PATTON'S BUSY BEE DISPOSAL SITE

Town of Alfred, Allegany County, New York
Town of Hartsville, Steuben County, New York
Site No. 9-02-014

OPERATION AND MAINTENANCE MANUAL

September 1997

Prepared by:
Division of Environmental Remediation
New York State Department of Environmental Conservation

Patton's Busy Bee Disposal Site
Inactive Hazardous Waste Site # 9-02-014
Operation and Maintenance Manual

Table of Contents

Section 1	Introduction	Page 1
Section 2	Site Description	1
	2.1 Site History	2
	2.2 Site Geology and Hydrogeology	3
	2.3 Remedial Investigation Results	4
Section 3	Remedial Action	4
Section 4	Leachate Management	5
Section 5	Groundwater Monitoring	6
	5.1 Site Groundwater Wells	6
	5.2 Residential Wells	6
Section 6	Site Maintenance	7
Section 7	Site Access	7
Section 8	Reporting	8
Section 9	Citizen Participation	8
Section 10	Health and Safety Plan	8
Figure 1	Site Location Map	9
Figure 2	Site Detail Map	10
Figure 3	Location of Long-Term Monitoring Wells	11
Table 1	Leachate Quantities Removed	12
Table 2	Leachate Characterization	13
Table 3	Long-term Groundwater Monitoring Wells	18
Appendix A	Record of Decision	
Appendix B	Sampling Procedures	
Appendix C	Site Inspection Form and Leachate Tank Monitoring Tables	
Appendix D	Annual Report Distribution	
Appendix E	Landfill Cap Repair Protocol	
Appendix F	Health and Safety Plan	

Patton's Busy Bee Disposal Site
Site No. 9-02-014

Operation and Maintenance Manual

Section 1 Introduction

Patton's Busy Bee Disposal Site, New York State Department of Environmental Conservation (NYSDEC) Inactive Hazardous Waste Disposal Site Registry Number 9-02-014, is located off Clark Road east of Alfred Station, in the Town of Alfred, Allegany County and in the Town of Hartsville, Steuben County (Figure 1). The site is a privately owned closed landfill, the Busy Bee Landfill, that operated from approximately 1980 to 1988. It was capped by the former owner with a low permeability soil cover as required by NYSDEC Solid Waste regulations in effect at the time.

Routine groundwater monitoring during the time the landfill was operating detected volatile organic compounds exceeding groundwater standards. Following landfill closure, a Preliminary Site Assessment (PSA) was conducted at the site in 1990 by URS Consultants under direction of the NYSDEC to evaluate site conditions and obtain information to determine if the site posed a threat to public health or the environment. Results of the PSA confirmed the presence of volatile organic compounds in groundwater at the site, and concluded that the site presented a possible public health threat.

After two years' unsuccessful attempt by the NYSDEC to obtain participation by potentially responsible parties in a remedial program at the site, the NYSDEC initiated a Remedial Investigation and Feasibility Study (RI/FS) under the State Superfund Program. In 1993, the NYSDEC contracted with URS Consultants to implement the RI/FS.

The RI/FS was completed in October 1996 with the signing of the Record of Decision (ROD). The ROD called for Institutional Actions consisting of leachate management, cap maintenance, long-term groundwater monitoring, and targeted residential well sampling. This Operation and Maintenance Manual details these institutional actions.

Section 2 Site Description

Pattons's Busy Bee Disposal Site is located off Clark Road, east of Alfred Station, in the Town of Alfred, Allegany County and the Town of Hartsville, Steuben County. The eight acre hilltop site consists of the Busy Bee Landfill: three unlined trenches and a lined "remedial" trench. The landfill is now closed; all four trenches have been capped with a low permeability material. A leachate collection system installed in the lined trench at the time it was constructed drains leachate from the trenches into buried leachate collection tanks adjacent to the landfill.

2.1 Site History

In 1980 LaVerne Patton received a NYSDEC permit to operate the Busy Bee Landfill as a sanitary landfill to accept municipal and industrial waste. The waste was placed into three unlined trenches excavated into rock (see Figure 2, Site Detail Map).

In 1987 Patton began constructing a NYSDEC approved "remedial trench" along the southern and eastern sides of the unlined trenches. The purpose of the lined trench was to provide additional landfill capacity and to intercept leachate migrating from the unlined trenches. The lined trench received primarily construction and demolition debris, along with automobile shredder waste. A two foot clay liner and leachate collection system were installed in the remedial trench when it was constructed to intercept leachate from the unlined and lined trenches and decrease its migration to groundwater. The leachate collection pipes convey leachate into two pairs of buried collection tanks located northeast and northwest of the landfill. Patton emptied leachate from the tanks for a period of time, ceasing in 1990.

Under terms of a NYSDEC Consent Order, the landfill stopped accepting waste in 1988 and cap construction began. The cap layer consists of two to four feet of low permeability material (clay). It appears from tests performed in 1991 that the cap meets the requirements of the applicable NYSDEC Solid Waste regulations (1985 NYCRR Part 360: 18" low permeability soil barrier of 1×10^{-5} cm/sec, covered with a six inch layer of topsoil). At the time of cap construction, gas vents were installed into waste. Capping activities were completed in 1991.

In accordance with NYSDEC Solid Waste regulations while the landfill was operating, Patton installed a series of groundwater monitoring wells to periodically evaluate groundwater conditions. During routine monitoring that began in 1986, concentrations of volatile organic compounds were identified above groundwater standards.

In 1988, SKF Industries reported that, for a six month period in 1981, they disposed of 77 tons of a corrosive liquid (a characteristic hazardous waste) at the Busy Bee Landfill. As a result of this information, Pattons'**s Busy** Bee Disposal Site was listed on the NYS Registry of Inactive Hazardous Waste Disposal Sites as a Class 2a site. This is a temporary classification when there is not enough information to assign a site to another class.

To obtain additional site data to complete site classification, a Preliminary Site Assessment (PSA) was conducted by URS Consultants under the direction of the NYSDEC. Completed in 1990, it confirmed elevated levels of volatile organic compounds in bedrock groundwater monitoring wells located adjacent to the landfill. As a result, the site was reclassified as a Class 2 site (one which presents a significant threat to public health or the environment) on the NYS Registry of Inactive Hazardous Waste Disposal Sites.

Under the State Superfund law, NYSDEC attempted to locate and obtain cooperation from Potentially Responsible Parties to undertake a remedial program for the site. These efforts

were unsuccessful and, as a result, the NYSDEC contracted with URS Consultants to perform a Remedial Investigation and Feasibility Study (RI/FS) using State Superfund resources.

The RI/FS was completed in 1996. The RI consisted of the installation of additional bedrock groundwater monitoring wells; groundwater, surface water and sediment sampling; a soil gas survey; an electromagnetic survey; test pit excavations; and residential well sampling. In addition, the leachate collection tanks have been emptied regularly since Spring 1994 and the leachate is transported to a licensed facility for treatment and disposal. Results of the RI show limited groundwater contamination migrating from the site. Contamination decreases significantly laterally and vertically from the landfill. Figure 2 shows locations of all site monitoring wells.

The RI also investigated the Henry Landfill, located adjacent to the Busy Bee Landfill. Then Henry Landfill was operated by Patton prior to operating the Busy Bee Landfill. Consequential amounts of hazardous wastes were not identified in this older landfill. A leachate collection tank was located between the access road and the Henry Landfill, and is believed to collect leachate from the Henry Landfill. Since 1995, this tank has been emptied at the same time as the Busy Bee tanks.

The FS evaluated possible alternatives for remediation of the site, including institutional controls. Due to the limited extent of groundwater contamination associated with the landfill, institutional controls were selected in the ROD as the remedial action for the site. These institutional controls consist of: leachate management, cap maintenance, long-term groundwater monitoring, and targeted residential well sampling. Leachate management involves emptying the leachate tanks regularly to prevent the accumulation of leachate within the waste mass and transporting it to a licensed facility for treatment and disposal.

Since completion of the ROD, the site has been reclassified to Class 4: Site properly closed, requires continued management.

