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Environmental Protection
Agency

Office of
Emergency and
Remedial Response

EPA/ROD/R03-88/061
September 1988

EPA

Superfund Record of Decision:

Kimberton, PA

502/2-01

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SUPERFUND RECORD OF DECISION
Kimberton, PA
First Remedial Action

5. Report Date 09/30/88

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401 M Street, S.W.
Washington, D.C. 20460

13. Type of Report & Period Covered
800/000

14.

15. Supplementary Notes

16. Abstract (Limit: 200 words)
The Kimberton site is located in the northeastern portion of Chester County, Pennsylvania, near the Philadelphia metropolitan area. The site encompasses the Monsey Products Company property and adjacent properties within the surrounding Village of Kimberton. Several buried lagoons are located on the site. The lagoons are in close proximity to numerous private water supply wells and less than one mile from French Creek, which is used for public recreation and fishing. The site had two successive wners before Monsey Products purchased it in 1968. All owners were involved in industrial production. One owner, Ciba Products Company, a predecessor of CIBA-GEIGY, operated eight lagoons at the site during its period of ownership from 1947 to 1959. The lagoons received various residues from the manufacturing operations at the time. In August 1981, VOCs were first detected during routine water quality testing of a private well on Monsey property. EPA's subsequent investigation in early 1982 indicated that soil, ground water, and surface water were contaminated by VOCs, including DCE, TCE and vinyl chloride. The lagoons were identified as a source of contamination, and subsequently, approximately 2,050 yd^3 of contaminated soil from three former lagoon areas were excavated and disposed of offsite in September 1984 as part of a site remedial action plan. The excavations were backfilled, regraded, and revegetated.
(See Attached Sheet)

17. Document Analysis a. Descriptors
Record of Decision
Kimberton, PA
First Remedial Action
Contaminated Media: gw
Key Contaminants: VOCs (DCE, TCE, vinyl chloride)

b. Identifiers/Open-Ended Terms

c. COSATI Field/Group

18. Availability Statement

19. Security Class (This Report)	21. No. of Pages
None	83
20. Security Class (This Page)	22. Price
None	

(See ANSI-Z39.18) See Instructions on Reverse OPTIONAL FORM 272 (4-77)
(Formerly NTIS-35)
Department of Commerce

EPA/ROD/R03-88/061
'imberton, PA
irst Remedial Action

16. ABSTRACT (continued)

Furthermore, in December 198 , CIBA-GEIGY and Monsey Products provided 25 residential and commerical locations with an alternate source of drinking and contact water. Currently, sampling and analysis has or currently is being performed in other lagoon areas to evaluate their potential as sources of ground water contamination. This remedial action was designed to address the health risk to those residents who may continue to use contaminated private wells. A subsequent ROD will address other sources of contamination as well as additional ground water remediation. The primary contaminants of concern affecting the ground water are VOCs including DCE, TCE and vinyl chloride.

The selected remedial action for this site includes: continued provision of an alternate water supply -- either by treating impacted residential and commerical wells by filtration using granular activated carbon adsorption or by providing below-grade storage tanks for all water needs (contact and drinking use); and continued monitoring of impacted wells. The estimated present worth cost for this remedial action is $3,850,000 with estimated annual O&M costs of $250,000 to $300,000.

DECLARATION FOR THE RECORD OF DECISION

SITE NAME AND LOCATION

Kimberton Superfund Site
Village of Kimberton, Chester County, Pennsylvania

Statement of Purpose

This decision document presents the selected remedial action for the Kimberton Superfund Site (Site) developed in accordance with the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended by the Superfund Amendments and Reauthorization Act of 1986 (CERCLA), 42 U.S.C. Section 9601 et seq., and to the extent practicable, the National Contingency Plan (NCP), 40 C.F.R. Part 300.

Statement of Basis

This decision is based upon and documented in the contents of the Administrative Record. The attached index identifies the items which comprise the Administrative Record. The Commonwealth of Pennsylvania has reviewed, commented and concurred on this Record of Decision.

Description of the Selected Remedy

The remedial alternative presented in this document is the first operable unit of a permanent remedy for the Kimberton Site. It will provide a reliable interim solution for the prevention of health risks to area residents associated with exposure to contaminated groundwater. The alternative selected requires continued monitoring and treatment of contaminated wells on an individual basis. Treatment will consist of filtration utilizing granular activated carbon adsorption. Potentially threatened wells will also continue to be monitored and provided treatment if appropriate. The contaminant plume and source or sources of contamination will be addressed in a subsequent Record of Decision.

Declaration

The selected remedy is protective of human health and environment, attains Federal and State requirements that are applicable or relevant and appropriate, and is cost-effective as set forth in Section 121(d) of CERCLA, 42 U.S.C. Section 9621(d). This remedy satisfies the statutory preferences as set forth in Section 121(b) of CERCLA, 42 U.S.C. Section 9621(b), for remedies that employ treatment that reduce toxicity, mobility or volume as a principal element. Finally, it is determined that this remedy utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable.

This is an interim remedy and will be reevaluated once the full extent of the groundwater contamination has been defined and the source remediation alternatives have been evaluated.

9-30-88
Date

Stanley L. Laskowski (3RA00)
Acting Regional Administrator

Table of Contents
for
Decision Summary

I. Introduction

The Village of Kimberton is located in the northeastern portion of Chester County, Pennsylvania near the Philadelphia metropolitan area (Figure 1). Numerous domestic and commercial potable well water supplies have been sampled by the Chester County Health Department and analyzed by the Pennsylvania Department of Environmental Resources (PADER) since January 1982. High levels of chlorinated hydrocarbon chemical contamination has been detected in many of the sampled wells. A source of this contamination has been identified as the property currently owned by the Monsey Corporation which contained several buried lagoons that were operated by the CIBA-GEIGY Corporation during the 1950's. This site was evaluated through the Hazard Ranking System (HRS) and subsequently placed on the National Priorities List (NPL), a list of hazardous waste sites targeted for action under the Superfund program, in 1982.

Three of these lagoons have been excavated with contaminated soils being removed off-site. The lagoons are in close proximity to numerous private water supply wells and less than one mile from French Creek which is used for public recreation and fishing. CIBA-GEIGY sampled 67 residential and commercial establishments in August 1, 1985 and found in some of these wells various concentrations of trichloroethylene (TCE), 1,2-dichloroethylene (DCE) and vinyl chloride (VC) which are all considered hazardous substances according to the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). CIBA-GEIGY and Monsey signed a Consent Order and Agreement with PADER to provide certain residential and commercial locations with an alternative source of drinking and contact water in December 1986. Ciba Geigy and Monsey, in addition, continue to monitor these and other designated locations periodically according to prescribed sampling and analytical procedures outlined under the terms of the Consent Order. This is a PRPfunded, State-lead enforcement Site.

II. Site Name, Location, and Description

The Kimberton Site (Figure 2) encompasses the Monsey Products Company property, and adjacent properties within the surrounding village of Kimberton and the area-wide groundwater contamination. The Monsey Products Company property is located within the northeast section of Chester County, on the U.S.G.S. Phoenixville 7.5 minute quadrangle at approximately 75 Degree 34' 30" longitude 40 Degree 07' 3" latitude. The Site is geographically located within the eastern portion of a triangle formed by PA Route 113 (to the South), Coldstream Road (to the east) and Hares Hill Road (to the north and west). The town of Kimberton is centrally located at the cross roads of Hares Hill Road and Old Kimberton Road, less than 0.2 miles from the Monsey Products Company property.

Local physiography is characterized by rolling countryside generally comprised of small hills and valleys. Site area surface water drains toward French Creek, which generally flows from west to east approximately 0.75 miles to the north of the site. The ultimate regional

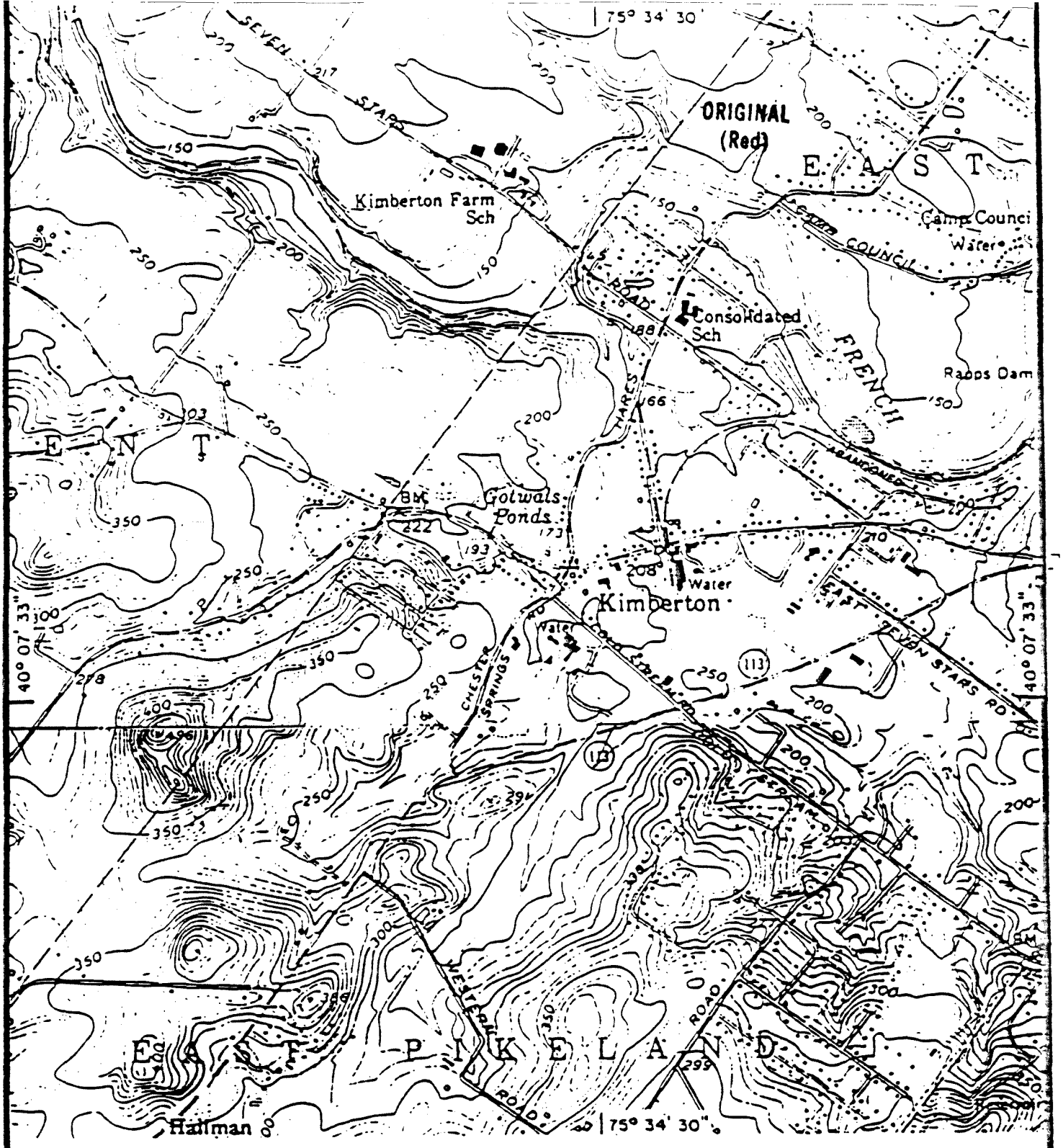
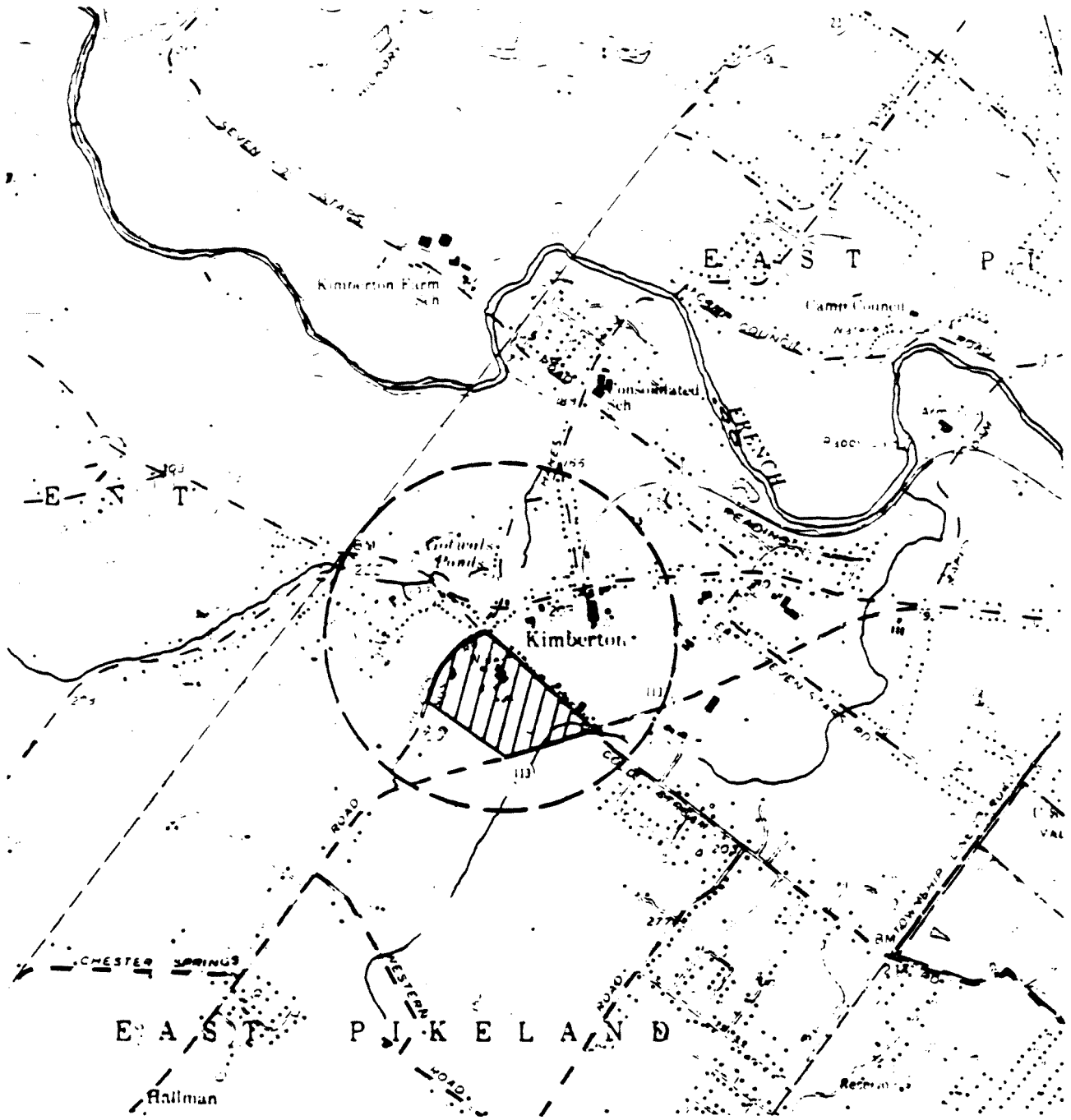


FIGURE 1
SITE LOCATION
MONSEY / CIBA-GEIGY
KIMBERTON, PA.

Figure 1



Source: USGS 7.5 Minute Topographic Quadrangles, Phoenixville and Malvern, PA

Figure 2

drainage basin, of which French Creek is a tributary, is the Schuylkill River located approximately 3.5 miles to the northeast.

The Kimberton site is underlain by graphitic gneiss to the southwest and clastic sedimentary rocks (shales, sandstones, and siltstones) to the northeast.

Local hydrogeology primarily consists of a water table aquifer discharging into local surface streams at topographic lows through a system of springs and seeps. The groundwater movement through deeper, bedrock zones appears to occur primarily through secondary porosity (fractures and bedding plane partings).

III. Site History

The property known as the Kimberton site appears as parcel #194 on the Chester County Tax map shown in Figure 3. The property is currently owned by Monsey Products Company, Inc. and was purchased by Monsey in 1968 from Firmenich Incorporated.

The title search indicates that three companies have held title to the property presently known as the Kimberton site:

- Ciba Products Corporation
- Firmenich Incorporated
- Monsey Products Company, Inc.

Corporate research on these three companies indicates that they are all involved in industrial production. Ciba Products Corporation (now CIBA-GEIGY Corporation) produces pharmaceuticals, contact lenses, herbicides and fungicides, and seeds. Firmenich Incorporated is involved in the production of chemicals and synthetic perfumes an Monsey Products Company, Inc. produces asphalt, coal tar roofing, driveway sealer and automotive undercoatings.

During the period of site ownership by a predecessor of CIBA-GEIGY (Ciba Products Company) from 1947 to 1959, a series of eight lagoons were operated on site. These lagoons, which received various residues from the manufacturing operations at that time, were ultimately abandoned and closed. Several of these lagoons were subsequently backfilled or otherwise regraded.

Volatile organic compounds were first detected in the groundwater at Kimberton during routine water quality testing of a private well on the Monsey property by Chester County Health Department (CCDH) in August 1981. Subsequent testing of 24 additional local wells by PADER in January through March of 1982 detected levels of a number of volatile organic compounds in twelve of the wells sampled.

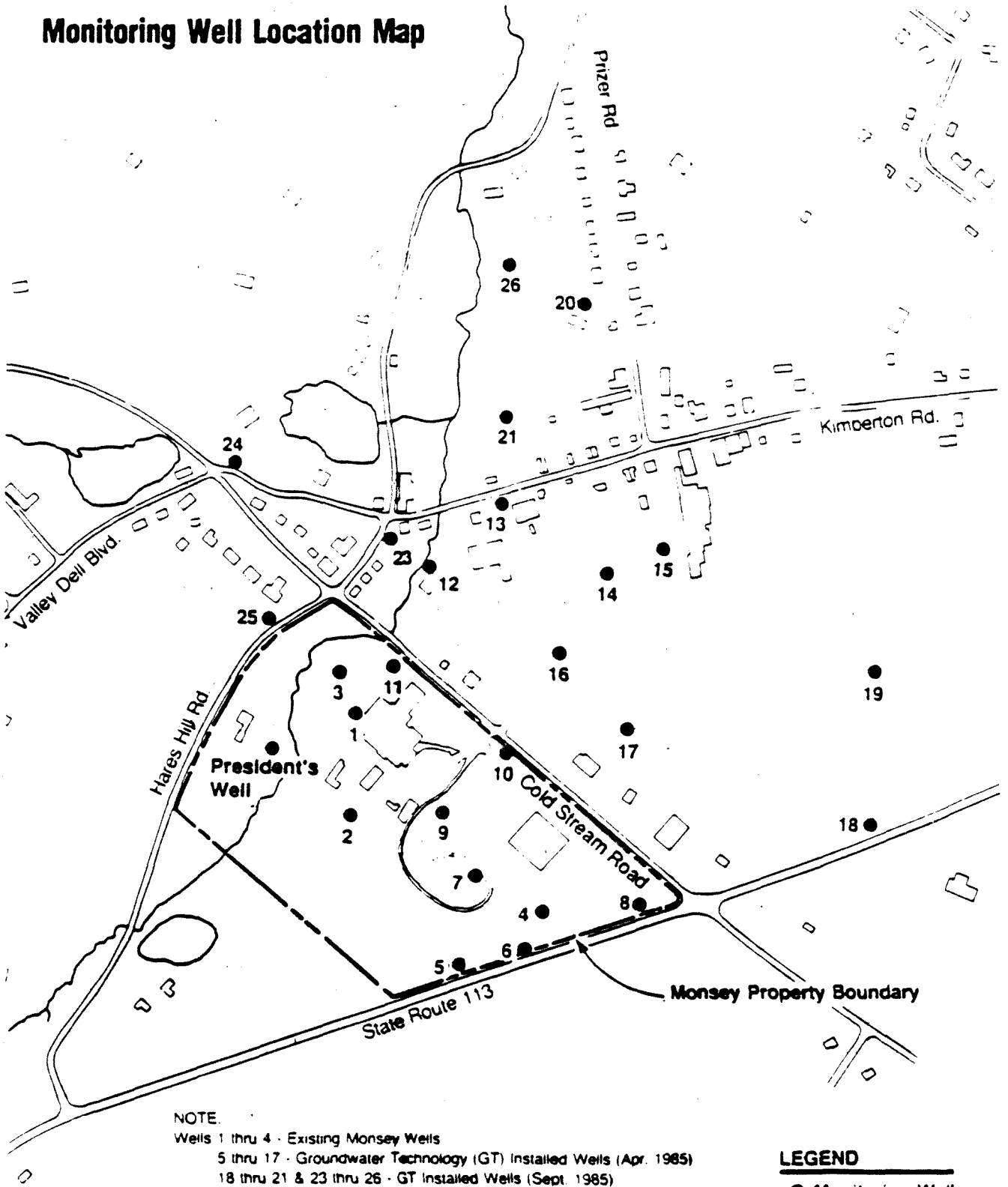

Monitoring Well Location Map
Prizer Rd
Kimberton Rd.
Valley Dell Blvd.
Hares Hill Rd.
President's Well
Cold Stream Road
State Route 113
Monsey Property Boundary
26
20
21
24
13
23
12
15
14
25
16
19
3
11
1
17
10
18
2
9
7
4
8
5
6
NOTE.
Wells 1 thru 4 - Existing Monsey Wells
5 thru 17 - Groundwater Technology (GT) Installed Wells (Apr. 1985)
18 thru 21 & 23 thru 26 - GT Installed Wells (Sept. 1985)
LEGEND
Monitoring Well
Scale in Feet
0 150 300 500
N
Figure adapted from Groundwater Technology, Inc.

Figure 3

In response to the reported groundwater contamination in the Borough of Kimberton, EPA conducted a field investigation of local groundwater, surface water, and soil contamination in the Spring of 1982. This investigation reported the presence of organic chemicals, including trichloroethylene (TCE) and trans-1,2-dichloroethylene (DCE), in local groundwater, surface water, and soils sampled at or near the site. As a result of the field investigation team's (FIT) report of 23 July 1982, the Monsey site was placed on the NPL by the EPA.

Investigations conducted by CIBA-GEIGY and Monsey since the initial detection of organic compounds in water and soil samples have indicated a gradual release of volatile organic compounds through the subsurface to the local ground water table. These compounds gradually migrate with local groundwater and discharge to surface waters to the north and east in the Village of Kimberton. Volatile organic compounds have been detected in a number of private wells in an apparent downgradient direction from the Monsey property. Limited, low level surface water contamination has also been detected in local receptor streams.

IV. Enforcement History

Past disposal practices involving hazardous substances, which occurred between 1947 and 1959, have resulted in groundwater and soil contamination at this site. In September 1986, PADER, which is the enforcement lead for this site, sent CIBA-GEIGY and Monsey letters informing these companies that they were potentially responsible parties (PRPs) and liable for the contamination at this site. In addition, these letters sought their participation in the Remedial Investigation and Feasibility Studies (RI/FS) process. Both companies agreed to conduct an RI/FS at this Site, to provide an alternate source of drinking and contact water to those residential and commercial locations whose water supply was impacted by the Site and to continue to monitor specified locations for the identified contaminants by entering into Consent Order and Agreements with PADER in 1986 and 1987.

V. Site Characteristics

A. Geology/Hydrogeology

1. Site Geology

Locally, in Kimberton, two predominant formations exist: A graphitic gneiss which is a metamorphic rock of Precambrian age described as a medium grained gneiss and schist characterized by the presence of graphite. The other, the Stockton Formation, is a sedimentary unit of Triassic age and consists of locally of grey and red siltstones, red shales, fine to medium grey and reddish grey sandstones and arkosic sandstones (Figure 4). The shales and siltstones are sometimes thinly interbedded with impure carbonate rock. The contact zone between the graphitic gneiss and the Stockton Formation lies to the northeast of Coldstream Road and in an approximate WNW to ESE orientation. It is, for the most part, ill-defined and has been mapped using drilling logs of the site monitoring wells. As determined through drilling of the monitoring wells, the graphitic gneiss has undergone significant mechanical and chemical breakdown (weathering).

