314052

HRS DOCUMENTATION RECORD--REVIEW COVER SHEET

Name of Site: Hopewell Precision Area Contamination

Date Prepared: July 2004

Contact Persons

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Pathways, Components, or Threats Not Scored

The Surface Water, Soil Exposure, and Air Pathways were not scored because the listing decision is not significantly affected by those pathways. EPA has detected TCE in water and sediment samples from two small ponds located south-southwest (i.e., hydraulically downgradient) of the Hopewell Precision facilities. However, the Surface Water Pathway is not scored because the site score is sufficient to list the site on the Ground Water Pathway score.

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HRS DOCUMENTATION RECORD

Name of Site: Hopewell Precision Area Contamination

CERCLIS ID No.: NYD066813064

EPA Region: 2 Date Prepared: July 2004

Street Address of Site*: 15 and 19 Ryan Road, Hopewell Junction, NY 12533

County and State: Dutchess County, New York

General Location in the State: southeastern New York State

Topographic Map: Hopewell Junction, NY

Latitude: 41° 36' 41.76" North Longitude: 73° 46' 53.33" West

[Ref. 3, p. 1; 4, p. 1; 5, pp. 10, 11].

Scores

Ground Water Pathway	100.00
Surface Water Pathway	Not Scored
Soil Exposure Pathway	Not Scored
Air Pathway	Not Scored
HRS SITE SCORE	50.00

*The street address, coordinates, and contaminant locations presented in this HRS documentation record identify the general area the site is located. They represent one or more locations EPA considers to be part of the site based on the screening information EPA used to evaluate the site for NPL listing. EPA lists national priorities among the known "releases or threatened releases" of hazardous substances; thus, the focus is on the release, not precisely delineated boundaries. A site is defined as where a hazardous substance has been "deposited, stored, placed, or otherwise come to be located." Generally, HRS scoring and the subsequent listing of a release merely represent the initial determination that a certain area may need to be addressed under CERCLA. Accordingly, EPA contemplates that the preliminary description of facility boundaries at the time of scoring will be refined as more information is developed as to where the contamination has come to be located.

WORKSHEET FOR COMPUTING HRS SITE SCORE
Hopewell Precision Area Contamination

		S	S^2
1.	Ground Water Migration Pathway Score (S_{gw}) (from Table 3-1, line 13)	100	10,000
2a.	Surface Water Overland/Flood Migration Component (from Table 4-1, line 30)	Not Scored	
2b.	Ground Water to Surface Water Migration Component (from Table 4-25, line 28)	Not Scored	
2c.	Surface Water Migration Pathway Score (S_{sw}) Enter the larger of lines 2a and 2b as the pathway score.	Not Scored	
3.	Soil Exposure Pathway Score (S_s) (from Table 5-1, line 22)	Not Scored	
4.	Air Migration Pathway Score (S_a) (from Table 6-1, line 12)	Not Scored	
5.	Total of $S_{gw}^2 + S_{sw}^2 + S_s^2 + S_a^2$	10,000	
6.	**HRS Site Score** Divide the value on line 5 by 4 and take the square root	50.00	

GROUND WATER MIGRATION PATHWAY SCORESHEET
Hopewell Precision Area Contamination

GROUND WATER MIGRATION PATHWAY Factor Categories & Factors	MAXIMUM VALUE	VALUE ASSIGNED
Likelihood of Release to an Aquifer		
Aquifer: Pre-Robles Volcanic Rock		
1. Observed Release	550	550
2. Potential to Release		
2a. Containment	10	
2b. Net Precipitation	10	
2c. Depth to Aquifer	5	
2d. Travel Time	35	
2e. Potential to Release [lines 2a (2b+2c+2d)]	500	
3. Likelihood of Release	550	550
Waste Characteristics		
4. Toxicity/Mobility	*	10,000
5. Hazardous Waste Quantity	*	100
6. Waste Characteristics	100	32
Targets		
7. Nearest Well	50	50
8. Population		
8a. Level I Concentrations	**	1,520
8b. Level II Concentrations	**	165
8c. Potential Contamination	**	NS
8d. Population (lines 8a+8b+8c)	**	1,685
9. Resources	5	0
10. Wellhead Protection Area	20	20
11. Targets (lines 7+8d+9+10)	**	1,755
12. Targets (including overlaying aquifers)	**	1,755
13. Aquifer Score (lines 3x6x12 divided by 82,500)	100	374.4
GROUND WATER MIGRATION PATHWAY SCORE (Sgw)	100	100.00

* Maximum value applies to waste characteristics category.
** Maximum value not applicable.

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3.	EPA - online information systems. Superfund Information Systems: CERCLIS Database, Site Information and Actions; Facility Registry System (FRS): Facility Detail Report; Resource Conservation and Recovery Act (RCRAInfo): Query Results; and Enforcement & Compliance History Online (ECHO): Detailed Facility Report; all for Hopewell Precision. Accessed and printed February 25, 2004. [10 pages]
4.	U.S. Department of the Interior Geological Survey (USGS). Hopewell Junction Quadrangle, New York, 7.5-Minute Series (Topographic). 1957, photorevised 1981. [1 page]
5.	Gaughan, Daniel, Weston Solutions, Inc. (WESTON). Latitude and Longitude Calculation Worksheet, Hopewell Precision, based on EPA's Standard Operating Procedure to Determine Site Latitude and Longitude Coordinates. February 10, 2004. [11 pages]
6.	Basso, Raymond and George Meyer, EPA. Letter to Richard Skeen, Hopewell Precision, Re: Request for Information Pursuant to the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. Section 9601, et seq., and Section 3007 of the Resource Conservation and Recovery Act, 42 U.S.C. Section 6927. June 25, 2003. [18 pages]
7.	Skeen, Richard. Letter to Mary Greene, EPA, Re: Pursuant to Your Request for Information Letter Dated June 25, 2003, I Submit the Following; with excerpted attachments. August 28, 2003. [201 pages]
8.	Wehran Engineering, P.C. Engineering Investigations at Inactive Hazardous Waste Sites in the State of New York, Phase II Investigations, Hopewell Precision, Town of East Fishkill, Dutchess County, New York, Site Code: 314052. Prepared for New York State Department of Environmental Conservation (NYSDEC). March 1987. [255 pages]
9.	U.S. Hydrogeologic, Inc. Limited Environmental Site Assessment, Hopewell Precision, Inc. and Nicholas Brothers Moving Company Located on Ryan Road, Town of East Fishkill, Dutchess County, New York. Prepared for Hopewell Precision. August 24, 1993. [209 pages]
10.	Basso, Raymond, EPA. Letter to John DeNicholas, Re: Request for Information Pursuant to the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. Section 9601, et seq. August 14, 2003. [10 pages]
11.	DeNicholas, John Jr. Letter with attachments to Mary Greene, EPA, Re: attached response to the Request for Information. September 12, 2003. [16 pages]
12.	McNair, James and Richard Skeen. Statement by James McNair. August 28, 2003. [1 page]
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17.	Sumbaly, Smita, WESTON. Transmittal Memo to Bob Montgomery, EPA, Subject: [Attached] Hopewell Precision Site Data Validation Assessment. April 22, 2003. [304 pages]
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20.	Yang, Yunru, WESTON. Transmittal Memo to Don Graham, EPA, Subject: [Attached] Hopewell Precision Site Data Validation Assessment. August 26, 2003. [295 pages]
21.	Levy, Aaron, WESTON. Transmittal Memo to Don Graham, EPA, Subject: [Attached] Hopewell Precision Site Data Validation Assessment. September 5, 2003. [196 pages]
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26.	Sumbaly, Smita, WESTON. Transmittal Memo to Don Graham, EPA, Subject: [Attached] Hopewell Precision Site Data Validation Assessment. January 29, 2004 [396 pages]
27.	Sumbaly, Smita, WESTON. Transmittal Memo to Don Graham, EPA, Subject: [Attached] Hopewell Precision Site Data Validation Assessment. February 05, 2004 [316 pages]
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34.	Gaughan, Daniel, WESTON. Project Note with attachments to Hopewell Precision File, Subject: Updated Population/Well Depth Data. March 10, 2004. [362 pages]
35.	Simmons, E.T., I.G. Grossman, and R.C. Heath, USGS. Ground-Water Resources of Dutchess County, New York. *Bulletin GW-43*. Albany, NY. 1961. [91 pages]
36.	LaFleur, Robert G. et al, USGS. Geohydrology of the Valley-fill Aquifer in the Sprout and Fishkill Creeks Area, Dutchess County, New York. *Open-File Report 82-81*. 1982. [6 pages - oversized sheets]
37.	P.F. Beal & Sons, Inc.; Frank Sabarese Inc.; Boyd Artesian Well Co., Inc.; Andrews Well Drilling & Pump Service Inc.; Hyatt & Sons, Inc. Well Completion Reports, Hopewell Junction/East Fishkill area. Dutchess County Health Department. Various dates, October 1985 to June 2002. [68 pages]
38.	Gaughan, Daniel, WESTON. Project Note with attachments to Hopewell Precision File, Subject: Estimated Populations Within 4 Miles of Site. February 27, 2004. [12 pages]
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40.	New York State Department of Health (NYSDOH). New York State Source Water Assessment Program Plan, Final. Bureau of Public Water Supply Protection. November 1999. [128 pages]
41.	Gaughan, Daniel, WESTON. Project Note to Hopewell Precision File, Subject: Wellhead Protection Areas; with attached NYSDOH and EPA information. March 10, 2004. [6 pages]
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53.	Buskey, William A., NYSDEC. Letter to William C. Marshall, Hopewell Precision Inc., Re: Hazardous Waste Compliance Inspection Date: October 17, 2002; Location of Handler: (Same as above); EPA Identification Number: NYD990881492. October 24, 2002. [4 pages]
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INTRODUCTION

Hopewell Precision Area Contamination (CERCLIS No. NYD066813064) in Hopewell Junction, Dutchess County, New York is an active contract manufacturer of sheet metal parts and assemblies [Ref. 3, p. 1, 6; 7, p. 1]. The company operated at its original location (15 Ryan Drive) from 1977 until 1980, and at the adjacent facility (19 Ryan Drive) since that time [Ref. 6, p. 7; 7, p. 1; 8, pp. 5, 161]. The current facility (19 Ryan Drive) was built in 1980 on formerly vacant land, and Hopewell Precision has been the sole occupant of the building [Ref. 7, pp. 1, 7 through 23; 9, p. 7]. The former Hopewell Precision facility (15 Ryan Drive) has been used by Nicholas Brothers Moving Co. for equipment storage and office space since 1981 [Ref. 8, p. 159; 9, p. 7; 10, pp. 7, 9; 11, pp. 2, 3]. The combined size of these adjacent properties is 5.7 acres [Ref. 16, p. 22; 30, p. 8]. The surrounding area consists mostly of residential neighborhoods, all of which are served by private wells and septic systems [Ref. 8, p. 23; 9, p. 7]. Almost 27,000 people live within 4 miles of the Hopewell Precision facility [Ref. 38, pp. 1, 2, 3].

Processes at Hopewell Precision include shearing, punching, bending, welding, and painting. The painting process includes degreasing prior to the wet spray paint application [Ref. 7, p. 1]. Hopewell Precision currently uses a water-based degreaser, but the company used trichlorothylene (TCE) and 1,1,1-trichloroethane (1,1,1-TCA) in a vapor degreasing machine until 1998 [Ref. 7, pp. 1, 2, 3, 34, 35]. Hopewell Precision purchased 12 drums (7,020 pounds) of 1,1,1-TCA in 1980 and 15 drums (9,000 pounds) in 1994 [Ref. 7, pp. 35 through 48]. The company generated 1,675 gallons (32 drums) of 1,1,1-TCA waste for off-site disposal from 1986 through 1998 [Ref. 7, pp. 31, 34, 97, 101, 117, 131, 135, 141, 145, 163, 171, 179, 187]. The company purchased 48 drums (31,680 pounds) of TCE in 1996 and 1997, but does not have any hazardous waste manifests for off-site disposal of TCE [Ref. 7, pp. 35, 49 through 69, 73 through 201]. Hopewell Precision no longer uses TCE or 1,1,1-TCA for degreasing [Ref. 7, p. 1].

U.S. Environmental Protection Agency (EPA) was made aware of Hopewell Precision in October 1979 via a letter from a former Hopewell Precision employee [Ref. 8, p. 125]. During an on-site inspection at the former Hopewell Precision facility (15 Ryan Drive) in November 1979, EPA observed solvent odors coming from an open disposal area. At the time of the inspection, Hopewell Precision was dumping 1 to 5 gallons per day of waste solvents, paint pigments, and sodium nitrate directly onto the ground [Ref. 8, pp. 82 through 87, 93; 9, p. 9]. In August 2003, a former employee stated that the common practice for disposal of waste solvents at the former facility was to pour the material on the ground outside the building. Waste paints and thinners were dumped on a daily basis and waste solvents from the degreaser were dumped on a biweekly basis while he worked at Hopewell Precision in 1979 and 1980 [Ref. 12, p. 1].