2.2 Site Geology and Hydrogeology

The Busy Bee Landfill is located on the top of a bedrock hill, with ground surface sloping away from the landfill in all directions. There is very little overburden material (soil) overlying the bedrock. Bedrock beneath the site consists of nearly horizontal alternating layers of shale and sandstone. Monitoring wells installed during the RI monitor five sandstone units. These units were arbitrarily labeled A-E during the RI. The permeability of the sandstone layers is greater than the permeability of the shale layers, so most groundwater occurs within the sandstone. However, there are fractures within the shale that allow vertical groundwater movement between sandstone layers. Groundwater appears to flow primarily horizontally through the sandstone layers, with some groundwater flow vertically downward through fractures in the shale to the lower sandstone units. Groundwater flow directions in the upper sandstone units (A through D) are generally to the southwest, with a small component to the southeast in sandstone unit D. Groundwater in unit E, the deepest sandstone layer into which RI monitoring wells were installed,

flows to the northwest. Because the bedrock layers beneath the landfill are nearly horizontal, the individual rock layers daylight to the surface as one moves downhill, away from the landfill.

2.3 Remedial Investigation Results

Results of the RI show that the primary groundwater contaminants are volatile organic compounds (VOCs), specifically, chlorinated solvents and associated products: trichloroethene, dichloroethene, and trichloroethane. The highest concentrations were measured during the first round of groundwater sampling in shallow bedrock monitoring well W-10S off the western end of the landfill: over 40,000 parts per billion (ppb) total VOCs. This well was dry for subsequent sampling events. Groundwater contamination in all other site wells is significantly less. The well with the next highest level of contamination is W-4S, off the southwest corner of the landfill, where total VOCs measure 207 ppb. Concentrations of VOCs in groundwater decrease significantly laterally and vertically from the landfill. VOCs were detected in some of the surface water samples, but below NYSDEC standards. See Table 4A of the ROD (Appendix A) for a summary of groundwater contamination.

A total of sixteen neighboring residential wells have been periodically sampled by the NYS Department of Health since 1991. These residential wells were sampled twice during the RI. During the first round of sampling, two wells showed the presence of common petroleum-related compounds. One residential well showed xylene at 3 ppb. Another well showed xylene at 14 ppb, toluene and ethylbenzene each at 2 ppb. The drinking water standard for each of these three compounds is 5 ppb. When these two wells were subsequently resampled, these compounds were not detected. It was determined that these one-time low-level detections of petroleum compounds were not site-related because they were not contaminants otherwise associated with site groundwater.

All residences in the vicinity of the landfill utilize private wells for household water, with the exception of one residence that utilizes a spring. Most of the residences are located down the hill from the landfill, and because of the flat-lying bedrock of the area and the location of the landfill on top of the hill, these residential wells have been drilled into or deeper than the deepest layer of bedrock monitored during the investigation (sandstone E). Very little groundwater contamination was seen in the deepest monitoring wells at the site. Hence, it is unlikely that residential wells will become impacted by the site.

Section 3 Remedial Action

The Record of Decision (ROD) signed in October 1996 details the selection of the site remedy (Appendix A). This remedy, institutional controls, calls for the following:

- Continued emptying of the leachate collection tanks at the site and transporting leachate for offsite treatment and disposal;

- Maintenance of the landfill cap;

- Appropriate measures to limit site access;

- Long-term targeted residential well monitoring under the guidance of NYSDOH, with future installation and maintenance of individual well treatment units for any home(s) which becomes impacted by landfill constituents at levels above drinking water standards. Initially, selected residential wells will be monitored annually. An evaluation will be made in three years to determine if a change in sampling frequency is necessary.

- Since the remedy results in untreated hazardous waste remaining at the site, a long-term monitoring program will be instituted. This program will include an annual review to evaluate the effectiveness of the selected remedy as a component of the normal operation and maintenance for the site.

Section 4 Leachate Management

At the time the lined "remedial" trench was constructed, a leachate collection system was installed. It consists of perforated drain pipe at the base of the trench, overlying the clay liner. It was designed to collect leachate produced in the lined trench, as well as to intercept leachate migrating south and east from the unlined trenches. The base of the lined trench is lower than that of the unlined trenches.

Leachate is conveyed either to a pair of buried collection tanks located northwest of the landfill, or to a pair of buried collection tanks northeast of the landfill. The northwest collection tanks have capacities of 2,000 and 4,000 gallons. The northeast tanks hold 15,000 and 18,000 gallons.

From June 1994, when leachate management began by URS Consultants through the State Superfund Program, until May 1997, approximately 300,000 gallons of leachate have been removed and transported for treatment and disposal. Table 1 shows dates and volumes removed during this period of time. Table 2 presents leachate analytical data.

Management of the leachate collection system consists of monthly tank inspections, or more often if needed. Arrangements must be made to empty the Busy Bee collection tanks when they become 75% full, and transport the leachate to a licensed facility for treatment and disposal. The collection tanks must be emptied regularly to prevent the tanks from overflowing and to prevent leachate from accumulating in the landfill trench. Due to variability in precipitation, snowfall, and depth of frozen ground from month to month, establishing a regular schedule for emptying the tanks is not feasible. Instead, the tanks must be monitored for accumulation of leachate and arrangements made to empty the tanks once they reach 75 % of capacity. Commonly, several frequent removals are required in spring. Less frequent removals may be required in late summer and mid-winter. If excess capacity exists in the truck after the Busy Bee

tanks are emptied, the Henry Landfill tank will also be emptied. Busy Bee Landfill Leachate Tank Monitoring Tables for tracking inspections and depth to leachate are included in Appendix C.

As seen on the site map (figure 2), the pair of leachate collection tanks located off the northeast corner of the landfill have been labeled BB-T1. The northern tank of this pair is Tank #BB-T1-North. The southern tank of this pair is Tank #BB-T1-South. The pair of tanks located off the northwest corner of the landfill have been labeled BB-T2. The northern tank of this pair is Tank #BB-T2-North, and the southern tank is Tank #BB-T2-South. The Leachate Tank Monitoring Tables in Appendix C show tank capacities and estimated dimensions. The tables also show the depth to leachate level when a leachate removal should be arranged.

The condition of the leachate tanks and pipes must be monitored to assure that they remain in good condition. Any problems, leaks, or other concerns will be identified and appropriate measures taken to correct with the approval of the NYSDEC.

Section 5 Groundwater Monitoring - REVISED SEE ADENDUM #1 (4/99) Revised SEE ADENDUM #2 (4/00) Revised See Addendum #6 (2/08)

5.1 Groundwater Sampling and Analysis

Nine site monitoring wells will be sampled ~~annually~~ biennial (Table 3). These wells were selected due to their distribution around the landfill and the sandstone layers that they monitor (D and E). Analytical results obtained from these wells will provide an early warning system for residential wells. As stated previously, most residential wells are drilled into sandstone E or deeper.

Groundwater sampling protocols are located in Appendix B. Groundwater obtained from these wells will be analyzed by an ELAP certified lab for volatile organic compounds and metals using EPA methods 8021 (VOCs) and 6010 (metals). These were the compounds identified in these monitoring wells during the RI. The laboratory will be required to provide a standard one page report listing analytes, detection limits and results. The standard data reports will be reviewed by the NYSDEC O&M section. In the event that the data reports an unexpected or unexplainable variation in results, analysis at an ELAP CLP certified lab will be required for the next sampling event. In addition, a category B deliverables package may be required.

5.2 Residential Wells - Revised See Addendum #2 (4/00) Revised See Addendum #5 (2/04)

Seven residential wells and the spring that serves as a residential water supply will be sampled annually for three years:

5633 Clark Road	5583 Crosby Creek Road	42 Hartsville Hill Road
5771 Clark Road	5545 Crosby Creek Road	248 Hartsville Hill Road
		266 Hartsville Hill Road

The spring is located at the trailer next to 5633 Clark Road. These residences were selected

Residential Well Sampling ended 2005

because they are closed to the landfill, and therefore could possibly become impacted by the landfill. Analyses will be the same as for the site monitoring wells: EPA ~~methods~~ method Sect. 8021 (VOCs) and 6010 (metals). These analyses are appropriate because the analytes included are those present in the landfill. Laboratory reporting requirements will be the same as for the site monitoring wells. Reports will be provided by the laboratory directly to the NYSDEC, DER O&M Section, 50 Wolf Road, Albany, NY 12233-7010 and the NYSDOH, Bureau of Environmental Exposure Investigation (BEEI), 2 University Place, Albany, NY 12203-3313.