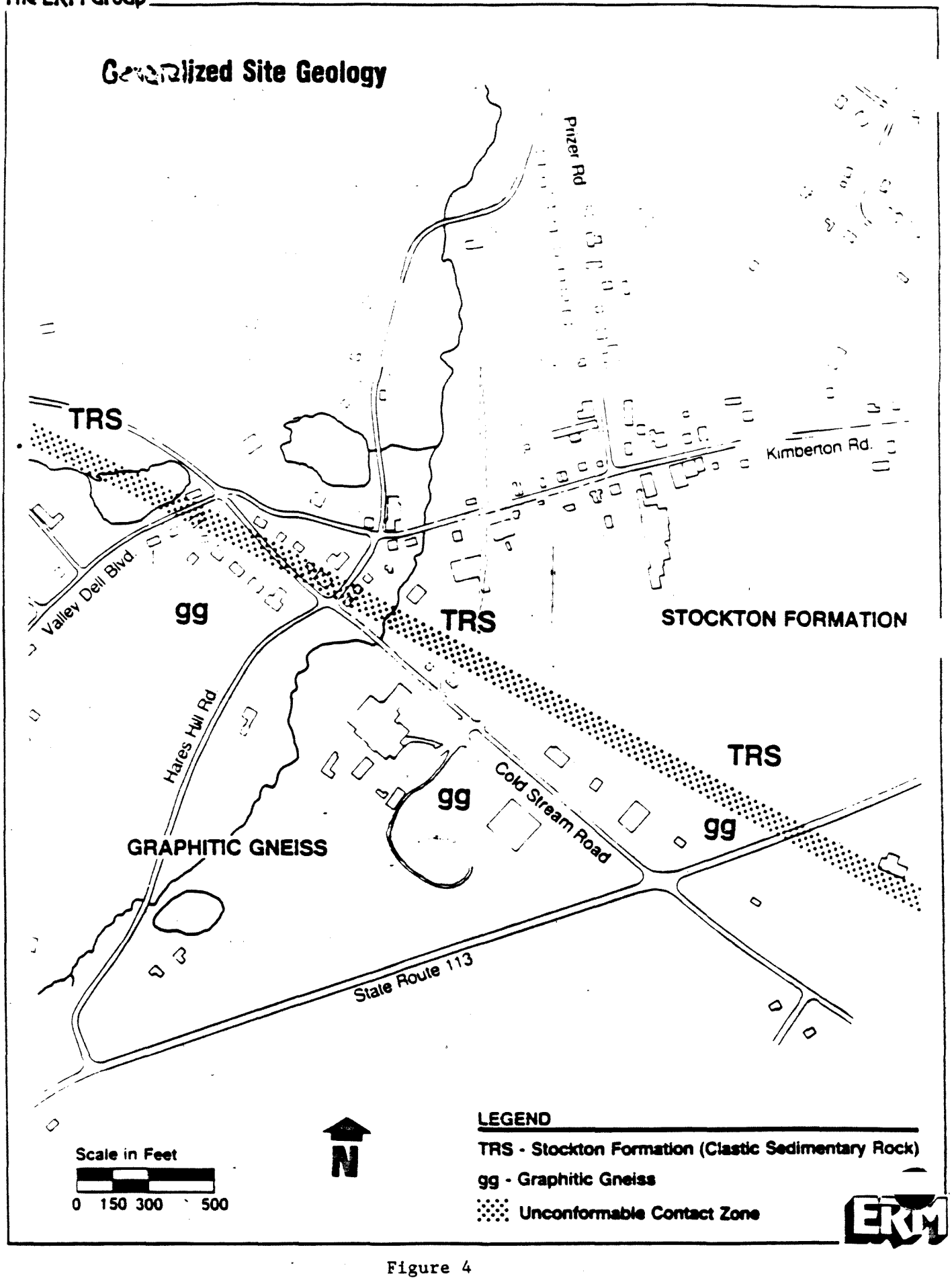

Generalized Site Geology
Pfizer Rd
Kimberton Rd.
TRS
Valley Dell Blvd.
gg
TRS
STOCKTON FORMATION
Hares Hill Rd
TRS
gg
Cold Stream Road
gg
GRAPHITIC GNEISS
State Route 113
Scale in Feet
0 150 300 500
N
LEGEND
TRS - Stockton Formation (Clastic Sedimentary Rock)
gg - Graphitic Gneiss
Unconformable Contact Zone
ERM

Figure 4

These processes have worked progressively downward from the surface generally creating an upper unconsolidated weathered zone of decomposed rock and soil which grades vertically into a crumbly, gravel-like material where pieces of sand to boulder-size rocks remain in place in a clayey matrix. The weathered zone was found to be between 50 feet and 75 feet in thickness except in one area where it was only 30 feet thick. Groundwater was noted to occur almost exclusively within the weathered portion of the graphitic gneiss (locally on the Monsey Products Company property).

Weathering within the Stockton Formation was far less severe with the weathered layer generally ranging in thickness from 5 feet to 15 feet (Figure 5).

2. Hydrogeology

The hydrogeology of the Kimberton area is typical of the Chester County region as a whole. Water levels fluctuate in response to seasonal precipitation and evaporotranspirational trends. The water table closely mimics topography with the dominant recharge areas lying in the higher elevations and discharge zones noted through local springs and streams at low elevations.

Within the area of concern, water table conditions exist within two contrasting (lithogically derived) water-bearing units: The metamorphic graphitic gneiss (encompassing the Monsey Products Company property) and the Stockton Formation (comprising the downtown Kimberton area and surrounding properties). As discussed previously, the graphitic gneiss is highly weathered to a median depth of 50 feet to 75 feet. The unconsolidated upper part of the graphitic gneiss generally has moderate to low permeability, but contains a considerable amount of water in storage. Below the unconsolidated zone the rock is generally solid; however, some minerals are heavily weathered, particularly along fractures. Permeability and storage capacity of the solid fractured rock generally decrease with depth as the degree of weathering decreases. The highest permeability probably occurs where the unconsolidated and solid rock merge. In this transitional area, openings in rock are formed or enlarged by the weathering process. Storage capacity, however, is low because the rock has limited porosity.

Groundwater movement through the gneiss will tend to migrate in response to elevational changes in the water table (Figure 6). The subsurface zone of primary movement is noted within the highly weathered and fractured upper portion of the gneiss. Deeper water-bearing zones are reported to occur at fracture traces (dominantly vertical to subvertical in profile), and generally receive recharge via vertical infiltration from the overlying horizons. Local well yields within the graphitic gneiss range from 4 - 25 gpm in wells which draw water from the weathered zone, with over 200 gpm reported in several of the deeper wells (existing Monsey wells # 1-4) which may penetrate deeper fractures within the bedrock gneiss.

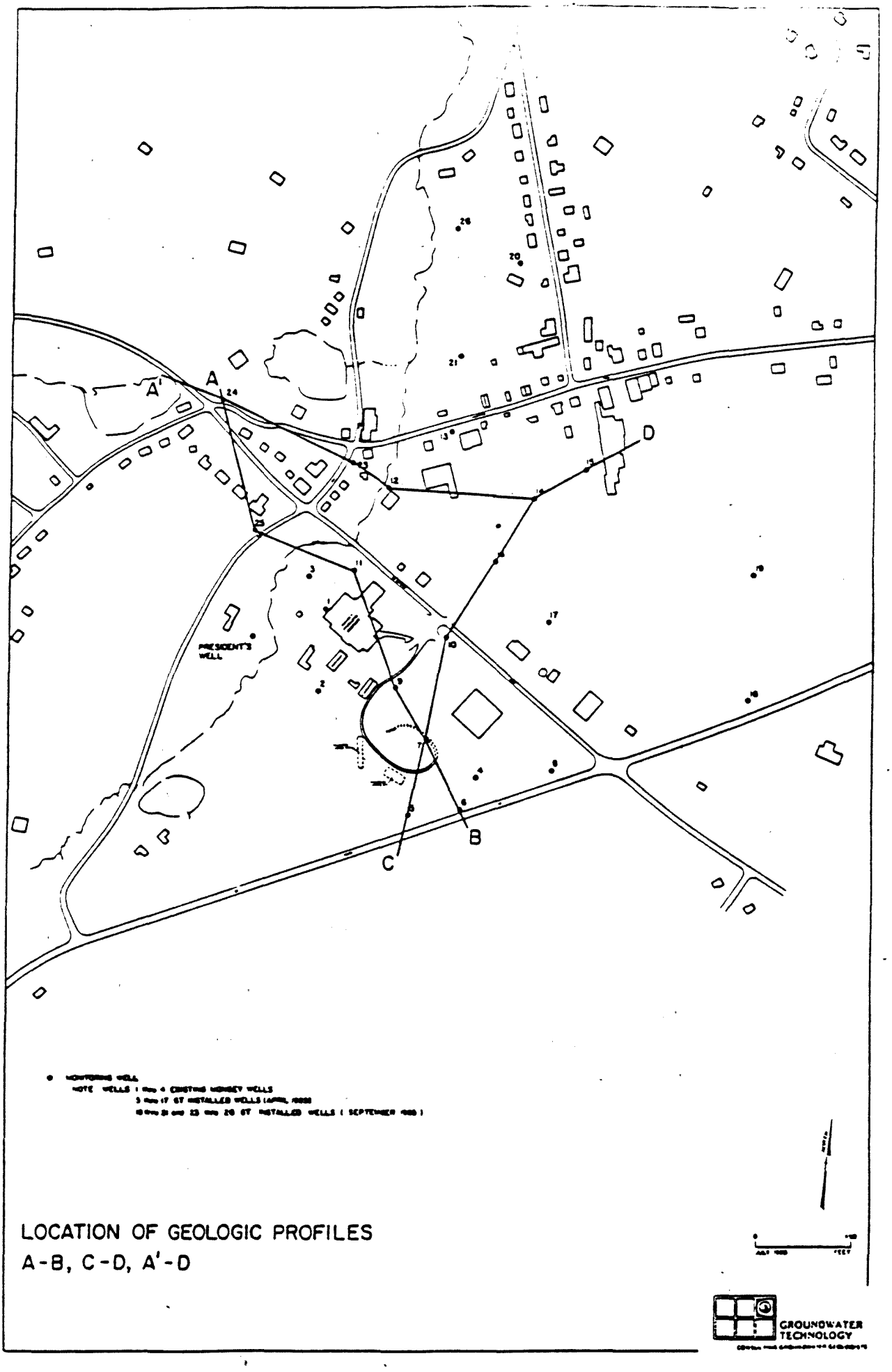
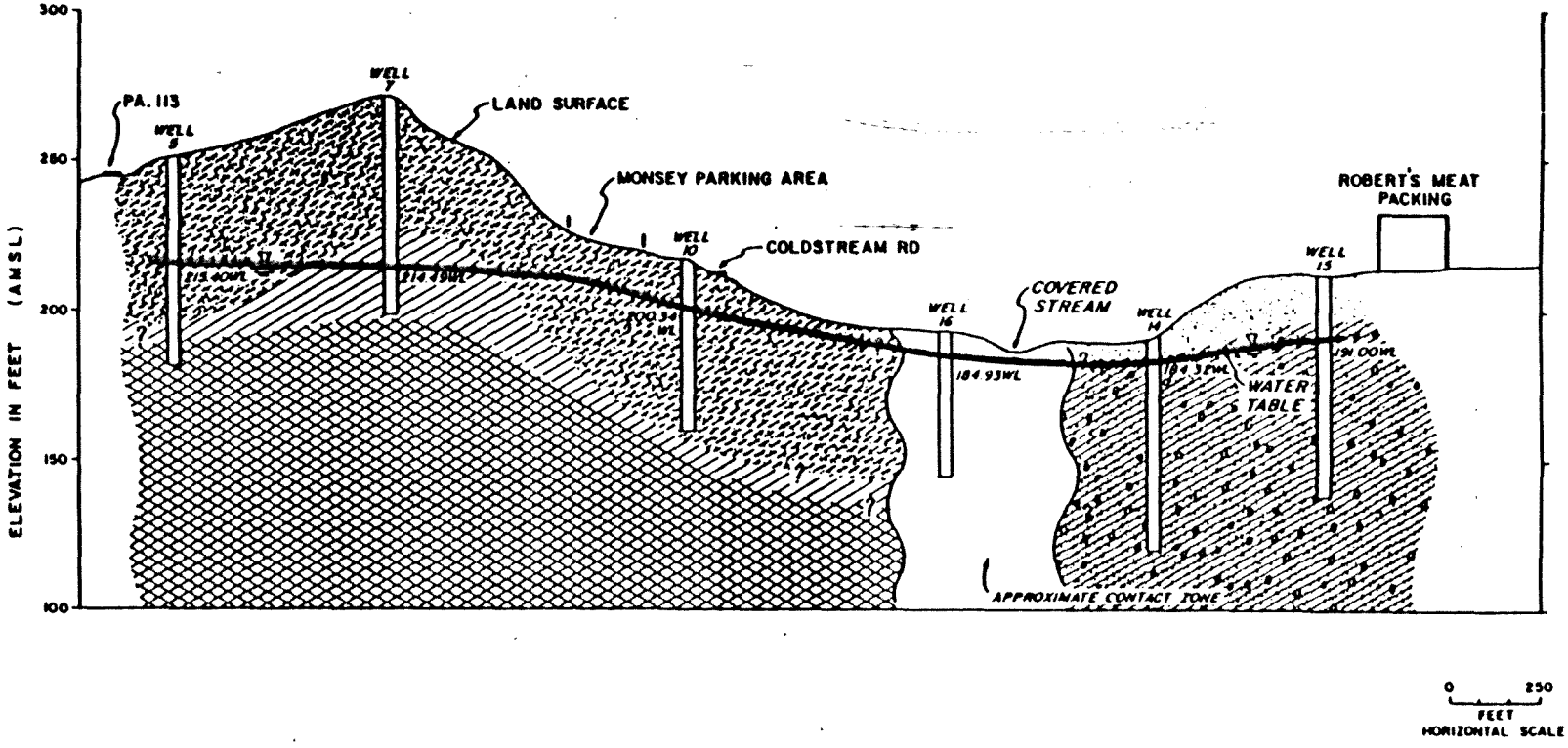

A
A'
B
C
D
PRESIDENT'S WELL
LOCATION OF GEOLOGIC PROFILES
A-B, C-D, A'-D
GROUNDWATER TECHNOLOGY

Figure 5



WL WATER LEVEL (in feet) 30 SEPT 1985

HIGHLY WEATHERED METAMORPHIC GNEISS

MOSTLY WEATHERED METAMORPHIC GNEISS

UNWEATHERED METAMORPHIC BEDROCK GNEISS

STOCKTON FORMATION (UNDIFFERENTIATED)

WEATHERED ZONE STOCKTON FORMATION

NOTE: VERTICAL SCALE IS FIVE TIMES HORIZONTAL SCALE

Stockton Formation: Consists locally of grey and red siltstones and red shale; fine to medium grained grey and redish-gray sandstones and arkosic sandstones. Shales and siltstones are sometimes thinly interbedded with impure carbonate rock.

Metamorphic Gneiss: Dominantly quartz and feldspar with varying amounts of mafics and graphite; exhibits zones of preferential weathering.

GEOLOGIC PROFILE
SECTION C-D

GROUNDWATER TECHNOLOGY

Figure 5 (cont'd)

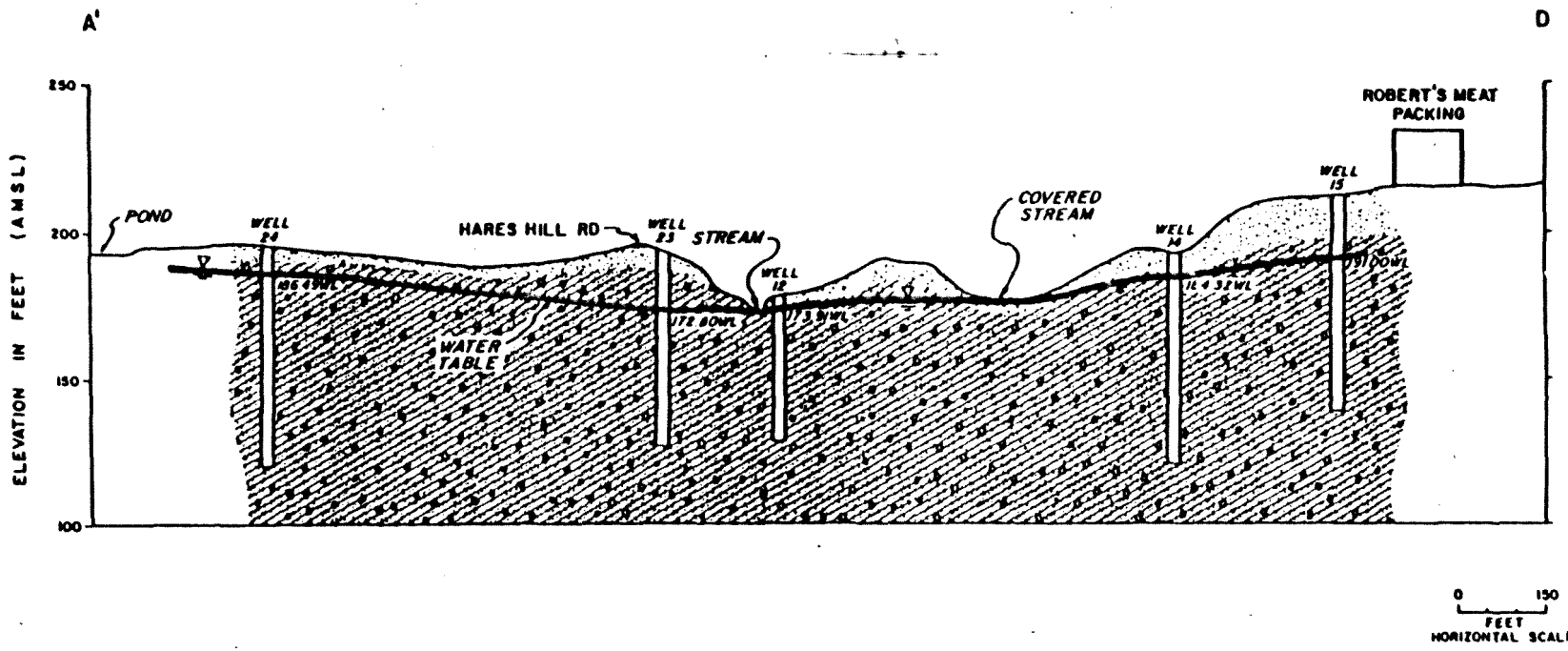


Figure 5 (cont'd)

GEOLOGIC PROFILE
SECTION A'-D

Stockton Formation: Consists locally of grey and red siltstones and red shale; fine to medium grained grey and reddish-grey sandstones and arkosic sandstones. Shales and siltstones are sometimes thinly interbedded with impure carbonate rock.

WL WATER LEVEL (in feet) 30 SEPT 1985

STOCKTON FORMATION (UNDIFFERENTIATED)

WEATHERED ZONE STOCKTON FORMATION

NOTE: VERTICLE SCALE IS FIVE TIMES HORIZONTAL SCALE

GROUNDWATER TECHNOLOGY

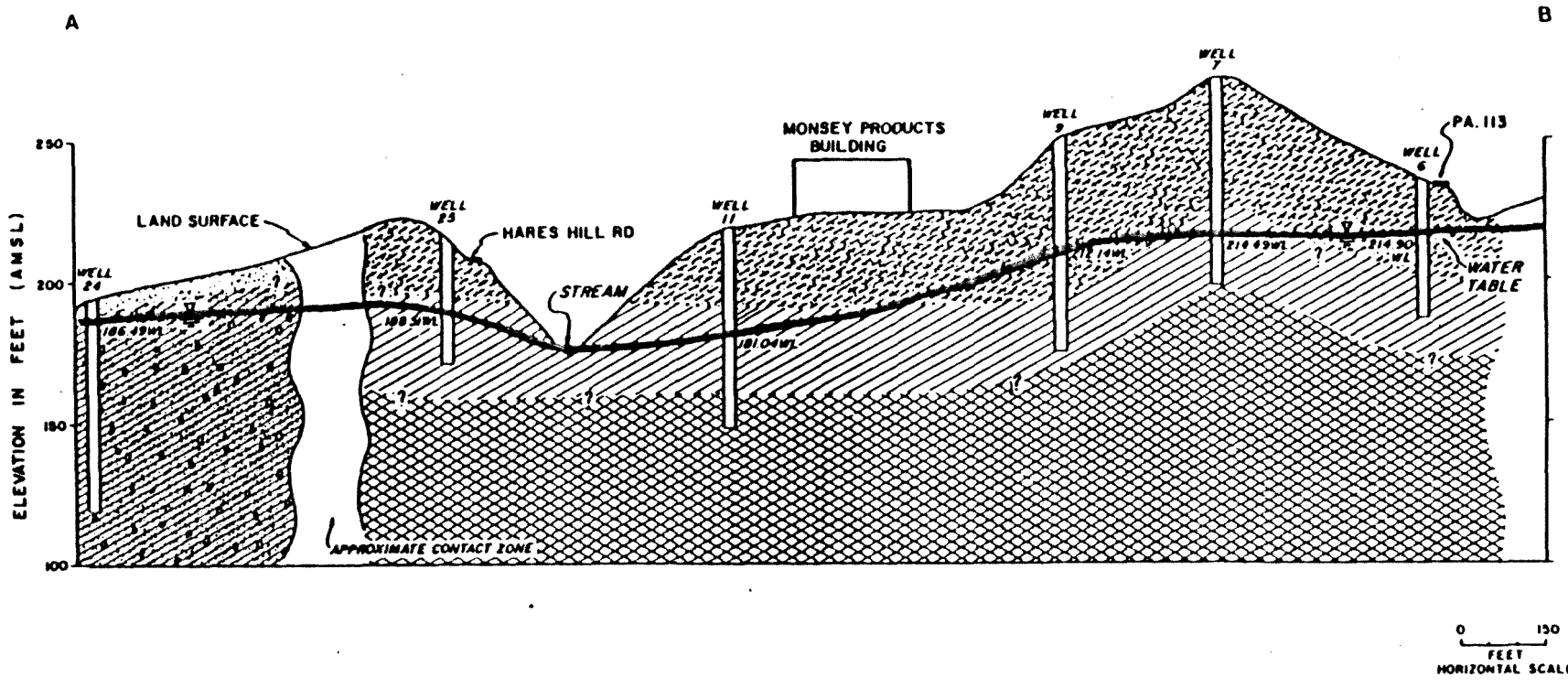


Figure 5 (cont'd)

GEOLOGIC PROFILE
SECTION A-B

Stockton formation: Consists locally of grey and red siltstones and red shale; fine to medium grained grey and reddish-grey sandstones and arkosic sandstones. Shales and siltstones are sometimes thinly interbedded with impure carbonate rock.

Metamorphic Gneiss: Dominantly quartz and feldspar with varying amounts of mafics and graphite; exhibits zones of preferential weathering.

