ND								ND									<0.5
				12-06-94	QC	ND	ND									ND									<0.5
				06-14-94	QC	ND	ND	ND								ND									<0.5
				12-14-93	QC	ND	ND	ND								ND									<0.5
				06-23-93	QC	ND	ND	ND								ND									<0.5
				12-09-92	QC	ND	ND	ND								ND									<0.5
				06-10-92	QC	ND	ND	ND								ND									<0.5
				12-05-91	QC	ND	ND	ND								ND									<0.5
				06-06-91	QC	ND	ND	ND								ND									<0.5 [3]
				12-03-90	BCM	ND	ND									ND									<1
				06-04-90	BCM	ND	ND									ND									<1
				03-05-90	BCM D	ND	ND									ND									<1
				03-05-90	BCM	ND	ND									ND									<1
				12-05-89	BCM	ND	ND									ND									<1
				09-05-89	BCM	ND	ND									ND									<1
				06-01-89	BCM	ND	ND									ND									<1
				03-07-89	BCM	ND	ND									ND									<1
				12-05-88	BCM	ND	ND									ND									<1
				09-07-88	BCM	ND	ND									ND									<1
				06-07-88	BCM	14.2	ND									ND									<1
				02-29-88	BCM	ND	ND									ND									<1
				11-30-87	BCM	ND	ND	2.8	ND		ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND		<1
				11-26-86	BCM	8.3	ND	1.5	1.5		ND	ND	ND	ND		ND	1.3	ND	ND	1.4	ND	ND	ND		<1
				06-26-86	DER	ND	ND	2.0	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	<0.5

Footnotes can be found at the end of this table

AR301446

Table 8-17. Summary of the Results of the Supply Well Sampling and Analysis Program Conducted by Thompson and Others, June 1986 through December 1995, Dublin NPL Site, Dublin, Pennsylvania.

Reference Number	Address	Name	Well Depth (ft)	Sample Date	Lab	TCE	PCE	1,1,1-TCA	trans 1,2-DCE	1,2 DCE	1,1-DCA	1,2-DCA	1,1-DCE	Chloroform	Toluene	Vinyl chloride	Methylene chloride	1,2-Dichloropropane	trans-1,3-Dichloropropene	cis-1,3-Dichloropropene	Bromodichloromethane	Dibromochloromethane	Bromoform	Benzene	Quantitation Limit (ug/L)
59	114 Maple Ave.	Peace Valley Cabinet (formerly Klemco)	NA	12-01-86	BCM	ND	ND	1.0	ND		ND	ND	ND	ND		ND	1.1	ND	ND	ND	ND	ND	ND		<1
60	118 Maple Ave.	Hilltown Investment Group (formerly Drake)	NA	12-05-95	QC	ND	ND									ND									<0.5
				06-06-95	QC	ND	ND	ND								ND									<0.5
				12-05-94	QC	ND	ND									ND									<0.5
				06-13-94	QC	ND	ND	ND								ND									<0.5
				12-16-93	NS																				
				06-23-93	QC	ND	ND	ND								ND									<0.5
				12-08-92	NS																				
				06-10-92	QC	ND	ND									ND									<0.5
				12-03-91	QC	0.7	ND	ND								ND									<0.5
				06-07-91	NS																				
				12-03-90	BCM	ND	ND									ND									<1
				06-04-90	BCM	ND	ND									ND									<1
				03-05-90	BCM	ND	ND									ND									<1
				12-05-89	BCM	ND	ND									ND									<1
				09-06-89	BCM	ND	ND									ND									<1
				06-01-89	BCM	ND	ND									ND									<1
				03-07-89	BCM	ND	ND									ND									<1
				12-05-88	BCM	ND	ND									ND									<1
			**	09-30-88	BCM	ND	ND									ND									NA
				06-07-88	BCM	ND	ND									ND									<1
				03-01-88	BCM	ND	ND									ND									<1
				12-01-87	BCM D	ND	ND									ND									<1
				12-01-87	BCM	ND	ND	ND	ND		ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND		<1
				11-26-86	BCM	12.5	ND	ND	ND		ND	ND	ND	ND		ND	1.3	ND	ND	ND	ND	ND	ND		<1
61	119 Maple Ave.	Borough Hall	NA	06-26-86	QC	ND	ND	ND																	<0.5
62	120 Maple Ave.	Detweiler, Arthur W. and Irene A.	NA	12-02-86	BCM	ND	ND	ND	ND		ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND		<1
				08-05-86	DER	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.5
63	122 Maple Ave.	Vasconez, Paul P. and Marianne	310	12-02-86	BCM	ND	ND	ND	ND		ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND		<1
64	126 Maple Ave.	Shaddinger, Carolyn	NA	12-02-86	BCM	ND	ND	ND	ND		ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND		<1
65	134 Maple Ave.	Morrison, Raymond	NA	06-26-86	QC	ND	ND	ND																	<0.5

Footnotes can be found at the end of this table

ARO1447

Table 8-17 Summary of the Results of the Supply Well Sampling and Analysis Program Conducted by Thompson and Others, June 1986 through December 1995, Dublin NPL Site, Dublin, Pennsylvania

Reference Number	Address	Name	Well Depth (ft)		Sample Date	Lab	TCE	PCE	1,1,1-TCA	trans 1,2-DCE	1,2-DCE	1,1-DCA	1,2-DCA	1,1-DCE	Chloroform	Toluene	Vinyl chloride	Methylene chloride	1,2-Dichloropropane	trans-1,3-Dichloropropene	cis-1,3-Dichloropropene	Bromodichloromethane	Dibromochloromethane	Bromoform	Benzene	Quantitation Limit (ug/L)
66	148 Maple Ave.	Binsberger	130		06-26-86	DER	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA
67	104 Middle Rd	Kramer, William (Deep)	315		09-09-86	DER	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	< 0.5
		and Ester (Shallow)	22		09-09-86	DER	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	< 0.5
68	105 Middle Rd.	Ott, Robert and Joyce E	NA		12-05-89	BCM	ND	ND									ND									< 1
				**	06-01-89	BCM	ND	ND									ND									NA
					12-05-88	BCM D	ND	ND									ND									< 1
					12-05-88	BCM	ND	ND									ND									< 1
					06-07-88	BCM	ND	ND									ND									< 1
					12-01-87	BCM D	ND	ND	ND	ND		ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND		< 1
					12-01-87	BCM	ND	ND	ND	ND		ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	< 1
				**	07-15-86	PS	2.1	ND	ND																	NA
69	126 Middle Rd.	Woods Edge Apts	310		12-05-89	BCM	ND	ND									ND									< 1
					06-02-89	BCM	ND	ND									ND									< 1
					12-05-88	BCM	ND	ND									ND									< 1
					06-07-88	BCM	ND	ND									ND									NA
					12-21-87	BCM	ND	ND	ND	ND		ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND		< 1
		#A2			06-27-86	QC	ND	ND	ND																	< 0.5
		#D2			06-27-86	QC	ND	ND	ND																	< 0.5
70	3218 Ricketts Rd.	Pennsylvania State Police	560	**	09-07-88	BCM	ND	ND									ND									NA
					06-26-86	DER	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	< 0.5
71	Ricketts Rd.	Dublin Acres Well #1	NA		12-03-91	QC																				
					06-07-91	NS																				
					12-03-90	BCM	ND	ND									ND									< 1
					06-05-90	BCM	ND	ND									ND									< 1
					06-05-90	BCM	ND	ND									ND									< 1
					12-06-89	NS																				
					06-01-89	NS																				
					06-07-88	BCM	ND	ND									ND									1
					12-01-87	BCM	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND		< 1
					06-25-86	AP	3.2	ND																		1
72	Ricketts Rd	Dublin Acres Well #2	NA		12-06-95	QC	0.5	ND									ND									
					06-07-95	QC	1.1	ND	ND								ND									< 0.5
					12-07-94	QC	ND	ND									ND									< 0.5
					06-14-94	QC	ND	ND	ND								ND									< 0.5

Footnotes can be found at the end of this table

Table 8-17 Summary of the Results of the Supply Well Sampling and Analysis Program Conducted by Thompson and Others, June 1986 through December 1995, Dublin NPL Site, Dublin, Pennsylvania

Reference Number	Address	Name	Well Depth (ft)	Sample Date	Lab	TCE	PCE	1,1,1-TCA	trans 1,2-DCE	1,2-DCE	1,1-DCA	1,2-DCA	1,1-DCE	Chloroform	Toluene	Vinyl chloride	Methylene chloride	1,2-Dichloropropane	trans-1,3-Dichloropropene	cis-1,3-Dichloropropene	Bromodichloromethane	Dibromochloromethane	Bromoform	Benzene	Quantitation Limit (ug/L)
				12-16-93	NS																				
				06-24-93	QC	ND	ND	ND								ND									<0.5
				12-09-92	QC	ND	ND									ND									<0.5
				06-18-92	QC	ND	ND	ND								ND									<0.5
				03-31-92	QC	ND	ND									ND									
				12-03-91	NS																				
				06-07-91	QC	ND	ND									ND									
				12-03-90	BCM	ND	ND									ND									
				06-05-90	BCM	ND	ND									ND									
				06-05-90	BCM	ND	ND									ND									
				12-06-89	NS																				
				06-01-89	NS																				
				12-06-88	BCM	2.6	ND									ND									<1
			**	06-07-88	BCM	ND	ND									ND									NA
				12-21-87	BCM	ND	ND	ND	ND		ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND		<1
				12-02-86	BCM	1.4	ND	ND	ND		ND	ND	ND	99.3		ND	ND	ND	ND	1.4	13.5	ND	ND		<1
				06-25-86	AP	ND	ND																		<1
73	3212 Ricketts Rd.	Britton, Fred M. and Dolsey O.	NA	07-07-86	QC	ND	ND	ND																	<0.5
74	203 Meadow Circle (145 Ricketts Rd.)	Dublin Borough Well No. 3	450	02-10-93	QC	ND	ND	ND																	<0.5
				10-06-92	QC	ND	ND	ND																	<0.5
				07-07-92	QC	ND	ND	ND																	<0.5
				02-19-92	QC	1.6	ND	ND																	<0.5
				11-20-91	QC	ND	ND	ND																	<0.5
				08-28-91	QC	ND	ND	ND																	<0.5
				07-23-91	QC	ND	ND	ND																	<0.5
				05-29-91	QC	ND	ND	ND																	<0.5
				02-27-91	QC	ND	ND	ND																	<0.5
				02-01-91 (1)	MJR	ND		ND				ND	ND			ND								ND	<0.5
				12-19-90	QC	ND	ND	ND																	<0.5
				08-31-88	QC	ND	0.6	ND																	<0.5
				08-31-88 (1)	QC	ND	ND	ND				ND	ND			ND								ND	<0.5
				08-30-88	QC	ND	ND	ND																	<0.5
				08-29-88	QC	ND	0.9	ND																	<0.5
				08-23-88	QC	ND	ND	ND																	<0.5
				08-22-88 (1)	QC	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.5

Footnotes can be found at the end of this table

AR301449

Table 8-17 Summary of the Results of the Supply Well Sampling and Analysis Program Conducted by Thompson and Others, June 1986 through December 1995, Dublin NPL Site, Dublin, Pennsylvania

Reference Number	Address	Name	Well Depth (ft)	Sample Date	Lab	TCE	PCE	1,1,1-TCA	trans 1,2-DCE	1,2-DCE	1,1-DCA	1,2-DCA	1,1-DCE	Chloroform	Toluene	Vinyl chloride	Methylene chloride	1,2-Dichloropropane	trans-1,3-Dichloropropene	cis 1,3-Dichloropropene	Bromodichloromethane	Dibromochloromethane	Bromoform	Benzene	Quantitation Limit (ug/L)
75	Vacant Lot Behind Dublin Village Plaza (161 N. Main St.)	TCE Monitoring Well	400	04-28-93	QC	ND	ND	ND																	<0.5
				01-27-93	QC	ND	ND	ND																	<0.5
				10-06-92	QC	ND	ND	ND																	<0.5
				07-07-92	QC	ND	ND	ND																	<0.5
				04-21-92	QC	ND	ND	ND																	<0.5
				01-31-92	QC	0.8	ND	ND																	<0.5
				10-09-91	QC	ND	ND	ND																	<0.5
				04-17-91 (1)	LVA	ND	ND	ND	ND			ND	ND	ND			ND	6.2	ND	ND	ND	ND		ND		<1.0
				01-31-91	QC	ND	ND	ND																	<0.5
				08-01-90	QC	ND	ND	ND																	<0.5
				08-01-90	QC	ND	ND	ND																	<0.5
				08-01-90	QC	ND	ND	ND																	<0.5
				07-30-90	QC	ND	ND	ND																	<0.5
				07-26-90	QC	1.2	ND	ND																	<0.5
				07-25-90	QC	ND	ND	ND																	<0.5
76	Dublin Borough Well No. 1 Dublin Water Works Highland Ave. (Behind 152-180 S. Main St.)			*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
		Trip Blanks		12-11-95	QC	ND	ND									ND									
				12-07-95	QC	ND	ND									ND									
				12-06-95	QC	ND	ND									ND									
				12-05-95	QC	ND	ND									ND									
				09-07-95	QC	ND	ND									*ND*									<0.5
				09-06-95	QC	ND	ND									ND									<0.5
				06-24-95	QC	ND	ND	ND								ND									<0.5
				06-09-95	QC	ND	ND	ND								ND									<0.5
				06-08-95	QC	*ND*	*ND*	*ND*								ND									<0.5
				06-07-95	QC	ND	ND	ND								ND									<0.5
				06-06-95	QC	ND	ND	ND								ND									<0.5
				03-24-95	QC	ND	ND	ND								ND									<0.5
				03-08-95	QC	ND	ND	ND								ND									<0.5
				03-07-95	QC	ND	ND	ND								*ND*									<0.5
				03-06-95	QC	ND	ND	ND								ND									<0.5
				12-09-94	QC	ND	ND	ND								ND									<0.5
				12-08-94	QC	ND	ND	ND								ND									<0.5
				12-07-94	QC	ND	ND	ND								ND									<0.5
				12-06-94	QC	ND	ND	ND								ND									<0.5
				12-05-94	QC	ND	ND	ND								ND									<0.5

Footnotes can be found at the end of this table

AR301450

Table 8-17. Summary of the Results of the Supply Well Sampling and Analysis Program Conducted by Thompson and Others, June 1986 through December 1995, Dublin NPL Site, Dublin, Pennsylvania

Reference Number	Address	Name	Well Depth (ft)	Sample Date	Lab	TCE	PCE	1,1,1-TCA	trans 1,2-DCE	1,2-DCE	1,1-DCA	1,2-DCA	1,1-DCE	Chloroform	Toluene	Vinyl chloride	Methylene chloride	1,2-Dichloropropane	trans-1,3-Dichloropropene	cis-1,3-Dichloropropene	Bromodichloromethane	Dibromochloromethane	Bromoform	Benzene	Quantitation Limit (ug/L)
				09-23-94	QC	ND	ND	ND								ND									<0.5
				09-16-94	QC	ND	ND	ND								ND									<0.5
				09-14-94	QC	ND	ND	ND								ND									<0.5
				06-20-94	QC	ND	ND	ND								ND									<0.5
				06-16-94	QC	ND	ND	ND								ND									<0.5
				06-14-94	QC	ND	ND	ND								ND									<0.5
				06-13-94	QC	ND	ND	ND								ND									<0.5
				03-16-94	QC	ND	ND	ND								ND									<0.5
				03-15-94	QC	ND	ND	ND								ND									<0.5
				03-14-94	QC	ND	ND	ND								ND									<0.5
				12-28-93	QC	ND	ND	ND								ND									<0.5
				12-16-93	QC	ND	ND	ND								ND									<0.5
				12-15-93	QC	ND	ND	ND								ND									<0.5
				12-14-93	QC	ND	ND	ND								ND									<0.5
				12-13-93	QC	ND	ND	ND								ND									<0.5
				06-30-93	QC	ND	ND	ND								ND									<0.5
				06-24-93	QC	0.5	ND	ND								ND									<0.5
				06-23-93	QC	ND	ND	ND								ND									<0.5
				06-22-93	QC	ND	ND	ND								ND									<0.5
				04-28-93	QC	ND	ND	ND								ND									<0.5
				03-30-93	QC	ND	ND	ND								ND									<0.5
				03-23-93	QC	ND	ND	ND								ND									<0.5
				01-27-93	QC	ND	ND	ND								ND									<0.5
				12-15-92	QC	ND	ND									ND									<0.5
				12-09-92	QC	ND	ND									ND									<0.5
				12-08-92	QC	ND	ND									ND									<0.5
				12-07-92	QC	ND	ND									ND									<0.5
				10-06-92	QC	ND	ND	ND																	<0.5
				09-16-92	QC	ND	ND									ND									<0.5
				09-15-92	QC	ND	ND									ND									<0.5
				07-07-92	QC	ND	ND	ND																	<0.5
				06-18-92	QC	ND	ND	ND								ND									<0.5
				06-11-92	QC	ND	ND	ND								ND									<0.5
				06-10-92	QC	ND	ND	ND								ND									<0.5
				06-09-92	QC	ND	ND	ND								ND									<0.5
				06-08-92	QC	ND	ND	ND								ND									<0.5
				04-21-92	QC	ND	ND	ND																	<0.5

Footnotes can be found at the end of this table

AR301451

Table 8.17. Summary of the Results of the Supply Well Sampling and Analysis Program Conducted by Thompson and Others, June 1986 through December 1995, Dublin NPL Site, Dublin, Pennsylvania

Reference Number	Address	Name	Well Depth (ft)	Sample Date	Lab	TCE	PCE	1,1,1 TCA	trans 1,2-DCE	1,2-DCE	1,1-DCA	1,2 DCA	1,1-DCE	Chloroform	Toluene	Vinyl chloride	Methylene chloride	1,2-Dichloropropane	trans-1,3-Dichloropropene	cis 1,3 Dichloropropene	Bromodichloromethane	Dibromochloromethane	Bromoform	Benzene	Quantitation Limit (ug/L)
				03-10-92	QC	ND	ND									ND									< 0.5
				01-31-92	QC	ND	ND	ND																	< 0.5
				03-04-91	BCM	ND	ND									ND									< 1
				12-04-90	BCM	ND	ND									ND									< 1
				12-03-90	BCM	ND	ND									ND									< 1
				09-04-90	BCM	ND	ND									ND									< 1
				08-01-90	QC	ND	ND	ND																	< 0.5
				06-06-90	BCM	ND	ND									ND									< 1
				06-05-90	BCM	ND	ND									ND									< 1
				06-04-90	BCM	ND	ND									ND									< 1
				12-06-89	BCM	ND	ND									ND									< 1
				09-06-89	BCM	ND	ND									ND									< 1
				06-30-89	BCM	ND	ND									ND									< 1
				06-23-89	BCM	ND	ND									ND									< 1
				06-02-89	BCM	ND	ND									ND									< 1
				06-01-89	BCM	ND	ND									ND									< 1
				03-07-89	BCM	ND	ND									ND									< 1
				03-06-89	BCM	ND	ND									ND									< 1
				12-06-88	BCM	ND	ND									ND									< 1
				12-06-88	BCM	ND	ND									ND									< 1
				12-05-88	BCM	ND	ND									ND									< 1
				09-07-88	BCM	5.4	ND									ND									< 1
				09-06-88	BCM	ND	ND									ND									< 1
			**	07-07-88	BCM	ND	ND									ND									< 1
				06-07-88	BCM	ND	ND									ND									< 1
				06-06-88	BCM	ND	ND									ND									< 1
				03-01-88	BCM	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND		< 1
				02-29-88	BCM	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND		< 1
				12-22-87	BCM	ND	ND	ND	ND	ND	ND	ND	ND	3.4		ND	ND	ND	ND	ND	ND	ND	ND		< 1
				12-02-86	BCM	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	1.2	ND	ND	ND	ND	ND	ND		< 1
				12-21-87	BCM	ND	ND	ND	ND	ND	ND	ND	ND	8.0		ND	ND	ND	3.0	ND	ND	ND	ND		< 1
				12-01-87	BCM	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND		< 1
				11-30-87	BCM	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND		< 1
				12-02-86	BCM	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	1.2	ND	ND	ND	ND	ND	ND		< 1

Footnotes can be found at the end of this table

AR301452

Table 8-17. Summary of the Results of the Supply Well Sampling and Analysis Program Conducted by Thompson and Others, June 1986 through December 1995, Dublin NPL Site, Dublin, Pennsylvania.

Reference Number	Address	Name	Well Depth (ft)	Sample Date	Lab	TCE	PCE	1,1,1-TCA	trans 1,2-DCE	1,2-DCE	1,1-DCA	1,2-DCA	1,1-DCE	Chloroform	Toluene	Vinyl chloride	Methylene chloride	1,2-Dichloropropane	trans-1,3-Dichloropropene	cis-1,3-Dichloropropene	Bromodichloromethane	Dibromochloromethane	Bromoform	Benzene	Quantitation Limit (ug/L)
		Field Blanks		** 07-07-88	BCM	ND	ND									ND									<1
				06-07-88	BCM	ND	ND									ND									<1
				06-06-88	BCM	1.7	ND									ND									<1

All concentrations are reported in micrograms per liter (ug/L)
Only detected compounds are included.
Blank space indicates that compound was not analyzed for
< Less than.
> Greater than.
NA Not available.
ND Not detected.
PWS Permanently out of service
D Duplicate.
NS Not sampled.
* Estimated value
** Original data unavailable; values reported are from data summaries prepared by others.

The numbers listed in the Reference Number column are provided as a guide to the TCE results depicted on figure 8-3.

SOURCES

American Resource Consultants, Inc. 1995. March, June, *** Sampling Results, Dublin TCE Site.
American Resource Consultants, Inc. 1994. June 1994 Sampling Results, Dublin TCE Site.
BCM, Inc. 1991. Sampling Results, Dublin TCE Site. August 1991.
Dublin Borough. 1991 and 1992. Letters to Pennsylvania Department of Environmental Resources transmitting analytical results for Dublin Borough Well No. 3 and the TCE monitoring well.
Mercuri and Associates. 1988. Hydrogeologic Analysis of the Rossanelli Well. October 1988.
Mercuri and Associates. 1991. Report - TCE Monitoring Well, Dublin Borough, Dublin Bucks County PA. January 1991
Pennsylvania Department of Environmental Resources. 1989. Groundwater Inventory System, Bucks County, Pennsylvania. November 13, 1989
T. H. Cahill and Associates, and J. K. Adams and Associates. 1987a. Water Resources Managment, Dublin Borough, Bucks County, Pennsylvania

Note: This data has not been validated by Geraghty & Miller, Inc. Analytical results are presented as reported by others

y:\sprojects\Sequa\NJ0198.015\data\GWDBASE.XLS

LABORATORY DESIGNATIONS

AP	Aqua Pure Laboratories, Inc., Doylestown, Pennsylvania
BCM	BCM, Inc., Trenton, New Jersey
DEP	Pennsylvania Department of Environmental Protection.
LAN	Lancaster Laboratories, Lancaster, Pennsylvania.
LVA	Lehigh Valley Analytics
MJR	M.J. Reider Associates, Inc. of Reading, Pennsylvania.
PL	Private laboratory; resident did not provide name of laboratory.
PS	Priority Standard Laboratory
QC	Quality Control Laboratory, Southhampton, Pennsylvania.
EPA	United States Environmental Protection Agency.

COMPOUND ABBREVIATIONS

TCE	Trichloroethene
PCE	Tetrachloroethene
1,1,1-TCA	1,1,1-Trichloroethane
trans-1,2-DCE	trans-1,2-Dichloroethene
1,2-DCE	1,2-Dichloroethene
1,1-DCA	1,1-Dichloroethane
1,2-DCA	1,2-Dichloroethane
1,1-DCE	1,1-Dichloroethene

QUANTITATION LIMIT NOTES

(1) The quantitation limit for vinyl chloride in the Thompson Plant Well #2 sample analyzed on 9/10/91 was < 50 micrograms per liter (ug/L).
(2) The quantitation limit for vinyl chloride in this sample analysis was < 1.5 ug/L.
(3) The quantitation limit for vinyl chloride in the Farm Bureau sample analyzed on 9/10/91 was < 200 ug/L.
(4) The quantitation limit for vinyl chloride in this sample analysis was < 10 ug/L.
(5) The quantitation limit for vinyl chloride in this sample analysis was < 0.15 ug/L.
(6) The quantitation limit for vinyl chloride in the sample Emico, Inc. Well #1 was < 20 ug/L.
(7) The quantitation limit for vinyl chloride in sample 145 N. Main St. analyzed on 9/5/89 was < 1 ppb
(8) The quantitation limit for TCE in samples at 120 Mill, 124 N. Main, 145 N. Main, 146 N. Main Sts., and 104 Maple Ave. analyzed on 12/5 was 25 ug/L.
(9) The quantitation limit for TCE in samples at 122 N. Main St., 123 N. Main St. (Well Nos. 1 and 2), 126 N. Main St., and 146 Elephant Rd. analyzed on 9/5/89 was 5 ug/L.
(10) The quantitation limit for TCE in sample 104 Mill St. analyzed on 12/5/95 was 50 ug/L.
(11) The quantitation limit for TCE in samples at 130 N. Main, 133 N. Main, 138 N. Main, and 149 N. Main Sts. analyzed on 12/6/95 was 2.5 u

Footnotes can be found at the end of this table.

Table 8-18. Concentrations of Volatile Organic Compounds in Packer Test Groundwater Samples Collected from April through June 1994, Dublin NPL Site, Dublin, Pennsylvania.

	SITE:	BCM-01		BCM-01		FIRE_TOWER_WELL		FIRE_TOWER_WELL	
	SAMPLE ID:	PBCM1049		PBCM1070		PFT048		PFT170	
	DATE:	04/27/94		04/27/94		04/28/94		04/29/94	
PARAMETERS:	DEPTH:	29-49 feet		70-100 feet		28-48 feet		150-170 feet	
Chloromethane		< 0.50		< 0.50		< 0.50		< 0.50	
Bromomethane		< 0.50		< 0.50		< 0.50		< 0.50	
Vinyl chloride		1.2		0.24	J	12		7.0	
Chloroethane		< 0.50		< 0.50		< 0.50		< 0.50	
Methylene chloride		2.4		0.17	J	2.3		0.71	
Acetone		< 2.0		< 2.0		< 2.0		< 2.0	
Carbon disulfide		0.067	B	0.09	B	2.0	J	< 0.50	J
1,1-Dichloroethene		4.3		2.1		13		9.4	
1,1-Dichloroethane		0.58		0.36	J	4.3		2.2	
Chloroform		31		9.6		29		21	
2-Butanone		94	E	< 2.0		2.9		< 2.0	
1,1,1-Trichloroethane		14		4.0		16		5.6	
Carbon tetrachloride		< 0.50		3.0		< 0.50		< 0.50	
Bromodichloromethane		< 0.50		< 0.50		< 0.50		< 0.50	
1,2-Dichloropropane		< 0.50		< 0.50		< 0.50		< 0.50	
trans-1,3-Dichloropropene		< 0.50		< 0.50		< 0.50		< 0.50	
Trichloroethene		13000	D	5100	D	29000	D	20000	D
Dibromochloromethane		< 0.50		< 0.50		< 0.50		< 0.50	
1,1,2-Trichloroethane		2.0	J	< 0.50		5.8	J	4.0	J
Benzene		< 0.50		< 0.50		0.61		0.3	J
cis-1,3-Dichloropropene		< 0.50		< 0.50		< 0.50		< 0.50	
Bromoform		< 0.50		< 0.50		< 0.50		< 0.50	
4-Methyl-2-pentanone		< 2.0		< 2.0		< 2.0		< 2.0	
2-Hexanone		< 2.0		< 2.0		< 2.0		< 2.0	
1,1,2,2-Tetrachloroethane		0.34	J	< 0.50		< 0.50		< 0.50	
Tetrachloroethene		11		2.3		15		7.2	
Chlorobenzene		0.41	J	< 0.50		0.13	J	< 0.50	
Ethylbenzene		0.44	J	< 0.50		< 0.50		< 0.50	
Styrene		< 0.50		< 0.50		< 0.50		< 0.50	
Xylenes (total)		1.8		< 0.50		< 0.50		< 0.50	
1,2-Dichloroethene (cis/trans)		32		13		510	D	< 500	D
1,2-Dichloroethane		0.63		0.32	J	1.0		1.2	
1,2-Dichloro-1,1,2-trifluoroethane		4.0		2.0		54		27	
Toluene		120	JD	1.4		2.6		2.2	

Results reported in micrograms per liter (ug/L).
Values represent total concentrations unless noted.
Analysis performed by Enseco, Inc., of Somerset, N.J. using USEPA Method 524.2, Revision 3.0.

J Estimated value.
R Unusable value.
-- Not analyzed.
< Not detected at indicated reporting limit.
B Compound detected in an associated blank.
D Concentration determined at a secondary dilution factor.
E Concentration exceeded the calibration range of the instrument.
* Resampled, initial sampling yielded insufficient volume.

Table 8-18. Concentrations of Volatile Organic Compounds in Packer Test Groundwater Samples Collected from April through June 1994, Dublin NPL Site, Dublin, Pennsylvania.

PARAMETERS:	SITE:	FIRE_TOWER_WELL	FIRE_TOWER_WELL	FIRE_TOWER_WELL	FIRE_TOWER_WELL
	SAMPLE ID:	PFT390	PFT428	PFT478	PFT506
	DATE:	04/29/94	05/02/94	05/02/94	05/04/94
	DEPTH:	370-390 feet	408-428 feet	458-478 feet	478-506 feet
Chloromethane		< 0.50	< 0.50	< 0.50	< 250
Bromomethane		< 0.50	< 0.50	< 0.50	< 250
Vinyl chloride		3.8	21	25	< 250
Chloroethane		< 0.50	< 0.50	< 0.50	< 250
Methylene chloride		0.27 J	7.5	5.4	< 250
Acetone		< 2.0	< 2.0	< 2.0	< 1000
Carbon disulfide		0.50 B	< 0.50 J	0.19 B	88 B
1,1-Dichloroethene		4.3	12	19	< 250
1,1-Dichloroethane		2.1	4.4	5.0	< 250
Chloroform		1.3	48 EJ	59 EJ	< 250
2-Butanone		< 2.0	7.8	< 2.0	< 1000
1,1,1-Trichloroethane		1.6	9.0	14	< 250
Carbon tetrachloride		< 0.50	< 0.50	< 0.50	< 250 J
Bromodichloromethane		< 0.50	< 0.50	< 0.50	< 250
1,2-Dichloropropane		< 0.50	< 0.50	< 0.50	< 250
trans-1,3-Dichloropropene		< 0.50	< 0.50	< 0.50	< 250 J
Trichloroethene		7400 D	34000 D	55000 D	24000 D
Dibromochloromethane		< 0.50	< 0.50	< 0.50	< 250 J
1,1,2-Trichloroethane		< 0.50	8.4 J	11 J	< 250
Benzene		0.15 J	0.57	0.75	< 250
cis-1,3-Dichloropropene		< 0.50	< 0.50	< 0.50	< 250 J
Bromoform		< 0.50	< 0.50	< 0.50	< 250 J
4-Methyl-2-pentanone		< 2.0	< 2.0	< 2.0	< 1000
2-Hexanone		< 2.0	< 2.0	< 2.0	< 1000
1,1,2,2-Tetrachloroethane		< 0.50	< 0.50	< 0.50	< 250 J
Tetrachloroethene		2.4	10	18	< 250
Chlorobenzene		< 0.50	0.15 J	0.06 J	< 250
Ethylbenzene		< 0.50	0.18 J	0.12 J	< 250
Styrene		< 0.50	< 0.50	< 0.50	< 250
Xylenes (total)		< 0.50	0.81	0.54	< 250
1,2-Dichloroethene (cis/trans)		120 DJ	590 D	780 DJ	460
1,2-Dichloroethane		0.41 J	< 0.50	3.4	< 250
1,2-Dichloro-1,1,2-trifluoroethane		19	49	22	--
Toluene		1.4	23	2.0	< 250

Results reported in micrograms per liter (ug/L).
Values represent total concentrations unless noted.
Analysis performed by Enseco, Inc., of Somerset, N.J. using USEPA Method 524.2, Revision 3.0.

J Estimated value.
R Unusable value.
-- Not analyzed.
< Not detected at indicated reporting limit.
B Compound detected in an associated blank.
D Concentration determined at a secondary dilution factor.
E Concentration exceeded the calibration range of the instrument.
* Resampled, initial sampling yielded insufficient volume.

PARAMETERS:	SITE:	MW-01	MW-01	MW-01	MW-02	MW-02*
	SAMPLE ID:	P01125	P01220	P01281	P02011	P02050
	DATE:	05/06/94	05/06/94	05/09/94	04/19/94	04/25/94
	DEPTH:	105-125 feet	200-220 feet	254-281 feet	11-50 feet	11-50 feet
Chloromethane		< 5.0	< 0.50	< 2.5	< 1.0	< 0.50
Bromomethane		< 5.0	< 0.50	< 2.5	< 1.0	< 0.50
Vinyl chloride		< 5.0	< 0.50	< 2.5	< 1.0	0.27 J
Chloroethane		< 5.0	< 0.50	< 2.5	< 1.0	< 0.50
Methylene chloride		1.2 B	< 0.50	< 2.5	0.48 B	< 0.50
Acetone		< 20 J	< 2.0	< 10	< 4.0	< 2.0
Carbon disulfide		< 5.0	< 0.50 J	< 2.5 J	1.0 J	0.2 B
1,1-Dichloroethene		< 5.0	0.68	0.66 J	< 1.0	< 0.50
1,1-Dichloroethane		< 5.0	0.58	1.1 J	< 1.0	0.094 J
Chloroform		< 5.0	0.14 J	< 2.5	< 1.0	< 0.50
2-Butanone		< 20	< 2.0	< 10	32 J	34
1,1,1-Trichloroethane		< 5.0	1.9	1.6 J	< 1.0	0.41 J
Carbon tetrachloride		< 5.0 J	< 0.50 J	< 2.5 J	< 1.0	< 0.50
Bromodichloromethane		R	< 0.50	R	< 1.0	< 0.50
1,2-Dichloropropane		< 5.0	< 0.50	< 2.5	< 1.0	< 0.50
trans-1,3-Dichloropropene		R	< 0.50 J	R	< 1.0	< 0.50
Trichloroethene		120	300 D	160	0.45 J	41 D
Dibromochloromethane		< 5.0 J	< 0.50 J	< 2.5 J	< 1.0	< 0.50
1,1,2-Trichloroethane		< 5.0	< 0.50	< 2.5	< 1.0	< 0.50
Benzene		< 5.0	< 0.50	< 2.5	< 1.0	< 0.50
cis-1,3-Dichloropropene		< 5.0 J	< 0.50 J	< 2.5 J	< 1.0	< 0.50
Bromoform		< 5.0 J	< 0.50 J	< 2.5 J	< 1.0 J	< 0.50 J
4-Methyl-2-pentanone		R	< 2.0	R	< 4.0	< 2.0
2-Hexanone		< 20	< 2.0	< 10	< 4.0	< 2.0
1,1,2,2-Tetrachloroethane		< 5.0	< 0.50 J	< 2.5	< 1.0	< 0.50
Tetrachloroethene		< 5.0	0.089 J	< 2.5	< 1.0	0.32 J
Chlorobenzene		< 5.0	< 0.50	< 2.5	< 1.0	< 0.50
Ethylbenzene		< 5.0	< 0.50	< 2.5	< 1.0	0.061 J
Styrene		< 5.0	< 0.50	< 2.5	< 1.0	< 0.50
Xylenes (total)		< 5.0	< 0.50	< 2.5	< 1.0	0.32 J
1,2-Dichloroethene (cis/trans)		0.81 J	9.4	4.0	0.63 J	1.6
1,2-Dichloroethane		< 5.0	< 0.50	< 2.5	< 1.0	< 0.50
1,2-Dichloro-1,1,2-trifluoroethane		--	2.0	--	--	--
Toluene		16	0.96	2.8	44	37

Results reported in micrograms per liter (ug/L).
Values represent total concentrations unless noted.
Analysis performed by Enseco, Inc., of Somerset, N.J. using USEPA Method 524.2, Revision 3.0.

J Estimated value.
R Unusable value.
– Not analyzed.
< Not detected at indicated reporting limit.
B Compound detected in an associated blank.
D Concentration determined at a secondary dilution factor.
E Concentration exceeded the calibration range of the instrument.
* Resampled, initial sampling yielded *insufficient volume.*

Table 8-18. Concentrations of Volatile Organic Compounds in Packer Test Groundwater Samples Collected from April through June 1994, Dublin NPL Site, Dublin, Pennsylvania.

PARAMETERS:	SITE: / SAMPLE ID: / DATE: / DEPTH:	MW-02 P02100 04/26/94 100-120 feet	MW-02 P02128 04/26/94 128-148 feet	MW-03 P03080 04/19/94 80-100 feet	MW-04 P04020 04/22/94 10-30 feet	MW-04 P04040 04/22/94 40-60 feet
Chloromethane		< 0.50	< 0.50	< 1.0	< 100	< 100
Bromomethane		< 0.50	< 0.50	< 1.0	< 100	< 100
Vinyl chloride		0.27 J	< 0.50	< 1.0	< 100	< 100
Chloroethane		< 0.50	0.33 J	< 1.0	< 100	< 100
Methylene chloride		< 0.50	0.27 B	0.31 B	61 B	< 100
Acetone		< 0.50	< 2.0	< 4.0	< 400	< 400
Carbon disulfide		0.46 B	0.11 B	0.3 B	< 100 J	26 B
1,1-Dichloroethene		2.9	3.2	1.8	< 100	< 100
1,1-Dichloroethane		2.2	9.1	5.3	< 100	< 100
Chloroform		3.0	2.5	0.28 J	< 100	< 100
2-Butanone		< 2.0	27	47	< 400	< 400
1,1,1-Trichloroethane		24	120 D	48	< 100	< 100
Carbon tetrachloride		< 0.50	0.31 J	< 1.0	< 100	< 100
Bromodichloromethane		< 0.50	< 0.50	< 1.0	< 100 J	< 100
1,2-Dichloropropane		< 0.50	< 0.50	< 1.0	< 100	< 100
trans-1,3-Dichloropropene		< 0.50	< 0.50	< 1.0	< 100 J	< 100
Trichloroethene		2900 D	940 D	20	6900	7100
Dibromochloromethane		< 0.50	< 0.50	< 1.0	< 100 J	< 100
1,1,2-Trichloroethane		< 0.50	< 0.50	< 1.0	< 100	< 100
Benzene		< 0.50	< 0.50	< 1.0	< 100	< 100
cis-1,3-Dichloropropene		< 0.50	< 0.50	< 1.0	< 100 J	< 100
Bromoform		< 0.50 J	< 0.50 J	< 1.0 J	< 100 J	< 100
4-Methyl-2-pentanone		< 2.0	< 2.0	< 4.0	< 400	< 400
2-Hexanone		< 2.0	< 2.0	< 4.0	< 400	< 400
1,1,2,2-Tetrachloroethane		< 0.50	< 0.50	< 1.0	< 100	< 100
Tetrachloroethene		2.1	2.0	0.44 J	< 100	< 100
Chlorobenzene		< 0.50	< 0.50	< 1.0	< 100	< 100
Ethylbenzene		< 0.50	< 0.50	< 1.0	< 100	< 100
Styrene		< 0.50	< 0.50	< 1.0	< 100	< 100
Xylenes (total)		< 0.50	< 0.50	< 1.0	< 100	< 100
1,2-Dichloroethene (cis/trans)		98 D	11	3.5	290	310
1,2-Dichloroethane		< 0.50	< 25	< 1.0	< 100	< 100
1,2-Dichloro-1,1,2-trifluoroethane		11	2.0	--	--	--
Toluene		6.0	31	39	14 J	20 J

Results reported in micrograms per liter (ug/L).
Values represent total concentrations unless noted.
Analysis performed by Enseco, Inc., of Somerset, N.J. using USEPA Method 524.2, Revision 3.0.

J Estimated value.
R Unusable value.
-- Not analyzed.
< Not detected at indicated reporting limit.
B Compound detected in an associated blank.
D Concentration determined at a secondary dilution factor.
E Concentration exceeded the calibration range of the instrument.
* Resampled, initial sampling yielded insufficient volume.

	SITE:	MW-04	MW-05	MW-05	MW-05FR	MW-06
	SAMPLE ID:	P04065	P05195	P05222	P25222	P06040
	DATE:	04/25/94	04/13/94	04/14/94	04/14/94	04/11/94
PARAMETERS:	DEPTH:	65-85 feet	195-215 feet	222-258 feet	222-258 feet	40-80 feet
Chloromethane		< 0.50	< 0.50	< 2.5	< 0.50	< 0.50
Bromomethane		< 0.50	< 0.50	< 2.5	< 0.50	< 0.50
Vinyl chloride		8.5	< 0.50	< 2.5	< 0.50	< 0.50
Chloroethane		< 0.50	< 0.50	< 2.5	< 0.50	< 0.50
Methylene chloride		0.38 B	< 0.50	< 2.5	0.2 B	16 J
Acetone		< 2.0	< 2.0	< 10	< 2.0	3.2
Carbon disulfide		< 0.50 J	< 0.50	< 2.5	< 0.50	< 0.50
1,1-Dichloroethene		2.7	< 0.50	< 2.5	1.2	< 0.50
1,1-Dichloroethane		1.1	< 0.50	< 2.5	0.72	0.44 J
Chloroform		0.92	< 0.50	< 2.5	0.14 J	2.3
2-Butanone		< 2.0	< 2.0	< 10	< 2.0	72 D
1,1,1-Trichloroethane		1.8	< 0.50	4.8	5.3	4.0
Carbon tetrachloride		< 0.50	< 0.50	< 2.5	< 0.50	< 0.50
Bromodichloromethane		< 0.50	< 0.50	< 2.5	< 0.50	< 0.50
1,2-Dichloropropane		< 0.50	0.18 J	2.1 J	2.4	< 0.50
trans-1,3-Dichloropropene		< 0.50	< 0.50	< 2.5 J	< 0.50	< 0.50
Trichloroethene		6700 D	8.7	130	130 D	1.9
Dibromochloromethane		< 0.50	< 0.50 J	< 2.5 J	< 0.50 J	< 0.50 J
1,1,2-Trichloroethane		0.32 J	< 0.50	< 2.5	< 0.50	< 0.50
Benzene		< 0.50	< 0.50	< 2.5	< 0.50	< 0.50
cis-1,3-Dichloropropene		< 0.50	< 0.50	< 2.5 J	< 0.50	< 0.50
Bromoform		< 0.50 J	< 0.50 J	< 2.5 J	< 0.50 J	< 0.50 J
4-Methyl-2-pentanone		< 2.0	< 2.0	< 10	< 2.0	< 2.0
2-Hexanone		< 2.0	< 2.0	< 10	< 2.0	< 2.0
1,1,2,2-Tetrachloroethane		< 0.50	< 0.50	< 2.5	< 0.50	0.44 J
Tetrachloroethene		3.8	0.24 J	< 2.5	0.1 J	6.0
Chlorobenzene		< 0.50	< 0.50	< 2.5	< 0.50	0.96
Ethylbenzene		< 0.50	< 0.50	< 2.5	< 0.50	0.53
Styrene		< 0.50	< 0.50	< 2.5	< 0.50	< 0.50
Xylenes (total)		0.29 J	< 0.50	< 2.5	< 0.50	1.6
1,2-Dichloroethene (cis/trans)		170 DJ	0.26 J	4.8	5.2	0.11 J
1,2-Dichloroethane		< 0.50	< 0.50	< 2.5	< 0.50	1.8
1,2-Dichloro-1,1,2-trifluoroethane		11	2.0	--	--	--
Toluene		13	2.9	0.82 J	0.75	71 D

Results reported in micrograms per liter (ug/L).
Values represent total concentrations unless noted.
Analysis performed by Enseco, Inc., of Somerset, N.J. using USEPA Method 524.2, Revision 3.0.

J Estimated value.
R Unusable value.
– Not analyzed.
< Not detected at indicated reporting limit.
B Compound detected in an associated blank.
D Concentration determined at a secondary dilution factor.
E Concentration exceeded the calibration range of the instrument.
* Resampled, initial sampling yielded insufficient volume.

	SITE:	MW-06	MW-07	MW-08	MW-08	MW-08
	SAMPLE ID:	P060408	P07130	P08014A	P08100B	P08125A
	DATE:	04/08/94	06/13/94	04/07/94	04/06/94	04/06/94
PARAMETERS:	DEPTH:	80-100 feet	95-130 feet	14-45 feet	100-120 feet	125-145 feet
Chloromethane		< 0.50	R	< 0.50	< 0.50	< 0.50
Bromomethane		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Vinyl chloride		< 0.50	< 0.50 J	< 0.50	< 0.50	< 0.50
Chloroethane		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Methylene chloride		0.51 B	0.12 B	0.97 B	7.7 J	2.7 B
Acetone		< 2.0	1.1 B	< 2.0	< 2.0	< 2.0
Carbon disulfide		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,1-Dichloroethene		< 0.50	< 0.50	< 0.50	< 0.50	3.5
1,1-Dichloroethane		< 0.50	< 0.50	0.089 J	0.31 J	2.6
Chloroform		< 0.50	0.092 J	0.11 J	< 0.50	0.41 J
2-Butanone		< 2.0	< 2.0	< 2.0	< 2.0	25
1,1,1-Trichloroethane		< 0.50	0.091 J	0.59	3.4	9.8
Carbon tetrachloride		< 0.50	0.073 J	< 0.50	< 0.50	< 0.50
Bromodichloromethane		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,2-Dichloropropane		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
trans-1,3-Dichloropropene		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Trichloroethene		0.095 J	15	14	21	240 D
Dibromochloromethane		< 0.50 J	< 0.50	< 0.50 J	< 0.50 J	< 0.50 J
1,1,2-Trichloroethane		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Benzene		< 0.50	< 0.50	< 0.50	0.1 J	< 0.50
cis-1,3-Dichloropropene		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Bromoform		< 0.50 J	< 0.50	< 0.50 J	< 0.50 J	< 0.50 J
4-Methyl-2-pentanone		< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
2-Hexanone		< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
1,1,2,2-Tetrachloroethane		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Tetrachloroethene		0.43 J	< 0.50	1.5	5.6	3.6
Chlorobenzene		< 0.50	< 0.50	0.27 J	0.54	0.75
Ethylbenzene		< 0.50	< 0.50	0.17 J	0.43	0.43 J
Styrene		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Xylenes (total)		< 0.50	< 0.50	0.53	1.1	1.5
1,2-Dichloroethene (cis/trans)		< 0.50	0.18 J	1.7	2.2	16
1,2-Dichloroethane		< 0.50	< 0.50	0.083 J	0.55	0.4 J
1,2-Dichloro-1,1,2-trifluoroethane		–	–	--	--	3.0
Toluene		3.8	0.29 J	10	20	40 D

Results reported in micrograms per liter (ug/L).
Values represent total concentrations unless noted.
Analysis performed by Enseco, Inc., of Somerset, N.J. using USEPA Method 524.2, Revision 3.0.

J Estimated value.
R Unusable value.
– Not analyzed.
< Not detected at indicated reporting limit.
B Compound detected in an associated blank.
D Concentration determined at a secondary dilution factor.
E Concentration exceeded the calibration range of the instrument.
* Resampled, initial sampling yielded insufficient volume.

	SITE:	MW-08	MW-09D	MW-09D	MW-09D	MW-09D
	SAMPLE ID:	P08199A	P9D180	P9D255	P9D275	P9D320
	DATE:	04/05/94	05/31/94	06/01/94	06/02/94	06/02/94
PARAMETERS:	DEPTH:	199-230 feet	82-180 feet	235-255 feet	255-275 feet	300-320 feet
Chloromethane		< 0.50	< 0.50 J	< 0.50 J	< 0.50 J	< 0.50
Bromomethane		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Vinyl chloride		0.42 J	< 0.50	< 0.50	< 0.50	< 0.50
Chloroethane		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Methylene chloride		0.19 B	< 0.50	< 0.50	< 0.50	0.17 B
Acetone		< 2.0	< 2.0	< 2.0	2.3 J	< 2.0
Carbon disulfide		< 0.50	0.76	< 0.50	< 0.50	< 0.50
1,1-Dichloroethene		1.4	< 0.50	< 0.50	< 0.50	< 0.50
1,1-Dichloroethane		0.22 J	< 0.50	< 0.50	< 0.50	< 0.50
Chloroform		0.34 J	< 0.50	< 0.50	< 0.50	< 0.50
2-Butanone		< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
1,1,1-Trichloroethane		1.1	< 0.50	< 0.50	< 0.50	< 0.50
Carbon tetrachloride		< 0.50	< 0.50	< 0.50	< 0.50 J	< 0.50 J
Bromodichloromethane		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,2-Dichloropropane		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
trans-1,3-Dichloropropene		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50 J
Trichloroethene		370 D	0.11 J	0.16 J	< 0.50	0.21 J
Dibromochloromethane		< 0.50 J	< 0.50	< 0.50	< 0.50	< 0.50 J
1,1,2-Trichloroethane		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Benzene		0.08 J	< 0.50	< 0.50	< 0.50	< 0.50
cis-1,3-Dichloropropene		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Bromoform		< 0.50 J	< 0.50 J	< 0.50 J	< 0.50 J	< 0.50 J
4-Methyl-2-pentanone		< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
2-Hexanone		< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
1,1,2,2-Tetrachloroethane		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Tetrachloroethene		0.42 J	< 0.50	< 0.50	< 0.50	< 0.50
Chlorobenzene		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Ethylbenzene		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Styrene		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Xylenes (total)		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,2-Dichloroethene (cis/trans)		200 D	< 0.50	< 0.50	< 0.50	< 0.50
1,2-Dichloroethane		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,2-Dichloro-1,1,2-trifluoroethane		--	--	--	ND	--
Toluene		2.5	0.52	0.065 J	< 0.50	0.97

Results reported in micrograms per liter (ug/L).
Values represent total concentrations unless noted.
Analysis performed by Enseco, Inc., of Somerset, N.J. using USEPA Method 524.2, Revision 3.0.

J Estimated value.
R Unusable value.
-- Not analyzed.
< Not detected at indicated reporting limit.
B Compound detected in an associated blank.
D Concentration determined at a secondary *dilution factor*.
E Concentration exceeded the calibration range of the instrument.
* Resampled, initial sampling yielded insufficient volume.

Table 8-18. Concentrations of Volatile Organic Compounds in Packer Test Groundwater Samples Collected from April through June 1994, Dublin NPL Site, Dublin, Pennsylvania.

	SITE:	MW-09D	MW-09D	MW-09S	MW-09S	MW-10
	SAMPLE ID:	P9D380	P9D460	P9S126	P9S151	P10080
	DATE:	06/02/94	06/13/94	05/25/94	05/26/94	05/13/94
PARAMETERS:	DEPTH:	360-380 feet	440-460 feet	106-126 feet	130.5-151 feet	50-80 feet
Chloromethane		< 0.50	< 0.50 J	< 0.50	< 0.50	< 0.50
Bromomethane		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Vinyl chloride		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Chloroethane		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Methylene chloride		0.18 B	0.25 B	0.14 B	0.13 B	0.13 J
Acetone		3.7	< 2.0	< 2.0	< 2.0	< 2.0
Carbon disulfide		< 0.50	< 0.50	0.058 J	1.8	< 0.50
1,1-Dichloroethene		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,1-Dichloroethane		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Chloroform		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
2-Butanone		< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
1,1,1-Trichloroethane		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Carbon tetrachloride		< 0.50 J	< 0.50 J	< 0.50	< 0.50	R
Bromodichloromethane		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,2-Dichloropropane		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
trans-1,3-Dichloropropene		< 0.50 J	< 0.50	< 0.50	< 0.50	< 0.50
Trichloroethene		1.2	1.3	0.17 J	0.16 J	0.89
Dibromochloromethane		< 0.50 J	< 0.50	< 0.50	< 0.50	< 0.50
1,1,2-Trichloroethane		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Benzene		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
cis-1,3-Dichloropropene		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Bromoform		< 0.50 J	< 0.50 J	< 0.50 J	< 0.50 J	< 0.50 J
4-Methyl-2-pentanone		< 2.0	< 2.0	< 2.0	< 2.0	< 2.0 J
2-Hexanone		< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
1,1,2,2-Tetrachloroethane		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Tetrachloroethene		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Chlorobenzene		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Ethylbenzene		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Styrene		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Xylenes (total)		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,2-Dichloroethene (cis/trans)		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,2-Dichloroethane		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,2-Dichloro-1,1,2-trifluoroethane		–	ND	–	--	--
Toluene		6.5	2.7	1.5	1.2	1.5

Results reported in micrograms per liter (ug/L).
Values represent total concentrations unless noted.
Analysis performed by Enseco, Inc., of Somerset, N.J. using USEPA Method 524.2, Revision 3.0.

J Estimated value.
R Unusable value.
– Not analyzed.
< Not detected at indicated reporting limit.
B Compound detected in an associated blank.
D Concentration determined at a secondary dilution factor.
E Concentration exceeded the calibration range of the instrument.
* Resampled, initial sampling yielded insufficient volume.

Table 8-18. Concentrations of Volatile Organic Compounds in Packer Test Groundwater Samples Collected from April through June 1994, Dublin NPL Site, Dublin, Pennsylvania.

	SITE:	MW-10	MW-11	MW-11
	SAMPLE ID:	P10295	P11210	P11452
	DATE:	05/16/94	05/18/94	05/19/94
PARAMETERS:	DEPTH:	265-295 feet	180-210 feet	422-452 feet
Chloromethane		< 0.50	< 0.50	< 0.50
Bromomethane		< 0.50	< 0.50	< 0.50
Vinyl chloride		< 0.50	< 0.50	< 0.50
Chloroethane		< 0.50	< 0.50	< 0.50
Methylene chloride		< 0.50	0.11 J	0.18 B
Acetone		< 2.0	< 2.0	< 2.0
Carbon disulfide		< 0.50	< 0.50	< 0.50
1,1-*Dichloroethene*		< 0.50	< 0.50	< 0.50
1,1-Dichloroethane		< 0.50	< 0.50	< 0.50
Chloroform		< 0.50	< 0.50	< 0.50
2-Butanone		< 2.0	< 2.0	< 2.0
1,1,1-Trichloroethane		0.37 J	< 0.50	0.12 J
Carbon tetrachloride		R	R	< 0.50
Bromodichloromethane		< 0.50	< 0.50	< 0.50
1,2-Dichloropropane		< 0.50	< 0.50	< 0.50
trans-1,3-Dichloropropene		< 0.50	< 0.50	< 0.50
Trichloroethene		1.1	0.34 J	5.9
Dibromochloromethane		< 0.50	< 0.50	< 0.50 J
1,1,2-Trichloroethane		< 0.50	< 0.50	< 0.50
Benzene		< 0.50	< 0.50	< 0.50
cis-1,3-Dichloropropene		< 0.50	< 0.50	< 0.50
Bromoform		< 0.50 J	< 0.50 J	< 0.50
4-Methyl-2-pentanone		< 2.0 J	< 2.0 J	< 2.0
2-Hexanone		< 2.0	< 2.0	< 2.0
1,1,2,2-Tetrachloroethene		< 0.50	< 0.50	< 0.50
Tetrachloroethene		< 0.50	< 0.50	0.16 J
Chlorobenzene		< 0.50	< 0.50	< 0.50
Ethylbenzene		< 0.50	< 0.50	< 0.50
Styrene		< 0.50	< 0.50	< 0.50
Xylenes (total)		< 0.50	< 0.50	0.19 J
1,2-Dichloroethene (cis/trans)		< 0.50	< 0.50	< 0.50
1,2-Dichloroethane		< 0.50	< 0.50	< 0.50
1,2-Dichloro-1,1,2-trifluoroethane		--	--	--
Toluene		0.49 J	0.98	5.9

Results reported in micrograms per liter (ug/L).
Values represent total concentrations unless noted.
Analysis performed by Enseco, Inc., of Somerset, N.J. using USEPA Method 524.2, Revision 3.0.