New York State Department of Environmental Conservation (NYSDEC) performed a Hazardous Waste Compliance Inspection of Hopewell Precision in May 1987 [Ref. 48, p. 1]. The inspector observed eleven 55-gallon drums of waste paint and thinners; six 55-gallon drums of waste 1,1,1-TCA; and one 55-gallon drum of unknown material at the facility [Ref. 48, p. 5]. NYSDEC determined that Hopewell Precision was in violation of hazardous waste regulations because it was operating as a hazardous waste storage facility without a permit or interim status authorization [Ref. 49, pp. 1, 2]. Hopewell Precision subsequently identified the drum of unknown material as paint thinner and performed corrective measures, including waste disposal, that NYSDEC found to be satisfactory [Ref. 50, p. 1; 51, p. 1]. During another inspection in October 2002, NYSDEC observed four full or partially full 55-gallon drums of waste paint and solvent at the facility. The NYSDEC inspector reported that a spray booth/paint finishing operation generated waste paint and paint thinner [Ref. 52, pp. 6, 7]. As a result of the inspection, NYSDEC cited the facility for ten violations of hazardous waste regulations [Ref. 53, pp. 1, 2, 3]. Hopewell Precision subsequently corrected the violations to NYSDEC's satisfaction [Ref. 54, p. 1; 55, p. 1].

TCE and 1,1,1-TCA have been detected in soil samples collected recently at the Hopewell Precision Area Contamination site. In July 2003, EPA collected on-site and off-site soil samples [Ref. 13, pp. 28, 29, 30, 92; 14, pp. 97, 98]. TCE was detected in two on-site soil samples and 1,1,1-TCA was detected in one on-site sample, but neither contaminant was detected in any off-site samples [Ref. 13, p. 92; 14, pp. 31, 43, 46, 73, 76, 79, 82, 85, 88, 91]. EPA completed test holes and collected additional soil samples in December 2003, concentrating the investigation between the current and former Hopewell Precision facilities. Background samples were collected also, from test holes near the northern property boundaries [Ref. 15, pp. 36, 37; 16, pp. 11, 23]. TCE was detected in five soil samples, at depths ranging from 0 to 12 feet, but was not detected in background samples collected from the same depth range [Ref. 16, pp. 13, 18, 23].

INTRODUCTION (continued)

The site also includes a ground water contamination plume beneath and downgradient of the current and former Hopewell Precision facilities. The former facility was served by a 25-foot-deep well that was sampled in March 1980 (sample collection point was a rest room faucet). The analytical results indicated the presence of 1,1,1-TCA at 3.6 micrograms per liter (ug/L) and TCE at 0.6 ug/L [Ref. 8, pp. 5, 27, 32, 159, 194, 221]. NYSDEC installed monitoring wells, each 39 to 40 feet deep, at the former facility in May 1985 and sampled the wells in March 1986. The analytical results for monitoring well B-3, located between the current and former facilities, indicated the presence of 1,1,1-TCA at 23 ug/L and TCE at an estimated concentration of 4 ug/L [Ref. 8, pp. 13 through 16, 23, 28, 33, 190, 191, 192, 236, 248 through 251]. Samples collected from the on-site monitoring wells by Hopewell Precision in April 1993 showed the continuing presence of 1,1,1-TCA and TCE [Ref. 9, pp. 8, 12 through 15, 25, 57, 66, 75]. In October and December 2003, EPA installed and sampled temporary shallow monitoring wells on both properties. The analytical results indicated TCE concentrations up to 144 ug/L in ground water at depths ranging from 10 to 30 feet below ground surface [Ref. 16, pp. 10, 17, 24, 77 through 109].

From February to November 2003, EPA Region 2 collected ground water samples from hundreds of private drinking water wells in the vicinity of Hopewell Precision Area Contamination [Ref. 13, pp. 3 through 75]. TCE and 1,1,1-TCA were both detected in numerous private well samples, at individual concentrations up to 250 ug/L for TCE and 11.7 ug/L for 1,1,1-TCA. In addition, 1,1-dichloroethene (1,1-DCE), a direct breakdown product of TCE, was detected in two samples [Ref. 13, pp. 3 through 75; 17, pp. 16 through 33; 18, pp. 14 through 28; 19, pp. 15 through 28; 20, pp. 14 through 21; 21, pp. 26 through 46; 22, pp. 14 through 33; 23, pp. 7 through 28; 24, pp. 12, 13; 25, pp. 15 through 34; 26, pp. 14 through 34; 27, pp. 14 through 30; 28, pp. 13 through 24; 43, p. 3]. Several instances of TCE detection exceeded the compound's Maximum Contaminant Level (MCL) of 5 ug/L [Ref. 2, p. BII-11]. EPA has installed treatment systems to remove volatile organic compounds (VOC) at 37 homes where TCE exceeds or approaches the MCL [Ref. 16, pp. 7, 8].

The site is also believed to have an impact on ponds located downgradient of the current/former Hopewell Precision facility location. In April 2003, EPA collected water and sediment samples from small ponds located about 300 feet south-southwest (i.e., downgradient) of the Hopewell Precision facilities [Ref. 13, pp. 14, 93; 16, pp. 25, 26; 18, p. 46]. TCE was detected at concentrations of 4 ug/L and 3.4 ug/L in the water samples and 88 micrograms per kilogram (ug/kg) in one of the two sediment samples [Ref. 18, pp. 183, 186, 189, 192]. EPA collected additional samples from two ponds located approximately 900 and 4,500 feet southwest of Hopewell Precision in May 2003 [Ref. 13, pp. 18, 19, 93; 19, p. 40]. TCE was detected at an estimated concentration of 3.6 ug/kg in a sediment sample from the closer pond, but was not detected in a water sample from the same location or in sediment and water samples collected from the farther pond on Creamery Road [Ref. 13, pp. 18, 19, 93; 19, pp. 268 through 283].

The EPA Response and Prevention Branch is currently conducting an indoor air investigation at the Hopewell Precision Area Contamination site. Since February 2004, EPA has collected sub-slab or indoor air samples from about 200 homes. As of July 13, 2004, EPA had installed sub-slab ventilation systems at 17 homes and was anticipating the need for additional installations. The sub-slab systems are intended to reduce residents' exposure to indoor air contaminants associated with the site [Ref. 56, p. 1].

SOURCE DESCRIPTION

2.2 SOURCE CHARACTERIZATION

Number of the source: 1

Source Type of the source: Contaminated Soil

Name and description of the source: Contaminated Soil

Source 1 is contaminated soil left behind by on-site disposal of waste solvents. During an inspection at the former Hopewell Precision facility in November 1979, EPA observed solvent odors coming from an open disposal area where Hopewell Precision was dumping 1 to 5 gallons per day of waste solvents, paint pigments, and sodium nitrate directly onto the ground [Ref. 8, pp. 82 through 87, 93; 9, p. 9]. Hopewell Precision purchased a combined 75 drums of TCE and 1,1,1-TCA from 1980 to 1997, and used the solvents in a vapor degreasing machine until 1998 [Ref. 7, pp. 1, 2, 3, 34, 35 through 69]. The company generated 1,1,1-TCA waste for off-site disposal between 1986 and 2003, but does not have any hazardous waste manifests for disposal of TCE over that time period [Ref. 7, pp. 31, 34, 73 through 201]. A former employee has stated that the common practice for disposal of waste solvents at the former facility was to pour the material on the ground outside the building. Waste paints and thinners were dumped on a daily basis and waste solvents from the degreaser were dumped on a biweekly basis while he worked at Hopewell Precision in 1979 and 1980 [Ref. 12, p. 1].

TCE and 1,1,1-TCA have been detected in soil samples collected recently at the Hopewell Precision Area Contamination site. In July 2003, EPA collected on-site and off-site soil samples [Ref. 13, pp. 28, 29, 30, 92; 14, pp. 97, 98]. TCE was detected in two on-site soil samples and 1,1,1-TCA was detected in one on-site sample [Ref. 13, p. 92; 14, pp. 31, 43, 46]. TCE and 1,1,1,-TCA were not detected in any off-site samples [Ref. 13, p. 92; 14, pp. 73, 76, 79, 82, 85, 88, 91]. EPA completed test holes and collected additional soil samples in December 2003, concentrating the investigation between the current and former Hopewell Precision facilities. Background samples were collected also, from test holes near the northern property boundaries [Ref. 15, pp. 36, 37; 16, pp. 11, 23]. TCE was detected in five soil samples, at depths ranging from 0 to 12 feet, but was not detected in background samples collected from the same depth range [Ref. 16, pp. 13, 18, 23]. The soil samples collected by EPA in December 2003 each consisted of fine to coarse, poorly-sorted sands and gravels [Ref. 16, pp. 11, 13, 18, 23].

Location of the source, with reference to a map of the site:

Contaminated soil is located on the former Hopewell Precision facility property, near the property boundary with the current Hopewell facility. Samples that showed TCE concentrations significantly above background were collected from borehole locations TH6, TH7, TH10, and TH11, which are shown on page 23 of Reference 16. The approximate size of the contaminated soil source is 750 square feet [Ref. 44, pp. 1, 2].

Containment

Release to ground water:

There is evidence of hazardous substance migration (i.e., contamination has been detected in ground water samples collected from numerous on-site monitoring wells and nearby residential wells) [Ref. 8, pp. 13 through 16, 23, 28, 33, 190, 191, 192, 236, 248 through 251; 9, pp. 8, 12 through 15, 25, 57, 66, 75; 13, pp. 3 through 75; 16, pp. 10, 17, 24, 77 through 109; 17, pp. 16 through 33; 18, pp. 14 through 28; 19, pp. 15 through 28; 20, pp. 14 through 21; 21, pp. 26 through 46; 22, pp. 14 through 33; 23, pp. 7 through 28; 24, pp. 12, 13; 25, pp. 15 through 34; 26, pp. 14 through 34; 27, pp. 14 through 30; 28, pp. 13 through 24]. Boring logs also show no evidence of a liner or engineered cover on site [Ref. 8, pp. 23, 190, 191, 192; 16, pp. 12, 22, 37 through 54]. Based on these descriptions of containment, a containment factor of 10 is assigned [Ref. 1, p. 51596, Table 3-2].

2.4.1 Hazardous Substances

TCE has been detected at concentrations significantly above background in soil samples from the Hopewell Precision Area Contamination site. EPA completed test holes and collected soil samples in December 2003, concentrating the investigation between the current and former Hopewell Precision facilities. EPA designated two of the test holes near the northern property boundaries as background locations, and collected background samples from those test holes [Ref. 15, pp. 36, 37; 16, pp. 11, 23]. TCE was detected in five soil samples, at depths ranging from 0 to 12 feet, but was not detected in background samples collected from the same depth range [Ref. 16, pp. 13, 18, 23].

In the table below, samples with "BG" in the sample number are background samples and samples with "TH" in the sample number are contaminated samples. Each background and source sample was collected from one of the following depth ranges: 0 to 4 feet, 4 to 8 feet, or 8 to 12 feet. All the soil samples, including background samples, consisted of fine to coarse, poorly-sorted sands and gravels. The samples were all collected over the same 2-day period, and were analyzed as a batch by one laboratory [Ref. 16, pp. 11, 13, 18, 23, 110 through 138]. Based on these considerations, the background and contaminated samples are considered to be similar for determination of significance above background.

Hazardous Substance	Sample No.	Date	Depth (ft BGS)	Result (ug/kg)	MDL	References
TCE	109 (BG-1, 0-4')	12/2/03	0' to 4'	U	1.1	16, pp. 18, 23, 125, 138
	108 (BG-1, 8-12')	12/2/03	8' to 12'	U	1.1	16, pp. 18, 23, 125, 138
	126 (BG-2, 4-8')	12/3/03	4' to 8'	U	1.1	16, pp. 18, 23, 128, 137
	102 (TH6, 8-12')	12/2/03	8' to 12'	**1.1**	1.1	16, pp. 18, 23, 124, 138
	103 (TH7, 0-4')	12/2/03	0' to 4'	**1.9**	1.2	16, pp. 18, 23, 121, 138
	105 (TH7, 4-8')	12/2/03	4' to 8'	**1.9**	1.1	16, pp. 18, 23, 121, 138
	110 (TH10, 8-12')	12/3/03	8' to 12'	**3.9**	1.1	16, pp. 18, 23, 125, 138
	118 (TH11, 4-8')	12/3/03	4' to 8'	**2.4**	1.0	16, pp. 18, 23, 126, 137

ug/kg Micrograms per kilogram
U Denotes not detected [Ref. 16, p. 114]
BOLD indicates a concentration that is significantly above background.