GROUNDWATER TECHNOLOGY

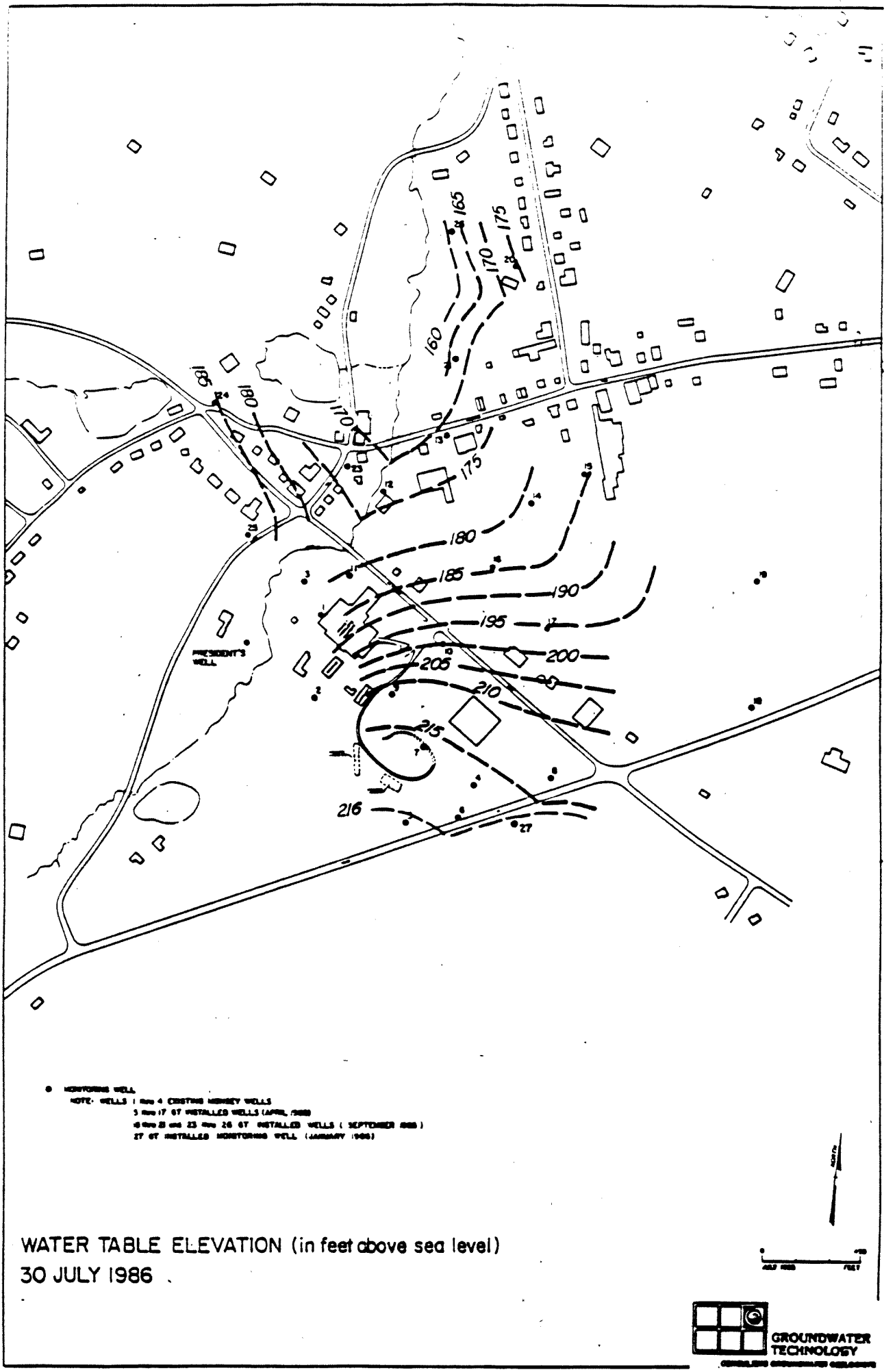

165
170
175
160
185
180
170
175
180
185
190
195
200
205
210
215
216
PRESIDENT'S WELL
WATER TABLE ELEVATION (in feet above sea level)
30 JULY 1986
GROUNDWATER TECHNOLOGY

Figure 6

The deeper fracture zones have site specific significance due to the potential for increased water transmission. Hydraulic communication within upper weathered zones of the graphitic gneiss is likely. Associated groundwater gradient/movement is considered to be directionally controlled through water gradient elevational changes (as observed within monitoring wells and inferred through regional interpretations of groundwater movement). Specifically, groundwater movement locally within the graphitic gneiss and suspect fracture zones are regionally interpreted in a north-north easterly direction from the Monsey property and downtown Kimberton area, toward French Creek.

The Stockton Formation generally consists of interbedded sandstones, siltstones, and shales. The interbedding and fracturing has caused extremely anisotropic and heterogeneous hydraulic characteristics associated with this formation. Groundwater is largely transmitted along bedding planes, fractures and joints. Water withdrawal rates noted for wells locally penetrating the Stockton have yielded between 2 and 20 gpm, depending upon the nature, location and depth of wells.

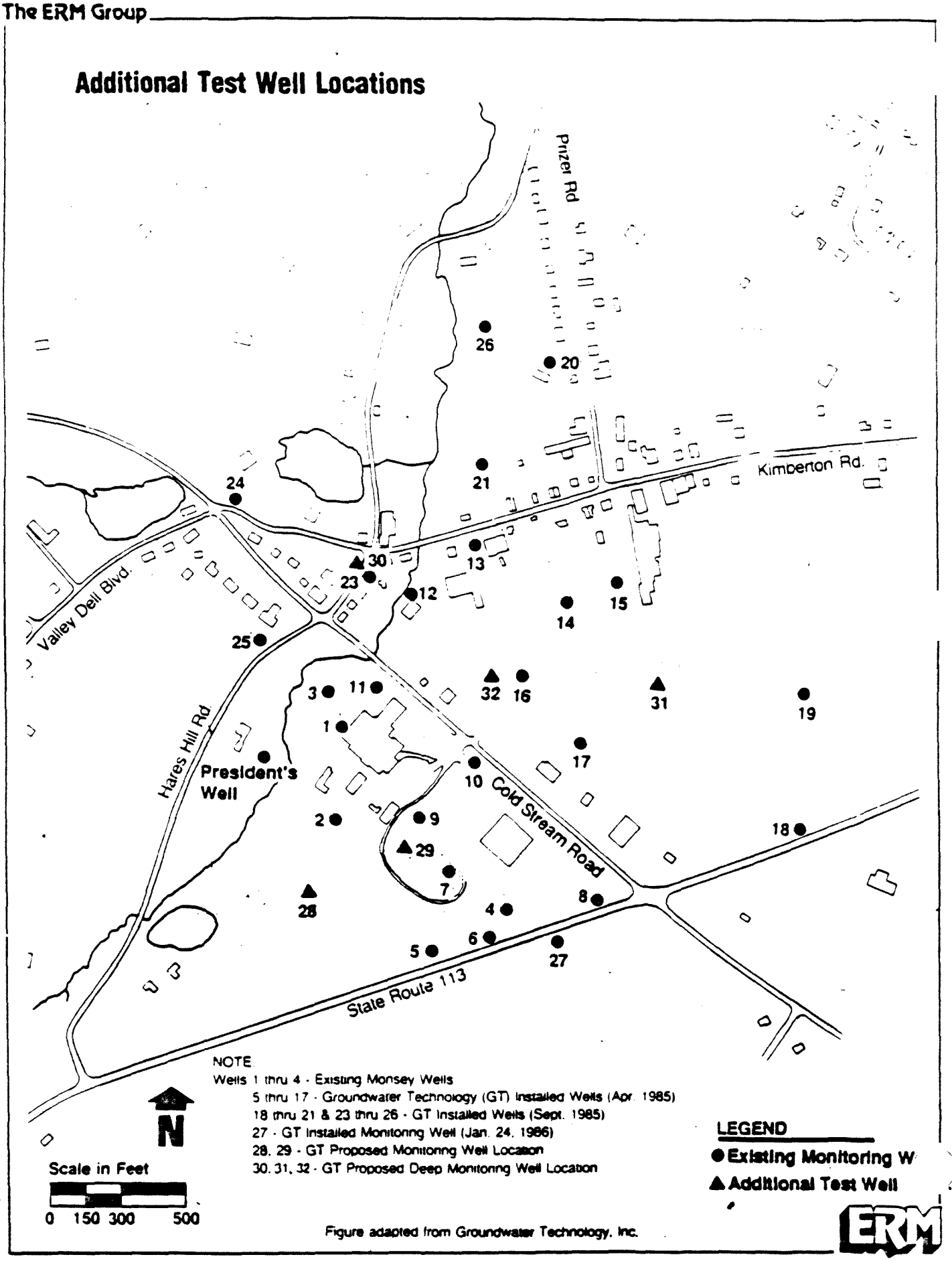
a. Groundwater Movement

Groundwater elevations of both on-site (Monsey Products Company property) and off-site monitoring wells were measured from the top of secure casings using electrical water level detectors (Figure 7). Field surveys were performed to accurately determine the horizontal coordinates and vertical elevations (tied into U.S.G.S. bench mark datum located in downtown Kimberton) of well casings. Respective field data transposed onto prepared base maps provided a basis for the following interpretive correlations relative to groundwater movement within the Monsey Products Company property and adjacent Kimberton area:

- The occurance of groundwater is under water table conditions at depths ranging from approximately 2 feet to 50 feet below land surface.

- Water table elevations mimic a subdued version of surface topography; increased groundwater elevations correlating to areas of high topographic elevations such as ridges and knolls; reduced groundwater elevations occurring dominantly in topographic low areas characterized by streams, creeks, and/or springs.

- Local groundwater recharge of significance to the Monsey property and adjacent Kimberton area occurs from both vertical infiltration onto related surface areas and directionally from adjacent topographic high areas; dominantly from the south of route 113, from the north of Hares Hill Road, and from the east of downtown Kimberton (up topographic gradient from the easterly direction of the unnamed creek/marsh area).



27205 01

Figure 7

- Groundwater discharge locally occurs through surface springs, seeps, and creeks to small streams located within local topographic lows. One such discharge area is located adjacent to the northwest boundary of Monsey's property as an unnamed creek flowing to the northeast through the center of Kimberton (Stream "A"; Figure 8). Another such discharge area exists to the northeast of Monsey property as a minor unnamed creek flowing to the northwest and eventually converging with Stream "A" (Stream "B"; Figure 8). A third local groundwater discharge occurs to the southeast of Monsey property, again as an unnamed minor creek in this case flowing generally southeast from the site area (Stream "C"; Figure 8).

- Groundwater gradient and ground water flow are directionally controlled in response to elevational changes in the water table. Under natural, non-pumping conditions, the predominant ground water gradient from the Monsey property ranges directionally from the northwest clockwise through the southeast, toward the above noted ground water discharge zones.

- Physiochemical parameters measured from area monitoring wells as baseline water quality characteristics (pH, TDS, and chloride) appear to fall within background ranges.

b. Surface Water

The local surface waters can be divided into three unnamed streams (Figure 8) emanating within and/or flowing through the central Kimberton area. For clarity, the streams have been designated as follows:

- Stream A: A small, permanent stream (the primary stream in the center of Kimberton) flowing generally south to north adjacent to the northwestern boundary of Monsey property. This stream is primarily spring fed west of the site from sources at and upstream of the gneiss/clastic contact zone. Estimated average stream flow in this area ranges seasonally from 0.5 to 4 cubic feet per second (cfs). A significant increase in stream volume occurs upon its confluence with the outfall from Gotwals Ponds. Estimated flow downstream of this confluence ranges from 8 to 12 cfs.

- Stream B: An apparent minor intermittent stream which appears to originate from a spring proximal to the 1950 location of the Kimberton town dump. The terminus of this stream is not visible on aerial photographs but it is believed to become confluent with Stream A. Estimated flow down the headwaters is 0.1 to 0.5 cfs. Downstream flow has not been observed, but is not anticipated to be significant.

- Stream C: A tributary of French Creek which flows south of the intersection of Route 113 and Cold Stream Road. This stream derives a major volume of its flow from topographically high areas to the south of the study area. Stream flow appears to be intermittant upstream of Cold Stream Road. However, a significant increase in stream flow results from a major spring located roughly 300 feet downstream of Cold Stream Road with flows estimated at 0.5 to 2 cfs.

B. Extent of Contamination

1. Drum Removal

In mid 1982, the PRPs supervised the excavation and removal of fifty-seven 55-gallon drums from an abandoned, on-site septic system formerly used to serve the plant's wastewater needs. These drums contained offspecification asphaltic materials which had been used as partial backfill for the collapsed septic pit sometime earlier. The drum removal program, conducted in conjunction with DER, consisted of removal of all drums from the pit area, procurement of samples from five representative drums for analysis, procurement of post-excavation soil samples for analysis, and appraisal of possible relationship of groundwater contamination to the drum burial.

The drum excavation, removal, and disposal program was successfully completed in November 1982. Soil samples procured beneath the excavation floor indicated no extensive migration of organic compounds from the area.

The preliminary hydrogeologic assessment conducted by the PRPs recommended a more definitive off-site investigation of the groundwater regime surrounding the site. This is currently being completed.

2. Lagoon Excavation

As a result of soil sampling conducted during preliminary site assessment activities, three areas were identified within Monsey property with relatively high levels of organic compound contamination. Study of available historic aerial photographs confirmed that the three areas were former treatment lagoons. These three areas, identified by Groundwater Technologies, Inc. (GTI) as Lagoons 6, 7, and 9 were characterized by materials of similar chemical composition and physical appearance (Figure 9).

Upon review of this information and at the request of PADER, a program was undertaken by the PRPs to excavate, remove, and dispose of soils from these three former lagoon areas as part of a site remedial action program.

The excavation program was finalized during August and early September 1984. Actual site excavation was initiated on September 17 and completed on September 25. Site backfilling and restoration were completed on October 8.

Upon completion of the excavation program on September 25, 1984, a total of 143 truckloads of contaminated soil had been excavated from the site representing approximately 2,050 cubic yards of material. All excavated materials were confirmed as received at the licensed TSD facility operated by CECOS International, Inc. in Niagara Falls, New York.

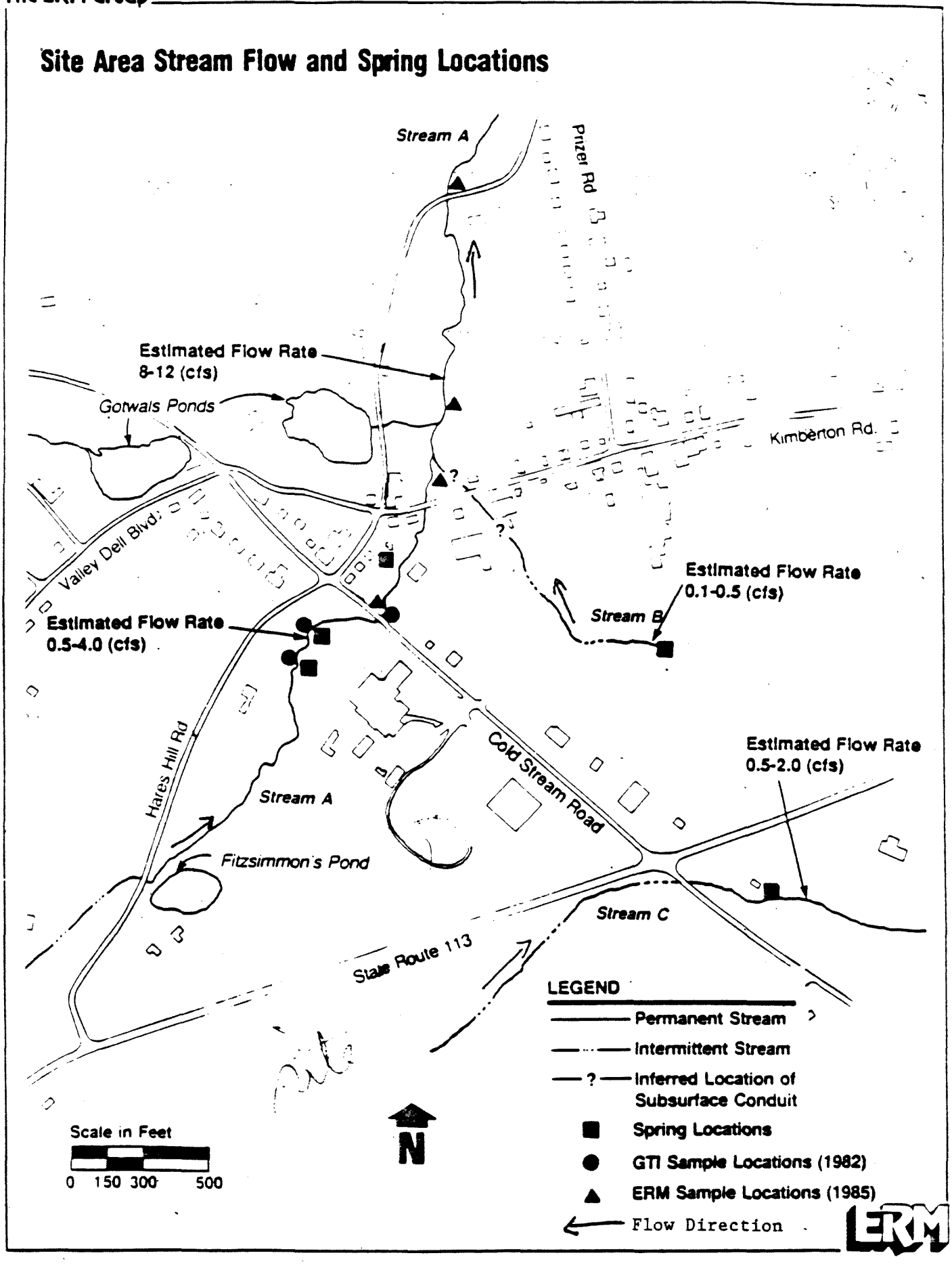

Site Area Stream Flow and Spring Locations
Stream A
Pfizer Rd
Estimated Flow Rate
8-12 (cfs)
Gotwals Ponds
Kimberton Rd.
Valley Dell Blvd.
Estimated Flow Rate
0.1-0.5 (cfs)
Stream B
Estimated Flow Rate
0.5-4.0 (cfs)
Hares Hill Rd
Cold Stream Road
Estimated Flow Rate
0.5-2.0 (cfs)
Stream A
Fitzsimmon's Pond
Stream C
State Route 113
LEGEND
Permanent Stream
Intermittent Stream
Inferred Location of Subsurface Conduit
Spring Locations
GTI Sample Locations (1982)
ERM Sample Locations (1985)
Flow Direction
Scale in Feet
0 150 300 500
N
ERM

Figure 8

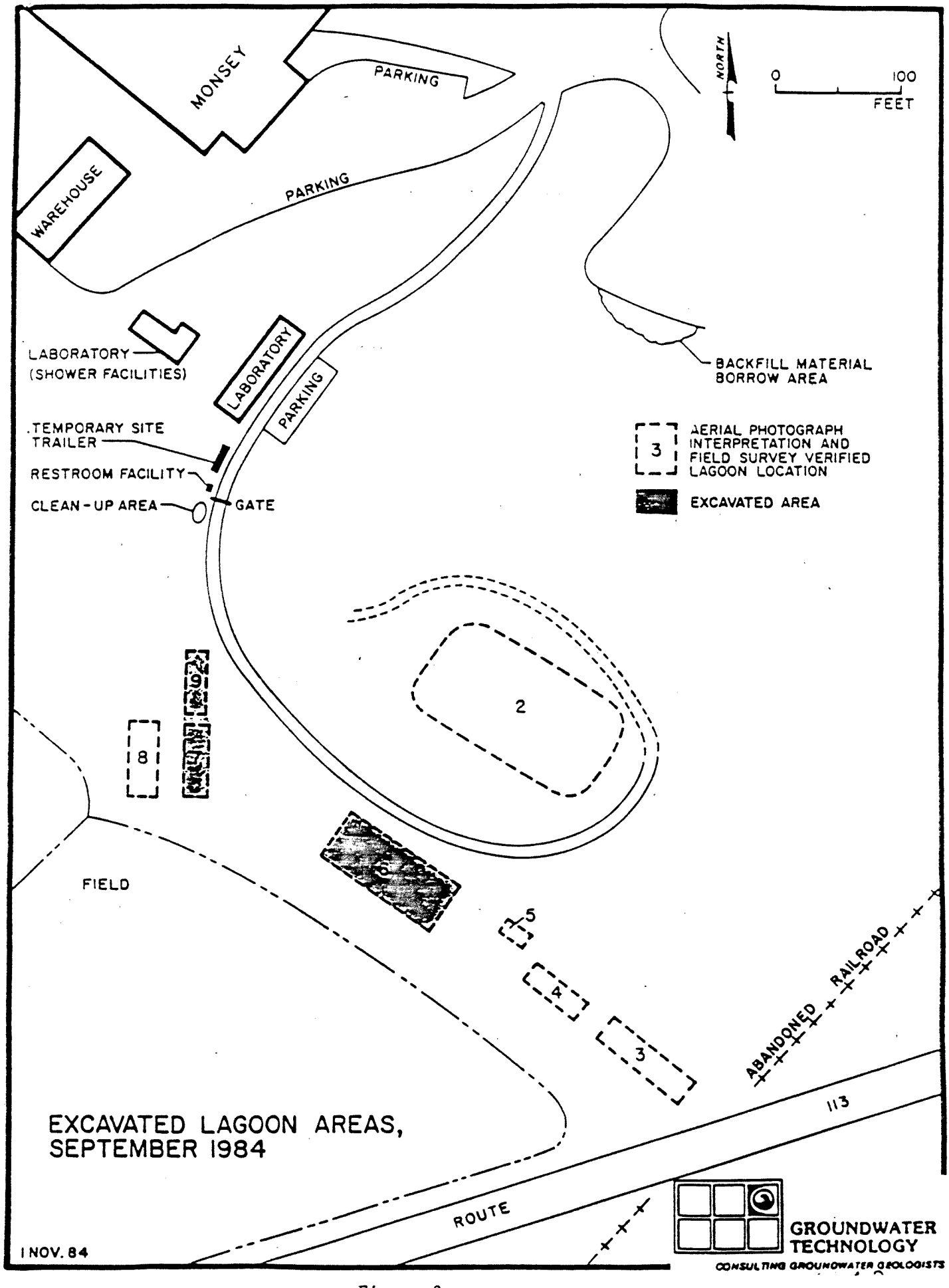

MONSEY
PARKING
WAREHOUSE
PARKING
NORTH
0
100
FEET
LABORATORY
(SHOWER FACILITIES)
LABORATORY
PARKING
BACKFILL MATERIAL
BORROW AREA
TEMPORARY SITE
TRAILER
RESTROOM FACILITY
CLEAN-UP AREA
GATE
3
AERIAL PHOTOGRAPH
INTERPRETATION AND
FIELD SURVEY VERIFIED
LAGOON LOCATION
EXCAVATED AREA
2
8
9
6
5
4
3
FIELD
ABANDONED
RAILROAD
113
ROUTE
EXCAVATED LAGOON AREAS,
SEPTEMBER 1984
1 NOV. 84
GROUNDWATER
TECHNOLOGY
CONSULTING GROUNDWATER GEOLOGISTS

Figure 9

Excavation limits were determined in the field by visual assessment and through photoionizer measurements procured along the base and sides of each excavation. Upon completion of the excavation program, representative soil samples were obtained from pit floors and walls in the presence of PADER or EPA and sample splits were provided to PADER for analysis. Subsequent to this process, marker horizons were placed in each excavation and backfilling was initiated. Site backfilling and restoration were initiated on September 26 and completed on October 8 with the application of vegetative cover material.

The combination of visual assessment, low-level recorded photoionizer readings, and analytical results of post-excavation soil samples all indicate the lagoon excavation remedial action program was successful in removing potential source materials of ground water contamination from the current Monsey site. Data obtained during and subsequent to the excavation program indicate a minimum of 95 percent reduction in total volatile organic compound concentration in these former lagoons.

Currently, sampling and analysis has/is being performed in other lagoon areas identified on the Monsey property.