J Estimated value.
R Unusable value.
-- Not analyzed.
< Not detected at indicated reporting limit.
B Compound detected in an associated blank.
D *Concentration determined at a secondary* dilution factor.
E Concentration exceeded the calibration range *of the instrument.*
* Resampled, initial sampling yielded insufficient volume.

Table 8-19. Concentrations of Volatile Organic Compounds in Groundwater Samples Collected in September 1995, Dublin NPL Site, Dublin, Pennsylvania.

Parameters (ug/L)	SAMPLE I.D DATE: DEPTH:	DVPW-2 9/25/95 600 feet	DVPW-2 9/28/95 630 feet	TB092595 9/25/95	TB092795 9/28/95
Chloromethane		0.5 U	0.5 U	0.5 U	0.5 U
Bromomethane		0.5 U	0.5 U	0.5 U	0.5 U
Vinyl Chloride		0.5 U	0.5 U	0.5 U	0.5 U
Chloroethane		0.5 U	0.5 U	0.5 U	0.5 U
Methylene Chloride		0.5 U	0.5 U	0.5 U	0.5 U
Acetone		2.0 U	2.0 U	2.0 U	2.0 U
Carbon Disulfide		0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethene		0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane		0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethene (total)		0.5 U	0.5 U	0.5 U	0.5 U
Chloroform		0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane		0.5 U	0.5 U	0.5 U	0.5 U
2-Butanone		2.0 U	2.0 U	2.0 U	2.0 U
1,1,1-Trichloroethane		0.5 U	0.5 U	0.5 U	0.5 U
Carbon Tetrachloride		0.5 U	0.5 U	0.5 U	0.5 U
Bromodichloromethane		0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloropropane		0.5 U	0.5 U	0.5 U	0.5 U
cis-1,3-Dichloropropene		0.5 U	0.5 U	0.5 U	0.5 U
Trichloroethene		0.5 U	0.97	0.5 U	0.5 U
Dibromochloromethane		0.5 U	0.5 U	0.5 U	0.5 U
1,1,2-Trichloroethane		0.5 U	0.5 U	0.5 U	0.5 U
Benzene		0.5 U	0.5 U	0.5 U	0.5 U
Trans-1,3-Dichloropropene		0.5 U	0.5 U	0.5 U	0.5 U
Bromoform		0.5 U	0.5 U	0.5 U	0.5 U
4-Methyl-2-Pentanone		2.0 U	2.0 U	2.0 U	2.0 U
2-Hexanone		2.0 U	2.0 U	2.0 U	2.0 U
Tetrachloroethene		0.5 U	0.5 U	0.5 U	0.5 U
Toluene		3.6	0.5 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane		0.5 U	0.5 U	0.5 U	0.5 U
Chlorobenzene		0.5 U	0.5 U	0.5 U	0.5 U
Ethylbenzene		0.5 U	0.5 U	0.5 U	0.5 U
Styrene		0.5 U	0.5 U	0.5 U	0.5 U
Total Xylenes		1.0 U	1.0 U	1.0 U	1.0 U

Samples were analyzed by U.S. Environmental Protection Agency (USEPA) Method 524.2, Revision 3.0 by IEA Laboratories in Whippany, New Jersey.

ug/L	Micrograms per liter.
U	The compound was analyzed for, but not detected at the corresponding reporting limits.
DVPW	Dublin Village Plaza Well.
TB	*Trip blank.*

Table 8-20. Concentrations of Volatile Organic Compounds in Groundwater Samples Collected in December 1995, Dublin NPL Site, Dublin NPL Site, Dublin, Pennsylvania

Parameters (ug/L)	Sample I.D.: / Sample Date:	BCM1-1 12/13/95	BCM1-2 12/13/95	BCM1-3 12/14/95	BCM1-4 12/14/95	BCM1-5 12/15/95	FTW-1 12/13/95	FTW-2 12/13/95	FTW-3 12/14/95	FTW-3FR 12/14/95	FTW-4 12/15/95	FTW1-5 12/15/95
Chloromethane		500 UJ	0.5 U	0.5 U	500 UJ	500 U	250 UJ	0.5 U	0.5 U	0.5 U	500 UL	100 U
Bromomethane		500 U	0.5 U	0.5 U	500 U	500 U	250 U	0.5 U	0.5 U	0.5 U	500 UL	100 U
Vinyl chloride		500 UJ	0.5 U	0.5 U	500 UJ	500 U	250 UJ	0.5 U	0.5 U	0.5 U	500 UL	100 U
Chloroethane		500 U	0.5 U	0.5 U	500 U	500 U	250 U	0.5 U	0.5 U	0.5 U	500 UL	100 U
Methylene chloride		500 U	0.5 U	0.5 U	500 U	500 U	250 U	0.5 U	0.5 U	0.5 U	500 UL	100 U
Acetone		R	R	R	R	R	R	R	R	R	R	R
Carbon disulfide		500 U	0.5 U	1.2	500 U	500 U	250 U	0.5 U	0.5 U	0.5 U	500 UL	100 U
1,1-Dichloroethene		500 UJ	6.1	5.8	500 UJ	500 U	250 UJ	1.3	1.3	1.4	500 UL	100 U
1,1-Dichloroethane		500 U	0.5 U	0.5 U	500 U	500 U	250 U	0.64	0.58	0.58	500 UL	100 U
1,2-Dichloroethene(total)		500 U	29 EJ	27 EJ	500 UJ	500 U	250 U	37 EJ	32 EJ	32 EJ	500 UL	100 U
Chloroform		500 U	16	15	500 U	500 U	250 U	0.86	0.7	0.84	500 UL	100 U
1,2-Dichloroethane		500 UJ	0.5 U	0.5 U	500 U	500 U	250 UJ	0.5 U	0.5 U	0.5 U	500 UL	100 U
2-Butanone		R	R	R	R	R	R	R	R	R	R	R
1,1,1-Trichloroethane		500 UJ	5	4.8	500 U	500 U	250 UJ	0.88	0.74	0.75	500 UL	100 U
Carbon tetrachloride		500 U	0.5 U	0.5 U	500 U	500 U	250 U	0.5 U	0.5 U	0.5 U	500 UL	100 U
Bromodichloromethane		500 U	0.5 U	0.5 U	500 U	500 U	250 U	0.5 U	0.5 U	0.5 U	500 UL	100 U
1,2-Dichloropropane		500 U	0.5 U	0.5 U	500 U	500 U	250 U	0.5 U	0.5 U	0.5 U	500 UL	100 U
cis-1,3-Dichloropropene		500 U	0.5 U	0.5 U	500 UJ	500 U	250 U	0.5 U	0.5 U	0.5 U	500 UL	100 U
Trichloroethene		9,600	9,500 D	8,200 D	9,500	8,500	3,200	1,800 D	2,000 D	1,800 D	1,500 L	1,600
Dibromochloromethane		500 U	0.5 U	0.5 U	500 U	500 U	250 U	0.5 U	0.5 U	0.5 U	500 UL	100 U
1,1,2-Trichloroethane		500 U	0.5 U	0.5 U	500 U	500 U	250 U	0.5 U	0.5 U	0.5 U	500 UL	100 U
Benzene		500 U	0.5 U	0.5 U	500 U	500 U	250 U	0.5 U	0.5 U	0.5 U	500 UL	100 U
trans-1,3-Dichloropropene		500 U	0.5 U	0.5 U	500 UJ	500 U	250 U	0.5 U	0.5 U	0.5 U	500 UL	100 U
Bromoform		500 U	0.5 U	0.5 U	500 UJ	500 U	250 UJ	0.5 U	0.5 U	0.5 U	500 UL	100 U
4-Methyl-2-pentanone		5,000 UJ	5 U	5 U	5,000 U	5,000 U	2,500 U	5 U	5 U	5 U	5,000 UL	1,000 U
2-Hexanone		R	R	R	R	R	R	R	R	R	R	R
Tetrachloroethene		500 U	4.2	4	500 U	500 U	250 U	0.68	0.56	0.59	500 UL	100 U
Toluene		500 U	0.5 U	0.5 U	500 U	500 U	250 U	0.5 U	0.5 U	0.5 U	500 UL	100 U

See last page for footnotes.

Table 8-20. Concentrations of Volatile Organic Compounds in Groundwater Samples Collected in December 1995, Dublin NPL Site, Dublin NPL Site, Dublin, Pennsylvania

Parameters (ug/L)	Sample I.D.: / Sample Date:	BCM1-1 12/13/95	BCM1-2 12/13/95	BCM1-3 12/14/95	BCM1-4 12/14/95	BCM1-5 12/15/95	FTW-1 12/13/95	FTW-2 12/13/95	FTW-3 12/14/95	FTW-3FR 12/14/95	FTW-4 12/15/95	FTW1-5 12/15/95
1,1,2,2-Tetrachloroethane		500 U	0.5 U	0.5 U	500 U	500 U	250 U	0.5 U	0.5 U	0.5 U	500 UL	100 U
Chlorobenzene		500 U	0.5 U	0.5 U	500 U	500 U	250 U	0.5 U	0.5 U	0.5 U	500 UL	100 U
Ethylbenzene		500 U	0.5 U	0.5 U	500 U	500 U	250 U	0.5 U	0.5 U	0.5 U	500 UL	100 U
Styrene		500 U	0.5 U	0.5 U	500 U	500 U	250 U	0.5 U	0.5 U	0.5 U	500 UL	100 U
Total xylenes		1,000 U	1 U	1 U	1,000 U	1,000 U	500 U	1 U	1 U	1 U	1,000 UL	200 U

See last page for footnotes.

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Table 8-20. Concentrations of Volatile Organic Compounds in Groundwater Samples Collected in December 1995, *Dublin NPL Site*, Dublin, Pennsylvania.

Parameters	Sample I.D.: / Sample Date:	MW4-1 12/13/95	MW4-4 12/14/95	MW4-5 12/15/95	MW8-1 12/13/95	MW8-2 12/13/95	MW8-4 12/14/95	MW8-5 12/15/95	TB121495 12/14/95	TB121595 12/15/95
Chloromethane		0.5 U	250 UJ	500 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U
Bromomethane		0.5 U	250 U	500 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Vinyl chloride		6.4	250 UJ	500 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U
Chloroethane		0.5 U	250 U	500 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methylene chloride		0.5 U	250 U	500 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Acetone		R	R	R	R	R	R	R	R	R
Carbon disulfide		0.5 U	250 U	500 U	0.61 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethene		1.3	250 UJ	500 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane		1.4	250 U	500 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethene(total)		74 JD	250 U	500 U	0.5 U	1.3	1.3	1.2	0.5 U	0.5 U
Chloroform		0.65	250 U	500 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane		0.5 U	250 U	500 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Butanone		5 U	R	R	R	R	R	R	R	R
1,1,1-Trichloroethane		0.66	250 UJ	500 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U
Carbon tetrachloride		0.5 U	250 U	500 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromodichloromethane		0.5 U	250 U	500 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloropropane		0.5 U	250 U	500 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
cis-1,3-Dichloropropene		0.5 U	250 U	500 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U
Trichloroethene		3,600 D	3,800	2,800	9.1 J	11	10	9.6	0.5 U	0.5 U
Dibromochloromethane		0.5 U	250 U	500 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2-Trichloroethane		0.5 U	250 U	500 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Benzene		0.5 U	250 U	500 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
trans-1,3-Dichloropropene		0.5 U	250 UJ	500 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
Bromoform		0.5 U	250 UJ	500 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
4-Methyl-2-pentanone		5 U	2,500 U	5,000 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Hexanone		R	R	R	R	R	R	R	R	R
Tetrachloroethene		3.4	250 U	500 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Toluene		0.5 U	250 U	500 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

See last page for footnotes.

AR301467

Table 8-20. Concentrations of Volatile Organic Compounds in Groundwater Samples Collected in December 1995, Dublin NPL Site, Dublin, Pennsylvania.

Parameters	Sample I.D.: / Sample Date:	MW4-1 12/13/95	MW4-4 12/14/95	MW4-5 12/15/95	MW8-1 12/13/95	MW8-2 12/13/95	MW8-4 12/14/95	MW8-5 12/15/95	TB121495 12/14/95	TB121595 12/15/95
1,1,2,2-Tetrachloroethane		0.5 U	250 U	500 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chlorobenzene		0.5 U	250 U	500 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Ethylbenzene		0.5 U	250 U	500 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Styrene		0.5 U	250 U	500 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Total xylenes		1 U	500 U	1,000 U	1 U	1 U	1 U	1 U	1 U	1 U

ug/L	Micrograms per liter.
U	The compound was analyzed for, but not detected at the corresponding reporting limits.
J	Estimated value.
R	Result rejected.
E	Compound exceeded the calibration range.
D	Compound concentration was determined at a secondary dilution.
L	Reported value may be biased low. Actual value is expected to be higher.
FR	Field replicate of previous sample.
FTW	Fire Tower Well; sample collected at the start of the pumping test.
FTW-2	Sample collected after 12 hours of pumping.
FTW-3	Sample collected after 24 hours of pumping.
FTW-4	Sample collected after 36 hours of pumping.
FTW-5	Sample collected after 48 hours of pumping at the end of the test.
TB121495	Trip blank.

Table 8-21. *Concentrations of Miscellaneous Compounds in Groundwater Samples Collected in December 1995,* Dublin NPL Site, Dublin, Pennsylvania.

Parameters	Units	Sample I.D.: / Sample Date:	FTW-2 12/13/95	FTW-3 12/14/95	FTW-4 12/15/95	FTW1-5 3/20/96
Miscellaneous Parameters						
MBAS	mg/L		--	--	--	0.04 U
Fluoride	mg/L		--	--	--	0.2
Color	C.P. Units		--	--	--	5.0 U
Turbidity	NTU		--	--	--	0.5 U
Odor	T.O.N.		--	--	--	1.0
Chloride (titrimetric)	mg/L		--	--	--	43
Sulfate (turbidimetric)	mg/L		--	--	--	50
Sulfide	mg/L		--	--	--	2.0 U
Total Hardness	mg/L		218	273	210	249
Ethylene dibromide	mg/L		--	--	--	0.2 U
1,2-Dibromo-3-chloropropane	mg/L		--	--	--	0.2 U
Methane	ppmv		--	--	--	10 U
Endothall	ug/L		--	--	--	20 U
Nitrite Nitrogen	mg/L		--	--	--	0.02 U
Nitrate Nitrogen	mg/L		--	--	--	0.63
Cyanide (free)	mg/L		--	--	--	0.005 U
Total Organic Carbon	mg/L		--	--	--	1.0 U
Total Phosphorus	mg/L		--	--	--	0.2 U
pH	S.U.		--	--	--	7.98
Alkalinity to pH 8.3	mg/L		0.3 U	0.3 U	1.0 U	1.0 U
Alkalinity to pH 4.5	mg/L		188	188	209	197
Total Suspended Solids	mg/L		9 UJ	9 UJ	9 U	9.0
Total Dissolved Solids	mg/L		--	--	340	340
Fecal coliform	per 100 mL		350	350	--	1 U
Total coliform[4]	per 100 mL		--	--	--	Positive
Radionuclides						
Gross Alpha	pCi/L		--	--	--	2.02 ± 1.31
Gross Beta	pCi/L		--	--	--	7.49 ± 2.53
U-234	pCi/L		--	--	--	1.41 ± 0.28
U-235	pCi/L		--	--	--	-0.01 ± 0.09
U-238	pCi/L		--	--	--	0.55 ± 0.18
Ra-226	pCi/L		--	--	--	0.25 ± 0.06
Ra-228	pCi/L		--	--	--	1.02 ± 0.88
Radon - 222	pCi/L		--	--	--	1,200 ± 200

See last page for footnotes.

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Table 8-21. Concentrations of Miscellaneous Compounds in Groundwater Samples Collected in December 1995, Dublin NPL Site, Dublin, Pennsylvania.

Parameters	Units	Sample I.D.: Sample Date:	FTW1-5 12/15/95	FTW1-5FR 12/15/95
BNAs				
Hexachlorocyclopentadiene	ug/L		1.0 U	1.0 U
bis(2-Ethylhexyl)adipate	ug/L		2.0 U	2.0 U
bis(2-Ethylhexyl)phthalate	ug/L		0.7 J	0.9 J
Benzo(a)pyrene	ug/L		0.2 U	0.2 U
Hexchlorobenzene[1]	ug/L		0.02 U	--
Pentachlorophenol[2]	ug/L		0.2 U	--
Pesticides/PCBs				
Gamma-HCH (BHC) - (Lindane)	ug/L		0.02 U	0.03 U
Heptachlor	ug/L		0.03 U	0.04 U
Heptachlor epoxide	ug/L		0.03 U	0.04 U
Endrin	ug/L		0.06 U	0.08 U
Methoxychlor*	ug/L		0.2 U	0.3 U
Technical chlordane	ug/L		0.5 U	0.6 U
Toxaphene	ug/L		3 U	0.4 U
Propachlor[3]	ug/L		1.0 U	1.0 U
Simazine[3]	ug/L		1.0 U	1.0 U
Atrazine[3]	ug/L		1.0 U	1.0 U
Metribuzin[3]	ug/L		2.0 U	2.0 U
Alachlor[3]	ug/L		1.0 U	1.0 U
Metolachlor[3]	ug/L		2.0 U	2.0 U
Butachlor[3]	ug/L		1.0 U	1.0 U
Aroclor-1016	ug/L		0.06 U	0.08 U
Aroclor-1221	ug/L		0.2 U	0.3 U
Aroclor-1232	ug/L		0.2 U	0.3 U
Aroclor-1242	ug/L		0.3 U	0.4 U
Aroclor-1248	ug/L		0.3 U	0.4 U
Aroclor-1254	ug/L		0.3 U	0.4 U
Aroclor-1260	ug/L		0.4 U	0.5 U
Herbicides				
2,4-D	ug/L		2 U	--
2,4,5-TP (silver)	ug/L		0.5 U	--
Dinoseb	ug/L		1 U	--
Dalapon	ug/L		2 U	--
Picloram	ug/L		0.5 U	--
Dicamba	ug/L		0.5 U	--

See last page for footnotes.

Table 8-21. Concentrations of Miscellaneous Compounds in Groundwater Samples Collected in December 1995, Dublin NPL Site, Dublin, Pennsylvania.

Parameters	Units	Sample I.D.: Sample Date:	FTW1-5 12/15/95	FTW1-5FR 12/15/95
Carbamates				
Aldicarb sulfoxide	ug/L		2 U	--
Aldicarb sulfone	ug/L		2 U	--
Oxamyl	ug/L		4 U	--
Methomyl	ug/L		2 U	--
Carbofuran 3-OH	ug/L		4 U	--
Aldicarb	ug/L		3 U	--
Baygon	ug/L		4 U	--
Carbofuran	ug/L		4 U	--
Cabaryl	ug/L		4 U	--
Methiocarb	ug/L		4 U	--

All analyses were by U.S. Environmental Protection Agency (USEPA) 500 Series Methods. Samples were analyzed by IEA Laboratories in Whippany, New Jersey, and Lancaster Laboratories in Pennsylvania.

1	Hexachlorobenzene was analyzed by USEPA Method 508, but is reported on the table as a base neutral and acid extractable organic compounds (BNAs).
2	Pentachlorophenol was analyzed by USEPA Method 515.1, but is reported on the table as a BNAs.
3	These pesticides were analyzed with listed BNAs by USEPA Method 525.
4	Three samples were collected 15 minutes apart and analyzed for total coliform. All 3 results were positive for the detection of total coliforms.
Ra - 226	Radon 226.
U - 234	Uranium 234.
mg/L	Milligrams per liter.
ug/L	Micrograms per liter.
C.P. Units	Cobalt platinum units.
NTU	Nephelometric turbidity unit.
T.O.N.	Threshold odor number.
pCi/L	Picocuries per liter.
ppmv	Parts per million by volume.
U	Not detected.
J	Estimated results.
FR	Field replicate.
•	Methoxychlor was analyzed as a semivolatile by USEPA Method 525 and also as a pesticide by USEPA Method 508. Only one result is reported from Method 508.
–	Not analyzed/not applicable.
MBAS	Methylene blue active substances (surfactants and foaming agents).
±	Plus or minus.
S.U.	Standard units.
PCBs	Polychlorinated biphenyls.

Table 8-22. Concentrations of Metals in Groundwater Samples Collected in December 1995, Dublin NPL Site, Dublin, Pennsylvania.

Parameters (ug/L)	Sample I.D.: / Sample Date:	FTW1-5 12/15/95	FTW1-5 FR 12/15/95	FTW1-5-D** 12/15/95	FTW1-5-D FR** 12/15/95	FTW-2 12/13/95
Metals						
Aluminum		137 B	157 B	139 B	122 B	
Antimony		1.7 U	1.7 U	3.5	1.7 U	--
Arsenic		7 B	5.3 B	3.8 B	2.3 U	--
Barium		169	170	166	156	--
Beryllium		0.41 U	0.41 U	0.44 B	0.41 U	--
Cadmium		0.24 U	0.24 U	0.24 U	0.24 U	--
Calcium		56,900	56,700	56,000	53,400	46,000 J
Chromium		0.66 JL	0.79 JL	0.81 JL	0.89 JL	--
Cobalt		0.57 U	0.57 U	0.57 U	0.57 U	--
Copper		12.1	7.2	1.9 B	3.2 B	--
Iron		71.2 B	49 B	47.9 B	30.5 B	42.3 B
Lead		4.8	7.7	2.2	3.2	--
Magnesium		31,000	30,800	30,200	29,200	26,500 J
Manganese		20.5	20.4	20.2	19.1	17.7
Mercury		0.2 U	0.2 U	0.2 U	0.2 U	--
Nickel		0.57 J	0.57 UJ	0.61 J	1.3 J	--
Potassium		1,500	955	872 B	590 B	--
Selenium		2.9 UL	2.9 UL	2.9 UL	2.9 UL	--
Silver		0.82	0.77 U	0.77 U	0.77 U	--
Sodium		19,800 J	20,000 J	20,000 J	17,700 J	--
Thallium		3.6 UL	3.6 UL	3.6 UL	3.6 UL	--
Vanadium		1.5 B	1.3 B	1.3 B	0.99 B	--
Zinc		173	175	166	155	--

See last page for footnotes.

Table 8-22. Concentrations of Metals in Groundwater Samples Collected in December 1995, Dublin NPL Site, Dublin, Pennsylvania.

Parameters (ug/L)	Sample I.D.: / Sample Date:	FTW-2D** 12/13/95	FTW-3 12/14/95	FTW-3-D** 12/14/95	FTW-3FR 12/14/95	FTW-4 12/14/95	FTW-4-D** 12/14/95
Metals							
Aluminum		--	--	--	--	--	--
Antimony		--	--	--	--	--	--
Arsenic		--	--	--	--	--	--
Barium		--	--	--	--	--	--
Beryllium		--	--	--	--	--	--
Cadmium		--	--	--	--	--	--
Calcium		--	46,200 J	--	45,000 J	56,700	--
Chromium		--	--	--	--	--	--
Cobalt		--	--	--	--	--	--
Copper		--	--	--	--	--	--
Iron		51.2 B	180	41.6 B	--	62 B	62.4 B
Lead		--	--	--	--	--	--
Magnesium		26,600 J	27,100 J	27,800 J	--	30,500	29,900
Manganese		18.4	18.4	20.5	--	20.3	20.8
Mercury		--	--	--	--	--	--
Nickel		--	--	--	--	--	--
Potassium		--	--	--	--	--	--
Selenium		--	--	--	--	--	--
Silver		--	--	--	--	--	--
Sodium		--	--	--	--	--	--
Thallium		--	--	--	--	--	--
Vanadium		--	--	--	--	--	--
Zinc		--	--	--	--	--	--

All analyses were by U.S. Environmental Protection Agency (USEPA) 500 Series Methods. Samples were analyzed by IEA Laboratories in Whippany, New Jersey.

ug/L	Micrograms per liter.
U	Not detected.
L	Reported value may be biased low. Actual value is expected to be higher.
J	Estimated results.
B	Compound was detected in the blank.
FR	Field replicate.
**	Analyzed for dissolved metals.
--	Not analyzed/not applicable.

Table 8-23. Summary of Concentrations of Volatile Organic Compounds in Monitoring and Supply Wells, Dublin NPL Site, Dublin, Pennsylvania.

Sample Identification	Sample Date	Compounds (ug/L)									
		1,1-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	1,2-DCE (total)	PCE	TCE	1,1,1-TCA	1,1,2-TCA	Vinyl chloride
MW-1	05/19/88	ND	ND	ND	7	--	ND	190	ND	ND	ND
MW-1	10/06/92	0.5 U	0.5 U	--	--	0.9	0.5 U	4.9	0.35 B	0.5 U	0.5 U
MW-2	05/19/88	ND	ND	ND	ND	--	ND	8	ND	ND	ND
MW-2**	10/06/92	0.9 J	1	64 DJ	2	--	1	1,800 D	3 B	1 U	0.6 J
MW-2	10/06/92	25 U	25 U	--	--	54	25 U	1,400	25 U	25 U	25 U
MW-3	05/19/88	ND	ND	ND	11	--	ND	190	23	ND	ND
MW-3	08/17/92	2.2	0.33 J	--	--	3.5	0.079 J	28	20	0.5 U	0.5 U
MW-3	10/07/92	1.9	0.51	--	--	2	0.5 U	31	30	0.5 U	0.5 U
MW-4	05/19/88	ND	ND	ND	240	--	8	640	ND	ND	ND
MW-4	08/18/92	100 U	100 U	--	--	400	100 U	8,600 D	100 U	100 U	100 U
MW-4	10/07/92	50 U	50 U	--	--	240	50 U	2,400	50 U	50 U	50 U
MW4-1*	12/13/95	1.4	1.3	--	--	74 JD	3.4	3,600 D	0.66	0.5 U	6.4
MW4-4*	12/14/95	250 U	250 UJ	--	--	250 U	250 U	3,800	250 UJ	250 U	250 UJ
MW4-5*	12/15/95	500 U	500 U	--	--	500 U	500 U	2,800	500 U	500 U	500 U
MW-5	05/19/88	ND	ND	ND	ND	--	ND	39	ND	ND	ND
MW-5	10/06/92	2.5 U	2.5 U	--	--	3.5	2.5 U	72	6.8	2.5 U	2.5 U
MW-6	05/19/88	ND	ND	ND	ND	--	ND	ND	ND	ND	ND
MW-6	10/05/92	0.5 U	0.5 U	--	--	0.5 U	0.32 J	0.5 U	0.5 U	0.5 U	0.5 U
MW-7	05/19/88	ND	ND	ND	ND	--	ND	93	ND	ND	ND
MW-8	05/19/88	ND	ND	ND	ND	--	ND	470	ND	ND	ND
MW-8**	10/05/92	0.9 J	4	150 DJ	4	--	1	3,300 D	5	1 U	0.8 J
MW-8	10/05/92	0.63	1.7	--	--	81 D	0.73	1,600 D	2.2	0.5 U	0.5 UJ
MW8-1*	12/13/95	0.5 U	0.5 U	--	--	0.5 U	0.5 U	9.1 J	0.5 U	0.5 U	0.5 U
MW8-2*	12/13/95	0.5 U	0.5 U	--	--	1.3	0.5 U	11	0.5 U	0.5 U	0.5 U
MW8-4*	12/14/95	0.5 U	0.5 UJ	--	--	1.3	0.5 U	10	0.5 UJ	0.5 U	0.5 UJ
MW8-5*	12/15/95	0.5 U	0.5 U	--	--	1.2	0.5 U	9.6	0.5 U	0.5 U	0.5 U
PW-1	05/19/88	ND	ND	ND	ND	--	ND	3,000	ND	ND	ND
PW-1	08/18/92	50 U	50 U	--	--	50 U	7.8 J	4,600 D	21 J	50 U	50 U

See last page for footnotes.

AR301474

Table 8-23. Summary of Concentrations of Volatile Organic Compounds in Monitoring and Supply Wells, Dublin NPL Site, Dublin, Pennsylvania.

Sample Identification	Sample Date	Compounds (ug/L)									
		1,1-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	1,2-DCE (total)	PCE	TCE	1,1,1-TCA	1,1,2-TCA	Vinyl chloride
PW-2	05/19/88	ND	ND	ND	ND	--	ND	390	ND	ND	ND
BCM-1	07/06/88[1]	ND	8.7	ND	43.4	--	7.2	17,500	12.5	7.2	5.7
BCM-1	08/19/92	0.46 J	5.9	--	--	27	6.4	14,000 D	9.2	0.5 U	0.87
BCM-1	10/08/92	250 U	250 U	--	--	250 U	250 U	15,000	250 U	250 U	250 U
BCM1-1*	12/13/95	500 U	500 UJ	--	--	500 U	500 U	9,600	500 UJ	500 U	500 UJ
BCM1-2*	12/13/95	0.5 U	6.1	--	--	29 EJ	4.2	9,500 D	5	0.5 U	0.5 U
BCM1-3*	12/14/95	0.5 U	5.8	--	--	27 EJ	4	8,200 D	4.8	0.5 U	0.5 U
BCM1-4*	12/14/95	500 U	500 UJ	--	--	500 U	500 U	9,500	500 U	500 U	500 UJ
BCM1-5*	12/15/95	500 U	500 U	--	--	500 U	500 U	8,500	500 U	500 U	500 U
BCM-2	07/06/88[1]	ND	ND	ND	ND	--	ND	673	ND	ND	ND
BCM-2	10/08/92	10 U	10 U	--	--	10 U	10 U	300	10 U	10 U	10 U
FTW	08/18/92	50 U	50 U	--	--	97	50 U	6,200 D	3.8 J	50 U	50 U
FTW-1*	12/13/95	250 U	250 UJ	--	--	250 UJ	250 U	3,200	250 UJ	250 U	250 UJ
FTW-2*	12/13/95	0.64	1.3	--	--	37 EJ	0.68	1,800 D	0.88	0.5 U	0.5 U
FTW-3*	12/14/95	0.58	1.4	--	--	32 EJ	0.59	2,000 D	0.75	0.5 U	0.5 U
FTW-4*	12/15/95	500 UL	500 UL	--	--	500 UL	500 UL	1,500 L	500 UL	500 UL	500 UL
FTW1-5*	12/15/95	100 U	100 U	--	--	100 U	100 U	1,600	100 U	100 U	100 U

All samples unless specified were collected by Geraghty & Miller, Inc. and analyzed using standard U.S. Environmental Protection (USEPA) methodology.
Higher value of sample/replicate analyses reported.

DCE	Dichloroethene.
DCA	Dichloroethane.
PCE	Tetrachloroethane.
TCE	Trichloroethene.
TCA	Trichloroethane.
PW	Production Well.
FTW	Fire Tower Well.
ug/L	Micrograms per liter.
ND	Not detected.
--	Not applicable.

*	Multiple samples collected at 12-hour intervals during the aquifer pumping test at the Fire Tower Well.
**	Split samples collected by USEPA.
B	Analyte is detected in the laboratory blank.
U	Not detected
D	Analyte identified at a secondary dilution.
J	Result is detected below the reporting limit and/or is an estimated concentration.
L	Reported value may be biased low. Actual value is expected to be higher.
1	Sampled by BCM, Inc. 1988b.

Table 9-1. Physical and Chemical Properties of Organic Constituents of Concern, Dublin NPL Site, Dublin, Pennsylvania.

Constituent	Molecular Weight (g/mol)	Water Solubility (mg/L 25 °C)	Specific Gravity	Vapor Pressure (mm Hg 25 °C)	Henry's Law Constant (atm-m³/mol) (25 °C)	Diffusivity (cm²/sec)	Koc (mL/g)	Log Kow	Fish BCF (L/kg)	Groundwater T ½ Low (days)	Groundwater T ½ High (days)	Soil T ½ Low (days)	Soil T ½ High (days)
VOCs													
Bromodichloromethane	164	4,700	1.99	5.0E+01 (20 °C)	2.12E-04	0.08966	62	1.88	5.2	ND		ND	
Bromoform	253	3,130	2.89	5.6E+00	5.60E-04	0.08314	115 - 282	2.30 - 2.38	3.75	56 -	360	28 -	180
Chloroform	119	7,222 - 9,600	1.48	2.0E+02	3.20E-03	0.08868	44	1.90 - 1.97	3.8	56 -	1,825	28 -	180
Dibromochloromethane	208	4,000 (20 °C)	2.45	7.6E+01 (20 °C)	7.83E-03	0.08608	83	2.1	5.5 - 30	14 -	180	28 -	180
1,1-Dichloroethene	97	273 - 6,400	1.22	5.9E+02	1.50E-02	0.10077	65	1.48 - 2.13	5.6	56 -	132	28 -	180
cis-1,2-Dichloroethene	97	3,500	1.28	2.0E+02	3.37E-03	0.09980	49	1.86	15	56 -	2,850	28 -	180
trans-1,2-Dichloroethene	97	6,300	1.25	2.7E+02 (20 °C)	6.74E-03	0.09980	59	2.09	1.58	56 -	2,850	28 -	180
Tetrachloroethene	166	150 - 485	1.6	1.9E+01	2.87E-03	0.07404	210 - 363	2.1 - 2.88	30.6	360 -	730	180 -	365
Trichloroethene	131	1,100 - 1,500	1.46	7.3E+01	9.90E-03	0.08116	65 -126	2.29 - 3.30	10.6	321 -	1,643	180 -	365
Vinyl chloride	63	1,100 - 2,700	0.91	2.7E+03	5.60E-02	0.10726	2.5	0.60	1.17	56 -	2,850	28 -	180
BNAs													
Benzo(a)anthracene	228	0.0094 - 0.014	1.27	1.1E-07	8.00E-06	0.04564	1,400,000	5.61 - 5.91	30	204 -	1,361	102 -	679
Benzo(b)fluoranthene	252	0.0012	ND	5.0E-07	1.20E-05	0.04392	550,000	6.57	30	719.1 -	1,219	360 -	610
Dibenzo(a,h)anthracene	278	0.00249 - 0.005	1.28	10E-10 (20 °C)	7.33E-09	0.05707	1,700,000	5.97 - 6.50	30	722.7 -	1,880	361 -	942
PCBs/Pesticides													
Aroclor [a]	258	0.049	1.33	4.0E-04	7.60E-04	0.05925	50,000	4.38 - 5.88	31,200	ND		ND	
Heptachlor epoxide	389	0.275	ND	2.6E-06 (20 °C)	3.20E-05	0.04596	21,000	3.56 - 5.40	11,200	1.0 -	1,104	33 -	552

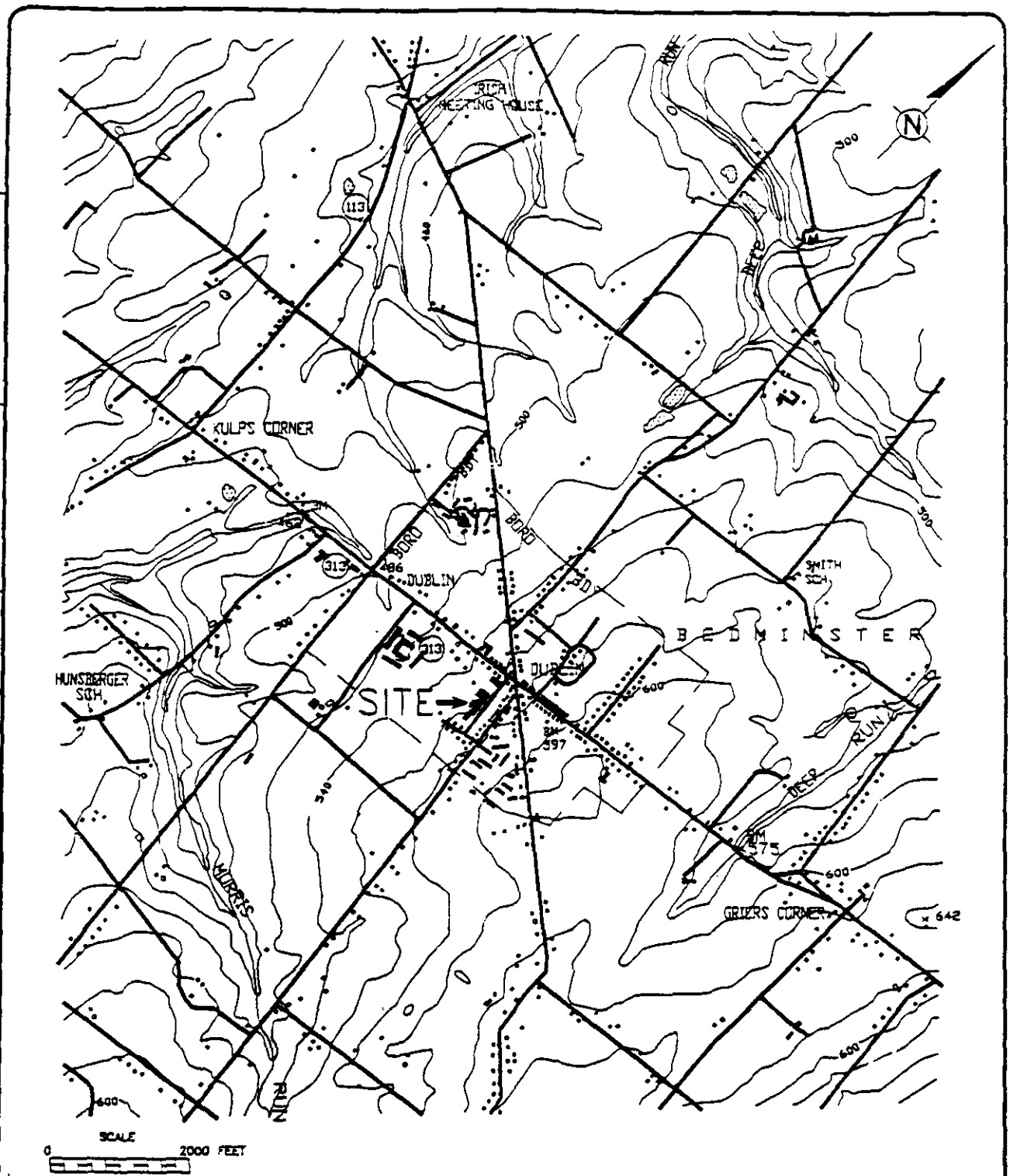
References: Foreman and Bidleman, 1985; Howard et al., 1991; Howard, 1990 and 1989; Lugg, 1968; Lyman et al., 1990; Montgomery and Welkom, 1990; Shen, 1982; USEPA, 1992a; and Verschueren, 1983.

[a] Aroclor 1016 used as a surrogate for all aroclor.

atm-m³/mol	Atmospheres-cubic meters per mole.	L/kg	Liters per kilogram.
BCF	Bioconcentration factor.	mg/L	Milligrams per liter.
°C	Degrees Celsius.	mL/g	Milliliters per gram.
cm²/sec	Square centimeters per second.	mm Hg	Millimeters of mercury.
g/mol	Grams per mole.	ND	No data.
Koc	Organic carbon partition coefficient.	T ½	Half-life.
Kow	Octanol-water partition coefficient.	BNAs	Base Neutral Organic Compounds.
VOCs	Volatile Organic Compounds.	PCBs	Polychlorinated biphenyls.

Figures

AR301476

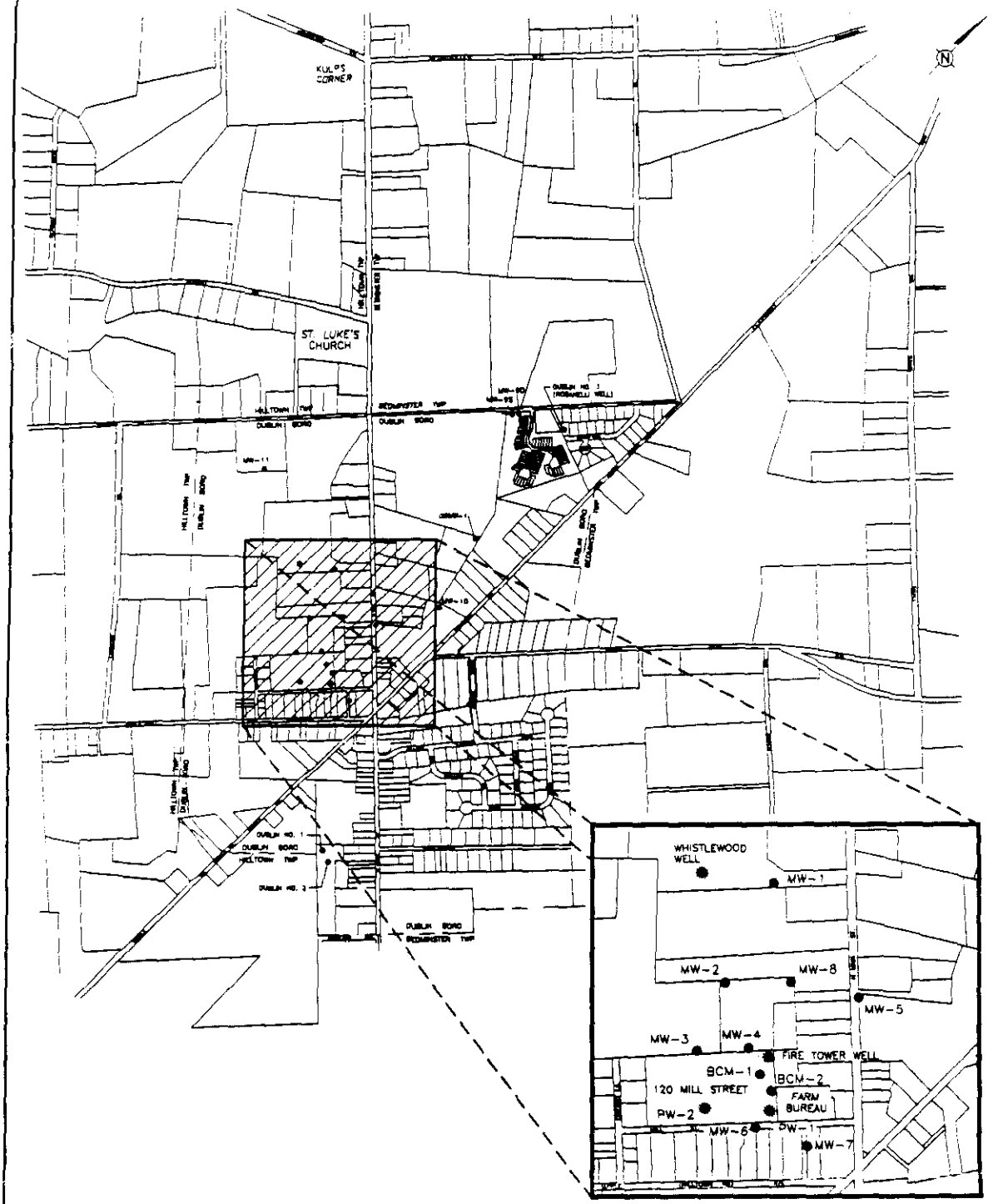


GERAGHTY & MILLER, INC. *Environmental Services* A Heidemij Company	SITE LOCATION AND TOPOGRAPHY DUBLIN NPL SITE, DUBLIN, PENNSYLVANIA SEQUA COPRPORATION	FIGURE 1-1

DWG DATE: 2/27/96 | PROJ. NO.: NJ0198.025 | HARD FILE: SQ-240 | DRAWING: SQ-240 | CHECKED: U. PARASAR | APPROVED: B. DOLCE | DRAFTER: E. EAGLESTON

AR301477

DWG DATE 2/27/96 PROJECT NO NJ0198.225 HARD FILE SQ-237 DRAWING SQ-237 CHECKED U PARASAR APPROVED B DOLCE DRAFTER E EAGLESTON



LEGEND

MW-1 ● MONITORING WELL

PW-1 ● SUPPLY WELL

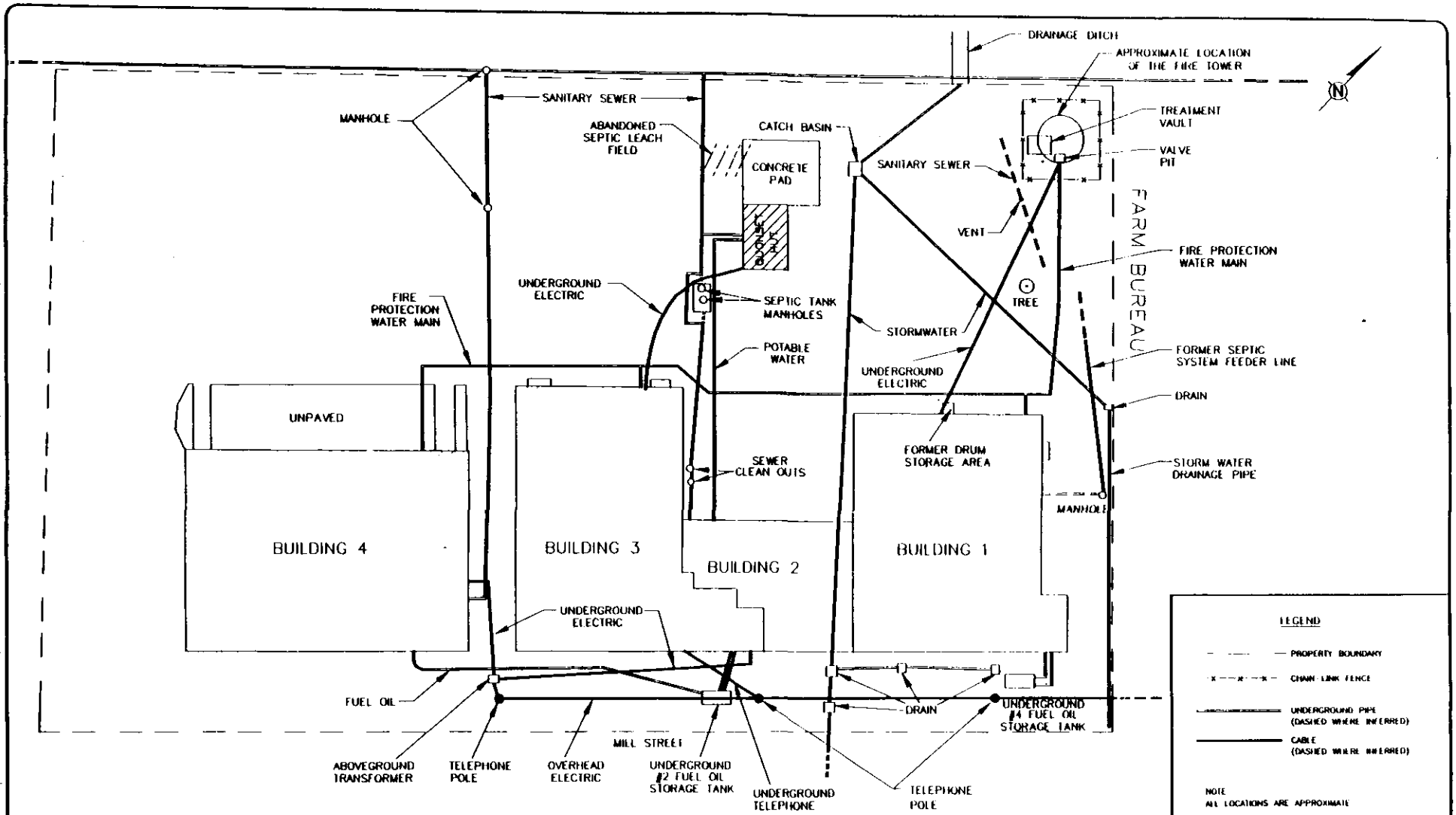
AR301478

GERAGHTY & MILLER, INC.
Environmental Services
A Heidemij Company

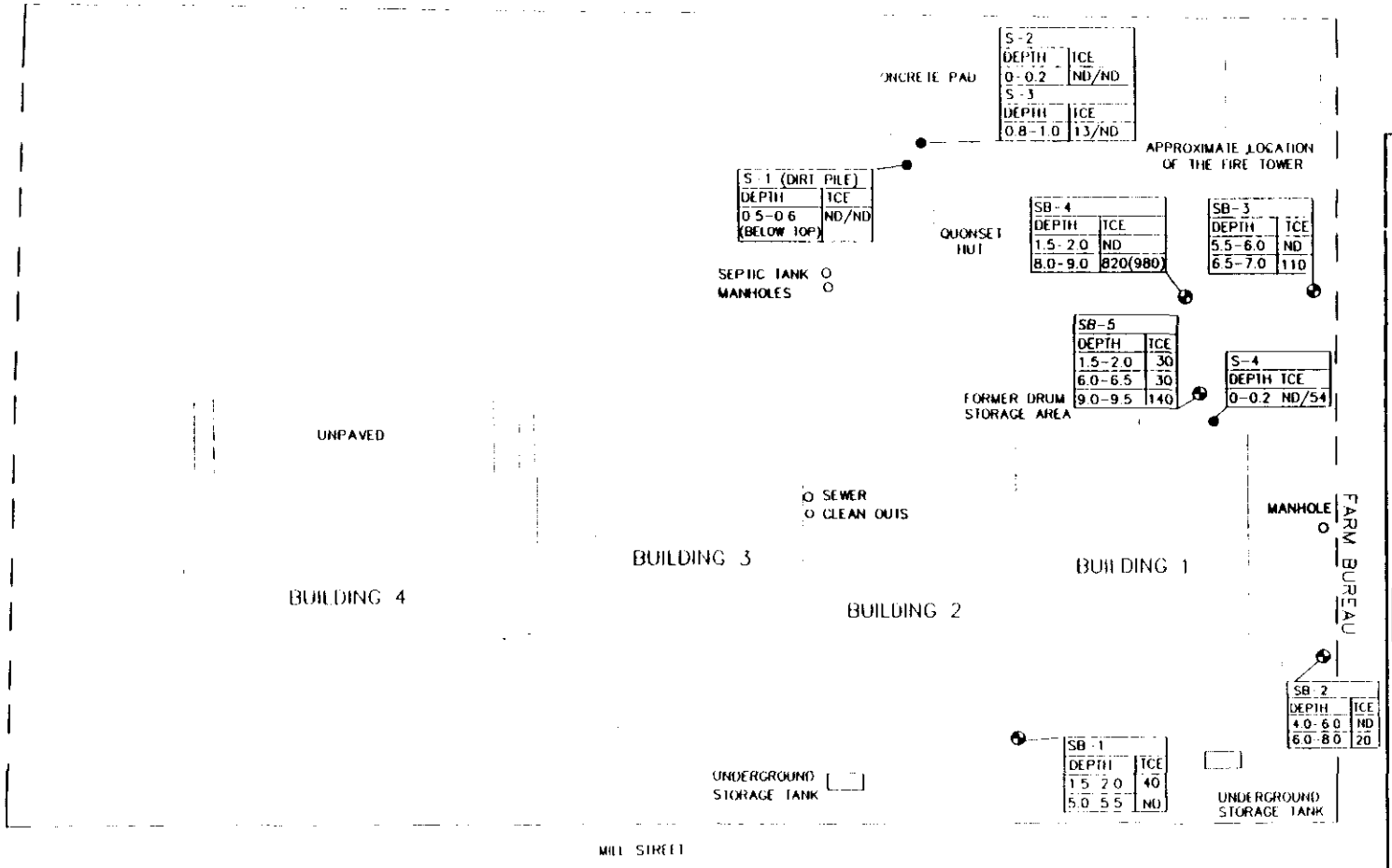
MUNICIPAL AND PROPERTY BOUNDARIES

DUBLIN NPL SITE, DUBLIN, PENNSYLVANIA

FIGURE
1-2



DWG. DATE 5/1/96 | PROJECT NO. NJD198,025 | HARD FILE SD-24; | DRAWING Sec 41 | CHECKED V. PARASAR | APPROVED B. DOLCE | DRAFTER J. ...ESTON



LEGEND

- PROPERTY BOUNDARY
- CHAIN-LINK FENCE
- ROY F. WESTON, INC. / TRC ENVIRONMENTAL CONSULTANTS SOIL SAMPLE LOCATION (SPLIT SAMPLE)
- ROY F. WESTON, INC. / TRC ENVIRONMENTAL CONSULTANTS SOIL SAMPLE IDENTIFICATION. DEPTH IN FEET BELOW GROUND SURFACE. CONCENTRATION IN MICROGRAMS PER KILOGRAM (ug/kg) OF TCE DETECTED BY USEPA METHOD 8240 IN SOIL SAMPLE COLLECTED BY ROY F. WESTON, INC.

S-4	
DEPTH	TCE
0-0.2	ND/54

CONCENTRATION IN ug/kg OF TCE DETECTED BY USEPA METHOD 624 IN SOIL SAMPLE COLLECTED BY TRC ENVIRONMENTAL CONSULTANTS.

- BCM, INC. SOIL SAMPLE LOCATION
- BCM, INC. SOIL SAMPLE IDENTIFICATION. DEPTH IN FEET BELOW GROUND SURFACE. CONCENTRATION IN ug/kg OF TCE DETECTED BY USEPA METHOD 601 IN SOIL SAMPLE COLLECTED BY BCM, INC., CONCENTRATION OF DUPLICATE SAMPLE SHOWN IN PARENTHESES

SB-4	
DEPTH	TCE
1.5-2.0	ND
8.0-9.0	820(980)

USEPA — UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

TCE — TRICHLOROETHENE

ND — NOT DETECTED

NOTE:
ROY F. WESTON, INC. / TRC ENVIRONMENTAL CONSULTANTS SOIL SAMPLES COLLECTED ON JANUARY 21, 1988. BCM, INC. SOIL SAMPLES COLLECTED ON DECEMBER 21, 1987.