In addition to the analytical evidence presented above, historical records provided to EPA by Hopewell Precision indicate that the company made the following purchases and handled the following substances:

Chemical	Year	Number of Drums	Mass (pounds)
1,1,1-TCA	1980	12	7,020
	1994	15	9,000
TCE	1996	6	3,960
	1997	42	27,720

Manifests show that the company sent 32 drums of waste 1,1,1-TCA off site for disposal from 1986 through 2003. There are no manifests for TCE in the records provided by the company for the same time period [Ref. 7, pp. 31 through 201].

2.4.2 Hazardous Waste Quantity

2.4.2.1.1 Hazardous Constituent Quantity

The information available is not sufficient to evaluate Tier A source hazardous waste quantity; therefore, hazardous constituent quantity is not scored (NS).

Hazardous Constituent Quantity (C) Value: NS

2.4.2.1.2 Hazardous Wastestream Quantity

The information available is not sufficient to evaluate Tier B source hazardous waste quantity; therefore, hazardous wastestream quantity is not scored.

Hazardous Wastestream Quantity (W) Value: NS

2.4.2.1.3 Volume

There are soil samples from various depths in four different borings showing contamination, however, the volume of the contaminated zone cannot be determined [Ref. 16, pp. 11, 13, 18, 23]. Therefore, volume (V) is assigned a value of 0 [Ref. 1, p. 51591].

Dimension of source (yd^3): N/A

Volume (V) Assigned Value: 0

2.4.2.1.4 Area

The area of contaminated soil is estimated to be 750 square feet [Ref. 44, pp. 1, 2]. The source type is contaminated soil, so the area value is divided by 34,000 to obtain the assigned value, as shown below [Ref. 1, p. 51591, Table 2-5].

Area of source (ft^2): 750

Area (A) Assigned Value: (2,000)/(34,000) = 0.02

2.4.2.1.5 Source Hazardous Waste Quantity Value

The source hazardous waste quantity value for Source 1 is 0.02 for Tier D - Area [Ref. 1, p. 51591].

Source Hazardous Waste Quantity Value: 0.02

SITE SUMMARY OF SOURCE DESCRIPTIONS

Source Number	Source Hazardous Waste Quantity Value	Containment: Ground Water	Containment: Surface Water	Containment: Air Gas	Containment: Air Particulate
1	0.02	10	NS	NS	NS

NS = Not Scored

3.0 GROUND WATER MIGRATION PATHWAY

3.0.1 General Considerations

The Hopewell Precision Area Contamination site includes a ground water contamination plume beneath and downgradient of the Hopewell Precision facilities. Hopewell Precision Area Contamination is immediately underlain by glacial outwash consisting predominantly of sand and gravel [Figures 1, 2; Ref. 8, pp. 5, 26, 190, 191, 192; 16, pp. 8, 12, 21, 35 through 50; 33, pp. 53, 54; 35, pp. 19, 20, 31, 91; 36, p. 1]. The glacial outwash is the most important source of ground water supply in Dutchess County, particularly in valleys such as that where the site is located [Figures 1, 2; Ref. 16, pp. 8, 27 through 34; 35, pp. 13, 14, 30, 37, 60; 36, p. 1]. At a number of locations throughout the plume, sand and gravel deposits lie directly over fractured bedrock [Figures 1, 2; Ref. 8, pp. 135, 136; 35, p. 41; 36, pp. 1, 2; 37, pp. 23, 33, 39, 42, 46, 52, 54, 56, 64]. Bedrock encountered within the plume area consists mainly of shale or slate of the Hudson River formation, the most extensive bedrock unit in Dutchess County [Figures 1, 2; Ref. 8, pp. 26, 135, 136; 35, pp. 20, 25, 75, 89, 90; 36, pp. 1, 2; 37, pp. 1 through 19, 28 through 68]. The drinking water wells that contain site-related contaminants and most wells throughout the county are finished in glacial outwash or bedrock [Ref. 16, pp. 9, 11, 12; 35, pp. 67 through 89]. The two units are hydraulically interconnected and are evaluated as a single hydrologic unit (i.e., the aquifer of concern), as described below in Section 3.0.1.2.1.

Ground water in the glacial outwash is unconfined [Ref. 8, pp. 26, 27; 16, p. 12; 36, p. 5]. The depth to the water table at the Hopewell Precision facility ranges from 1 to 17 feet below ground surface [Ref. 8, pp. 5, 27; 9, p. 11; 16, pp. 12, 19]. The direction of ground water flow at the site is generally southwest, with local flow components ranging from west to south [Figures 1, 2; Ref. 8, pp. 26, 27; 9, pp. 7, 16, 17; 16, pp. 13, 14, 25, 26; 36, p. 5].

At some locations within the plume area, glacial till (in the form of clay, boulders, gravel mixed with clay, hardpan, silty sand, broken rock, or sandy clay) is present beneath or in lieu of the sand and gravel deposits [Figures 1, 2; Ref. 8, pp. 137, 138; 16, pp. 12, 15, 35 through 50; 36, p. 1; 37, pp. 1 through 19, 28, 30, 32, 35, 37, 48, 49, 50, 58, 59, 61, 63, 65, 66, 67]. The glacial till is not a productive water-bearing deposit because of its poor sorting, high clay content, and low permeability. It is not known to be used for water supply within the plume area [Ref. 35, pp. 30, 35, 36, 89, 91; 37, pp. 1 through 68]. Where present, the glacial till can act as a confining layer between the glacial outwash and bedrock. However, the till is not a continuous confining layer throughout the area of the contaminated plume, and it does not prevent leakage or hydraulic connection from the glacial outwash to the bedrock [Ref. 16, pp. 11, 12; 35, pp. 30, 35, 36, 89, 91; 36, p. 1; 37, pp. 1 through 68].

Stratum 1 (shallowest)

Stratum Name: Glacial Outwash

Description: The surficial geology over most of the Hopewell Precision Area Contamination site consists of high-permeability outwash sand and gravel that was deposited by glacial melt-water streams [Ref. 35, p. 20; 36, p. 1]. Glacial outwash is the most important source of ground water supply in Dutchess County, particularly in valleys such as that where the site is located [Ref. 16, pp. 8, 27 through 34; 35, pp. 13, 14, 30, 37, 60; 36, p. 1]. TCE contamination associated with Hopewell Precision Area Contamination is present mainly in shallow wells completed in the glacial sands and gravels [Ref. 16, pp. 9, 11, 12].

The thickness of the glacial outwash at and in the vicinity of Hopewell Precision Area Contamination ranges from 0 to more than 100 feet [Ref. 8, pp. 26, 135 through 138, 190, 191, 192; 16, pp. 8, 12, 35 through 50; 35, pp. 20, 37, 91; 36, p. 2; 37, pp. 1 through 68]. NYSDEC calculated hydraulic conductivities ranging from 6.81×10^{-5} centimeters per second (cm/s) to 2.39×10^{-3} cm/s for glacial outwash at the Hopewell Precision facility [Ref. 8, pp. 27, 77, 78, 79]. Ground water in the glacial outwash is unconfined, occurring at depths ranging from 1 to 17 feet below ground surface at the Hopewell Precision facility. The direction of ground water flow at the site is generally southwest, with local flow components ranging from west to south [Ref. 8, pp. 5, 26, 27; 9, pp. 7, 11, 16, 17; 16, pp. 12, 13, 14, 19, 25, 26; 36, p. 5].

Stratum 2

Stratum Name: Hudson River formation (Bedrock)

Description: The Hudson River formation consists of shale and slate with beds of sandstone, limestone, limestone conglomerate, and black chert. It is the most extensive bedrock unit in Dutchess County, and its maximum thickness exceeds 3,000 feet [Ref. 35, pp. 20, 25]. At Hopewell Precision Area Contamination and within the plume area, the unit remains relatively unmetamorphosed and is characterized by numerous, small, closely-spaced, subparallel joints and bedding-plane type openings [Ref. 35, pp. 26, 89, 90]. Ground water occurs mainly in these secondary openings, and bedrock wells yield small to moderate supplies of water [Ref. 16, p. 8; 35, pp. 33, 39]. The most productive bedrock wells are in valley areas, such as the site location, where joints and other openings are more abundant and where recharge to bedrock is facilitated by favorable topographic position and overlying permeable deposits (i.e., sand and gravel) [Ref. 35, pp. 41, 60]. Numerous drinking water wells within the plume area and throughout Dutchess County are completed in the Hudson River formation [Ref. 16, pp. 9, 11, 12; 35, pp. 67 through 89; 37, pp. 1 through 68]. Domestic wells completed in bedrock within the plume area range in depth from 55 to 545 feet. The wells are constructed as open holes in bedrock with the open sections as shallow as 18 feet below ground surface [Ref. 37, pp 1 through 19, 23, 28 through 67].

Bedrock encountered within the plume area consists predominantly of shale or slate, and less commonly of limestone or dolomite [Ref. 8, pp. 135, 136; 37, pp. 1 through 19, 28 through 68]. The depth to bedrock ranges from 0 to 150 feet below ground surface, including depths of 66 to 81 feet at the Hopewell Precision facilities [Ref. 8, pp. 26, 135 through 138, 190, 191, 192; 16, pp. 8, 12, 37 through 50; 35, pp. 75, 89; 36, p. 2; 37, pp. 1 through 68]. At one location approximately 0.65 mile south-southwest of Hopewell Precision, shale is present at the land surface (i.e., 0 feet below ground surface) [Ref. 13, p. 91; 37, p. 44]. Although there is no actual measure of the hydraulic conductivity of the bedrock formation, a typical hydraulic conductivity of low to moderately permeable fractured rock units such as the bedrock encountered at the site is approximately 10^{-4} cm/s [Ref. 1, p. 51601, Table 3-6]. Regional ground water flow direction is to the southwest [Ref. 8, p. 26, 27].

3.0.1.2 Aquifer Boundaries

Since aquifer interconnections can be established for multiple aquifers, as described below, they are combined into a single hydrologic unit for scoring purposes [Ref. 1, p. 51595]. Therefore, the aquifer of concern is referred to as the Glacial Outwash/Bedrock Hydrologic Unit.

3.0.1.2.1 Aquifer Interconnections

Aquifer interconnection between the glacial outwash and bedrock occurs within the plume area (i.e., at the site). Well logs and geologic literature show that glacial sands and gravels lie directly over bedrock at numerous locations throughout the plume. Several well logs indicate that fractured bedrock occurs directly beneath glacial outwash [Ref. 8, pp. 26, 135, 136; 36, p. 2; 37, pp. 23, 33, 39, 42, 46, 52, 54, 56, 64]. As stated previously, the hydraulic conductivity of the glacial outwash ranges from 6.81×10^{-5} cm/s to 2.39×10^{-3} cm/s and the hydraulic conductivity of the fractured bedrock is approximately 10^{-4} cm/s [Ref. 1, p. 51601; 8, pp. 27, 77, 78, 79]. Pumping of domestic wells completed in the glacial outwash causes minimal drawdowns, suggesting a productive aquifer with high transmissivity. The sand and gravel transmits water readily to the underlying bedrock, where pumping produces large drawdowns that can further induce ground water leakage from the overlying glacial deposits [Ref. 16, p. 8; 35, p. 41].

Yield information for bedrock wells provides further evidence of aquifer interconnection. The average yield of wells tapping bedrock overlain by sand and gravel exceeds 30 gallons per minute (gpm), whereas the average yield of bedrock wells where clay or till predominates in the overburden is about 13 gpm. The higher average yield is an indication of the transmission of water from the glacial outwash to bedrock, either through hydraulic continuity between the two units or through leakage from the overlying permeable deposits directly into bedrock wells [Ref. 35, p. 41].

At the Hopewell Precision Area Contamination site, ground water contamination occurs mainly in shallow wells completed in glacial outwash. The presence of TCE in a few bedrock wells indicates that there is hydraulic connection between the glacial outwash and bedrock, either by natural downward vertical flow or through deficiencies in well construction. The well construction of at least one of the contaminated bedrock wells possibly causes downward flow from the overlying glacial sediments. The relatively high yield of another contaminated bedrock well suggests possible leakage or hydraulic connection with recharge sources other than bedrock [Ref. 16, pp. 8, 9, 11, 12].