Residential well sampling procedures are found in Appendix B. (These procedures also apply to sampling the residential spring.) At the time of sampling, the sampler is required to complete the Residential Well Sampling form for each residence. This form is included in Appendix B as well.

If landfill contamination is detected in any residential well, confirmatory sampling will be immediately conducted. If landfill constituents are confirmed at levels above drinking water standards, an individual well treatment unit will be installed in that house and maintained by the NYSDEC at the direction of the NYSDOH and will only be removed at the direction of the NYSDOH.

After a period of three years, the sampling frequency of residential wells will be evaluated to determine if a change is necessary or appropriate.

Section 6 Site Maintenance - REVISED SEE ADENDUM #1 (4/99)

The Busy Bee Landfill cap and access road will be inspected quarterly. Inspections of monitoring wells and gas vents will take place concurrently. Following each quarterly inspection, the Site Inspection Form will be completed within ten days. Site Inspection Forms are located in Appendix C. If cap maintenance, mowing, monitoring well, gas vent or road repair is required, it will be noted on the site inspection form, and appropriate corrective measures will be identified. Repairs or other required maintenance will take place within six weeks of completion of the Site Inspection Form.

Section 7 Site Access - REVISED SEE ADENDUM #1 (4/99)

The cooperation of the current property owner is required to provide access for the NYSDEC to carry out site maintenance and monitoring. At the present time, a cable is strung across the entrance to the access road. If site inspections indicate that a more restrictive gate is required, arrangements will be made to install a more secure gate with the cooperation of the property owner. In addition, the condition of the gravel access road will be maintained by the NYSDEC to provide access to the leachate collection tanks, except: the NYSDEC will **NOT** snowplow during winter months.

Section 8 Reporting

Annual O&M reports will be completed by the NYSDEC within six weeks of obtaining groundwater analytical results from the laboratory. Annual reports will include analytical data from site wells and residential wells, completed residential well sampling forms (with names blacked out), and completed site inspection reports for the year. Residential well data will be provided in the report without identifying property owners by name to protect their privacy.

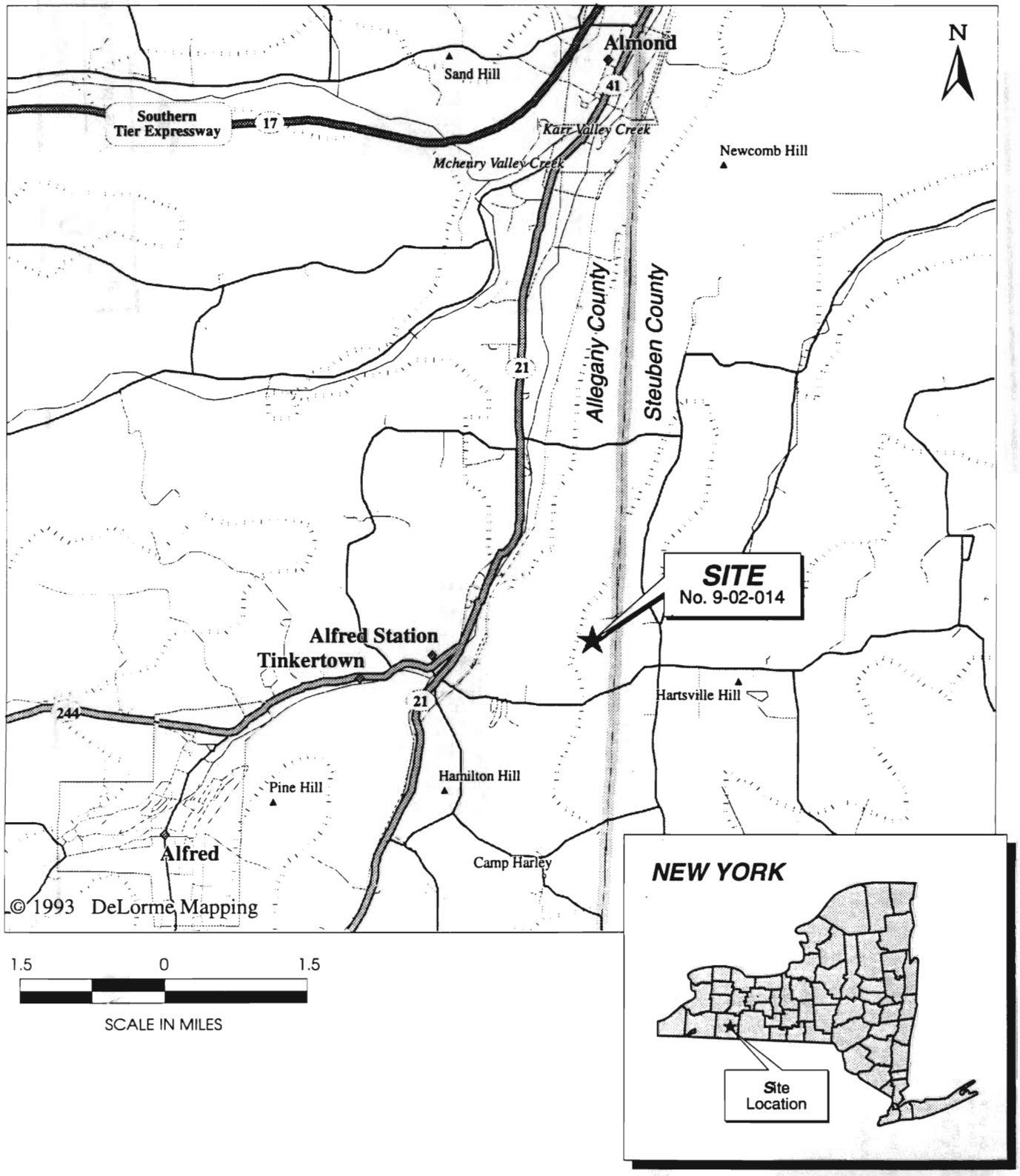
Annual reports will be provided to the current site owner(s), agencies and interested parties listed in Appendix D.

Section 9 Citizen Participation

Each homeowner will be notified by NYSDOH BEEI in writing of his/her individual well sampling results within four weeks of NYSDOH's receipt of laboratory reports or immediately by telephone if the sample results show contamination above drinking water standards. Additionally, Annual Reports will be provided to the project document repositories at the Alfred Town Clerk's Office and the NYSDEC Region 9 Office. The citizen participation mailing list developed for the RI/FS will be maintained for use if future mailings are necessary.

Section 10 Health and Safety

The Health and Safety Plan developed by URS Consultants for the RI will be used for maintenance and monitoring activities at the site. It has been reproduced as Appendix F in this manual.