3. Groundwater Contamination

a. Monitoring Wells

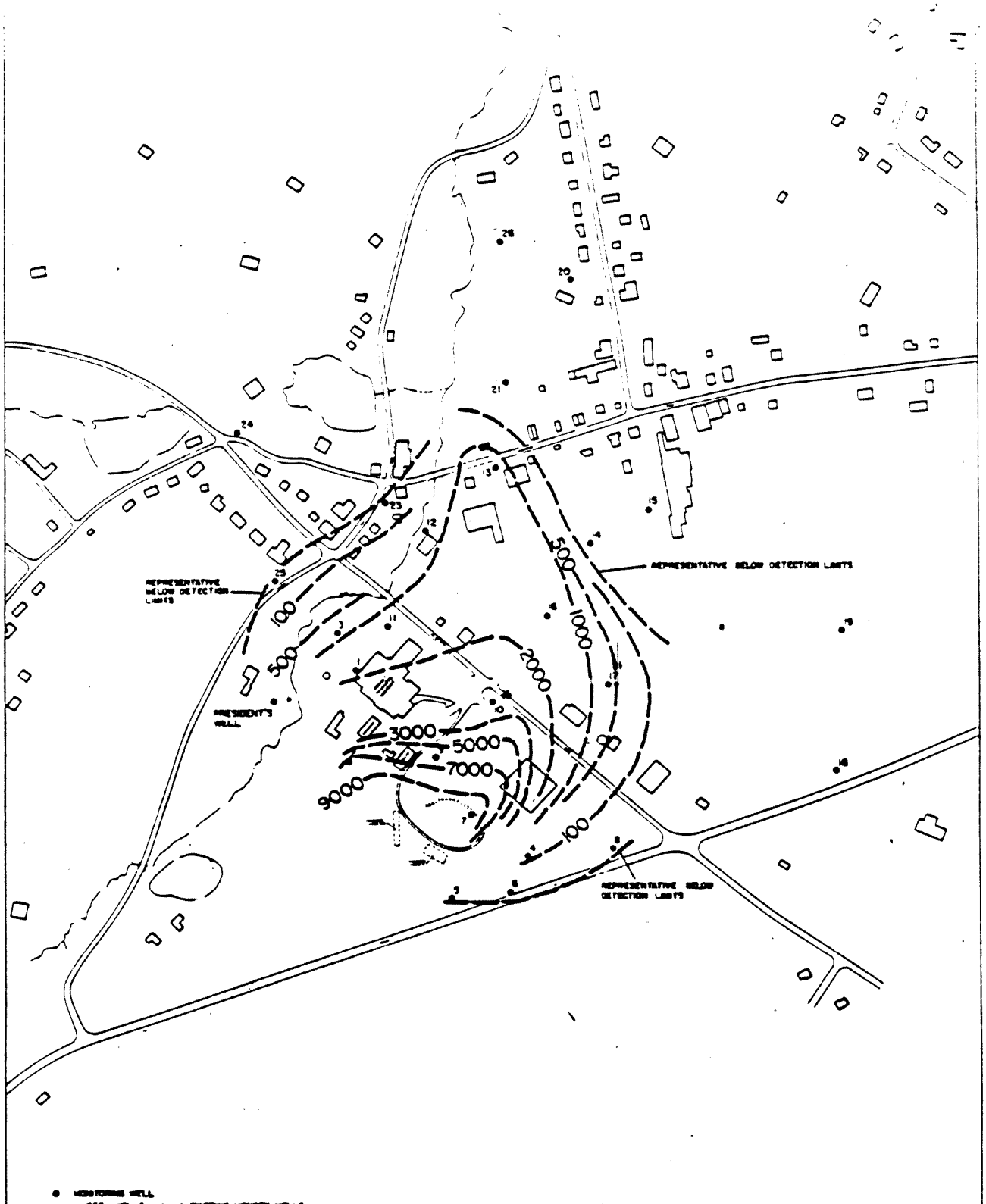
During the period from April through September 1985, a total of 21 monitoring wells were installed in Kimberton within and in the primarily downgradient direction from the general area of current Monsey property (Figure 7). The well installation program was designed to provide definition of local hydrogeology in relation to contaminant movement in the area.

This groundwater monitoring program included the design and supervision of monitoring well installation. Local permits and, where applicable, third-party permission were obtained prior to well installation. Proper well installation specifications and decontamination procedures were established and reviewed by both PADER and EPA.

A preliminary assessment of that groundwater monitoring program, which includes data from the monitoring program, revealed the following:

- Movement of the volatile organic compound (VOC) contaminant plume is primarily controlled by local ground water gradient across the site area (Figures 6 and 10).

- Base neutral compounds were not detected from wells sampled during this program.



TOTAL VOLATILES ISOCONCENTRATION (ppb)
23 - 26 JUNE 1986

Figure 10

GROUNDWATER TECHNOLOGY

Additional groundwater monitoring wells were installed between February and July 1988 during the Supplemental Remedial Investigation to further define the contaminant plume migration (Figure 7).

b. Residential and Private Wells

In August 1985, a program of residential and private well sampling in the central Kimberton area was initiated. Results of this initial sampling program indicated the presence of volatile organic compounds, primarily trichloroethylene (TCE), dichloroethylene (DCE), and vinyl chloride (VC), within the water supply of a number of local residences and commercial establishments. As a result of this sampling program, alternative water supplies have been provided to a total of 25 locations within the Borough of Kimberton. Currently 23 locations receive alternative water supplies (Figure 11).

The collection of data through the ongoing sampling program has and continues to provide useful information on groundwater plume definition and migration pattern.

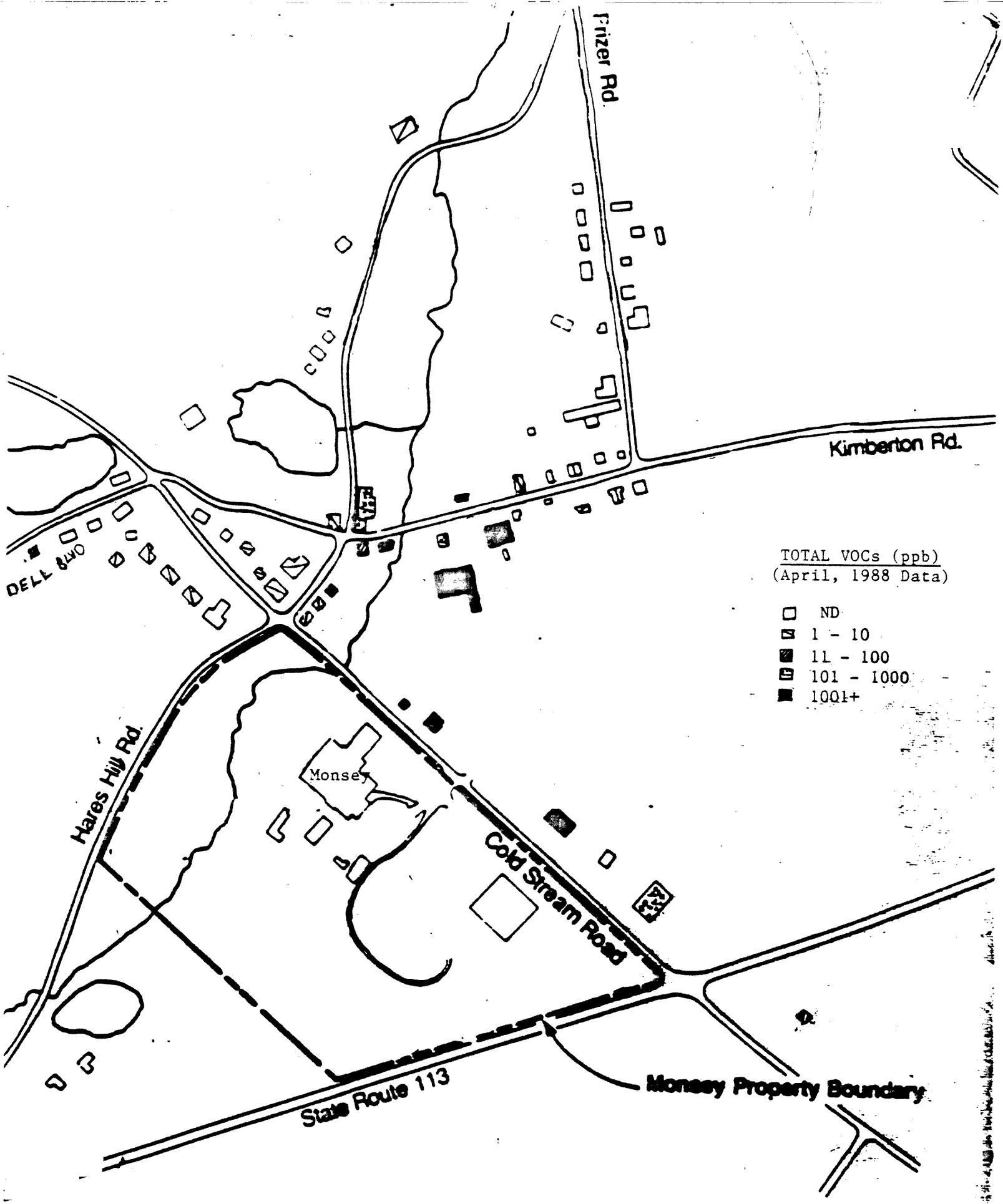
4. Surface Water Contamination

Surface water quality investigations have been conducted on Stream A south of Kimberton Road by Ecology and Environment, Inc. in April 1982 (as part of EPA's FIT study) and by GTI as part of the preliminary site investigation conducted late that same year. Analytical data from stream samples procured during these studies revealed the presence of low levels of VOCs downstream of the Cold Stream Road bridge. These results, together with analyses from samples of springs taken by GTI immediately north of the bridge, indicated that VOCs may be entering the stream primarily from spring discharges.

Stream A sampling conducted by ERM in December 1985, in the downstream direction to a point immediately beyond the confluence of Stream A with effluent from Gotwals Pond, confirmed the presence of VOCs within the stream but with somewhat different distribution. The current stream sampling program is concerned with defining the source(s) of VOCs in Stream A as well as delineating distribution of VOC components. Similar sampling and analysis will be undertaken for Streams B and C which have not been the subject of quantitative investigation to date. The surface water study is designed to characterize surface water flow within the study area to better define preferred zones of ground water discharge and contaminant movement.

C. Summary of Site Risks

Trichloroethylene, dichloroethylene, and vinyl chloride are considered the main contaminants of concern at this site. Acute inhalation exposure to TCE causes central nervous system depression. TCE is classified as a probable human carcinogen. Vinyl chloride is classified as a human carinogen.



KIMBERTON, PA

Figure 11

Potential exposure pathways to humans from the use of contaminated groundwater include:

- ingestion of ground water
- inhalation of volatile chemicals released during water use
  direct dermal contact with contaminated water

Persons at risk of exposure to the contaminants in groundwater include those who have and use contaminated or threatened private wells. Tables 2 and 3 were developed after a review of the CIBA-GEIGY residential well sampling results of August 1985 near the Kimberton Site. Of the twelve volatiles assayed, three are of toxicological concern:

TCE	trichloroethylene
DCE	dichloroethylene
VC	vinyl chloride (chloroethylene).

These three chlorinated ethylenes have carcinogenic potencies which vary over three orders of magnitude:

	10^{-6} cancer risk (ppb)	TCE equivalence
TCE	2.7	1
DCE	0.033	82
VC	0.015	180

That is, molecule for molecule, VC is 180 times as potent in cancer induction as TCE. Hence, 10 ppb contamination with VC is more carcinogenic than 1000 ppb contamination with TCE.

In the following analysis, contamination by TCE, DCE and VC for the most severely affected wells is expressed as multiples of 10^{-6} risks and added together for a summation of carcinogenic risk. Six stations exceed a cumulative 10^{-6} multiple risk of 500 (i.e., individual risk is over 5 per 10,000). Three additional stations have even higher cumulative risks (0.1, 0.5 and 0.7 percent individual risks) (See Table 1).

In additional to these 9 stations with high cumulative risks, there are several stations with marginal risk (See Table 2).

Table 1

RISK ASSESSMENT OF HIGHLY CONTAMINATED WELLS (KIMBERTON)

Name	TCE*	DCE	VC	TOTAL**	Individual Risk
Rev. Munz		182		182	
C. Amidon	230	333		563	
E. Blank	259	485	267	1011	0.1%
C. R. Davis	248	424		672	
D. Doran	226	545		771	
J. Effgen	215	455		670	
Altemose	107	242		349	
P. K. Emery	667	1273	4933	6873	0.7%
D. Kulp	1041	606	3333	4980	0.5%
M. Ludwick	256	364		610 (before GAC)	
Moore/Yeager	222	515		737	
H. E. Pifer	285			285	
C. Wilson	48	91		139	
T. Pfau		121		121	

* Values expressed as multiple of 10^{-6} (hence, cancers per million).
** Cumulative cancers per million lifetime consumers of respective water.

All of the above wells represent greater than 10^{-4} risk and must be avoided immediately for drinking and bathing. In addition, suspension of water for other domestic use in the three cases where individual risk exceed 10^{-3} (0.1%) would be recommended.

Table 2

RISK ASSESSMENT OF MODERATELY CONTAMINATED WELLS

Name	TCE	DCE	VC	TOTAL
G. Epps		91		91
C. Fisher		61		61
K. Phillips	5	61		66
E. Rittenbaugh		61		61
D. Sands		91		91

VI. Community Relations History

The main community concerns for the affected residents and businesses revolve around the issues of:

1. Groundwater contamination on and off-site
2. Quality of alternate water supplies
3. Desire of affected residents to remain on private wells

VII. Remedial Alternative Objectives

The major objective of the remedial action taken at the Kimberton site is to provide a safe drinking and contact water source to those impacted by the groundwater contamination. Based on this objective various mitigation and source control technologies were screened to provide a limited number of technologies applicable to remedial action at the site. The criteria used in this decision making process are the nine evaluation criteria as specified in Section 121 of SARA.

VIII. Description of the Alternatives

Summary of Remedial Alternatives

The Center for Disease Control (CDC) has previously reviewed the initial sampling data collected by CIBA-GEIGY in August 1985 which included 67 residential and commercial establishments. CDC at that time certified 12 wells as being unfit for human consumption and also supported alternative water supplies and additional monitoring which had already been initiated by PADER. The Supplemental Remedial Investigation is continuing to fully identify the contaminant source(s) as well as the full extent of groundwater contamination. The findings of this Supplemental Remedial Investigation will be addressed in a subsequent Proposed Remedial Action Plan.

Three alternatives were specifically developed to address the health risk to those residents who may continue to utilize contaminated private wells. These alternatives were identified and evaluated according to specific criteria required by CERCLA.

No Action

The NCP requires that the no-action alternative (i.e. no treatment) be considered to provide a worse case basis for comparison with other alternatives. To not continue the current treatment program would not be protective of human health in the short and long-term. The public health problem would continue into the foreseeable future.

Alternative 1: No Further Action

Under this alternative, residential and commercial establishments having contaminated wells would continue to receive treatment on an individual basis by filtration utilizing granular activated carbon adsorption. Two additional commercial establishments would continue to receive alternate water in below grade storage tanks. A groundwater monitoring program would also continue which allows periodic reassessment

of the extent of contamination and the concentrations of hazardous substances contained in the groundwater. Both treatment and monitoring are being performed by CIBA-GEIGY and Monsey in accordance with a Consent Order with PADER. Based upon a review of current volatile organic chemical analytical data, this technology has served to reduce to below detectable levels the hazardous substances found in the groundwater obtained from contaminated wells.

- Estimated Annual costs: $250,000 - 300,000
- Estimated Implementation timeframe: 2-30 years
- Present Worth: $3,850,000

A human health evaluation was performed and it was determined that in several instances trichloroethylene, dichloroethylene and vinyl chloride exceeded acceptable concentration levels at the contaminated wells prior to treatment. Human exposure to these contaminants in groundwater may lead to adverse health effects. Following treatment, the water falls within acceptable levels for all 3 contaminants. Therefore, this alternative is appropriate because it would be protective of human health. This is an interim remedy and will be reevaluated once the full extent of the groundwater contamination has been defined and the source remediation alternatives have been evaluated. A range of two to thirty years has been estimated as the length of time that residents and commercial establishments will need to use an alternate water source for costing purposes.

Alternative 2: Temporary Drinking Water

The use of a temporary drinking water source for potable water (i.e. bottled water) is a potential alternative to be implemented until such time that a permanent alternative water supply can be provided for the residents and commercial establishments or the contaminant plume has been remediated. A range of two to thirty years has been estimated as the length of time that residents and commercial establishments will need to use an alternate drinking water sources for costing purposes.

Bottled water can be supplied through delivery to each of the 23 affected locations. The average daily demand for each residence was established for drinking and cooking purpose only. Temporary supply to meet all domestic water needs is impractical since a majority of bottled-water vendors supply five or six gallon storage containers mounted on a free-standing dispenser (bulk storage and dispensing facilities for purchased water would be required to provide alternate contact water for each residence). Therefore, under Alternative 2, all other domestic water needs (i.e. sanitary, bathing, washing, etc.) would continue to be met through the existing contaminated well supplies.

The provision of a temporary water supply to meet drinking and cooking needs would reduce health risks resulting from the ingestion of contaminated well water. However, risks associated with airborne and dermal exposure would continue. The magnitude of the health risk from inhalation and dermal absorption is expected to be comparatively small for a two-year implementation period and would increase proportionately

with increased exposure. For costing purposes the range of two to thirty years has been used.

Estimated Annual Costs:	$130,000
Estimated Timeframe:	2-30 years
Present Worth:	$2,002,000

Alternative 3: Water Company Service Connections and Water-Extension (Public Water Supply)

Both the Phoenixville System and Citizens Utility currently supply water to a portion of the residences in the Kimberton area.

Neither Company's existing water distribution systems currently extend to the area in which the contaminated wells are located. Addressing the problem of the contaminated residential wells by replacement with a public water supply would require the extension of the water supply service system(s).

The facilities to extend the water system(s) include approximately 8,000 feet of water main and 23 service connections. The location of water mains and appurtenances for the water service would be finalized during the design phase.

The implementation of this alternative would necessitate abandonment and sealing of the individual residential wells in accordance with the PADER Standard Specifications for Sealing for Abandoned Wells.

Extension of the existing system is technically feasible and implementable, however, some members of the community prefer to continue using their own private wells containing the carbon filter systems. The capital cost for expanding the water company system(s) is estimated at $1,300,000. The physical expansion of these facilities could be implemented in six to nine months including design, approval, and construction of the system. Six additional months are necessary for administrative purposes, such as securing contracts.

Implementation of this alternative would completely eliminate risk due to exposure to contaminated ground water of residents using the contaminated groundwater for drinking and contact water. It is a viable alternative and represents a permanent solution for providing a drinking water source that meets all criteria for the protection of human health.

- Estimated Annual O&M costs: - 0 -
- Estimated timeframe: 1-2 years
- Present Worth: $1,300,000

IX. A. Description of Major ARARs

Federal

Safe Drinking Water Act	- MCLs
Clean Water Act	- Ambient Water Quality Criteria

State

Pennsylvania Clean Streams Law - Section 402	- Ambient Water Quality Standards
Pennsylvania Rules and Regulations Title 25 Chapter 93	

B. Additional Requirements for Protectiveness

The selected site remedy must consider and be consistant with the following:

Federal Executive Order 11988, Floodplain Management 40 C.F.R. Part 6, Appendix A	Action to avoid adverse effects, minimize potential harm, restore and preserve natural and beneficial value.
Federal Executive Order 11990 Protection of Wetlands, 40 C.F.R. Part 6, Appendix A	Action to minimize destruction, loss, or degradation of wetlands.
Federal Clean Water Act	Differential Groundwater Policy Class IIA aquifer.
New Jersey Coastal Plain Sole Source Aquifer	Action to minimize adverse aquifer impacts

X. Comparative Analysis

Alternative number 1 includes the continued provision of an alternate water supply (either by carbon filtration treatment or below grade storage tank) for all water needs (contact and drinking uses) and continued monitoring of those impacted wells. In addition, this alternative is protective of human health, complies with the identified ARARs, reduces toxicity, is implementable and provides the most cost effective solution for the short-term since the source of this contamination is to be ultimately remediated. This alternative has been accepted by the State.

Alternative number 2 provides for continued use of contaminated supplies, but includes the provision of an alternate drinking and cooking water supply by bottled water and continued monitoring of those impacted wells. These provisions would reduce health risks resulting from the ingestion of contaminated well water, however, risks associated with airborne and dermal exposure would continue. This alternative is implementable, but does not reduce the toxicity, mobility or volume of contaminants, would be effective by eliminating ingestion exposure in the short and long-term and would comply with identified ARARs. However, both the contact and inhalation exposures would remain so therefore, this remedy would not be protective in either the short or long-term.

Alternative number 3 requires the provision for a public water supply as the alternate drinking and contact water source. This alternative would be protective of human health, complies with specified ARARs, is effective both long and short term, implementable and cost effective. It does not, however, reduce the toxicity, mobility or volume of the contaminants. In addition, further information needs to be supplied by the Supplemental Remedial Investigation before the total impact of this option can be assessed (i.e. area-wide development and water needs and the impact of pumping and treating groundwater on-site on the local groundwater flow pattern).

XI. Documentation of Significant Changes

No significant changes to the preferred alternative presented in the proposed plan have occured.

XII. Selected Remedial Alternative

A. Evaluation Criteria

Section 121 of SARA and the current version of the National Contingency Plan (NCP) (50 Fed. Reg. 47912, November 20, 1985) establish a variety of requirements pertaining to remedial actions under CERCLA. The following nine criteria were used in the evaluation of the remedial action alternatives at Kimberton:

- Overall protection of human health and the environment addresses whether or not a remedy provides adequate protection and describes how risks posed through each pathway are eliminated, reduced or controlled through treatment, engineering controls, or institutional controls.

- Compliance with ARARs addresses whether or not a remedy will meet all of the applicable or relevant and appropriate requirements of other Federal and State environmental statutes and/or provides ground for invoking a waiver.

- Long-term effectiveness and permanence refers to the ability of a remedy to maintain reliable protection of human health and the environmental over time once cleanup goals have been met.

- Reduction of toxicity, mobility or volume is the anticipated performance of the treatment technologies a remedy may employ.

- Short-term effectiveness addresses the period of time needed to achieve protection, and any adverse impacts on human health and the environment that may be posed during the construction and implementation period until cleanup goals are achieved.

- Implementability is the technical and administrative feasibility of a remedy, including the availability of materials and services needed to implement a particular option.

- Cost includes estimated capital and operation and maintenance costs and net present worth costs.

- State Acceptance indicates whether, based on its review of RI/FS and Proposed Plan, the State concurs on, opposes, or has no comment on the preferred alternative at the present time.

- Community Acceptance will be assessed in the Record of Decision following a review of the public comments received on the Administrative Record and Proposed Plan.

B. Determination of Preferred Remedial Alternative

The preferred alternative is alternative number 1. This alternative selects continued use of individual well treatment by granular activated carbon adsorption as required by PADER's 1986 Consent Order with the PRPs.

The preferred alternative provides complete protection, in the short-term, to groundwater users by treatment of the water at the individual wells. Long-term effectiveness will be obtained by implementing additional remedies identified in the next operable unit which will be available for public comment once developed. The PRPs identified at this Site will continue to maintain carbon filters and water via below grade tanks which provides both drinking and contact water, which upon chemical analysis achieves the current standards.

EPA, in consultation with PADER, has made a preliminary determination that the preferred alternative provides the best balance of tradeoff with respect to the nine criteria. The preferred alternative is anticipated to meet the following statutory requirements to:

- Protect human health and the environment
- Attain ARARS
- Be cost-effective
- Utilize permanent solutions and alternative treatment (or resource recovery) technologies to the maximum extent practicable

In summary, at this time the preferred alternative is believed to provide the best balance of trade-offs among alternatives with respect to the criteria used to evaluate remedies. Based on the information available at this time, therefore, EPA and PADER believe the preferred alternative would be protective, would attain ARARs, would be cost-effective, and would utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable.

Schedule

The anticipated schedule for completion of the Supplemental Remedial Investigation and Feasibility Study is Spring 1989. Remedial Design and Construction for the final remedy is anticipated to commence in Fall 1989.

C. Statement of Findings Regarding Wetlands and Floodplains

The focus of this decision is to provide an interim remedial alternative for the contaminated groundwater, defined as the first operable unit for this site. Further work at this site will consider the impact of contamination on wetlands, floodplains and surface water. A wetlands assessment will be performed during the next phase of this project.

XIII. The Statutory Determinations

A. Protection of Human Health and the Environment

The selected remedy will reduce and control the amount of groundwater contamination which will ensure adequate protection of human health and the environment. No unacceptable short and long-term risks or cross-media impact will be caused by implementation of the remedy.

Based on a review of volatile organic chemical analytical data from collected groundwater samples from impacted off-site wells and given the vinyl chloride concentrations in the untreated groundwater, the use of granular activated carbon filters has proven to be successful in reducing the concentrations of the contaminants of concern (TCE, DCE, VC) to non-detectable levels.