Based on the considerations presented above, the glacial outwash and bedrock units are hydraulically connected at the site. Glacial outwash and bedrock are combined into a single hydrologic unit for scoring purposes [Ref. 1, p. 51595], and the aquifer of concern is referred to as the Glacial Outwash/Bedrock Hydrologic Unit.

3.1 LIKELIHOOD OF RELEASE

3.1.1 Observed Release

Hydrologic Unit Being Evaluated: Glacial Outwash/Bedrock

The former Hopewell Precision facility was served by a 25-foot-deep well that was sampled in March 1980. The analytical results indicated the presence of 1,1,1-TCA and TCE [Ref. 8, pp. 5, 27, 32, 159, 194, 221]. NYSDEC installed monitoring wells, each 39 to 40 feet deep, at the former facility in May 1985 and sampled the wells in March 1986. The analytical results indicated the presence of 1,1,1-TCA and TCE in monitoring well B-3, which is located between the current and former Hopewell Precision facilities [Ref. 8, pp. 13 through 16, 23, 28, 33, 190, 191, 192, 236, 248 through 251]. Samples collected from the monitoring wells by Hopewell Precision in April 1993 showed the continuing presence of 1,1,1-TCA and TCE [Ref. 9, pp. 8, 12 through 15, 25, 57, 66, 75]. In October and December 2003, EPA installed and sampled temporary shallow monitoring wells on both properties. The analytical results indicated TCE concentrations up to 144 ug/L in ground water at depths ranging from 10 to 30 feet below ground surface [Ref. 16, pp. 10, 17, 24, 77 through 109].

The analytical results for samples collected from private drinking water wells in 2003 document the observed release to the Glacial Outwash/Bedrock Hydrologic Unit. All background and contaminated samples documenting observed release were collected from the aquifers of concern (i.e., Glacial Outwash/Bedrock) from February to November 2003 [Ref. 13, pp. 3 through 75; 16, pp. 8, 9, 11, 12, 27 through 34]. Background wells are located upgradient (i.e., north and east) of the Hopewell Precision facility and release wells are located downgradient (i.e., south and southwest) of the facility [Figure 2; Ref. 16, p. 20]. Both background and release samples are listed in the following table.

Chemical Analysis

Hopewell Precision is surrounded mostly by residential properties served by private wells [Ref. 8, p. 23; 9, p. 7]. From February to November 2003, EPA collected ground water samples from private drinking water wells in the vicinity of Hopewell Precision Area Contamination [Ref. 13, pp. 3 through 75]. The samples were all analyzed for VOCs by EPA Method 524.2 for the Determination of Organic Compounds in Drinking Water [Ref. 17, pp. 5, 6; 18, p. 5; 19, pp. 5, 6; 20, pp. 6, 7; 21, pp. 5 through 8; 22, p. 5; 23, pp. 5, 6; 24, p. 5; 25, pp. 6, 7; 26, pp. 5, 6; 27, pp. 5, 6; 28, pp. 5, 6; 45, p. 1].

TCE and 1,1,1-TCA were detected in numerous private well samples, at individual concentrations up to 250 ug/L and 11.7 ug/L, respectively [Ref. 17, pp. 16 through 33; 18, pp. 14 through 28; 19, pp. 15 through 28; 20, pp. 14 through 21; 21, pp. 26 through 46; 22, pp. 14 through 33; 23, pp. 7 through 28; 24, pp. 12, 13; 25, pp. 15 through 34; 26, pp. 14 through 34; 27, pp. 14 through 30; 28, pp. 13 through 24]. EPA has installed treatment systems to remove VOCs at 37 homes where TCE exceeds or approaches the MCL of 5 ug/L [Ref. 2, p. BII-11; 16, pp. 7, 8].

The table that begins on the next page contains background and release wells and samples used to establish the observed release to the ground water pathway. All background and contaminated samples documenting observed release were collected from the aquifers of concern (i.e., Glacial Outwash/Bedrock) from February to November 2003 [Ref. 13, pp. 3 through 75; 16, pp. 8, 9, 11, 12, 27 through 34]. Background wells are located upgradient (i.e., north and east) of the Hopewell Precision facility and release wells are located downgradient (i.e., south and southwest) of the facility [Figure 2; Ref. 16, p. 20]. The depth elevations of the background wells range from 305 feet below Mean Sea Level (MSL) to 275 feet above MSL. Similarly, the depth elevations of the contaminated wells range from 345 feet below MSL to 276 feet above MSL [Ref. 42, pp. 1, 2, 3]. The samples were all analyzed for VOCs by EPA Method 524.2 for the Determination of Organic Compounds in Drinking Water [Ref. 17, pp. 5, 6; 18, p. 5; 19, pp. 5, 6; 20, pp. 6, 7; 21, pp. 5 through 8; 22, p. 5; 23, pp. 5, 6; 24, p. 5; 25, pp. 6, 7; 26, pp. 5, 6; 27, pp. 5, 6; 28, pp. 5, 6; 45, p. 1].

The following notes and abbreviations are used in the table:

[1] Please see the Site Map (Figure 2) for Property ID/Sampling Locations, which have been converted to keep addresses out of the documentation record [Ref. 34, pp. 358 through 362].
[2] Well depths, which range from 14 to 605 feet below ground surface, have been adjusted with respect to Mean Sea Level (MSL) [Ref. 42, pp. 1, 2, 3]. The ground surface elevation at Hopewell Precision is approximately 310 feet above MSL, and ground surface elevations at sampling locations range from 250 to 350 feet above MSL [Ref. 4, p. 1].
[3] Populations served by private wells were determined during sampling events and phone interviews [Ref. 34, pp. 1 through 350].
[4] For determination of Level I/Level II concentrations, the table lists the lowest benchmark for each hazardous substance in the release [Ref. 1, p. 51593]. The following are the applicable benchmarks for the substances in the observed release, with the lowest value in **bold** (all values have been converted to ug/L for comparability to the site-specific ground water data):

Substance	MCL/MCLG	Reference Dose Screen Conc.	Cancer Risk Screen Conc.	Reference
TCE	5 ug/L	11 ug/L	**0.21 ug/L**	46, p. 4
1,1,1-TCA	**200 ug/L**	---	---	2, p. BII-11

[5] Point of Entry Treatment System (POETS) have been installed at these locations.
[6] Residents described these wells as "point" wells, but were unable to specify the actual well depths [Ref. 34, pp. 2, 84, 143]. Geologic literature for Dutchess County describes driven wells constructed by driving a string of pipe with a screened drive point at the bottom. The screened drive points tap the glacial sands and gravels at depths ranging from 8 to 28 feet, with an average depth of 18 feet [Ref. 35, pp. 44, 69 through 88]. For the purpose of this evaluation, the "point" wells described by residents are assumed to be of the same type as the drive point wells described in the literature, and the well depth values listed in the table assign a depth of 20 feet below ground surface for each "point" well.
[7] Residents were unable to describe the actual or relative well depths [Ref. 34, pp. 32, 35, 40, 43, 44, 59, 149, 157, 210, 212, 214, 316, 318]. All the drinking water wells that contain site-related contaminants, and most wells throughout the county, are finished in glacial outwash or bedrock [Ref. 16, pp. 9, 11, 12; 35, pp. 67 through 89]. For the purpose of this evaluation, it is assigned that each well of unknown depth is screened somewhere within the range of known well depths tapping the Glacial Outwash/Bedrock Hydrologic Unit; that range (i.e., 14 to 605 feet below ground surface) is given with respect to MSL [Ref. 42, pp. 1, 2, 3].
[8] Residents described these wells as shallow, but were unable to specify the actual well depths [Ref. 34, pp. 45, 49, 292, 293]. For the purpose of this evaluation, a depth of 40 feet below ground surface is assigned for each shallow well.
[9] The sample analyses were not performed under the EPA Contract Laboratory Program, so detection limits, equivalent to the method detection limits (MDL) for HRS purposes, are used in place of sample quantitation limits (SQL) [Ref. 1, pp. 51586, 51589]. EPA Method 524.2 presents two sets of MDLs, depending on the GC column used in the analysis; the appropriate MDLs have been assigned to each sample.
ND = Non Detect; compound was not detected at or above the reporting limit.
BOLD indicates Level I concentrations; all others are Level II concentrations.

Property ID [1]	Well Depth (ft) [2]	Population [3]	Sample ID	Sample Date	Compound	Benchmark (ug/L) [4]	Result (ug/L)	Dilution Factor	Detection Limit (ug/L) [9]	References
BACKGROUND										
0001	125	4	0001a	2/24/2003	1,1,1-TCA	200	ND	1	0.08	17, pp. 37, 79; 34, p. 180; 45, pp. 10, 36
					TCE	0.21	ND	1	0.19	
0002	215	2	0002a	2/24/2003	1,1,1-TCA	200	ND	1	0.08	17, pp. 38, 130; 34, p. 182; 45, pp. 10, 36
					TCE	0.21	ND	1	0.19	
0003	260	3	0003a	2/24/2003	1,1,1-TCA	200	ND	1	0.08	17, pp. 39, 145; 34, p. 190; 45, pp. 10, 36
					TCE	0.21	ND	1	0.19	
0004	-305	2	0004a	2/24/2003	1,1,1-TCA	200	ND	1	0.08	17, pp. 36, 52; 34, p. 274; 45, pp. 10, 36
					TCE	0.21	ND	1	0.19	
0005	275	2	0005a	2/25/2003	1,1,1-TCA	200	ND	1	0.08	17, pp. 175, 239; 34, p. 275; 45, pp. 10, 36
					TCE	0.21	ND	1	0.19	
0006	258	2	0006a	2/24/2003	1,1,1-TCA	200	ND	1	0.08	17, pp. 39, 148; 34, p. 276; 45, pp. 10, 36
					TCE	0.21	ND	1	0.19	
0007	260	4	0007a	2/26/2003	1,1,1-TCA	200	ND	1	0.08	17, pp. 249, 254; 34, p. 278; 45, pp. 10, 36
					TCE	0.21	ND	1	0.19	
RELEASE										
0008 [5]	240	4	0008a	7/9/2003	1,1,1-TCA	200	1.1	1	0.04	22, pp. 34, 72, 73, 143; 34, pp. 2, 63; 45, pp. 10, 38
					TCE	0.21	**6.4**	1	0.02	
			0008b	8/6/2003	1,1,1-TCA	200	0.8	1	0.08	23, pp. 236, 357; 34, pp. 2, 63; 45, pp. 10, 36
					TCE	0.21	**6.9**	1	0.19	
			0008c	8/6/2003	1,1,1-TCA	200	0.8	1	0.08	23, pp. 272, 360; 34, pp. 2, 63; 45, pp. 10, 36
					TCE	0.21	**7.1**	1	0.19	
			0008d	11/10/2003	1,1,1-TCA	200	0.6	1	0.08	26, pp. 85, 203; 34, pp. 2, 63; 45, pp. 10, 36
					TCE	0.21	**7.0**	1	0.19	
0009	5	3	0009a	4/15/2003	TCE	0.21	**2.0**	1	0.19	18, pp. 46, 174; 34, pp. 3, 77; 45, pp. 10, 36
			0009b	8/12/2003	TCE	0.21	**2.0**	1	0.19	23, pp. 93, 195; 34, pp. 3, 77; 45, pp. 10, 36
			0009c	11/13/2003	TCE	0.21	**1.6**	1	0.19	28, pp. 72, 78; 34, pp. 3, 77, 352; 45, pp. 10, 36
0010	50	2	0010a	11/13/2003	TCE	0.21	**1.4**	1	0.19	28, pp. 124, 162; 34, pp. 3, 78, 354; 45, pp. 10, 36
0011 [5]	250	7	0011a	4/15/2003	TCE	0.21	**8.5**	1	0.19	18, pp. 46, 177; 34, pp. 2, 79; 45, pp. 10, 36
			0011b	11/12/2003	TCE	0.21	**13**	1	0.19	28, pp. 132, 162; 34, pp. 2, 79, 354; 45, pp. 10, 36
0012 [5]	240	2	0012a	4/15/2003	TCE	0.21	**7.4**	1	0.19	18, pp. 46, 180; 34, pp. 2, 80; 45, pp. 10, 36
			0012b	11/12/2003	TCE	0.21	**0.74**	1	0.19	28, pp. 134, 162; 34, pp. 2, 80, 354; 45, pp. 10, 36
			0012c	11/12/2003	TCE	0.21	**5.9**	1	0.19	28, pp. 138, 163; 34, pp. 2, 80, 354; 45, pp. 10, 36
			0012d	12/17/2003	TCE	0.21	**4.9**	1	0.19	27, pp. 59, 101; 34, pp. 2, 80, 357; 45, pp. 10, 36
0013 [5]	274	2	0013a	5/7/2003	TCE	0.21	**3.0**	1	0.19	19, pp. 35, 148; 34, pp. 3, 81; 45, pp. 10, 36
			0013b	8/12/2003	TCE	0.21	**4.5**	1	0.19	23, pp. 78, 194; 34, pp. 3, 81; 45, pp. 10, 36
			0013c	9/24/2003	TCE	0.21	**4.1**	1	0.19	24, pp. 52, 58; 34, pp. 3, 81; 45, pp. 10, 36
			0013d	11/12/2003	TCE	0.21	**3.1**	1	0.19	26, pp. 236, 393; 34, pp. 3, 81, 354; 45, pp. 10, 36
			0013e	11/12/2003	TCE	0.21	**3.6**	1	0.19	26, pp. 388, 396; 34, pp. 3, 81, 357; 45, pp. 10, 36
0014 [5]	252	2	0014a	5/7/2003	1,1,1-TCA	200	0.7	1	0.08	19, pp. 35, 154; 34, pp. 2, 82; 45, pp. 10, 36
					TCE	0.21	**7.2**	1	0.19	
			0014b	11/10/2003	1,1,1-TCA	200	0.7	1	0.08	26, pp. 95, 204; 34, pp. 2, 82, 355; 45, pp. 10, 36
					TCE	0.21	**9.9**	1	0.19	
0015 [5]	274	2	0015a	5/7/2003	1,1,1-TCA	200	0.5	1	0.08	19, pp. 35, 151; 34, pp. 2, 83; 45, pp. 10, 36
					TCE	0.21	**48**	1	0.19	
			0015b	11/11/2003	1,1,1-TCA	200	1.0	1	0.08	26, pp. 245, 393; 34, pp. 3, 83, 355; 45, pp. 10, 36
					TCE	0.21	**48**	5	0.19	
			0015c	11/11/2003	1,1,1-TCA	200	0.9	1	0.08	26, pp. 385, 395; 34, pp. 2, 83, 357; 45, pp. 10, 36
					TCE	0.21	**49**	1	0.19	
0016 [5]	270 [6]	6	0016a	5/7/2003	1,1,1-TCA	200	2	1	0.08	19, pp. 36, 157, 160; 34, pp. 2, 84; 45, pp. 10, 36
					TCE	0.21	**130**	10	0.19	
			0016b	11/11/2003	1,1,1-TCA	200	1.5	1	0.08	26, pp. 256, 393; 34, pp. 2, 84, 355; 45, pp. 10, 36
					TCE	0.21	**86**	10	0.19	
0017 [5]	244	4	0017a	5/7/2003	1,1,1-TCA	200	2.7	1	0.08	19, pp. 36, 162, 165; 34, pp. 2, 85; 45, pp. 10, 36
					TCE	0.21	**76**	10	0.19	
			0017b	8/12/2003	1,1,1-TCA	200	4.7	1	0.08	23, pp. 174, 177, 197; 34, pp. 2, 85; 45, pp. 10, 36
					TCE	0.21	**82**	5	0.19	
			0017c	11/6/2003	1,1,1-TCA	200	3.0	1	0.08	25, pp. 319, 336; 34, pp. 2, 85, 355; 45, pp. 10, 36
					TCE	0.21	**43 J**	1	0.19	
			0017d	11/6/2003	1,1,1-TCA	200	2.8	1	0.08	25, pp. 331, 336; 34, pp. 2, 85, 356; 45, pp. 10, 36
					TCE	0.21	**41**	1	0.19	
0018 [5]	244	1	0018a	5/7/2003	1,1,1-TCA	200	1.6	1	0.08	19, pp. 36, 167, 170; 34, pp. 2, 86; 45, pp. 10, 36
					TCE	0.21	**120**	10	0.19	
			0018b	11/12/2003	TCE	0.21	**81**	4.5	0.19	28, pp. 144, 163; 34, pp. 2, 86, 355; 45, pp. 10, 36
			0018c	12/17/2003	TCE	0.21	**77**	5	0.19	27, pp. 68, 101; 34, pp. 2, 86, 357; 45, pp. 10, 36