LOCATION OF SOIL SAMPLES S-1 THROUGH S-4 WERE REFERENCED FROM FIGURE 5 OF ROY F. WESTON, INC. REPORT (FEB. 1995)

SCALE
0 50 FEET

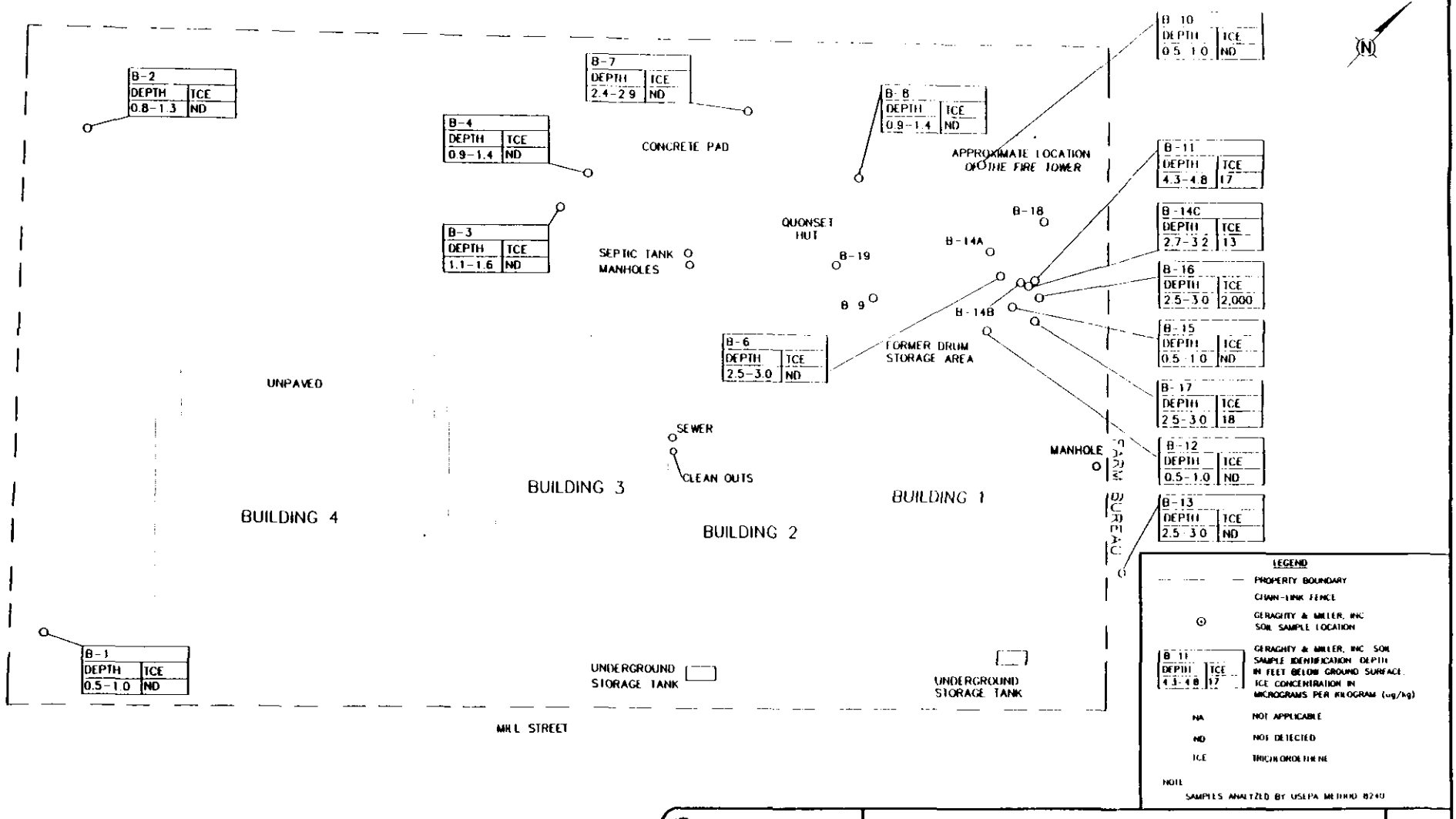
BASE MAP ADAPTED FROM BCM, INC. MAP (1988a)

GERAGHTY & MILLER, INC.
Environmental Services
A Heidemij Company

CONCENTRATIONS OF TRICHLOROETHENE IN SOIL SAMPLES COLLECTED DECEMBER 21, 1987 TO JANUARY 21, 1988 BY ROY F. WESTON, INC., TRC ENVIRONMENTAL CONSULTANTS, AND BCM, INC.
120 MILL STREET PROPERTY
DUBLIN NPL SITE, DUBLIN, PENNSYLVANIA
SEQUA CORPORATION

FIGURE 1-4

AR301480

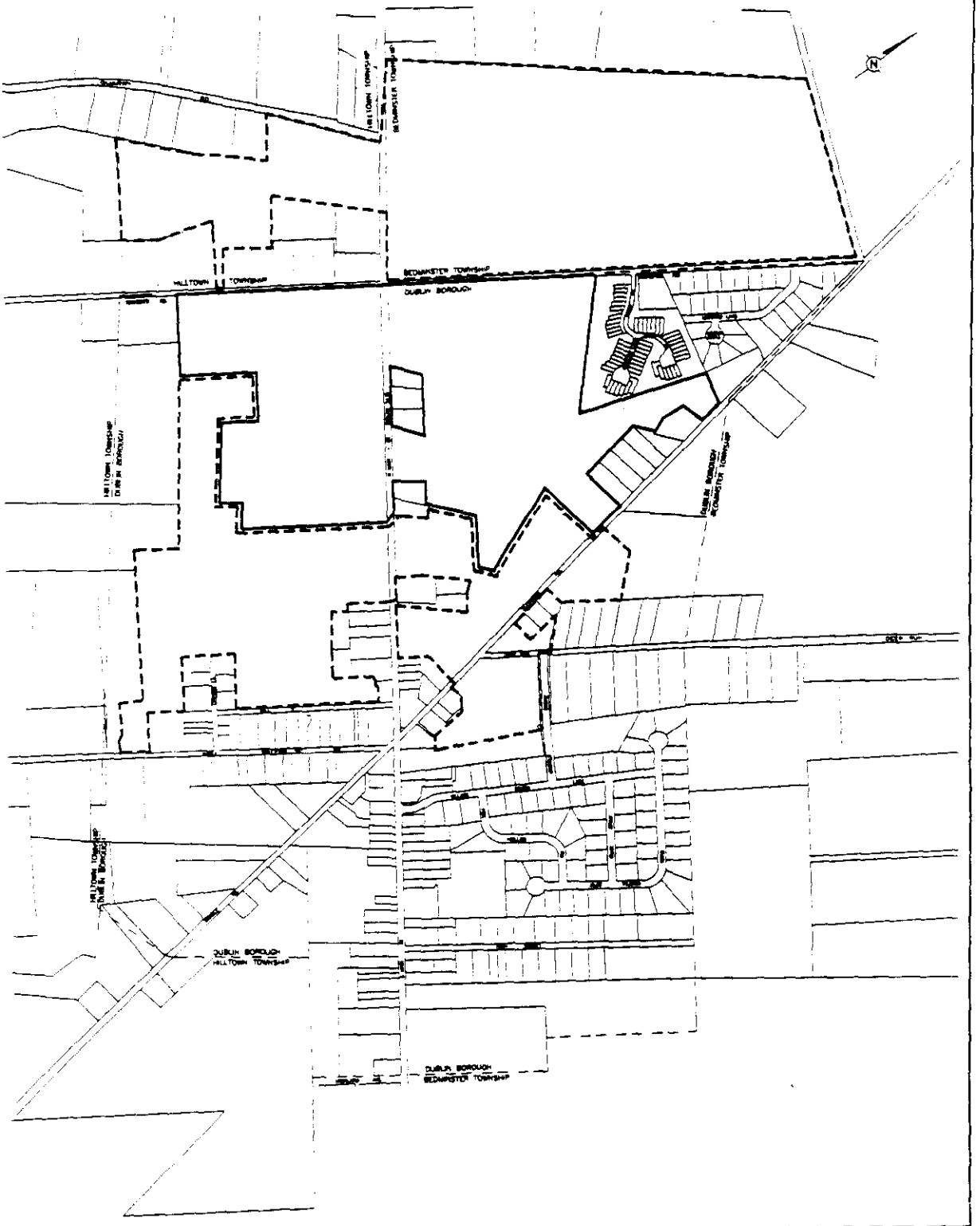


GERAGHTY & MILLER, INC.
Environmental Services
A Halliburton Company

CONCENTRATIONS OF TRICHLOROETHENE IN SOIL SAMPLES COLLECTED FEBRUARY 22 AND 23, 1990
120 MILL STREET PROPERTY
DUBLIN DRY SITE, DUBLIN, PENNSYLVANIA
SEQUA CORPORATION

FIGURE
1-5

301481



LEGEND

APPROXIMATE LOCATION OF TRANSECTS FOR ELECTROMAGNETIC SURFACE GEOPHYSICAL SURVEY

BOUNDARY OF PHASE I SURVEY

BOUNDARY OF PHASE II SURVEY

SCALE

0 800 FEET

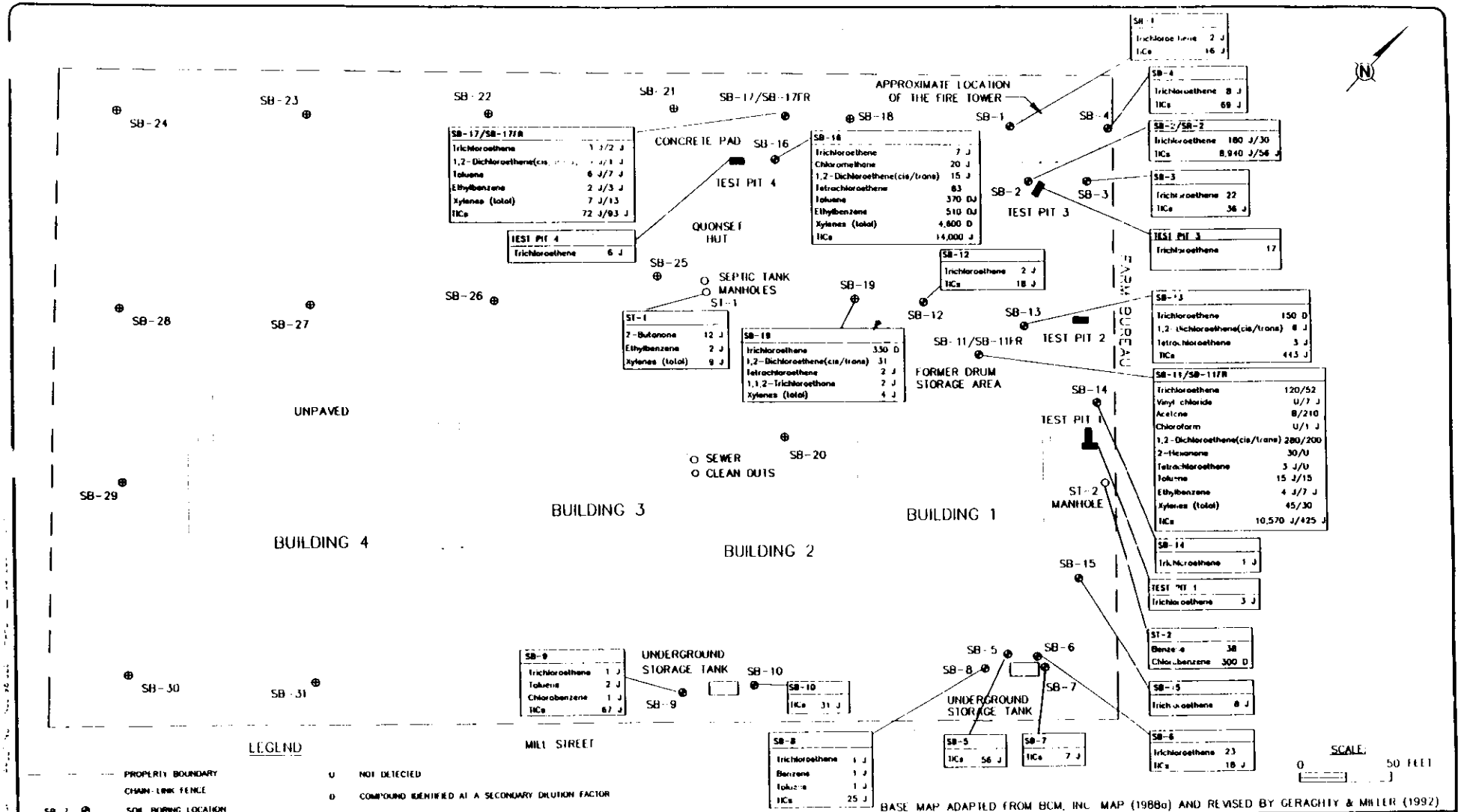
GERAGHTY & MILLER, INC.
Environmental Services
A Heidemij Company

APPROXIMATE LOCATION OF TRANSECTS FOR ELECTROMAGNETIC SURFACE GEOPHYSICAL SURVEY

DUBLIN NPL SITE, DUBLIN, PENNSYLVANIA
SEQUA CORPORATION

FIGURE
2-1

AR301482



LEGEND

- PROPERTY BOUNDARY
- CHAIN-LINK FENCE
- SB 7 ⊕ SOIL BORING LOCATION
- SB 28 ⊕ LOCATION OF SOIL BORING TO DETERMINE DEPTH-TO-BEDROCK
- ST 1 SEPTIC TANK BORING LOCATION
- TEST PIT 2 TEST PIT LOCATION
- NOTE: PIT 2 WAS NOT SAMPLED

- U NOT DETECTED
- D COMPOUND IDENTIFIED AT A SECONDARY DILUTION FACTOR
- J RESULT WAS DETECTED BELOW THE REPORTING LIMIT OR WAS AN ESTIMATED CONCENTRATION
- FR FIELD REPLICATE
- TICs TENTATIVELY IDENTIFIED COMPOUNDS (TOTAL)
- ALL RESULTS IN MICROGRAMS PER KILOGRAM (ug/kg)

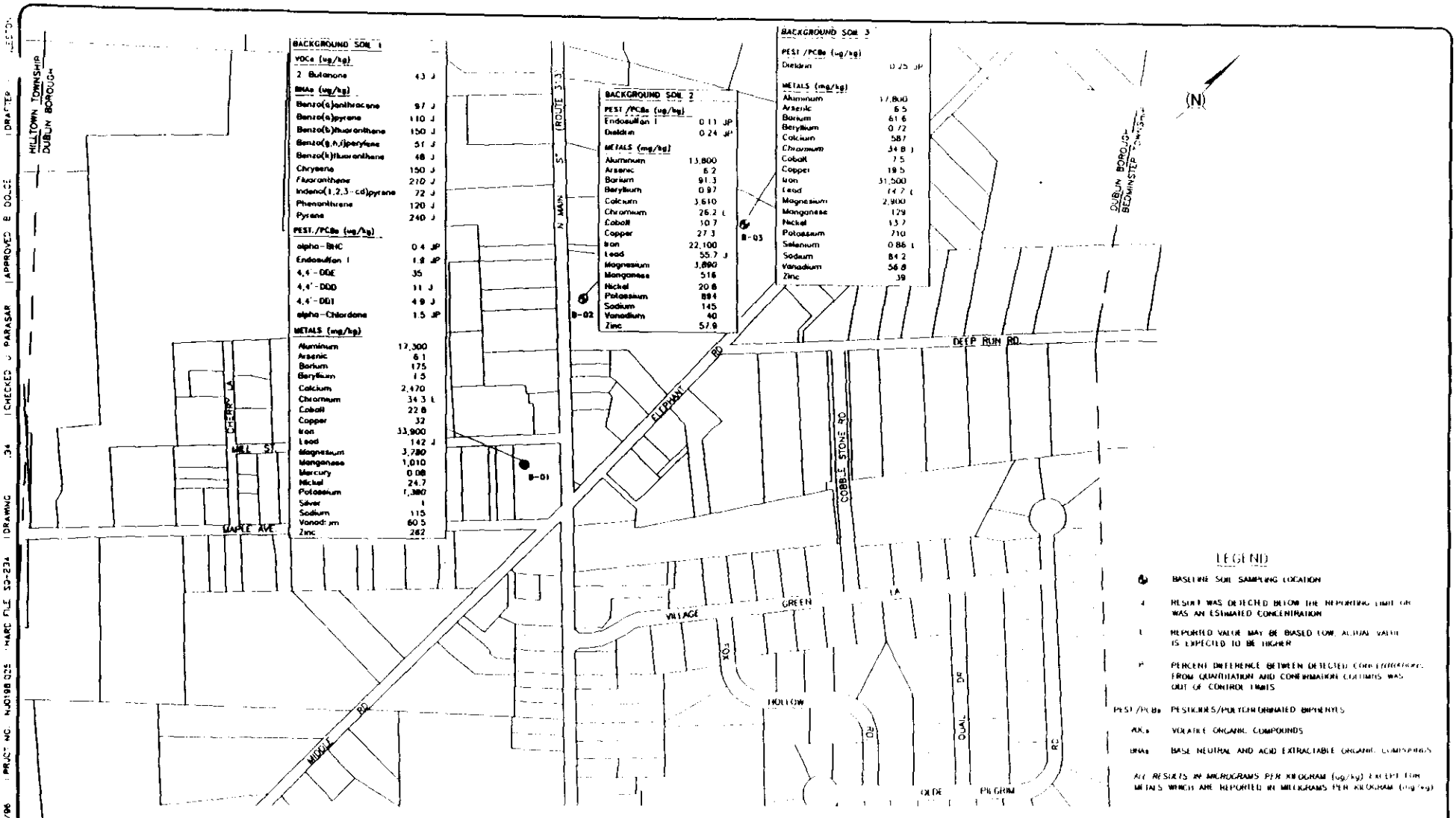
BASE MAP ADAPTED FROM BCM, INC. MAP (1988a) AND REVISED BY GERAGHTY & MILLER (1992)

GERAGHTY & MILLER, INC.
Environmental Services
A Heidemij Company

CONCENTRATIONS OF VOLATILE ORGANIC COMPOUNDS DETECTED IN SOIL SAMPLES COLLECTED IN JULY AND AUGUST 1992
120 MILL STREET PROPERTY
DUBLIN NPL SITE, DUBLIN, PENNSYLVANIA
SEQUA CORPORATION

FIGURE 2-2

AR 1483



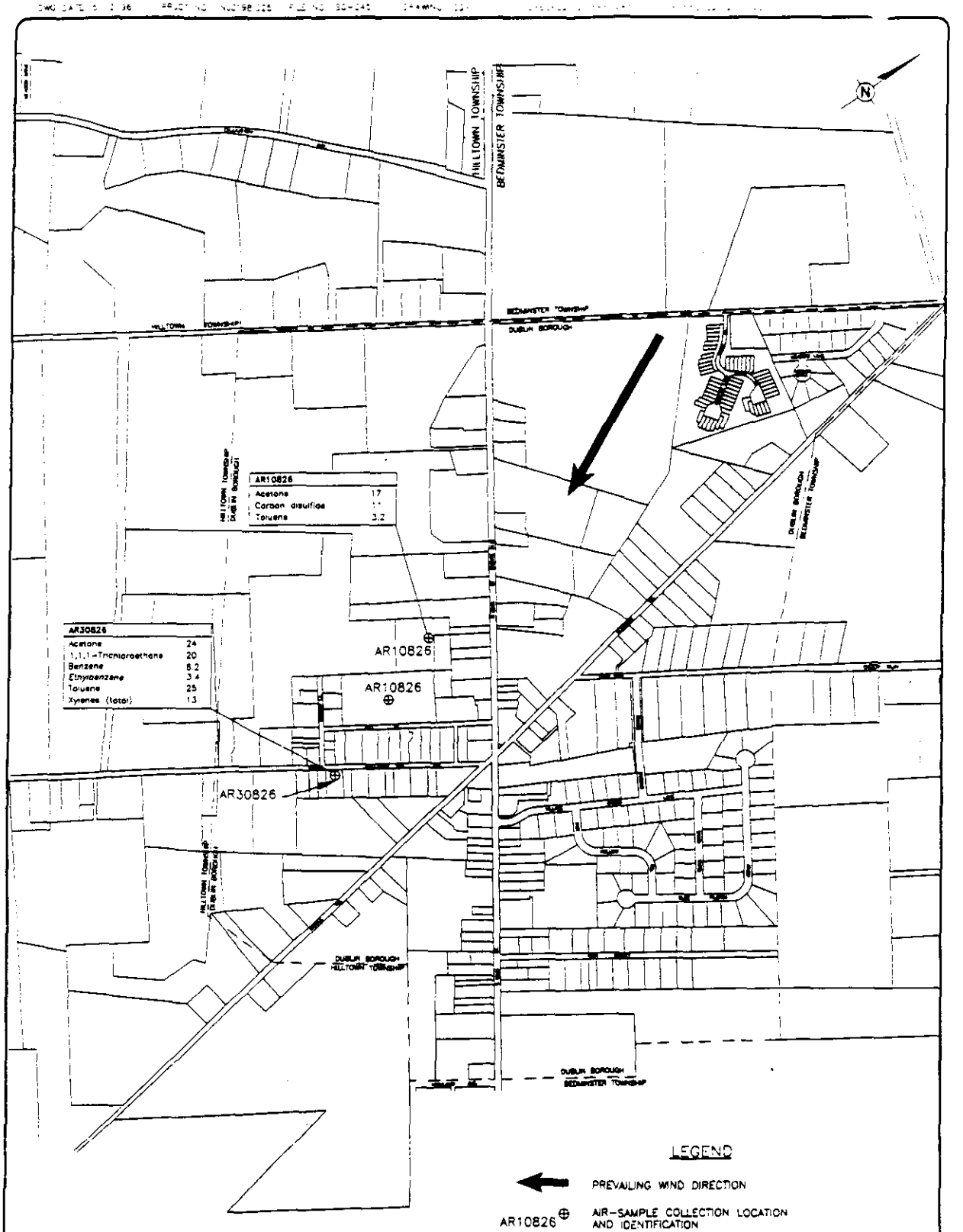
GERAGHTY & MILLER, INC.
Environmental Services
A Heidemij Company

CONCENTRATIONS OF CONSTITUENTS DETECTED IN BASELINE SOIL SAMPLES COLLECTED IN AUGUST 1992

DUBLIN TCE SITE, DUBLIN, PENNSYLVANIA
SEQUA CORPORATION

FIGURE
2-3

AR301484



GERAGHTY & MILLER, INC.
Environmental Services
A Heidemij Company

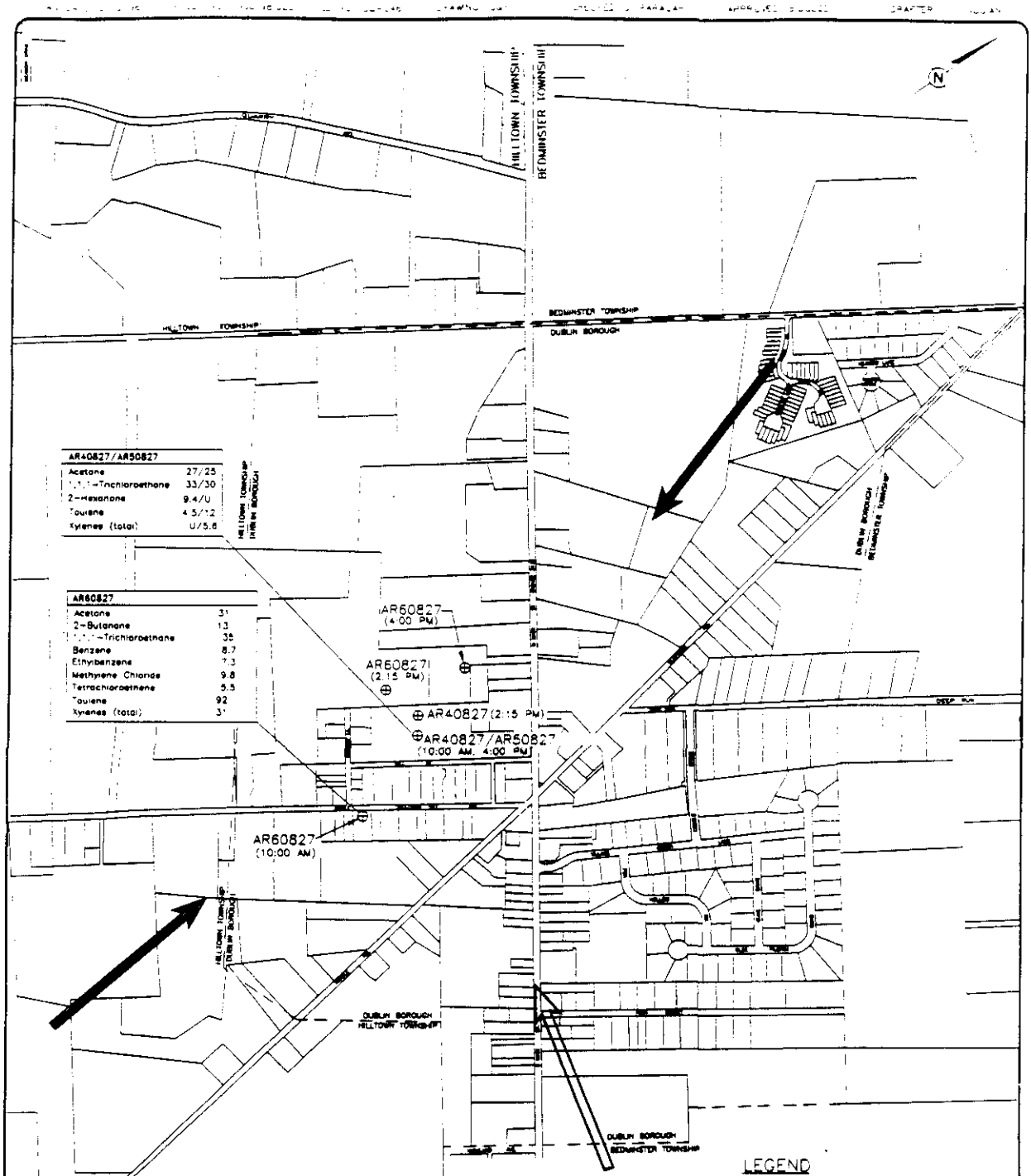
CONCENTRATIONS OF VOLATILE ORGANIC COMPOUNDS IN AIR SAMPLES COLLECTED DURING INTRUSIVE SITE ACTIVITIES ON AUGUST 26, 1992

DUBLIN NPL SITE, DUBLIN, PENNSYLVANIA

SEQUA CORPORATION

FIGURE 2-4

AR301485



LEGEND

- PREVAILING WIND DIRECTION – 10:00 AM
- PREVAILING WIND DIRECTION – 2:15 PM
- PREVAILING WIND DIRECTION – 4:00 PM
- AR60827 ⊕ AIR-SAMPLE COLLECTION LOCATION AND IDENTIFICATION
- AR50827 IS A REPLICATE OF AR40827
- ANALYTE CONCENTRATIONS IN PARTS PER BILLION BY VOLUME (ppbv)
- J RESULT WAS DETECTED BELOW THE REPORTING LIMIT AND/OR WAS AN ESTIMATED CONCENTRATION
- U COMPOUND WAS ANALYZED FOR BUT NOT DETECTED AT THE CORRESPONDING REPORTING LIMITS

NOTE: SAMPLES WERE RELOCATED THROUGHOUT THE SAMPLING EVENT TO RESPOND TO CHANGING WIND DIRECTION

SOURCE: T.H. CAHILL AND ASSOCIATES AND J.K. ADAMS AND ASSOCIATES (1987).

GERAGHTY & MILLER, INC.
Environmental Services
A Heidemij Company

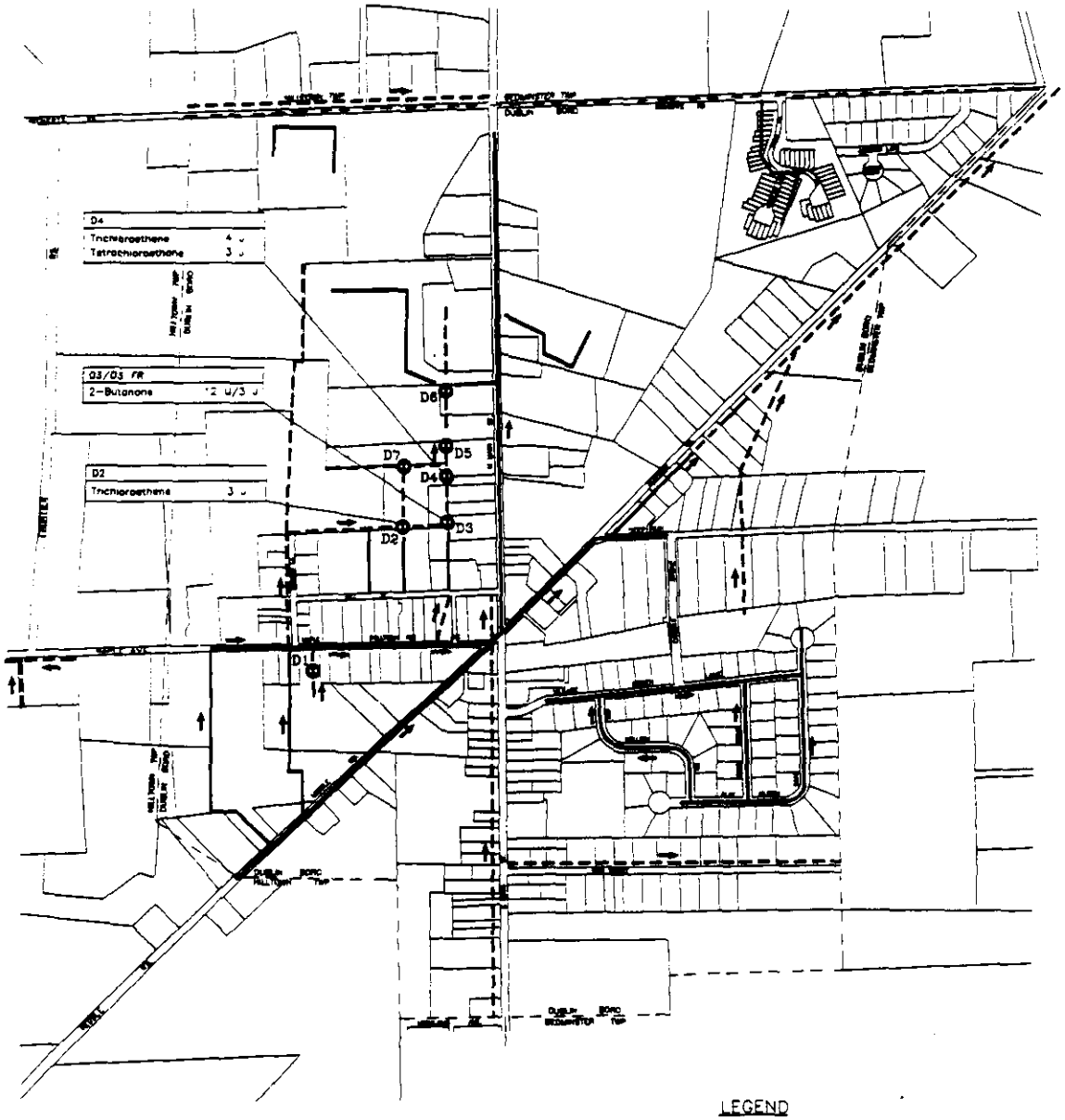
CONCENTRATIONS OF VOLATILE ORGANIC COMPOUNDS IN AIR SAMPLES COLLECTED DURING NON-INTRUSIVE ACTIVITIES ON AUGUST 27, 1992

DUBLIN NPL SITE, DUBLIN, PENNSYLVANIA
SEQUA CORPORATION

FIGURE 2-5

AR301486

AR301487



LEGEND

- D2 — SEDIMENT SAMPLING LOCATION AND IDENTIFICATION
- STORM-WATER DITCH
- STORM SEWER PIPE
- DIRECTION OF FLOW

ANALYTE CONCENTRATIONS IN MICROGRAMS PER KILOGRAM (ug/kg)

- J — RESULT WAS DETECTED BELOW THE REPORTING LIMIT AND/OR WAS AN ESTIMATED CONCENTRATION
- U — COMPOUND WAS ANALYZED FOR, BUT NOT DETECTED AT THE CORRESPONDING REPORT LIMIT
- FR — FIELD REPLICATE

SOURCE T.H. CAMILL AND ASSOCIATES AND J.K. ADAMS AND ASSOCIATES (1987)

GERAGHTY & MILLER, INC.
Environmental Services

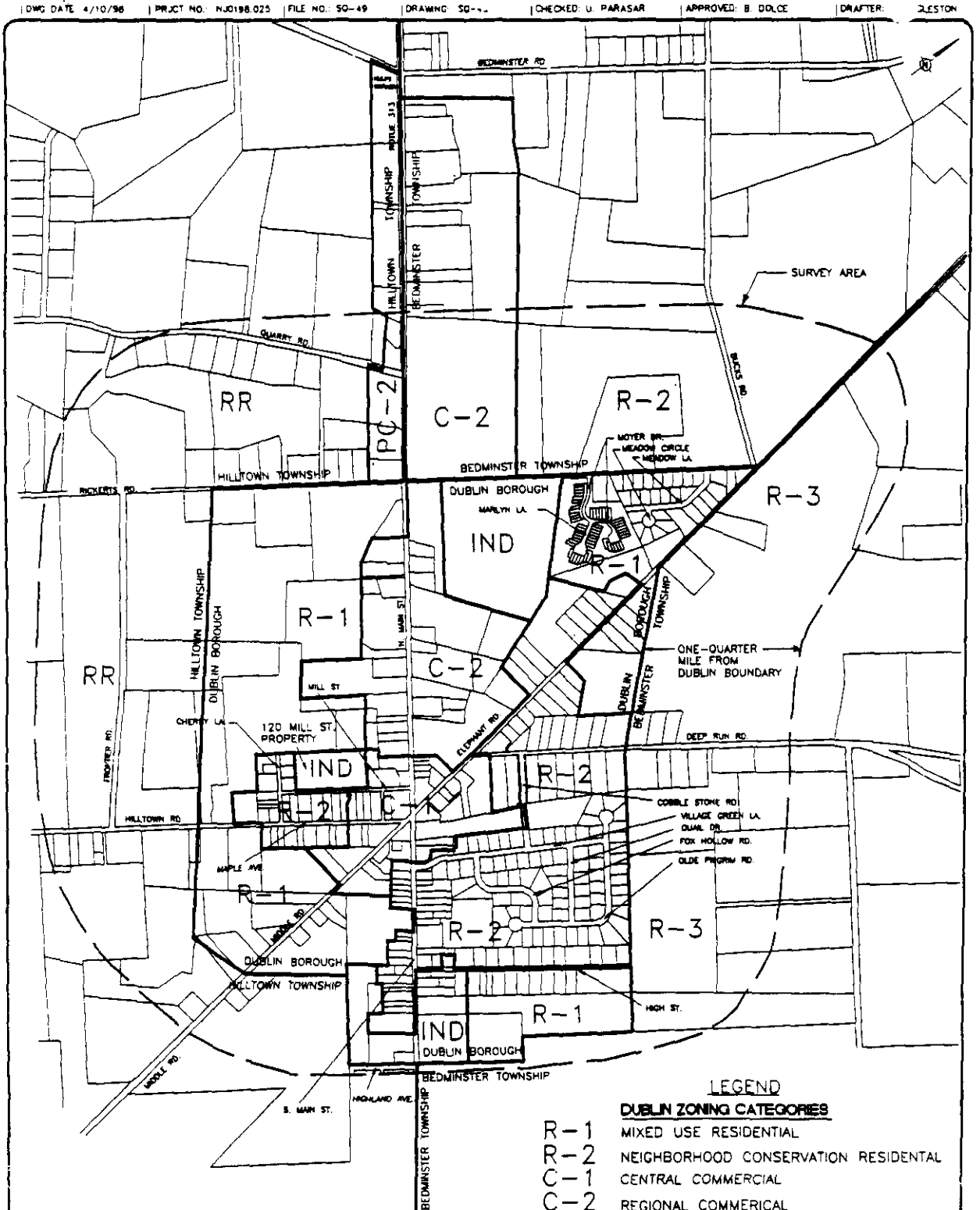
CONCENTRATIONS OF VOLATILE ORG COMPOUNDS DETECTED IN SEDIMENT S. LES COLLECTED IN AUGUST 2

SEQUA CORPORATION
DUBLIN NPL SITE, DUBLIN, PENNSYLVANIA

FIGURE 2-6

AR 301 487

DWG DATE 4/10/98 | PROJCT NO. NJ0198.025 | FILE NO.: SQ-49 | DRAWING: SQ-.. | CHECKED: U. PARASAR | APPROVED: B. DOLCE | DRAFTER: JLESTON



SCALE
0 800 FEET

SOURCE: SURVEY OF LAND AND WATER USE, GERAGHTY & MILLER, INC. 1993.

LEGEND

DUBLIN ZONING CATEGORIES

R-1	MIXED USE RESIDENTIAL
R-2	NEIGHBORHOOD CONSERVATION RESIDENTAL
C-1	CENTRAL COMMERCIAL
C-2	REGIONAL COMMERICAL
IND	INDUSTRIAL

BEDMINSTER ZONING CATEGORIES

R-2	RURAL RESIDENTIAL
R-3	RESIDENTIAL
C-2	HIGHWAY COMMERICAL

HILLTOWN ZONING CATEGORIES

RR	RURAL RESIDENTIAL
PC-2	PLANNED COMMERICAL

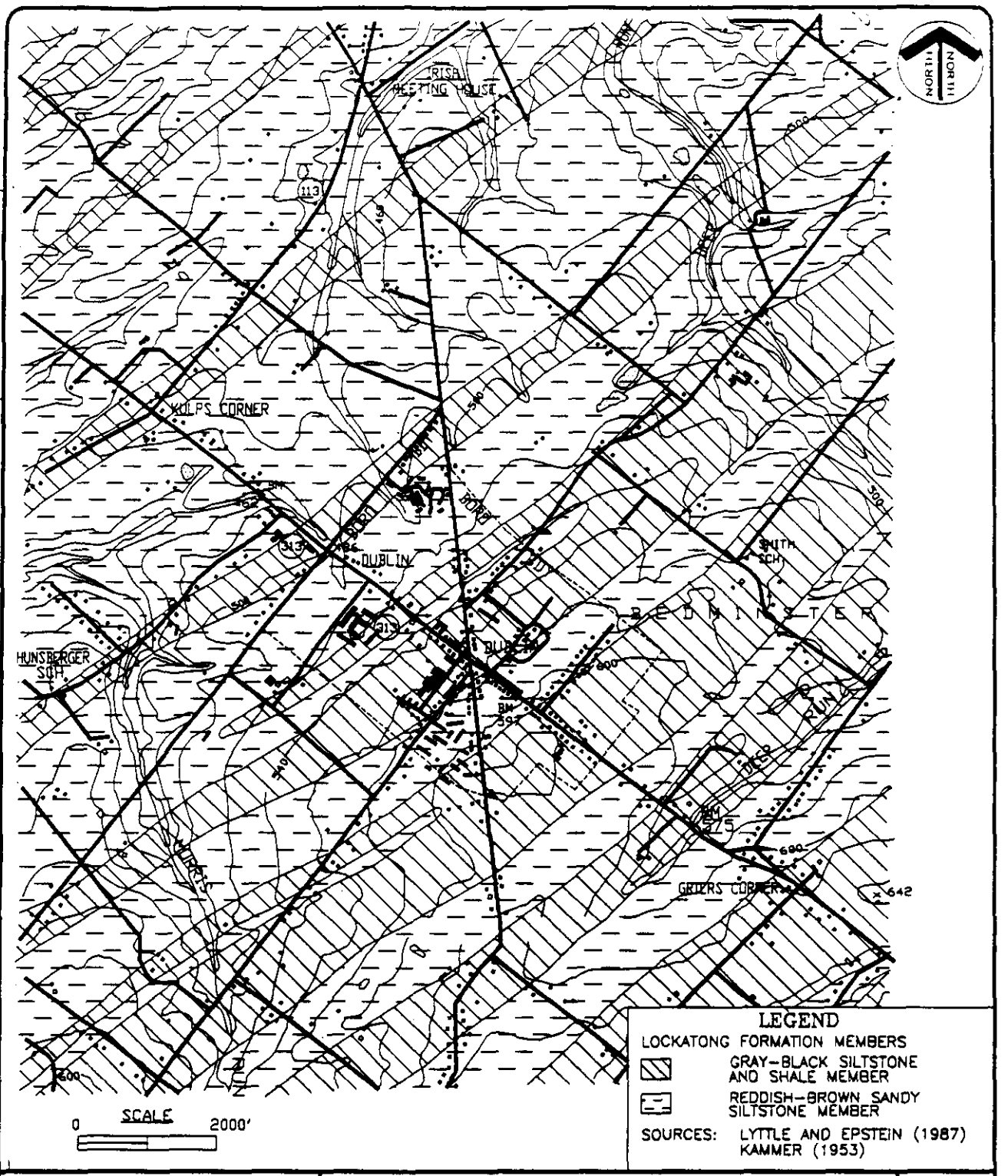
GERAGHTY & MILLER, INC.
Environmental Services
A Halliburton Company

ZONING OF DUBLIN AND ADJACENT AREAS OF BEDMINSTER AND HILLTOWN

DUBLIN NPL SITE, DUBLIN, PENNSYLVANIA
SEQUA CORPORATION

FIGURE 3-2

AR301488



DRAFTER: A. KINOSIAN | APPROVED: B. DOLCE | CHECKED: U. PARASAR | DRAWING: SQ-266 | HARD FILE: SQ-266 | PROJCT NO.: NJ0198.025 | DWG DATE: 5/1/96

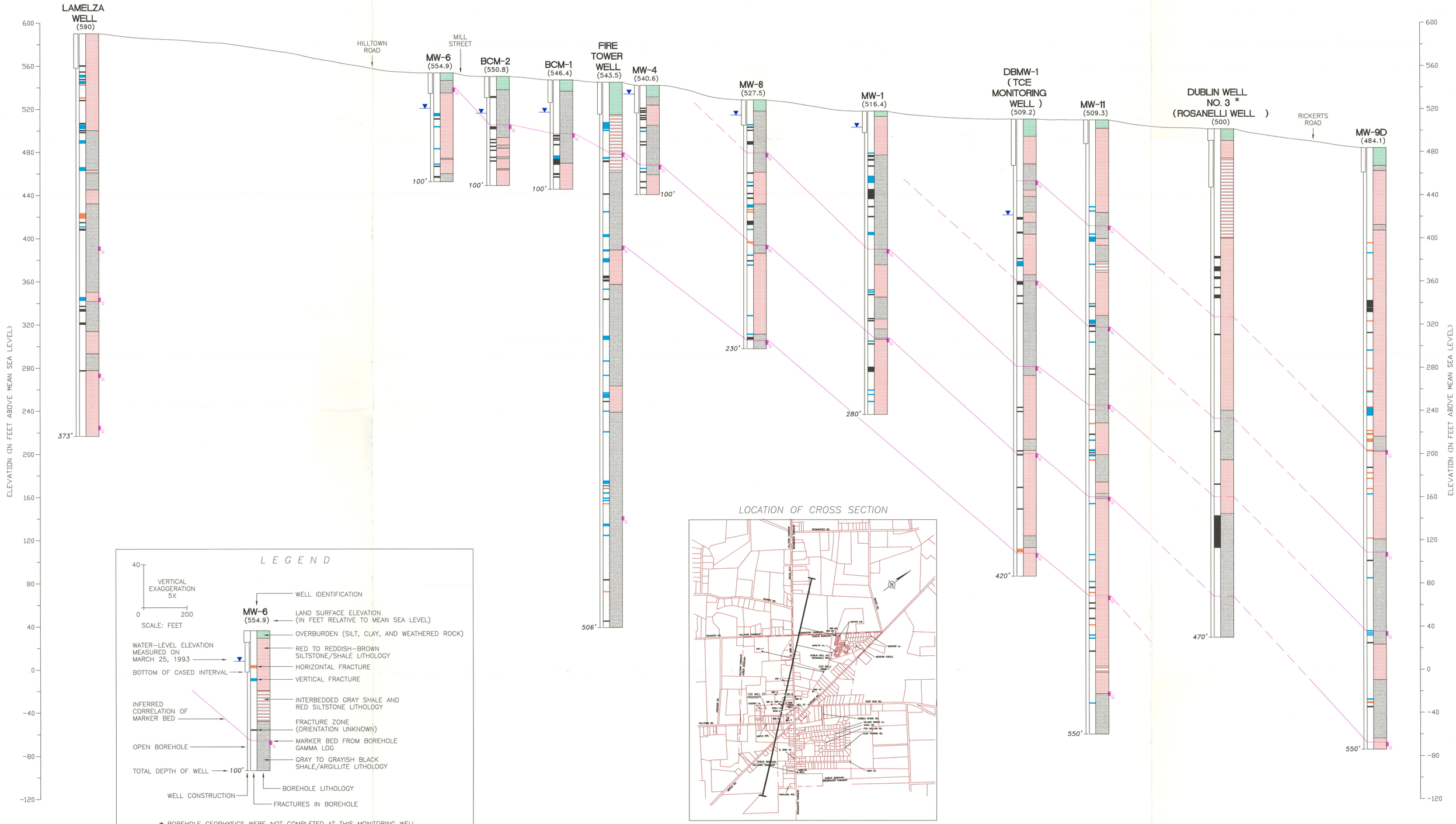
GERAGHTY & MILLER, INC.
Environmental Services
A Heidemij Company

GEOLOGY OF THE DUBLIN, PENNSYLVANIA AREA

DUBLIN NPL SITE, DUBLIN, PENNSYLVANIA
SEQUA CORPORATION

FIGURE
4-1

AR301489



LEGEND

* BOREHOLE GEOPHYSICS WERE NOT COMPLETED AT THIS MONITORING WELL

LOCATION OF CROSS SECTION

GERAGHTY & MILLER, INC.
Environmental Services
A Heidemij Company

DRAWING CONFIDENTIAL: THIS DRAWING AND ALL INFORMATION CONTAINED THEREON IS AND SHALL REMAIN THE PROPERTY OF GERAGHTY & MILLER, INC. AS AN INSTRUMENT OF PROFESSIONAL SERVICE. THIS INFORMATION SHALL NOT BE USED IN WHOLE OR IN PART WITHOUT THE FULL KNOWLEDGE AND PRIOR WRITTEN CONSENT OF GERAGHTY & MILLER, INC.

SCALE VERIFICATION
THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING:
USE TO VERIFY FIGURE REPRODUCTION SCALE

REV. NO.	DATE	DESCRIPTION	BY	APPR.

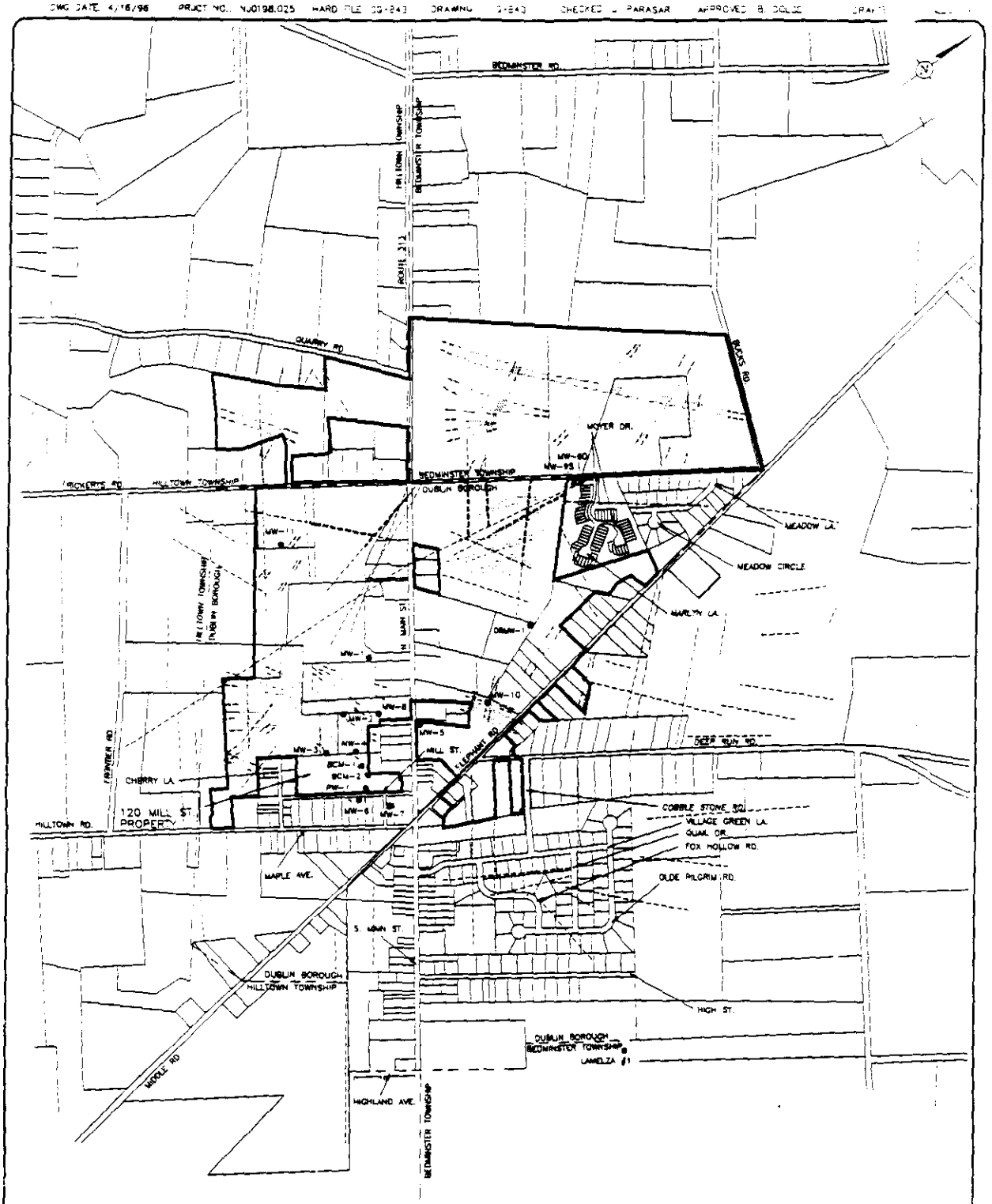
PROJECT NO.: NJ0189.029	HARD FILE: SQ-251
DRAWING: SQ-251	PLOT SIZE: 1=40
DRAFTED BY: D. LORENZ	DATE: 6/11/96
CHECKED BY: J. BURDICK	DATE: 6/11/96
APPROVED BY: B. DOLCE	DATE: 6/11/96

HYDROGEOLOGIC CROSS SECTION

DUBLIN NPL SITE, DUBLIN, PENNSYLVANIA
SEQUA CORPORATION

FIGURE 4-2

DWG DATE 4/16/96 PROJECT NO. NJ0198.025 HARD FILE 03-843 DRAWING 3-843 CHECKED J. PARASAR APPROVED B. DOLIS DRAFT



LEGEND

- BOUNDARY OF GEOPHYSICAL SURVEY AREA
- FRACTURE TRACES MAPPED FROM AERIAL PHOTOGRAPHS
- FIELD VERIFIED FRACTURE TRACES
- FRACTURE/FRACTURE ZONE INTERPRETED FROM GEOPHYSICAL SURVEY
- EXISTING MONITORING WELL

GERAGHTY & MILLER, INC.
Environmental Services
A Halliburton Company

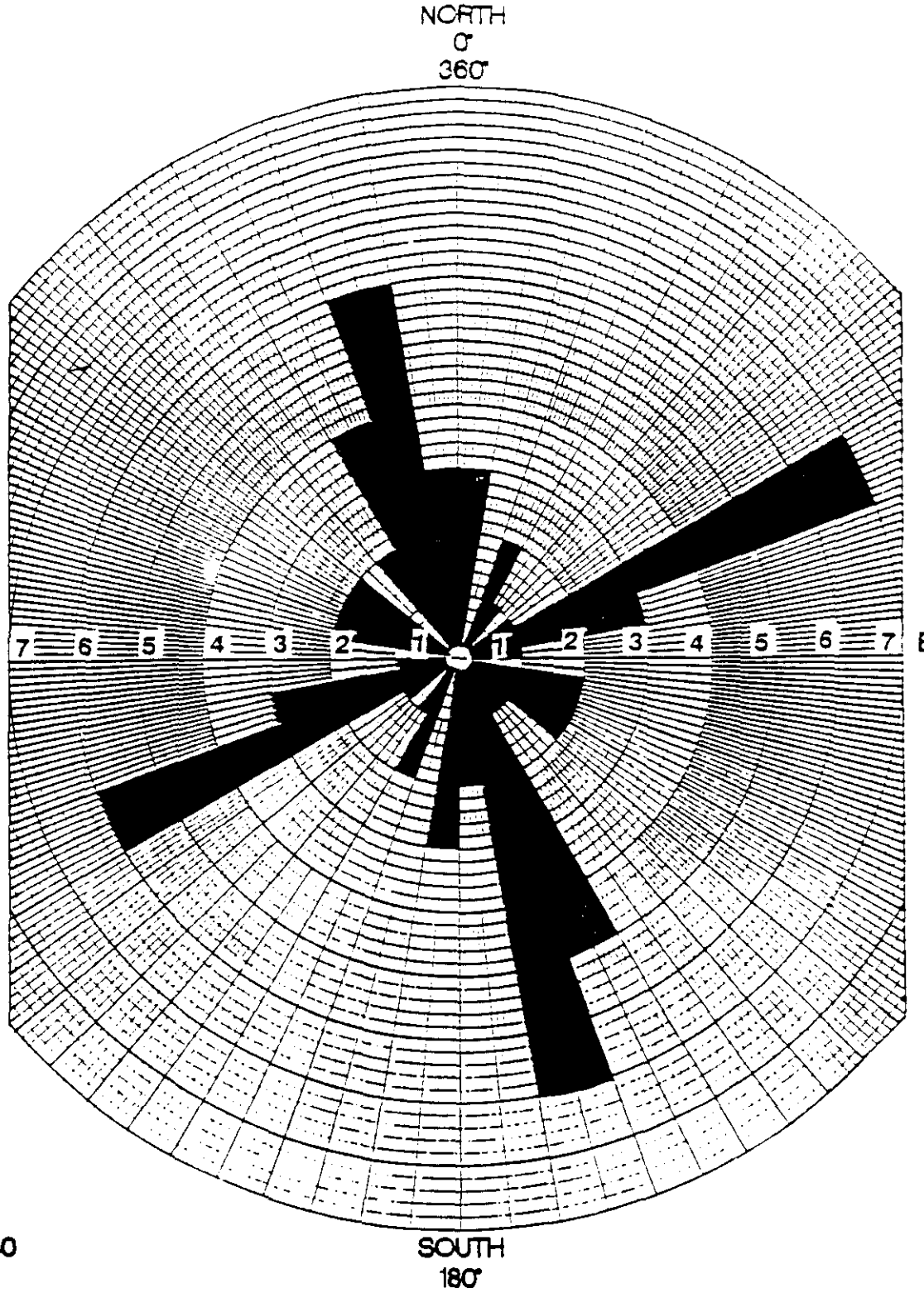
FRACTURE TRACES AND POTENTIAL FRACTURE ZONES IDENTIFIED FROM AERIAL PHOTOGRAPHS AND GEOPHYSICAL SURVEYS

DUBLIN NPL SITE, DUBLIN, PENNSYLVANIA

SEQUA CORPORATION

FIGURE 4-3

AR301491



NOTE:

SHADED AREAS REPRESENT THE NUMBER OF FRACTURE TRACES IDENTIFIED WITHIN EACH 10 DEGREE INTERVAL TRACES HAVE NOT BEEN FIELD-VERIFIED.