B. Attainment of ARARs

The selected remedy will attain the applicable or relevant and appropriate requirements and are as follows:

Federal

Safe Drinking Waste Act	- MCLs
Clean Water Act	- Ambient Water Quality Criteria

State

Pennsylvania Clean Streams Law - Section 402	- Ambient Water Quality Standards

Additional Requirements for Protectiveness

The selected site remedy is consistent with the following:

Federal Executive Order 11988, Floodplain Management 40 C.F.R. Part 6, Appendix A	- Action to avoid adverse effects, minimize potential harm, restore and preserve natural beneficial value.
Federal Executive Order 11990, Protection of Wetlands, 40 C.F.R. Part 6, Appendix A	- Action to minimize destruction, loss, or degradation of wetlands.
Federal Clean Water Act	- Differential Groundwater Policy Class IIA aquifer

New Jersey Coastal Plain Sole Source Aquifer	- Action to minimize aquifer impacts

C. Cost-effectiveness

The selected remedy provides overall effectiveness commensurate to its costs such that it represents value for the money. The PRPs are maintaining the current systems described in the selected remedial alternative in compliance with the PADER Consent Order and Agreement. This is a cost savings to the government.

D. Utilization of permanent solutions employing alternative technologies to the maximum extent practicable

The selected remedy is the most appropriate solution for this operable unit and represents the maximum extent to which permanent solutions and treatment can be practicable utilized.

E. Preference for treatment as a principal element

The preference is satisfied since treatment is the principal element of the chosen alternative.

APPENDIX A

T. Pfau

Summary of Analytical Data for Domestic Well and Carbon System
All concentrations ug/l, parts per billion, ppb.
Analyses by EPA methods 601 and 602, OR 624 (indicated by *).
MID A samples refer to between primary and secondary tanks.

Sampling Date	Total Gallons	RAW Sample Tap A	RAW Sample Tap B	RAW Sample Tap C	MID A Sample Tap A	MID A Sample Tap B	MID A Sample Tap C	AFTER CARBON Sample Tap A	AFTER CARBON Sample Tap B	AFTER CARBON Sample Tap C	AFTER CARBON Sample Tap D
08/13/85		4	15	ND							
10/03/85		4	15	ND							
01/27/86	156	---	---	ND	ND	ND	ND	1	ND	ND	ND
05/21/86*	4634	ND	10	ND	ND	ND	ND	ND	ND	ND	ND
08/20/86*	7879	BMDL	20	ND	ND	BMDL	BMDL	ND	ND	ND	ND
11/20/86*	11120	BMDL	10	ND	ND	ND	ND	ND	ND	ND	ND
2/16/87*	14410	BMDL	BMDL	ND	ND	ND	ND	ND	ND	ND	ND
5/ 4/87*	22150	BMDL	BMDL	ND	ND	ND	ND	ND	ND	ND	ND
7/27/87*	25250	BMDL	10	ND	ND	ND	ND	ND	ND	ND	ND
10/20/87*	29180	BMDL	20	ND	ND	ND	ND	ND	ND	ND	ND
1/11/88*	32670	BMDL	10	ND	ND	ND	ND	ND	ND	ND	BMDL
4/8/88*	41700	ND	BMDL	ND	ND	ND	ND	ND	ND	ND	ND

KEY

blank space - not applicable
--- - indicates not sampled
ND - none detected
A - 1,1-Dichloroethene
B - 1,1,1-Trichloroethane
C - Toluene
D - Methylene Chloride

Issue Date: 5/12/88 J. Daugherty

Ferrell/Fischer
Summary of Analytical Data for Domestic Well.
All concentrations ug/l, parts per billion, ppb.
Analyses by EPA methods 601 and 602, OR 624 (indicated by *).

	RAW Sample Tap		
Sampling Date	A	B	C
8/14/85	ND	ND	ND
5/21/86*	ND	ND	ND
8/20/86*	ND	ND	ND
11/21/86*	ND	ND	ND
2/16/87*	ND	ND	ND
5/ 8/87*	ND	ND	ND
8/ 4/87*	ND	ND	ND
10/26/87*	ND	ND	ND
1/18/88*	ND	ND	ND
4/7/88*	ND	ND	ND

KEY

ND - none detected
A - trans-1,2-Dichloroethene
B - Trichloroethene
C - 1,1,1-Trichloroethane

Issue Date: 5/12/88 J. Doughty

J. Effgen/Altemose - Risberton Country House
Summary of Analytical Data for Domestic Well and Carbon System
All concentrations ug/l, parts per billion, ppb.
Analyses by EPA methods 601 and 602, CM 624 (indicated by *).
MID A samples refer to between primary and secondary tanks, left hand train as you face the system.
MID B samples refer to between primary and secondary tanks, right hand train as you face the system.
RB - indicates first sampling performed following remedding.

	Sampling Date	Total Gallon	RAW Sample Tap A	B	C	D	E	F	G	MID A Sample Tap A	B	C	D	E	F	G	H	I	J	MID B Sample Tap B	D	E	F	AFTER CARBON Sample Tap A	B	C	D	E	F	G	H	I	J
	8/12/85		290	340	8	1	3	4	ND																								
	1/10/86	6657	150	180	4	1	2	4	13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	---	---	---	---	---	---	---	---	---	---
	1/17/86	20292	---	---	---	---	---	---	---	ND	ND	ND	ND	ND	6	ND	ND	ND	ND	ND	ND	ND	8	ND	ND	ND	ND	ND	10	ND	ND	ND	ND
	1/27/86	65397	---	---	---	---	---	---	---	ND	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	2/ 3/86	84733	---	---	---	---	---	---	---	1	2	ND	ND	ND	ND	ND	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	2/17/86	128670	---	---	---	---	---	---	---	ND	5	ND	ND	ND	ND	ND	ND	ND	ND	3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	2/24/86	152153	---	---	---	---	---	---	---	ND	7	ND	ND	ND	ND	ND	ND	ND	ND	13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	3/ 3/86	174757	---	---	---	---	---	---	---	ND	14	ND	ND	ND	ND	ND	ND	ND	ND	25	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	3/10/86	196307	---	---	---	---	---	---	---	ND	36	ND	ND	ND	ND	ND	ND	ND	ND	57	ND	ND	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	3/17/86	218902	---	---	---	---	---	---	---	ND	68	ND	1	1	ND	ND	ND	ND	ND	87	ND	ND	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RB	3/24/86	243372	---	---	---	---	---	---	---	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	3/31/86	272650	---	---	---	---	---	---	---	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	4/ 7/86	298522	---	---	---	---	---	---	---	ND	2	ND	ND	ND	ND	ND	ND	ND	ND	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	4/14/86	323560	240	310	3	ND	ND	2	ND	ND	13	ND	ND	ND	ND	ND	ND	ND	ND	4	ND	ND	ND	---	---	---	---	---	---	---	---	---	---
	4/21/86	351582	---	---	---	---	---	---	---	ND	48	ND	ND	1	ND	ND	ND	ND	ND	24	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	4/28/86	381445	---	---	---	---	---	---	---	ND	130	ND	ND	ND	ND	ND	4	ND	ND	77	1	2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	5/ 5/86	409590	---	---	---	---	---	---	---	ND	170	2	1	2	ND	ND	ND	ND	ND	120	1	2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	5/12/86	440641	---	---	---	---	---	---	---	ND	210	2	ND	2	ND	ND	ND	ND	ND	170	1	2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RB	5/19/86	---	---	---	---	---	---	---	---	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	5/22/86*	498411	150	200	SMDL	ND	ND	SMDL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	6/ 3/86	550248	---	---	---	---	---	---	---	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	6/ 9/86	577460	---	---	---	---	---	---	---	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	6/16/86	610873	---	---	---	---	---	---	---	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	14	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	6/23/86	636337	---	---	---	---	---	---	---	ND	4	ND	ND	ND	ND	ND	ND	ND	ND	23	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	6/30/86	664711	---	---	---	---	---	---	---	ND	21	ND	ND	ND	ND	ND	ND	ND	ND	55	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	7/ 7/86	690918	---	---	---	---	---	---	---	ND	73	ND	1	2	ND	ND	ND	ND	ND	93	ND	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	7/14/86	718520	---	---	---	---	---	---	---	ND	120	ND	1	ND	ND	ND	ND	ND	ND	130	ND	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RB	7/21/86	747770	---	---	---	---	---	---	---	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	8/21/86*	872940	300	280	SMDL	ND	ND	SMDL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	SMDL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	8/25/86	889600	---	---	---	---	---	---	---	ND	2	ND	ND	ND	ND	ND	ND	ND	ND	7	ND	ND	ND	---	---	---	---	---	---	---	---	---	---
	9/ 8/86	940488	---	---	---	---	---	---	---	ND	28	ND	ND	ND	ND	ND	ND	ND	ND	47	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	9/25/86	1006680	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RB	9/30/86	1031747	---	---	---	---	---	---	---	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	10/28/86	1151780	---	---	---	---	---	---	---	ND	6	ND	ND	ND	ND	ND	ND	ND	ND	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RB	11/26/86*	1265520	200	260	SMDL	ND	ND	SMDL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	12/29/86	1396450	---	---	---	---	---	---	---	ND	3	ND	ND	ND	ND	ND	ND	ND	ND	1	ND	ND	ND	---	---	---	---	---	---	---	---	---	---
	2/ 2/87	1926980	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RB	2/ 4/87*	1534660	---	---	---	---	---	---	---	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	2/16/87*	1585510	180	270	SMDL	ND	ND	SMDL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	3/ 9/87	1672780	---	---	---	---	---	---	---	ND	4	ND	ND	ND	ND	ND	ND	ND	ND	4	ND	ND	ND	---	---	---	---	---	---	---	---	---	---
	4/ 1/87	1769670	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RB	4/ 2/87	1773780	---	---	---	---	---	---	---	ND	ND	ND	ND	ND	ND	ND	ND	2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	5/ 8/87*	1944840	200	270	SMDL	ND	ND	SMDL	ND	ND	SMDL	ND	ND	ND	ND	ND	ND	ND	ND	SMDL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	5/22/87	2020100	---	---	---	---	---	---	---	ND	30	ND	ND	2	ND	ND	ND	ND	ND	4	ND	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RB	5/26/87	2040810	---	---	---	---	---	---	---	ND	ND	ND	ND	ND	ND	ND	ND	2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	6/25/87	2169120	---	---	---	---	---	---	---	ND	3	ND	ND	ND	ND	ND	ND	13	ND	2	ND	ND	ND	---	---	---	---	---	---	---	---	---	---
	7/21/87	2313870	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RB	7/22/87	2319300	---	---	---	---	---	---	---	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	8/14/87*	2433520	220	300	SMDL	ND	ND	SMDL	ND	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	8/18/87	2453050	---	---	---	---	---	---	---	ND	5	ND	ND	ND	ND	ND	ND	ND	ND	2	ND	ND	ND	---	---	---	---	---	---	---	---	---	---
RB	9/ 2/87	2520950	---	---	---	---	---	---	---	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	---	---	---	---	---	---	---	---	---	---
	10/ 2/87	2660844	---	---	---	---	---	---	---	ND	26	ND	ND	ND	ND	ND	2	ND	ND	11	ND	ND	ND	---	---	---	---	---	---	---	---	---	---
	10/20/87*	2743540	310	430	SMDL	ND	ND	SMDL	ND	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	/21/87	2747090	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	'04/87	2810410	---	---	---	---	---	---	---	ND	2	ND	ND	ND	ND	ND	ND	ND	ND	LB	LB	LB	LB	---	---	---	---	---	---	---	---	---	---
	20/87	2880250	---	---	---	---	---	---	---	ND	10	ND	ND	ND	ND	ND	ND	ND	ND	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	9/87	2970780	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	/10/87	2977530	---	---	---	---	---	---	---	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	1/08/88*	3111380	---	---	---	---	---	---	---	ND	2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	---	---	---	---	---	---	---	---	---	---
	1/11/88*	3122430	260	370	SMDL	ND	ND	ND	ND	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	1/28/88*	3185620	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
RB	1/29/88*	3190400	---	---	---	---	---	---	---	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	2/26/88*	3302200	---	---	---	---	---	---	---	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2	ND	ND	ND	---	---	---	---	---	---	---	---	---	---
	3/17/88*	3378410	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
RB	3/18/88*	3382560	---	---	---	---	---	---	---	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	---	---	---	---	---	---	---	---	---	---
	4/06/88*	3525630	230	330	SMDL	ND	ND	SMDL	ND	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

KEY

blank space - not applicable
--- - indicates not sampled
ND - none detected
LB - Laboratory lost or vial was broke upon receipt
A - Trichloroethane
B - trans-1,2,-Dichloroethene
C - 1,1-Dichloroethane
D - 1,1-Dichloroethane
E - 1,2-Dichloroethane
F - 1,1,1-Trichloroethane
G - Chloroform
H - Toluene
I - Methylene Chloride
J - Dibromochloromethane

Remed Date	Gallon Reading	
1/ 9/86	-	installation date
3/21/86	231613	(primaries removed, secondaries rotated to primaries)
5/16/86	463540	
7/16/86	725720	
9/25/86	1006970	
11/24/86	1256265	
2/ 2/87	1526980	
4/ 1/87	1769670	
5/22/87	2020850	
7/21/87	2313870	
9/ 1/87	2517540	
10/21/87	2747090	
12/ 9/87	2971830	
1/28/88	3185620	
3/17/88	3378410	

Issue Date: 5/12/88 J. Dougherty

C. R. Davis & Sons
Summary of Analytical Data for Domestic Well and Carbon System
All concentrations ug/l, parts per billion, ppb.
Analyses by EPA methods 601 and 602, or 624 (Indicated by *).
MID A samples refer to between primary and secondary tanks, left hand train as you face the system.
MID B samples refer to between primary and secondary tanks, right hand train as you face the system.
RB - indicates first sampling performed following rebedding.

	Sampling Date	Total Gallons	RAW Sample Tap							MID A Sample Tap			MID B Sample Tap					AFTER CARBON Sample Tap						
			A	B	C	D	E	F	G	A	B	F	A	B	F	G	H	A	B	C	D	E	F	G
	8/14/85		670	780	14	3	1	ND	ND															
	1/17/86(1)		480	620	10	ND	ND	ND	ND															
	1/27/86(1)		500	730	ND	ND	ND	ND	ND															
	2/ 5/86	39750	---	---	---	---	---	---	---	ND	1	ND	ND	1	ND	ND	ND	2	2	ND	ND	ND	ND	ND
	2/17/86	43950	---	---	---	---	---	---	---	ND	ND	ND	ND	ND	ND	ND	ND	1	3	ND	ND	ND	ND	ND
	5/22/86*	69990	550	620	BMDL	ND	ND	BMDL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	8/21/86*	100550	530	770	BMDL	ND	ND	BMDL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	11/20/86*	131010	490	750	10	ND	ND	ND	BMDL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	2/10/87*	(2)	490	720	BMDL	ND	ND	BMDL	BMDL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	5/ 4/87*	(3) 7980	520	710	BMDL	ND	ND	BMDL	BMDL	ND	ND	BMDL	ND	ND	BMDL	ND	ND	ND	ND	ND	ND	ND	ND	ND
	7/27/87*	29890	600	760	10	ND	ND	BMDL	BMDL	ND	ND	BMDL	ND	ND	10	ND	ND	ND	ND	ND	ND	ND	ND	ND
RB	8/17/87*	43000	---	---	---	---	---	---	---	ND	ND	ND	ND	ND	ND	ND	ND	---	---	---	---	---	---	---
	10/20/87*	58080	380	610	BMDL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	1/11/88*	76520	470	760	BMDL	ND	ND	BMDL	BMDL	ND	ND	ND	ND	ND	ND	ND	BMDL	ND	ND	ND	ND	ND	ND	ND
	4/6/88*	114610	620	640	BMDL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Rebed Date	Gallon Reading
8/14/87	42810

KEY

1 - signifies new well installed in 1/86.
2 - flow meter was removed from service by owner.
3 - new meter was installed on 4/14/87.
blank space - not applicable
--- - indicates not sampled
ND - none detected
A - Trichloroethene
B - trans-1,2,-Dichloroethene
C - 1,1-Dichloroethene
D - 1,2-Dichloropropane
E - 1,1,1-Trichloroethane
F - Vinyl Chloride
G - 1,2-Dichloroethane

Issue Date: 5/12/88 J. Dougherty

000150

D. Sands
Summary of Analytical Data for Domestic Well and Carbon System
All concentrations ug/l, parts per billion, ppb.
Analyses by EPA methods 601 and 602, OR 624 (indicated by *).
MID A samples refer to between primary and secondary tanks.

		RAW Sample Tap			MID A Sample Tap			AFTER CARBON Sample Tap		
Sampling Date	Total Gallons	A	B	C	A	B	C	A	B	C
8/12/85		3	1	9						
10/ 3/85		3	2	9						
2/03/86	1008	---	---	---	ND	ND	ND	ND	ND	ND
5/22/86*	21135	ND	ND	BMDL	ND	ND	BMDL	ND	ND	ND
8/21/86*	42539	BMDL	ND	BMDL	ND	ND	ND	ND	ND	ND
11/20/86*	60180	BMDL	ND	BMDL	ND	ND	ND	ND	ND	ND
2/10/87*	75994	BMDL	ND	BMDL	ND	ND	ND	ND	ND	ND
5/ 8/87*	91480	BMDL	ND	BMDL	ND	ND	ND	ND	ND	ND
7/31/87*	NA	BMDL	ND	BMDL	ND	ND	BMDL	ND	ND	ND
10/26/87*	124460	ND	ND	BMDL	ND	ND	BMDL	ND	ND	ND
1/18/88*	139210	BMDL	ND	BMDL	ND	ND	BMDL	ND	ND	ND
4/06/88*	153700	ND	ND	BMDL	ND	ND	BMDL	ND	ND	ND

KEY

blank space - not applicable
--- - indicates not sampled
ND - none detected
A - 1,1-Dichloroethene
B - 1,1-Dichloroethane
C - 1,1,1-Trichloroethane

Issue Date: 5/12/88 J Daugherty

Moore & Teager
Summary of Analytical Data for Domestic Well and Carbon System
All concentrations ug/l, parts per billion, ppb.
Analyses by EPA methods 601 and 602, OR 624 (indicated by *).
MID A samples refer to between primary and secondary tanks, left hand train as you face the system.
MID B samples refer to between primary and secondary tanks, right hand train as you face the system.
RB - indicates first sampling performed following rebedding.

			RAW Sample Tap							MID A Sample Tap							MID B Sample Tap							AFTER CARBON Sample Tap						
	Sampling Date	Total Gallons	A	B	C	D	E	F	G	A	B	C	D	E	F	G	A	B	C	D	E	F	G	A	B	C	D	E	F	G
	8/12/85		600	260	17	7	3	ND	ND																					
	11/14/85		550	260	10	10	ND	ND	ND	---	---	---	---	---	---	---	---	---	---	---	---	---	---	ND	ND	ND	ND	ND	ND	ND
	11/27/85	1653	---	---	---	---	---	---	---	ND	ND	ND	ND	ND	ND	ND	---	---	---	---	---	---	---	ND	ND	ND	ND	ND	ND	ND
	2/10/86	9550	---	---	---	---	---	---	---	ND	1	ND	ND	ND	2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	5/21/86*	19830	480	320	10	BMDL	BMDL	ND	30	ND	BMDL	ND	ND	ND	ND	ND	ND	BMDL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	8/20/86*	32330	600	350	20	ND	ND	ND	10	ND	BMDL	ND	ND	ND	ND	ND	ND	BMDL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	11/20/86*	42390	470	270	10	BMDL	BMDL	ND	ND	ND	BMDL	ND	ND	ND	ND	ND	ND	BMDL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	2/16/87*	51820	610	410	20	BMDL	BMDL	ND	20	ND	BMDL	ND	ND	ND	ND	ND	BMDL	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RB	3/ 2/87*	53550	---	---	---	---	---	---	---	ND	BMDL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	---	---	---	---	---	---	---
	5/ 4/87*	61444	390	340	10	BMDL	BMDL	ND	20	ND	ND	ND	ND	ND	ND	ND	ND	BMDL	ND	ND	ND	ND	ND	BMDL	BMDL	ND	ND	ND	ND	ND
	7/27/87*	74190	710	380	10	BMDL	BMDL	ND	30	ND	BMDL	ND	ND	ND	ND	ND	BMDL	BMDL	ND	ND	ND	ND	ND	BMDL	BMDL	ND	ND	ND	ND	ND
	10/20/87*	84820	570	260	10	BMDL	BMDL	ND	BMDL	ND	BMDL	ND	ND	ND	ND	ND	ND	BMDL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	1/11/88*	95270	520	280	10	BMDL	BMDL	ND	BMDL	ND	BMDL	ND	ND	ND	ND	BMDL	BMDL	BMDL	ND	ND	ND	ND	BMDL	ND	ND	ND	ND	ND	ND	ND
	4/06/88*	106550	510	300	BMDL	BMDL	BMDL	ND	ND	BMDL	BMDL	ND	ND	ND	ND	ND	BMDL	BMDL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

KEY

blank space - not applicable
--- - indicates not sampled
ND - none detected
A - Trichloroethene
B - trans-1,2,-Dichloroethene
C - 1,1-Dichloroethene
D - 1,2-Dichloroethane
E - 1,2-Dichloropropane
F - Toluene
G - Vinyl Chloride
H - Methylene Chloride

Rebed Date	Gallons
3/ 2/87	53430

Issue Date: 5/12/88 J. Daugherty

W. Hopwood / H. E. Pifer
Summary of Analytical Data for Domestic Well and Carbon System
All concentrations ug/l, parts per billion, ppb.
Analyses by EPA methods 601 and 602, OR 624 (indicated by *).
MID A samples refer to between primary and secondary tanks, left hand train as you face the system.
MID B samples refer to between primary and secondary tanks, right hand train as you face the system.
RB - indicates first sampling performed following rebedding.

			RAW Sample Tap						MID A Sample Tap					MID B Sample Tap					AFTER CARBON Sample Tap					
	Sampling Date	Total Gallons	A	B	C	D	E	F	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	F
	8/13/85		770	670	ND	ND	ND	ND																
	10/28/85		640	620	7	2	3	ND	---	---	---	---	---	---	---	---	---	---	2	2	ND	ND	ND	ND
	11/22/85	3290	---	---	---	---	---	ND	ND	2	ND	ND	ND	1	4	ND	ND	ND	ND	ND	ND	ND	ND	ND
	1/27/86	12316	---	---	---	---	---	ND	1	4	ND	ND	ND	1	6	ND	ND	ND	ND	ND	ND	ND	ND	ND
	5/21/86*	27297	740	670	BMDL	ND	BMDL	ND	BMDL	10	ND	ND	ND	BMDL	20	ND	ND	ND	ND	ND	ND	ND	ND	ND
	8/20/86*	39220	670	760	BMDL	ND	BMDL	ND	BMDL	20	ND	ND	ND	BMDL	20	ND	ND	ND	ND	ND	ND	ND	ND	ND
	11/20/86*	50230	670	780	BMDL	BMDL	BMDL	ND	BMDL	10	ND	ND	ND	BMDL	20	ND	ND	ND	ND	ND	ND	ND	ND	ND
RB	12/23/86*	54182	---	---	---	---	---	---	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	---	---	---	---	---	---
	2/10/87*	60221	760	830	BMDL	ND	BMDL	ND	ND	BMDL	ND	ND	ND	ND	BMDL	ND	ND	ND	ND	ND	ND	ND	ND	ND
	5/ 8/87*	70770	750	770	BMDL	ND	BMDL	ND	ND	BMDL	ND	ND	ND	ND	BMDL	ND	ND	ND	ND	ND	ND	ND	ND	ND
	8/ 4/87*	82000	580	780	BMDL	BMDL	BMDL	BMDL	BMDL	20	ND	ND	ND	BMDL	20	ND	ND	ND	ND	ND	ND	ND	ND	ND
RB	8/18/87*	84500	---	---	---	---	---	---	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	---	---	---	---	---	---
	10/26/87*	92980	510	650	ND	ND	ND	ND	ND	BMDL	ND	ND	ND	ND	BMDL	ND	ND	ND	ND	ND	ND	ND	ND	ND
	1/18/88*	104480	660	710	BMDL	ND	BMDL	ND	ND	10	ND	ND	ND	ND	BMDL	ND	ND	ND	ND	ND	ND	ND	ND	ND
RB	2/16/88*	108720	---	---	---	---	---	---	BMDL	BMDL	ND	ND	ND	ND	ND	ND	ND	ND	---	---	---	---	---	---
	4/07/88*	116240	620	690	BMDL	ND	ND	ND	BMDL	BMDL	ND	ND	ND	20	BMDL	ND	ND	ND	ND	ND	ND	ND	ND	ND

KEY
Blank space - not applicable
--- - indicates not sampled.
ND - none detected
A - Trichloroethene
B - trans-1,2,-Dichloroethene
C - 1,1-Dichloroethene
D - 1,2-Dichloropropane
E - 1,1,1-Trichloroethane
F - 1,2-Dichloroethane

Rebed Date	Gallon Reading
12/22/86	53990
8/17/87	84390
2/15/88	108480

Issue Date: 5/12/88 J. Dougherty

C. Amidon/T. Foster - Cricket Corner
Summary of Analytical Data for Domestic Well and Carbon System
All concentrations ug/l, parts per billion, ppb.
Analyses by EPA methods 601 and 602, OR 624 (indicated by *).
MID A samples refer to between primary and secondary tanks, left hand train as you face the system.
MID B samples refer to between primary and secondary tanks, right hand train as you face the system.