Property ID [1]	Well Depth (ft) [2]	Population [3]	Sample ID	Sample Date	Compound	Benchmark (ug/L) [4]	Result (ug/L)	Dilution Factor	Detection Limit (ug/L) [9]	References
0019 [5]	276	6	0019a	5/7/2003	1,1,1-TCA	200	3.9	1	0.08	19, pp. 33, 68; 34, pp. 2, 87; 45, pp. 10, 36
					TCE	0.21	**37**	1	0.19	
			0019b	11/12/2003	1,1,1-TCA	200	2.6	1.8	0.08	28, pp. 146, 163; 34, pp. 2, 87, 355; 45, pp. 10, 36
					TCE	0.21	**44**	1.8	0.19	
			0019c	12/17/2003	1,1,1-TCA	200	3.0 J	1	0.08	27, pp. 79, 101; 34, pp. 2, 87, 357; 45, pp. 10, 36
					TCE	0.21	**29 J**	1	0.19	
0020 [5]	200	3	0020a	5/7/2003	1,1,1-TCA	200	2.2	1	0.08	19, pp. 33, 79, 82; 34, pp. 2, 95; 45, pp. 10, 36
					TCE	0.21	**98**	10	0.19	
			0020b	11/11/2003	1,1,1-TCA	200	1.5	1	0.08	26, pp. 267, 394; 34, pp. 2, 95, 355; 45, pp. 10, 36
					TCE	0.21	**99**	10	0.19	
0021	-10	3	0021a	11/13/2003	TCE	0.21	**1.7**	1	0.19	28, pp. 72, 82; 34, pp. 3, 119, 352; 45, pp. 10, 36
0022 [5]	240	0	0022a	7/9/2003	1,1,1-TCA	200	1.8	1	0.04	22, pp. 34, 86, 87, 88, 144; 34, pp. 2, 137; 45, pp. 10, 38
					TCE	0.21	**67.1 J**	2.5	0.02	
			0022b	7/9/2003	1,1,1-TCA	200	1.7	1	0.04	22, pp. 34, 89, 90, 91, 144; 34, pp. 2, 137; 45, pp. 10, 38
					TCE	0.21	**66**	5	0.02	
			0022c	8/6/2003	1,1,1-TCA	200	1.4	1	0.08	23, pp. 260, 359; 34, pp. 2, 137; 45, pp. 10, 36
					TCE	0.21	**44 J**	1	0.19	
			0022d	8/6/2003	1,1,1-TCA	200	1.4	1	0.08	23, pp. 263, 359; 34, pp. 2, 137; 45, pp. 10, 36
					TCE	0.21	**33**	1	0.19	
			0022e	11/13/2003	TCE	0.21	**75**	2.8	0.19	28, pp. 72, 80; 34, pp. 2, 137, 352; 45, pp. 10, 36
			0022f	11/13/2003	TCE	0.21	**71 J**	3.1	0.19	28, pp. 156, 164; 34, pp. 2, 137, 355; 45, pp. 10, 36
0023 [5]	240	3	0023a	6/16/2003	1,1,1-TCA	200	2.2	1	0.08	20, pp. 94, 152; 34, pp. 2, 140; 45, pp. 10, 36
					TCE	0.21	**91**	10	0.19	
			0023b	11/11/2003	1,1,1-TCA	200	1.6	1	0.08	26, pp. 104, 204; 34, pp. 2, 140, 355; 45, pp. 10, 36
					TCE	0.21	**87**	10	0.19	
			0023c	11/11/2003	1,1,1-TCA	200	1.4	1	0.08	26, pp. 196, 205; 34, pp. 2, 140, 357; 45, pp. 10, 36
					TCE	0.21	**82**	10	0.19	
0024 [5]	260 [6]	3	0024a	6/16/2003	1,1,1-TCA	200	1.7	1	0.08	20, pp. 31, 151; 34, pp. 2, 143; 45, pp. 10, 36
					TCE	0.21	**70 J**	10	0.19	
			0024b	11/12/2003	TCE	0.21	**1.5**	1	0.19	28, pp. 158, 164; 34, pp. 2, 143, 355; 45, pp. 10, 36
			0024c	11/12/2003	1,1,1-TCA	200	1.2	1	0.08	27, pp. 107, 173; 34, pp. 2, 143, 355; 45, pp. 10, 36
					TCE	0.21	**66**	10	0.19	
			0024d	12/18/2003	1,1,1-TCA	200	1.5 J	1	0.08	27, pp. 88, 101; 34, pp. 2, 143, 357; 45, pp. 10, 36
					TCE	0.21	**63**	5	0.19	
0025 [5]	-325 to 266 [7]	9	0025a	6/16/2003	1,1,1-TCA	200	2.3	1	0.08	20, pp. 49, 151; 34, pp. 2, 149; 45, pp. 10, 36
					TCE	0.21	**78 J**	5	0.19	
			0025b	11/12/2003	1,1,1-TCA	200	1.6	1	0.08	27, pp. 118, 173; 34, pp. 2, 149, 355; 45, pp. 10, 36
					TCE	0.21	**64**	10	0.19	
0026 [5]	55	5	0026a	6/16/2003	1,1,1-TCA	200	1.6	1	0.08	20, pp. 130, 154; 34, pp. 2, 150; 45, pp. 10, 36
					TCE	0.21	**21**	1	0.19	
			0026b	11/11/2003	1,1,1-TCA	200	1.0	1	0.08	26, pp. 278, 394; 34, pp. 2, 150, 355; 45, pp. 10, 36
					TCE	0.21	**15**	1	0.19	
0027 [5]	254	3	0027a	5/7/2003	1,1,1-TCA	200	2.4	1	0.08	19, pp. 34, 96, 99; 34, pp. 2, 206; 45, pp. 10, 36
					TCE	0.21	**180**	20	0.19	
			0027b	9/24/2003	TCE	0.21	**1.9**	1	0.19	24, pp. 22, 58; 34, pp. 2, 206; 45, pp. 10, 36
			0027c	9/24/2003	TCE	0.21	**2.0**	1	0.19	24, pp. 25, 58; 34, pp. 2, 206; 45, pp. 10, 36
			0027d	11/11/2003	1,1,1-TCA	200	1.5	1	0.08	26, pp. 287, 394; 34, pp. 2, 206, 355; 45, pp. 10, 36
					TCE	0.21	**160**	25	0.19	
0028 [5]	262	2	0028a	5/7/2003	1,1,1-TCA	200	2.4	1	0.08	19, pp. 35, 134; 34, pp. 2, 208; 45, pp. 10, 36
					TCE	0.21	**170**	20	0.19	
			0028b	11/10/2003	1,1,1-TCA	200	2.2	1	0.08	26, pp. 115, 204; 34, pp. 2, 208, 355; 45, pp. 10, 36
					TCE	0.21	**150**	10	0.19	
0029 [5]	255	3	0029a	5/7/2003	1,1,1-TCA	200	2.5	1	0.08	19, pp. 33, 60, 63; 34, pp. 2, 209; 45, pp. 10, 36
					TCE	0.21	**220**	20	0.19	
			0029b	11/10/2003	1,1,1-TCA	200	1.8	1	0.08	26, pp. 126, 204; 34, pp. 2, 209, 355; 45, pp. 10, 36
					TCE	0.21	**150**	10	0.19	
0030 [5]	-315 to 276 [7]	4	0030a	5/7/2003	1,1,1-TCA	200	1.6	1	0.08	19, pp. 33, 65; 34, pp. 2, 210; 45, pp. 10, 36
					TCE	0.21	**23**	1	0.19	
			0030b	11/11/2003	1,1,1-TCA	200	0.8	1	0.08	26, pp. 298, 394; 34, pp. 2, 210, 355; 45, pp. 10, 36
					TCE	0.21	**11**	1	0.19	
0031 [5]	170	5	0031a	5/7/2003	TCE	0.21	**81**	10	0.19	19, pp. 33, 74; 34, pp. 2, 211; 45, pp. 10, 36
			0031b	11/10/2003	1,1,1-TCA	200	1.6	1	0.08	26, pp. 137, 204; 34, pp. 2, 211, 355; 45, pp. 10, 36
					TCE	0.21	**52**	5	0.19	