DATE: 4/17/96 | PROJECT NO.: NJ0198.025 | HARD FILE: SQ-261 | DRAWN: -261 | CHECKED: J. BURDICK | APPROVED: B. DOLCE | DRAFT: KHOSIAN

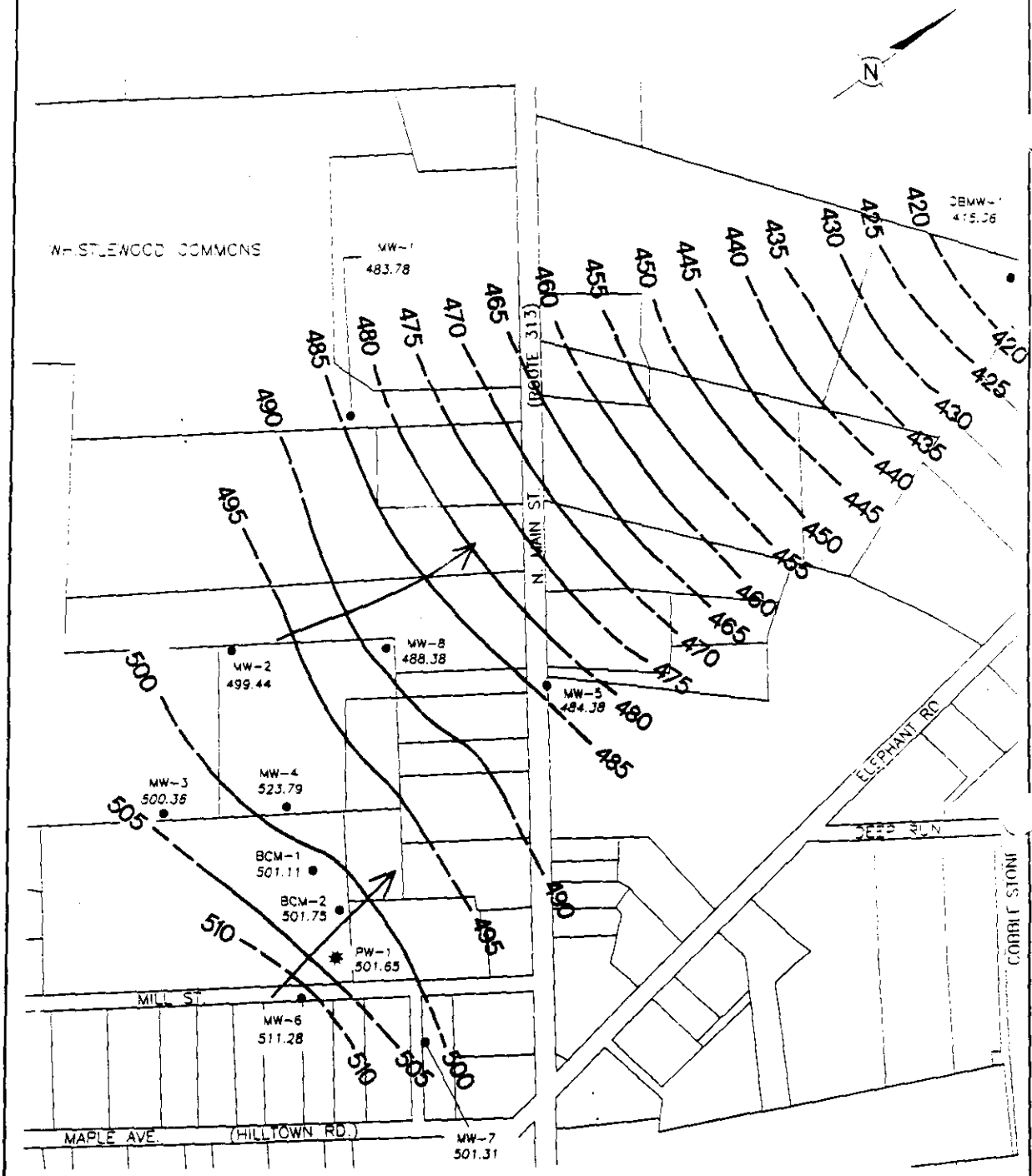
GERAGHTY & MILLER, INC.
Environmental Services
A Heidemij Company

AZIMUTH-FREQUENCY FRACTURE TRACE DIAGRAM

DUBLIN NPL SITE, DUBLIN, PENNSYLVANIA
SEQUA CORPORATION

FIGURE
4-4

AR301492



NOTE:

THE WATER-LEVEL ELEVATION AT MONITORING WELL MW-4 WAS NOT CONSIDERED WHEN ESTABLISHING CONTOURS BECAUSE IT DOES NOT APPEAR TO BE REPRESENTATIVE OF HYDRAULIC CONDITIONS AT OTHER WELLS IN THE MONITORING NETWORK.

LEGEND

- MW-2 — MONITORING WELL LOCATION AND IDENTIFICATION
- PW-1 — PRODUCTION WELL LOCATION AND IDENTIFICATION
- 484.38 — WATER-LEVEL ELEVATION, OCTOBER 15, 1992 (FEET ABOVE MEAN SEA LEVEL)
- 495 — LINE OF EQUAL WATER-LEVEL ELEVATION (FEET ABOVE MEAN SEA LEVEL)
- INTERPRETED GROUNDWATER FLOW DIRECTION

SCALE
0 200 FEET

GERAGHTY & MILLER, INC.
Environmental Services
A Halliburton Company

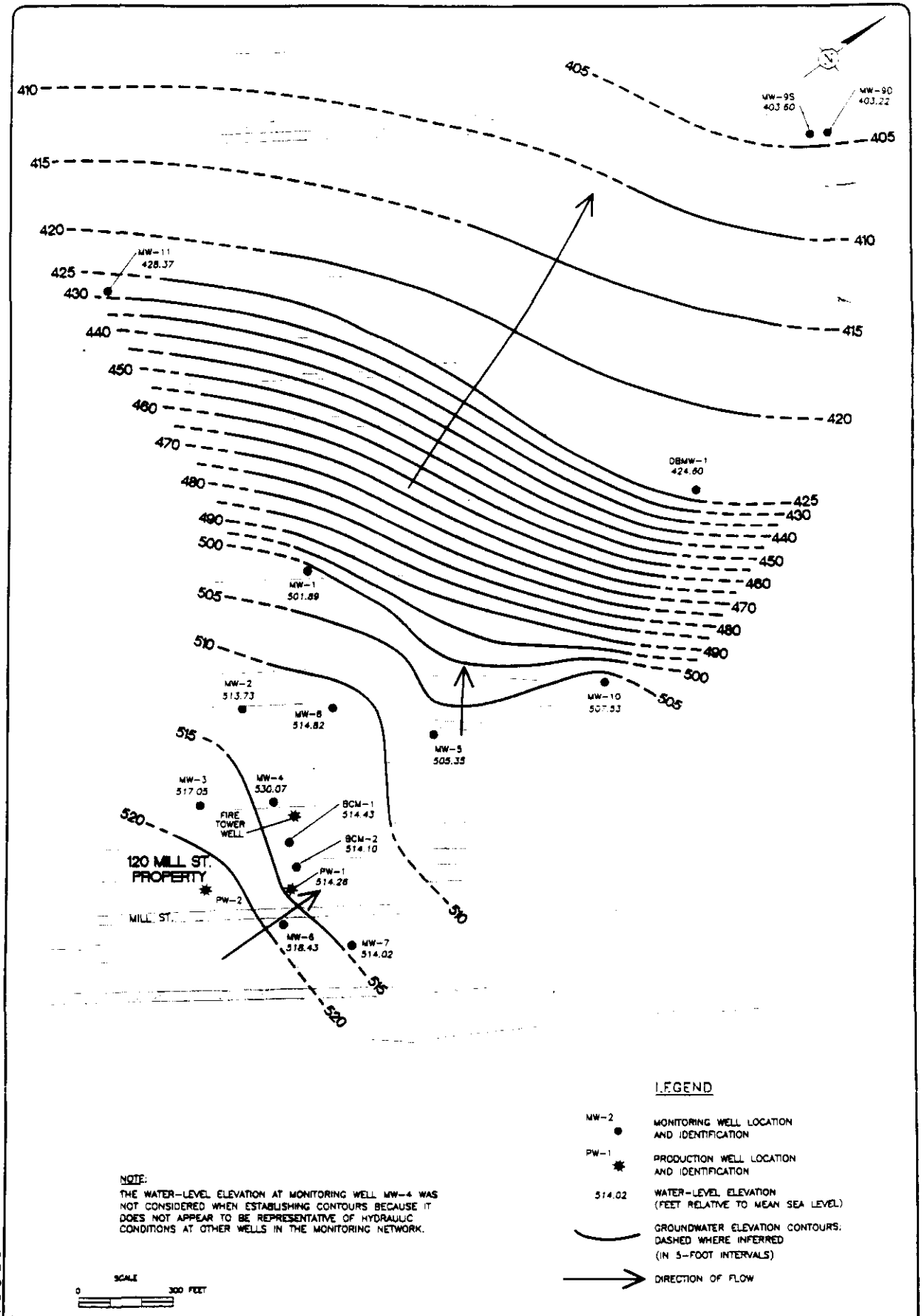
WATER-LEVEL CONTOURS OCTOBER 15, 1992

DUBLIN NPL SITE, DUBLIN, PENNSYLVANIA
SEQUA CORPORATION

FIG. 4-5

AR301493

DWG DATE: 5/13/96 PROJECT NO. NJ0198.325 HARD FILE: SQ-263 DRAWING: SQ-263 CHECKED: J. PARASAR APPROVED: B. DOLCE DRAFTER: C. EAGLESTON



LEGEND

- MW-2 ● MONITORING WELL LOCATION AND IDENTIFICATION
- PW-1 ✸ PRODUCTION WELL LOCATION AND IDENTIFICATION
- 514.02 WATER-LEVEL ELEVATION (FEET RELATIVE TO MEAN SEA LEVEL)
- GROUNDWATER ELEVATION CONTOURS; DASHED WHERE INFERRED (IN 5-FOOT INTERVALS)
- DIRECTION OF FLOW

NOTE:
THE WATER-LEVEL ELEVATION AT MONITORING WELL MW-4 WAS NOT CONSIDERED WHEN ESTABLISHING CONTOURS BECAUSE IT DOES NOT APPEAR TO BE REPRESENTATIVE OF HYDRAULIC CONDITIONS AT OTHER WELLS IN THE MONITORING NETWORK.

SCALE
0 300 FEET

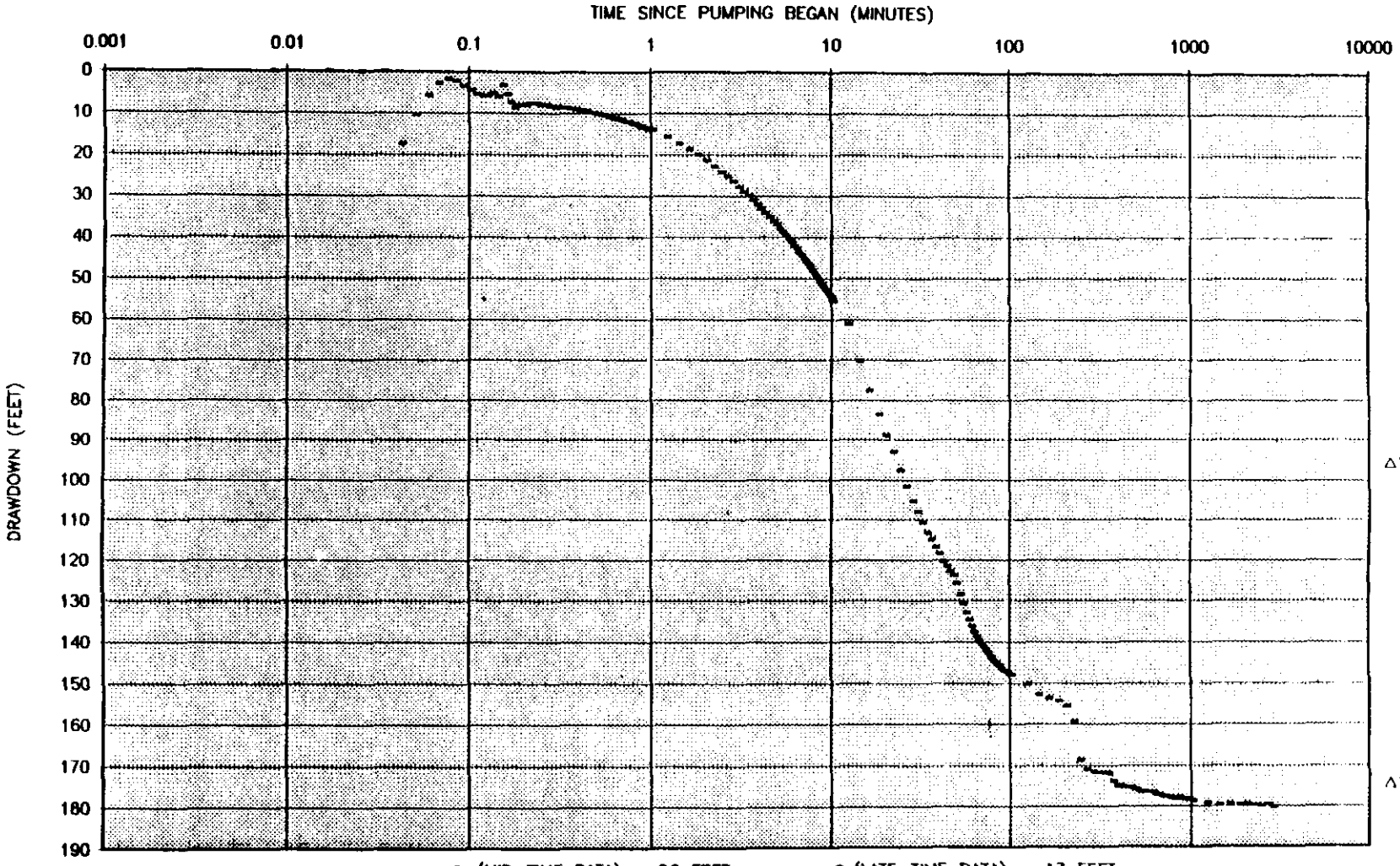
GERAGHTY & MILLER, INC.
Environmental Services
A Heidemij Company

WATER-LEVEL CONTOURS
APRIL 23, 1996
DUBLIN NPL SITE, DUBLIN, PENNSYLVANIA
SEQUA CORPORATION

FIGURE
4-6

AR301494

DWN: 5/3/96	PRJCT NO.: NJ0198.025	HARD FILE: SQ-262	DRAWING: SQ-262	CHECKED: J. BURDICK	APPROVED: B. DOLCE	DRAFTER: A. ARNOSIAN



ΔS_1 (MID-TIME DATA) = 96 FEET

Q = 25 GPM

$T_1 = \frac{264\ (25\ GPM)}{96}$

T_1 = 69 GPD/FT

ΔS_2 (LATE-TIME DATA) = 13 FEET

Q = 25 GPM

$T_2 = \frac{264\ (25\ GPM)}{13}$

T_2 = 508 GPD/FT

$T = \frac{264Q}{\Delta S}$

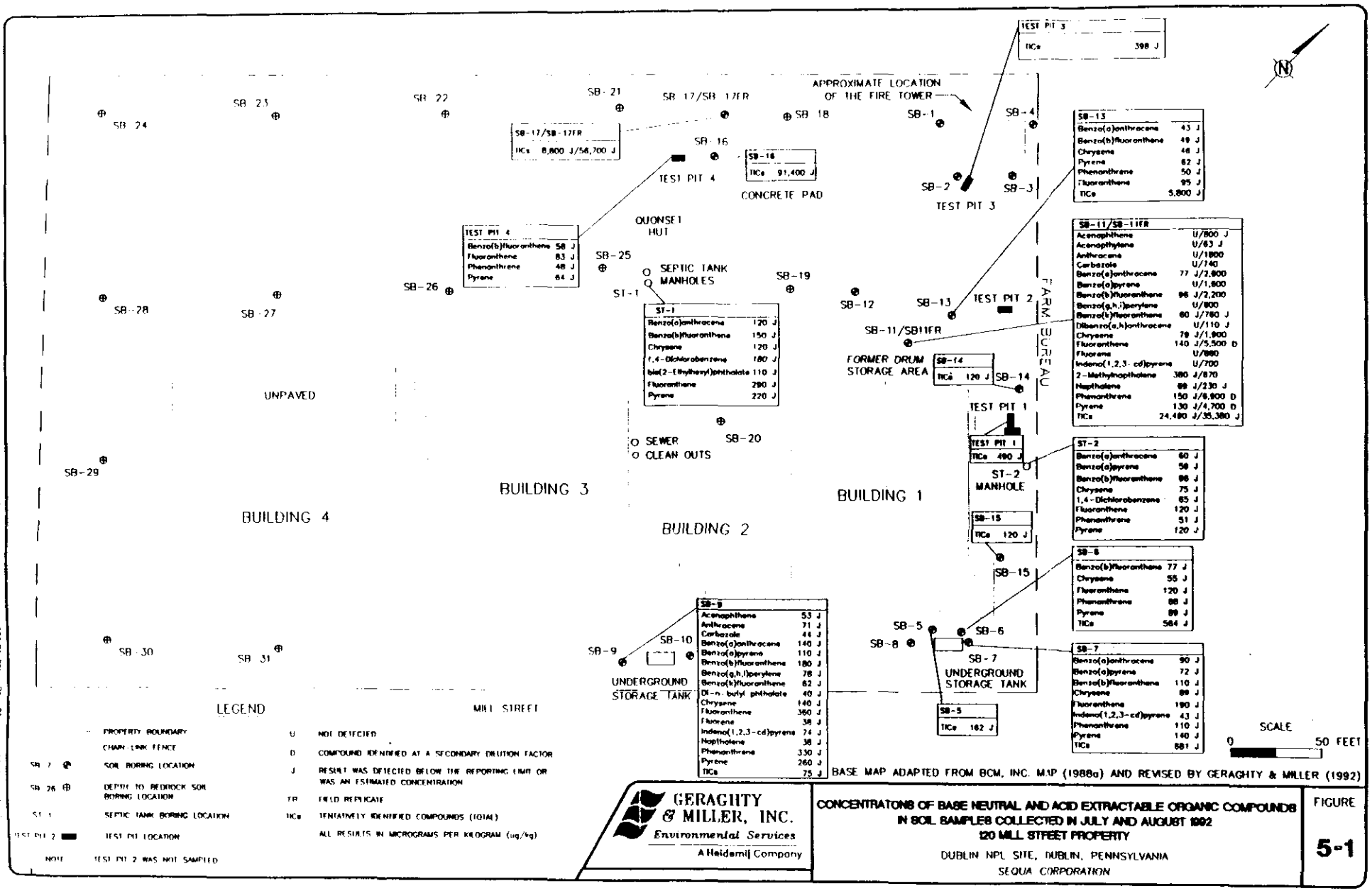
GERAGHTY & MILLER, INC.
Environmental Services
A Heidemij Company

TIME - DRAWDOWN PLOT FOR THE FIRE TOWER WELL (PUMPING WELL) DECEMBER 1995 AQUIFER PUMPING TEST

DUBLIN NPL SITE, DUBLIN, PENNSYLVANIA
SEQUA CORPORATION

FIGURE
4-7

AR301495

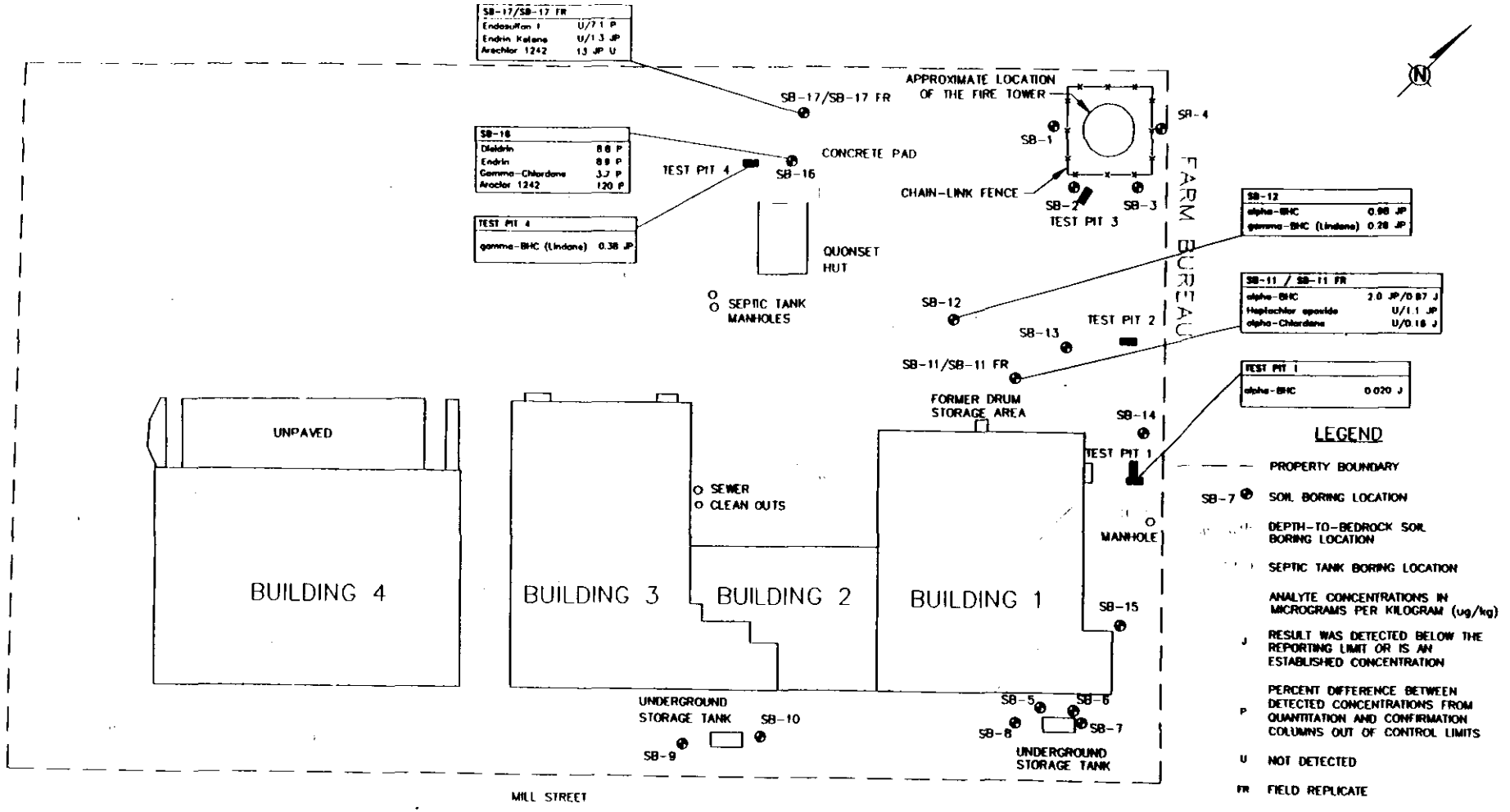


GERAGHTY & MILLER, INC.
Environmental Services
A Heidemij Company

CONCENTRATIONS OF BASE NEUTRAL AND ACID EXTRACTABLE ORGANIC COMPOUNDS IN SOIL SAMPLES COLLECTED IN JULY AND AUGUST 1992
120 MILL STREET PROPERTY
DUBLIN NPL SITE, DUBLIN, PENNSYLVANIA
SEQUA CORPORATION

FIGURE
5-1

AR301496



BASE MAP ADAPTED FROM BCM, INC. MAP (1988a) AND REVISED BY GERAGHTY & MILLER (1992)

GERAGHTY & MILLER, INC.
Environmental Services

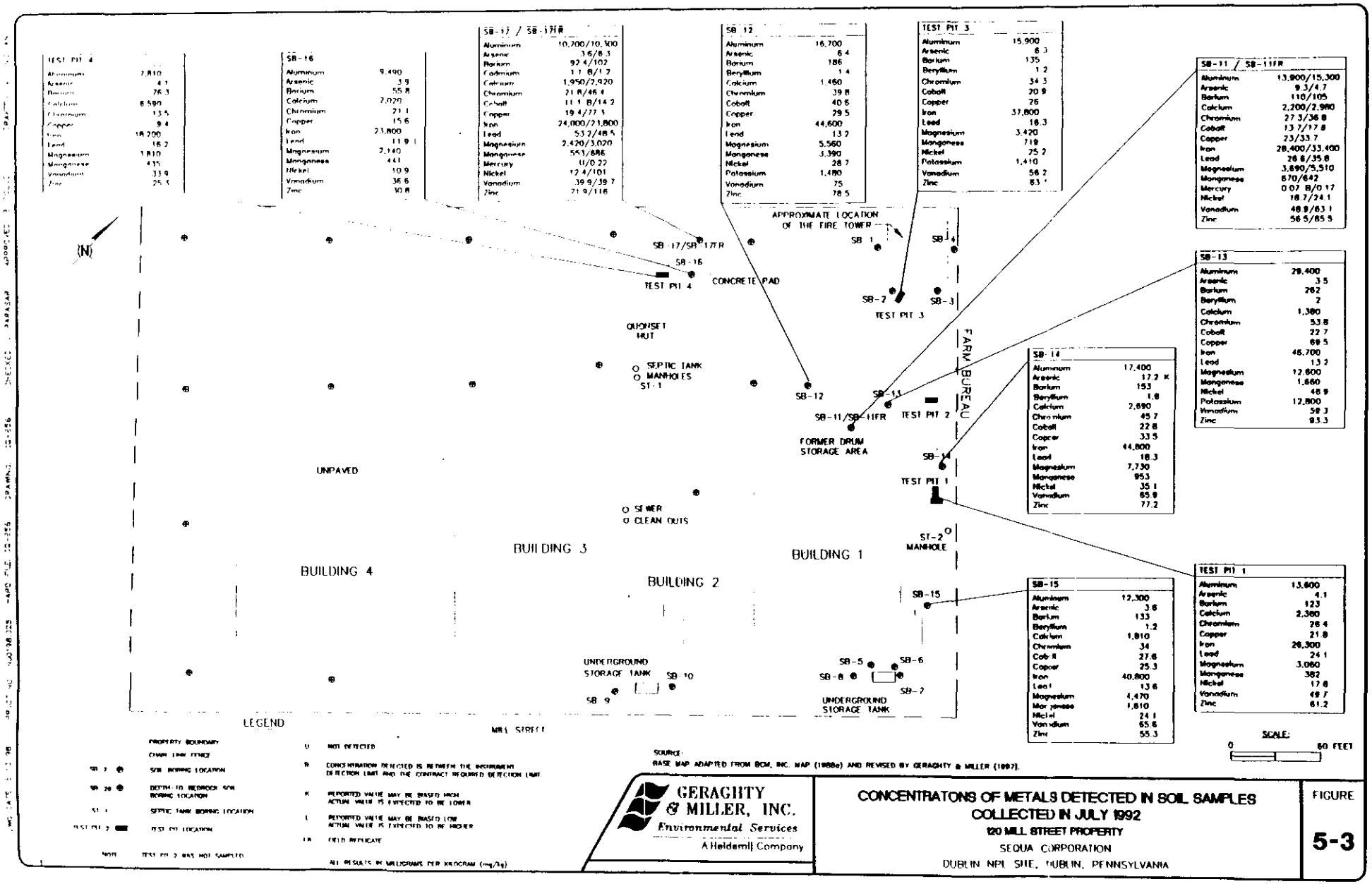
CONCENTRATIONS OF PESTICIDES AND POLYCHLORINATED BIPHENYLS DETECTED IN SOIL SAMPLES COLLECTED IN JULY 1992

120 MILL STREET PROPERTY
DUBLIN NPL SITE, DUBLIN, PENNSYLVANIA
SEQUA CORPORATION

FIGURE 5-2

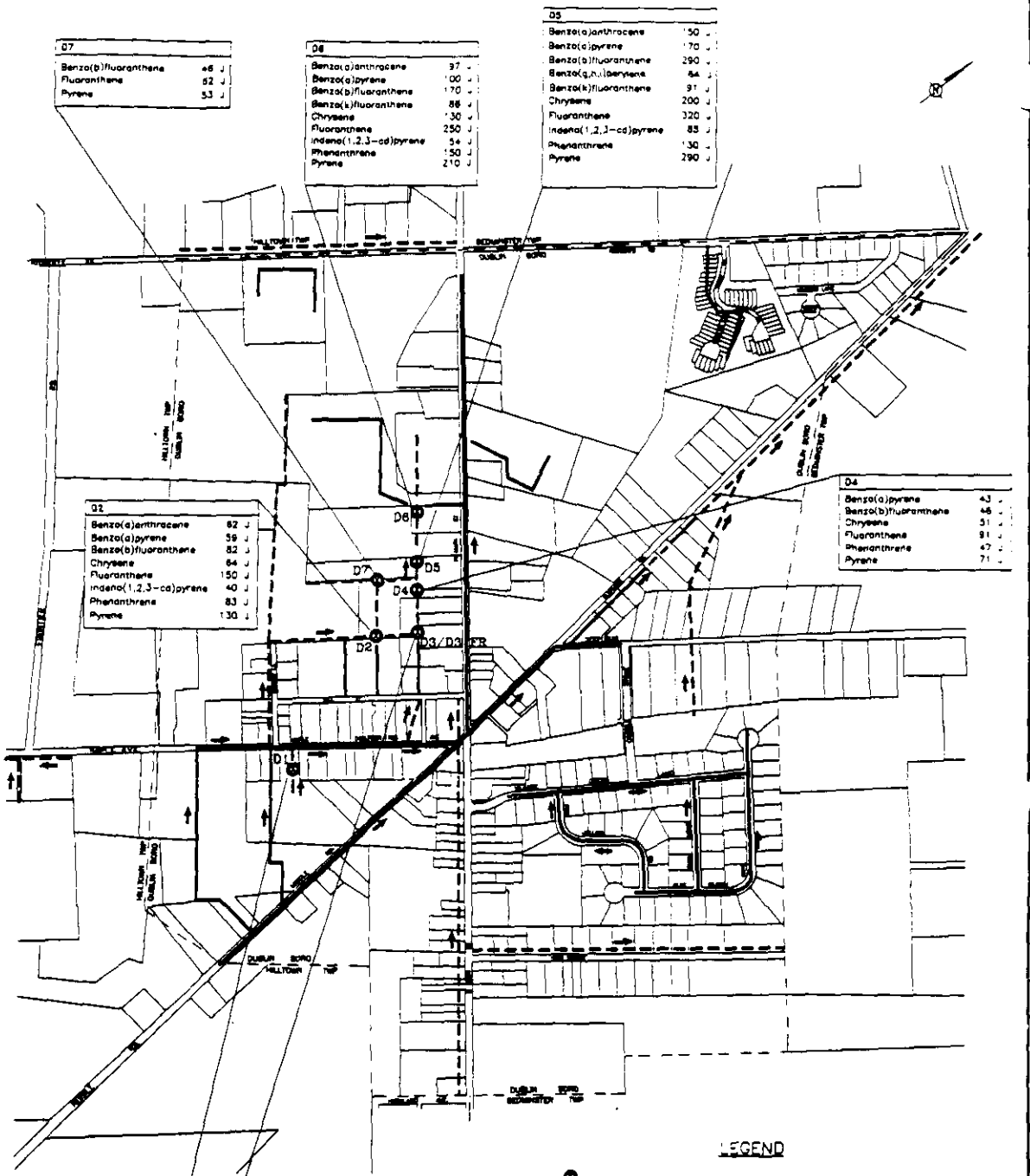
DRAFTER: A. KHOSIAN APPROVED: B.DOLCE CHECKED: J. PARASAM DRAWING: 50-249 FILE NO.: 50-248 PROJECT NO.: NJ0168.025 DWG DATE: 5/13/96

AR301497


TEST PIT 4
Aluminum 7,810
Arsenic 4.1
Barium 76.3
Calcium 8,590
Chromium 13.5
Copper 9.4
Iron 18,200
Lead 16.2
Magnesium 1,810
Manganese 435
Vanadium 33.9
Zinc 25.5
SB-16
Aluminum 9,490
Arsenic 3.9
Barium 55.8
Calcium 7,020
Chromium 21.1
Copper 15.6
Iron 23,800
Lead 11.9 L
Magnesium 2,140
Manganese 441
Nickel 10.9
Vanadium 35.6
Zinc 30.8
SB-17 / SB-17FR
Aluminum 10,700/10,300
Arsenic 3.6/8.3
Barium 92.4/102
Cadmium 1.1 B/1.7
Calcium 1,950/2,920
Chromium 21.8/46.4
Cobalt 11.1 B/14.2
Copper 19.4/27.3
Iron 24,000/21,800
Lead 53.2/48.5
Magnesium 2,420/3,020
Manganese 553/686
Mercury U/0.22
Nickel 12.4/101
Vanadium 39.9/39.7
Zinc 71.9/116
SB-12
Aluminum 16,700
Arsenic 6.4
Barium 186
Beryllium 1.4
Calcium 1,460
Chromium 39.8
Cobalt 40.6
Copper 29.5
Iron 44,600
Lead 13.2
Magnesium 5,560
Manganese 3,390
Nickel 28.7
Potassium 1,480
Vanadium 75
Zinc 78.5
TEST PIT 3
Aluminum 15,900
Arsenic 6.3
Barium 135
Beryllium 1.2
Chromium 34.3
Cobalt 20.9
Copper 26
Iron 37,800
Lead 18.3
Magnesium 3,420
Manganese 719
Nickel 25.2
Potassium 1,410
Vanadium 56.2
Zinc 83.1
SB-11 / SB-11FR
Aluminum 13,900/15,300
Arsenic 9.3/4.7
Barium 110/105
Calcium 2,200/2,980
Chromium 27.3/36.8
Cobalt 13.7/17.8
Copper 23/33.7
Iron 28,400/33,400
Lead 26.8/35.8
Magnesium 3,690/5,510
Manganese 670/642
Mercury 0.07 B/0.17
Nickel 18.7/24.1
Vanadium 48.8/63.1
Zinc 56.5/85.5
SB-13
Aluminum 29,400
Arsenic 3.5
Barium 282
Beryllium 2
Calcium 1,380
Chromium 53.8
Cobalt 22.7
Copper 69.5
Iron 46,700
Lead 13.2
Magnesium 12,600
Manganese 1,660
Nickel 46.9
Potassium 12,800
Vanadium 58.3
Zinc 83.3
SB-14
Aluminum 17,400
Arsenic 17.2 K
Barium 153
Beryllium 1.8
Calcium 2,690
Chromium 45.7
Cobalt 22.8
Copper 33.5
Iron 44,800
Lead 18.3
Magnesium 7,730
Manganese 953
Nickel 35.1
Vanadium 65.9
Zinc 77.2
SB-15
Aluminum 12,300
Arsenic 3.6
Barium 133
Beryllium 1.2
Calcium 1,810
Chromium 34
Cobalt 27.6
Copper 25.3
Iron 40,800
Lead 13.6
Magnesium 4,470
Manganese 1,810
Nickel 24.1
Vanadium 65.6
Zinc 55.3
TEST PIT 1
Aluminum 13,600
Arsenic 4.1
Barium 123
Calcium 2,380
Chromium 28.4
Copper 21.8
Iron 26,300
Lead 24.1
Magnesium 3,060
Manganese 382
Nickel 17.8
Vanadium 49.7
Zinc 61.2
APPROXIMATE LOCATION OF THE FIRE TOWER
SB-1
SB-4
SB-2
SB-3
TEST PIT 3
SB-17/SB-17FR
SB-16
TEST PIT 4
CONCRETE PAD
QUONSET HUT
SEPTIC TANK
MANHOLES
ST-1
SB-12
SB-11
SB-11/SB-11FR
TEST PIT 2
FORMER DRUM STORAGE AREA
FARM BUREAU
SB-14
TEST PIT 1
ST-2
MANHOLE
UNPAVED
SEWER
CLEAN OUTS
BUILDING 3
BUILDING 4
BUILDING 2
BUILDING 1
SB-15
SB-5
SB-6
SB-8
SB-7
UNDERGROUND STORAGE TANK
SB-10
SB-9
UNDERGROUND STORAGE TANK
MILL STREET
(N)
LEGEND
PROPERTY BOUNDARY
CHAIN LINK FENCE
SOIL BORING LOCATION
DEPTH TO BEDROCK SOIL BORING LOCATION
SEPTIC TANK BORING LOCATION
TEST PIT LOCATION
NOTE: TEST PIT 2 WAS NOT SAMPLED
U NOT DETECTED
B CONCENTRATION DETECTED IS BETWEEN THE INSTRUMENT DETECTION LIMIT AND THE CONTRACT REQUIRED DETECTION LIMIT
K REPORTED VALUE MAY BE BIASED HIGH. ACTUAL VALUE IS EXPECTED TO BE LOWER
L REPORTED VALUE MAY BE BIASED LOW. ACTUAL VALUE IS EXPECTED TO BE HIGHER
FD FIELD DUPLICATE
ALL RESULTS IN MILLIGRAMS PER KILOGRAM (mg/kg)
SOURCE:
BASE MAP ADAPTED FROM BCM, INC. MAP (1988a) AND REVISED BY GERAGHTY & MILLER (1992).
SCALE:
0
60 FEET
GERAGHTY & MILLER, INC.
Environmental Services
A Halliburton Company
CONCENTRATIONS OF METALS DETECTED IN SOIL SAMPLES COLLECTED IN JULY 1992
120 MILL STREET PROPERTY
SEQUA CORPORATION
DUBLIN NPL SITE, DUBLIN, PENNSYLVANIA
FIGURE
5-3

AR301498

DWG DATE: 5/13/98 PROJECT NO.: NJ0198.025 FILE NO.: SG-249 DRAWING: SG-249 CHECKED: J. PARASAR APPROVED: B. DOLCE DRAFTER: A. KINOSIAN



SOURCE: T.H. CAHILL AND ASSOCIATES AND J.K. ADAMS AND ASSOCIATES (1987).

AR301499

GERAGHTY & MILLER, INC.
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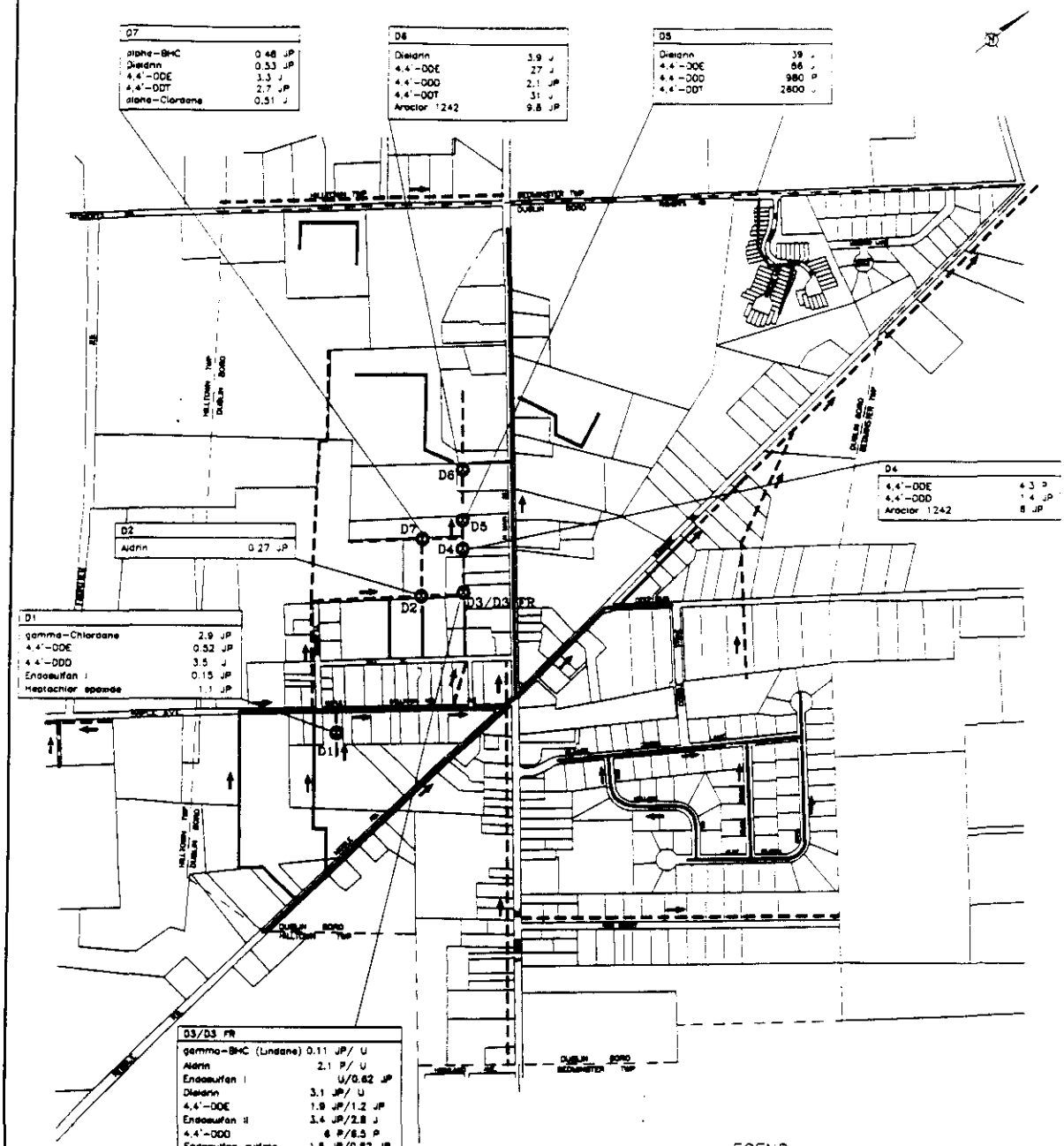
CONCENTRATIONS OF BASE NEUTRAL AND ACID EXTRACTABLE ORGANIC COMPOUNDS DETECTED IN SEDIMENT SAMPLES COLLECTED IN AUGUST AND OCTOBER 1992

DUBLIN NPL SITE, DUBLIN, PENNSYLVANNIA

SEQUA CORPORATION

FIGURE 6-1

DWG DATE 5/12/98 PROJECT NO. 4J0198.025 FILE NO. 30-250 DRAWING 30-250 CHECKED J PARASAR APPROVED B DOLCE DRAFTER K KINOSIAN



LEGEND

- D2 — SEDIMENT SAMPLING LOCATION AND IDENTIFICATION
- STORM-WATER DITCH
- STORM SEWER PIPE
- DIRECTION OF FLOW

ANALYTE CONCENTRATIONS IN MICROGRAMS PER KILOGRAM (ug/kg)

- J — RESULT WAS DETECTED BELOW THE REPORTING LIMIT AND/OR WAS AN ESTIMATED CONCENTRATION
- P — PERCENT DIFFERENCE BETWEEN DETECTED CONCENTRATIONS FROM QUANTITATION AND CONFIRMATION COLUMNS WAS OUT OF CONTROL LIMITS.
- U — COMPOUND OR ELEMENT ANALYZED FOR, BUT NOT DETECTED AT THE CORRESPONDING REPORTING LIMIT
- FR — FIELD REPLICATE

SOURCE: T.H. CAHILL AND ASSOCIATES AND J.K. ADAMS AND ASSOCIATES (1987).

GERAGHTY & MILLER, INC.
Environmental Services
A Halliburton Company

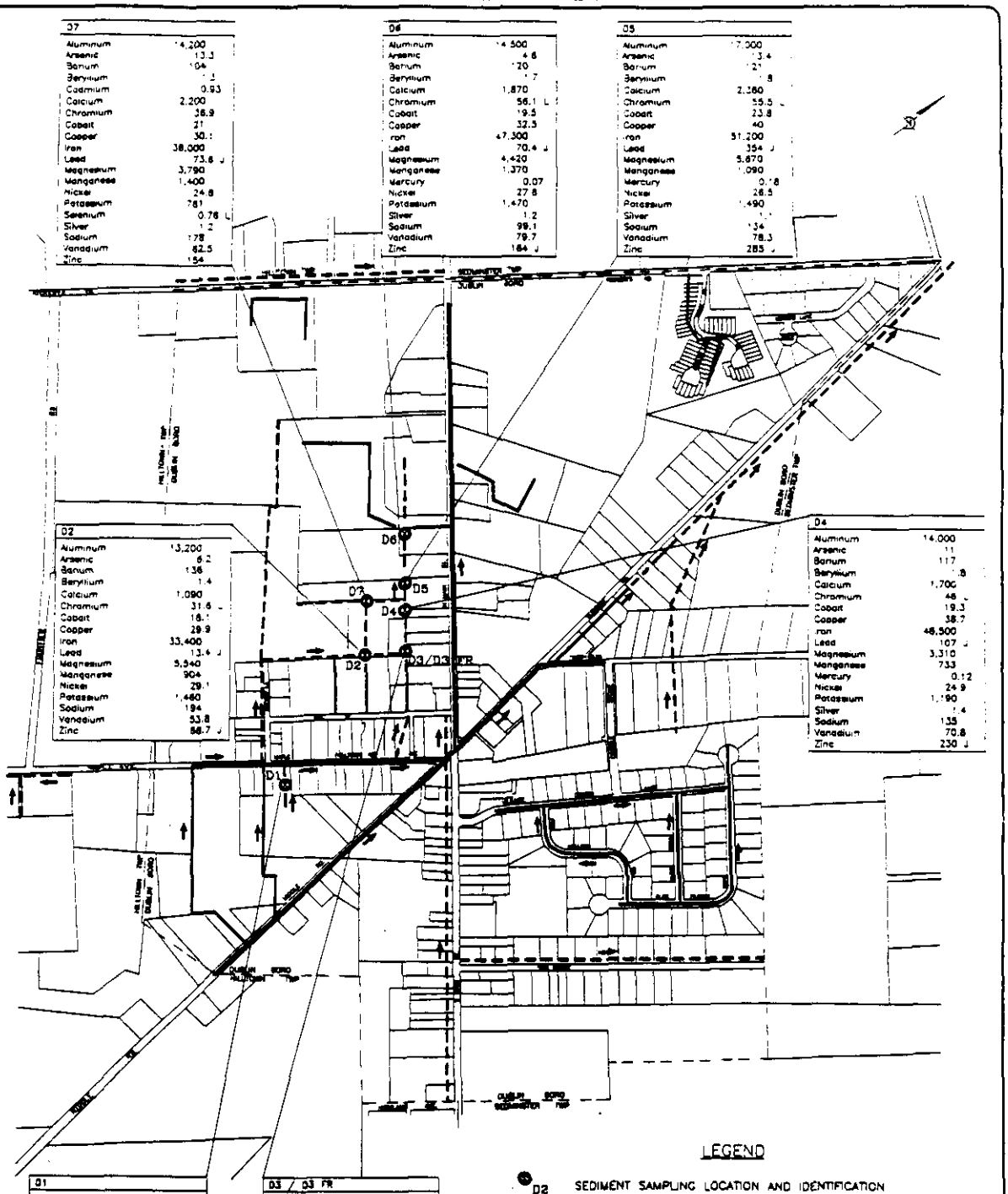
CONCENTRATIONS OF PESTICIDES AND POLYCHLORINATED BIPHENYLS DETECTED IN SEDIMENT SAMPLES COLLECTED IN AUGUST AND OCTOBER 1992

DUBLIN NPL SITE, DUBLIN, PENNSYLVANIA
SEQUA CORPORATION

FIGURE 6-2

AR301500

DWG DATE: 5/12/98 PROJECT NO.: 4-0198.025 FILE NO: SQ-255 DRAWING: SQ-255 CHECKED: J. PARASAR APPROVED: B. DOLCE DRAFTER: A. KINOSIAN



SOURCE: T.H. CAHILL AND ASSOCIATES AND J.K. ADAMS AND ASSOCIATES (1987).

GERAGHTY & MILLER, INC.
Environmental Services
A Heidemij Company

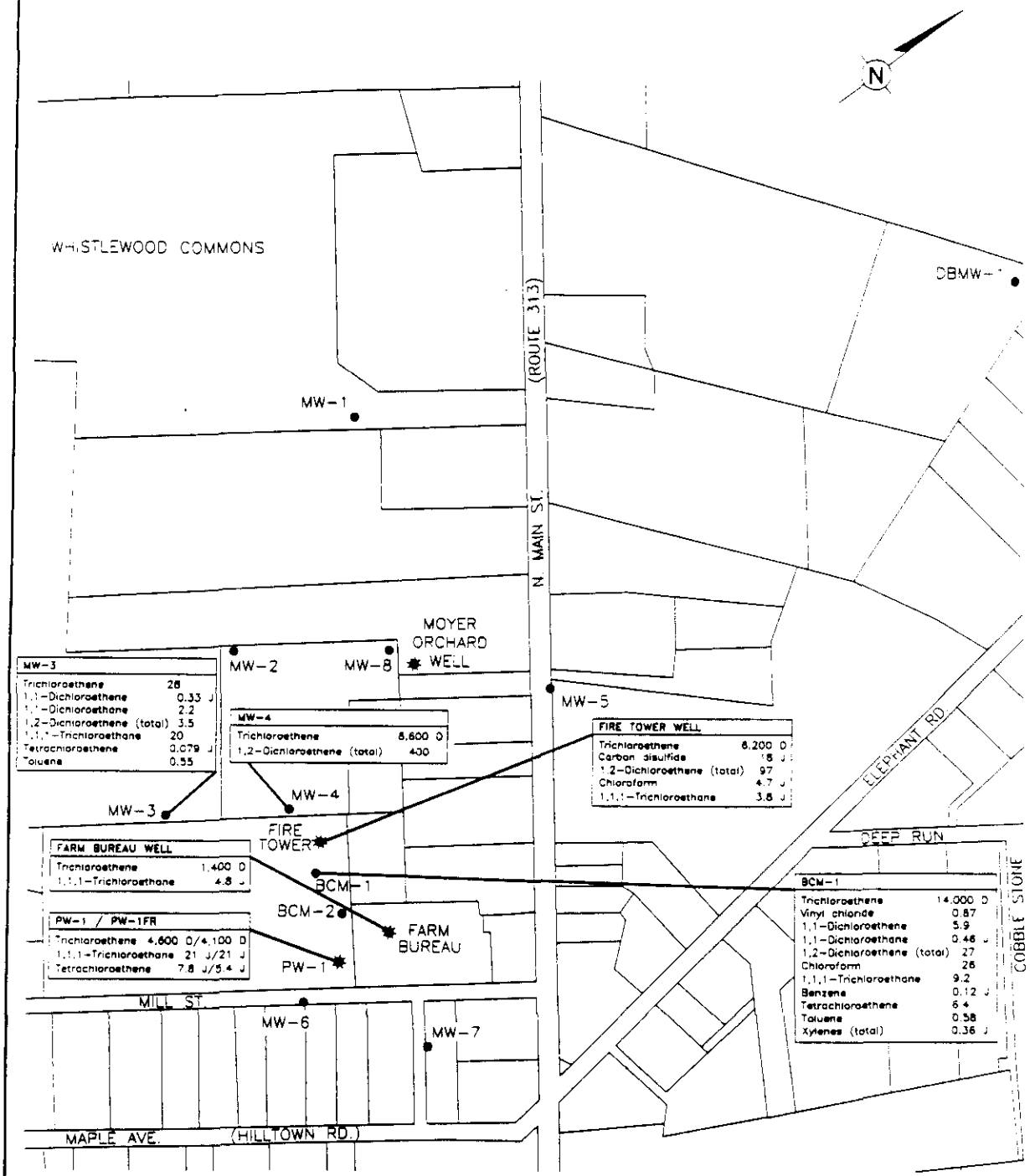
CONCENTRATIONS OF METALS DETECTED IN SEDIMENT SAMPLES COLLECTED IN AUGUST AND OCTOBER 1992

DUBLIN NPL SITE, DUBLIN, PENNSYLVANNIA
SEQUA CORPORATION

FIGURE
6-3

AR301501

DWG DATE: 5.31.96 PROJECT NO.: 4J0196.025 FILE NO: SQ-258 DRAWING: SQ-258 CHECKED: J. PARASAR APPROVED: B. DOLCE DRAFTER: A. KINOSIAN



LEGEND

- ● MW-2 MONITORING WELL LOCATION
- ✸ PW-1 SUPPLY WELL LOCATION
- D ANALYTE IDENTIFIED AT A SECONDARY DILUTION
- J RESULT WAS DETECTED BELOW THE REPORTING LIMIT AND/OR IS AN ESTIMATED CONCENTRATION
- FR FIELD REPLICATE

ANALYTE CONCENTRATIONS IN MICROGRAMS PER LITER (ug/L)

NOTE:

THESE ARE RESULTS FROM THE STEP I GROUNDWATER SAMPLING

SCALE

0 200 FEET

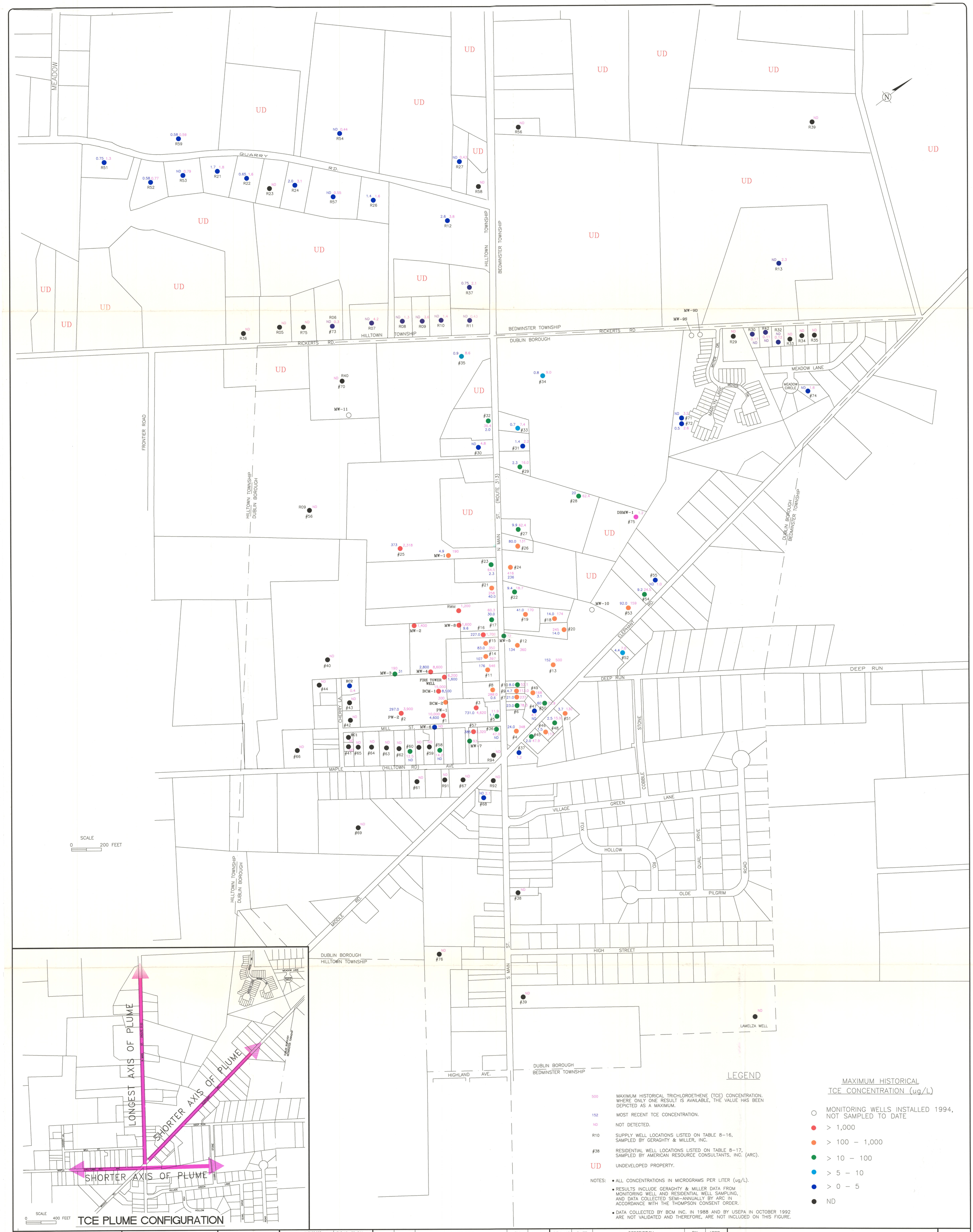
AR301502

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CONCENTRATIONS OF VOLATILE ORGANIC COMPOUNDS DETECTED IN GROUNDWATER SAMPLES COLLECTED IN AUGUST AND SEPTEMBER 1992

DUBLIN NPL SITE, DUBLIN, PENNSYLVANIA
SEQUA CORPORATION

FIGURE 8-1



TCE PLUME CONFIGURATION

LEGEND

500	MAXIMUM HISTORICAL TRICHLOROETHENE (TCE) CONCENTRATION. WHERE ONLY ONE RESULT IS AVAILABLE, THE VALUE HAS BEEN DEPICTED AS A MAXIMUM.
152	MOST RECENT TCE CONCENTRATION.
ND	NOT DETECTED.
R10	SUPPLY WELL LOCATIONS LISTED ON TABLE 8-16, SAMPLED BY GERAGHTY & MILLER, INC.
#38	RESIDENTIAL WELL LOCATIONS LISTED ON TABLE 8-17, SAMPLED BY AMERICAN RESOURCE CONSULTANTS, INC. (ARC).
UD	UNDEVELOPED PROPERTY.