Sampling Date	Total Gallons	RAW Sample Tap						MID A Sample Tap						MID B Sample Tap						AFTER CARBON Sample Tap					
		A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F
8/14/85		620	610	11	2	2	ND																		
11/07/85	230	600	540	ND	ND	ND	ND	---	---	---	---	---	---	---	---	---	---	---	---	ND	ND	ND	ND	ND	ND
11/27/85	560	---	---	---	---	---	---	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
5/21/86*	3111	570	530	BMDL	ND	BMDL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
8/20/86*	4550	610	740	10	ND	BMDL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
11/20/86*	5820	400	480	BMDL	ND	ND	BMDL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2/10/87*	6950	340	370	BMDL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
5/ 8/87*	8130	650	630	BMDL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
8/ 5/87*	9200	470	550	BMDL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
10/27/87*	10400	470	580	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1/19/88*	11770	560	710	BMDL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4/07/88*	12790	440	540	BMDL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

KEY

Blank space - not applicable
--- - indicates not sampled
ND - none detected
A - Trichloroethene
B - trans-1,2,-Dichloroethene
C - 1,1-Dichloroethene
D - 1,2-Dichloropropane
E - 1,1,1-Trichloroethane
F - 1,2-Dichloroethane

Issue Date: 5/12/88 J. T. Daugherty

R. Adams

Summary of Analytical Data for Domestic Well and Carbon System
All concentrations ug/l, parts per billion, ppb.
Analyses by EPA methods 601 and 602, OR 624 (indicated by *).
MID A samples refer to between primary and secondary tanks.

Sampling Date	Total Gallons	RAW Sample Tap A	RAW Sample Tap B	RAW Sample Tap C	MID A Sample Tap A	MID A Sample Tap B	MID A Sample Tap C	AFTER CARBON Tap A	AFTER CARBON Tap B	AFTER CARBON Tap C
8/12/85		8	5	2						
10/ 4/85		2	1	2						
3/17/86	8585	---	---	---	ND	ND	ND	ND	ND	ND
5/21/86*	32655	ND	ND	ND	ND	ND	ND	ND	ND	ND
8/20/86*	60659	BMDL	BMDL	BMDL	ND	ND	ND	ND	ND	ND
11/21/86*	94010	10	BMDL	ND	ND	ND	ND	ND	ND	ND
2/10/87*	126666	ND	ND	ND	ND	ND	ND	ND	ND	ND
5/ 4/87*	159028	ND	ND	ND	ND	ND	ND	ND	ND	ND
7/27/87*	195390	BMDL	ND	ND	ND	ND	ND	ND	ND	ND
10/20/87*	225820	10	BMDL	ND	BMDL	BMDL	ND	ND	ND	ND
1/11/88*	255910	ND	ND	ND	ND	ND	ND	ND	ND	ND
4/06/88*	286560	ND	ND	ND	ND	ND	ND	ND	ND	ND

KEY

blank space - not applicable
--- - indicates not sampled
ND - none detected
BMDL - Below minimum detection limit
A - Trichloroethene
B - trans-1,2,-Dichloroethene
C - Tetrachloroethene

Issue Date: 5/12/88 J Dougherty

E. A. Solomon
Summary of Analytical Data for Domestic Well and Carbon System
All concentrations ug/l, parts per billion, ppb.
Analyses by EPA methods 601 and 602, OR 624 (indicated by *).
MID A samples refer to between primary and secondary tanks.

		RAW Sample Tap				MID A Sample Tap				AFTER CARBON Sample Tap			
Sampling Date	Total Gallons	A	B	C	D	A	B	C	D	A	B	C	D
2/ 3/86		190	53	3	1								
3/24/86	984	---	---	---	---	ND	ND	ND	ND	ND	ND	ND	ND
5/21/86*	13107	250	70	BMDL	ND	ND	ND	ND	ND	ND	ND	ND	ND
8/20/86*	27120	280	110	BMDL	ND	ND	ND	ND	ND	ND	ND	ND	ND
11/20/86*	41210	230	70	BMDL	BMDL	ND	ND	ND	ND	ND	ND	ND	ND
2/16/87*	52240	210	50	BMDL	ND	ND	BMDL	ND	ND	ND	ND	ND	ND
5/ 8/87*	62930	280	70	BMDL	BMDL	ND	BMDL	ND	ND	ND	ND	ND	ND
8/ 4/87*	76140	280	70	BMDL	ND	ND	BMDL	ND	ND	ND	ND	ND	ND
10/26/87*	87810	240	60	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1/19/88*	103880	190	60	ND	ND	ND	BMDL	ND	ND	ND	ND	ND	ND
4/7/88*	118670	270	60	ND	ND	BMDL	BMDL	ND	ND	ND	ND	ND	ND

KEY

blank space - not applicable
--- - indicates not sampled
ND - none detected
A - Trichloroethene
B - trans-1,2-Dichloroethene
C - 1,1-Dichloroethene
D - 1,2-Dichloroethane

Issue Date: 5/12/88 J. Daugherty

D. Adams - Kimber Hall
Summary of Analytical Data for Domestic Well and Carbon System
All concentrations ug/l, parts per billion, ppb.
Analyses by EPA methods 601 and 602, OR 624 (indicated by *).
MID A samples refer to between primary and secondary tanks, left hand train as you face the system.
MID B samples refer to between primary and secondary tanks, right hand train as you face the system.

		RAW Sample Tap			MID A Sample Tap			MID B Sample Tap			AFTER CARBON Tap			
Sampling Date	Total Gallons	A	B	C	A	B	C	A	B	C	A	B	C	D
8/14/85		2	8	ND										
10/ 4/85		2	8	ND										
2/19/86	27495	---	---	---	ND	ND	12	ND	ND	ND	ND	ND	ND	1
5/21/86*	70279	BMDL	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
8/20/86*	110813	ND	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
11/20/86*	153440	BMDL	BMDL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2/11/87*	203260	BMDL	BMDL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
5/13/87*	263080	BMDL	BMDL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
8/14/87*	315300	BMDL	10	ND	ND	ND	ND	ND	BMDL	ND	ND	ND	ND	ND
10/26/87*	350240	ND	BMDL	ND	ND	ND	ND	ND	BMDL	ND	ND	ND	ND	ND
1/19/88*	392050	BMDL	BMDL	ND	ND	BMDL	ND	ND	BMDL	ND	ND	ND	ND	ND
4/07/88*	426270	BMDL	BMDL	BMDL	ND	BMDL	ND	ND	BMDL	ND	ND	ND	ND	ND

KEY
---
blank space - not applicable
--- - indicates not sampled
ND - none detected
A - 1,1-Dichloroethene
B - 1,1,1-Trichloroethane
C - Trichloroethene
D - Tetrachloroethene

Issue Date: 5/12/88 J Daugherty

Weaver
Summary of Analytical Data for Domestic Well.
All concentrations ug/l, parts per billion, ppb.
Analyses by EPA methods 601 and 602, OR 624 (indicated by *).

Sampling Date	RAW Sample Tap A	B	C
8/12/85	ND	ND	ND
5/21/86*	ND	ND	ND
8/20/86*	ND	ND	ND
11/20/86*	ND	ND	ND
2/10/87*	ND	ND	ND
5/ 4/87*	ND	ND	ND
7/27/87*	ND	ND	ND
10/20/87*	ND	ND	ND
1/11/87*	ND	ND	ND
4/6/88*	ND	ND	ND

KEY

ND - none detected
A - trans-1,2-Dichloroethene
B - Trichloroethene
C - 1,1,1-Trichloroethane

Issue Date: 5/12/88 J. Dougherty

Little / Eddinger
Summary of Analytical Data for Domestic Well.
All concentrations ug/l, parts per billion, ppb.
Analyses by EPA methods 601 and 602, OR 624 (indicated by *).

	RAW Sample Tap	
Sampling Date	A	B
8/14/85	ND	ND
5/22/86*	ND	ND
8/20/86*	ND	ND
11/20/86*	BMDL	BMDL
2/16/87*	ND	ND
5/ 8/87*	ND	ND
8/ 4/87*	ND	BMDL
10/27/87*	ND	ND
1/23/88*	ND	ND
4/18/88*	ND	ND

KEY

ND - none detected
A - Trichloroethene
B - trans-1,2-Dichloroethene

Issue Date: 5/12/88 J. Dougherty

K. Phillips

Summary of Analytical Data for Domestic Well and Carbon System
All concentrations ug/l, parts per billion, ppb.
Analyses by EPA methods 601 and 602, OR 624 (indicated by *).
MID A samples refer to between primary and secondary tanks.

Sampling Date	Total Gallons	RAW Sample Tap A	RAW Sample Tap B	RAW Sample Tap C	RAW Sample Tap D	MID A Sample Tap A	MID A Sample Tap B	MID A Sample Tap C	MID A Sample Tap D	AFTER CARBON Sample Tap A	AFTER CARBON Sample Tap B	AFTER CARBON Sample Tap C	AFTER CARBON Sample Tap D
8/14/85		16	3	1	2								
10/ 7/85		16	3	1	ND								
4/21/86	6736	---	---	---	---	ND	ND	ND	ND	ND	ND	ND	ND
5/21/86*	10884	30	BMDL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
8/21/86*	23678	20	BMDL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
11/20/86*	35040	10	BMDL	ND	ND	BMDL	ND	ND	ND	BMDL	ND	ND	ND
2/10/87*	44180	30	BMDL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
5/14/87*	53810	20	BMDL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
8/ 4/87*	98990	20	BMDL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
10/26/87*	120180	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1/18/88*	129300	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4/6/88*	136390	20	BMDL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

KEY

blank space - not applicable
--- - indicates not sampled
ND - none detected
A - Trichloroethene
B - trans-1,2,-Dichloroethene
C - Chloroform
D - Dibromochloromethane

Issue Date: 5/12/88 J. L. Daugherty

G. Epps
Summary of Analytical Data for Domestic Well and Carbon System
All concentrations ug/l, parts per billion, ppb
Analyses by EPA methods 601 and 602, OR 624 (indicated by *).
MID A samples refer to between primary and secondary tanks.
RB - indicates first sampling performed following rebedding.

			RAW Sample Tap		MID A Sample Tap		AFTER CARBON Sample Tap	
	Sampling Date	Total Gallons	A	B	A	B	A	B
	08/14/85		3	12				
	10/03/85		4	15				
	1/27/86	1467	---	---	ND	ND	ND	ND
	5/22/86*	42722	BMDL	20	ND	ND	ND	ND
	8/21/86*	102597	BMDL	10	ND	ND	ND	ND
	11/20/86*	138470	BMDL	10	ND	ND	ND	ND
	2/10/87*	169689	BMDL	10	ND	ND	ND	ND
	5/ 4/87*	199706	ND	BMDL	ND	BMDL	ND	ND
	7/27/87*	236950	ND	BMDL	ND	10	ND	ND
RB	8/18/87*	244800	---	---	ND	ND	---	---
	10/20/87*	268060	BMDL	BMDL	ND	ND	ND	ND
	1/11/88*	295250	ND	BMDL	ND	ND	ND	ND
	4/15/88*	330870	ND	BMDL	ND	BMDL	ND	ND

KEY

blank space - not applicable
--- - indicates not sampled
ND - none detected
A - 1,1-Dichloroethene
B - 1,1,1-Trichloroethane

Rebed Date	Gallon Reading
8/17/87	244500

Issue Date: 5/11/88 J. Daughtry

C. Fisher / A. Hawkes
Summary of Analytical Data for Domestic Well and Carbon System
All concentrations ug/l, parts per billion, ppb
Analyses by EPA methods 601 and 602, OR 624 (indicated by *).
MID A samples refer to between primary and secondary tanks.

Sampling Date	Total Gallons	RAW Sample Tap A	RAW Sample Tap B	RAW Sample Tap C	MID A Sample Tap A	MID A Sample Tap B	MID A Sample Tap C	AFTER CARBON Sample Tap A	AFTER CARBON Sample Tap B	AFTER CARBON Sample Tap C
8/12/85		1	2	4						
10/ 7/85		1	2	4						
4/ 7/86	16361	---	---	---	ND	ND	ND	ND	ND	ND
5/22/86*	27445	ND	ND	BMDL	ND	ND	ND	ND	ND	ND
8/20/86*	59000	ND	ND	BMDL	ND	ND	ND	ND	ND	ND
11/20/86*	103050	BMDL	ND	BMDL	ND	ND	ND	ND	ND	ND
2/10/87*	162369	BMDL	ND	ND	ND	ND	ND	ND	ND	ND
5/ 4/87*	207358	BMDL	ND	BMDL	ND	ND	ND	ND	ND	ND
7/27/87*	226830	ND	ND	BMDL	ND	ND	ND	ND	ND	ND
10/20/87*	257250	ND	ND	BMDL	ND	ND	BMDL	ND	ND	ND
1/11/88*	284650	ND	ND	BMDL	ND	ND	BMDL	ND	ND	ND
4/7/88*	302680	ND	ND	ND	ND	ND	ND	ND	ND	ND

KEY
---
blank space - not applicable
--- - indicates not sampled
ND - none detected
A - trans-1,2-Dichloroethene
B - 1,1-Dichloroethene
C - 1,1,1-Trichloroethane

Issue Date: 5/12/88 J Daugherty

O. Lowrey - Sign of the Bear Apartments
Summary of Analytical Data for Domestic Well and Carbon System
All concentrations ug/l, parts per billion, ppb.
Analyses by EPA methods 601 and 602, OR 624 (indicated by *).
MID A samples refer to between primary and secondary tanks, left hand train as you face the system.
MID B samples refer to between primary and secondary tanks, right hand train as you face the system.

		RAW Sample Tap					MID A Sampling Tap				MID B Sampling Tap				AFTER CARBON Sampling Tap				
Sampling Date	Total Gallons	A	B	C	D	E	A	B	C	D	A	B	C	D	A	B	C	D	E
8/13/85		16	20	1	2	ND													
10/ 4/85		2	3	ND	ND	ND													
3/ 3/86	10125	---	---	---	---	---	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
5/22/86*	45740	ND	BMDL	ND	BMDL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
8/20/86*	---	ND	ND	ND	BMDL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
11/21/86*	134290	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2/18/87*	178830	ND	BMDL	ND	BMDL	BMDL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
5/ 8/87*	221160	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
8/ 4/87*	269450	BMDL	BMDL	ND	BMDL	BMDL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
10/27/87*	301350	ND	ND	ND	BMDL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1/18/88*	346330	ND	BMDL	ND	BMDL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4/15/88*	400080	ND	ND	ND	BMDL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

KEY

blank space - not applicable
--- - indicates not sampled
ND - none detected
A - Trichloroethene
B - trans-1,2,-Dichloroethene
C - 1,1-Dichloroethane
D - 1,1,1-Trichloroethane
E - 1,1-Dichloroethene

Issue Date: 5/12/88 J. Daugherty

Rev.Munz / Centennial Evangelical Lutheran Church
Summary of Analytical Data for Domestic Well and Carbon System
All concentrations ug/l, parts per billion, ppb.
Analyses by EPA methods 601 and 602, OR 624 (indicated by *).

MID A samples refer to between primary and secondary tanks, left hand train as you face the system.
MID B samples refer to between primary and secondary tanks, right hand train as you face the system.

Sampling Date	Total Gallons	RAW Sample Tap A	RAW Sample Tap B	MID A Sample Tap A	MID A Sample Tap B	MID B Sample Tap A	MID B Sample Tap B	AFTER CARBON Tap A	AFTER CARBON Tap B
8/13/85		6	28						
10/ 3/85		7	25						
1/17/86	1222	---	---	ND	ND	ND	ND	ND	ND
5/21/86*	58350	BMDL	20	ND	ND	ND	ND	ND	ND
8/21/86*	96932	BMDL	20	ND	ND	ND	ND	ND	ND
11/21/86*	138360	BMDL	10	ND	ND	ND	ND	ND	ND
2/10/87*	177265	BMDL	20	ND	ND	ND	ND	ND	ND
5/ 4/87*	212510	BMDL	10	ND	ND	ND	ND	ND	ND
7/27/87*	252540	BMDL	10	ND	ND	ND	BMDL	ND	ND
10/20/87*	288630	BMDL	10	ND	BMDL	ND	BMDL	ND	ND
1/11/88*	324100	ND	10	ND	BMDL	ND	BMDL	ND	ND
4/08/88*	361480	ND	10	ND	BMDL	ND	BMDL	ND	ND

KEY
---
blank space - not applicable
--- - indicates not sampled
ND - none detected
A - 1,1-Dichloroethene
B - 1,1,1-Trichloroethane

Issue Date: 5/12/88 J. Daugherty

E. Rittenbaugh
Summary of Analytical Data for Domestic Well and Carbon System
All concentrations ug/l, parts per billion, ppb.
Analyses by EPA methods 601 and 602, OR 624 (indicated by *).
MID A samples refer to between primary and secondary tanks.

		RAW Sample Tap			MID A Sample Tap			AFTER CARBON Sample Tap		
Sampling Date	Total Gallons	A	B	C	A	B	C	A	B	C
8/13/85		2	10	ND						
10/ 7/85		3	10	ND						
2/ 3/85	1777	---	---	---	ND	ND	ND	ND	ND	ND
5/22/86*	20204	BMDL	BMDL	ND	ND	ND	ND	ND	ND	ND
8/21/86*	39576	ND	BMDL	ND	ND	ND	ND	ND	ND	ND
11/20/86*	52970	ND	BMDL	ND	ND	ND	BMDL	ND	ND	ND
2/16/87*	66750	ND	BMDL	ND	ND	ND	ND	ND	ND	ND
5/15/87*	80810	ND	BMDL	ND	ND	ND	ND	ND	ND	ND
7/27/87*	100220	ND	BMDL	ND	ND	ND	BMDL	ND	ND	ND
10/26/87*	117670	ND	BMDL	ND	ND	ND	ND	ND	ND	ND
1/18/88*	134920	ND	BMDL	ND	ND	BMDL	ND	ND	ND	ND
4/7/88*	143470	ND	BMDL	ND	ND	BMDL	ND	ND	ND	ND

KEY
---
blank space - not applicable
--- - indicates not sampled
ND - none detected
A - 1,1-Dichloroethene
B - 1,1,1-Trichloroethane
C - Trichloroethene

Issue Date: 5/12/88 J. Daugherty

E. Blank - Kimberton Amoco
Summary of Analytical Data for Domestic Well and Carbon System
All concentrations ug/l, parts per billion, ppb.
Analyses by EPA methods 601 and 602, OR 624 (indicated by *).
MID A samples refer to between primary and secondary tanks, left hand train as you face the system.
MID B samples refer to between primary and secondary tanks, right hand train as you face the system.
RB - indicates first sampling following rebedding.

	Sampling Date	Total Gallons	RAW Sample Tap A	B	C	D	E	F	G	MID A Sample Tap A	B	C	D	E	F	G	MID B Sample Tap A	B	C	D	E	F	G	AFTER CARBON Sample Tap A	B	C	D	E	F	G
	8/12/85		700	840	16	ND	ND	1	4																					
	10/24/85*		700	1000	10	ND	ND	ND	ND																					
	11/22/85	700	340	460	6	6	2	2	ND	ND	3	ND	ND	ND	ND	ND	---	---	---	---	---	---	---	ND	1	ND	ND	ND	ND	ND
	2/17/86	3360	370	700	8	4	1	1	ND	ND	1	ND	ND	ND	ND	ND	7	13	ND	ND	ND	ND	ND	---	---	---	---	---	---	---
	3/ 3/86	3816	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	ND	ND	ND	ND	ND	ND	ND
	5/22/86*	7314	370	530	BMDL	BMDL	ND	ND	BMDL	ND	BMDL	ND	ND	ND	ND	ND	BMDL	BMDL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	8/20/86*	10460	370	530	BMDL	ND	ND	ND	BMDL	ND	BMDL	ND	ND	ND	ND	ND	10	20	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	11/20/86*	27270	220	380	BMDL	BMDL	ND	ND	BMDL	ND	BMDL	ND	ND	ND	ND	ND	BMDL	20	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RB	12/23/86*	29260	---	---	---	---	---	---	---	ND	ND	ND	ND	ND	ND	ND	ND	BMDL	ND	ND	ND	ND	ND	---	---	---	---	---	---	---
	2/10/87*	32694	300	500	ND	ND	ND	ND	ND	BMDL	BMDL	ND	ND	ND	ND	ND	BMDL	BMDL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	5/ 8/87*	39110	200	400	BMDL	ND	ND	ND	BMDL	BMDL	20	ND	ND	ND	ND	ND	30	40	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RB	5/22/87*	40800	---	---	---	---	---	---	---	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	---	---	---	---	---	---	---
	8/ 4/87*	45970	270	420	BMDL	BMDL	ND	ND	BMDL	ND	10	ND	ND	ND	ND	ND	BMDL	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RB	8/14/87*	46900	---	---	---	---	---	---	---	BMDL	BMDL	ND	ND	ND	ND	ND	BMDL	BMDL	ND	ND	ND	ND	ND	---	---	---	---	---	---	---
	10/26/87*	49130	**ND	**ND	**ND	**ND	**ND	**ND	**ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	1/18/88*	53160	370	540	BMDL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	4/7/88*	56700	310	540	BMDL	ND	ND	ND	BMDL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

KEY:

blank space - not applicable
--- - indicates not sampled
ND - none detected
A - Trichloroethene
B - trans-1,2,-Dichloroethene
C - 1,1-Dichloroethene
D - 1,2-Dichloroethane
E - 1,2-Dichloropropane
F - 1,1,1-Trichloroethane
G - Vinyl Chloride
** - Analysis indicates an undetermined analytical descrepancy.

Rebed Date	Gallon Reading
12/22/86	29260
5/21/87	40700
8/13/87	46840

Issue Date: 5/12/88 J. Dougherty

W. N. Marchionne

Summary of Analytical Data for Domestic Well and Carbon System

All concentrations ug/l, parts per billion, ppb.

Analyses by EPA methods 601 and 602, OR 624 (indicated by *).

MID A samples refer to between primary and secondary tanks.

		RAW Sample Tap		MID A Sample Tap		AFTER CARBON Sample Tap	
Sampling Date	Total Gallons	A	B	A	B	A	B
8/13/85		2	9				
10/ 4/85		2	11				
2/17/86	2040	---	---	ND	ND	ND	ND
5/21/86*	17907	ND	BMDL	ND	ND	ND	ND
8/21/86*	33805	ND	BMDL	ND	ND	ND	ND
11/21/86*	49252	ND	BMDL	ND	ND	ND	ND
2/10/87*	62361	ND	BMDL	ND	ND	ND	ND
5/ 8/87*	77230	ND	BMDL	ND	ND	ND	ND
8/ 4/87*	91260	ND	BMDL	ND	ND	ND	ND
10/26/87*	105790	ND	BMDL	ND	ND	ND	ND
1/18/88*	120700	ND	BMDL	ND	ND	ND	ND
4/6/88*	133970	ND	BMDL	ND	ND	ND	ND

KEY

blank space - not applicable

--- - indicates not sampled

ND - none detected

A - 1,1-Dichloroethene

B - 1,1,1-Trichloroethane

Issue Date: 5/12/88 J. Daugherty

M. Ludwick
Summary of Analytical Data for Domestic Well and Carbon System
All concentrations ug/l, parts per billion, ppb.
Analyses by EPA methods 601 and 602, OR 624 (indicated by *).
MID A samples refer to between primary and secondary tanks, left hand train as you face the system.
MID B samples refer to between primary and secondary tanks, right hand train as you face the system.
RB - indicates first sampling performed following rebedding.