Property ID [1]	Well Depth (ft) [2]	Population [3]	Sample ID	Sample Date	Compound	Benchmark (ug/L) [4]	Result (ug/L)	Dilution Factor	Detection Limit (ug/L) [9]	References
0032 [5]	-315 to 276 [7]	4	0032a	5/7/2003	1,1,1-TCA	200	1.5	1	0.08	19, pp. 35, 128; 34, pp. 2, 212; 45, pp. 10, 36
					TCE	0.21	**3.1**	1	0.19	
			0032b	5/7/2003	1,1,1-TCA	200	1.5	1	0.08	19, pp. 35, 131; 34, pp. 2, 212; 45, pp. 10, 36
					TCE	0.21	**3.1**	1	0.19	
			0032c	8/6/2003	1,1,1-TCA	200	1.4	1	0.08	23, pp. 266, 359; 34, pp. 2, 212; 45, pp. 10, 36
					TCE	0.21	**7.0**	1	0.19	
			0032d	9/24/2003	1,1,1-TCA	200	0.6	1	0.08	24, pp. 37, 58; 34, pp. 2, 212; 45, pp. 10, 36
					TCE	0.21	**2.6**	1	0.19	
			0032e	11/10/2003	1,1,1-TCA	200	1.1	1	0.08	26, pp. 148, 204; 34, pp. 2, 212, 356; 45, pp. 10, 36
					TCE	0.21	**6.3**	1	0.19	
0033 [5]	245	3	0033a	5/7/2003	1,1,1-TCA	200	3.1	1	0.08	19, pp. 33, 55, 58; 34, pp. 2, 213; 45, pp. 10, 36
					TCE	0.21	**59**	5	0.19	
			0033b	11/10/2003	1,1,1-TCA	200	2.4	1	0.08	26, pp. 157, 205; 34, pp. 2, 213, 356; 45, pp. 10, 36
					TCE	0.21	**54**	5	0.19	
0034 [5]	-325 to 266 [7]	2	0034a	5/7/2003	1,1,1-TCA	200	2.0	1	0.08	19, pp. 33, 49; 34, pp. 2, 214; 45, pp. 10, 36
					TCE	0.21	**6.2**	1	0.19	
			0034b	5/7/2003	1,1,1-TCA	200	2.0	1	0.08	19, pp. 33, 52; 34, pp. 2, 214; 45, pp. 10, 36
					TCE	0.21	**6.0**	1	0.19	
			0034c	8/6/2003	1,1,1-TCA	0.21	1.0	1	0.08	23, pp. 248, 357; 34, pp. 2, 214; 45, pp. 10, 36
					TCE	0.21	**0.8 J**	1	0.19	
			0034d	11/10/2003	1,1,1-TCA	0.21	1.0	1	0.08	26, pp. 168, 205; 34, pp. 2, 214, 356; 45, pp. 10, 36
					TCE	0.21	**1.3**	1	0.19	
0035 [5]	250	2	0035a	2/24/2003	1,1,1-TCA	200	2.6	1	0.08	17, pp. 36, 58; 34, pp. 2, 262; 45, pp. 10, 36
					TCE	0.21	**250**	20	0.19	
			0035b	4/14/2003	1,1,1-TCA	200	1.4	1	0.08	18, pp. 45, 142, 145; 34, pp. 2, 262; 45, pp. 10, 36
					TCE	0.21	**150**	10	0.19	
			0035c	11/10/2003	1,1,1-TCA	0.21	1.4	1	0.08	26, pp. 177, 205; 34, pp. 2, 262, 356; 45, pp. 10, 36
					TCE	0.21	**120**	10	0.19	
			0035d	11/10/2003	1,1,1-TCA	0.21	1.4	1	0.08	26, pp. 182, 205; 34, pp. 2, 262, 356; 45, pp. 10, 36
					TCE	0.21	**140**	10	0.19	
0036 [5]	255	6	0036a	7/9/2003	1,1,1-TCA	200	1.2	1	0.04	22, pp. 34, 84, 85, 143; 34, pp. 2, 291; 45, pp. 10, 38
					TCE	0.21	**14.6**	1	0.02	
			0036b	8/6/2003	1,1,1-TCA	200	0.8	1	0.08	23, pp. 224, 357; 34, pp. 2, 291; 45, pp. 10, 36
					TCE	0.21	**16 J**	1	0.19	
			0036c	12/17/2003	TCE	200	0.7	1	0.19	27, pp. 44, 101; 34, pp. 2, 291, 356; 45, pp. 10, 36
0037 [5]	240 [8]	6	0037a	7/9/2003	1,1,1-TCA	200	1.3	1	0.04	22, pp. 34, 108, 109, 144; 34, pp. 2, 292; 45, pp. 10, 38
					TCE	0.21	**38.8**	1	0.02	
			0037b	8/6/2003	1,1,1-TCA	200	0.9	1	0.08	23, pp. 297, 360; 34, pp. 2, 292; 45, pp. 10, 36
					TCE	0.21	**37 J**	1	0.19	
			0037c	11/14/2003	1,1,1-TCA	200	0.9	1	0.08	27, pp. 129, 173; 34, pp. 2, 292, 356; 45, pp. 10, 36
					TCE	0.21	**36**	1	0.19	
0038 [5]	240 [8]	1	0038a	7/23/2003	1,1,1-TCA	200	0.7 J	1	0.08	21, pp. 68, 75, 132; 34, pp. 3, 293; 45, pp. 10, 36
					TCE	0.21	**2.8**	1	0.19	
			0038b	11/4/2003	1,1,1-TCA	200	0.5	1	0.08	25, pp. 108, 169; 34, pp. 3, 293, 353; 45, pp. 10, 36
					TCE	0.21	**4.9**	1	0.19	
0039 [5]	255	5	0039a	7/9/2003	1,1,1-TCA	200	1.8	1	0.04	22, pp. 34, 78, 79, 143; 34, pp. 2, 294; 45, pp. 10, 38
					TCE	0.21	**31.6**	1	0.02	
			0039b	8/6/2003	1,1,1-TCA	200	0.9	1	0.08	23, pp. 212, 357; 34, pp. 2, 294; 45, pp. 10, 36
					TCE	0.21	**30 J**	1	0.19	
			0039c	11/11/2003	1,1,1-TCA	200	0.8	1	0.08	26, pp. 307, 394; 34, pp. 2, 294, 356; 45, pp. 10, 36
					TCE	0.21	**30**	1	0.19	
0040 [5]	205	4	0040a	7/23/2003	1,1,1-TCA	200	0.7 J	1	0.08	21, pp. 68, 105, 133; 34, pp. 2, 297; 45, pp. 10, 36
					TCE	0.21	**24**	1	0.19	
			0040b	8/28/2003	1,1,1-TCA	200	0.9	1	0.08	23, pp. 277, 383, 385; 34, pp. 2, 297; 45, pp. 10, 36
					TCE	0.21	**35**	1	0.19	
			0040c	11/11/2003	1,1,1-TCA	200	0.6	1	0.08	26, pp. 316, 394; 34, pp. 2, 297, 356; 45, pp. 10, 36
					TCE	0.21	**24**	1	0.19	
0041	265	2	0041a	8/12/2003	TCE	0.21	**1.4**	1	0.19	23, pp. 105, 195; 34, pp. 3, 299; 45, pp. 10, 36
			0041b	11/17/2003	TCE	0.21	**0.7**	1	0.19	27, pp. 261, 315; 34, pp. 3, 299, 353; 45, pp. 10, 36
			0041c	11/17/2003	TCE	0.21	**0.7**	1	0.19	13, p. 37; 27, pp. 219, 314; 34, pp. 3, 299, 352; 45, pp. 10, 36
0042	90	2	0042a	4/14/2003	TCE	0.21	**1.7**	1	0.19	18, pp. 44, 124; 34, pp. 3, 309; 45, pp. 10, 36
			0042b	8/12/2003	TCE	0.21	**2.6**	1	0.19	23, pp. 51, 194; 34, pp. 3, 309; 45, pp. 10, 36
			0042c	11/17/2003	TCE	0.21	**1.9**	1	0.19	27, pp. 273, 315; 34, pp. 3, 309, 353; 45, pp. 10, 36