NOTES:
- ALL CONCENTRATIONS IN MICROGRAMS PER LITER (ug/L).
- RESULTS INCLUDE GERAGHTY & MILLER DATA FROM MONITORING WELL AND RESIDENTIAL WELL SAMPLING, AND DATA COLLECTED SEMI-ANNUALLY BY ARC IN ACCORDANCE WITH THE THOMPSON CONSENT ORDER.
- DATA COLLECTED BY BCM INC. IN 1988 AND BY USEPA IN OCTOBER 1992 ARE NOT VALIDATED AND THEREFORE, ARE NOT INCLUDED ON THIS FIGURE.

MAXIMUM HISTORICAL TCE CONCENTRATION (ug/L)

- MONITORING WELLS INSTALLED 1994, NOT SAMPLED TO DATE
- > 1,000
- > 100 – 1,000
- > 10 – 100
- > 5 – 10
- > 0 – 5
- ND

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SCALE VERIFICATION
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DRAWING: SQ-244		PLOT SIZE: 1=2400	
DRAFTED BY: A. KINOSIAN		DATE: 6/3/96	
CHECKED BY: U. PARASAR		DATE: 6/3/96	
APPROVED BY: B. DOLCE		DATE: 6/3/96	

REV. NO.	DATE	DESCRIPTION	BY	APPR.

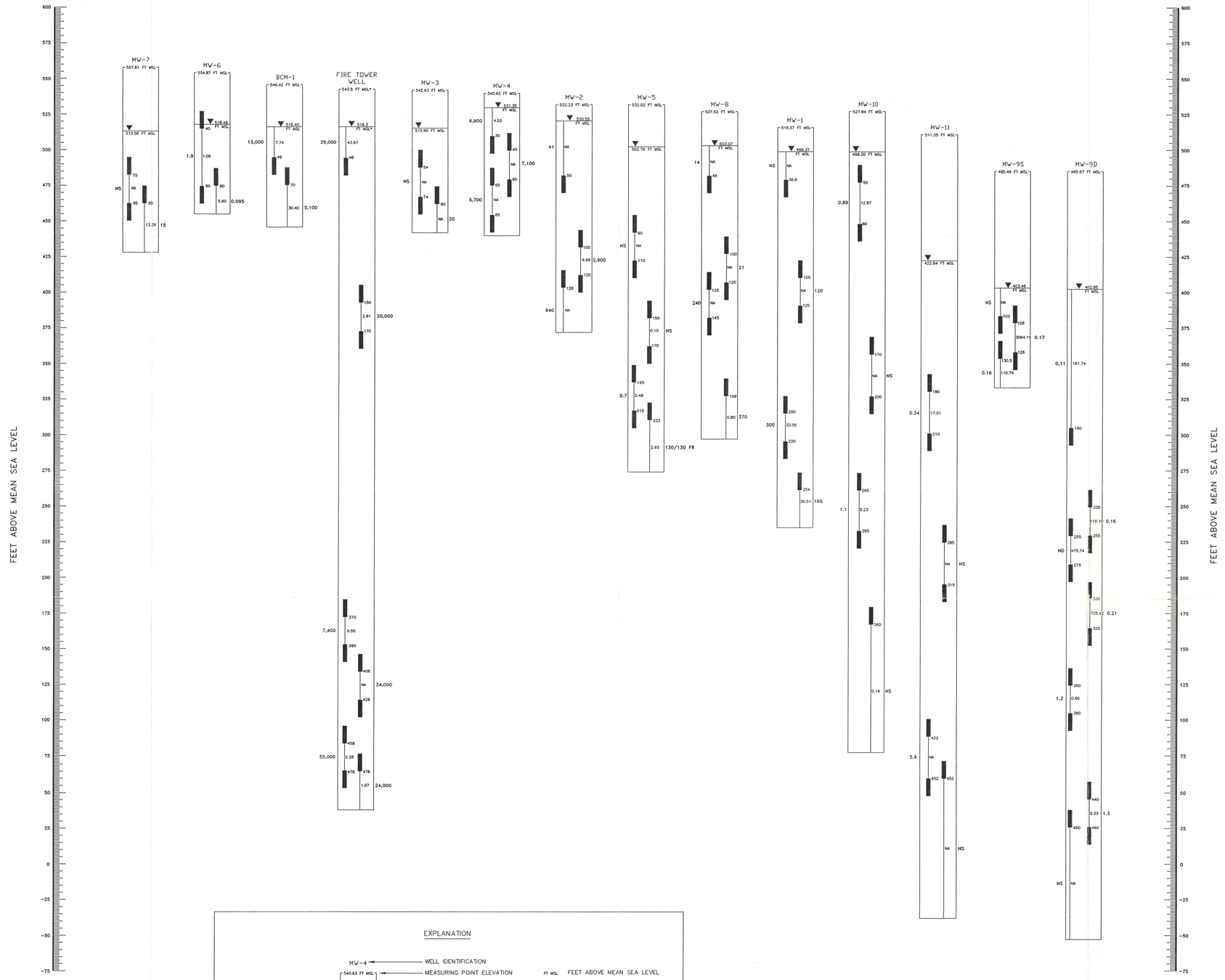
REV. NO.	DATE	DESCRIPTION	BY	APPR.

TRICHLOROETHENE CONCENTRATIONS IN GROUNDWATER

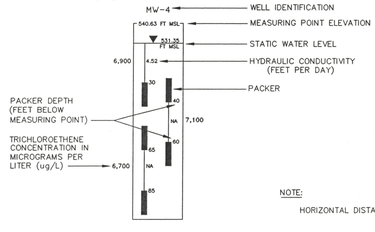
DUBLIN NPL SITE, DUBLIN, PENNSYLVANIA
SEQUA CORPORATION

FIGURE 8-3

AR301503



EXPLANATION



FT MSL	FEET ABOVE MEAN SEA LEVEL
NA	NOT AVAILABLE
NS	NOT SAMPLED
*	MEASURING POINT ELEVATION OF FIRE TOWER WELL IS ESTIMATED
FR	REPLICATE

NOTE:

HORIZONTAL DISTANCES BETWEEN WELLS ARE NOT TO SCALE

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PROJECT NO.: NJ0198.027	FILE NO: 50-205
DRAWING: 50-205	PLOT SIZE: 1"=50'
DRAFTED BY: A. KINOSIAN	DATE: 6/3/96
CHECKED BY: U. PARASAR	DATE: 6/3/96
APPROVED BY: B. DOLCE	DATE: 6/3/96

REV. NO.	DATE	DESCRIPTION	BY	APPR.

REV. NO.	DATE	DESCRIPTION	BY	APPR.

RESULTS OF PACKER TESTING

DUBLIN NPL SITE, DUBLIN, PENNSYLVANIA
SEQUA CORPORATION

FIGURE
8-4

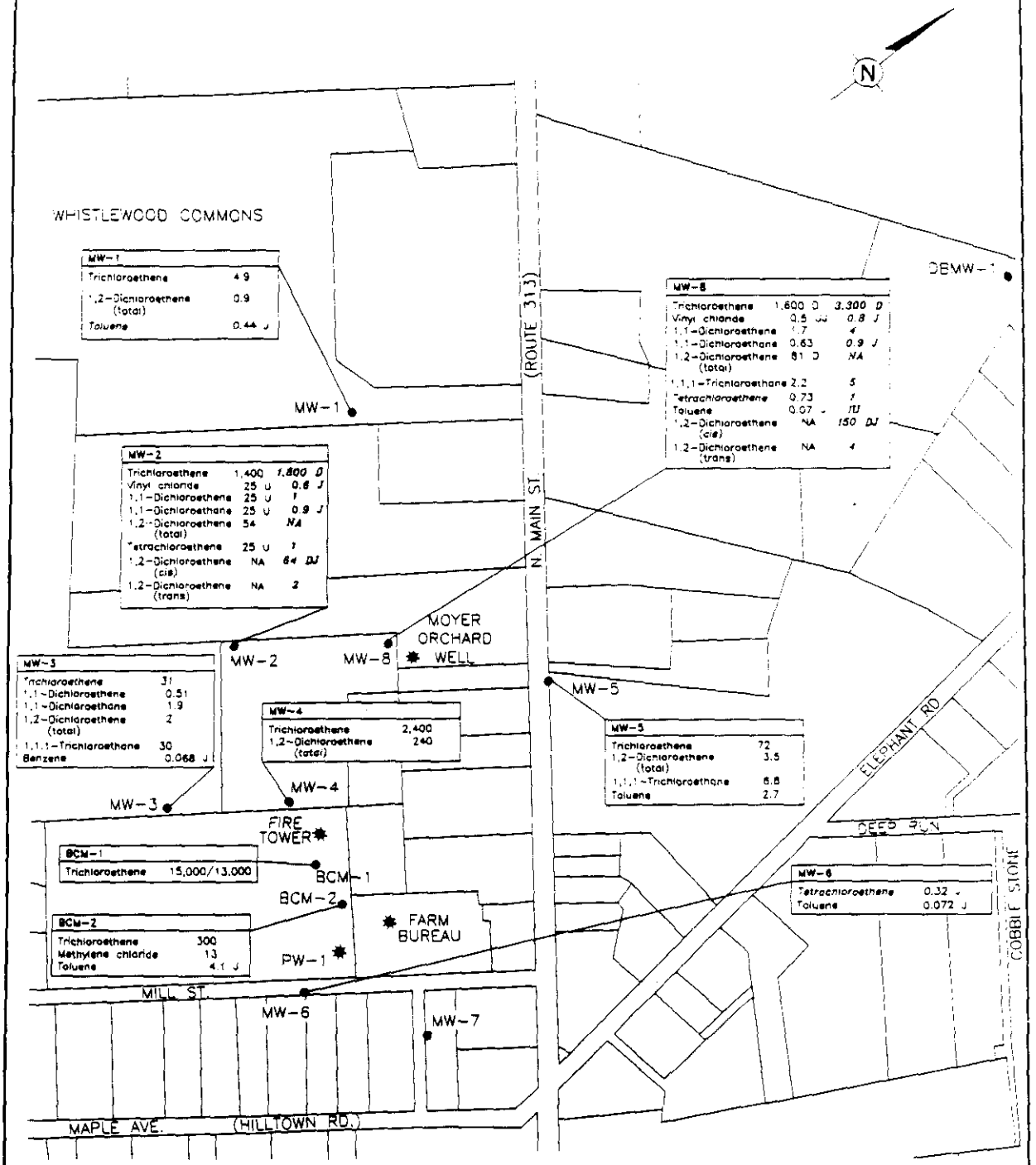
AR301504

Appendices

Appendices

AR301505

DWG DATE: 5/1/96 PROJECT NO.: N.0198.025 FILE NO.: SQ-259 DRAWING: SQ-259 CHECKED: J. PARASAR APPROVED: B. DOLCE DRAFTER: A. KINGSIAN



NOTE:

THESE ARE RESULTS FROM THE STEP II GROUNDWATER SAMPLING

RESIDENTIAL WELLS SAMPLED DURING THIS EVENT ARE NOT SHOWN ON THIS FIGURE

SCALE

0 200 FEET

LEGEND

● MW-2	MONITORING WELL LOCATION
✸ PW-1	SUPPLY WELL LOCATION
D	ANALYTE IDENTIFIED AT A SECONDARY DILUTION
J	RESULT WAS DETECTED BELOW THE REPORTING LIMIT AND/OR IS AN ESTIMATED CONCENTRATION
NA	NOT APPLICABLE
U	COMPOUND ANALYZED FOR, BUT NOT DETECTED AT THE CORRESPONDING REPORTING LIMIT
64 DJ	ITALICS INDICATES RESULTS OF SAMPLE SPLIT ANALYZED BY USEPA CONTRACT LABORATORY

ANALYTE CONCENTRATIONS IN MICROGRAMS PER LITER (ug/L)

GERAGHTY & MILLER, INC.
Environmental Services
A Heidemij Company

CONCENTRATIONS OF VOLATILE ORGANIC COMPOUNDS DETECTED IN GROUNDWATER SAMPLES COLLECTED FROM MONITORING WELLS IN OCTOBER 1992

DUBLIN NPL SITE, DUBLIN, PENNSYLVANIA
SEQUA CORPORATION

FIGURE 8-2

AR301507

APPENDIX H

PHASE I AND PHASE II GROUNDWATER FLOW MODELING AND ADVECTIVE TRANSPORT ANALYSIS REPORT

MEMORANDUM

TO: Barbara Dolce, Dan Nachman

FROM: Steve Feldman

DATE: May 1, 1996 **(Revised January 1998)**

SUBJECT: Dublin TCE Site, Dublin, Pennsylvania

A recalibration of the groundwater flow model was undertaken as outlined in Subtask 3-26 of the "Remedial Investigation and Feasibility Study Work Plan for the Dublin NPL Site, Dublin, Pennsylvania" (Geraghty & Miller, Inc. 1992a). The recalibration is based on hydraulic conductivity data generated from an aquifer test conducted in December 1995 and packer tests from April through June 1994 and September 1995 **(See response to Comment No. 123 in RI/FS Addendum)**. . The original model was described in the draft report entitled "Report on the Results of the Preliminary Hydrogeologic Investigation at the Dublin TCE Site, Dublin, Pennsylvania" (Geraghty & Miller, Inc. 1992b); the model was first modified by incorporating model revisions that are described in a letter dated February 10, 1993 (Geraghty & Miller, Inc. 1993).

The iterative process of model recalibration was performed by making several model simulations and comparing the head distribution with water levels collected on December 18, 1991, January 2, 1992, and March 25, 1993. The hydraulic gradient of 0.018 ft/ft generated by the recalibrated model closely reproduces the observed hydraulic gradient between MW-6 and MW-1, which ranged from 0.016 to 0.025 during these three time periods **(See response to Comment No. 119 in RI/FS Addendum)**. —In addition, the magnitude of head values and the direction of groundwater flow generated by the calibrated model corresponds to our conceptual understanding of groundwater flow in the bedrock aquifer beneath this two watershed area (Figure 1).

The final hydraulic conductivity values assigned to the model layers resulting from this recalibration ranges from 4 feet per day (ft/day) to 0.5 ft/day in the reddish-brown sandy siltstone member of the Lockatong Formation Member, and from 0.5 to 0.1 ft/day in the gray-black siltstone and shale member. The hydraulic conductivity decreases with depth, which is consistent with previous studies that report that the bedrock fracture network is more poorly developed with depth (Greenman 1955). Results of packer testing indicated that there are high yielding fractures at depth, but that, in general, the hydraulic conductivity diminishes with depth.

An additional modification to the model input parameters was a small increase in the recharge rate from 3 to 3.3 inches per year (in/yr). Base flow rates are commonly 25 to 47 percent smaller than recharge rates and are thus a conservative estimate of the amount of

groundwater moving through the shallow bedrock groundwater system. The revised recharge rate of 3.3 in/yr is 43 percent higher than the base flow rates calculated for Morris Run (International Exploration 1985). This higher recharge rate adds more confidence to predictive simulations that estimate the pumping rate required for hydraulic containment of volatile organic compound (VOC)-impacted groundwater.

Several predictive simulations were performed to evaluate the relative effectiveness of various remedial pumping scenarios in terms of establishing hydraulic containment of VOC-impacted groundwater. Dublin Wells No. 1 and 3 are shut off in Remedial Scenarios 2 through 6. A description of the merits of each remedial pumping scenario is provided below.

- **Remedial Scenario 1:** Pumping the Dublin Borough Monitoring Well (DBMW-1) at 40 gallons per minute (gpm) would contain the majority, but not all, of the VOC-impacted groundwater (Figure H-2). The drawdown induced by this pumpage would alter the movement of VOC-impacted groundwater from a northwestern direction to a more northern direction; a small portion of the plume would be drawn toward Dublin Borough Well No. 3.

- **Remedial Scenario 2:** In this scenario, Dublin Wells No. 1 and 3 would be shut off, and pumpage would be allocated between the DBMW-1 and the Fire Tower Well (Figure H-3). This remedial pumping scenario indicates that hydraulic containment of all VOC-impacted groundwater would be achieved. In addition the Fire Tower Well would contain the portion of the plume with the highest VOC concentrations in the vicinity of the source area.

- **Remedial Scenario 3:** Pumpage is distributed between the DBMW-1, Fire Tower Well, and a new downgradient well identified as NWL-E in this pumping scenario (Figure H-4). This scenario produces the same benefits as Remedial Scenario 2, while also providing greater assurance that VOC-impacted groundwater beneath the west side of Route 313 will not continue to migrate downgradient.

- **Remedial Scenario 4:** In this scenario, pumpage is distributed between the DBMW-1 and NWL-E (Figure H-5). This remedial pumping scenario achieves hydraulic containment of all VOC-impacted groundwater.

- **Remedial Scenario 5:** This scenario is similar to Remedial Scenario 3, but distributes 10 gpm of pumpage from the DBMW-1 to the Fire Tower Well (Figure H-6). This scenario results in more contaminant mass removal, while still maintaining hydraulic containment of VOC-impacted groundwater.

- **Remedial Scenario 6:** This scenario eliminates the use of the DBMW-1 and distributes the pumpage between the Fire Tower Well and NWL-E (Figure H-7). This scenario achieves hydraulic containment while pumping from areas of high VOC concentrations.

- **Remedial Scenario 7:** This scenario is similar to Remedial Scenario 1, but Dublin Well No. 3 is shut off and the additional pumpage requirement is shifted to the DBMW-1 (Figure H-8).

The pumping scenario indicates that hydraulic containment of all VOC-impacted groundwater would be achieved.

SUMMARY

Ideally, the selected remedial pumping scenario should accomplish the following goals:

1. Hydraulically contain VOC-impacted groundwater.
2. Minimize the spreading of the plume, especially toward the north side of Route 313.

The predictive simulations indicate that Remedial Scenarios 2 through 7 all achieve hydraulic containment of VOC-impacted groundwater. Remedial Scenarios 3, 5, and 6 provide the added benefit of containing the higher concentration portion of the plume in the vicinity of the apparent source. However, fate and transport modeling would be needed to quantify if containment near the source will have any appreciable impact on shortening the time for the aquifer to reach ARARs in the area between the Fire Tower Well and Monitoring Well DBMW-1.

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REFERENCES

Geraghty & Miller, Inc. 1992a. Remedial Investigation and Feasibility Study Work Plan, Dublin TCE Site, Dublin, Pennsylvania. May 1992.

Geraghty & Miller, Inc. 1992b. Report on the Results of the Preliminary Hydrogeologic Investigation at the Dublin TCE Site, Dublin Pennsylvania. April 1992.

Geraghty & Miller, Inc. 1993. Letter to D. Walker, U.S. Environmental Protection Agency. February 10, 1993.

Greenman, D.C. 1955. Groundwater Resources of Bucks County, Pennsylvania; Bulletin W11, Pennsylvania Topographic and Geologic Survey, Harrisburg, Pennsylvania.

International Exploration, Inc. 1985. Analysis of Hydrologic Data Gathered in 1984 for the Dublin Study Area. February 12, 1985.

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DRAFTER: GS | APPROVED: BD | CHECKED: SF | DRAWING: REL.nL96 | HARD FILE: 1535 | PRJCT NO.: NJ0198024 | DWG D.... 4-29-96



EXPLANATION

→	FLOW PATH IN MODEL LAYERS	MSL	MEAN SEA LEVEL
—510—	SIMULATED WATER-LEVEL ELEVATIONS IN MODEL LAYER 1, IN FEET RELATIVE TO MSL	GPM	GALLONS PER MINUTE

SCALE

0 1,000 FT

GERAGHTY & MILLER, INC.
Environmental Services
A Heidemij Company

SIMULATED PATH OF PARTICLES STARTED AT THE WATER TABLE BENEATH THE DUBLIN NPL SITE DURING PRESENT DAY PUMPING CONDITIONS

DUBLIN NPL SITE, DUBLIN, PENNSYLVANIA
SEQUA CORPORATION

FIGURE
H-1

AR301513

DRAFTER: GS | APPROVED: BD | CHECKED: SF | DRAWING: REH | HARD FILE: 1535 | PRJCT NO.: NJ0198024 | DWG [illegible]: 4-23-96



EXPLANATION

→	FLOW PATH IN MODEL LAYERS	MSL	MEAN SEA LEVEL
—510.—	SIMULATED WATER-LEVEL ELEVATIONS IN MODEL LAYER 1, IN FEET RELATIVE TO MSL	GPM	GALLONS PER MINUTE
○	DBMW-1 PUMPING AT 40 GPM		

SCALE

0 1,000 FT

GERAGHTY & MILLER, INC.
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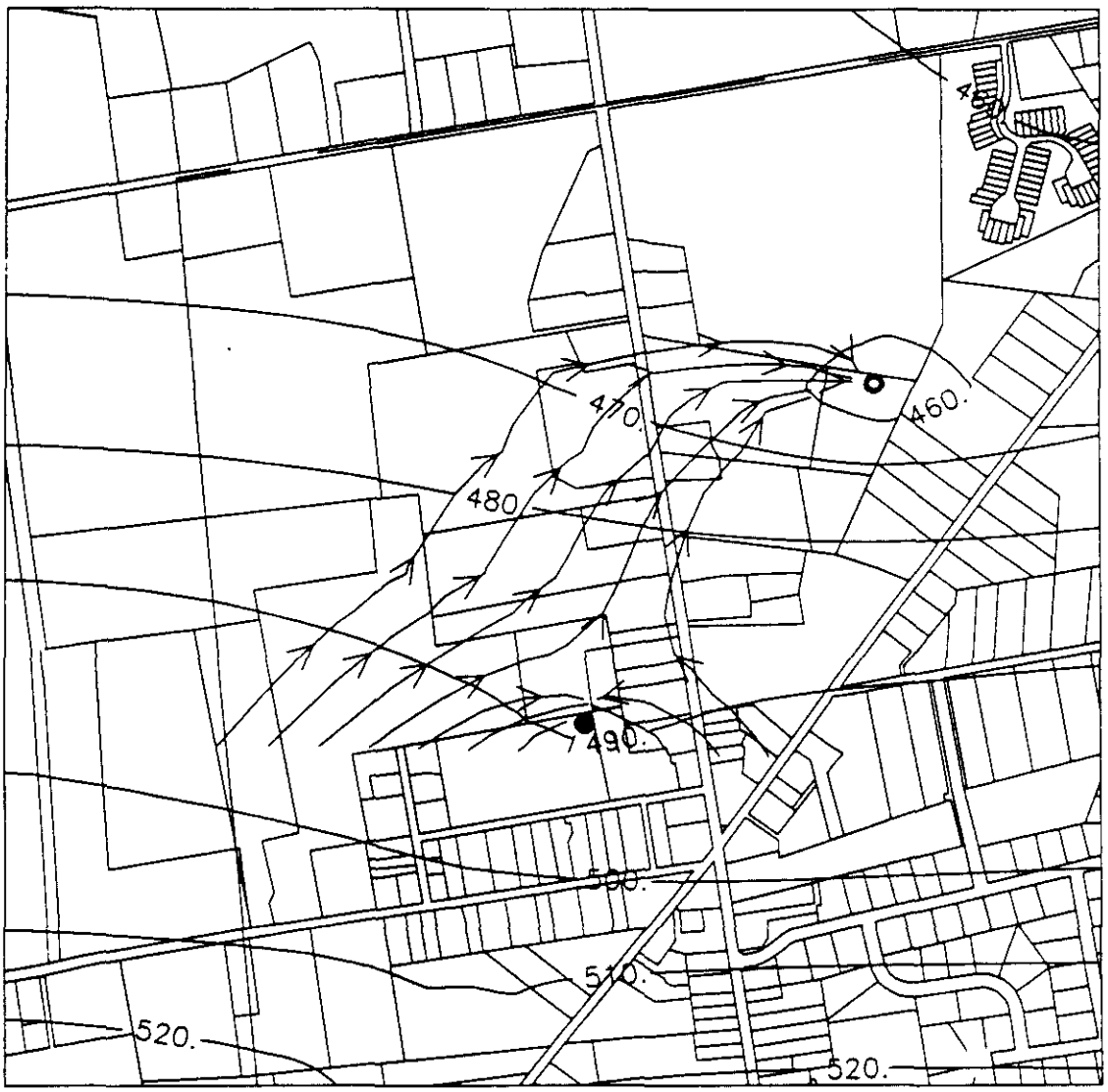
SIMULATED PATH OF PARTICLES STARTED AT THE WATER TABLE BENEATH THE DUBLIN NPL SITE UNDER REMEDIAL SCENARIO 1

DUBLIN NPL SITE, DUBLIN, PENNSYLVANIA
SEQUA CORPORATION

FIGURE
H-2

AR301514

DRAFTER: GS | APPROVED: BD | CHECKED: SF | DRAWNG: Rel... | HARD FILE: 1535 | PRJCT NO.: NJ0198024 | DWG ... 4-23-96



EXPLANATION

→	FLOW PATH IN MODEL LAYERS
——510.——	SIMULATED WATER-LEVEL ELEVATIONS IN MODEL LAYER 1, IN FEET RELATIVE TO MSL
○	DBMW-1 PUMPING AT 40 GPM
●	FIRE TOWER WELL PUMPING AT 24 GPM

MSL MEAN SEA LEVEL

GPM GALLONS PER MINUTE

SCALE

0 1,000 FT

GERAGHTY & MILLER, INC.
Environmental Services
A Heidemij Company

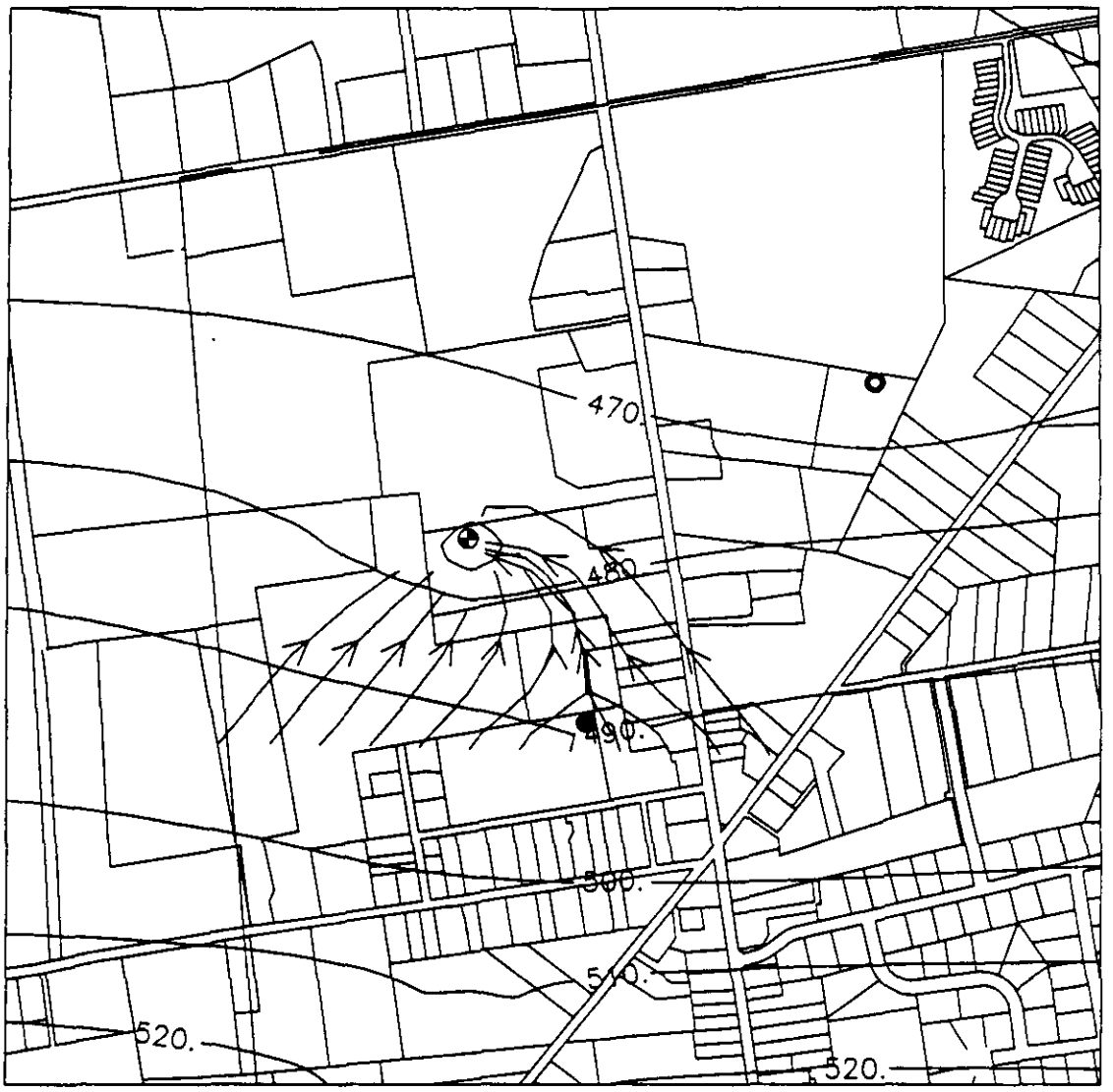
SIMULATED PATH OF PARTICLES STARTED AT THE WATER TABLE BENEATH THE DUBLIN NPL SITE UNDER REMEDIAL SCENARIO 2

DUBLIN NPL SITE, DUBLIN, PENNSYLVANIA
SEQUA CORPORATION

FIGURE
H-3

AR301515

DRAFTER: GS | APPROVED: BD | CHECKED: SF | DRAWING: REN | HARD FILE: 1535 | PRJCT NO.: NJ0198024 | DWG D..... 4-29-96



EXPLANATION

- FLOW PATH IN MODEL LAYERS
- 510. SIMULATED WATER-LEVEL ELEVATIONS IN MODEL LAYER 1, IN FEET RELATIVE TO MSL
- DBMW-1 PUMPING AT 24 GPM
- FIRE TOWER WELL PUMPING AT 15 GPM
- NWL-E PUMPING AT AT 25 GPM

MSL MEAN SEA LEVEL

GPM GALLONS PER MINUTE

SCALE

0 1,000 FT

GERAGHTY & MILLER, INC.
Environmental Services
A Heidemij Company

SIMULATED PATH OF PARTICLES STARTED AT THE WATER TABLE BENEATH THE DUBLIN NPL SITE UNDER REMEDIAL SCENARIO 3

DUBLIN NPL SITE, DUBLIN, PENNSYLVANIA

SEQUA CORPORATION

FIGURE

H-4

AR301516



EXPLANATION

- FLOW PATH IN MODEL LAYERS
- 510. — SIMULATED WATER-LEVEL ELEVATIONS IN MODEL LAYER 1, IN FEET RELATIVE TO MSL
- DBMW-1 PUMPING AT 32 GPM
- NWL-E PUMPING AT AT 32 GPM
- MSL MEAN SEA LEVEL
- GPM GALLONS PER MINUTE

SCALE

0 1,000 FT

DRAFTER: GS | APPROVED: BD | CHECKED: SF | DRAWING: REN-3 | HARD FILE: 1535 | PRJCT NO.: NJ0198024 | DWG L... 4-29-96

GERAGHTY & MILLER, INC.
Environmental Services
A Heidemij Company

SIMULATED PATH OF PARTICLES STARTED AT THE WATER TABLE BENEATH THE DUBLIN NPL SITE UNDER REMEDIAL SCENARIO 4

DUBLIN NPL SITE, DUBLIN, PENNSYLVANIA
SEQUA CORPORATION

FIGURE
H-5

AR301517



EXPLANATION

FLOW PATH IN MODEL LAYERS

510. SIMULATED WATER-LEVEL ELEVATIONS IN MODEL LAYER 1, IN FEET RELATIVE TO MSL

DBMW-1 PUMPING AT 14 GPM

FIRE TOWER WELL PUMPING AT 25 GPM

NWL-E PUMPING AT AT 25 GPM

MSL MEAN SEA LEVEL

GPM GALLONS PER MINUTE

SCALE

0 1,000 FT

DRAFTER: GS | APPROVED: BD | CHECKED: SF | DRAWING: REN | HARD FILE: 1535 | PROJCT NO.: NJ0198024 | DWG DATE: 4-16-96

GERAGHTY & MILLER, INC.
Environmental Services
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SIMULATED PATH OF PARTICLES STARTED AT THE WATER TABLE BENEATH THE DUBLIN NPL SITE UNDER REMEDIAL SCENARIO 5

DUBLIN NPL SITE, DUBLIN, PENNSYLVANIA
SEQUA CORPORATION

FIGURE
H-6

AR301518



EXPLANATION

FLOW PATH IN MODEL LAYERS

510. SIMULATED WATER-LEVEL ELEVATIONS IN MODEL LAYER 1, IN FEET RELATIVE TO MSL

FIRE TOWER WELL PUMPING AT 25 GPM

NWL-E PUMPING AT AT 25 GPM

MSL MEAN SEA LEVEL

GPM GALLONS PER MINUTE

SCALE

0 1,000 FT

DRAFTER: GS | APPROVED: BD | CHECKED: SF | DRAWING: REN/ | HARD FILE: 1535 | PRJCT NO.: NJ0198024 | DWG DATE: 4-29-96

GERAGHTY & MILLER, INC.
Environmental Services
A Heidemij Company

SIMULATED PATH OF PARTICLES STARTED AT THE WATER TABLE BENEATH THE DUBLIN NPL SITE UNDER REMEDIAL SCENARIO 6

DUBLIN NPL SITE, DUBLIN, PENNSYLVANIA
SEQUA CORPORATION

FIGURE
H-7

AR301519

DRAFTER: GS | APPROVED: BD | CHECKED: SF | DRAWING: REMo | HARD FILE: 1535 | PRJCT NO.: NJ0198024 | DWG D.: 4-16-96



EXPLANATION

→	FLOW PATH IN MODEL LAYERS
—510.—	SIMULATED WATER-LEVEL ELEVATIONS IN MODEL LAYER 1, IN FEET RELATIVE TO MSL
●	DBMW-1 PUMPING AT 58.2 GPM

MSL MEAN SEA LEVEL

GPM GALLONS PER MINUTE

SCALE

0 1,000 FT

GERAGHTY & MILLER, INC.
Environmental Services
A Heidemij Company

SIMULATED PATH OF PARTICLES STARTED AT THE WATER TABLE BENEATH THE DUBLIN NPL SITE UNDER REMEDIAL SCENARIO 7

DUBLIN NPL SITE, DUBLIN, PENNSYLVANIA
SEQUA CORPORATION

FIGURE

H-8

GERAGHTY & MILLER, INC.
Environmental Services

Ground Water Engineering Hydrocarbon Remediation Education

February 10, 1993

Dianne J. Walker
U.S. Environmental Protection Agency
841 Chestnut Building
Philadelphia, Pennsylvania 19107

Re: Revision of Ground-Water Flow Model, Dublin TCE Site, Dublin, Pennsylvania

Dear Ms. Walker:

Ground-water flow model revisions were undertaken as outlined in Subtask 3-18 of the "Remedial Investigation and Feasibility Study Work Plan for the Dublin TCE Site, Dublin, Pennsylvania" (Geraghty & Miller, Inc. 1992a). The original model was described in the draft report entitled "Report on the Results of the Preliminary Hydrogeologic Investigation at the Dublin TCE Site, Dublin, Pennsylvania" (Geraghty & Miller, Inc. 1992b) and was based on data collected during the Phase I investigation. Subtask 3-7, Performance of Aquifer Pumping Tests, was incorporated into Subtask 3-25 by the U.S. Environmental Protection Agency (USEPA). Without the site-specific aquifer pumping test results, there was limited additional data available for this model revision. Additional data obtained from the ongoing field investigation will be incorporated as part of Subtask 3-26, Finalization of Ground-Water Model.

The main revisions made to the model were the updating of supply well pumpage values. Average daily pumpage values for the major supply wells reflect the revised values documented in Table 3 of the "Water-Level Monitoring Work Plan, Dublin TCE Site, Dublin, Pennsylvania" (Geraghty & Miller, Inc. 1992c). The major revisions are the elimination of pumping at the two Countryside Condominium wells, and changes in average daily pumpage of the Stonebridge Estates Wells No. 2 and 9, the Whistlewood Commons Apartments Well, the Woods Edge Apartments Well, and the Borough of Dublin Wells No. 1 and 3. In addition to the pumpage values in Table 3 of the above-referenced Geraghty & Miller report, simulated pumpage of the Borough of Dublin Wells reflects a combined increase of 5,500 gallons per day (gpd), which had previously been provided by supply wells at Countryside Condominiums. Thus, the revised pumpage values are 4,286 gpd for Dublin Well No. 1, and 26,227 gpd for Dublin Well No. 3. Figure 1 shows the simulated advective transport of particles under present pumping conditions. Complete documentation of the ground-water flow model is provided in Appendix D of the draft report entitled "Report on Results of the Preliminary Hydrogeologic Investigation at the Dublin TCE Site, Dublin, Pennsylvania" (Geraghty & Miller 1992b).

AR301521

201 West Passaic Street, 3rd Floor • Rochelle Park, New Jersey 07662 • (201) 909-0700 • FAX (201) 909-0567/0568

Remedial pumping scenarios were simulated to evaluate capture zones for ten options. For each option tested, two different total pumping rates were simulated: 35 gallons per minute (gpm) as required for usage by affected or potentially affected residences and businesses, and 50 gpm as stated in the Focused Feasibility Study (USEPA 1991). Table 1 presents the preferred options and describes the particular recovery wells and pumping rates that were used in the remedial pumping simulations. Figures 2 through 20 show the results of particle tracking simulations. Each scenario has varying degrees of effectiveness in terms of contaminant mass reduction and hydraulic containment of the plume. Further refinement and finalization of the model will be undertaken for Subtask 3-26, as additional data from the ongoing field investigation become available.

Please feel free to contact us if you have any questions or require additional information.

Sincerely,

GERAGHTY & MILLER, INC.

Steven M. Feldman/BHD

Steven M. Feldman
Senior Scientist

Barbara A. Dolce

Barbara A. Dolce
Principal Scientist/Project Manager

Joseph Minster

Joseph Minster, C.P.G.
Project Director/Project Officer

cc: Charles Galiszewski - Sequa Corporation
Bruce McClain - PADER
Andy Hopton - CDM

SF/mtb
#NJ198.**-wp2/011993.ltr

REFERENCES

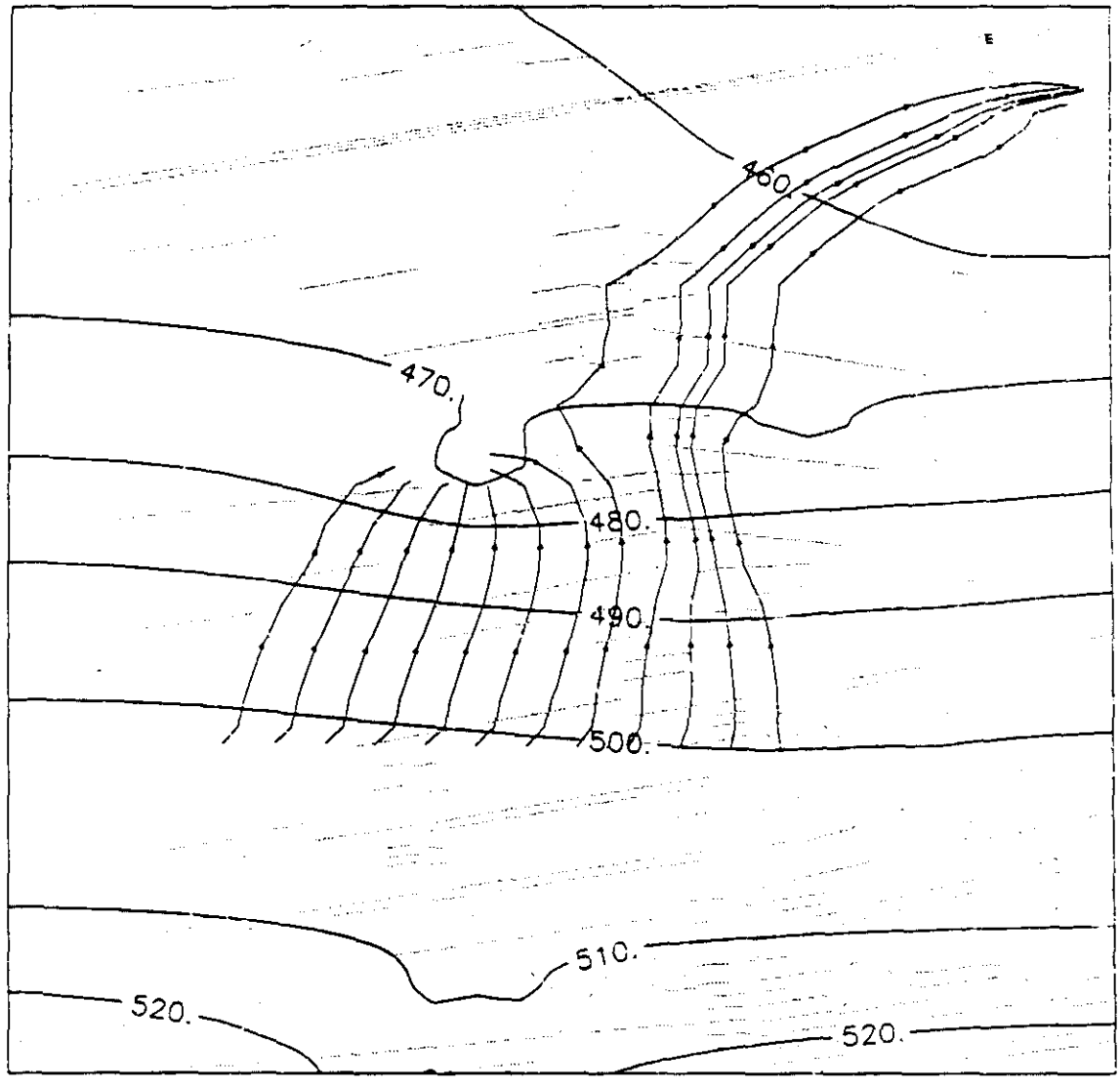
Geraghty & Miller, Inc. 1992a. Remedial Investigation and Feasibility Study Work Plan for the Dublin TCE Site, Dublin, Pennsylvania.

Geraghty & Miller, Inc. 1992b. Draft Report on the Results of the Preliminary Hydrogeologic Investigation at the Dublin TCE Site, Dublin, Pennsylvania.

Geraghty & Miller, Inc. 1992c. Water-Level Monitoring Work Plan, Dublin TCE Site, Dublin, Pennsylvania.

U.S. Environmental Protection Agency. 1991. Dublin TCE Site, Focused Feasibility Study for Alternate Water Supply, Dublin Borough, Pennsylvania Interim Final Report.

SF/mtb
#NJ198.**-wp2/011993.ltr



EXPLANATION

FLOW PATH IN MODEL LAYERS

— 520. — SIMULATED WATER-LEVEL ELEVATIONS IN MODEL LAYER 1, IN FEET RELATIVE TO msl

msl MEAN SEA LEVEL

gpm GALLONS PER MINUTE

SCALE

0 700

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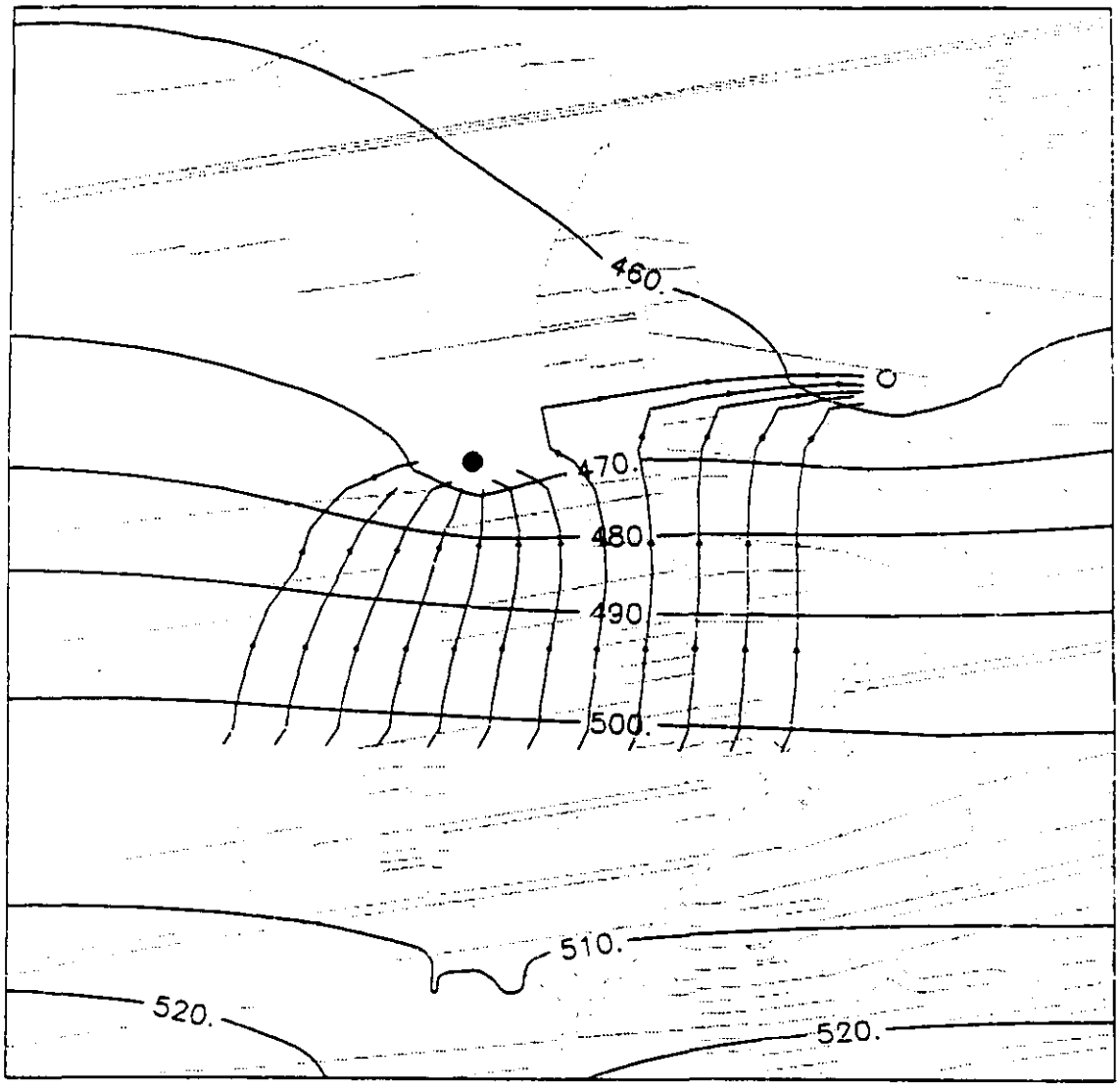
SIMULATED PATH OF PARTICLES STARTED AT THE WATER TABLE BENEATH THE DUBLIN TCE SITE DURING PRESENT DAY PUMPING CONDITIONS, DUBLIN, PENNSYLVANIA

FIGURE 1

DRAFTER: K. MC CANN | APPROVED: B DOLCE | CHECKED: B. DOLCE | DRAWING: SQ-121 | FILE NO.: SQ-121 | PRJCT NO.: NJ1980B | DWG DATE: 8FEB93

AR301524

DRAFTER: K. MC CANN
APPROVED: B. DOLCE
CHECKED: B. DOLCE
DRAWING: SQ-122
FILE NO.: SQ-122
PRJCT NO.: NJ19808
DWG DATE: 8FEB93



EXPLANATION

FLOW PATH IN MODEL LAYERS

520. SIMULATED WATER-LEVEL ELEVATIONS IN MODEL LAYER 1, IN FEET RELATIVE TO msl

msl MEAN SEA LEVEL

gpm GALLONS PER MINUTE

● WHISTLEWOOD APARTMENTS WELL PUMPING AT 11.5 gpm

○ TCE MONITORING WELL PUMPING AT 23.5 gpm

SCALE

0 700

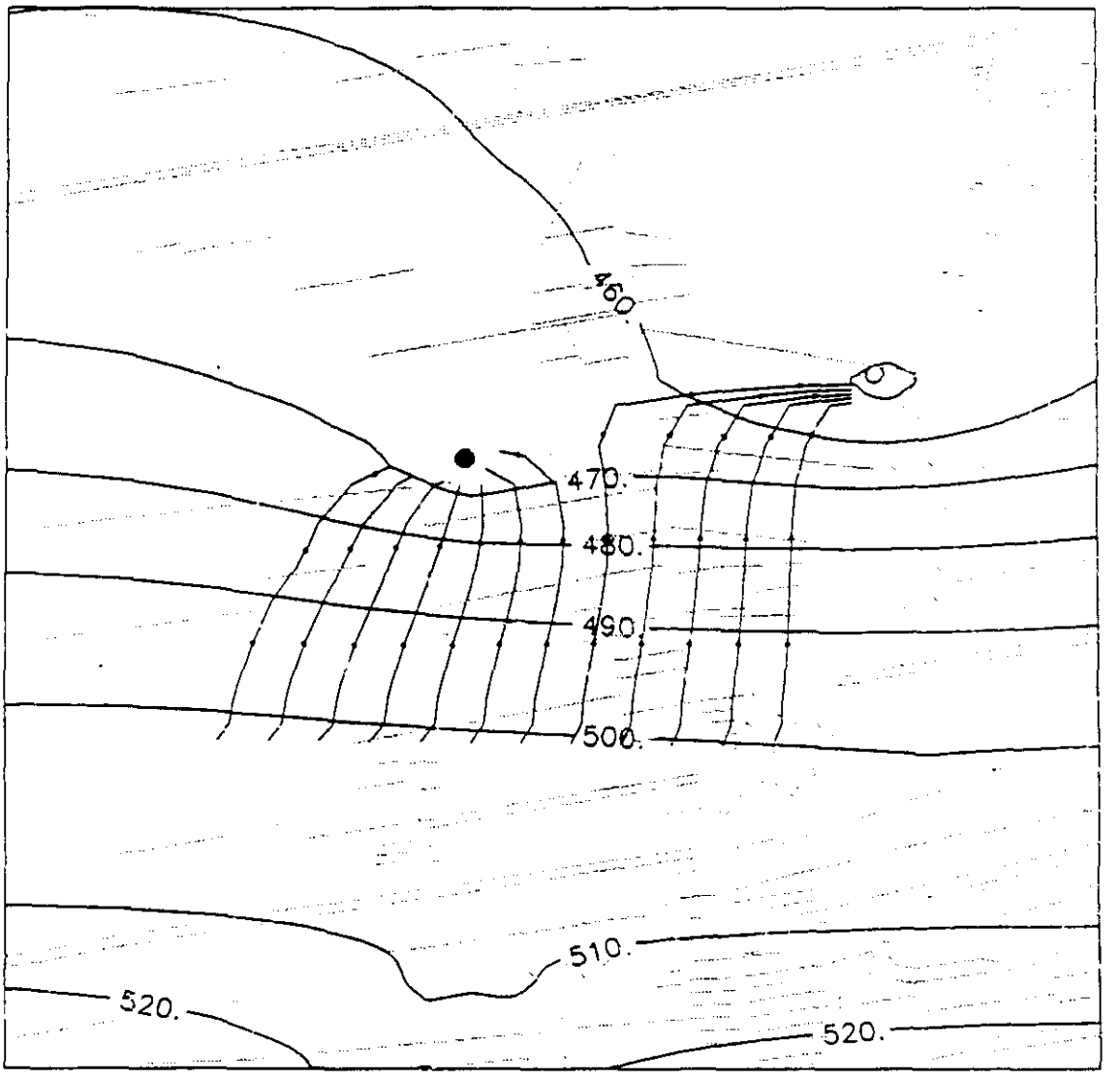
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SIMULATED PATH OF PARTICLES STARTED AT THE WATER TABLE BENEATH THE DUBLIN TCE SITE UNDER PUMPING SCENARIO 1A
DUBLIN, PENNSYLVANIA

FIGURE
2

AR301525

DRAFTER: K. MC CANN
APPROVED: B. DOLCE
CHECKED: B. DOLCE
DRAWING: SQ-123
FILE NO.: SQ-123
PRJCT NO.: NJ19808
DWG DATE: 8FEB93



EXPLANATION

FLOW PATH IN MODEL LAYERS

520. SIMULATED WATER-LEVEL ELEVATIONS IN MODEL LAYER 1, IN FEET RELATIVE TO msl

msl MEAN SEA LEVEL

gpm GALLONS PER MINUTE

● WHISTLEWOOD APARTMENTS WELL PUMPING AT 11.5 gpm

○ TCE MONITORING WELL PUMPING AT 38.5 gpm

SCALE

0 700

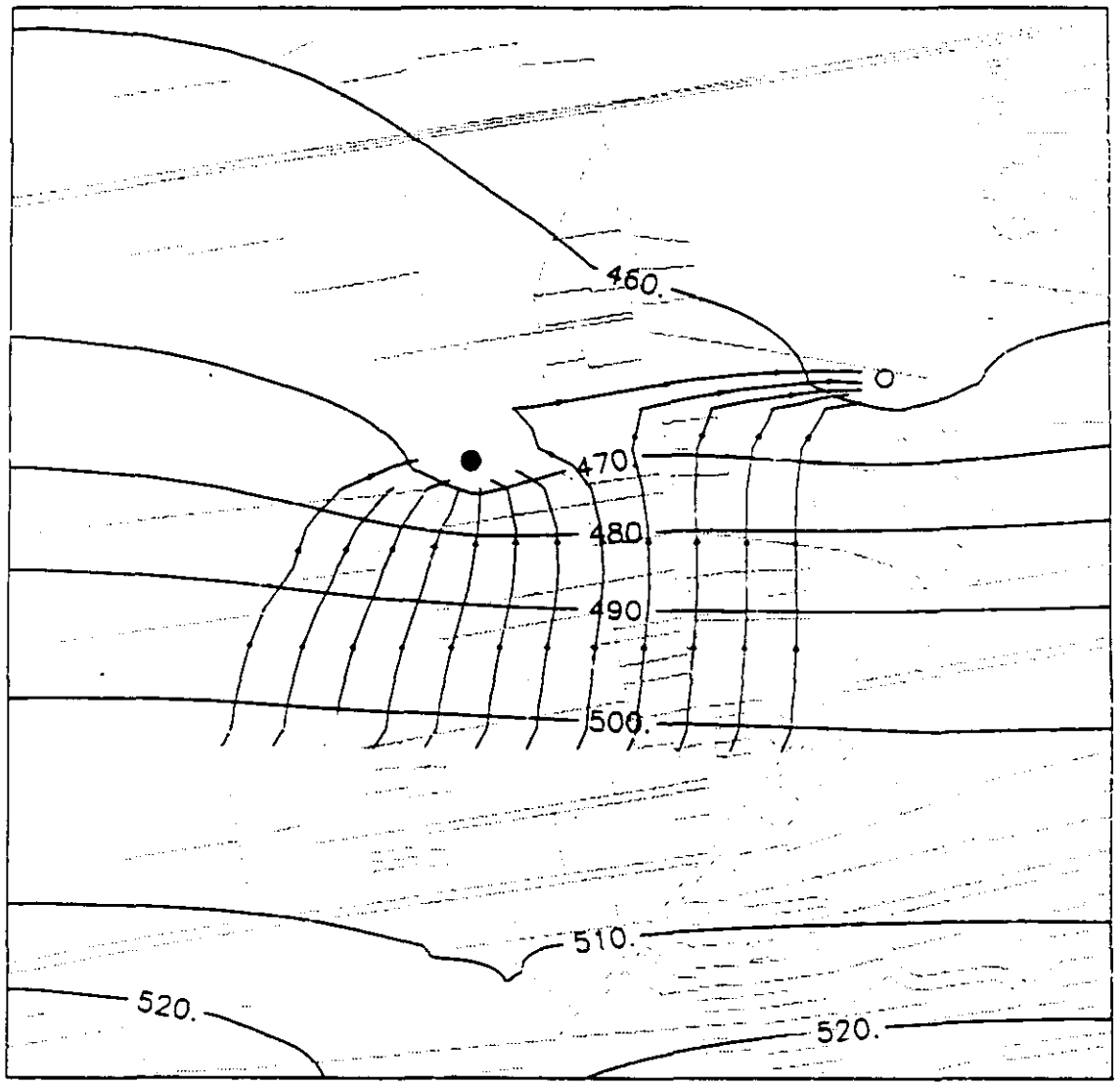
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SIMULATED PATH OF PARTICLES STARTED AT THE WATER TABLE BENEATH THE DUBLIN TCE SITE UNDER PUMPING SCENARIO 1B
DUBLIN, PENNSYLVANIA