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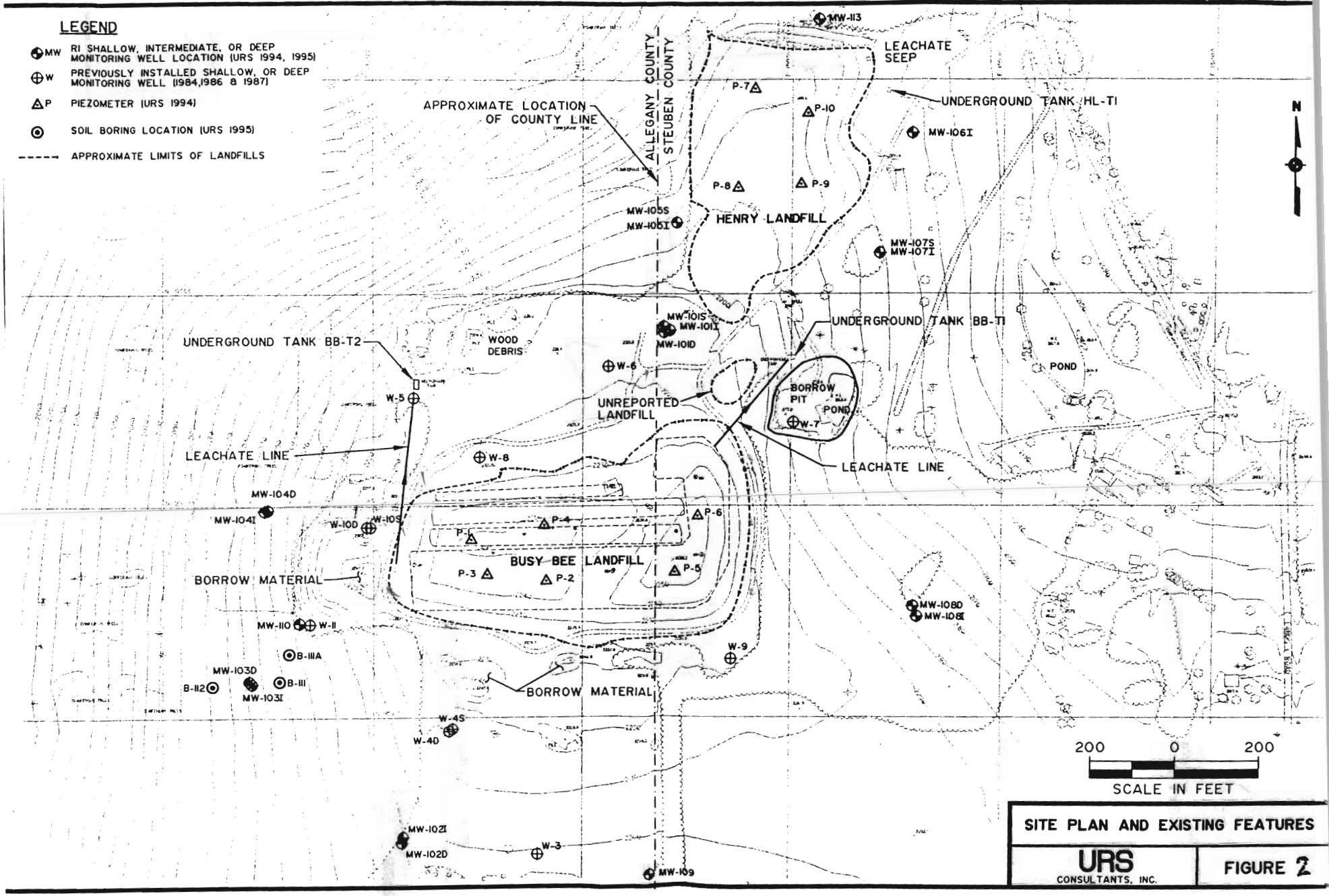
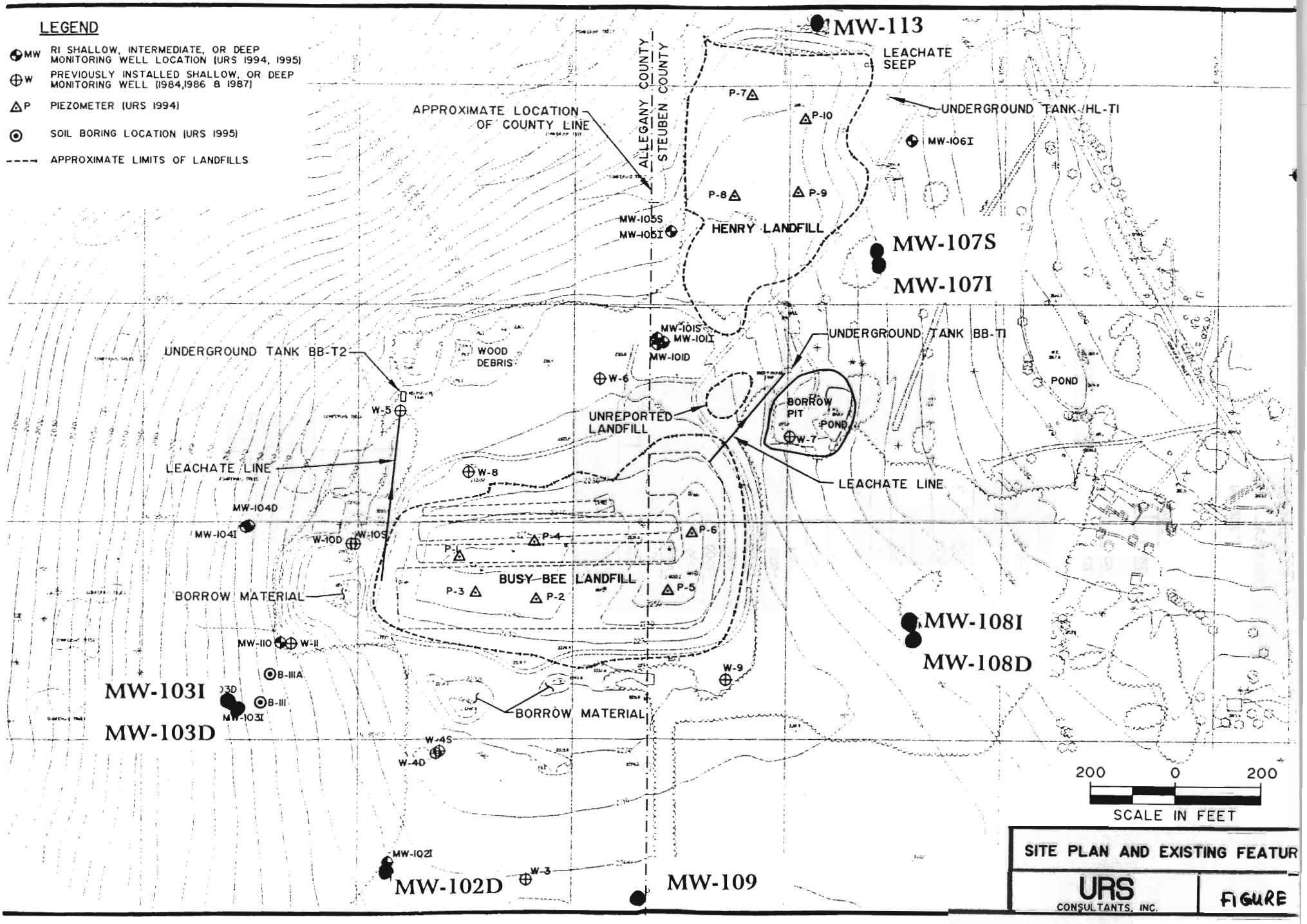
URS CONSULTANTS, INC.

PATTON'S BUSY BEE DISPOSAL SITE
SITE LOCATION MAP

FIGURE 1

8.5"


LEGEND
MW RI SHALLOW, INTERMEDIATE, OR DEEP MONITORING WELL LOCATION (URS 1994, 1995)
W PREVIOUSLY INSTALLED SHALLOW, OR DEEP MONITORING WELL (1984,1986 & 1987)
P PIEZOMETER (URS 1994)
SOIL BORING LOCATION (URS 1995)
APPROXIMATE LIMITS OF LANDFILLS
APPROXIMATE LOCATION OF COUNTY LINE
ALLEGANY COUNTY
STEUBEN COUNTY
LEACHATE SEEP
UNDERGROUND TANK HL-T1
HENRY LANDFILL
UNDERGROUND TANK BB-T2
UNDERGROUND TANK BB-T1
WOOD DEBRIS
UNREPORTED LANDFILL
BORROW PIT
POND
LEACHATE LINE
BUSY BEE LANDFILL
BORROW MATERIAL
MW-113
MW-106I
MW-105S
MW-105I
MW-107S
MW-107I
MW-101S
MW-101I
MW-101D
MW-104D
MW-104I
MW-110
MW-103D
MW-103I
MW-108D
MW-108I
MW-102I
MW-102D
MW-109
P-1
P-2
P-3
P-4
P-5
P-6
P-7
P-8
P-9
P-10
W-2
W-3
W-4S
W-4D
W-5
W-6
W-7
W-8
W-9
W-10D
W-10S
W-11
B-111A
B-111
B-112
N
200 0 200
SCALE IN FEET
SITE PLAN AND EXISTING FEATURES
URS CONSULTANTS, INC.
FIGURE 2



Location of Long-Term Monitoring Wells

BUSY BEE DISPOSAL SITE RI

LEACHATE DISPOSAL BY URS (as of 7/18/97)