Property ID [1]	Well Depth (ft) [2]	Population [3]	Sample ID	Sample Date	Compound	Benchmark (ug/L) [4]	Result (ug/L)	Dilution Factor	Detection Limit (ug/L) [9]	References
0043 [5]	190	5	0043a	4/14/2003	1,1,1-TCA	200	1.7	1	0.08	18, pp. 44, 113, 116; 34, pp. 2, 311; 45, pp. 10, 36
					TCE	0.21	**67**	5	0.19	
			0043b	11/11/2003	1,1,1-TCA	200	1.6	1	0.08	26, pp. 325, 395; 34, pp. 2, 311, 356; 45, pp. 10, 36
					TCE	0.21	**42**	1	0.19	
0044 [5]	270	5	0044a	5/7/2003	1,1,1-TCA	200	1.6	1	0.08	19, pp. 33, 44, 47; 34, pp. 2, 313; 45, pp. 10, 36
					TCE	0.21	**130**	10	0.19	
			0044b	11/11/2003	1,1,1-TCA	200	0.6	1	0.08	26, pp. 334, 395; 34, pp. 2, 313, 356; 45, pp. 10, 36
					TCE	0.21	**88**	10	0.19	
0045 [5]	260	2	0045a	4/15/2003	1,1,1-TCA	200	0.7	1	0.08	18, pp. 44, 108; 34, pp. 2, 314; 45, pp. 10, 36
					TCE	0.21	**81**	5	0.19	
			0045b	11/12/2003	TCE	0.21	**22**	1	0.19	26, pp. 345, 395; 34, pp. 2, 314, 356; 45, pp. 10, 36
0046 [5]	255	4	0046a	4/15/2003	1,1,1-TCA	200	0.7	1	0.08	18, pp. 44, 103; 34, pp. 2, 315; 45, pp. 10, 36
					TCE	0.21	**120**	10	0.19	
			0046b	11/11/2003	TCE	0.21	**50**	5	0.19	26, pp. 354, 395; 34, pp. 2, 315, 356; 45, pp. 10, 36
0047 [5]	-315 to 276 [7]	1	0047a	4/14/2003	1,1,1-TCA	200	1.6	1	0.08	18, pp. 44, 98; 34, pp. 2, 316; 45, pp. 10, 36
					TCE	0.21	**170**	10	0.19	
			0047b	4/14/2003	1,1,1-TCA	200	1.6	1	0.08	18, pp. 44, 73; 34, pp. 2, 316; 454, pp. 10, 36
					TCE	0.21	**150**	10	0.19	
			0047c	11/11/2003	1,1,1-TCA	200	1.0	1	0.08	26, pp. 365, 395; 34, pp. 2, 316, 356; 45, pp. 10, 36
					TCE	0.21	**87**	10	0.19	
0048	-315 to 276 [7]	1	0048a	11/3/2003	TCE	0.21	**0.7**	1	0.19	25, pp. 132, 169; 34, pp. 3, 318, 353; 45, pp. 10, 36
0049 [5]	265	4	0049a	2/27/2003	TCE	0.21	**39**	1	0.19	17, pp. 250, 290; 34, pp. 2, 319; 45, pp. 10, 36
			0049b	4/14/2003	TCE	0.21	**38 J**	1	0.19	18, pp. 44, 92; 34, pp. 2, 319; 45, pp. 10, 36
			0049c	11/12/2003	TCE	0.21	**40 J**	1	0.19	27, pp. 138, 173; 34, pp. 2, 319, 356; 45, pp. 10, 36
			0049d	11/12/2003	TCE	0.21	**39**	1	0.19	27, pp. 147, 174; 34, pp. 2, 319, 357; 45, pp. 10, 36
0050	265	1	0050a	2/26/2003	TCE	0.21	**2.8**	1	0.19	17, pp. 250, 287; 34, pp. 3, 322; 45, pp. 10, 36
			0050b	8/12/2003	TCE	0.21	**4.1**	1	0.19	23, pp. 75, 194; 34, pp. 3, 322; 45, pp. 10, 36
			0050c	11/4/2003	TCE	0.21	**3.4**	1	0.19	25, pp. 135, 169; 34, pp. 3, 322, 354; 45, pp. 10, 36
			0050d	11/4/2003	TCE	0.21	**3.2**	1	0.19	25, pp. 165, 170; 34, pp. 3, 322, 356; 45, pp. 10, 36
0051 [5]	240	2	0051a	2/25/2003	TCE	0.21	**47**	1	0.19	17, pp. 175, 224; 34, pp. 2, 323; 45, pp. 10, 36
			0051b	4/14/2003	TCE	0.21	**52**	5	0.19	18, pp. 44, 87; 34, pp. 2, 323; 45, pp. 10, 36
			0051c	11/11/2003	TCE	0.21	**50**	1	0.19	26, pp. 376, 395; 34, pp. 2, 323, 356; 45, pp. 10, 36
			0051d	11/11/2003	TCE	0.21	**32**	1	0.19	26, pp. 382, 395; 34, pp. 2, 323, 357; 45, pp. 10, 36
0052	255	3	0052a	2/24/2003	TCE	0.21	**1.2**	1	0.19	17, pp. 39, 166; 34, pp. 3, 341; 45, pp. 10, 36
			0052b	4/14/2003	TCE	0.21	**1.0**	1	0.19	18, pp. 45, 139; 34, pp. 3, 341; 45, pp. 10, 36
0053	215	3	0053a	7/9/2003	1,1,1-TCA	200	1.3	1	0.04	22, pp. 34, 66, 67, 143; 34, pp. 3, 348; 45, pp. 10, 38
					TCE	0.21	**0.49 J**	1	0.02	
			0053b	11/10/2003	1,1,1-TCA	200	0.8	1	0.08	26, pp. 187, 205; 34, pp. 3, 348, 356; 45, pp. 10, 36
					TCE	0.21	**1.2**	1	0.19	
0054	220	1	0054a	7/9/2003	1,1,1-TCA	200	11.7	1	0.04	22, pp. 34, 46, 47, 142; 34, pp. 2, 5; 45, pp. 10, 38
			0054b	11/11/2003	1,1,1-TCA	200	9.6	1	0.08	26, pp. 212, 393; 34, pp. 2, 5, 351; 45, pp. 10, 36
0055	230	1	0055a	11/10/2003	1,1,1-TCA	200	4.0	1	0.08	26, pp. 39, 203; 34, pp. 2, 6, 351; 45, pp. 10, 36
0056	200	2	0056a	7/9/2003	1,1,1-TCA	200	8.4	1	0.04	22, pp. 34, 44, 45, 142; 34, pp. 2, 7; 45, pp. 10, 38
			0056b	7/15/2003	1,1,1-TCA	200	4.0	1	0.04	21, pp. 48, 49, 67; 34, pp. 2, 7; 45, pp. 10, 38
			0056c	11/10/2003	1,1,1-TCA	200	5.2	1	0.08	26, pp. 42, 203; 34, pp. 2, 7, 351; 45, pp. 10, 36
			0056d	11/10/2003	1,1,1-TCA	200	5.4	1	0.08	26, pp. 190, 205; 34, pp. 2, 7, 356; 45, pp. 10, 36
0057	185	2	0057a	7/9/2003	1,1,1-TCA	200	7.5	1	0.04	22, pp. 34, 128, 129, 145; 34, pp. 2, 8; 45, pp. 10, 38
			0057b	11/10/2003	1,1,1-TCA	200	4.5	1	0.08	26, pp. 45, 203; 34, pp. 2, 8, 351; 45, pp. 10, 36
0058	130	3	0058a	7/9/2003	1,1,1-TCA	200	0.68	1	0.04	22, pp. 34, 130, 131, 145; 34, pp. 2, 9; 45, pp. 10, 38
			0058b	7/9/2003	1,1,1-TCA	200	0.69	1	0.04	22, pp. 34, 42, 43, 145; 34, pp. 2, 9; 45, pp. 10, 38
0059	220	6	0059a	7/9/2003	1,1,1-TCA	200	4.7	1	0.04	22, pp. 34, 100, 101, 144; 34, pp. 2, 10; 45, pp. 10, 38
			0059b	11/10/2003	1,1,1-TCA	200	2.4	1	0.08	26, pp. 51, 203; 34, pp. 2, 10, 351; 45, pp. 10, 36
0060	-345 to 246 [7]	2	0060a	7/9/2003	1,1,1-TCA	200	2.2	1	0.04	22, pp. 34, 112, 113, 145; 34, pp. 2, 32; 45, pp. 10, 38
			0060b	11/12/2003	1,1,1-TCA	200	1.5	1	0.08	28, pp. 28, 70; 34, pp. 2, 32, 351; 45, pp. 10, 36
0061	214	4	0061a	7/10/2003	1,1,1-TCA	200	2.9	1	0.04	22, pp. 34, 132, 133, 146; 34, pp. 2, 33; 45, pp. 10, 38
			0061b	11/12/2003	1,1,1-TCA	200	1.5 J	1	0.08	28, pp. 32, 70; 34, pp. 2, 33, 351; 45, pp. 10, 36
0062	45	5	0062a	7/10/2003	1,1,1-TCA	200	0.29	1	0.04	22, pp. 34, 134, 135, 146; 34, pp. 2, 34; 45, pp. 10, 38
0063	-345 to 246 [7]	4	0063a	7/10/2003	1,1,1-TCA	200	2.2	1	0.04	22, pp. 34, 138, 139, 146; 34, pp. 3, 35; 45, pp. 10, 38
			0063b	11/12/2003	1,1,1-TCA	200	1.7	1	0.08	28, pp. 36, 70; 34, pp. 3, 35, 351; 45, pp. 10, 36
0064	225	3	0064a	7/10/2003	1,1,1-TCA	200	1.6	1	0.04	22, pp. 34, 136, 137, 146; 34, pp. 3, 36; 454, pp. 10, 38
			0064b	11/12/2003	1,1,1-TCA	200	1.9	1	0.08	28, pp. 38, 70; 34, pp. 3, 36, 351; 45, pp. 10, 36
0065	225	2	0065a	7/23/2003	1,1,1-TCA	200	2.3	1	0.08	21, pp. 68, 120, 133; 34, pp. 3, 37; 45, pp. 10, 36
			0065b	11/17/2003	1,1,1-TCA	200	2.1	1	0.08	27, 183, 314; 34, pp. 3, 37, 351; 45, pp. 10, 36

Property ID [1]	Well Depth (ft) [2]	Population [3]	Sample ID	Sample Date	Compound	Benchmark (ug/L) [4]	Result (ug/L)	Dilution Factor	Detection Limit (ug/L) [9]	References
0066	210	5	0066a	7/23/2003	1,1,1-TCA	200	1.7	1	0.08	21, pp. 68, 123, 133; 34, pp. 3, 38; 45, pp. 10, 36
			0066b	11/12/2003	1,1,1-TCA	200	1.9	1	0.08	28, pp. 40, 70; 34, pp. 3, 38, 351; 45, pp. 10, 36
0067	75	3	0067a	7/23/2003	1,1,1-TCA	200	2.1	1	0.04	21, pp. 134, 147, 195; 34, pp. 3, 39; 45, pp. 10, 38
			0067b	11/12/2003	1,1,1-TCA	200	1.9	1	0.08	28, pp. 42, 70; 34, pp. 3, 39, 351; 45, pp. 10, 36
0068	-335 to 256 [7]	6	0068a	7/23/2003	1,1,1-TCA	200	3.3	1	0.04	21, pp. 134, 144, 195; 34, pp. 3, 40; 45, pp. 10, 38
			0068b	11/13/2003	1,1,1-TCA	200	1.5	1	0.08	28, pp. 44, 70; 34, pp. 3, 40, 351; 45, pp. 10, 36
0069	230	2	0069a	7/23/2003	1,1,1-TCA	200	2.9	1	0.04	21, pp. 134, 141, 195; 34, pp. 3, 41; 45, pp. 10, 38
			0069b	11/12/2003	1,1,1-TCA	200	2.6	1	0.08	28, pp. 46, 71; 34, pp. 3, 41, 351; 45, pp. 10, 36
0070	220	2	0070a	7/23/2003	1,1,1-TCA	200	2.2	1	0.04	21, pp. 134, 171, 196; 34, pp. 3, 42; 45, pp. 10, 38
			0070b	11/18/2003	1,1,1-TCA	200	1.7	1	0.08	27, pp. 186, 314; 34, pp. 3, 42, 351; 45, pp. 10, 36
0071	-345 to 246 [7]	3	0071a	7/23/2003	1,1,1-TCA	200	4.0	1	0.04	21, pp. 134, 138, 195; 34, pp. 3, 43; 45, pp. 10, 38
			0071b	11/12/2003	1,1,1-TCA	200	5.6	1	0.08	28, pp. 48, 71; 34, pp. 3, 43, 351; 45, pp. 10, 36
0072	-355 to 236 [7]	6	0072a	7/23/2003	1,1,1-TCA	200	1.7	1	0.08	21, pp. 68, 126, 133; 34, pp. 3, 44; 45, pp. 10, 36
			0072b	11/18/2003	1,1,1-TCA	200	1.4	1	0.08	27, pp. 189, 314; 34, pp. 3, 44, 351; 45, pp. 10, 36
0073	210 [8]	5	0073a	7/23/2003	1,1,1-TCA	200	4.8	1	0.08	21, pp. 68, 129, 133; 34, pp. 3, 45; 45, pp. 10, 36
			0073b	11/13/2003	1,1,1-TCA	200	4.7	1	0.08	28, pp. 50, 71; 34, pp. 3, 45, 351; 45, pp. 10, 36
0074	215	2	0074a	6/17/2003	1,1,1-TCA	200	0.8	1	0.08	20, pp. 273, 290; 34, pp. 3, 46; 45, pp. 10, 36
			0074b	11/13/2003	1,1,1-TCA	200	4.6	1	0.08	28, pp. 54, 71; 34, pp. 3, 46, 351; 45, pp. 10, 36
0075	160	3	0075a	7/9/2003	1,1,1-TCA	200	0.82	1	0.04	22, pp. 34, 94, 95, 144; 34, pp. 3, 47; 45, pp. 10, 38
			0075b	11/10/2003	1,1,1-TCA	200	0.5	1	0.08	26, pp. 60, 203; 34, pp. 3, 47, 351; 45, pp. 10, 36
0076	230 [8]	5	0076a	7/9/2003	1,1,1-TCA	200	5.1	1	0.04	22, pp. 34, 96, 97, 144; 34, pp. 3, 49; 45, pp. 10, 38
			0076b	11/10/2003	1,1,1-TCA	200	2.7	1	0.08	26, pp. 63, 203; 34, pp. 3, 49, 351; 45, pp. 10, 36
0077	245	2	0077a	7/9/2003	1,1,1-TCA	200	6.5	1	0.04	22, pp. 34, 48, 49, 142; 34, pp. 3, 50; 45, pp. 10, 38
			0077b	11/10/2003	1,1,1-TCA	200	3.5	1	0.08	26, pp. 66, 203; 34, pp. 3, 50, 351; 45, pp. 10, 36
0078	245	4	0078a	7/9/2003	1,1,1-TCA	200	2.7	1	0.04	22, pp. 34, 114, 115, 145; 34, pp. 3, 53; 45, pp. 10, 38
			0078b	11/13/2003	1,1,1-TCA	200	2.2	1	0.08	28, pp. 60, 71; 34, pp. 3, 53, 351; 45, pp. 10, 36
0079	205	3	0079a	7/9/2003	1,1,1-TCA	200	1.7	1	0.04	22, pp. 34, 60, 61, 142; 34, pp. 3, 54; 45, pp. 10, 38
			0079b	7/9/2003	1,1,1-TCA	200	2.5	1	0.04	22, pp. 34, 62, 63, 142; 34, pp. 3, 54; 45, pp. 10, 38
			0079c	11/17/2003	1,1,1-TCA	200	2.0	1	0.08	27, pp. 198, 314; 34, pp. 3, 54, 351; 45, pp. 10, 36
0080	195	7	0080a	7/9/2003	1,1,1-TCA	200	2.8	1	0.04	22, pp. 34, 116, 117, 145; 34, pp. 3, 55; 45, pp. 10, 38
			0080b	11/13/2003	1,1,1-TCA	200	5.4	1	0.08	28, pp. 62, 72; 34, pp. 3, 55, 351; 45, pp. 10, 36
			0080c	11/13/2003	1,1,1-TCA	200	4.6	1	0.08	27, pp. 159, 174; 34, pp. 3, 55, 357; 45, pp. 10, 36
0081	135	4	0081a	7/9/2003	1,1,1-TCA	200	3.0	1	0.04	22, pp. 34, 56, 57, 142; 34, pp. 3, 56; 45, pp. 10, 38
			0081b	11/13/2003	1,1,1-TCA	200	1.8	1	0.08	28, pp. 64, 72; 34, pp. 3, 56, 351; 45, pp. 10, 36
0082	225	3	0082a	7/9/2003	1,1,1-TCA	200	8.9	1	0.04	22, pp. 34, 122, 123, 145; 34, pp. 3, 57; 45, pp. 10, 38
			0082b	11/11/2003	1,1,1-TCA	200	4	1	0.08	26, pp. 215, 393; 34, pp. 3, 57, 351; 45, pp. 10, 36
0083	242	3	0083a	7/9/2003	1,1,1-TCA	200	2.6	1	0.04	22, pp. 34, 118, 119, 145; 34, pp. 3, 58; 45, pp. 10, 38
			0083b	11/10/2003	1,1,1-TCA	200	1.3	1	0.08	26, pp. 69, 203; 34, pp. 3, 58, 351; 45, pp. 10, 36
0084	-335 to 256 [7]	5	0084a	7/9/2003	1,1,1-TCA	200	0.39	1	0.04	22, pp. 34, 58, 59, 142; 34, pp. 3, 59; 45, pp. 10, 38
0085	210	2	0085a	7/9/2003	1,1,1-TCA	200	5.1	1	0.04	22, pp. 34, 121, 145; 34, pp. 3, 60; 45, pp. 10, 38
			0085b	11/10/2003	1,1,1-TCA	200	4.8	1	0.08	26, pp. 72, 203; 34, pp. 3, 60, 351; 45, pp. 10, 36
0086	228	1	0086a	5/7/2003	1,1,1-TCA	200	0.7	1	0.08	19, pp. 33, 87; 34, pp. 3, 97; 45, pp. 10, 36
0087	180	4	0087a	6/16/2003	1,1,1-TCA	200	0.6	1	0.08	20, pp. 103, 153; 34, pp. 3, 136; 45, pp. 10, 36
0088	160	6	0088a	6/16/2003	1,1,1-TCA	200	1.7	1	0.08	20, pp. 37, 151; 34, pp. 3, 142; 45, pp. 10, 36
			0088b	11/13/2003	1,1,1-TCA	200	1.4	1	0.08	28, pp. 84, 118; 34, pp. 3, 142, 352; 45, pp. 10, 36
0089	220	2	0089a	6/16/2003	1,1,1-TCA	200	9.5	1	0.08	20, pp. 112, 153; 34, pp. 3, 154; 45, pp. 10, 36
			0089b	11/11/2003	1,1,1-TCA	200	8.6	1	0.08	26, pp. 218, 393; 34, pp. 3, 154, 352; 45, pp. 10, 36
0090	215	5	0090a	6/16/2003	1,1,1-TCA	200	7.9	1	0.08	20, pp. 139, 154; 34, pp. 3, 156; 45, pp. 10, 36
			0090b	11/11/2003	1,1,1-TCA	200	6.4	1	0.08	26, pp. 221, 393; 34, pp. 3, 156, 352; 45, pp. 10, 36
0091	-335 to 256 [7]	5	0091a	6/16/2003	1,1,1-TCA	200	8.0	1	0.08	20, pp. 61, 151; 34, pp. 3, 157; 45, pp. 10, 36
			0091b	11/11/2003	1,1,1-TCA	200	5.9	1	0.08	26, pp. 224, 393; 34, pp. 3, 157, 352; 45, pp. 10, 36
0092	135	1	0092a	7/23/2003	1,1,1-TCA	200	0.9 J	1	0.04	21, pp. 134, 156, 195; 34, pp. 3, 200; 45, pp. 10, 38
			0092b	11/12/2003	1,1,1-TCA	200	0.69	1	0.08	28, pp. 102, 116; 34, pp. 3, 200, 353; 45, pp. 10, 36
0093	253	1	0093a	4/14/2003	1,1,1-TCA	200	0.5	1	0.08	18, pp. 45, 150; 34, pp. 3, 215; 45, pp. 10, 36
			0093b	8/12/2003	1,1,1-TCA	200	0.5	1	0.08	23, pp. 81, 195; 34, pp. 3, 215; 45, pp. 10, 36
0094	-265	30	0094a	7/9/2003	1,1,1-TCA	200	2.5	1	0.04	22, pp. 34, 104, 105, 144; 34, pp. 3, 290; 45, pp. 10, 38
			0094b	11/14/2003	1,1,1-TCA	200	1.4	1	0.08	28, pp. 106, 116; 34, pp. 3, 290, 353; 45, pp. 10, 36
0095	-30	0	0095a	7/9/2003	1,1,1-TCA*	200	0.55	1	0.04	22, pp. 34, 70, 71, 143; 34, pp. 3, 349; 45, pp. 10, 38