FIGURE 3

AR301526

DRAFTER: K. MC CANN | APPROVED: B. DOLCE | CHECKED: B. DOLCE | DRAWING: SQ-124 | FILE NO.: SQ-124 | PROJECT NO.: NJ19808 | DWG DATE: 8FEB93



EXPLANATION

FLOW PATH IN MODEL LAYERS

520. SIMULATED WATER-LEVEL ELEVATIONS IN MODEL LAYER 1, IN FEET RELATIVE TO msl

● WHISTLEWOOD APARTMENTS WELL PUMPING AT 11.5 gpm

○ TCE MONITORING WELL PUMPING AT 21.8 gpm

msl MEAN SEA LEVEL

gpm GALLONS PER MINUTE

SCALE

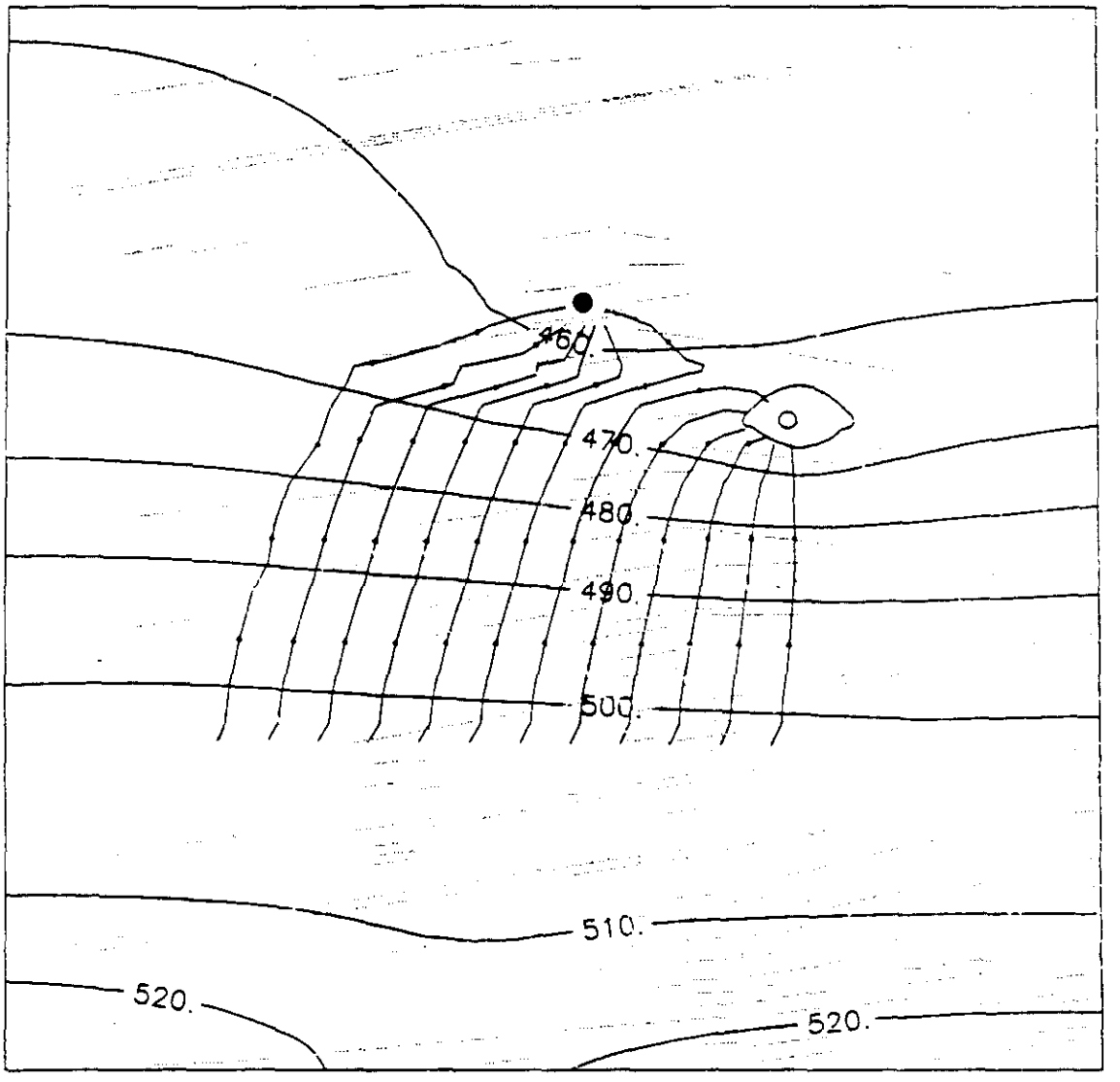
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SIMULATED PATH OF PARTICLES STARTED AT THE WATER TABLE BENEATH THE DUBLIN TCE SITE UNDER PUMPING SCENARIO 1C
DUBLIN, PENNSYLVANIA

FIGURE 4

AR301527



EXPLANATION

FLOW PATH IN MODEL LAYERS

520. SIMULATED WATER-LEVEL ELEVATIONS IN MODEL LAYER 1, IN FEET RELATIVE TO msl

● G&T COMPANY WELL PUMPING AT 17.5 gpm

○ DUBLIN VILLAGE PLAZA WELL PUMPING AT 17.5 gpm

msl MEAN SEA LEVEL

gpm GALLONS PER MINUTE

SCALE

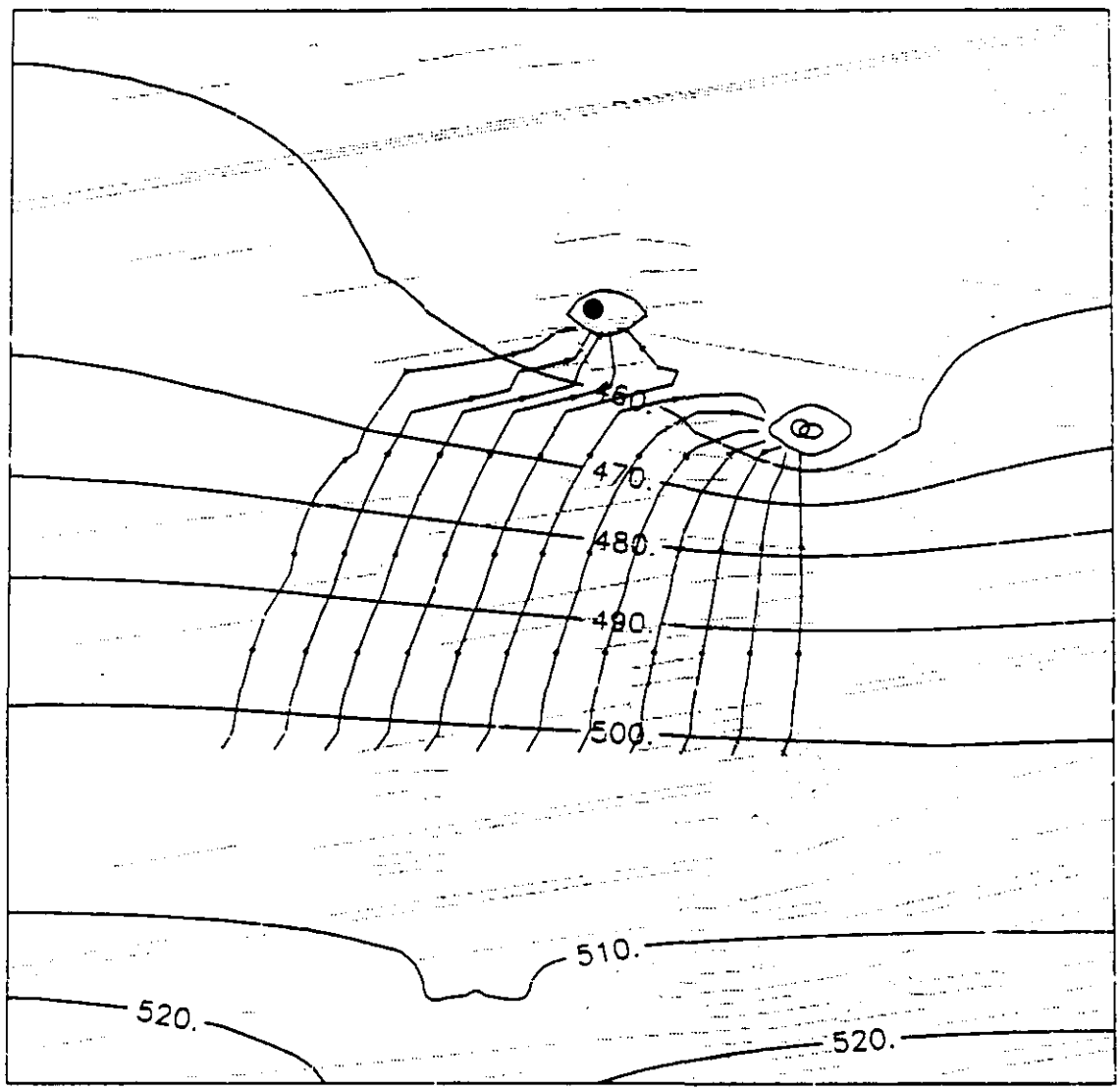
0 700

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SIMULATED PATH OF PARTICLES STARTED AT THE WATER TABLE BENEATH THE DUBLIN TCE SITE UNDER PUMPING SCENARIO 2A
DUBLIN, PENNSYLVANIA

FIGURE
5

DWG DATE: BFEB93 | PROJCT NO.: NJ19808 | FILE NO.: SQ-125 | DRAWING: SQ-125 | CHECKED: B DOLCE | APPROVED: B DOLCE | DRAFTER: K. MC CANN



EXPLANATION

FLOW PATH IN MODEL LAYERS

520. SIMULATED WATER-LEVEL ELEVATIONS IN MODEL LAYER 1, IN FEET RELATIVE TO msl

● G&T COMPANY WELL PUMPING AT 25 gpm

○ DUBLIN VILLAGE PLAZA WELL PUMPING AT 25 gpm

msl MEAN SEA LEVEL

gpm GALLONS PER MINUTE

SCALE

0 700

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SIMULATED PATH OF PARTICLES STARTED AT THE WATER TABLE BENEATH THE DUBLIN TCE SITE UNDER PUMPING SCENARIO 2B
DUBLIN, PENNSYLVANIA

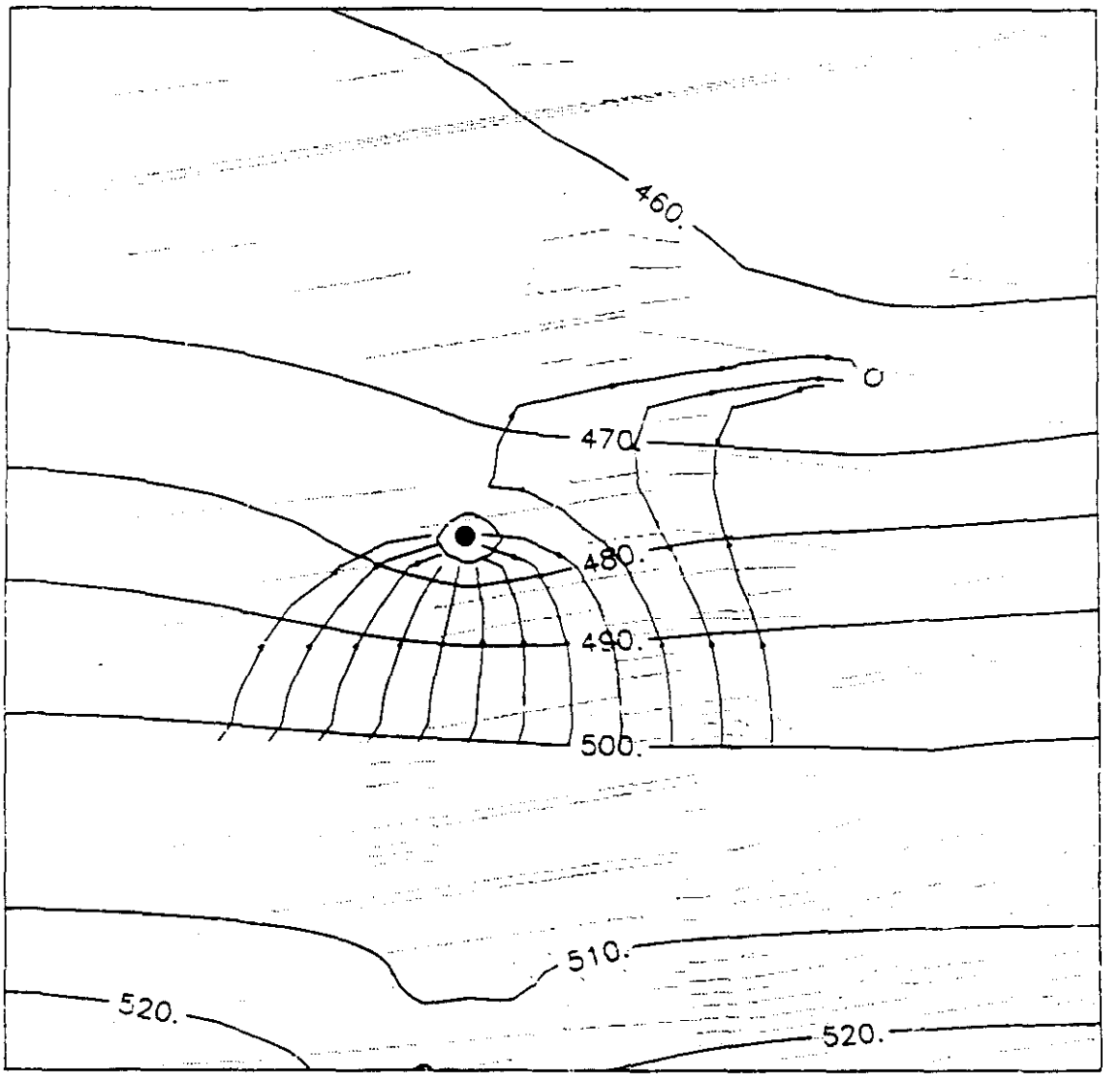
FIGURE

C

DRAFTER: K. MC CANN | APPROVED: B. DOLCE | CHECKED: B. DOLCE | DRAWING: SQ-126 | FILE NO.: SQ-126 | PROJCT NO.: NJ19808 | DWG DATE: 8FEB93

AR301529

DRAFTER: K. MC CANN
APPROVED: B DOLCE
CHECKED: B DOLCE
DRAWING: SQ-127
FILE NO.: SQ-127
PROJ NO.: NJ19808
DWG DATE: 8FE893



EXPLANATION

FLOW PATH IN MODEL LAYERS

520. SIMULATED WATER-LEVEL ELEVATIONS IN MODEL LAYER 1, IN FEET RELATIVE TO msl

msl MEAN SEA LEVEL

gpm GALLONS PER MINUTE

● NWL-E WELL PUMPING AT 17.5 gpm

○ TCE MONITORING WELL PUMPING AT 17.5 gpm

SCALE

0 700

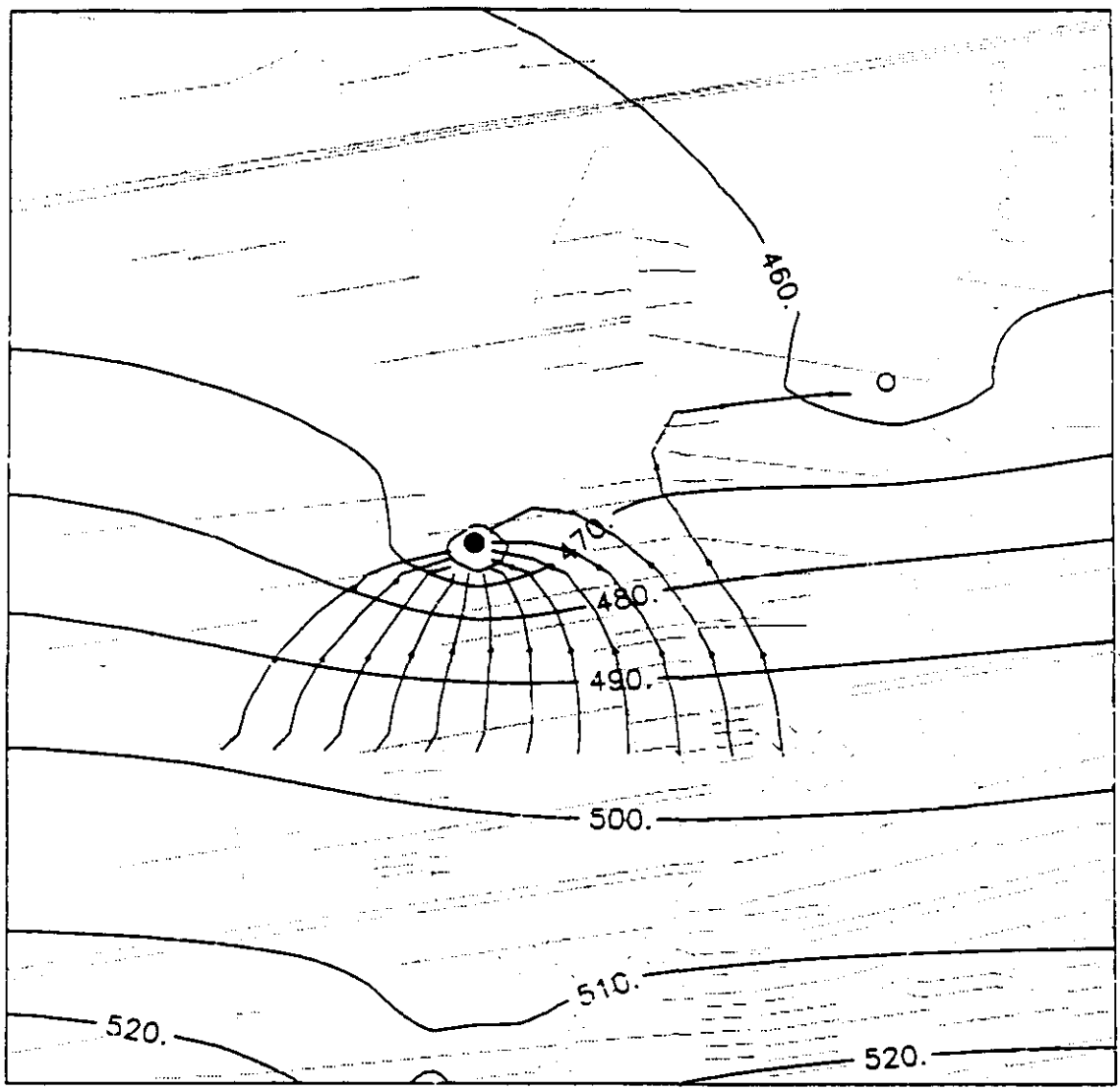
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SIMULATED PATH OF PARTICLES STARTED AT THE WATER TABLE BENEATH THE DUBLIN TCE SITE UNDER PUMPING SCENARIO 3A
DUBLIN, PENNSYLVANIA

FIGURE
7

AR301530

DRAFTER: K. MC CANN | APPROVED: B. DOLCE | CHECKED: B. DOLCE | DRAWING: SQ-128 | FILE NO.: SQ-128 | PRJCT NO.: NJ19808 | DWG DATE: 8FEB93



EXPLANATION

FLOW PATH IN MODEL LAYERS

520. SIMULATED WATER-LEVEL ELEVATIONS IN MODEL LAYER 1, IN FEET RELATIVE TO msl

msl MEAN SEA LEVEL

gpm GALLONS PER MINUTE

● NWL-E WELL PUMPING AT 25 gpm

○ TCE MONITORING WELL PUMPING AT 25 gpm

SCALE

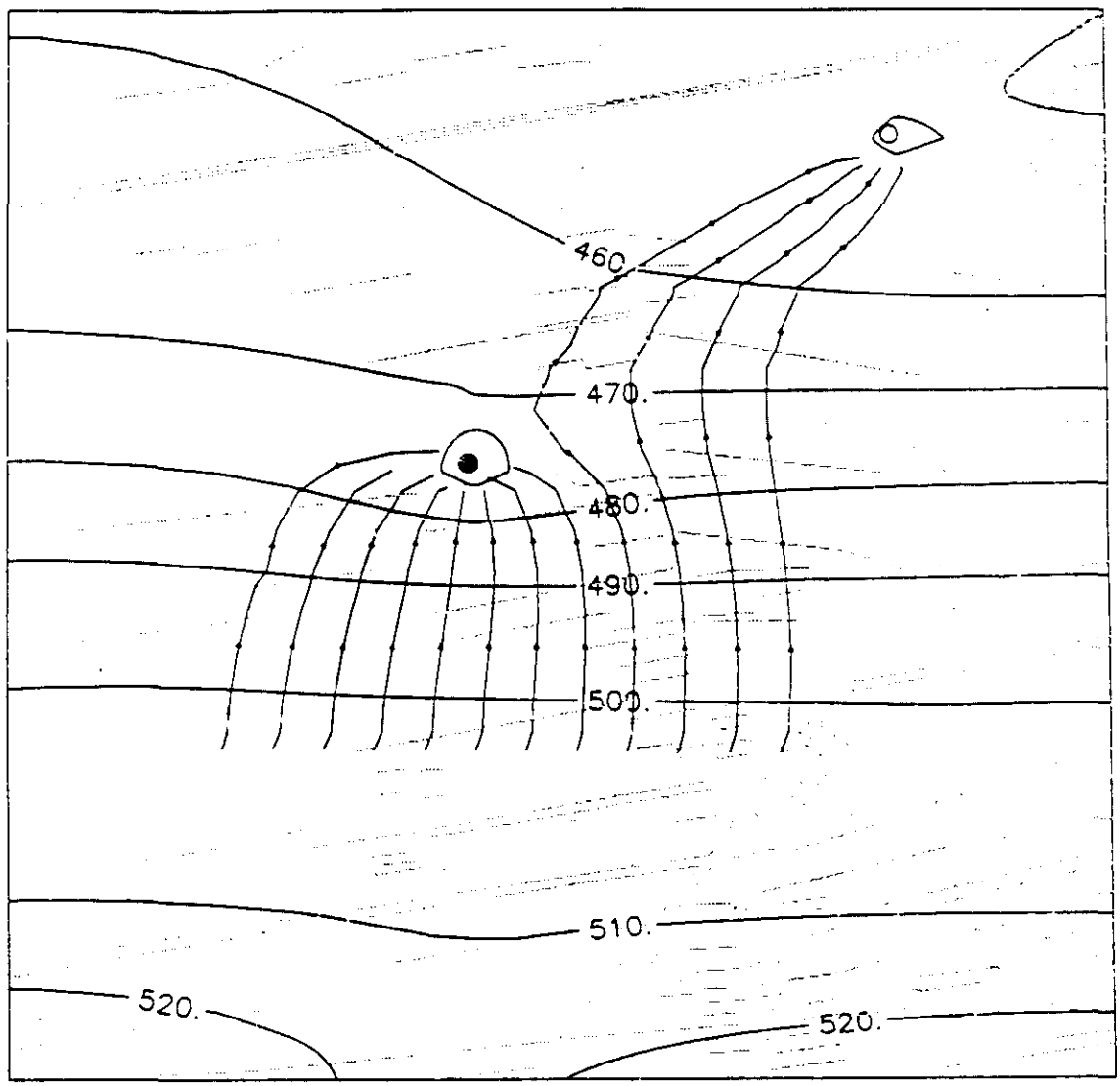
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SIMULATED PATH OF PARTICLES STARTED AT THE WATER TABLE BENEATH THE DUBLIN TCE SITE UNDER PUMPING SCENARIO 3B DUBLIN, PENNSYLVANIA

FIGURE 8

AR301531



EXPLANATION

FLOW PATH IN MODEL LAYERS

520. SIMULATED WATER-LEVEL ELEVATIONS IN MODEL LAYER 1, IN FEET RELATIVE TO msl

msl MEAN SEA LEVEL

gpm GALLONS PER MINUTE

● WHISTLEWOOD APARTMENTS WELL PUMPING AT 11.5 gpm

○ NWL-A WELL PUMPING AT 23.5 gpm

SCALE

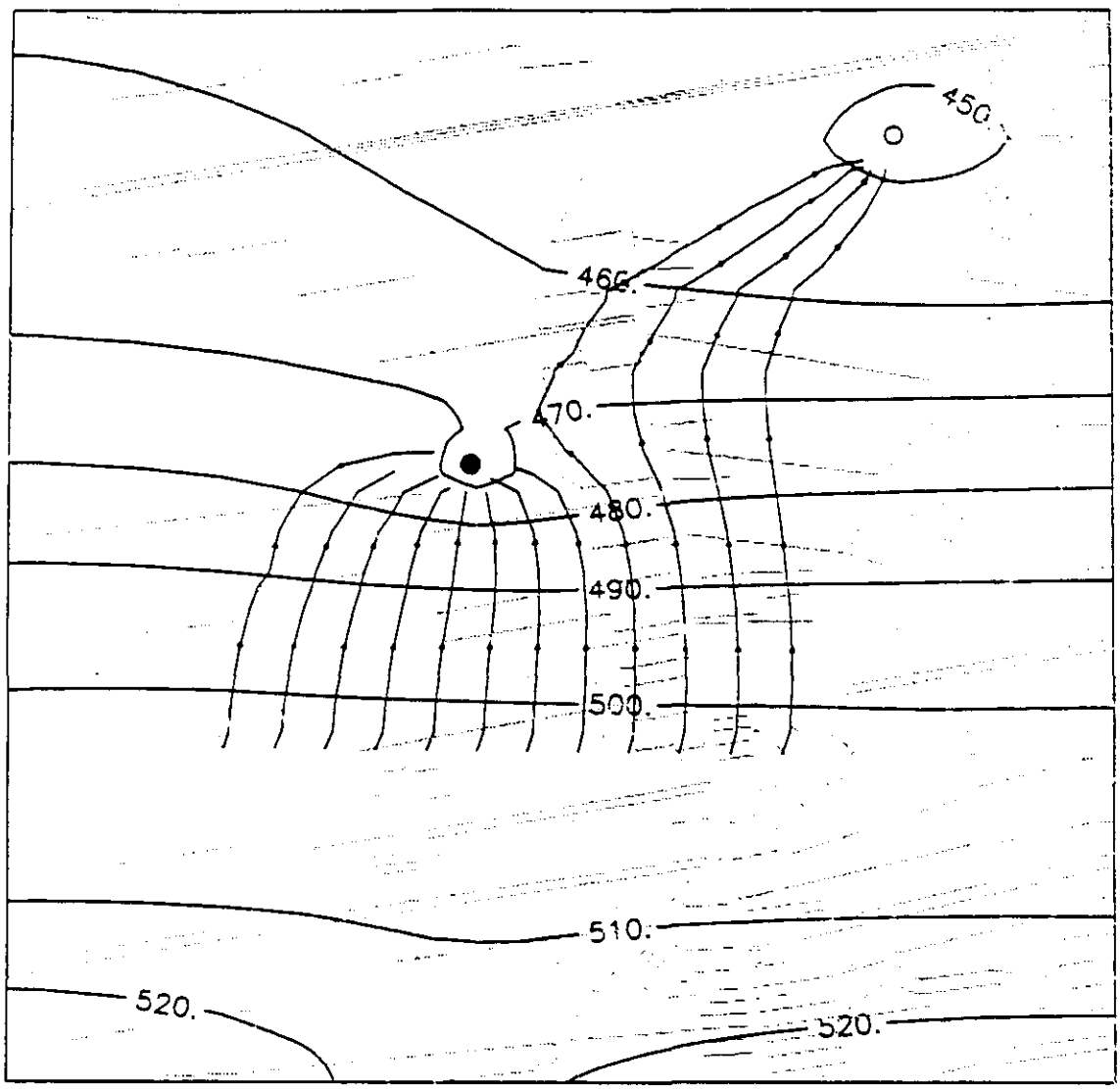
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SIMULATED PATH OF PARTICLES STARTED AT THE WATER TABLE BENEATH THE DUBLIN TCE SITE UNDER PUMPING SCENARIO 4A
DUBLIN, PENNSYLVANIA

FIGURE
9

DRAFTER: K. MC CANN | APPROVED: B. DOLCE | CHECKED: B. DOLCE | DRAWING: SQ-129 | FILE NO.: SQ-129 | PROJ NO.: NJ19808 | DWG DATE: 8FEB93



EXPLANATION

- FLOW PATH IN MODEL LAYERS
- 520. — SIMULATED WATER-LEVEL ELEVATIONS IN MODEL LAYER 1, IN FEET RELATIVE TO msl
- ● WHISTLEWOOD APARTMENTS WELL PUMPING AT 11 5 gpm
- ○ NWL-A WELL PUMPING AT 38.5 gpm

msl MEAN SEA LEVEL

gpm GALLONS PER MINUTE

SCALE

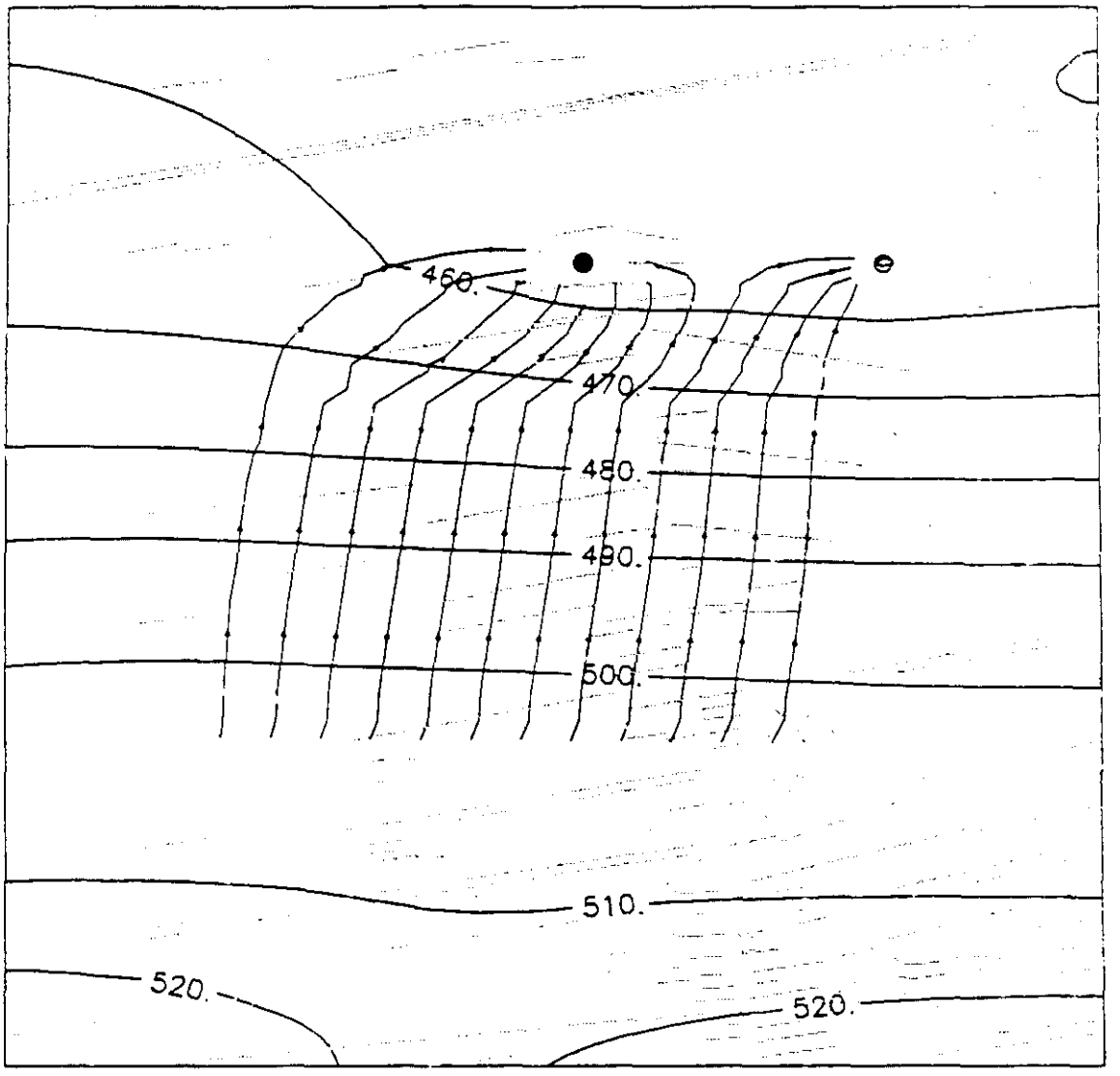
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SIMULATED PATH OF PARTICLES STARTED AT THE WATER TABLE BENEATH THE DUBLIN TCE SITE UNDER PUMPING SCENARIO 4B
DUBLIN, PENNSYLVANIA

FIGURE 10

DRAFTER: K. MC CANN | APPROVED: B. DOLCE | CHECKED: B. DOLCE | DRAWING: SQ-130 | FILE NO.: SQ-130 | PROJCT NO.: NJ1980B | DWG DATE: 8FEB93



EXPLANATION

FLOW PATH IN MODEL LAYERS

520. SIMULATED WATER-LEVEL ELEVATIONS IN MODEL LAYER 1, IN FEET RELATIVE TO msl

msl MEAN SEA LEVEL

gpm GALLONS PER MINUTE

● FAMILY HEALTH CARE WELL PUMPING AT 17.5 gpm

○ NWL-C WELL PUMPING AT 17.5 gpm

SCALE

0 700

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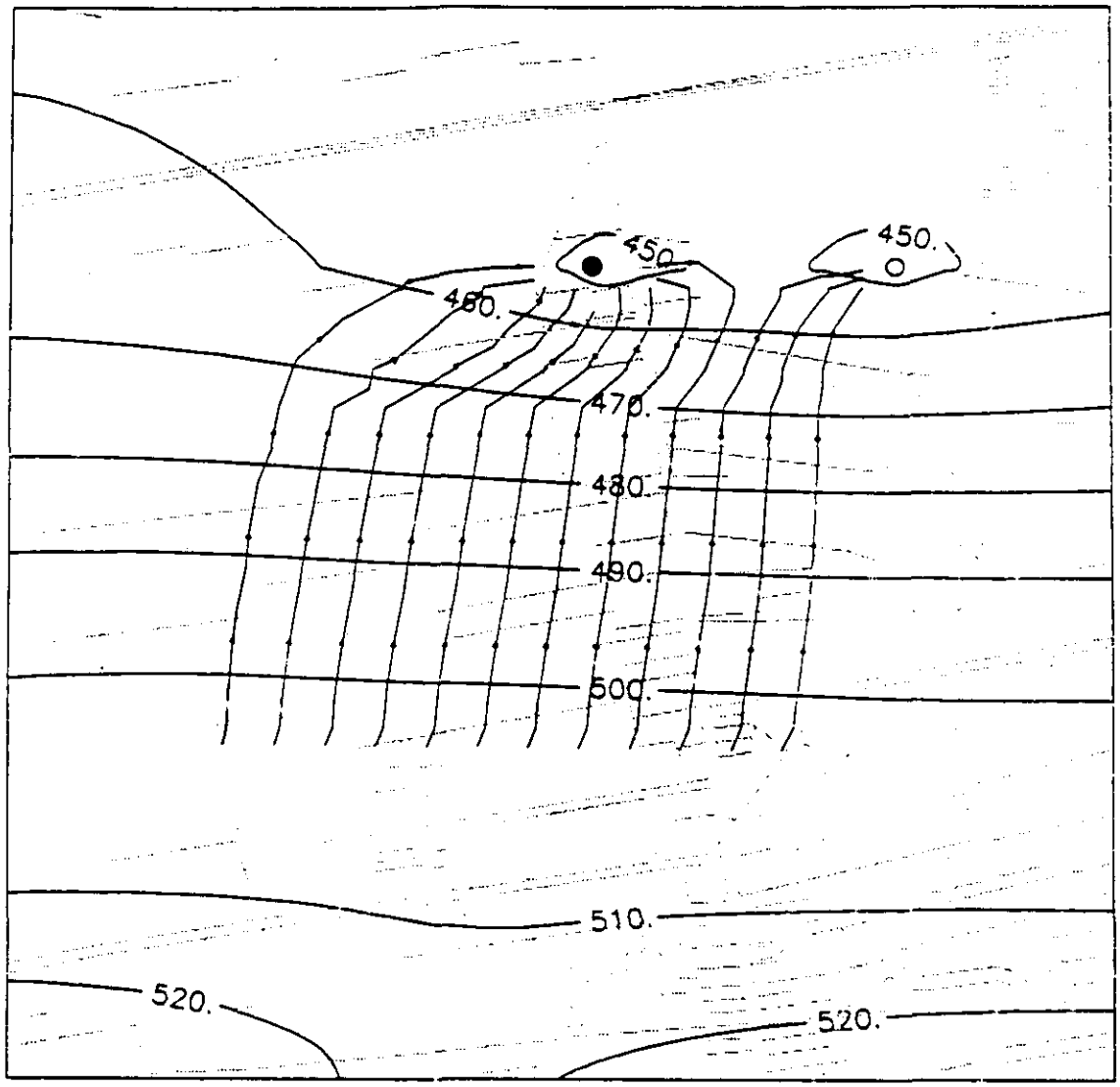
SIMULATED PATH OF PARTICLES STARTED AT THE WATER TABLE BENEATH THE DUBLIN TCE SITE UNDER PUMPING SCENARIO 5A DUBLIN, PENNSYLVANIA

FIGURE 11

DRAFTER: K. MC CANN | APPROVED: B. DOLCE | CHECKED: B. DOLCE | DRAWING: SQ-131 | FILE NO.: SQ-131 | PRJCT NO.: NJ1980B | DWG DATE: 8FEB93

AR301534

DRAFTER: K. MC CANN | APPROVED: B. DOLCE | CHECKED: B. DOLCE | DRAWING: SQ-132 | FILE NO.: SQ-132 | PRJCT NO.: NJ19808 | DWG DATE: 8FEB93



EXPLANATION

FLOW PATH IN MODEL LAYERS

520. SIMULATED WATER-LEVEL ELEVATIONS IN MODEL LAYER 1, IN FEET RELATIVE TO msl

msl MEAN SEA LEVEL

gpm GALLONS PER MINUTE

● FAMILY HEALTH CARE WELL PUMPING AT 25 gpm

○ NWL-C WELL PUMPING AT 25 gpm

SCALE

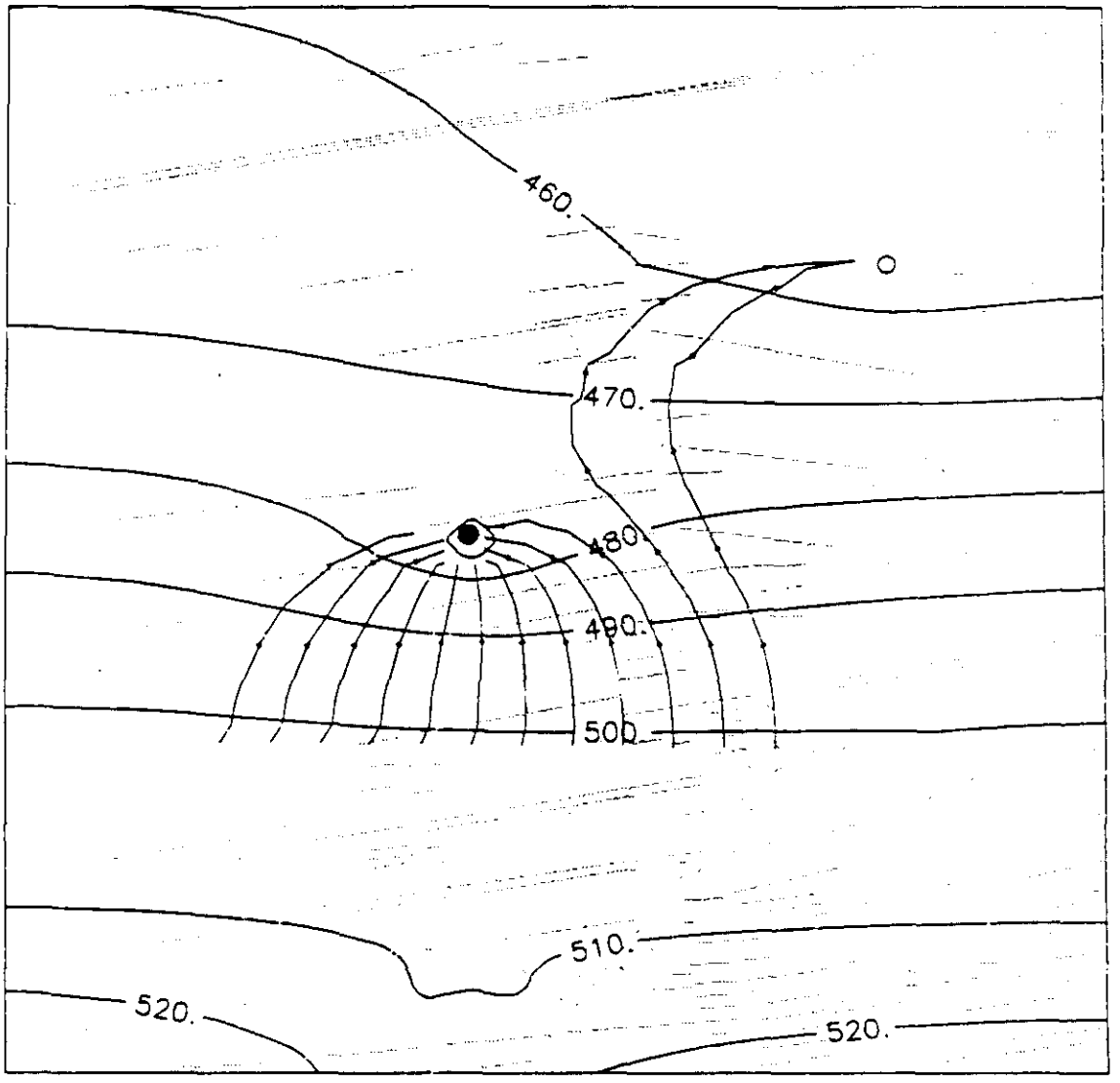
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SIMULATED PATH OF PARTICLES STARTED AT THE WATER TABLE BENEATH THE DUBLIN TCE SITE UNDER PUMPING SCENARIO 5B DUBLIN, PENNSYLVANIA

FIGURE 12

AR301535



EXPLANATION

FLOW PATH IN MODEL LAYERS

520. SIMULATED WATER-LEVEL ELEVATIONS IN MODEL LAYER 1, IN FEET RELATIVE TO msl

● NWL-E WELL PUMPING AT 17.5 gpm

○ NWL-C WELL PUMPING AT 17.5 gpm

msl MEAN SEA LEVEL

gpm GALLONS PER MINUTE

SCALE

0 700

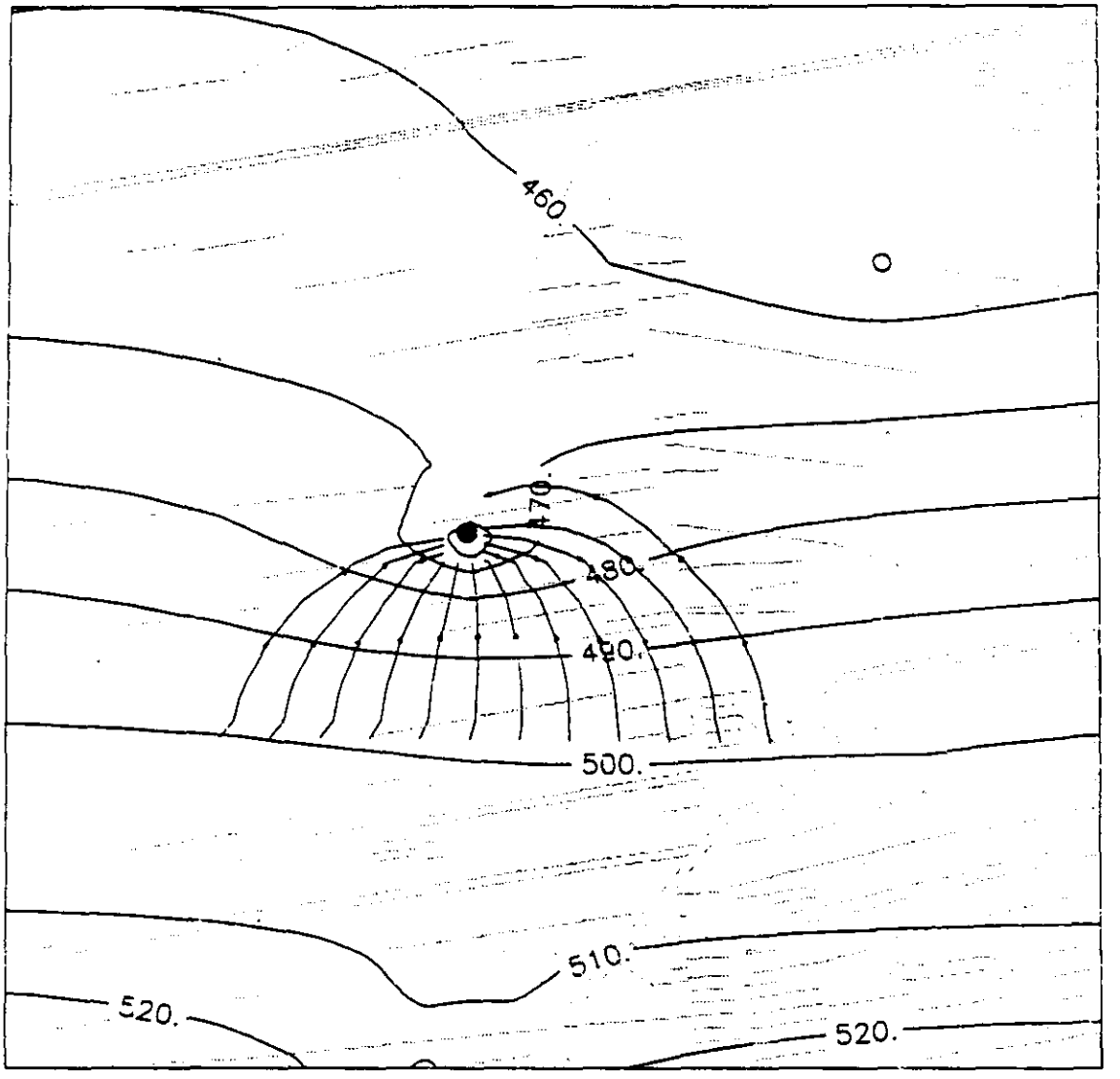
DRAFTER: K. MC CANN | APPROVED: B. DOLCE | CHECKED: B. DOLCE | DRAWING: SQ-133 | FILE NO.: SQ-133 | PRJCT NO.: NJ19808 | DWG DATE: 8FEB93

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SIMULATED PATH OF PARTICLES STARTED AT THE WATER TABLE BENEATH THE DUBLIN TCE SITE UNDER PUMPING SCENARIO 6A DUBLIN, PENNSYLVANIA

FIGURE 13

AR301536



EXPLANATION

FLOW PATH IN MODEL LAYERS

520. SIMULATED WATER-LEVEL ELEVATIONS IN MODEL LAYER 1, IN FEET RELATIVE TO msl

msl MEAN SEA LEVEL

gpm GALLONS PER MINUTE

● NWL-E WELL PUMPING AT 25 gpm

○ NWL-C WELL PUMPING AT 25 gpm

SCALE

0 700

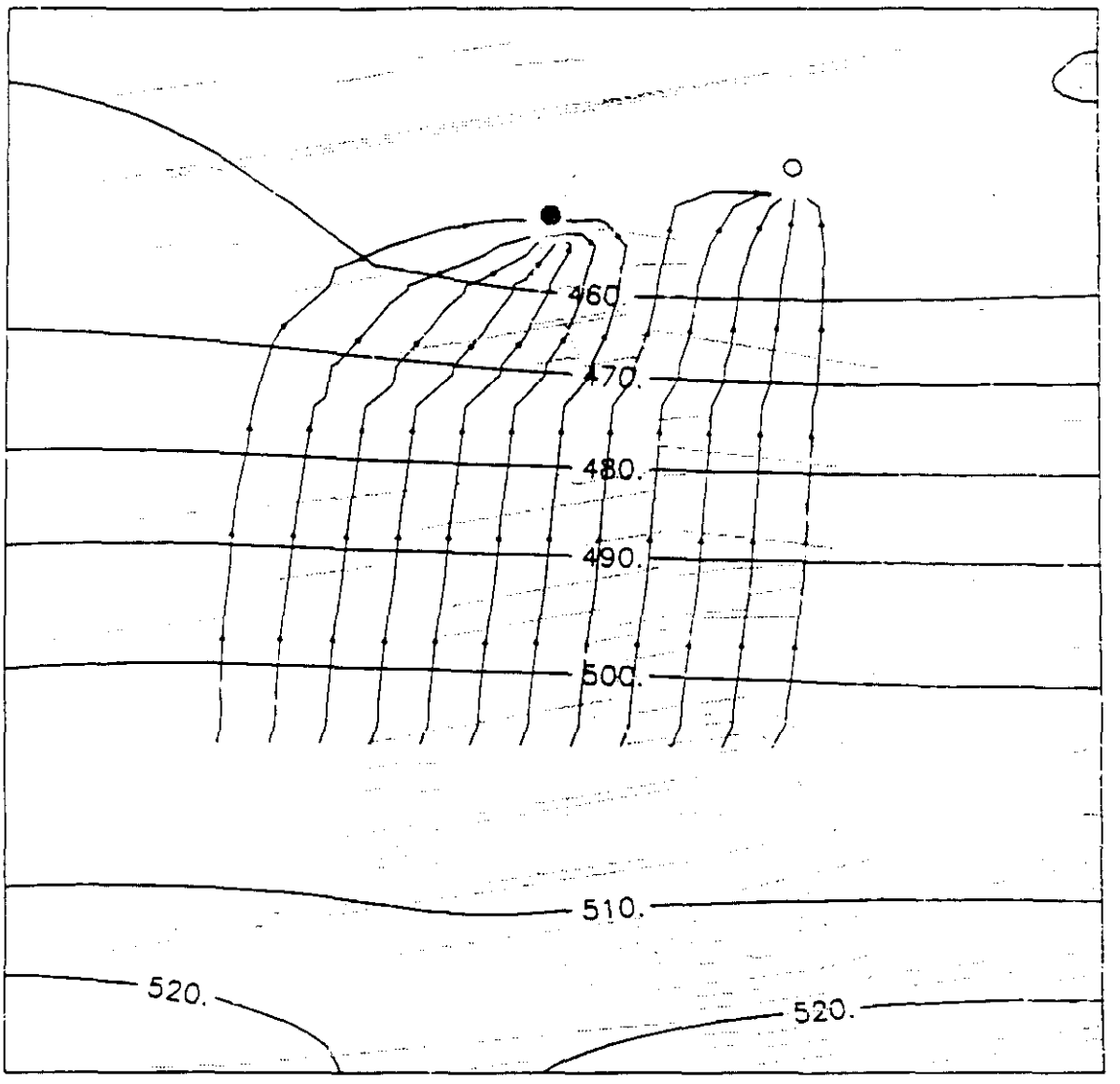
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SIMULATED PATH OF PARTICLES STARTED AT THE WATER TABLE BENEATH THE DUBLIN TCE SITE UNDER PUMPING SCENARIO 6B
DUBLIN, PENNSYLVANIA

FIGURE 14

DRAFTER: K. MC CANN | APPROVED: B. DOLCE | CHECKED: B. DOLCE | DRAWING: SQ-134 | FILE NO.: SQ-134 | PRJCT NO.: NJ19808 | DWG DATE: 8FEB93

AR301537



EXPLANATION

FLOW PATH IN MODEL LAYERS

520. SIMULATED WATER-LEVEL ELEVATIONS IN MODEL LAYER 1, IN FEET RELATIVE TO msl

msl MEAN SEA LEVEL

gpm GALLONS PER MINUTE

● NWL-D WELL PUMPING AT 17.5 gpm

○ NWL-B WELL PUMPING AT 17.5 gpm

SCALE

0 700

DRAFTER: K. MC CANN
APPROVED: B. DOLCE
CHECKED: B. DOLCE
DRAWING: SQ-135
FILE NO.: SQ-135
PRJCT NO.: NJ1980B
DWG DATE: 8FEB93

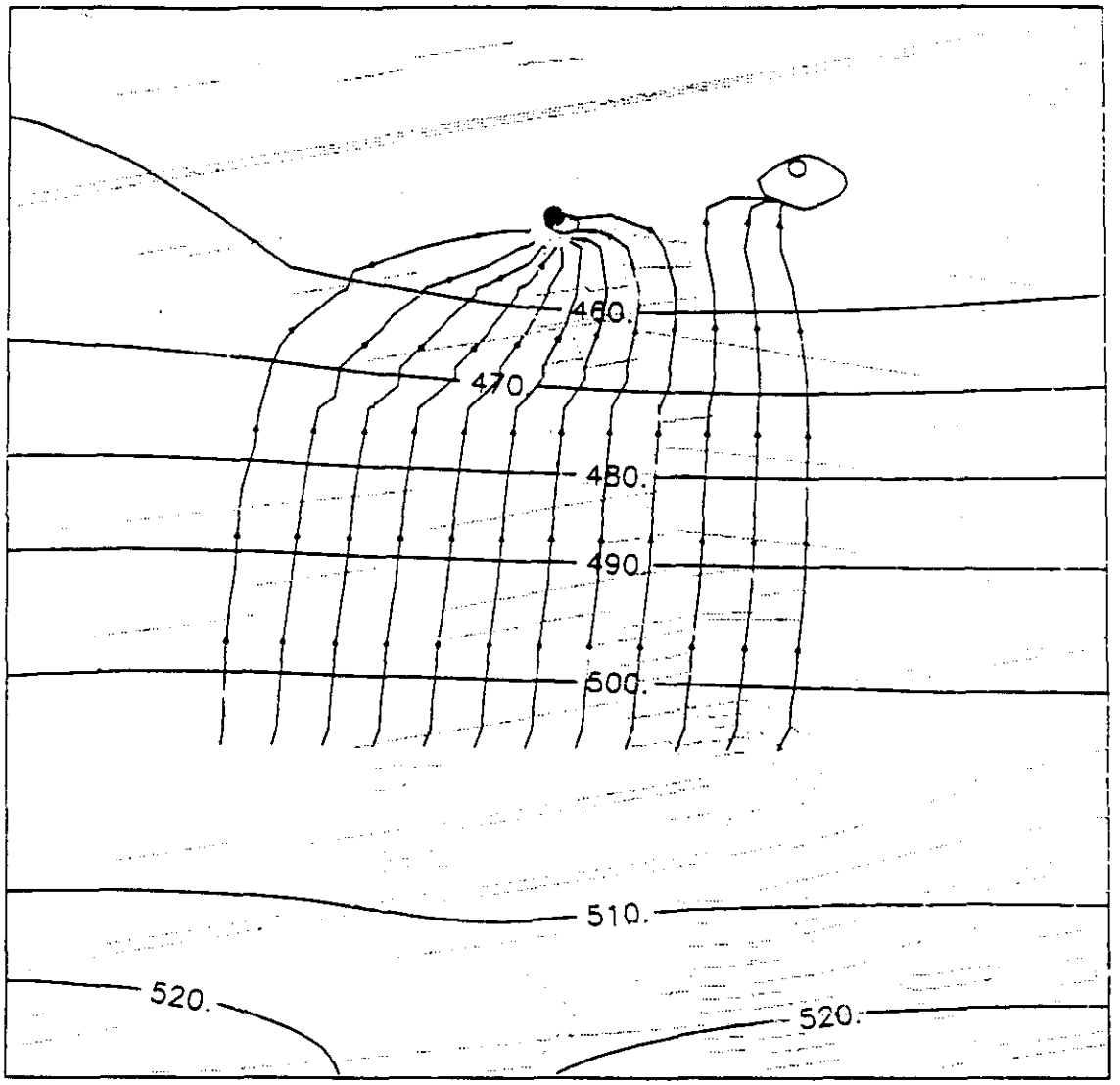
GERAGHTY & MILLER, INC.
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SIMULATED PATH OF PARTICLES STARTED AT THE WATER TABLE BENEATH THE DUBLIN TCE SITE UNDER PUMPING SCENARIO 7A DUBLIN, PENNSYLVANIA