A: BUSY BEE LANDFILL

DATE	# OF LOADS	GALLONS/ LOAD		TOTAL GALLONS	TOTAL GALLONS TO-DATE
		BB-T1	BB-T2		
13-Jun-94	2	8000	6000	14000	14000
17-Jun-94	1	8000		8000	22000
21-Jun-94	1	8500		8500	30500
23-Jun-94	2	15000		15000	45500
12-Jul-94	1	5000	2000	7000	52500
29-Sep-94	1	8000		8000	60500
17-Mar-95	1	8500		8500	69000
24-Mar-95	3	14000	6000	20000	89000
19-May-95	2	16000		16000	105000
07-Jun-95	1		5500	5500	110500
07-Aug-95	1	7800		7800	118300
17-Oct-95	1	4500	2500	7000	125300
06-Feb-96	1		1500	1500	126800
22-Apr-96	2	11500	5500	17000	143800
21-Jun-96	2	17000		17000	160800
15-Jul-96	2	4500	5500	10000	170800
26-Sep-96	2	16000	4000	20000	190800
31-Oct-96	2	12000	5000	17000	207800
11-Dec-96	2	14000		14000	221800
23-Dec-96	2	17000		17000	238800
25-Mar-97	1	6000		6000	244800
31-Mar-97	2	17000		17000	261800
1-May-97	1		5500	5500	267300
23-May-97	2	17000		17000	284300
19 -Jun-97	2	13000	5500	18500	302800
18 -Jul-97	2	17000		17000	319800

Note: BB-T1 Northeast tanks

BB-T2 Northwest tanks

B: HENRY LANDFILL

DATE	# OF LOADS	GALLONS/ LOAD HL-T1	TOTAL GALLONS	TOTAL GALLONS TO-DATE
19-May-95	1	1500	1500	1500
07-Jun-95	1	1500	1500	3000
07-Aug-95	1	700	700	3700
17-Oct-95	1	1500	1500	5200
06-Feb-96	1	1500	1500	6700
15-Jul-96	1	1500	1500	8200
26-Sep-96	2	1500	3000	11200
11-Dec-96	2	1500	3000	14200
1-May-97	1	2000	2000	16200
19-Jun-97	1	1500	1500	17700

Table 1
Leachate Removal: Volumes and Dates

BUSY BEE DISPOSAL SITE
RAW ANALYTICAL DATA: LEACHATE TANK

Sample ID		LCHTANK
Date Collected		10/31/96
Matrix		Water
Parameter	Class	
CHLOROMETHANE	VOC	10 U
BROMOMETHANE	VOC	10 U
VINYL CHLORIDE	VOC	10 U
CHLOROETHANE	VOC	10 U
METHYLENE CHLORIDE	VOC	10 U
ACETONE	VOC	10 U
CARBON DISULFIDE	VOC	10 U
1,1-DICHLOROETHENE	VOC	10 U
1,1-DICHLOROETHANE	VOC	10 U
1,2-DICHLOROETHENE (TOTAL)	VOC	10 U
CHLOROFORM	VOC	10 U
1,2-DICHLOROETHANE	VOC	10 U
2-BUTANONE	VOC	10 U
1,1,1-TRICHLOROETHANE	VOC	10 U
CARBON TETRACHLORIDE	VOC	10 U
BROMODICHLOROMETHANE	VOC	10 U
1,2-DICHLOROPROPANE	VOC	10 U
CIS-1,3-DICHLOROPROPENE	VOC	10 U
TRICHLOROETHENE	VOC	10 U
DIBROMOCHLOROMETHANE	VOC	10 U
1,1,2-TRICHLOROETHANE	VOC	10 U
BENZENE	VOC	10 U
TRANS-1,3-DICHLOROPROPENE	VOC	10 U
BROMOFORM	VOC	10 U
4-METHYL-2-PENTANONE	VOC	10 U
2-HEXANONE	VOC	10 U
TETRACHLOROETHENE	VOC	10 U
1,1,2,2-TETRACHLOROETHANE	VOC	10 U
TOLUENE	VOC	10 U
CHLOROBENZENE	VOC	10 U
ETHYLBENZENE	VOC	10 U
STRYENE	VOC	10 U
XYLENE (TOTAL)	VOC	10 U

Water results reported in ug/l.

Table 2- Leachate Characterization
Page 1 of 5

BUSY BEE DISPOSAL SITE
RAW ANALYTICAL DATA: LEACHATE TANK

Sample ID		LCHTANK
Date Collected		10/31/96
Matrix		Water
Parameter	Class	
PHENOL	SEMI	10 U
BIS(2-CHLOROETHYL)ETHER	SEMI	10 U
2-CHLOROPHENOL	SEMI	10 U
1,3-DICHLOROBENZENE	SEMI	10 U
1,4-DICHLOROBENZENE	SEMI	10 U
1,2-DICHLOROBENZENE	SEMI	10 U
2-METHYLPHENOL	SEMI	10 U
2,2'-OXYBIS(1-CHLOROPROPANE)	SEMI	10 U
4-METHYLPHENOL	SEMI	10 U
N-NITROSO-DI-N-PROPYLAMINE	SEMI	10 U
HEXACHLOROETHANE	SEMI	10 U
NITROBENZENE	SEMI	10 U
ISOPHORONE	SEMI	10 U
2-NITROPHENOL	SEMI	10 U
2,4-DIMETHYLPHENOL	SEMI	10 U
BIS(2-CHLOROETHOXY)METHANE	SEMI	10 U
2,4-DICHLOROPHENOL	SEMI	10 U
1,2,4-TRICHLOROBENZENE	SEMI	10 U
NAPHTHALENE	SEMI	10 U
4-CHLOROANILINE	SEMI	10 U
HEXACHLOROBUTADIENE	SEMI	10 U
4-CHLORO-3-METHYLPHENOL	SEMI	10 U
2-METHYLNAPHTHALENE	SEMI	10 U
HEXACHLOROCYCLOPENTADIENE	SEMI	10 U
2,4,6-TRICHLOROPHENOL	SEMI	10 U
2,4,5-TRICHLOROPHENOL	SEMI	50 U
2-CHLORONAPHTHALENE	SEMI	10 U
2-NITROANILINE	SEMI	50 U
DIMETHYLPHTHALATE	SEMI	10 U
ACENAPHTHYLENE	SEMI	10 U
2,6-DINITROTOLUENE	SEMI	10 U
3-NITROANILINE	SEMI	50 U
ACENAPHTHENE	SEMI	10 U
2,4-DINITROPHENOL	SEMI	50 U
4-NITROPHENOL	SEMI	50 U
DIBENZOFURAN	SEMI	10 U

Water results reported in ug/l.

Table 2- Leachate Characterization
Page 2 of 5

BUSY BEE DISPOSAL SITE
RAW ANALYTICAL DATA: LEACHATE TANK

Sample ID		LCHTANK
Date Collected		10/31/96
Matrix		Water
Parameter	Class	
2,4-DINITROTOLUENE	SEMI	10 U
DIETHYLPHTHALATE	SEMI	10 U
4-CHLOROPHENYL-PHENYL ETHER	SEMI	10 U
FLUORENE	SEMI	10 U
4-NITROANILINE	SEMI	50 U
4,6-DINITRO-2-METHYLPHENOL	SEMI	50 U
N-NITROSODIPHENYLAMINE(1)	SEMI	10 U
4-BROMOPHENYL-PHENYL ETHER	SEMI	10 U
HEXACHLOROBENZENE	SEMI	10 U
PENTACHLOROPHENOL	SEMI	50 U
PHENANTHRENE	SEMI	10 U
ANTHRACENE	SEMI	10 U
CARBAZOLE	SEMI	10 U
DI-N-BUTYLPHTHALATE	SEMI	10 U
FLUORANTHENE	SEMI	10 U
PYRENE	SEMI	10 U
BUTYLBENZYLPHTHALATE	SEMI	10 U
3,3-DICHLOROBENZIDINE	SEMI	10 U
BENZO(A)ANTHRACENE	SEMI	10 U
CHRYSENE	SEMI	10 U
BIS(2-ETHYLHEXYL)PHTHALATE	SEMI	2.2 J
DI-N-OCTYLPHTHALATE	SEMI	10 U
BENZO(B)FLUORANTHENE	SEMI	10 U
BENZO(K)FLUORANTHENE	SEMI	10 U
BENZO(A)PYRENE	SEMI	10 U
INDENO(1,2,3-CD)PYRENE	SEMI	10 U
DIBENZ(A,H)ANTHRACENE	SEMI	10 U
BENZO(G,H,I)PERYLENE	SEMI	10 U

Water results reported in ug/l.