Attribution:

The hazardous substances in the observed release, TCE and 1,1,1-TCA, are known to have been used at Hopewell Precision. Historical records provided to EPA by Hopewell Precision indicate that the company made the following purchases:

Chemical	Year	Number of Drums	Mass (pounds)
1,1,1-TCA	1980	12	7,020
	1994	15	9,000
TCE	1996	6	3,960
	1997	42	27,720

Manifests show that the company sent 32 drums of waste 1,1,1-TCA off site for disposal from 1986 through 2003. There are no manifests for TCE in the records provided by the company for the same time period [Ref. 7, pp. 31 through 201]. The company has stated that it used TCE on site and that TCE was dumped on the ground at the site [Ref. 12, p. 1]. Soil sampling shows residual soil contamination [Ref. 16, p. 18]. Ground water data shows a contaminated ground water plume that extends from shallow piezometers at the Hopewell facility to residential wells as far as 1 mile downgradient. The same contaminants, TCE and 1,1,1-TCA, were not detected in ground water upgradient of the site [Ref. 13, p. 91].

TCE and 1,1,1-TCA are man-made, non-ubiquitous substances that are known to have been used on site. Based on correspondence with property owners and searches of numerous environmental databases, there are no other known sources of TCE or 1,1,1-TCA in the site vicinity [Ref. 11; 29 through 33]. The current facility (19 Ryan Drive) was built in 1980 on formerly vacant land, and Hopewell Precision has been the sole occupant of the building [Ref. 7, pp. 1, 7 through 23; 9, p. 7]. The former Hopewell Precision facility (15 Ryan Drive) has been used by Nicholas Brothers Moving Co. only for equipment storage and office space since 1981 [Ref. 8, p. 159; 9, p. 7; 10, pp. 7, 9; 11, pp. 2, 3]. There is no evidence of solvent use, handling, or storage at the only other nearby industrial facility, which is also located on Ryan Road [Ref. 29, p. 1; 30, pp. 1 through 11]. An analysis of historic aerial photographs did not reveal any other nearby industrial activity [Ref. 31, pp. 1 through 31]. Based on these considerations, the observed release to ground water is considered to be attributable to Hopewell Precision Area Contamination.

Hazardous Substances Released:

TCE
1,1,1-TCA

Ground Water Observed Release Factor Value: 550

3.2 WASTE CHARACTERISTICS

3.2.1 Toxicity/Mobility

Hazardous Substance	Source Numbers	Toxicity Factor Value	Mobility Factor Value *	Toxicity/ Mobility	Reference(s)
1,1,1-TCA	1, OR	1	1.0	1	2, p. BI-11
TCE	1, OR	10,000**	1.0	10,000	1, p. 51589; 46, p. 3; 47, p. 1

OR = Observed Release

* A mobility factor value of 1 is assigned for both hazardous substances because they meet the criteria for an observed release by chemical analysis to one or more aquifers underlying the source at the site [Ref. 1, p. 51601].
** EPA's most current evaluation of potential health risks from exposure to TCE indicates an oral reference dose (RfD) of $3x10^{-4}$ mg/kg-d [Ref. 47, p. 1]. The RfD corresponds to a toxicity factor value of 10,000 [Ref. 1, p. 51589, Table 2-4].

Toxicity/Mobility Factor Value: 10,000

3.2.2 Hazardous Waste Quantity

Source Number	Source Hazardous Waste Quantity (HWQ) Value (Section 2.4.2.1.5)	Is source hazardous constituent quantity data complete? (yes/no)
1	0.02	No
Sum of Values:	1 (rounded to 1 based on HRS Section 2.4.2.2)	

Based on the fact that targets are subject to Level I concentrations (see Section 3.3.2.3 of this document), a hazardous waste quantity factor value of 100 is assigned for the ground water pathway [Ref. 1, p. 51592].

3.2.3 Waste Characteristics Factor Category Value

TCE corresponds to the toxicity/mobility factor value of 10,000, as shown previously (see Section 3.2.1).

Toxicity/Mobility Factor Value (10,000) x Hazardous Waste Quantity Factor Value (100): 1×10^6

The product 1×10^6 corresponds to a waste characteristics factor category value of 32 in Table 2-7 of the HRS [Ref. 1, p. 51592].

Hazardous Waste Quantity Factor Value: 100
Waste Characteristics Factor Category Value: 32

3.3 TARGETS

There are 152 people subject to Level I concentrations and 165 people subject to Level II concentrations [Ref. 34, pp. 1, 2, 3]. The area surrounding the Hopewell Precision facility consists mostly of residential properties, all of which are served by private wells and septic systems [Ref. 8, p. 23; 9, p. 7]. Almost 27,000 people live within 4 miles of the Hopewell Precision facility [Ref. 38, pp. 1, 2, 3].

Well	Distance from Source (mi.)	Population	Level I Contam. (Y/N)	Level II Contam. (Y/N)	Potential Contam. (Y/N)	Reference(s)
Residences	w/in ~1.5 miles	152	Y	N	N	Figure 2; Ref. 13, p. 91; 34, pp. 1, 2
Residences	w/in ~1.5 miles	165	N	Y	N	Figure 2; Ref. 13, p. 91; 34, pp. 1, 2, 3
Residences	w/in 4 miles	unknown	N	N	Y	Ref. 8, p. 23; 9, p. 7; 38, pp. 1, 2, 3

All wells are screened in the Glacial Outwash/Bedrock Hydrologic Unit.

Note: Wells subject to potential contamination within the target distance limit (TDL), including numerous wells that were sampled by EPA, are not considered in the evaluation of the Hopewell Precision Area Contamination site because inclusion of scoring factors associated with those wells would not affect the listing decision.

Level I Samples

Sample	Substance	Concentrations	Benchmarks* MCL/MCLG	RDSC	CRSC	Reference
see Section 3.1.1	TCE	0.7-250 ug/L	5 ug/L	11 ug/L	0.21 ug/L	46, p. 4

* MCL/MCLG = Maximum Contaminant Level/Maximum Contaminant Level Goal
RDSC = Reference Dose Screening Concentration
CRSC = Cancer Risk Screening Concentration

3.3.1 Nearest Well

There is an observed release by chemical analysis for several drinking water wells within the target distance limit subject to Level I contamination. The nearest contaminated well is located at Property ID 0052, which is located approximately 0.03 mile south of the Hopewell Precision facilities [Figure 2]. Since there are wells subject to Level I contamination, a nearest well factor value of 50 is assigned [Ref. 1, pp. 51602, 51603].

Nearest Well Factor Value: 50

3.3.2 Population

3.3.2.2 Level I Concentrations

Level I Well	Population	Reference(s)
Various Residences (see Section 3.1.1) (46 wells)	152	Ref. 34, p. 2

Population Served by Level I Wells: 152 Level I Concentrations Factor Value: 1,520

3.3.2.3 Level II Concentrations

Level II Well	Population	Reference(s)
Various Residences (see Section 3.1.1) (42 wells)	165	Ref. 34, pp. 2, 3

Population Served by Level II Wells: 165 Level II Concentrations Factor Value: 165

3.3.2.4 Potential Contamination

The potential contamination factor was not scored, because scoring this factor would not affect the listing decision for the Hopewell Precision Area Contamination site. However, the area surrounding the Hopewell Precision facility consists mostly of residential properties, all of which are served by private wells and septic systems [Ref. 8, p. 23; 9, p. 7]. Almost 27,000 people live within 4 miles of the Hopewell Precision facility [Ref. 38, pp. 1, 2, 3].

Potential Contamination Factor Value: NS

3.3.3 Resources

No resources have been identified in this area at this time.

Resources Factor Value: 0

3.3.4 Wellhead Protection Area

NYSDEC developed the Wellhead Protection Program for New York in accordance with Section 1428 of the Safe Drinking Water Act and EPA approved New York's program in 1990 [Ref. 39, pp. 1, 7; 40, pp. 12, 13; 41, pp. 2, 4]. The Wellhead Protection Program was transferred to NYSDOH in 1998 and integrated with the State's Source Water Assessment Program [Ref. 40, pp. 12, 13]. NYSDOH has designated Wellhead Protection Areas in Dutchess County, including Wellhead Protection Areas that directly overlap with the Hopewell Precision Area Contamination site and its sources [Ref. 41, pp. 1, 5, 6]. Based on this information, Source 1 (Contaminated Soil) and observed ground water contamination attributable to the site lie within a designated Wellhead Protection Area. Therefore, a Wellhead Protection Area factor value of 20 is assigned [Ref. 1, p. 51604].

Wellhead Protection Area Factor Value: 20

A copy of *Figure 1* is available at the EPA Headquarters Superfund Docket:

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1301 Constitution Avenue, NW
Washington, DC 20004

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A copy of *Figure 2* is available at the EPA Headquarters Superfund Docket:

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