FIGURE 15

AR301538

DRAFTER: K. MC CANN | APPROVED: B. DOLCE | CHECKED: B. DOLCE | DRAWING: SQ-136 | FILE NO.: SQ-136 | PRJCT NO.: NJ19808 | DWG DATE: 9FEB93



EXPLANATION

FLOW PATH IN MODEL LAYERS

520. SIMULATED WATER-LEVEL ELEVATIONS IN MODEL LAYER 1, IN FEET RELATIVE TO msl

msl MEAN SEA LEVEL

gpm GALLONS PER MINUTE

● NWL-D WELL PUMPING AT 25 gpm

○ NWL-B WELL PUMPING AT 25 gpm

SCALE

0 700

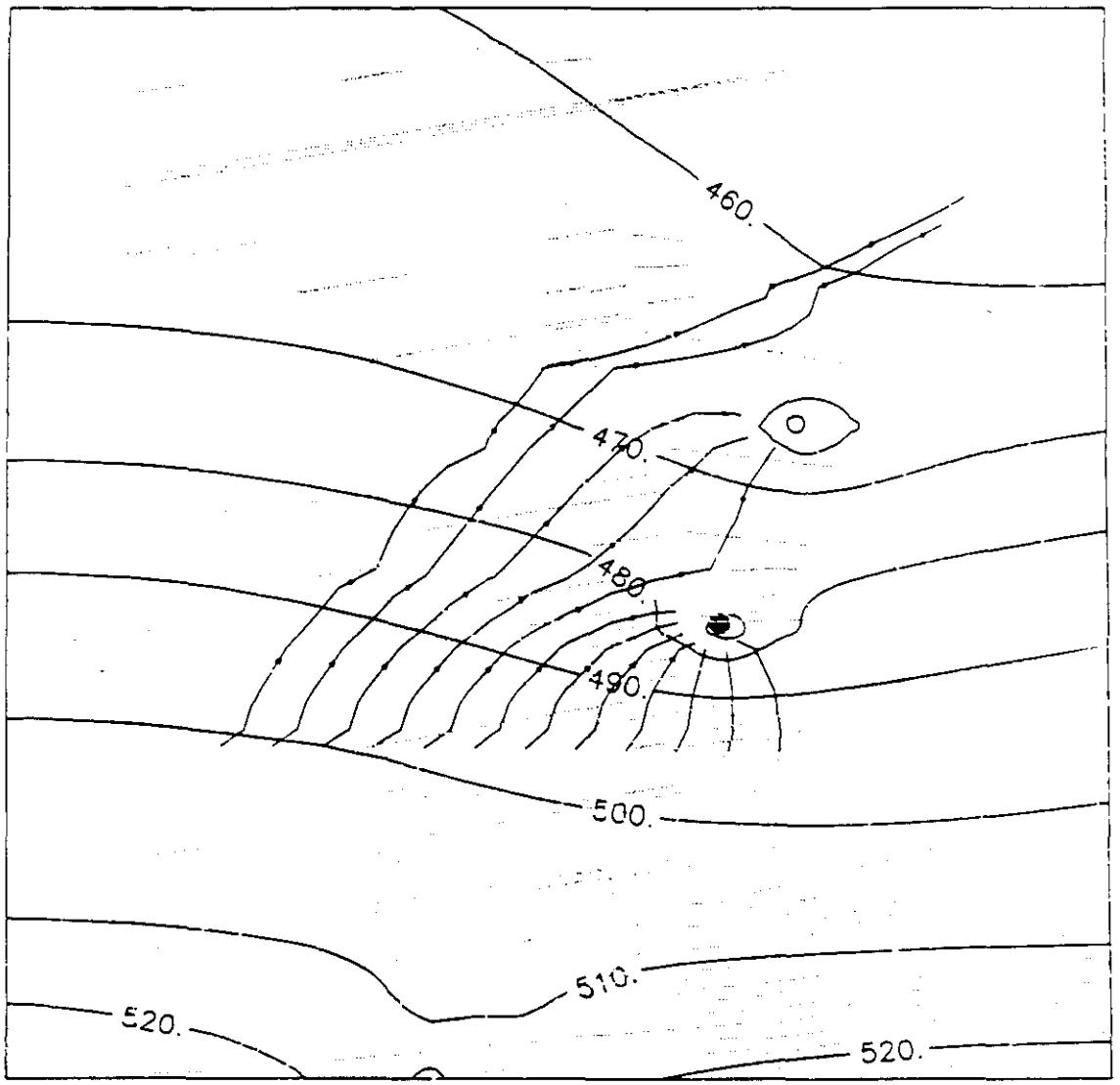
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SIMULATED PATH OF PARTICLES STARTED AT THE WATER TABLE BENEATH THE DUBLIN TCE SITE UNDER PUMPING SCENARIO 7B
DUBLIN, PENNSYLVANIA

FIGURE 16

AR301539

DRAFTER: K. MC CANN | APPROVED: B. DOLCE | CHECKED: B. DOLCE | DRAWING: SQ-137 | FILE NO.: SQ-137 | PROJCT NO.: NJ19808 | DWG DATE: 8FEB93



EXPLANATION

FLOW PATH IN MODEL LAYERS

520. SIMULATED WATER-LEVEL ELEVATIONS IN MODEL LAYER 1, IN FEET RELATIVE TO msl

msl MEAN SEA LEVEL

gpm GALLONS PER MINUTE

● EMICO WELL PUMPING AT 17.5 gpm PUMPING AT 11.5 gpm

○ DUBLIN VILLAGE PLAZA WELL PUMPING AT 17.5 gpm

SCALE

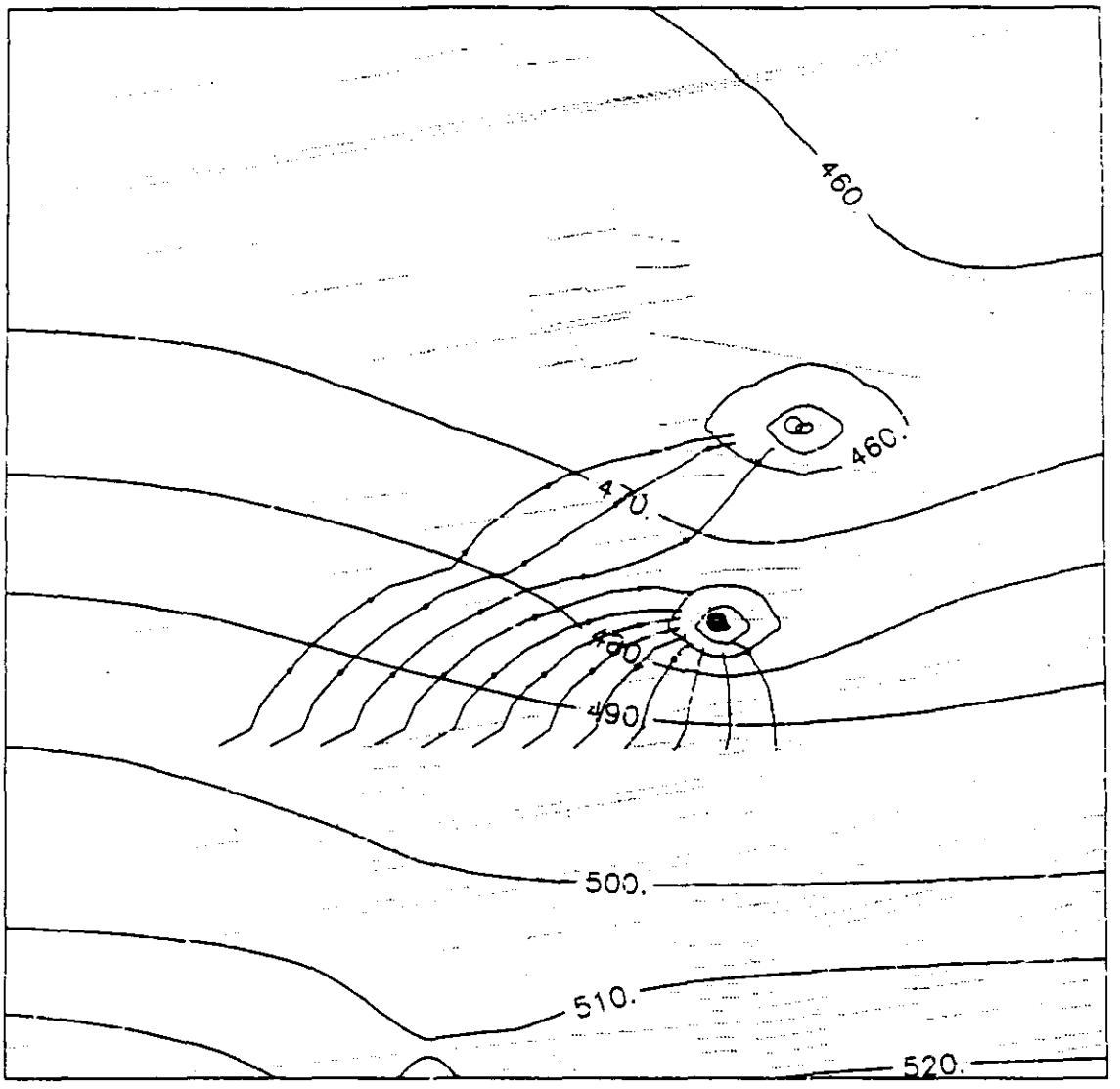
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SIMULATED PATH OF PARTICLES STARTED AT THE WATER TABLE BENEATH THE DUBLIN TCE SITE UNDER PUMPING SCENARIO 8A DUBLIN, PENNSYLVANIA

FIGURE 17

AR301540



EXPLANATION

FLOW PATH IN MODEL LAYERS

— 520. — SIMULATED WATER-LEVEL ELEVATIONS IN MODEL LAYER 1, IN FEET RELATIVE TO msl

● EMICO WELL PUMPING AT 25 gpm

○ DUBLIN VILLAGE PLAZA WELL PUMPING AT 25 gpm

msl MEAN SEA LEVEL

gpm GALLONS PER MINUTE

SCALE

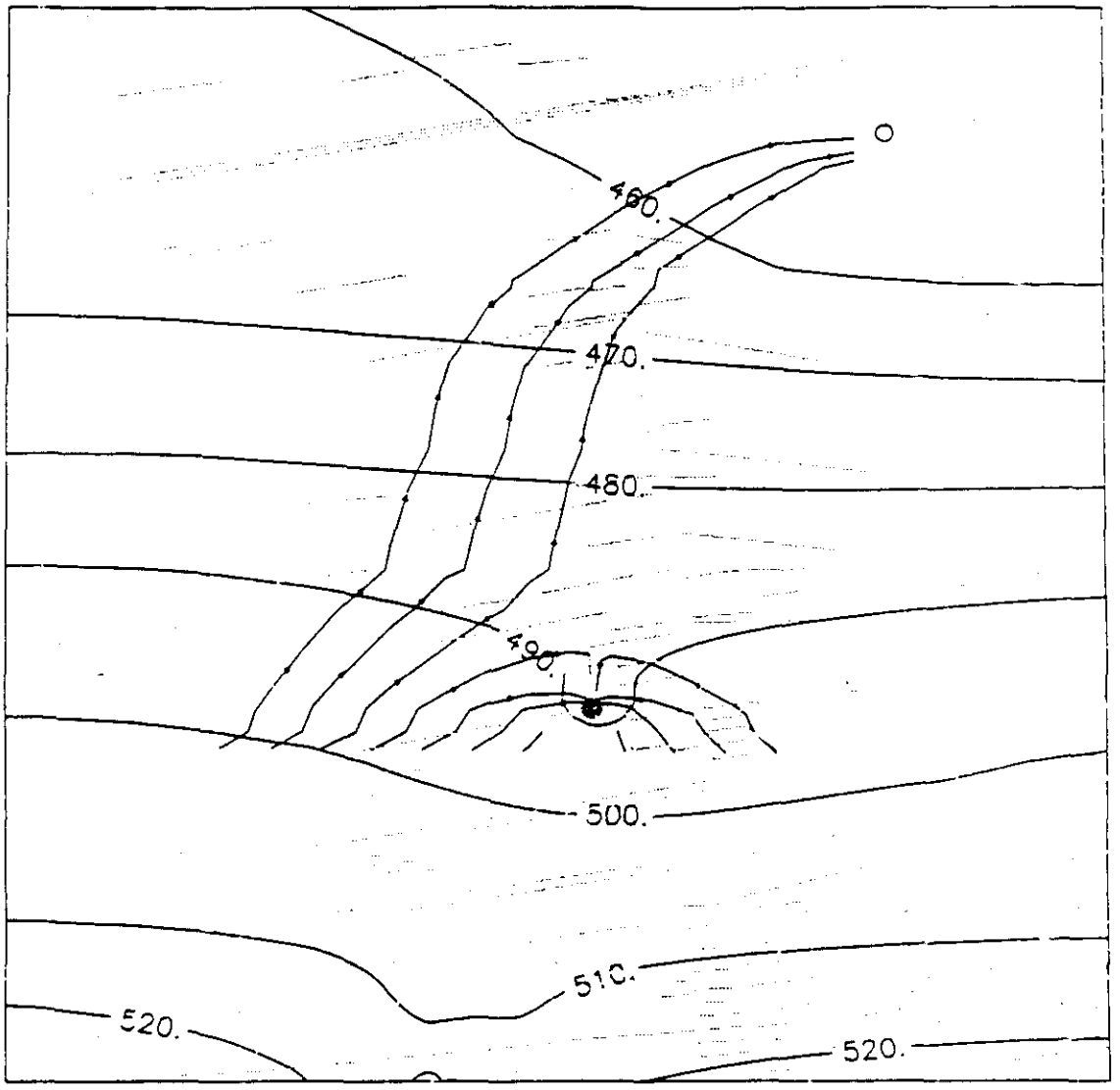
0 700

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SIMULATED PATH OF PARTICLES STARTED AT THE WATER TABLE BENEATH THE DUBLIN TCE SITE UNDER PUMPING SCENARIO 8B
DUBLIN, PENNSYLVANIA

FIGURE 18

DRAFTER: K. MC CANN | APPROVED: B. DOLCE | CHECKED: B. DOLCE | DRAWING: SQ-13B | FILE NO.: SQ-13B | PRJCT NO.: NJ19808 | DWG DATE: 8FEB93



EXPLANATION

FLOW PATH IN MODEL LAYERS

520. SIMULATED WATER-LEVEL ELEVATIONS IN MODEL LAYER 1, IN FEET RELATIVE TO msl

msl MEAN SEA LEVEL

gpm GALLONS PER MINUTE

● FIRE TOWER WELL PUMPING AT 17.5 gpm

○ NWL-A WELL PUMPING AT 17.5 gpm

SCALE

0 700

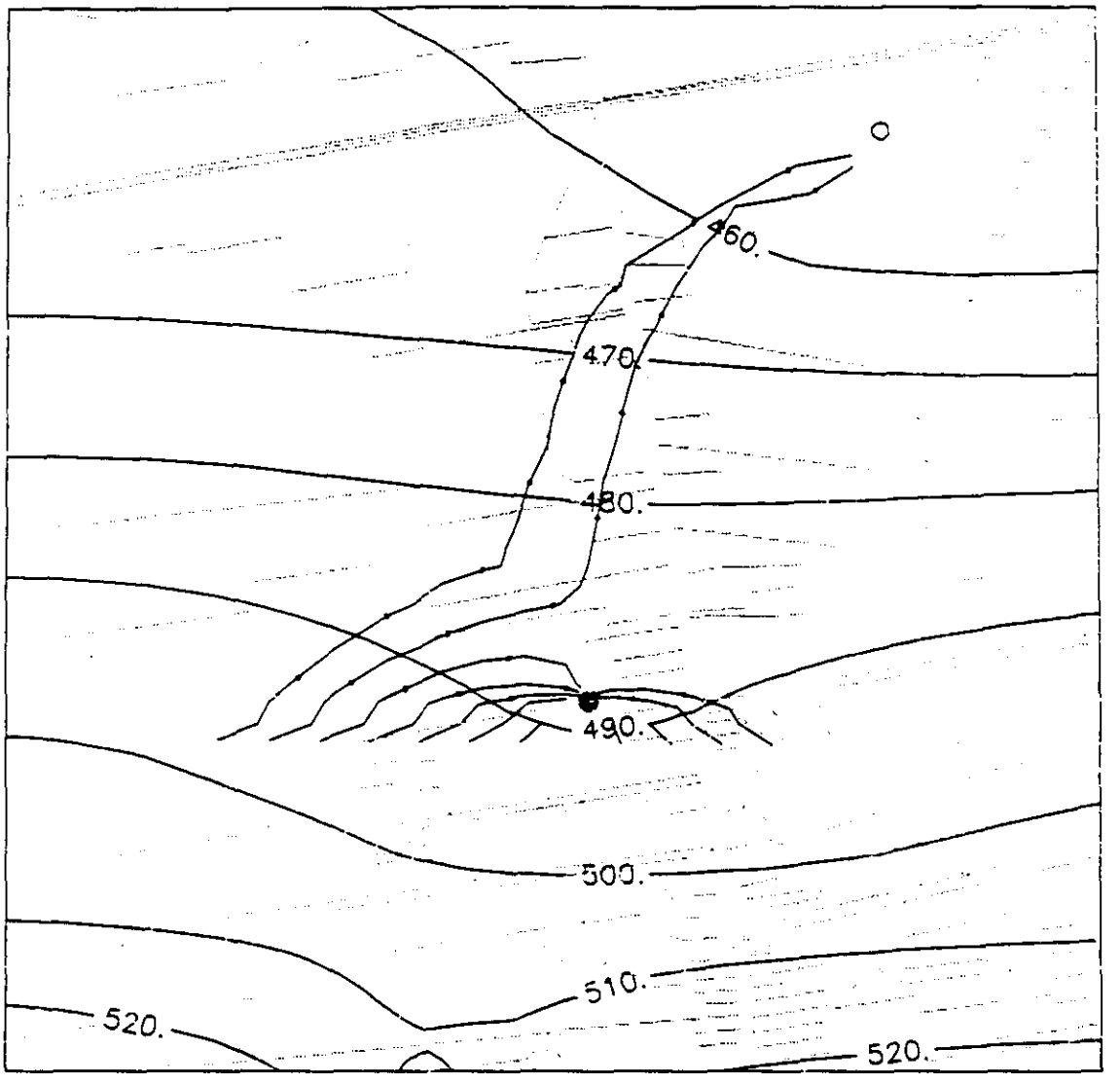
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Environmental Services

SIMULATED PATH OF PARTICLES STARTED AT THE WATER TABLE BENEATH THE DUBLIN TCE SITE UNDER PUMPING SCENARIO 9A
DUBLIN, PENNSYLVANIA

FIGURE
19

DRAFTER: K. MC CANN | APPROVED: B. DOLCE | CHECKED: B. DOLCE | DRAWING: SQ-139 | FILE NO.: SQ-139 | PROJCT NO.: NJ19808 | DWG DATE: 8FEB93

AR301542



EXPLANATION

FLOW PATH IN MODEL LAYERS

520. SIMULATED WATER-LEVEL ELEVATIONS IN MODEL LAYER 1, IN FEET RELATIVE TO msl

● FIRE TOWER WELL PUMPING AT 25 gpm

○ NWL-A WELL PUMPING AT 25 gpm

msl MEAN SEA LEVEL

gpm GALLONS PER MINUTE

SCALE

0 700

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SIMULATED PATH OF PARTICLES STARTED AT THE WATER TABLE BENEATH THE DUBLIN TCE SITE UNDER PUMPING SCENARIO 9B
DUBLIN, PENNSYLVANIA

FIGURE 20

DRAFTER: K. MC CANN | APPROVED: B. DOLCE | CHECKED: B. DOLCE | DRAWING: SQ-140 | FILE NO.: SQ-140 | PRJCT NO.: NJ19808 | DWG DATE: 8FEB93

AR301543

Table 1. Remedial Pumping Scenarios for the Dublin TCE Site, Dublin, Pennsylvania.

Option No.	Whistlewood Commons Supply Well Remains On	Whistlewood Commons Supply Well is Discontinued	Recovery Wells	Existing Wells	New Wells	Well ID and Simulated Pumping Rate (gpm)	Figure No.
9A		X	FB, FT, or Emico and NWL–A, NWL–B, or NWL–C	X	X	FT (17.5) NWL–A (17.5)	19
9B		X	FB, FT, or Emico and NWL–A, NWL–B, or NWL–C	X	X	FT (25) NWL–A (25)	20

Options are numbered according to preference based on available information. The option identifed as "1" is the most favorable and "10" is the least favorable; "A" is 35 gpm, "B" is 50 gpm with Borough of Dublin Well No. 3 reduced by 15 gpm, and "C" is 35 gpm.

Affected or potentially affected residence and business wells, as listed in the Focused Feasibility Study (USEPA 1991), are discontinued unless otherwise noted.

gpm Gallons per minute.

Wells are grouped below according to their general location.

WC Whistlewood Commons.
TCE MW TCE Monitoring Well
DVP Dublin Village Plaza.
G&T G&T Company.
FHC Family Health Care.
DFC Dublin Fire Company.
FB Farm Bureau.
FT Fire Tower.
Emico Emico Company.

NWL–A, NWL–B, NWL–C, NWL–D, or NWL–E – Potential new wells.

AR301544

Table 1. Remedial Pumping Scenarios for the Dublin TCE Site, Dublin, Pennsylvania.

Option No.	Whistlewood Commons Supply Well Remains On	Whistlewood Commons Supply Well is Discontinued	Recovery Wells	Existing Wells	New Wells	Well ID and Simulated Pumping Rate (gpm)	Figure No.
5A		X	NWL-A, NWL-B, or NWL-C and G&T, FHC, or DFC	X	X	NWL-C (17.5) FHC (17.5)	11
5B		X	NWL-A, NWL-B, or NWL-C and G&T, FHC, or DFC	X	X	NWL-C (25) FHC (25)	12
6A		X	NWL-A, NWL-B, or NWL-C and NWL-E		X	NWL-C (17.5) NWL-E (17.5)	13
6B		X	NWL-A, NWL-B, or NWL-C and NWL-E		X	NWL-C (25) NWL-E (25)	14
7A		X	NWL-A, NWL-B, or NWL-C and NWL-D		X	NWL-B (17.5) NWL-D (17.5)	15
7B		X	NWL-A, NWL-B, or NWL-C and NWL-D		X	NWL-B (25) NWL-D (25)	16
8A		X	FB, FT, or Emico and TCE MW or DVP	X		Emico (17.5) DVP (17.5)	17
8B		X	FB, FT, or Emico and TCE MW or DVP	X		Emico (25) DVP (25)	18

See Page 3 for Footnotes.

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Table 1. Remedial Pumping Scenarios for the Dublin TCE Site, Dublin, Pennsylvania.

Option No.	Whistlewood Commons Supply Well Remains On	Whistlewood Commons Supply Well is Discontinued	Recovery Wells	Existing Wells	New Wells	Well ID and Simulated Pumping Rate (gpm)	Figure No.
1A	X		WC and TCE MW or DVP	X		WC (11.5) TCE MW (23.5)	2
1B	X		WC and TCE MW or DVP	X		WC (11.5) TCE MW (38.5)	3
1C	X		Moyer Dairy Farm, WC, and TCE MW or DVP	X		Moyer Dairy Farm (1.7) WC (11.5) TCE MW (21.8)	4
2A		X	TCE MW or DVP and G&T or FHC, or DFC	X		DVP (17.5) G&T (17.5)	5
2B		X	TCE MW or DVP and G&T, FHC, or DFC	X		DVP (25) G&T (25)	6
3A		X	TCE MW or DVP and NWL–E	X	X	TCE MW (17.5) NWL–E (17.5)	7
3B		X	TCE MW or DVP and NWL–E	X	X	TCE MW (25) NWL–E (25)	8
4A	X		WC and NWL–A, NWL–B or NWL–C	X	X	WC (11.5) NWL–A (23.5)	9
4B	X		WC and NWL–A, NWL–B or NWL–C	X	X	WC (11.5) NWL–A (38.5)	10

See Page 3 for Footnotes.

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APPENDIX D

GROUND-WATER FLOW MODELING AND ADVECTIVE TRANSPORT ANALYSIS

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APPENDIX D

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APPENDIX D

GROUND-WATER FLOW MODELING AND ADVECTIVE TRANSPORT ANALYSIS

INTRODUCTION

Geraghty & Miller, Inc. was retained by Sequa Corporation to develop a numerical flow model to evaluate ground-water flow and contaminant transport in the Dublin, Pennsylvania area as part of an investigation conducted for the Pennsylvania Department of Environmental Resources (PADER). The modeling effort was undertaken in conjunction with a field investigation to provide a more detailed assessment of hydrogeologic conditions. By reproducing the generalized hydraulic head distribution to natural hydrologic boundaries under present-day pumping conditions, the model can serve as a predictive tool to simulate potential ground-water remedial measures. The modeling effort consisted of the following tasks:

- Generating a steady-state simulated head distribution and water balance that generally reproduces water-level measurements published in available reports.

- Delineating ground-water flow paths through the use of a particle-tracking post-processing program.

- Evaluating various recovery-well plume remediation schemes designed to achieve contaminant mass reduction and hydraulic containment of the TCE plume in the bedrock aquifer.

HYDROLOGY

The hydrologic system of the Morris Run and Deep Run watersheds (Figure D-1) involves the interrelation of meteorologic, ground-water, and surface-water processes. A description of the system must include definition of the hydrogeologic framework, hydraulic parameters of the

bedrock units, hydrologic system boundaries, and human-induced stresses that affect ground-water movement. This two-watershed system is described in several publications (T. H. Cahill and Associates and J.K. Adams and Associates 1987; Rooney 1986; and International Exploration 1985).

RECHARGE

Recharge to the ground-water system within the model area occurs as percolation down to the water table and is derived from the following sources:

- Recharge from Precipitation - The major source of recharge to the ground-water system is precipitation that percolates downward through the unsaturated zone to the water table. Base flow rate calculations for Morris Run (International Exploration 1985), the stream least affected by pumpage within the Dublin Borough, indicate that the average base flow rate is equivalent to about 2.3 inches/year (in/yr) of rainfall falling on the 4.86 mi^2 drainage area of the Morris Run watershed. Base flow rates are commonly 25 to 47 percent smaller than recharge rates and are thus a conservative estimate of the amount of available ground water moving through the shallow bedrock aquifer system (R.E. Wright Associates 1982). Recharge from precipitation was assumed to be 30 percent higher than the base flow rate, or 3 in/yr, and was extrapolated over the model area. Recharge within Dublin Borough, however, was reduced by 50 percent due to the increased area of impervious surfaces (approximately 23 percent, T. H. Cahill and Associates and J.K. Adams and Associates 1987a), the storm-water drainage network of surface gullies and ditches, and subsurface sewer pipes with surface inlets.

- Recharge from Local Water Usage - Most of the modeled area beyond the borders of Dublin Borough is unsewered, and return flow of residential well pumpage via

septic systems was assumed to maintain the overall water balance (no net loss of water from the ground-water system).

- Recharge from Induced Infiltration of Stream Flow - Intermittent recharge from stream flow may occur in stream reaches where the water-level elevations in the aquifer fall below the stream bottom elevation. This process of potential recharge to the ground-water system was not incorporated into the model.

DISCHARGE

During steady-state conditions, recharge to the ground-water system beneath the two-watershed area is equal to discharge from the system. Ground-water discharge from the modeled area occurs through the following processes:

- Discharge as Base Flow (Stream Seepage) - Ground-water seepage to streams can occur where ground-water elevations are above stream bottom elevations. Base flow calculations indicate that this is the major discharge process occurring in the Morris Run and Deep Run watersheds (International Exploration 1985).

- Discharge as Interbasin Ground-Water Underflow - Interbasin ground-water flow generally occurs where an aquifer is confined, and ground water is not hydraulically connected to the surface-water bodies. Natural interbasin ground-water flow was estimated to be less than 2 percent of normal annual base flow (R.E. Wright Associates 1982) and was not considered to be a significant part of the hydrologic budget for the modeled area. Thus, the ground-water divides depicted in Figure D-1 as the interface between active and inactive model cells were represented as impermeable boundaries.

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- Discharge as Residential and Commercial Pumpage - Approximately 150,000 gallons per day (gpd) is withdrawn from wells in Dublin (Table D-1). The wastewater resulting from pumpage within Dublin is routed to a centralized sewage treatment facility on Deep Run in Bedminster Township. This treated effluent, which would otherwise recharge the ground-water system, is being discharged to Deep Run and lost as potential ground-water supply.

GROUND-WATER MOVEMENT

Movement of ground water is from recharge at the water table to discharge along stream reaches where the stream channel intersects the water table. The general direction of natural ground-water flow is to the northwest. The largest percentage of ground-water flow occurs approximately through the upper 250 feet of the saturated bedrock system, which comprise the most highly fractured zone of the formation (Greenman 1955). Ever smaller quantities of flow move deeper through the system to depths of 600 feet or more, where the fracture network becomes much less extensive (Greenman 1955).

Model-generated head distributions indicate that downward vertical hydraulic gradients are greatest toward the south-southeast (recharge areas) near the intermittent headwaters of the streams. Vertical gradients diminish northwestward where ground-water flow is predominantly horizontal. Toward the north-northwest, near the basin boundaries, there is an upward vertical gradient toward the low-lying streams (discharge areas).

SIMULATION OF GROUND-WATER FLOW

Ground-water movement is governed by 1) natural factors, such as the permeability of hydrologic units, spatial variability of recharge, location of streams; and 2) human-induced factors, such as pumping and routing of stormwater and wastewater. Ground-water flow modeling involves

the numerical representation of the major aspects of the hydrologic system to simulate the ground-water system response, in terms of head distribution and ground-water flow, to hydraulic stresses.

The U.S. Geological Survey (USGS) modular three-dimensional finite-difference ground-water flow model (MODFLOW) was used to simulate flow patterns in the Morris Run and Deep Run watersheds. The ground-water system was simulated with a continuum approach, in which the bedrock fracture network was replaced by an equivalent porous medium. Although non-Darcian fracture flow may occur in the ground-water system, the movement of ground water in the area is consistent with Darcian porous flow conditions. Local water levels tend to correlate with land surface elevation and their distance from natural recharge and discharge areas (T.H. Cahill and Associates and J.K. Adams and Associates 1987b).

MODEL DESIGN

The model grid spacing is based upon the following two primary considerations:

1. The scale of the area being modeled.
2. The level of detail required in the model's response to hydraulic stresses.

Finer detail was required in the vicinity of Dublin Borough to adequately represent the location of existing supply wells and potential recovery wells. The finite-difference model grid consists of 57 rows, 67 columns, and five vertical layers, with variable grid spacing that ranges from 150 feet in Dublin to 800 feet further away from the area of concern (Figure D-1). Model layers are approximately 100 feet thick, with the bottom of the model at about 600 feet below land surface.

Hydrogeologic Framework

The model design incorporates the interfingering of the two bedrock members of the Lockatong Formation (Figure D-2). The model grid is aligned with model rows parallel to the strike of the rock units. The alternating bedrock members depicted in Model Layer 1 were assumed to dip to the northwest at a uniform angle of 11 degrees (Figure D-2).

Boundary Conditions

Accurate definition of boundary conditions is an essential part of modeling a ground-water flow system (Franke et al. 1987). The boundary surfaces of the model correspond to identifiable hydrologic features of this two-watershed area (see Figure D-1), as follows:

- Lateral Boundaries - The model is bounded laterally by impermeable ground-water divides. Ground-water divides were assumed to coincide with surface topography that defines the surface-water divides. The impermeable lateral boundaries of the model are depicted as the interface between active and inactive model cells (see Figure D-1).

- Bottom Boundary - The bottom boundary of the model is represented as an impermeable boundary about 600 feet below land surface, which is about 100 feet below the deepest existing wells in Dublin. The fracture network progressively closes up with depth in the downdip direction; any ground water movement below the 600-foot depth is assumed to be an insignificant fraction of the overall water balance.

- Water-Table Boundary - Recharge from precipitation enters the ground-water system at the water table, which is a free surface that rises or falls with changes in hydrologic conditions.

- Streambed - The model area contains Morris Run and the East and West Branches of Deep Run. The water table intersects the stream channel along large reaches of these streams. These areas act as ground-water drains that lower the water table locally. The MODFLOW river package computes seepage based on the difference in elevation between the water table and the streambed, the channel geometry, and the water-transmitting properties of the aquifer and streambed material.

Aquifer Characteristics

Hydraulic conductivity values were distributed so that the ability of the hydrologic units to transmit water diminished with depth **(See response to Comment No. 126 RI/FS Addendum)**. This distribution is consistent with previous studies that report that the bedrock fracture network is more poorly developed with depth (Greenman 1955). The range of hydraulic conductivity values presented in Table D-2 shows that there is almost an order of magnitude difference in the permeability of the bedrock units. These values are within the range reported in previous reports (Mercuri Associates 1989; T.H. Cahill and Associates and J.K. Adams and Associates 1987a).

It has been reported for other structurally and lithologically similar rock units that directional rather than isotropic conditions exist due to the structural orientation of the formation (Vecchioli et al. 1969). In this geologic terrain, characterized by alternating beds of Lockatong Formation members, pumping tests indicate that greater drawdown occurs in wells that are located along the strike of bedding in the same geologic units as the pumping well. This feature has been depicted in water-table maps produced by Rooney (1986) and was incorporated into the model

developed by T.H. Cahill and Associates and J.K. Adams and Associates (1976). This phenomena is reflected in the anisotropy ratios (Table D-2).

Water Balance

The ground-water system was simulated during steady-state conditions when recharge to the system is equal to discharge from the system. Inflow to the modeled area originates as recharge from precipitation. Ground-water underflow either into or out of the model area was assumed to be negligible (see Boundary Conditions section). Recharge within Dublin Borough was assumed to be 50 percent less per unit area than in the surrounding area (see Recharge section).

The major discharge boundary for ground-water flow is seepage into Morris Run and the East and West Branches of Deep Run (International Exploration 1985). Major supply wells and individual residential/commercial wells within Dublin Borough account for the remaining outflow from the model area. Their pumpage values and model cell coordinates are presented in Table D-3. Pumpage values for wells of affected residences and commercial establishments (Table D-4) were obtained from the U.S. Environmental Protection Agency (USEPA) estimates (USEPA 1991).

Most of the model area beyond the Dublin Borough boundary is unsewered (T.H. Cahill and Associates and J.K. Adams and Associates 1987a). The return flow of pumped water to the ground-water system via cesspools was assumed to maintain the overall water balance. A summary of model inflows and outflows is presented in Table D-1.

MODEL RESULTS

A steady-state simulation represents the flow system during equilibrium conditions when water-table elevations remain relatively constant through time. Although seasonal and daily

fluctuations in natural and human-induced stresses occur, this modeling effort simulates an averaged representation of ground-water conditions.

Simulated heads were compared with basinwide water-table maps produced by Rooney (1986) and water-level elevations measured near the Dublin TCE site by Geraghty & Miller. Hydrogeologic parameters were adjusted within a reasonable range of values by a trial-and-error procedure to obtain an acceptable match between simulated water-level elevations and the limited field measurements.

Simulated heads in the modeled area reproduce the general magnitude of water-levels from about 650 feet in the southern area to about 380 feet in the north, near Deep Run (Figure D-3). The model successfully simulates the steeper gradients associated with the areas dominated by the gray-black siltstone and shale member, and the comparatively flatter gradients in the more permeable reddish-brown, sandy siltstone member **(See response to Comment No. 127 in RI/FS Addendum)**. Simulated heads also reflect the eliptical nature of drawdown along the strike that has been reported to characterize the ground-water system due to anisotropic hydraulic conditions (Figure D-4). Finally, simulated heads within Dublin Borough reflect the north-northwest direction of ground-water flow induced by major supply wells, such as Dublin Well No. 3 and the two Stonebridge Wells.

ANALYSIS OF ADVECTIVE TRANSPORT

Advective transport is the process by which solutes are transported by the bulk motion of flowing ground water. The advective transport of ground water containing trichloroethene (TCE) as a dissolved constituent was analyzed through the use of a three-dimensional particle-tracking technique, called MODPATH (Pollock 1989). MODPATH is designed to use steady-state output from MODFLOW. The particle-tracking post-processing program computes flow paths and discharge locations at specified points within the model domain. It does not incorporate other

physical (dispersion), chemical (sorption, diffusion), or biological (biotransformation) processes that may affect contaminant migration.

APPLICATION OF PARTICLE TRACKING

Intercell rates of flow generated as part of the MODFLOW output are used by MODPATH to compute velocity vectors within the model domain. The method yields an analytical expression of particle movement within a model cell and provides a means of determining the coordinates of other points along that flow path (Pollack 1989). Thus, a traceable particle (or point) can be depicted as it moves from cell-to-cell within the model domain. The particles do not correspond to a concentration, but can be interpreted as the advective path of contaminated ground-water movement within the flow field described by MODFLOW.

Although general ground-water flow paths from recharge areas to eventual discharge locations are implied by the equipotential lines, the effect of variable aquifer characteristics and stresses, as well as three-dimensional flow, make ground-water movement difficult to assess. An initial analysis of contaminant migration was made by starting particles along a transect through the 120 Mill Street property during present-day pumping conditions (Figure D-5). Flow path analysis revealed that the drawdown induced by major supply wells such as the Dublin Well No. 3 caused flow paths to deflect northward, away from the direction of natural ground-water movement. In addition, several lower yielding residential wells along North Main Street influence the direction of ground-water flow but do not pump at a sufficient yield to capture particles.

These flow paths during present-day pumping conditions closely correspond with the observed extent of TCE contamination (Figure D-5). Some flow paths, started at the source area, are captured by the Whistlewood Well, which has had concentrations of TCE in the several hundred parts per billion (ppb) range. Other flow paths migrating north-northwest near North Main Street correspond with TCE concentrations reported in the ppb range at several residential wells. In

addition to reproducing the general hydraulic gradient within the borough, simulation of advective contaminant migration through particle tracking successfully corresponds to the observed plume delineation. These factors suggest that the model can serve as a predictive tool to be used in conjunction with the field investigation to design a recovery-well system.

EVALUATION OF ALTERNATIVES

The flow model and particle-tracking program were used to preliminarily evaluate the effectiveness of various conceptual pumping scenarios designed to achieve contaminant mass reduction and/or hydraulic containment of the plume. All pumping alternatives were evaluated under conditions when affected or potentially affected residential and commercial wells were either partially removed from service (only the Whistlewood Well remaining on) or all of those wells were shut down. The locations of major supply wells and potential recovery wells are shown on Figure D-6. Capture zones of the recovery wells in relation to particles started near the source area can be inferred from flow paths that terminate at the well. This indicates that the source area is within the recharge zone that contributes water to the well. The figures depicting flow paths do not, however, depict the capture zone around the well.

The accuracy of numerically generated flow paths, and a qualitative understanding of what they mean, depends on the extent to which this fractured bedrock system is realistically represented by the Darcian flow theory (porous continuum). In addition, the fact that hydrogeologic parameters were based on limited data make this modeling effort an idealized approximation of reality. Model-generated flow path analyses of the recovery-well scenarios should be interpreted as the generalized reflection of how water moves from recharge areas to points of major discharge (wells). Despite these limitations, particle-tracking provides useful quantitative tests which, in conjunction with a field data collection program, can provide valuable assistance in the evaluation of the number and location of wells and the pumping rate of a potential recovery-well scheme.

The following recovery-well scenarios are discussed in order of their anticipated effectiveness in remediating the TCE plume.

- Pumping Scenario 1 - This recovery-well scheme utilizes either the TCE Monitoring Well or the Dublin Village Plaza Well in conjunction with the existing pumping of the Whistlewood Well. This pumping scenario is the preferred option because it could most efficiently accomplish the following: (1) stabilize the plume, (2) achieve a high degree of contaminant mass reduction, and (3) provide hydraulic containment of a significant portion of the delineated TCE plume. Particles started along a transect through the 120 Mill Street property show that either recovery well in conjunction with the Whistlewood Well would capture particles started at the water table near the source area (Figures D-7 and D-8). The location of the TCE Monitoring Well may be better situated than the Dublin Village Plaza Well to contain contamination that has been detected along Elephant Road.

- Pumping Scenario 2 - This scenario would provide hydraulic containment of the plume if the Whistlewood Well was not pumping. This pumping scheme would utilize a recovery well, such as the G&T Co. well, located downgradient of Whistlewood Commons Apartments on the west side of North Main Street (Figure D-9). Pumpage on the west side of North Main Street, downgradient of the Whistlewood Well, would tend to prevent contaminated ground water from migrating north toward Dublin Well No. 3. A well, such as that at G&T Co., could contain some of the contamination that has migrated downgradient of the Whistlewood Well due to intermittent pumping of the Whistlewood Well. The combined pumpage of these recovery wells may have to exceed 35 gallons per minute (gpm) in order to prevent all contaminated ground water from migrating downgradient between the two wells.

- Pumping Scenario 3 - This recovery-well scheme utilizes proposed new well NWL-E in conjunction with either the TCE Monitoring Well or the Dublin Village Plaza Well and assumes that the Whistlewood Well is shut down (Figure D-10). Well NWL-E is situated in an area that would allow the well to achieve a high degree of contaminant mass reduction. Ground-water contamination that exists near and downgradient of the Whistlewood Apartment Complex could potentially migrate toward Dublin Well No. 3. This recovery-well scheme, however, could hydraulically contain a large portion of the delineated plume and could significantly reduce contaminant concentrations in the main body of the plume.

- Pumping Scenario 4 - This recovery-well scheme utilizes a potential well location on the Moyer Dairy Farm, such as proposed well NWL-C, in conjunction with the Whistlewood Well (Figure D-11). This strategy could provide hydraulic containment of the plume and may contain some contaminated ground water that has migrated downgradient of the Whistlewood Well. However, this scenario is less effective than the preceding ones because wells such as NWL-C are too far downgradient to have an immediate impact on contaminant mass reduction, and they could potentially induce an undesirable migration of contaminants toward Dublin Well No. 3.

- Pumping Scenario 5 - This recovery-well scheme uses two wells (Family Health Care and NWL-C) located downgradient of the plume to provide hydraulic containment of contaminated ground water (Figure D-12). This strategy could protect the Dublin Well No. 3 from the potential migration of the plume. The primary weakness of this scenario, however, is that the wells are located too far downgradient to have an immediate impact on contaminant mass reduction.

- Pumping Scenario 6 - This recovery-well scheme is similar to Pumping Scenario 3, but the recovery well (NWL-C) located to the northwest is situated further downgradient (Figure D-13). The limitations of this scheme in comparison to Scenario 3 are that (1) it may be less effective in contaminant mass reduction, (2) it could induce contaminant migration toward Dublin Well No. 3; and (3) there is a greater potential of incomplete hydraulic containment due to the distance between the recovery wells.

- Pumping Scenario 7 - This recovery-well scheme is similar to Pumping Scenario 5, with both wells located downgradient of the plume to provide hydraulic containment (Figure D-14). Flow paths converging on the pumping wells depict their ability to capture ground water from the area of TCE contamination. As with Pumping Scenario 5, the wells are too far downgradient to have an immediate impact on contaminant mass reduction.

- Pumping Scenario 8 - This option was not evaluated because of uncertainty regarding access for installation of a recovery well at other locations.

- Pumping Scenario 9 - This recovery-well scheme combines a well near the suspected source area (Emico Well) with a second well near the downgradient edge of the plume (Dublin Village Plaza Well) (Figure D-15). The major weaknesses with this scenario are (1) that the wells may not completely reduce TCE concentrations in the zone between the source area and the Whistlewood Commons Apartment Complex where relatively high TCE concentrations (several hundred parts per billion) have been reported, and (2) the wells may not provide complete hydraulic containment of the main body of the plume. Despite these limitations, this recovery-well scheme could provide an interim measure for ground-water remediation.

- Pumping Scenario 10 - This recovery-well scheme is similar to Pumping Scenario 9, but the downgradient well (NWL-A) is located on the Moyer Dairy Farm property (Figure D-16). In addition, this simulation replaces the Emico well near the source area with the Thompson Fire Tower Well. As with Pumping Scenario 9, this recovery-well scheme would not be the most effective strategy to perform the dual role of reducing contaminant mass and hydraulically containing the plume.

CONCLUSIONS

The steady-state ground-water flow model was designed to (1) simulate ground-water flow conditions to natural hydrologic boundaries beneath the Morris Run and Deep Run Watersheds, (2) depict alterations in hydraulic gradients induced by pumping within the Dublin Borough area. Despite the limitations of the model due to limited data regarding aquifer hydraulic conductivity and pumpage rates from several sources, the model successfully depicts hydraulic gradients that demonstration Geraghty & Miller's conceptual understanding of ground-water flow patterns that have previously been observed in the field. The model will be further refined as data from the ongoing field investigation become available.

Particle-tracking simulations of potential recovery-well scenarios depict the relative strengths and weaknesses of various remedial measures. The flow path analyses show the advective movement of particles started along a transect through the source area to their eventual discharge locations. Each recovery-well scenario has varying degrees of effectiveness in terms of contaminant mass reduction and hydraulic containment of the plume. These scenarios must be evaluated along with many other considerations and clearly defined objectives in order to determine the appropriate remedial alternative.

AR301565

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#NJ14301-wp4/040792a.app

Table D-1. Simulated Inflows to and Discharges from the Morris Run and Deep Run Watershed Areas, Dublin TCE Site, Dublin, Pennsylvania.

Water Balance		Flow Rate (gpd)
Recharge		
	Precipitation[1]	1,521,140
Discharge		
	Base Flow[2]	1,371,346
	Supply Wells[3]	149,794

gpd Gallons per day.

1 Based on data compiled by Rooney (1986).

2 Model calculated discharge as ground-water seepage to streams.

3 Includes major supply wells and affected residential/commercial wells compiled by the U.S. Environmental Protection Agency (USEPA). Other wells were represented as a reduction of recharge based on an analysis of water use by T.H. Cahill and Associates and J.K. Adams and Associates (1987).

#NJ14301-t4/SimInflo.wp1

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Table D-2. Range of Hydraulic Conductivity Values Used in the Dublin Model Area, Dublin, Pennsylvania.

Lockatong Formation Member	Hydraulic Conductivity Along Row (ft/day)	Anisotropy Ratio (k_{row}/k_{col})	Anisotropy Ratio (k_{row}/k_v)
Reddish-brown sandy siltstone member	0.75 - 4.0	3:1	10:1
Gray-black siltstone and shale member	0.1 - 0..	3:1	4:3

ft/day — Feet per day.
k_{row}/k_{col} — Ratio of hydraulic conductivities along rows (strike direction) to columns (dip direction).
k_{row}/k_v — Ratio of horizontal (k_{row}) to vertical (k_v) hydraulic conductivities.

#NJ14301-wpt/range.tbl

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Table D-3. Model Discretized Location of Major Supply Wells Represented During Present-Day Conditions in the Dublin, Pennsylvania Area.

Well	Layer (K)	Row (I)	Column (J)	Pumping Rate (a) (gpd)	Period of Record	Source
Countryside	1, 2, and 3	21	44	2,750	---	USEPA
Condominiums	1, 2, and 3	20	46	2,750	---	USEPA
(two wells)						
Dublin Acres	1 and 2	19	42	3,710	1986	Cahill
(two wells)	1 and 2	20	42	3,710	1986	Cahill
Dublin Borough Well No. 1	1, 2, and 3	43	44	3,826	June – October 1991	BDWWD
Dublin Borough Well No. 3	1, 2, 3, and 4	17	45	18,330	November – December 1991	BDWWD
Dublin Fire Department	1 and 2	18	31	2,000	1986	Cahill
Dublin Village Apartments	1 and 2	41	29	19,786	1986	Cahill
Dublin Village Plaza	1, 2, and 3	25	38	6,000	---	USEPA
Knoll Tree Condominiums	1 and 2	33	41	2,748	---	USEPA
Moyer Dairy Farm	1, 2, and 3	19	35	2,500	---	USEPA
Bedminster Well No. 2	1, 2, and 3	19	52	4,020	May – October 1991	1991 Monthly Operations Report
Bedminster Well No. 9	1, 2, and 3	18	51	36,947	May – October 1991	1991 Monthly Operations Report
Whistlewood Commons Apartments	1, 2 and 3	26	30	17,350	May – October 1991	BCDH
Wood Edge	1 and 2	39	31	3,510	June-September 1991	BCDH
Apartments	1 and 2	39	29	3,510	June-September 1991	
(two wells)						

gpd Gallons per day.

Cahill T.H. Cahill and Associates and J.K. Adams and Associates. 1987. Values are stated as being representative of consumption.

BCDH Bucks County Department of Health. Value represents the daily pumpage averaged over the period of record.

BDWWD Borough of Dublin – Water Works Data. Value represents the daily pumpage averaged over the period of record.

USEPA Value from U.S. Environmental Protection Agency Record of Decision, Table 1, dated January 9, 1992 and referenced as "Dublin Borough Actual Measurements." Period of record is not provided.

--- Not available.

(a) Represents combined pumpage for all layers at a specified location (row, column).

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Table D-4. Model Discretized Location of USEPA Identified Affected or Potentially Affected Residences and Businesses, Dublin TCE Site, Dublin, Pennsylvania.

Address		Layer	Row	Column	Pumping Rate
Street	Number	(k)	(I)	(J)	(gpd)
South Main Street	101	1	35	37	364
North Main Street	105	1	34	37	500
North Main Street	108	1	34	36	314
North Main Street	112	1	33	36	30
		2	33	36	30
North Main Street	113 and 115	1	33	35	320
North Main Street	116	1	32	37	160
North Main Street	117 and 119	1	32	36	320
North Main Street	122	1	32	35	80
		2	32	35	80
North Main Street	124	1	31	35	80
		2	31	35	80
North Main Street	126	1	30	35	150
		2	30	35	150
North Main Street	128	1	30	34	160
North Main Street	131	1	29	38	160
North Main Street	130	1	29	33	200
North Main Street	130	1	29	35	300
North Main Street	133	1	29	36	750
		2	29	36	750
North Main Street	133W	1	29	37	160
North Main Street	138	1	28	35	80
		2	28	35	80
North Main Street	139	1	28	36	26
		2	28	36	26
North Main Street	142	1	27	34	23.5
		2	27	34	23.5
North Main Street	145	1	27	35	120.5
		2	27	35	120.5
North Main Street	146	1	26	30	6110
		2	26	30	6110
		3	26	30	6110
North Main Street	149	1	26	35	160
North Main Street	150	1	25	33	160
North Main Street	153	1	25	35	160
North Main Street	161	1	25	38	2000
		2	25	38	2000
		3	25	38	2000
North Main Street	164	1	23	33	160
North Main Street	169	1	22	35	251
North Main Street	173	1	21	35	160
North Main Street	174	1	21	33	215
North Main Street	170	1	22	33	633
		2	22	33	633
		3	22	33	633

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Table D-4. Model Discretized Location of USEPA Identified Affected or Potentially Affected Residences and Businesses, Dublin TCE Site, Dublin, Pennsylvania.

Address		Layer	Row	Column	Pumping Rate
Street	Number	(k)	(I)	(J)	(gpd)
North Main Street	183	1	19	35	833
		2	19	35	833
		3	19	35	833
North Main Street	194	1	18	31	1000
		2	18	31	1000
Maple Street	100	1	35	36	160
Maple Street	104	1	34	35	500
Maple Street	108	1	35	34	160
Maple Street	110	1	36	34	160
Maple Street	112	1	35	33	160
Maple Street	114	1	36	33	160
Maple Street	118	1	36	32	160
Maple Street	116	1	35	32	160
Maple Street	120	1	35	31	160
	122	1	36	31	80
		2	36	31	80
Maple Street	126 - 132	1	35	30	96
		2	35	30	96
		3	35	30	96
Maple Street	134	1	36	30	160
Maple Street	136	1	36	29	160
Elephant Road	111	1	35	38	160
Elephant Road	113	1	34	38	160
Elephant Road	114	1	33	37	160
Elephant Road	115	1	33	38	160
Elephant Road	116 and 118	1	32	38	320
Elephant Road	119	1	33	39	80
		2	33	39	80
Elephant Road	139	1	30	41	160
Elephant Road	141	1	29	41	160
Elephant Road	146	1	28	41	80
		2	28	41	80
Elephant Road	147	1	29	42	160
Elephant Road	148	1	28	43	160
Elephant Road	150	1	27	41	80
		2	27	41	80
Elephant Road	151	1	27	43	160
Elephant Road	152	1	27	42	53
		2	27	42	53
		3	27	42	53
Elephant Road	153	1	27	44	53
		2	27	44	53
		3	27	44	53
Elephant Road	154	1	26	42	160
Elephant Road	155	1	26	44	160
Elephant Road	156	1	25	42	160

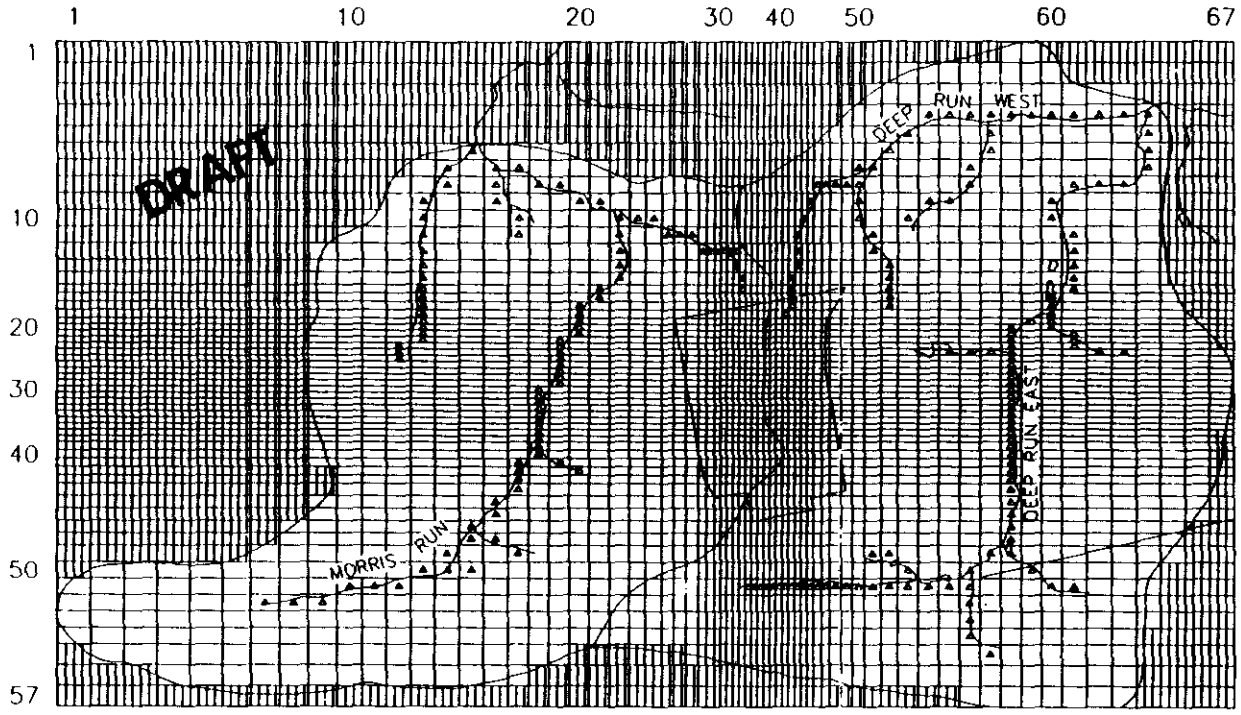
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Table D-4. Model Discretized Location of USEPA Identified Affected or Potentially Affected Residences and Businesses, Dublin TCE Site, Dublin, Pennsylvania.