Table 2- Leachate Characterization
Page 3 of 5

BUSY BEE DISPOSAL SITE
RAW ANALYTICAL DATA: LEACHATE TANK

Sample ID		LCHTANK
Date Collected		10/31/96
Matrix		Water
Parameter	Class	
ALPHA-BHC	PEST	0.05 U
BETA-BHC	PEST	0.05 U
DELTA-BHC	PEST	0.05 U
GAMMA-BHC(LINDANE)	PEST	0.05 U
HEPTACHLOR	PEST	0.05 U
ALDRIN	PEST	0.05 U
HEPTACHLOR EPOXIDE	PEST	0.05 U
ENDOSULFAN I	PEST	0.05 U
DIELDRIN	PEST	0.1 U
4,4'-DDE	PEST	0.1 U
ENDRIN	PEST	0.1 U
ENDOSULFAN II	PEST	0.1 U
4,4'-DDD	PEST	0.1 U
ENDOSULFAN SULFATE	PEST	0.1 U
4,4'-DDT	PEST	0.1 U
METHOXYCHLOR	PEST	0.5 U
ENDRIN KETONE	PEST	0.1 U
ENDRIN ALDEHYDE	PEST	0.1 U
ALPHA-CHLORDANE	PEST	0.05 U
GAMMA-CHLORDANE	PEST	0 05 U
TOXAPHENE	PEST	5 U
AROCLOR-1016	PCB	1 U
AROCLOR-1221	PCB	2 U
AROCLOR-1232	PCB	1 U
AROCLOR-1242	PCB	1 U
AROCLOR-1248	PCB	1 U
AROCLOR-1254	PCB	1 U
AROCLOR-1260	PCB	1 U

Water results reported in ug/l.

Table 2- Leachate Characterization
Page 4 of 5

BUSY BEE DISPOSAL SITE
RAW ANALYTICAL DATA: LEACHATE TANK

Sample ID		LCHTANK
Date Collected		10/31/96
Matrix		Water
Parameter	Class	
ALUMINUM	MET	248
ANTIMONY	MET	5.7 B
ARSENIC	MET	4.6 U
BARIUM	MET	162 B
BERYLLIUM	MET	0.2 U
CADMIUM	MET	2.1 U
CALCIUM	MET	45700
CHROMIUM	MET	3 U
COBALT	MET	3.4 U
COPPER	MET	1.6 U
IRON	MET	8280
LEAD	MET	2.4 U
MAGNESIUM	MET	18200
MANGANESE	MET	2550
MERCURY	MET	0.1 U
NICKEL	MET	26 B
POTASSIUM	MET	19300
SELENIUM	MET	4.2 U
SILVER	MET	1.9 B
SODIUM	MET	155000
THALLIUM	MET	3.1 U
VANADIUM	MET	1.7 B
ZINC	MET	4.8 U
CYANIDE	CYN	10 U

Water results reported in ug/l.

::

COD	MISC	290
TOTAL HARDNESS	MISC	180
SULFATE	MISC	21
SUSPENDED SOLIDS	MISC	8
TOTAL ALKALINITY	MISC	370
TOTAL DISSOLVED SOLIDS	MISC	690
TOTAL ORGANIC CARBON (TOC)	MISC	63

Water quality results reported in mg/l.

Table 2- Leachate Characterization
Page 5 of 5

Table 3
Patton's Busy Bee Disposal Site
Long-term Monitoring Wells

Monitoring Well	Sandstone Unit Monitored
MW-102D	D
MW-103I	D
MW-103D	E
MW-107S	D
MW-107I	E
MW-108I	D
MW-108D	E
MW-109	E
MW-113	E
MW-101I	C
MW-101D	D
MW-104I	D
MW-104D	E

Appendix A

Record of Decision

Department of Environmental Conservation

Division of Environmental Remediation

Record of Decision

Patton's Busy Bee Disposal Site
Town of Alfred, Allegany County
and Town of Hartsville, Steuben County
Site Number 9-02-014

October 1996

New York State Department of Environmental Conservation
GEORGE E. PATAKI, *Governor* MICHAEL D. ZAGATA, *Commissioner*

DECLARATION STATEMENT - RECORD OF DECISION

Patton's Busy Bee Disposal Site
Alfred (T), Allegany County
Hartsville (T), Steuben County
Inactive Hazardous Waste Site No. 9-02-014

Statement of Purpose and Basis

The Record of Decision (ROD) presents the selected remedial action for the Patton's Busy Bee Disposal Inactive Hazardous Waste Site which was chosen in accordance with the New York State Environmental Conservation Law (ECL). The remedial program selected is not inconsistent with the National Oil and Hazardous Substances Pollution Contingency Plan of March 8, 1990 (40CFR300).

This decision is based upon the Administrative Record of the New York State Department of Environmental Conservation (NYSDEC) for Patton's Busy Bee Disposal Inactive Hazardous Waste Site and upon public input to the Proposed Remedial Action Plan (PRAP) presented by the NYSDEC. A bibliography of the documents included as a part of the Administrative Record is included in Appendix B of the ROD.

Assessment of the Site

Actual or threatened release of hazardous waste constituents from this site, if not addressed by implementing the response action selected in this ROD, presents a current or potential threat to public health and the environment.

Description of the Selected Remedy

Based upon the results of the Remedial Investigation/Feasibility Study (RI/FS) for Patton's Busy Bee Disposal Site and the criteria identified for the evaluation of alternatives, the NYSDEC has selected Institutional Actions for the Busy Bee Landfill and associated groundwater. The components of the remedy are as follows:

- Continued emptying of the leachate collection tanks at the site and transporting leachate for offsite treatment and disposal.

- Maintenance of the landfill cap.

- Appropriate measures to limit site access.

- Long-term targeted residential well monitoring under the guidance of NYSDOH, with future installation and maintenance of individual well treatment units for any home(s) which becomes impacted by landfill constituents at levels above drinking water standards. Initially, selected residential wells will be monitored annually. A determination will be completed in three years to determine if a change in sampling frequency is necessary.

- Since the remedy results in untreated hazardous waste remaining at the site, a long-term monitoring program will be instituted. This program will include an annual review to evaluate the effectiveness of the selected remedy as a component of the normal operation and maintenance for the site.

New York State Department of Health Acceptance

The New York State Department of Health concurs with the remedy selected for this site as being protective of human health.

Declaration

The selected remedy is protective of human health and the environment, complies with State and Federal requirements that are legally applicable or relevant and appropriate to the remedial action to the extent practicable, and is cost effective. This remedy utilizes permanent solutions and alternative treatment or resource recovery technologies to the maximum extent practicable, and satisfies the statutory preference for remedies that reduce toxicity, mobility, or volume as a principal element.

10/17/96
Date

Michael O'Toole Jr., Director
Division of Environmental Remediation

RECORD OF DECISION

Patton's Busy Bee Disposal Site
Town of Alfred, Allegany County, New York
Town of Hartsville, Steuben County, New York
Site No. 9-02-014
October, 1996

SECTION 1: SITE LOCATION AND DESCRIPTION

Patton's Busy Bee Disposal Site consists of the Busy Bee Landfill, located off Clark Road one mile east of Alfred Station, in the Town of Alfred, Allegany County, and the adjacent Henry Landfill, located in the Town of Hartsville, Steuben County. The Busy Bee Landfill, located on top of a hill, covers approximately eight acres. The Henry Landfill is located on the northeast side of the hill and covers approximately five acres. Figure 1 shows the site location.

Operable Unit No. 1 consists of the Busy Bee Landfill, Operable Unit No. 2 is the Henry Landfill, and Operable Unit No. 3 is contaminated groundwater in bedrock beneath the Busy Bee Landfill. An Operable Unit represents a portion of the site remedy which for technical or administrative reasons can be investigated or addressed separately to eliminate or mitigate a release, threat of release or exposure pathway resulting from the site contamination.