			RAW Sample Tap							MID A Sample Tap					MID B Sample Tap					AFTER CARBON Sample Tap						
	Sampling Date	Total Gallons	A	B	C	D	E	F	G	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	F	G
	8/13/85		690	700	12	3	2	ND	ND																	
	11/ 7/85	438	620	590	ND	ND	ND	ND	ND											ND	ND	ND	ND	ND	ND	ND
	11/27/85	2313	---	---	---	---	---	---	---	2	4	ND	ND	ND	7	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	1/ 3/86	5144	---	---	---	---	---	---	---	2	4	ND	ND	ND	9	13	ND	ND	ND	1	ND	ND	ND	ND	ND	ND
	1/27/86	6952	---	---	---	---	---	---	---	2	4	ND	ND	ND	5	9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	5/21/86*	16095	690	670	10	ND	BMDL	BMDL	BMDL	BMDL	BMDL	ND	ND	ND	BMDL	20	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	8/21/86*	23511	680	710	10	ND	BMDL	ND	BMDL	ND	BMDL	ND	ND	ND	BMDL	20	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	11/20/86*	30670	570	790	10	ND	ND	ND	BMDL	ND	10	ND	ND	ND	BMDL	20	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RB	12/23/86*	33242	---	---	---	---	---	---	---	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	---	---	---	---	---	---	---
	2/10/87*	37018	550	680	BMDL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	5/ 8/87*	44030	570	650	BMDL	ND	ND	ND	ND	ND	BMDL	ND	ND	ND	ND	BMDL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	8/ 4/87*	52240	590	800	10	BMDL	BMDL	ND	ND	ND	BMDL	ND	ND	ND	ND	BMDL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	10/26/87*	59660	570	760	ND	ND	ND	ND	ND	ND	BMDL	ND	ND	ND	ND	BMDL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	1/18/88*	67720	690	770	BMDL	ND	BMDL	ND	ND	BMDL	20	ND	ND	ND	BMDL	20	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RB	2/16/88*	70560	---	---	---	---	---	---	---	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	---	---	---	---	---	---	---
	4/6/88*	75520	630	650	BMDL	ND	ND	ND	ND	ND	BMDL	ND	ND	ND	ND	BMDL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

KEY

blank space - not applicable
--- - indicates not sampled
ND - none detected
A - Trichloroethene
B - trans-1,2,-Dichloroethene
C - 1,1-Dichloroethene
D - 1,2-Dichloropropane
E - 1,1,1-Trichloroethane
F - Vinyl Chloride
G - 1,2-Dichloroethane

Date	Reading
12/22/86	33180
2/15/88	70440

Issue Date: 5/12/88 J Daugherty

Clarence Wilson & Sons
Summary of Analytical Data for Domestic Well and Carbon System
All concentrations ug/l, parts per billion, ppb.
Analyses by EPA methods 601 and 602, OR 624 (indicated by *).
MID A samples refer to between primary and secondary tanks, left hand train as you face the system.
MID B samples refer to between primary and secondary tanks, right hand train as you face the system.
RB - indicates first sampling performed following rebedding

			RAW Sample Tap								MID A Sample Tap		MID B Sample Tap			AFTER CARBON Sample Tap							
	Sampling Date	Total Gallons	A	B	C	D	E	F	G	H	A	B	A	B	D	A	B	C	D	E	F	G	H
	8/13/85		130	130	3	7	ND	ND	ND	ND													
	11/22/85	2250	---	---	---	---	---	---	---	---	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	12/13/85	8675	---	---	---	---	---	---	---	---	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	1/27/86	26689	---	---	---	---	---	---	---	---	ND	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	5/21/86*	77083	100	100	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	8/21/86*	117840	130	140	BMDL	BMDL	ND	ND	ND	ND	ND	BMDL	BMDL	BMDL	ND	ND	ND	ND	ND	ND	ND	ND	ND
	11/20/86*	134986	110	140	BMDL	BMDL	ND	ND	ND	ND	ND	ND	ND	BMDL	ND	ND	ND	ND	ND	ND	ND	ND	ND
	2/16/87*	188274	120	140	BMDL	BMDL	ND	ND	ND	ND	ND	20	120	130	BMDL	ND	ND	ND	ND	ND	ND	ND	ND
RB	3/02/87*	193600	---	---	---	---	---	---	---	---	ND	ND	ND	ND	ND	---	---	---	---	---	---	---	---
	5/ 4/87*	217400	110	120	ND	BMDL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	7/27/87*	247880	180	210	BMDL	BMDL	ND	ND	ND	ND	ND	BMDL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	10/20/87*	274410	140	180	BMDL	BMDL	ND	ND	ND	ND	ND	BMDL	ND	BMDL	BMDL	ND	ND	ND	ND	ND	ND	ND	ND
	1/11/88*	302180	90	120	ND	BMDL	ND	ND	ND	ND	ND	30	ND	BMDL	ND	ND	ND	ND	ND	ND	ND	ND	ND
RB	1/29/88*	308020	---	---	---	---	---	---	---	---	ND	ND	BMDL	ND	ND	---	---	---	---	---	---	---	---
	4/6/88*	333680	120	140	ND	BMDL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

KEY

blank space - not applicable
--- - indicates not sampled
ND - none detected
A - Trichloroethene
B - trans-1,2,-Dichloroethene
C - 1,1-Dichloroethene
D - 1,1,1,-Trichloroethane
E - Chloromethane
F - Bromomethane
G - Vinyl Chloride
H - Chloroethane

Rebed Date	Gallon Reading
3/ 2/87	193470
1/28/88	307600

Issue Date: 5/12/88 J. Daugherty

D. Doran - Maugers Hardware
Summary of Analytical Data for Domestic Well and Carbon System
All concentrations ug/l, parts per billion, ppb.
Analyses by EPA methods 601 and 602, OR 624 (indicated by *).
MID A samples refer to between primary and secondary tanks, left hand train as you face the system.
MID B samples refer to between primary and secondary tanks, right hand train as you face the system.
RB - indicates the first sampling performed following rebedding.

			RAW Sample Tap						MID A Sample Tap				MID B Sample Tap			AFTER CARBON Sample Tap								
	Sampling Date	Total Gallon	A	B	C	D	E	I	A	B	G	H	A	B	F	A	B	C	D	E	F	G	H	I
	8/12/85		610	660	ND	ND	ND	ND																
	10/14/85		700	680	13	2	ND	ND																
	11/14/85	2430	490	460	12	2	2	ND	ND	2	ND	ND	---	---	---	ND	ND	ND	ND	ND	ND	ND	ND	ND
	11/27/85	6355	---	---	---	---	---	---	1	2	ND	ND	ND	3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	11/27/85	6365	---	---	---	---	---	---	ND	ND	ND	ND	ND	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	11/27/85	6375	---	---	---	---	---	---	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	12/06/85	8596	---	---	---	---	---	---	ND	2	ND	ND	1	6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	12/13/85	9500	---	---	---	---	---	---	ND	2	ND	ND	2	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	12/20/85	10650	---	---	---	---	---	---	ND	2	ND	ND	ND	2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	12/27/85	11830	---	---	---	---	---	---	ND	2	ND	ND	ND	3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	1/ 3/86	14001	---	---	---	---	---	---	ND	3	ND	ND	1	2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	1/10/86	15698	---	---	---	---	---	---	4	9	ND	ND	ND	3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	1/17/86	17186	---	---	---	---	---	---	1	4	ND	ND	ND	3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	1/27/86	19467	---	---	---	---	---	---	ND	4	ND	ND	ND	4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	2/ 3/86	21012	---	---	---	---	---	---	3	6	ND	ND	ND	3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	2/10/86	22320	---	---	---	---	---	---	1	4	2	ND	ND	3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	2/17/86	22920	---	---	---	---	---	---	1	4	ND	1	ND	4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	2/24/86	25133	---	---	---	---	---	---	ND	4	ND	1	ND	7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	3/ 3/86	26556	---	---	---	---	---	---	ND	4	ND	ND	1	6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	3/10/86	28155	---	---	---	---	---	---	ND	5	ND	ND	ND	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	3/17/86	29585	---	---	---	---	---	---	3	9	ND	ND	ND	5	1	ND	ND	ND	ND	ND	ND	ND	ND	ND
	3/24/86	32252	---	---	---	---	---	---	ND	4	ND	ND	ND	3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	3/31/86	33670	---	---	---	---	---	---	ND	6	ND	ND	ND	7	1	ND	ND	ND	ND	ND	ND	ND	ND	ND
	4/ 7/86	35497	---	---	---	---	---	---	ND	6	ND	ND	3	9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	4/14/86	36958	---	---	---	---	---	---	ND	4	ND	ND	1	7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	4/21/86	38948	---	---	---	---	---	---	ND	8	ND	ND	ND	9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	4/28/86	42020	---	---	---	---	---	---	3	10	ND	ND	ND	6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	5/12/86	46837	---	---	---	---	---	---	ND	6	ND	ND	ND	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	5/22/86*	49905	660	650	10	ND	ND	ND	ND	BMDL	ND	ND	ND	BMDL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	6/ 3/86	52880	---	---	---	---	---	---	ND	7	ND	ND	ND	4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	6/16/86	56573	---	---	---	---	---	---	2	9	ND	ND	ND	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	7/ 7/86	62677	---	---	---	---	---	---	1	10	ND	ND	2	11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	7/21/86	66553	---	---	---	---	---	---	4	13	ND	ND	2	8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	8/ 4/86	70370	---	---	---	---	---	---	1	8	ND	ND	1	9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RB	8/25/86*	77550	710	690	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	11/20/86*	100400	450	640	10	BMDL	ND	ND	ND	BMDL	ND	ND	ND	BMDL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	2/10/87*	117835	520	590	10	BMDL	ND	ND	ND	BMDL	ND	ND	BMDL	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RB	3/ 2/87*	122650	---	---	---	---	---	---	ND	ND	ND	ND	20	30	ND	---	---	---	---	---	---	---	---	---
RB	3/27/87*	128980	---	---	---	---	---	---	ND	BMDL	ND	ND	ND	ND	ND	---	---	---	---	---	---	---	---	---
	5/ 8/87*	142860	540	630	10	BMDL	ND	ND	ND	BMDL	ND	ND	ND	BMDL	ND	ND	BMDL	ND	ND	ND	ND	ND	ND	ND
	7/27/87*	167380	650	670	10	BMDL	ND	ND	ND	10	ND	ND	BMDL	20	ND	ND	BMDL	ND	ND	ND	ND	ND	ND	ND
RB	8/18/87*	173750	---	---	---	---	---	---	ND	BMDL	ND	ND	ND	BMDL	ND	---	---	---	---	---	---	---	---	---
	10/20/87*	190790	710	780	20	BMDL	BMDL	BMDL	ND	BMDL	ND	ND	ND	10	ND	ND	BMDL	ND	ND	ND	ND	ND	ND	ND
RB	11/04/87*	198540	---	---	---	---	---	---	ND	ND	ND	ND	ND	ND	ND	---	---	---	---	---	---	---	---	---
	1/11/88*	221230	560	580	10	ND	ND	ND	ND	BMDL	ND	ND	ND	BMDL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RB	4/06/88*	257780	500	600	ND	ND	ND	ND	ND	BMDL	ND	ND	ND	BMDL	ND	ND	BMDL	ND	ND	ND	ND	ND	ND	ND

KEY
---
blank space - not applicable
--- - indicates not sampled
ND - none detected
A - Trichloroethene
B - trans-1,2,-Dichloroethene
C - 1,1-Dichloroethene
D - 1,2-Dichloroethane
E - 1,2-Dichloropropane
F - Methylene Chloride
G - Toluene
H - Tetrachloroethene
I - 1,1,1-Trichloroethane

Rebed Date	Gallon Reading
8/21/86	76000
3/ 2/87	122510
3/26/87	128610
8/17/87	173250
11/ 3/87	197580
4/ 6/88	257160

(Secondary unit, B train rotated to Primary position and a virgin unit installed into the secondary position.)

Issue Date: 5/12/88 J. Daugherty

J. Mooney

Summary of Analytical Data for Domestic Well and Carbon System
All concentrations ug/l, parts per billion, ppb.
Analyses by EPA methods 601 and 602, OR 624 (indicated by *).
MID A samples refer to between primary and secondary tanks, left hand train as you face the system.
MID B samples refer to between primary and secondary tanks, right hand train as you face the system.
RB - indicates first sampling performed following rebedding.

			RAW Sample Tap		MID A Sample Tap		MID B Sample Tap		AFTER CARBON Sample Tap	
	Sampling Date	Total Gallons	A	B	A	B	A	B	A	B
	12/27/85	4020	20	460	ND	1	ND	6	ND	ND
	1/ 3/86	9047	---	---	ND	ND	ND	ND	ND	ND
	1/27/86	21001	---	---	ND	1	ND	1	ND	ND
	2/19/86	32177	---	---	ND	2	ND	4	ND	ND
	3/ 3/86	37540	---	---	ND	2	ND	3	ND	ND
	3/10/86	40011	---	---	ND	2	ND	3	ND	ND
	3/17/86	44019	---	---	ND	3	ND	3	ND	ND
	3/24/86	47482	---	---	ND	3	ND	3	ND	ND
	3/31/86	50666	---	---	ND	5	ND	13	ND	ND
	4/14/86	58074	---	---	ND	6	ND	7	ND	ND
	4/21/86	61673	---	---	ND	6	ND	7	ND	ND
	4/28/86	65255	---	---	ND	4	ND	5	ND	ND
	5/ 5/86	70420	---	---	ND	8	ND	5	ND	ND
	5/22/86*	78156	110	1200	ND	BMDL	ND	BMDL	ND	ND
	6/ 9/86	---	---	---	ND	8	ND	10	ND	ND
	6/30/86	94484	---	---	ND	11	ND	13	ND	ND
	7/14/86	100719	---	---	ND	17	ND	17	ND	ND
	7/28/86	107363	---	---	ND	28	ND	15	ND	ND
	8/11/86	113265	---	---	ND	21	ND	25	ND	ND
RB	8/25/86*	120270	100	1800	ND	BMDL	ND	BMDL	ND	ND
	11/26/86*	159190	50	760	ND	10	ND	10	ND	ND
RB	12/23/86*	170110	---	---	ND	ND	ND	ND	---	---
	2/18/87*	194730	50	660	ND	BMDL	ND	BMDL	ND	ND
	5/ 8/87*	226030	80	1400	ND	BMDL	ND	BMDL	ND	ND
	7/27/87*	227540	160	2500	ND	30	ND	20	**120**	**1700
RB	8/17/87*	(1) 140	---	---	ND	20	ND	BMDL	---	---
RB	9/ 2/87*	6340	---	---	ND	BMDL	ND	BMDL	---	---
	10/26/87*	24640	130	2100	ND	BMDL	ND	BMDL	ND	ND
	1/18/88*	42640	70	960	ND	10	ND	10	ND	BMDL
RB	2/16/88*	214250	---	---	ND	ND	ND	10	---	---
RB	3/9/88*	222960	---	---	ND	BMDL	ND	19	---	---
RB	3/31/88*	232110	---	---	---	---	ND	BMDL	ND	ND
	4/15/88*	236660	80	1200	ND	10	ND	BMDL	ND	ND

KEY

'ank space - not applicable
- - indicates not sampled
ND - none detected
** - results indicate an analytical discrepancy from an undetermined error.
(1) - A new water meter was installed with 150980 gallons already recorded.
A - Trichloroethene
B - trans-1,2,-Dichloroethene

Rebed Date	Gallon Reading
8/19/86	117800
12/22/86	169600
8/14/87	(1) 0
9/ 1/87	5150
2/15/88	213720
3/ 8/88	222360
3/30/88	231710

Issue Date: 5/12/88 J. Daugherty

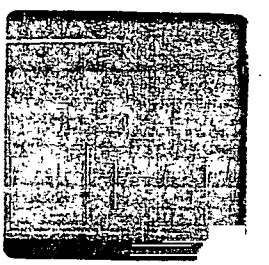
000171

J. Effgen

ical Data for Domestic Well and Carbon System
All concentrations ug/l, parts per billion, ppb.
Analyses by EPA 601 and 602, OR 624 (indicated by *).
and secondary tanks, left hand train as you face the system.
and secondary tanks, right hand train as you face the system.
rst sampling performed following rebedding.

	MID A Sample Tap			MID B Sample Tap		AFTER CARBON Sample Tap					
F	A	B	F	A	B	A	B	C	D	E	F
ND	ND	ND	ND	ND	1	ND	2	ND	ND	ND	3
---	2	6	ND	2	ND	ND	ND	ND	ND	ND	2
---	ND	10	ND	ND	10	ND	ND	ND	ND	ND	ND
ND	ND	BMDL	ND	BMDL	10	ND	ND	ND	ND	ND	BMDL
ND	BMDL	20	ND	10	30	ND	ND	ND	ND	ND	ND
---	ND	ND	ND	ND	ND	---	---	---	---	---	---
ND	ND	BMDL	ND	ND	BMDL	ND	ND	ND	ND	ND	ND
ND	ND	BMDL	ND	ND	BMDL	ND	ND	ND	ND	ND	ND
ND	ND	BMDL	ND	BMDL	10	ND	ND	ND	ND	ND	ND
---	ND	BMDL	ND	ND	ND	---	---	---	---	---	---
ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	BMDL	ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

	Gallon Reading
2/86	64240
3/87	110330



APPENDIX B

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
841 Chestnut Building
Philadelphia, Pennsylvania 19107

RESPONSIVENESS SUMMARY FOR THE PROPOSED REMEDIAL ACTION PLAN AT THE KIMBERTON SUPERFUND SITE EAST PIKELAND TOWNSHIP, CHESTER COUNTY PENNSYLVANIA

September 30, 1988

RESPONSIVENESS SUMMARY FOR THE PROPOSED REMEDIAL ACTION PLAN AT THE KIMBERTON SUPERFUND SITE EAST PIKELAND TOWNSHIP, CHESTER COUNTY PENNSYLVANIA

Table of Contents

CIBA-GEIGY

I. Introduction

The Kimberton site occupies approximately one acre and is located in the northeastern portion of Chester County in the Village of Kimberton. Domestic and commercial well water samples have detected high levels of chlorinated hydrocarbon chemical contamination. A source of this contamination has been identified as the property currently owned by the Monsey Corporation which contained several buried lagoons that were operated by ~~Ceiba-Geigy~~ Corporation during the 1950's. An investigation of the site and further sampling studies have revealed the presence of assorted volatile organic compounds. The Kimberton site was added to the Superfund National Priorities List (NPL) in 1982.

II. Summary of Community Relations Activities

A number of public meetings were conducted during 1981-82 by the Pennsylvania Department of Environmental Resources and EPA to discuss the results of preliminary water sampling and the possible cleanup actions that may be taken. In cooperation with PADER, ~~Ceiba-Geigy~~ and Monsey Products, Inc. conducted additional public meetings and provided briefings to local officials to inform them of the site investigation results. In 1985, both companies established interim water supplies for 23 families and also provided carbon absorption systems. In August of 1988, PADER and EPA notified area residents that the Proposed Remedial Action Plan was available for review/comment by placing an advertisement in the August 26, 1988 edition of the Chester County Daily Local News. In addition, the proposed plan was mailed to all citizens in the area whose names were on the site mailing list. A public meeting to discuss the Proposed Remedial Action Plan was also offered to area requests. However, requests for such a meeting were never received.

absorption?

III. Written Comments

Neither PADER nor EPA received written comments on the Proposed Remedial Action Plan for the Kimberton Superfund Site.

Kimberton Superfund Site Proposed Remedial Action Plan Presented by Pennsylvania Department of Environmental Resources and the United States Environmental Protection Agency

INTRODUCTION

This proposed remedial action plan has been prepared by the Pennsylvania Department of Environmental Resources (PADER) and the United States Environmental Protection Agency (EPA) as part of PADER and EPA's Superfund public outreach efforts. This proposed plan presents actions that PADER and EPA have considered with regard to public concern related to the Kimberton Site in the Village of Kimberton, Chester County, Pennsylvania. These actions were identified by several Remedial Investigation reports and were evaluated based on: 1) the extent of the contamination problem at the site, 2) the potential risks to the public health and the environment and 3) the steps to be taken to correct the problem. This proposed plan is the first of two operable units for this site. The first unit, the subject of this proposed plan, deals with selection of a remedy that provides a drinking water source for certain locations. The second alternative operable unit is focusing on elimination/control of this contamination source.

The proposed plan begins with a brief history of the Kimberton site, followed by a summary of each of the remedial alternatives PADER and EPA have considered for dealing with the groundwater contamination at this site, PADER's and EPA's rationale for recommending and, in some cases eliminating any one of these remedial alternatives is included in each of the summaries. In addition, this plan identifies the preliminary decision on a preferred alternative and explains the rationale for the preference. EPA and PADER are seeking public comment on these remedial alternatives currently under consideration. At the conclusion of this proposed plan, a glossary of terms that may be unfamiliar to the general public is provided.

SITE DESCRIPTION AND HISTORY

The Village of Kimberton is located in the northeastern portion of Chester County, Pennsylvania near the Philadelphia metropolitan area. Numerous domestic and commercial potable well water supplies have been sampled by the Chester County Health Department and analyzed by PADER since January 1982. High levels of chlorinated hydrocarbon chemical contamination has been detected in many of the sampled wells. A source of this contamination has been identified as the property currently owned by the Monsey Corporation which contained several buried lagoons that were operated by the Ciba-Geigy Corporation during the 1950's (see figure 1).

Three of these lagoons have been excavated with contaminated soils being removed off-site. The lagoons are in close proximity to numerous private water supply wells and less than one mile from French Creek which is used for public recreation and fishing. Ciba-Geigy sampled 67 residential and commercial establishments in August 1, 1985 and found in some of these wells various concentrations of trichloroethylene (TCE), 1,2-dichloroethylene (DCE) and

vinyl chloride (VC) which are all considered hazardous substances according to the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). Ciba Geigy and Monsey signed a Consent Order and Agreement with PADER to provide certain residential and commercial locations with an alternative source of drinking and contact water in December 1986. Ciba Geigy and Monsey in addition continue to monitor these and other designated locations periodically according to a prescribed sampling and analytical procedures outlined under the terms of this Consent Order.

This site was evaluated through the Hazard Ranking System (HRS) and subsequently placed on the National Priorities List (NPL) a list of hazardous waste sites targeted for action under the Superfund program, in 1982.