Address		Layer	Row	Column	Pumping Rate
Street	Number	(k)	(I)	(J)	(gpd)
Mill Street	120	1	32	33	367
		2	32	33	367
		3	32	33	367
Mill Street	120	1	34	33	400

gpd Gallons per day.
Source: U.S. Environmental Protection Agency (1992).

DRAFT



EXPLANATION

- MODEL CELL CONTAINING STREAM REACH
- OUTSIDE DOMAIN
- DUBLIN BOROUGH

N

0 3000 FEET

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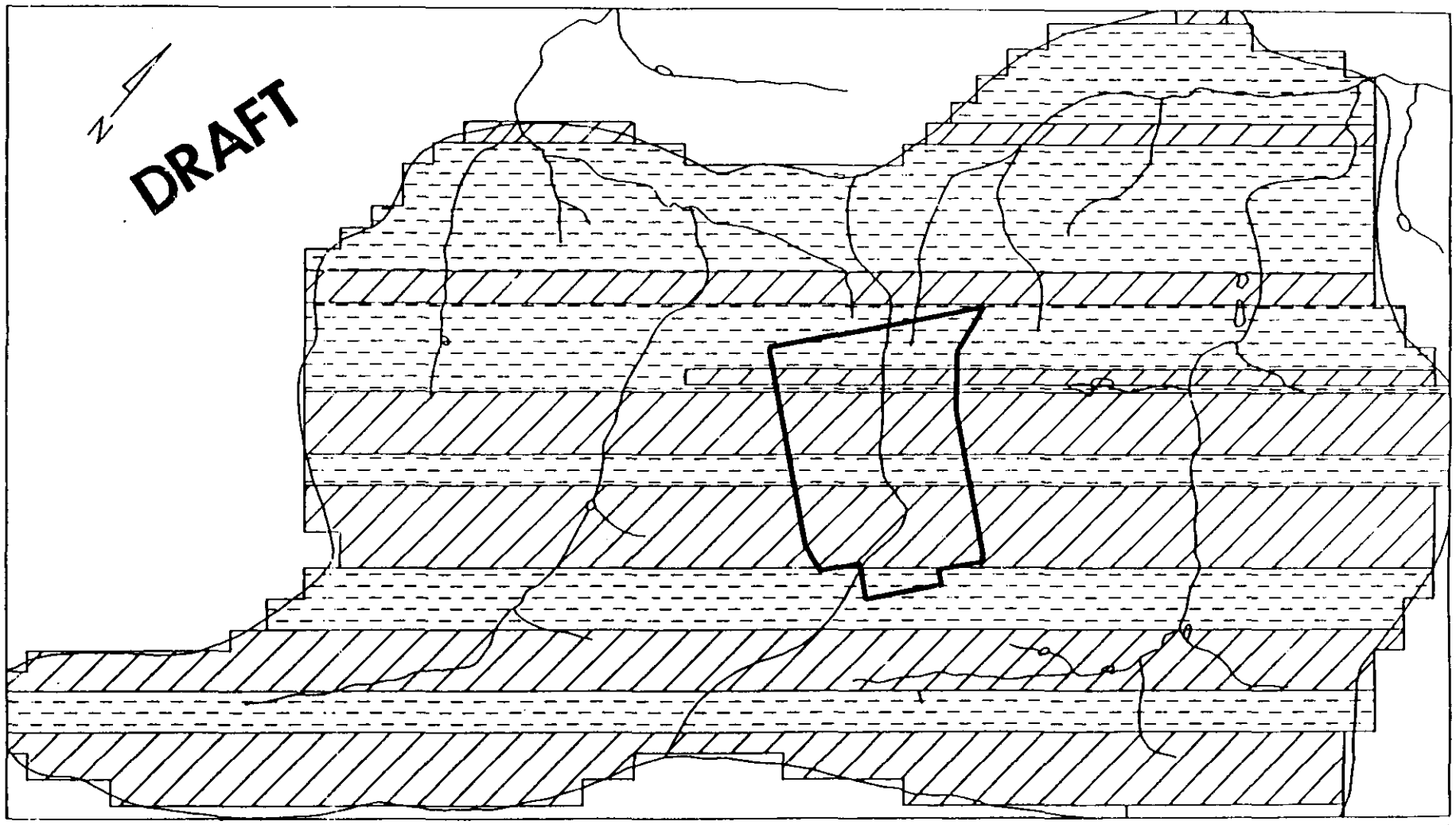
DUBLIN MODEL GRID SHOWING MODEL CELLS THAT SIMULATE GROUND-WATER SEEPAGE TO STREAMS

DUBLIN TCE SITE, DUBLIN, PENNSYLVANIA
SEQUA CORPORATION

FIGURE D-1

AR301574

DWG DATE: 13APR92	PRJCT NO.: NY21301	FILE NO.:	DRAWING: HC	CHECKED: S. FELDMAN	APPROVED: S. FELDMAN	DRAFTER: G.S./H.R.F.



SCALE

0 3600 ft

SOURCES: LYTTLE AND EPSTEIN (1987)
KAMMER (1953)

	LOCKATONG FORMATION MEMBERS	HYDRAULIC CONDUCTIVITY ALONG ROW (FT/DAY)
OUTSIDE MODEL DOMAIN		
	GRAY BLACK SILTSTONE AND SHALE MEMBER	4
	REDDISH-BROWN SANDY SILTSTONE MEMBER	0.5

GERAGHTY & MILLER, INC.
Environmental Services

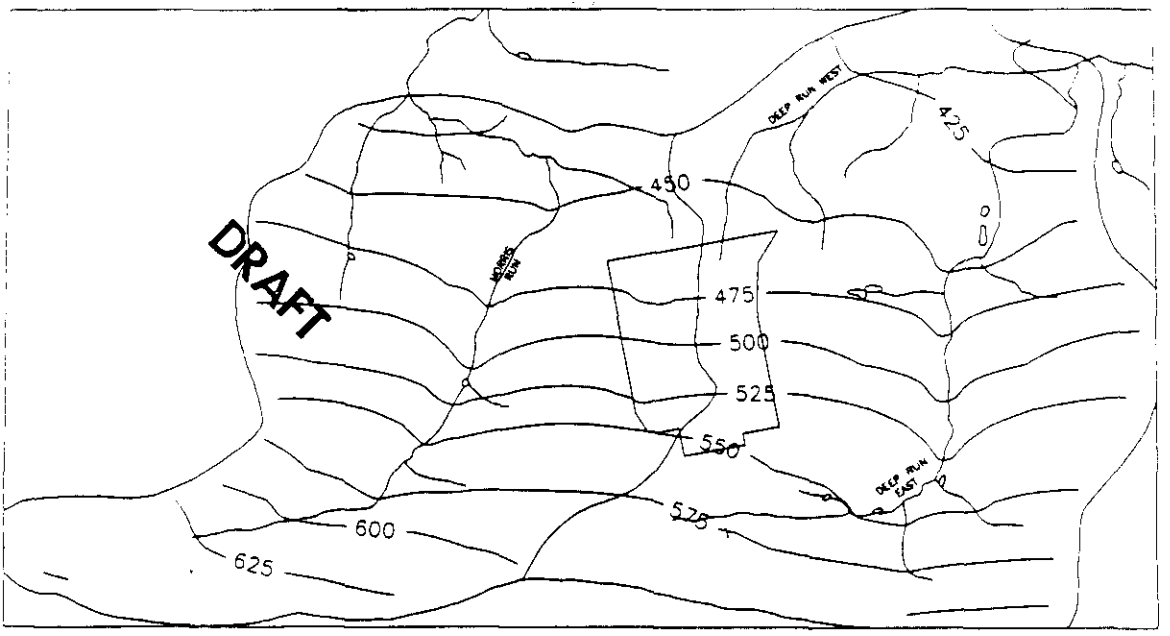
DISTRIBUTION OF HYDRAULIC CONDUCTIVITY IN LAYER 1 OF THE DUBLIN MODEL AREA

DUBLIN TCE SITE, DUBLIN, PENNSYLVANIA

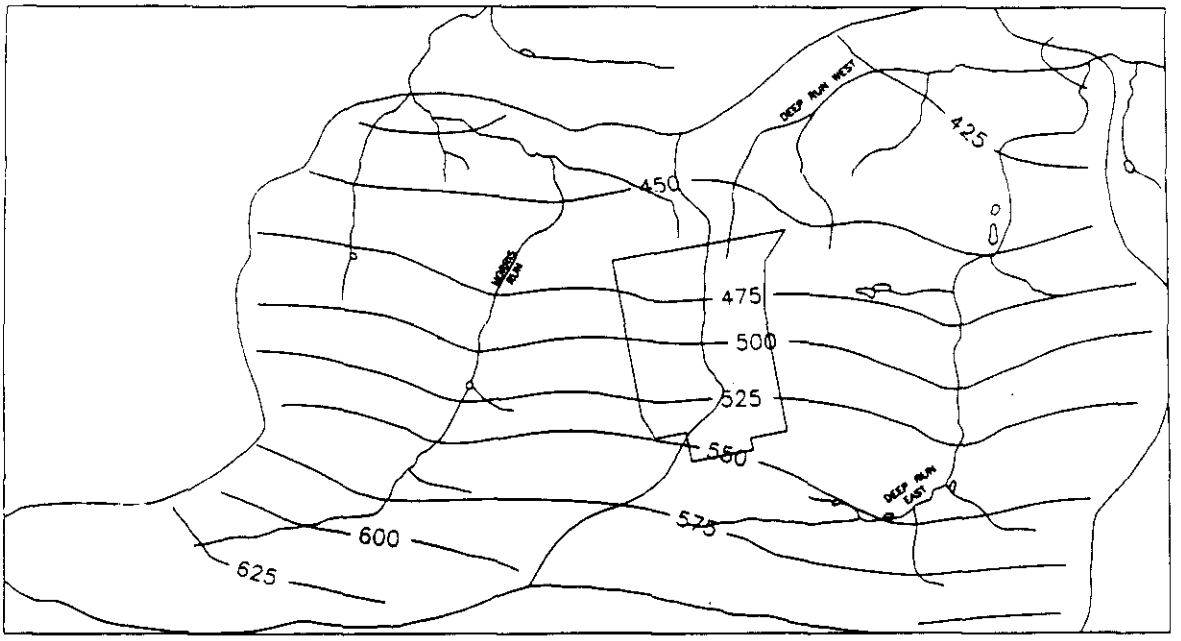
AR301575

FIGURE D-2

DRAFT



SIMULATED HEAD IN LAYER 1



SIMULATED HEAD IN LAYER 5

AR301576

SCALE

0 3600 ft

EXPLANATION

DUBLIN BOROUGH BOUNDARY

— 500 — SIMULATED WATER-LEVEL ELEVATION, IN FEET RELATIVE TO MEAN SEA LEVEL

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Environmental Services

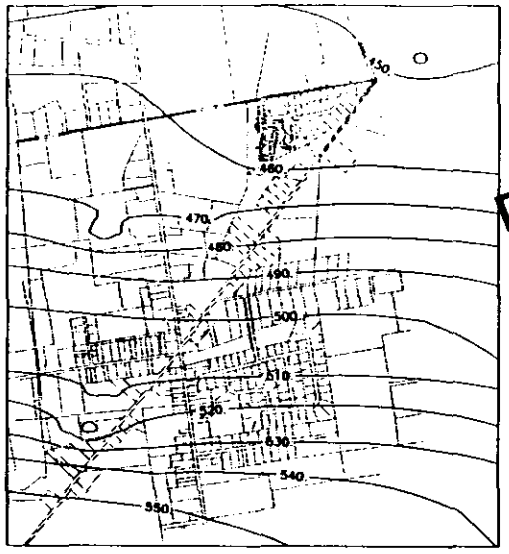
SIMULATED WATER-LEVEL ELEVATIONS IN THE MORRIS RUN AND DEEP RUN WATERSHEDS DURING PRESENT-DAY PUMPING CONDITIONS

DUBLIN TCE SITE, DUBLIN, PENNSYLVANIA
SEQUA CORPORATION

DRAFT

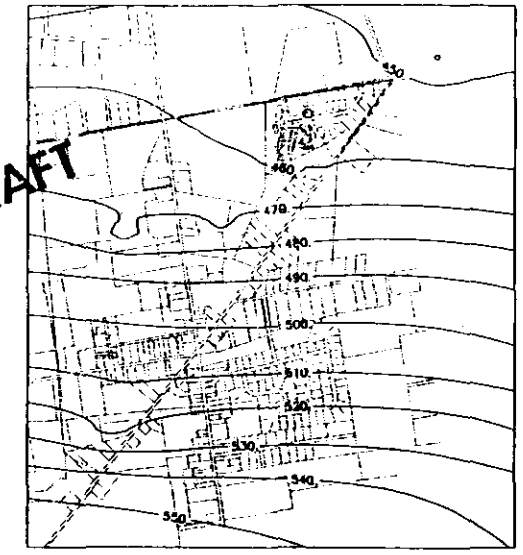
FIGURE D-3

DRAFTER: V. CARUNCHO | APPROVED: S. FELDMAN | CHECKED: S. FELDMAN | DRAWING: H012 | FILE NO.: - | PROJECT NO.: NY21301 | DWG DATE: 13APR92



SIMULATED HEAD IN LAYER 1

DRAFT



SIMULATED HEAD IN LAYER 3



SIMULATED HEAD IN LAYER 5

ELEVATION

—500— SIMULATED WATER LEVEL ELEVATION, IN FEET RELATIVE TO MEAN SEA LEVEL

0 1500 FEET

DRAFT

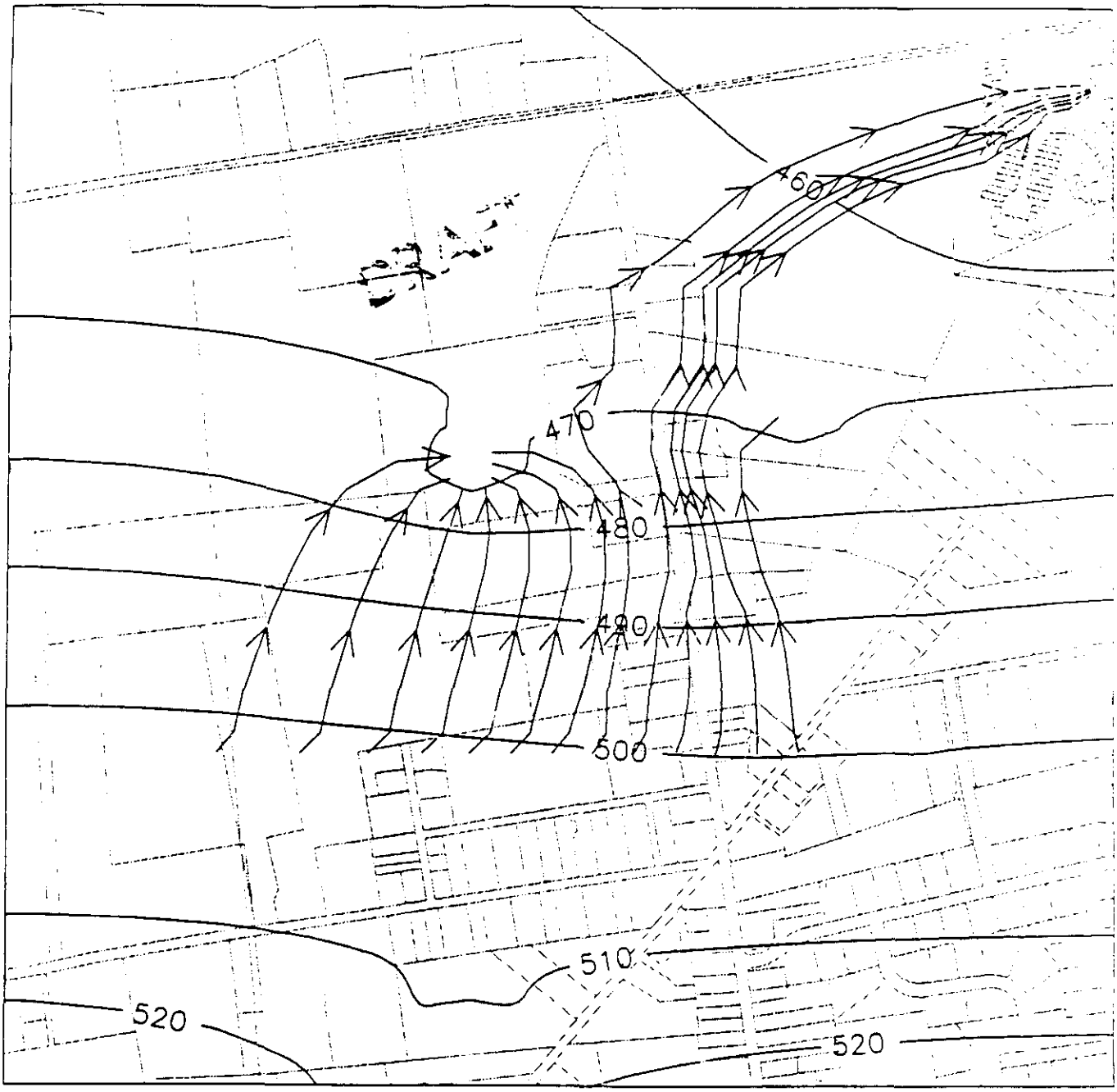
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SIMULATED WATER-LEVEL ELEVATION IN THE DUBLIN AREA DURING PRESENT-DAY PUMPING CONDITIONS

DUBLIN TCE SITE, DUBLIN, PENNSYLVANIA
SEQUA CORPORATION

FIGURE
D-4

AR301577



EXPLANTION

FLOW PATH IN MODEL LAYER 1
(WATER TABLE TO 350 FEET MEAN SEA LEVEL)

FLOW PATH IN MODEL LAYER 2
(350 FEET TO 275 FEET MEAN SEA LEVEL)

—500— SIMULATED WATER-LEVEL ELEVATIONS IN MODEL LAYER 1 IN FEET RELATIVE TO MEAN SEA LEVEL

SCALE

0 700 ft

DRAFT

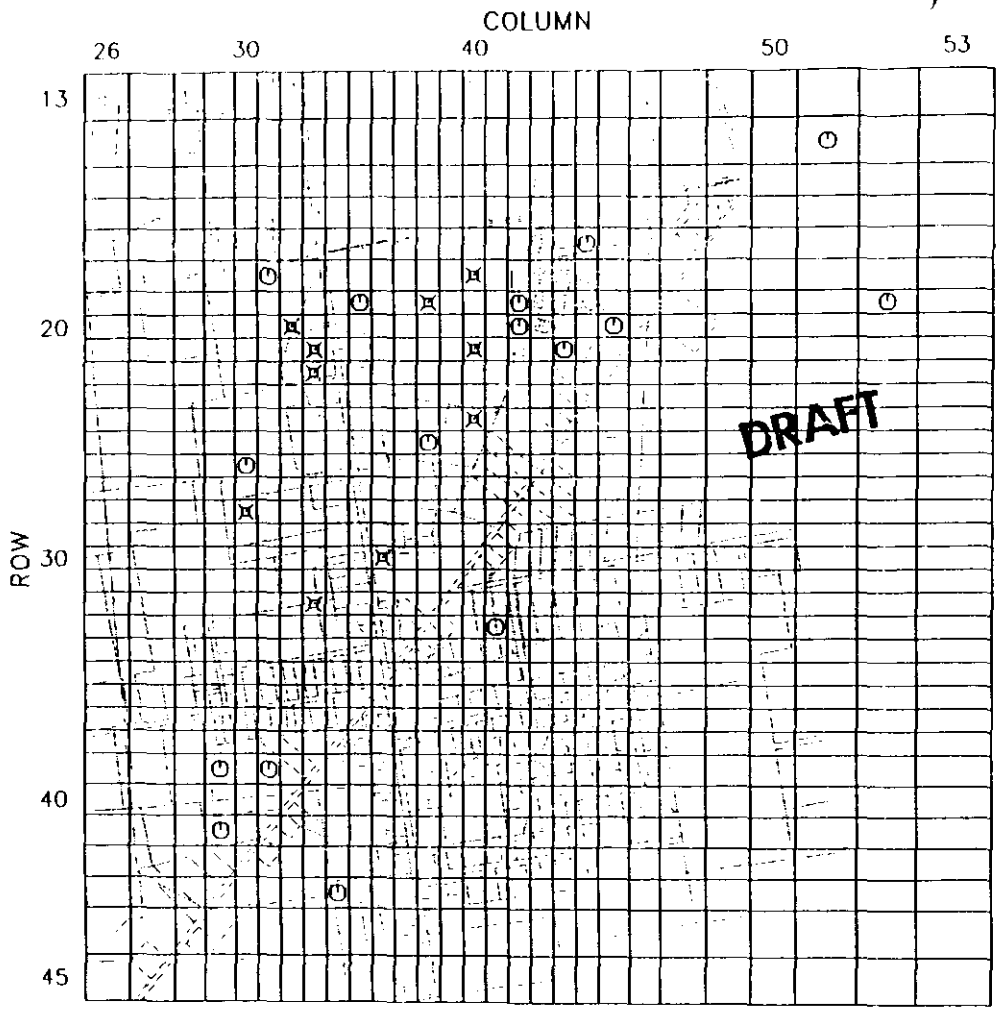
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SIMULATED PATH OF PARTICLES STARTED AT THE WATER TABLE BENEATH THE DUBLIN TCE SITE DURING PRESENT DAY PUMPING CONDITIONS

DUBLIN TCE SITE, DUBLIN, PENNSYLVANIA
SEQUA CORPORATION

FIGURE D-5

DWG DATE: 13APR92 | PROJECT NO.: NY21301 | FILE NO.: | DRAWING: PATHIA | CHECKED: S. FELDMAN | APPROVED: S. FELDMAN | DRAFTER: H. FRIEDMAN



EXPLANATION

⊙ MAJOR SUPPLY WELL

⊠ POTENTIAL TEST/RECOVERY WELL

SCALE

0 1000 ft

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MAJOR SUPPLY WELLS AND POTENTIAL TEST/ RECOVERY WELLS IN THE DUBLIN MODEL AREA

DUBLIN TCE SITE, DUBLIN, PENNSYLVANIA
SEQUA CORPORATION

FIGURE
D-6

DRAFTER - FRIEDMAN | APPROVED: S. FELDMAN | CHECKED: S. FELDMAN | DRAWING: TESTWELL | FILE NO. | PROJECT NO: 1721301 | DWG DATE: JAN92

AR301579



EXPLANATION

FLOWPATH IN MODEL LAYER 1 (WATER-TABLE TO 350 FEET msl)

—500— SIMULATED WATER-LEVEL ELEVATION IN MODEL LAYER 1, IN FEET RELATIVE TO msl.

MODEL CELL REPRESENTING PUMPAGE FROM DUBLIN VILLAGE PLAZA WELL PUMPING AT 23 gpm.

msl mean sea level

MODEL CELL REPRESENTING PUMPAGE FROM WHISTLEWOOD APARTMENTS WELL PUMPING AT 12 gpm.

gpm gallons per minute

N

SCALE

0 700 ft

DRAFTER: H. FRIEDMAN
APPROVED: S. FELDMAN
CHECKED: S. FELDMAN
DRAWING: DP11A
FILE NO.: 1535
PROJCT NO.: NY21301
DWG DATE: 03APR92

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SIMULATED PATH OF PARTICLES STARTED AT THE WATER TABLE BENEATH THE DUBLIN TCE SITE DUBLIN, PENNSYLVANIA

FIGURE D-7

DRAFT

AR301580



EXPLANATION

- DUBLIN VILLAGE PLAZA WELL PUMPING AT 23 gpm
- WHISTLEWOOD APARTMENTS WELL PUMPING AT 12 gpm
- 520— SIMULATED WATER-LEVEL ELEVATION IN MODEL LAYER 1, IN FEET RELATIVE TO msl
- → FLOWPATH IN MODEL LAYER 1 (WATER TABLE TO 350 FT msl)

msl MEAN SEA LEVEL gpm GALLONS PER MINUTE

SCALE

0 700

AR301581

DRAFTER: GS
APPROVED: SF
CHECKED: SF
DRAWING: DPT1B
FILE NO.:
PROJECT NO.: NJ14301
DWG DATE: 4-4-92

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SIMULATED PATH OF PARTICLES STARTED AT THE WATER-TABLE BENEATH THE DUBLIN TCE SITE UNDER PUMPING SCENARIO 1 USING THE DUBLIN VILLAGE PLAZA WELL
DUBLIN, PENNSYLVANIA

FIGURE
D-8



EXPLANATION

- G & T CO. WELL PUMPING AT 17.5 gpm
- DUBLIN VILLAGE PLAZA WELL PUMPING AT 17.5 gpm
- 500 — SIMULATED WATER-LEVEL ELEVATION IN MODEL LAYER 1, IN FEET RELATIVE TO msl
- FLOWPATH IN MODEL LAYER 1 (WATER TABLE TO 350 FT msl)
- FLOWPATH IN MODEL LAYER 2 (350 FT TO 275 FT msl)

msl MEAN SEA LEVEL
gpm GALLONS PER MINUTE

SCALE
0 700

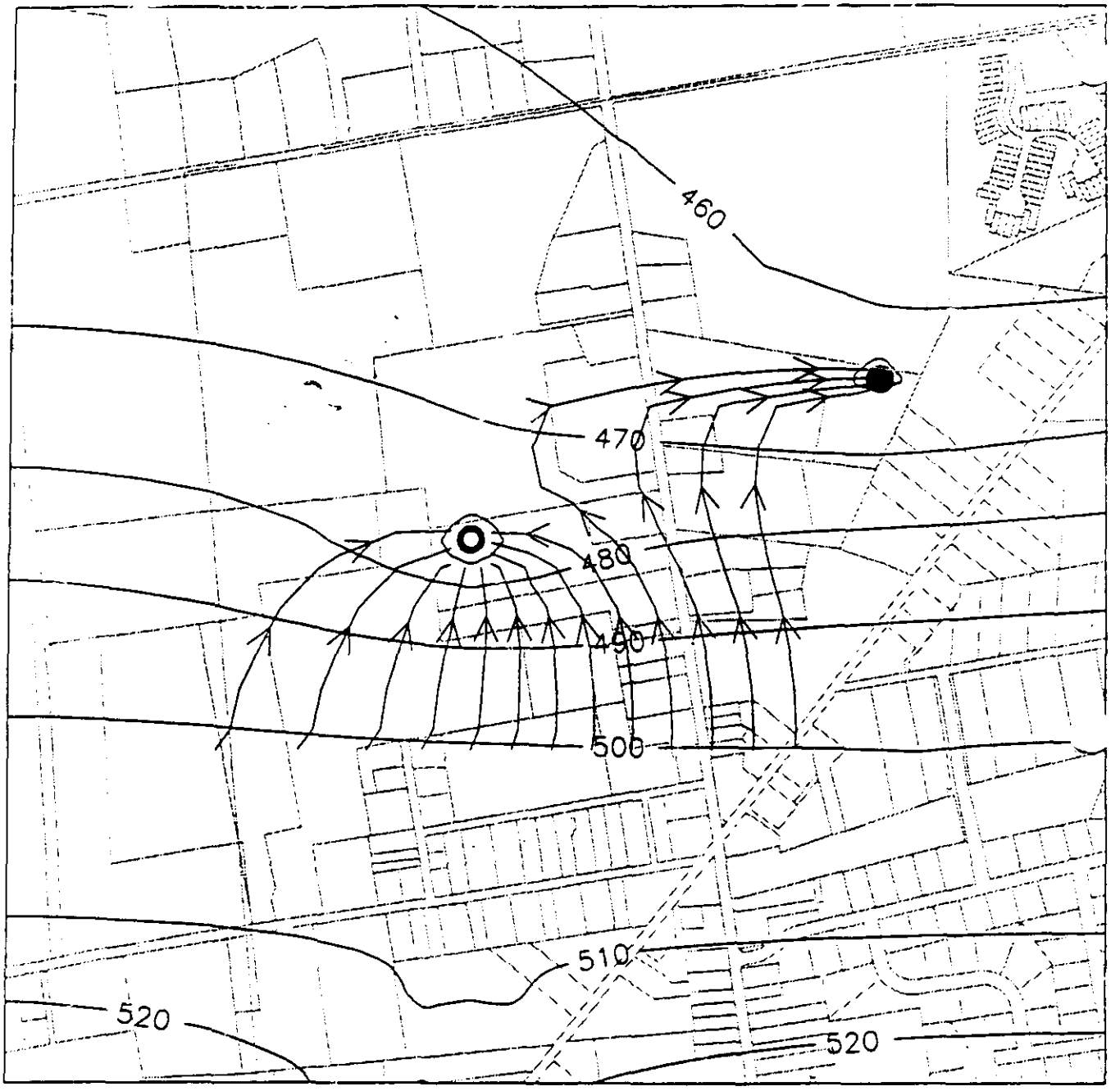
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Environmental Services

SIMULATED PATH OF PARTICLES STARTED AT THE WATER TABLE BENEATH THE DUBLIN TCE SITE UNDER PUMPING SCENARIO 2
DUBLIN, PENNSYLVANIA

FIGURE
D-9



EXPLANATION

- TCE MONITORING WELL PUMPING AT 17.5 gpm
- NWL-E WELL PUMPING AT 17.5 gpm
- 500 — SIMULATED WATER-LEVEL ELEVATION IN MODEL LAYER 1, IN FEET RELATIVE TO msl
- → FLOWPATH IN MODEL LAYER 1 (WATER TABLE TO 350 FT msl)

msl MEAN SEA LEVEL
gpm GALLONS PER MINUTE

SCALE

0 700

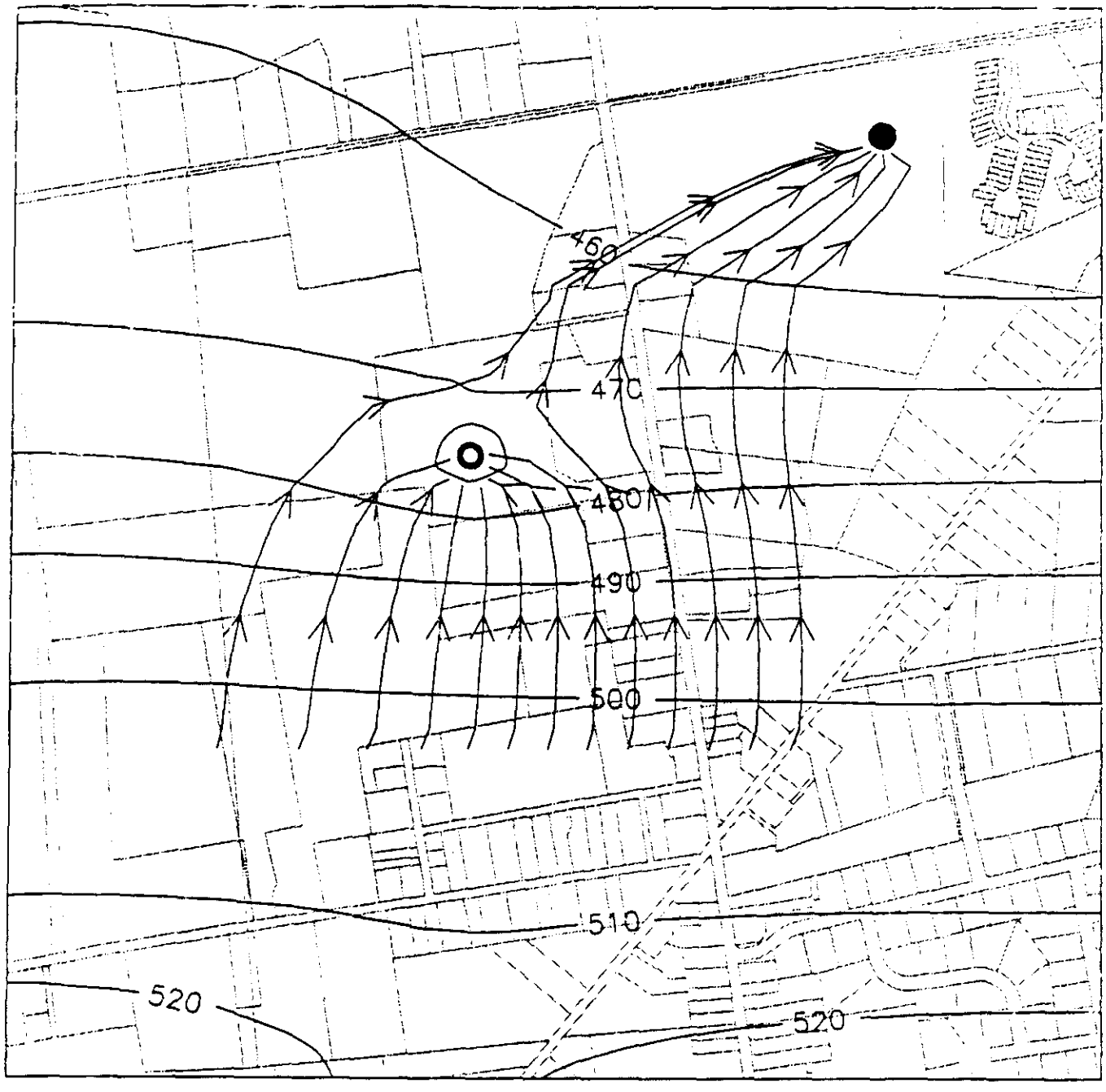
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PRJCT NO.: NY21301
DWG DATE: 4-5-92

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Environmental Services

SIMULATED PATH OF PARTICLES STARTED AT THE WATER TABLE BENEATH THE DUBLIN TCE SITE UNDER PUMPING SCENARIO 3
DUBLIN, PENNSYLVANIA

FIGURE
D-10

AR301583



EXPLANATION

- WHISTLEWOOD APARTMENT WELL PUMPING AT 12 gpm
- NWL-A WELL PUMPING AT 23 gpm
- 500 — SIMULATED WATER-LEVEL ELEVATION IN MODEL LAYER 1, IN FEET RELATIVE TO msl
- FLOWPATH IN MODEL LAYER 1 (WATER TABLE TO 350 FT msl)
- FLOWPATH IN MODEL LAYER 2 (350 FT TO 275 FT msl)

msl MEAN SEA LEVEL
gpm GALLONS PER MINUTE

SCALE
0 700

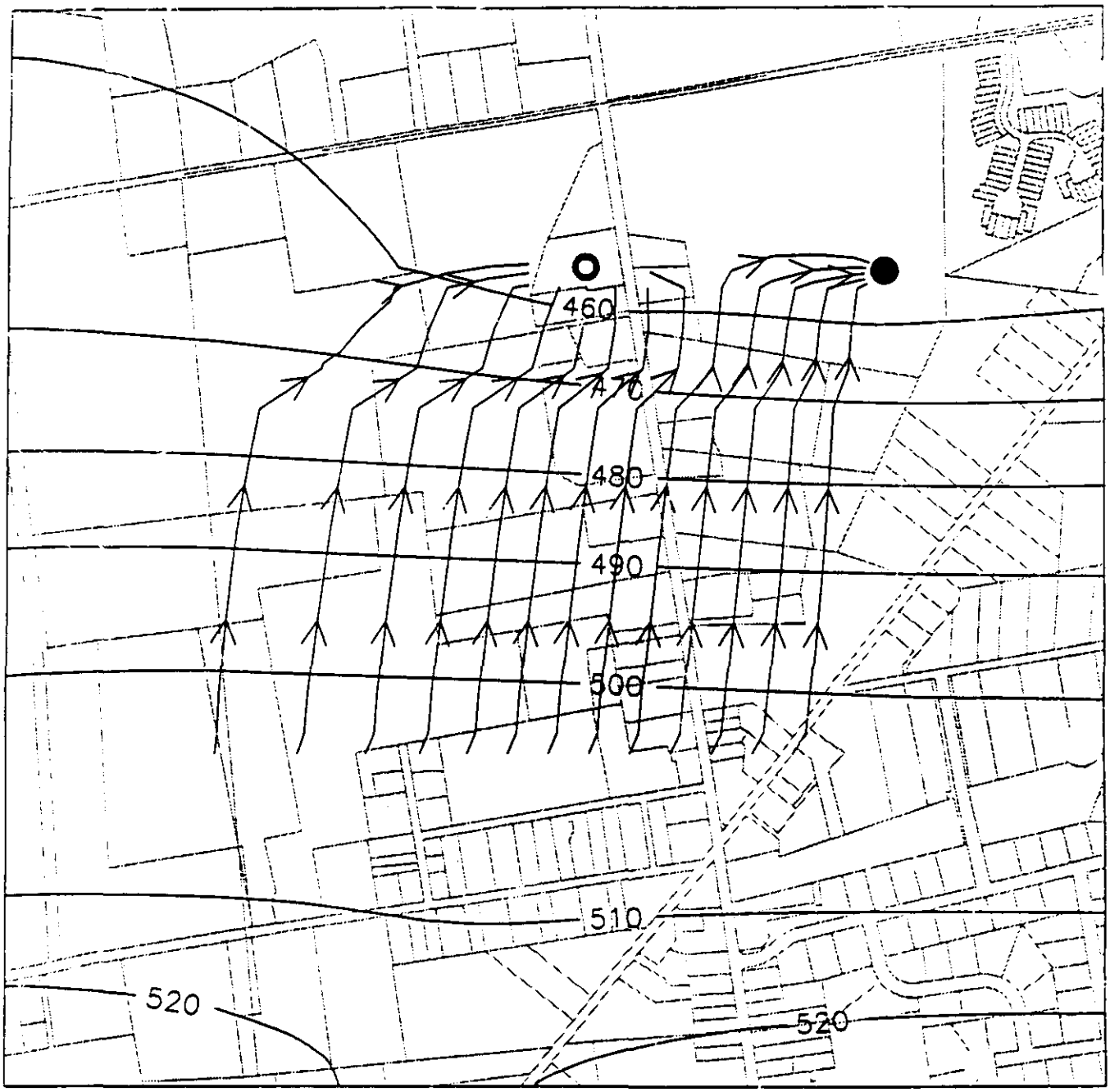
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FILE NO.: 1535
PROJCT NO.: NJ14301
DWG DATE: 4-4-92

GERAGHTY & MILLER, INC.
Environmental Services

SIMULATED PATH OF PARTICLES STARTED AT THE WATER TABLE BENEATH THE DUBLIN TCE SITE UNDER PUMPING SCENARIO 4
DUBLIN, PENNSYLVANIA

FIGURE
D-11

AR301584



EXPLANATION

- NWL-C WELL PUMPING AT 17.5 gpm
- FAMILY HEALTH CARE WELL PUMPING AT 17.5 gpm
- 500 — SIMULATED WATER-LEVEL ELEVATION IN MODEL LAYER 1, IN FEET RELATIVE TO msl
- FLOWPATH IN MODEL LAYER 1 (WATER TABLE TO 350 FT msl)
- FLOWPATH IN MODEL LAYER 2 (350 FT TO 275 FT msl)

msl MEAN SEA LEVEL
gpm GALLONS PER MINUTE

SCALE

0 700

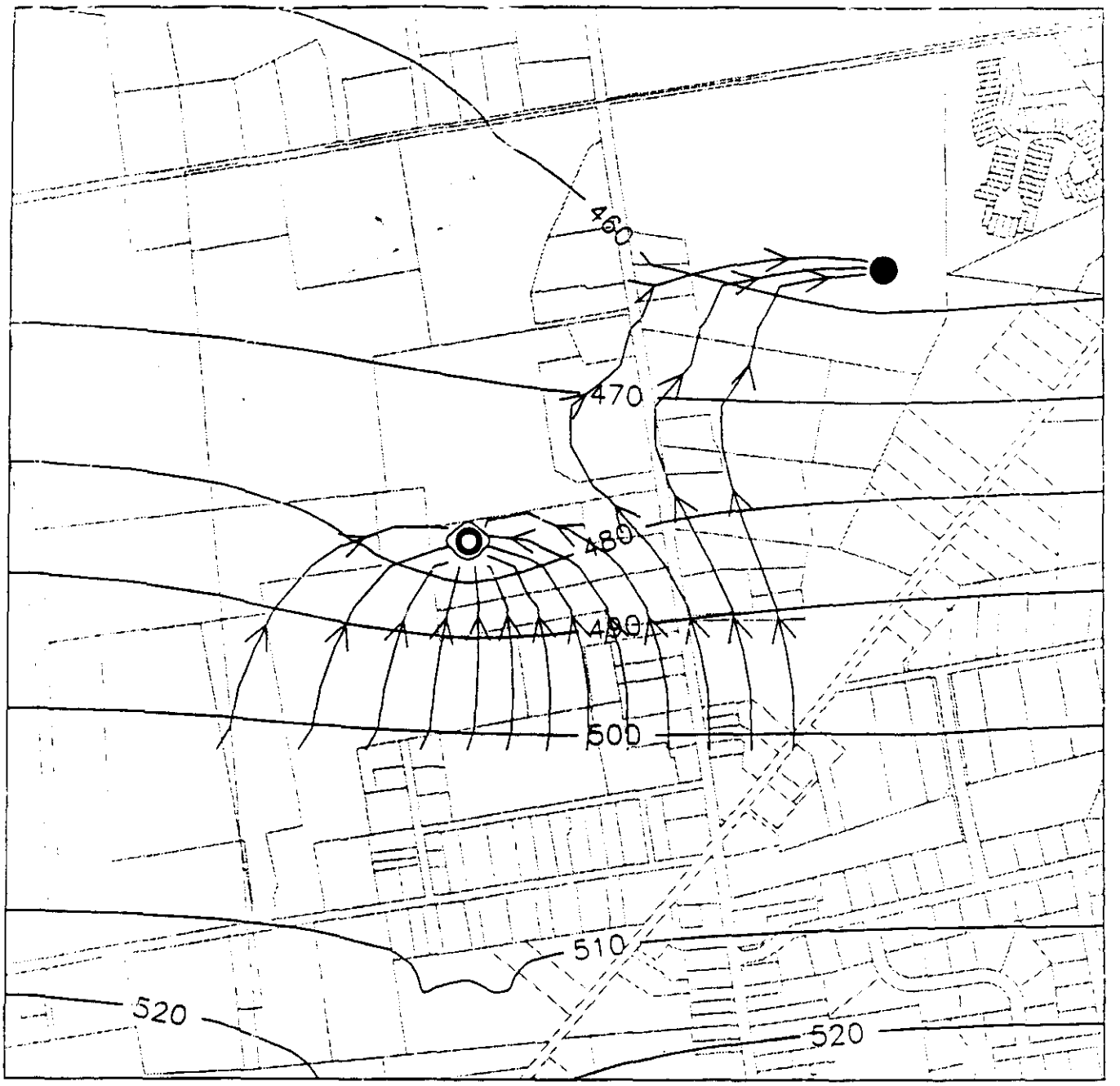
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FILE NO.: 1535
PROJECT NO.: NNJ14301
DWG DATE: 4-5-92

GERAGHTY & MILLER, INC.
Environmental Services

SIMULATED PATH OF PARTICLES STARTED AT THE WATER TABLE BENEATH THE DUBLIN TCE SITE UNDER PUMPING SCENARIO 5 DUBLIN, PENNSYLVANIA

FIGURE D-12

AR301585



EXPLANATION

- NWL-C WELL PUMPING AT 17.5 gpm
- NWL-E WELL PUMPING AT 17.5 gpm
- 500 — SIMULATED WATER-LEVEL ELEVATION IN MODEL LAYER 1, IN FEET RELATIVE TO msl
- FLOWPATH IN MODEL LAYER 1 (WATER TABLE TO 350 FT msl)
- FLOWPATH IN MODEL LAYER 2 (350 FT TO 275 FT msl)

msl MEAN SEA LEVEL
gpm GALLONS PER MINUTE

SCALE

0 700

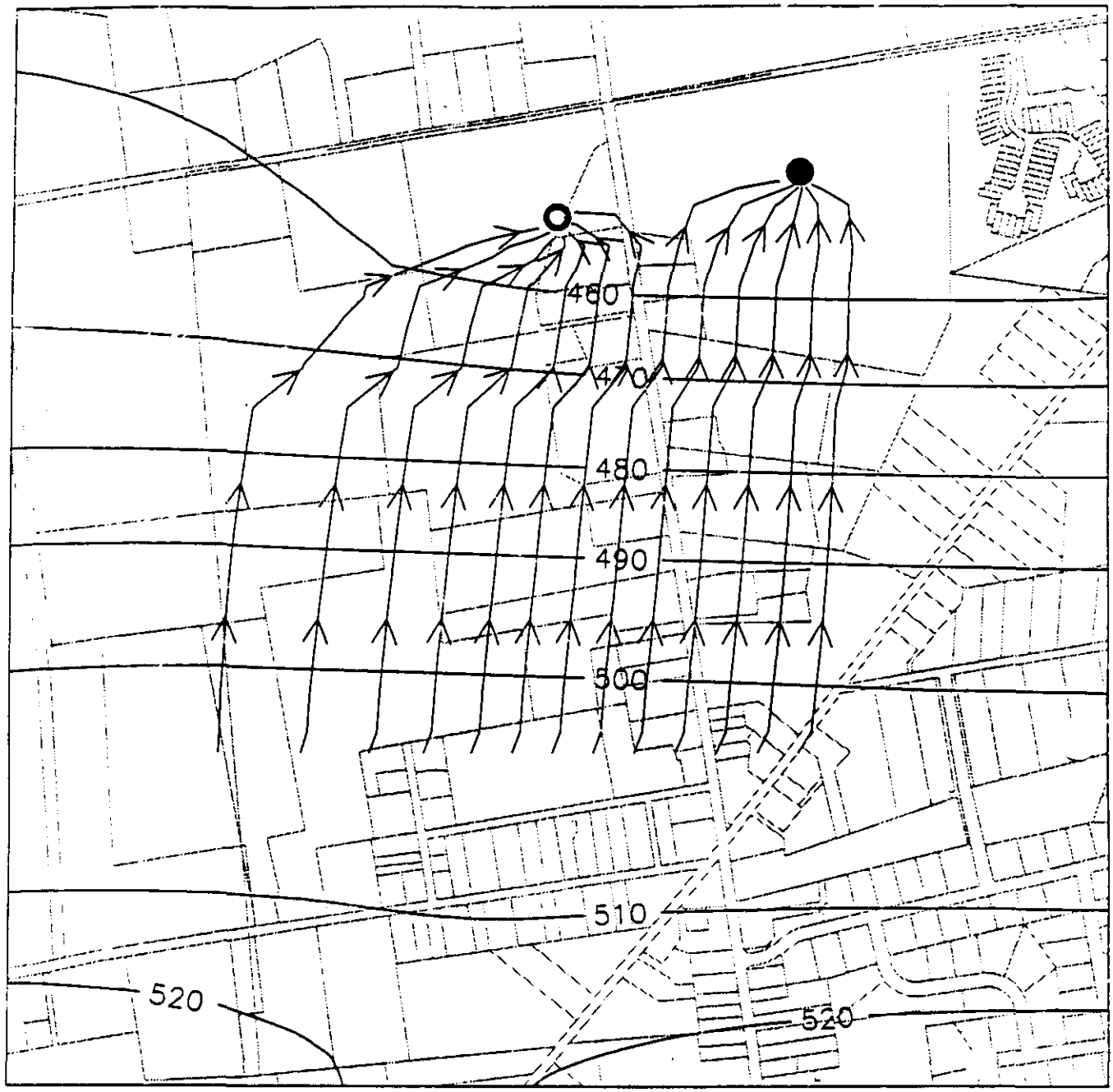
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GERAGHTY & MILLER, INC.
Environmental Services

SIMULATED PATH OF PARTICLES STARTED AT THE WATER TABLE BENEATH THE DUBLIN TCE SITE UNDER PUMPING SCENARIO 6 DUBLIN, PENNSYLVANIA

FIGURE D-13

AR301586



EXPLANATION

- NWL-B WELL PUMPING AT 17.5 gpm
- NWL-D WELL PUMPING AT 17.5 gpm
- 500 — SIMULATED WATER-LEVEL ELEVATION IN MODEL LAYER 1, IN FEET RELATIVE TO msl
- FLOWPATH IN MODEL LAYER 1 (WATER TABLE TO 350 FT msl)
- FLOWPATH IN MODEL LAYER 2 (350 FT TO 275 FT msl)

msl MEAN SEA LEVEL
gpm GALLONS PER MINUTE

SCALE
0 700

DRAFTER: GS | APPROVED: SF | CHECKED: SF | DRAWING: DP17 | FILE NO.: 1535 | PRJCT NO.: NJ14301 | DWG DATE: 4-5-92

GERAGHTY & MILLER, INC.
Environmental Services

SIMULATED PATH OF PARTICLES STARTED AT THE WATER TABLE BENEATH THE DUBLIN TCE SITE UNDER PUMPING SCENARIO 7
DUBLIN, PENNSYLVANIA

FIGURE
D-14

AR301587



EXPLANATION

- DUBLIN VILLAGE PLAZA WELL PUMPING AT 17.5 gpm
- EMICO WELL PUMPING AT 17.5 gpm
- 500 — SIMULATED WATER-LEVEL ELEVATION IN MODEL LAYER 1, IN FEET RELATIVE TO msl
- → FLOWPATH IN MODEL LAYER 1 (WATER TABLE TO 350 FT msl)

msl MEAN SEA LEVEL
gpm GALLONS PER MINUTE

SCALE

0 700

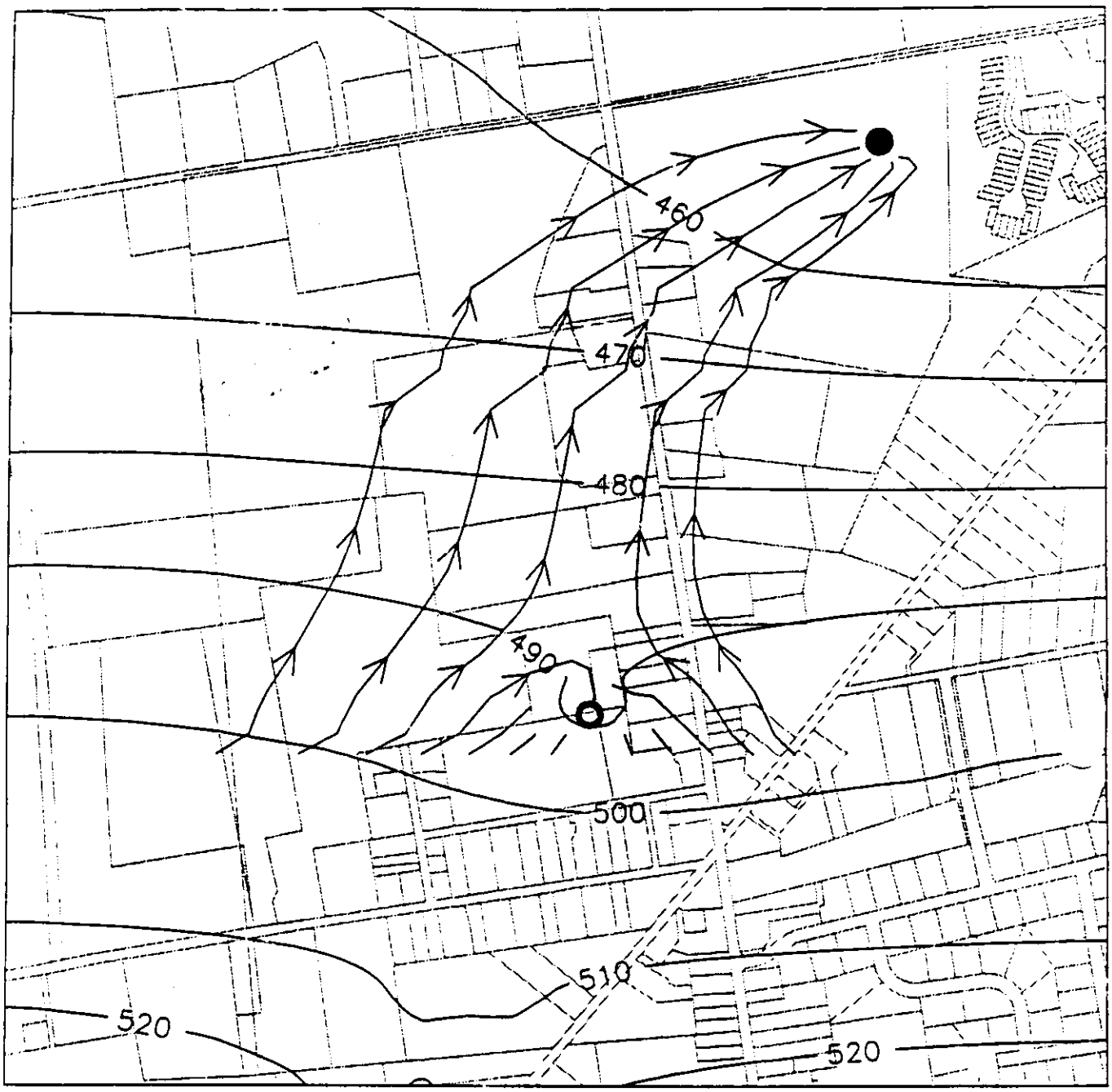
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GERAGHTY & MILLER, INC.
Environmental Services

SIMULATED PATH OF PARTICLES STARTED AT THE WATER TABLE BENEATH THE DUBLIN TCE SITE UNDER PUMPING SCENARIO 9
DUBLIN, PENNSYLVANIA

FIGURE D-15

AR301588



EXPLANATION

- THOMPSON FIRE TOWER WELL PUMPING AT 17.5 gpm
- NWL-A WELL PUMPING AT 17.5 gpm
- 500 — SIMULATED WATER-LEVEL ELEVATION IN MODEL LAYER 1, IN FEET RELATIVE TO msl
- FLOWPATH IN MODEL LAYER 1 (WATER TABLE TO 350 FT msl)
- FLOWPATH IN MODEL LAYER 2 (350 FT TO 275 FT msl)

msl MEAN SEA LEVEL
gpm GALLONS PER MINUTE

SCALE
0 700

DRAFTER: GS | APPROVED: SF | CHECKED: SF | DRAWING: DPT10 | FILE NO.: 1535 | PROJECT NO.: NJ14301 | DWG DATE: 4-5-92

GERAGHTY & MILLER, INC.
Environmental Services

SIMULATED PATH OF PARTICLES STARTED AT THE WATER TABLE BENEATH THE DUBLIN TCE SITE UNDER PUMPING SCENARIO 10
DUBLIN, PENNSYLVANIA

FIGURE
D-16

AR301589

K

APPENDIX K

DOWNHOLE GEOPHYSICAL LOGGING REPORTS.

Note: The response to Comment No. 146, which refers to Appendix K, is presented in the RI/FS Addendum. There are no revisions to the text of Appendix K.


L

APPENDIX L

AQUIFER PUMPING TEST DATA

Note: The response to Comment No. 147, which refers to Appendix L, is presented in the RI/FS Addendum. There are no revisions to Appendix L