SECTION 2: SITE HISTORY

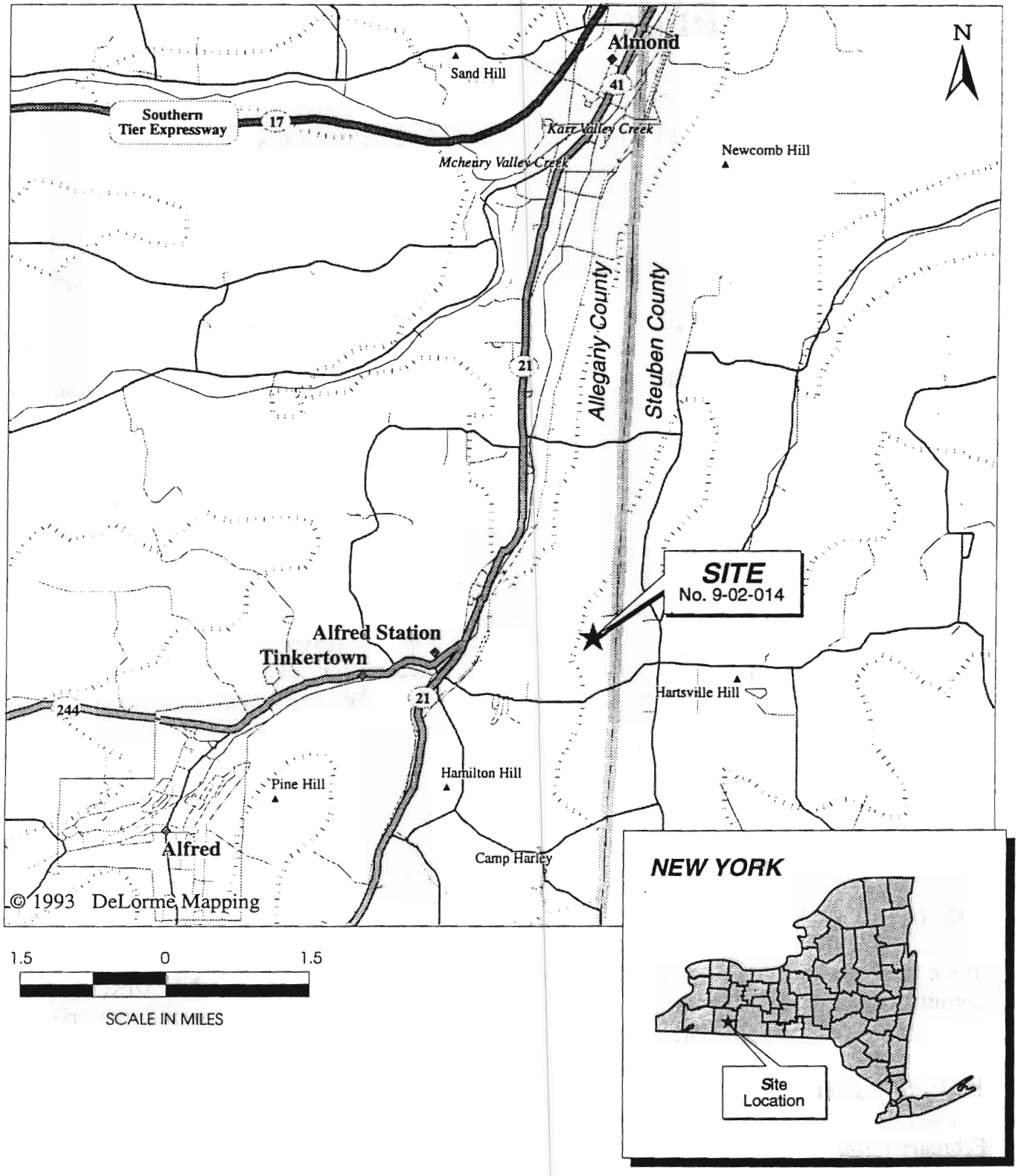
2.1: Operational/Disposal History

1967 (approx): The Henry Landfill began operating; accepting municipal waste.

1974 (approx): LaVerne Patton leased the Henry Landfill and continued existing operations.

1980: LaVerne Patton ceased operations at the Henry Landfill and received a NYSDEC permit to operate the Busy Bee landfill as a sanitary landfill, accepting municipal and industrial waste. Waste was deposited into three unlined trenches.

1981: SKF Industries later reported to have disposed 77 tons of a corrosive alkaline metal cleaning solution (a characteristic hazardous waste, code D002) at the Busy Bee Landfill, from February through August, 1981.



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PATTON'S BUSY BEE DISPOSAL SITE
SITE LOCATION MAP

FIGURE 1

AG5240-35352.00-012694

1987: Mr. Patton began constructing a "remedial trench" along the southern and eastern sides of the unlined trenches of the Busy Bee Landfill. A clay liner and leachate collection system was installed in the remedial trench to intercept leachate from the unlined trenches and transfer it into four leachate collection tanks buried adjacent to the landfill. The lined trench received primarily construction and demolition debris, along with automobile shredder waste.

1988: The Busy Bee Landfill ceased accepting waste under terms of a NYSDEC Consent Order and cap construction began.

2.2: Remedial History

1986: The NYSDEC executed a Consent Order with LaVerne Patton to close the Busy Bee Landfill.

1987: The NYSDEC executed another Consent Order with LaVerne Patton to close the Busy Bee Landfill.

1988: Patton's Busy Bee Disposal Site was listed on the New York State Registry of Inactive Hazardous Waste Disposal Sites as a Class 2a site. Class 2a is a temporary classification when there is insufficient information to determine site impacts.

1990: The NYSDEC conducted a Preliminary Site Assessment (PSA) to evaluate conditions at the site and obtain information to reclassify the site (to determine if a threat exists to public health or environment).

1991: Patton's Busy Bee Disposal Site was reclassified as a Class 2 site: one which presents a significant threat to public health or the environment. It was assigned a priority ranking of I, due to the threat to private water supplies.

1991-93: NYSDEC pursued Potentially Responsible Parties (PRPs) without success to implement a Remedial Program.

1993: NYSDEC issued a Work Assignment under a State Superfund Standby Contract with URS Consultants to conduct a Remedial Investigation and Feasibility Study (RI/FS).

SECTION 3: CURRENT STATUS

In response to a determination that the presence of hazardous waste at the Site presents a significant threat to human health or the environment, the NYSDEC has recently completed a Remedial Investigation/Feasibility Study (RI/FS) using monies from the State Superfund.

3.1: Summary of the Remedial Investigation

The purpose of the RI was to define the nature and extent of any contamination resulting from previous activities at the site.

The RI was conducted in two phases. The first phase was conducted between April and August 1994 and the second phase between May and July 1995. A report entitled **Final Report, Remedial Investigation**, dated November 1995, has been prepared describing the field activities and findings of the RI in detail.

The RI included the following activities:

- Electromagnetic survey to locate any buried debris outside the landfill masses;
- Soil sampling and analysis to identify the presence of contamination;
- Monitoring well installations to analyze groundwater for contamination and define hydrogeologic conditions;
- Test pit excavations to confirm the edge of the waste mass in the unlined trench area, and to investigate areas of magnetic anomalies;
- Video inspection of the interior of the western leachate line between the Busy Bee landfill and the leachate collection tanks to evaluate its integrity;
- Surface water and sediment sampling to analyze for contamination;
- Residential well sampling to determine if contaminants have migrated off-site to residential areas;
- Fish and Wildlife Impact Analysis;
- Regular emptying of the leachate collection tanks and offsite leachate treatment;
- Qualitative Health Risk Assessment.

To determine which media (soil, groundwater, etc.) contain contamination at levels of concern, the RI analytical data was compared to environmental Standards, Criteria, and Guidance (SCGs). Groundwater, drinking water and surface water SCGs identified for the Patton's Busy Bee Disposal site were based on NYSDEC Ambient Water Quality Standards and Guidance Values and Part V of NYS Sanitary Code. Soil cleanup guidelines contained in NYSDEC Technical and Administrative Guidance Memorandum (TAGM) 4030 for the

protection of groundwater, background soil concentrations, and risk-based remediation criteria were used as SCGs for soil. The NYSDEC Division of Fish and Wildlife Technical Guidance for Screening Contaminated Sediments was used to evaluate surface water sediments.