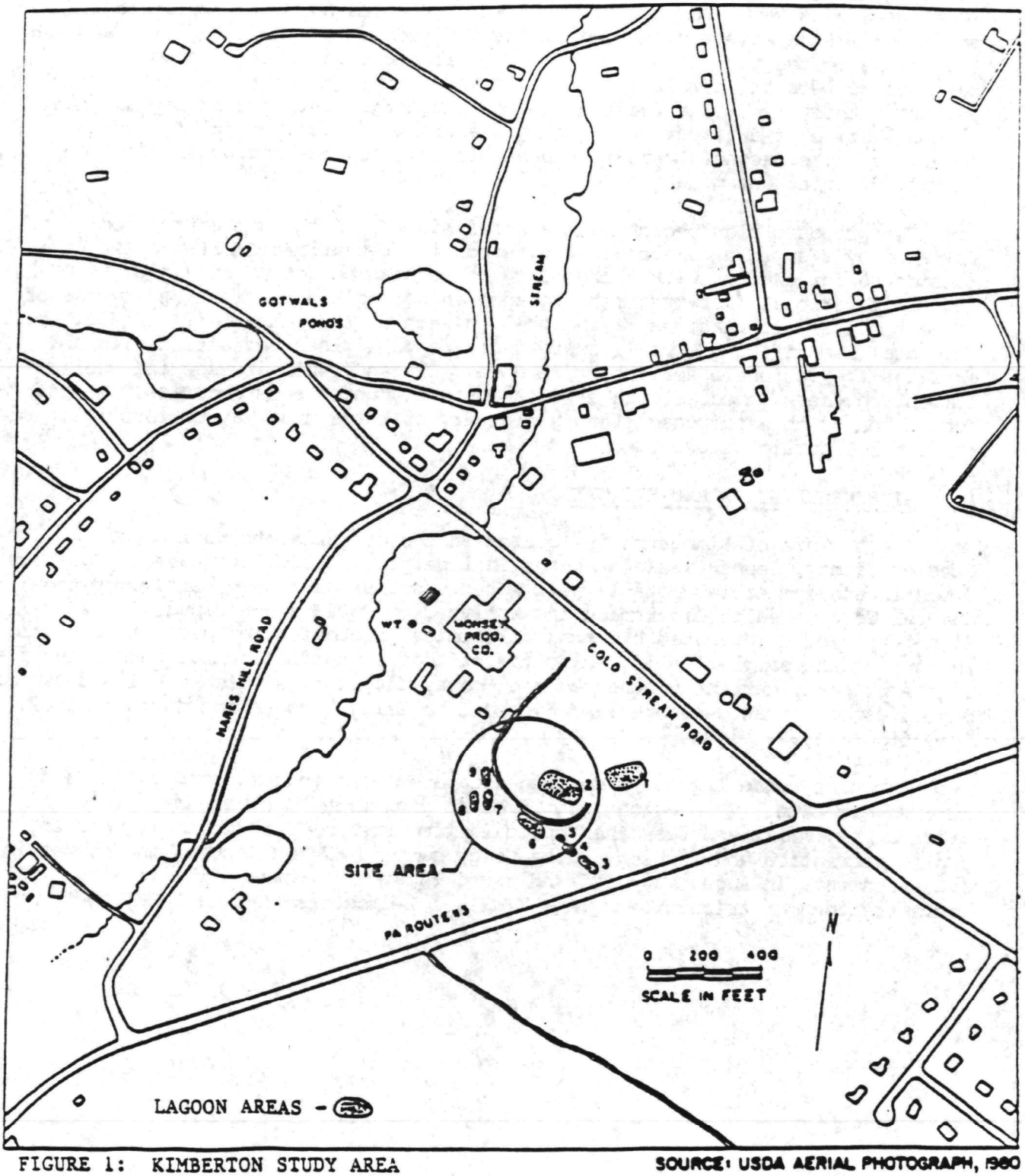


FIGURE 1: KIMBERTON STUDY AREA

SOURCE: USDA AERIAL PHOTOGRAPH, 1980

COMMUNITY ROLE IN THE SELECTION PROCESS

This proposed plan is being distributed to solicit public comment regarding the proposed remedial alternatives to clean up the contamination at this site. Detailed information on all of the material discussed here may be found in the the documents contained in the Administrative Record (AR) for the site. Copies of these documents are available for review at the following information repository location:

The East Pikeland Township Municipal Building
Rapps Dam Road
Kimberton, PA 19442

The public comment period will run from August 25, 1988 to September 23, 1988. Written comments, questions and requests for information can be sent to:

Gene Pine, Project Officer
Bureau of Waste Management
PA Dept. of Environmental Resources
Fulton Building, 7th Floor
3rd and Locust Streets
Harrisburg, PA 17120
717-783-7816

EVALUATION CRITERIA

With PADER oversight, Ciba Geigy and Monsey are currently conducting a Remedial Investigation/Feasibility Study (RI/FS) of the site which began in 1985 and is anticipated to be completed in late 1988. Several alternatives addressing water supply have been evaluated against the following nine evaluation criteria:

- Overall protection of human health and the environment addressing whether or not a remedy provides adequate protection and describes how risks posed through each pathway are eliminated, reduced or controlled through treatment, engineering controls, or institutional controls.

- Compliance with ARARs addressing whether or not a remedy will meet all of the applicable or relevant and appropriate requirements of other Federal and State environmental statutes and/or provides grounds for invoking a waiver.

- Long-term effectiveness and permanence referring to the ability of a remedy to maintain reliable protection of human health and the environment over time once cleanup goals have been met.

- Reduction of toxicity, mobility or volume is the anticipated performance of the treatment technologies a remedy may employ.

- Short-term effectiveness addresses the period of time needed to achieve protection, and any adverse impacts on human health and the environment that may be posed during the construction and implementation period until cleanup goals are achieved.

- Implementability is the technical and administrative feasibility of a remedy, including the availability of materials and services needed to implement a particular option.

- Cost includes estimated capital and operation and maintenance costs and net present worth costs.

- State Acceptance indicates whether, based on its review of RI/FS and Proposed Plan, the State concurs on, opposes, or has no comment on the preferred alternative at the present time.

- Community Acceptance will be assessed in the Record of Decision following a review of the public comments received on the Administrative Record and Proposed Plan.

SUMMARY OF REMEDIAL ALTERNATIVES

The Center for Disease Control (CDC) has previously reviewed the initial sampling data collected by Ciba-Geigy in August 1985 which included 67 residential and commercial establishments. CDC at that time certified 12 wells as being unfit for human consumption and also supported alternative water supplies and additional monitoring which had already been initiated by PADER. The Remedial Investigation is continuing to fully identify the contaminant source(s) as well as the full extent of groundwater contamination and will be addressed in a subsequent Proposed Remedial Action Plan.

Three alternatives were specifically developed to address the health risk to those residents who may continue to utilize contaminated private wells. These alternatives were identified and evaluated according to specific criteria required by CERCLA.

ALTERNATIVE 1: NO FURTHER ACTION

Under this alternative, residential and commercial establishments having contaminated wells would continue to receive treatment on an individual basis by filtration utilizing granular activated carbon adsorption. A groundwater monitoring program would also continue which allows periodic reassessment of the extent of contamination and the concentrations of hazardous substances contained in the groundwater. Both treatment and monitoring are being performed by Ciba-Geigy and Monsey in accordance with Consent Order with PADER. Based upon a review of current groundwater data, this technology has served to reduce to non-detectable levels the hazardous substances found in the groundwater obtained from contaminated wells.

Estimated Construction costs: 0
Estimated Annual O&M costs: $250,000 - 300,000
Estimated Implementation timeframe: 2-30 years

A human health evaluation was performed and it was determined in several instances, trichloroethylene, dichloroethylene and vinyl chloride exceed acceptable concentration levels. Human exposure to these contaminants in groundwater may lead to adverse health effects. Therefore, this alternative is appropriate because it would be protective of human health and the environment. This is an interim remedy and will be reevaluated once the full extent of the groundwater contamination has been defined and the source remediation alternatives have been evaluated.

ALTERNATIVE 2: TEMPORARY DRINKING WATER

The use of a temporary drinking water source for potable water (i.e. bottled water) is a potential alternative to be implemented until such time that a permanent alternative water supply can be provided for the residents and commercial establishments or the contaminant plume has been remediated. A range of two to thirty years has been estimated as the length of time that residents and commercial establishments will need to use a temporary drinking water sources.

Bottled water can be supplied through delivery to each of the 23 affected locations. The average daily demand for each residence was established for drinking and cooking purposes only. Temporary supply to meet all domestic water needs is impractical since a majority of bottled-water vendors supply five or six gallon storage containers mounted on a free-standing dispenser (i.e., bulk storage and dispensing facilities for purchased water would be required for each residence). Therefore, under Alternative 2, all other domestic water needs (i.e., sanitary, bathing, washing, etc.) would continue to be met through the existing contaminated well supplies.

The provision of a temporary water supply to meet drinking and cooking needs would reduce health risks resulting from the ingestion of contaminated well water. However, risks associated with airborne and dermal exposure would continue. The magnitude of the health risk from inhalation and dermal absorption is expected to be comparatively small for a two-year implementation period and would increase proportionately with increased time of exposure.

Estimated Construction Cost:	- 0 -
Estimated Annual O&M	$130,000
Estimated Timeframe:	2-30 years

ALTERNATIVE 3: WATER COMPANY SERVICE CONNECTIONS AND WATER-MAIN EXTENSION (PUBLIC WATER SUPPLY)

Both the Phoenixville System and Citizens Utility currently supply water to a portion of the residences in the Kimberton area.

The both Company's existing water distribution systems do not currently extend to the area in which the contaminated wells are located. Addressing the problem of the contaminated residential wells by replacement with a public water supply would require the extension of the water supply service system(s).

The facilities to extend the water system(s) include approximately 8,000 feet of water main and 23 service connections. The location of water mains and appurtenances for the water service would be finalized during the design phase.

The implementation of this alternative would necessitate abandonment and sealing of the individual residential wells in accordance with the PADER Standard Specifications for Sealing of Abandoned Wells.

Extension of the existing system is a technically feasible and implementable, however, some members of the community prefer to continue using their own private wells containing the carbon filter systems. The capital cost for expanding the water company system(s) is estimated at $1,300,000. The physical expansion of these facilities could be implemented in six to nine months including design, approval, and construction of the system. Six additional months are necessary for administrative purposes, such as securing contracts.

Implementation of this alternative would completely eliminate risk due to exposure to contaminated ground water of residents using the contaminated groundwater for drinking and contact water, It is a viable alternative and represents a permanent solution for providing a drinking water source that meets all criteria for the protection of human health.

Estimated Construction Cost:	$1,300,000
Estimated Annual O&M:	- 0 -
Estimated Timeframe:	1-2 years

PRELIMINARY DETERMINATION OF PREFERRED REMEDIAL ALTERNATIVE

The preferred alternative is alternative number 1. This alternative selects continued use of individual well treatment by granular activated carbon adsorption as per PADER's Consent Order. Based on new information or public comments, EPA, in consultation with PADER, may modify the preferred alternative or select another response action presented in this plan. The public, therefore, is encouraged to review and comment on all of the alternatives identified in this Proposed Plan. The Administrative Record should be consulted for more information on these alternatives.

This alternative provides complete protection, in the short-term, to the groundwater users by treatment of the water at the individual wells. Long-term effectiveness will be obtained by implementing additional alternatives identified in the next operable unit which will be available for public comment once developed.

EPA, in consultation with PADER, has made a preliminary determination that the preferred alternative provides the best balance of trade-off with respect to the nine criteria. If selected, the preferred alternative is anticipated to meet the following statutory requirements to:

- Protect human health and the environment
- Attain ARARs
- Be cost-effective
- Utilize permanent solutions and alternative treatment (or resource recovery) technologies to the maximum extent practicable

SUMMARIZING THE STATUTORY FINDINGS

In summary, at this time the preferred alternative is believed to provide the best balance of trade-offs among alternatives with respect to the criteria used to evaluate remedies. Based on the information available at this time, therefore, EPA and PADER believe the preferred alternative would be protective, would attain ARARs, would be cost-effective, and would utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable.

NEXT STEPS

Following the conclusion of the 30-day public comment period on this proposed remedy, a Responsiveness Summary will be prepared. The Responsiveness Summary summarizes citizen's comments on the proposed remedy and PADER and EPA's responses to these comments. Thereafter, PADER and EPA will prepare a formal decision document that summarizes the decision process and the selected remedy. This document will include the Responsiveness Summary. Copies will be made available, for public review, in the information repository listed previously.

GLOSSARY OF TERMS

Administrative Record (AR) - A legal document that contains information on a Superfund site. The AR serves as the basis for the selection of a Superfund response action, and this record is available to the public.

ARARs - Applicable or relevant and appropriate Federal, State or other promulgated public health and environmental requirement.

CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act established a Trust Fund for the purposes of cleanup at hazardous waste sites identified on the National Priority List.

Feasibility Study (FS) - The purpose of this study is to identify and screen cleanup alternatives for remedial action, and to analyze in detail the technology and costs involved with the various alternatives.

National Contingency Plan (NCP) - Contains the regulations that govern the Superfund program.

National Priorities List (NPL) - EPA's list of the nation's top priority hazardous waste sites that are eligible to receive federal money for response under superfund.

Remedial Design - An engineering phase that follows the Record of Decision when technical drawings and specifications are developed for the subsequent remedial action at a site on the National Priorities List (NPL).

Remedial Investigation (RI) - The purpose of this study is to gather the data necessary to determine the type and extent of contamination at a Superfund site.

Superfund - The common name used for the Comprehensive Environmental Response, Compensation, and Liability Act, also referred as the Trust fund. The Superfund program was established to help pay for cleanup of hazardous waste sites and to take legal action to force those responsible for the sites to clean them up.

APPENDIX C

KIMBERTON SITE
ADMINISTRATIVE RECORD * **
INDEX OF DOCUMENTS

SITE IDENTIFICATION
Preliminary Assessment and Site Inspection Reports

1) Site Inspection Report, 6/23/82. P. 1-10.

2) Report: Hazard Ranking System Model of Kimberton, TDD No. F3-8206-10, EPA No. PA-423, prepared by Mr. David A. Nickerson, Ecology and Environment, Inc., 7/23/82. P. 11-40.

3) Report: A Site Inspection of Kimberton, TDD No. F3-8203-22, EPA No. PA-423, prepared by Mr. Gregg Crystall, Ecology and Environment, Inc., and Mr. Joseph G. McGovern, Ecology and Environment, Inc., 7/23/82. P. 41-167.

4) Report: A Toxicological Impact Assessment of Kimberton TCE Lagoons, TDD No. F3-8203-22A, EPA No. PA-423, prepared by Mr. Gregg Crystall, Ecology and Environment, Inc., Mr. Kenneth G. Symms, Ecology and Environment, Inc., and Mr. Joseph G. McGovern, Ecology and Environment, Inc., 8/31/82. P. 168-288.

* Administrative Record available 8/15/88.

** Supporting Sampling Data is stored at the Region III Central Regional Laboratory.

REMEDIAL ENFORCEMENT PLANNING
Signed Order

1) Letter to Mr. Bradford F. Whitman, Dechert, Price and Rhoads, from Ms. Melinda J. Holland, Pennsylvania Department of Environmental Resources, re: transmittal of signed Consent Orders, 12/19/86. P. 1-53. The Consent Orders are attached.

2) Letter to Mr. Bradford F. Whitman, Dechert, Price and Rhoads, from Mr. Douglas F. Brennan, Pennsylvania Department of Environmental Resources, re: transmittal of final Consent Order and Agreement, 7/9/87. P. 54-83. The Second Consent Order and Agreement is attached.

3) Letter to Mr. Bradford F. Whitman, Dechert, Price and Rhoads, and Mr. Benjamin G. Stonelake, Blank, Rome, Comisky and McCauley, re: negotiating the proposed Consent Agreement and Consent Order, 9/30/87. P. 84-85.

REMEDIAL RESPONSE PLANNING
Remedial Investigation Reports

1) Report: Hydrogeological Assessment on Groundwater Conditions in Kimberton, Pennsylvania, prepared by Mr. Paul M. Yaniga, Groundwater Technology, Inc., and Mr. William Smith, Groundwater Technology, Inc., 1/31/83. P. 1-107.

2) Report: Remedial Action Plan, Excavation of Lagoons 5,7, and 9 at Monsey Products Company, Kimberton, Pennsylvania, prepared by Groundwater Technology, Inc., 9/14/84. P. 108-125.

3) Report: Revised Groundwater Monitoring Program, Kimberton, Pennsylvania, (Previous Submission 17 May 1983), prepared by Mr. Frank Aceto, Groundwater Technology, Inc., and Mr. Raymond Duchaine, Environmental Resources Management, Ir 2/26/85. P. 126-153.

4) Report: Revised Groundwater Monitoring Program, Kimberton, Pennsylvania, (Previous Submission 17 May 1983), prepared by Mr. Frank Aceto, Groundwater Technology, Inc., and Mr. Raymond Duchaine, Environmental Resources Management, Inc., 2/28/85. P. 154-168.

5) Report: Addendum to Remedial Action Program of 4 February 1985, Excavation of Lagoons 6,7, and 9 at Monsey Products Company, Kimberton, Pennsylvania, prepared by Groundwater Technology, Inc., 4/3/85. P. 169-457.

6) Report: Interim Status Report, Groundwater Monitoring Program, Kimberton, Pennsylvania, prepared by Mr. Frank Aceto, Groundwater Technology, Inc., and Mr. Mark J. Wrigley, Groundwater Technology, Inc., 12/23/85. P. 458-694.

7) Report: Report of Findings, Groundwater Monitoring Programs, Kimberton, Pennsylvania, prepared by Mr. Frank Aceto, Groundwater Technology, Inc., and Mr. Mark J. Wrigley, Groundwater Technology, Inc., 10/16/86. P. 695-1034.

8) Report: Work Plan For Completion of The Remedial Investigation and Feasibility Study, Kimberton, Pennsylvania, prepared by Environmental Resources Management, Inc., and Groundwater Technology, Inc., 7/87. P. 1035-1385.

Correspondence and Supporting Documentation

1) Letter to Mr. Eugene W. Pine, Pennsylvania Department of Environmental Resources, from Mr. J. Stewart Johnson, CIBA-GEIGY, re: transmittal of the Data Review Packages, 6/22/87. P. 1-9. The Data Review Packages are attached.

2) Letter to Mr. Eugene W. Pine, Pennsylvania Department of Environmental Resources, from Mr. J. Stewart Johnson, CIBA-GEIGY, re: transmittal of the computer summary which includes the results of GAC system sampling, 7/20/87. P. 10-11. The computer summary is attached.

3) Letter to Mr. Eugene W. Pine, Pennsylvania Department of Environmental Resources, from Mr. J. Stewart Johnson, CIBA-GEIGY, re: transmittal of the computer summary of the analytical results from the GAC system sampling, 8/17/87. P. 12-13. The computer summary is attached.

4) Letter to Mr. Eugene W. Pine, Pennsylvania Department of Environmental Resources, from Mr. J. Stewart Johnson, CIBA-GEIGY, re: transmittal of the computer summary of the analytical results obtained from the quarterly sampling, 8/17/87. P. 14-39. The computer summary is attached.

5) Letter to Mr. Eugene W. Pine, Pennsylvania Department of Environmental Resources, from Mr. J. Stewart Johnson, CIBA-GEIGY, re: transmittal of the remaining analytical summaries and QA/QC packages for the quarterly sampling, 9/11/87. P. 40-63. The analytical summaries and QA/QC packages are attached.

6) Letter to Mr. Eugene W. Pine, Pennsylvania Department of Environmental Resources, from Mr. J. Stewart Johnson, CIBA-GEIGY, re: transmittal of the computer summary which includes the latest results from the GAC system sampling, 9/21/87. P. 64-65. The computer summary is attached.

7) Letter to Mr. Eugene W. Pine, Pennsylvania Department of Environmental Resources, from Mr. J. Stewart Johnson, CIBA-GEIGY, re: transmittal of the computer summary of the analytical results obtained from the J. Mooney residence and ERM's Data Package Review, 9/21/87. P. 66-69. The computer summary and the Data Package Review are attached.

8) Letter to Mr. Eugene W. Pine, Pennsylvania Department of Environmental Resources, from Mr. J. Stewart Johnson, CIBA-GEIGY, re: transmittal of the computer summary of the analytical results obtained from the October 1987 quarterly sampling of the GAC systems, 11/20/87. P. 70-96. The computer summary is attached.

9) Letter to Mr. Eugene W. Pine, Pennsylvania Department of Environmental Resources, from Mr. J. Stewart Johnson, CIBA-GEIGY, re: transmittal of the computer summary of the analytical results obtained from the January 1988 quarterly sampling of the GAC systems, 2/29/88. P. 97-132. The computer summary is attached.

10) Letter to Mr. Eugene W. Pine, Pennsylvania Department of Environmental Resources, from Mr. J. Stewart Johnson, CIBA-GEIGY, re: transmittal of the January 1988 quarterly sampling QA/QC Data Review Package and the January-February 1988 Rebedding Data Package, 3/21/88. P. 133-142. The QA/QC Review Package and the Rebedding Data Package are attached.

11) Letter to Mr. Eugene W. Pine, Pennsylvania Department of Environmental Resources, from Mr. J. Stewart Johnson, CIBA-GEIGY, re: transmittal of the computer summary which includes the results of the GAC system sampling, 5/19/88. P. 143-145. The computer summary is attached.

12) Letter to Mr. Eugene W. Pine, Pennsylvania Department of Environmental Resources, from Mr. J. Stewart Johnson, CIBA-GEIGY, re: transmittal of the computer summary of the analytical results obtained from the April 1988 quarterly sampling of the GAC systems, 5/19/88. P. 146-172. The computer summary is attached.

13) Letter to Mr. Eugene W. Pine, Pennsylvania Department of Environmental Resources, from Mr. J. Stewart Johnson, CIBA-GEIGY, re: transmittal of the computer summary which includes the May 17 and 18 results of GAC system sampling 6/13/88. P. 173-175. The computer summary is attached

14) Letter to Mr. Eugene W. Pine, Pennsylvania Department of Environmental Resources, from Mr. J. Stewart Johnson, CIBA-GEIGY, re: transmittal of the April 1988 quarterly sampling QA/QC Data Review Package, 6/20/88. P. 176-189. The QA/QC Data Review Package is attached.

GENERAL GUIDANCE DOCUMENTS *

1) "Promulgation of Sites from Updates 1-4," Federal Register, dated 6/10/86.

2) "Proposal of Update 4," Federal Register, dated 9/18/85.

3) Memorandum to U. S. EPA from Mr. Gene Lucero regarding community relations at Superfund Enforcement sites, dated 8/28/85.

4) Groundwater Contamination and Protection, undated by Mr. Donald V. Feliciano on 8/28/85.

5) Memorandum to Toxic Waste Management Division Directors Regions I-X from Mr. William Hedeman and Mr. Gene Lucero re: Policy on Floodplains and Wetlands Assessments for CERCLA Actions, 8/6/85.

6) Guidance on Remedial Investigations under CERCLA, dated 6/85.

7) Guidance on Feasibility Studies under CERCLA, dated 6/85.

8) "Proposal of Update 3," Federal Register, dated 4/10/85.

9) Memorandum to Mr. Jack McGraw entitled "Community Relations Activites at Superfund Sites - Interim Guidance," dated 3/22/85.

10) "Proposal of Update 2," Federal Register, dated 10/15/84

11) EPA Groundwater Protection Strategy, dated 9/84.

12) Memorandum to U.S. EPA from Mr. William Heckman, Jr. entitled "Transmittal at Superfund Removal Procedures - Revision 2," dated 8/20/84.

13) "Proposal of Update 1," Federal Register, dated 9/8/83.

14) Community Relations in Superfund: A Handbook (interim version), dated 9/83.

15) "Proposal of First National Priority List," Federal Register, dated 12/30/82.

16) "Expanded Eligibility List," Federal Register, dated 7/23/82.

17) "Interim Priorities List," Federal Register, dated 10/23/81.

18) Uncontrolled Hazardous Waste Site Ranking System: A User's Manual (undated).

19) Field Standard Operating Procedures - Air Surveillance (undated).

20) Field Standard Operating Procedures - Site Safety Plan (undated).

* Located in EPA Region III office.

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
Post Office Box 2063
Harrisburg, Pennsylvania 17120

September 29, 1988

Deputy Secretary for
Environmental Protection

(717) 787-5028

Stephen R. Wassersug, Director
Hazardous Waste Management Division
EPA Region III
841 Chestnut Building
Philadelphia, PA 19107

Re: Letter of Concurrence
Kimberton Superfund Site, Record Of Decision (ROD)

Dear Mr. Wassersug:

The Record Of Decision for the first operable unit at the Kimberton site has been reviewed by the Department. We agree that the actions already being implemented by the responsible party, pursuant to the existing consent order with the Department, meets all necessary requirements for this operable unit. I hereby concur with the EPA's proposed remedy, with the following conditions:

* The Department will reserve our right and responsibility to take independent enforcement actions pursuant to state law.

* This concurrence with the selected remedial action is not intended to provide any assurances pursuant to SARA Section 104(c)(3).

Thank you for the opportunity to concur with this EPA Record Of Decision. If you have any questions regarding this matter please do not hesitate to contact me.

Sincerely,

Mark M. McClellan