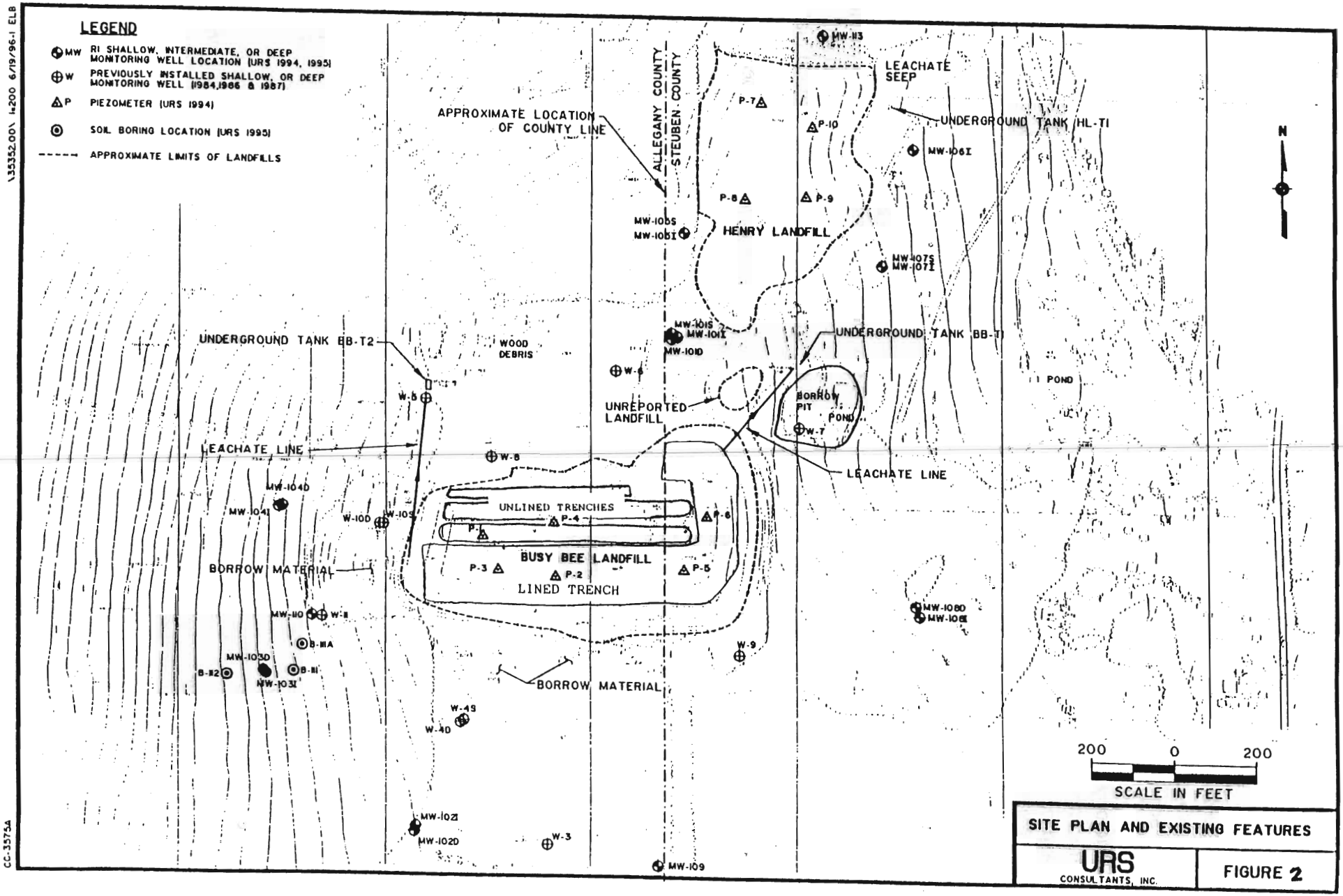
The original description in the NYS Registry of Inactive Hazardous Waste Disposal Sites of the Patton's Busy Bee Disposal Site did not include the Henry Landfill. However, it became apparent during the early stages of the remedial investigation that the Henry Landfill had the potential to cause or contribute to a significant human health or environmental threat and that separating the potential environmental impacts of the two landfills could be difficult. Consequently, the site description was expanded to include the Henry Landfill. The remedial investigation addressed both landfills.

Evaluation of the RI data did not identify the presence of hazardous waste at the Henry Landfill. Persistent leachate outbreaks occur, especially along the eastern margin of the Henry Landfill; however, hazardous waste constituents were not identified in leachate seep samples. Additionally, groundwater contamination by hazardous waste constituents is so minimal that treatment would not be required. Although the Henry Landfill was not properly capped, the Superfund Program cannot legally provide public funding to construct a proper cap because consequential amounts of hazardous waste have not been identified. Consequently, the Henry Landfill will not be addressed by the State Superfund Program. The Final FS and this PRAP evaluate remedial technologies and alternatives for the Busy Bee Landfill and associated groundwater.

The following summary of results of the RI includes data from both landfills. Chemical concentrations are reported in parts per billion (ppb) for water, and parts per million (ppm) for soils and sediments. For comparison purposes, SCGs are given for each medium.

Site Geology and Hydrogeology:

Twelve monitoring wells had been installed prior to the RI; fourteen were installed during Phase 1 of the RI, and five during Phase 2. Figure 2 shows approximate monitoring well locations at the site. Due to a very thin veneer of overburden and an absence of overburden groundwater, all wells were installed into bedrock. Bedrock beneath the site consists of nearly horizontal alternating layers of shale and sandstone. The permeability of the sandstone layers is greater than the permeability of the shale layers, so most of the groundwater is within the sandstone. However, there are fractures within the shale that allow vertical groundwater movement. Groundwater appears to flow primarily horizontally through the sandstone layers, with some groundwater flow vertically downward through fractures in the shale to the lower sandstone units. For the ease of discussion, the sandstone layers have been labeled A through E, from the first encountered to the fifth.


LEGEND
MW RI SHALLOW, INTERMEDIATE, OR DEEP MONITORING WELL LOCATION (URS 1994, 1995)
W PREVIOUSLY INSTALLED SHALLOW, OR DEEP MONITORING WELL (1984,1986 & 1987)
P PIEZOMETER (URS 1994)
SOIL BORING LOCATION (URS 1995)
APPROXIMATE LIMITS OF LANDFILLS
\35352.001\ 1=200 6/19/96-1 ELB
APPROXIMATE LOCATION OF COUNTY LINE
ALLEGANY COUNTY
STEUBEN COUNTY
LEACHATE SEEP
UNDERGROUND TANK HL-T1
HENRY LANDFILL
UNDERGROUND TANK BB-T2
UNDERGROUND TANK BB-T1
WOOD DEBRIS
POND
BORROW PIT POND
UNREPORTED LANDFILL
LEACHATE LINE
UNLINED TRENCHES
BUSY BEE LANDFILL
LINED TRENCH
BORROW MATERIAL
N
200 0 200
SCALE IN FEET
SITE PLAN AND EXISTING FEATURES
URS CONSULTANTS, INC.
FIGURE 2
CC-35754

Because the bedrock layers of the hill beneath the landfill are nearly horizontal, the individual rock layers daylight to overburden as one moves downhill, away from the site. Figure 3 is a cross-section of the site, extending from south of the Busy Bee Landfill through the northern edge of the Henry Landfill. The vertical scale is exaggerated about ten times so that features can be seen more easily.

Groundwater flow directions:

A sandstone: This layer underlies most of the Busy Bee Landfill, but ends just outside the limits of the landfill. Only two wells have been installed in this layer, and groundwater flow direction can't be determined. It is most likely that A-layer groundwater, when present, moves both vertically down to the B-zone as well as outward in a radial fashion.

B, C, and D sandstones: Groundwater flow is to the southwest, with a small component of flow in the D sandstone zone to the southeast from the Henry Landfill.

E sandstone: Groundwater flow is to the northwest.

Busy Bee Landfill

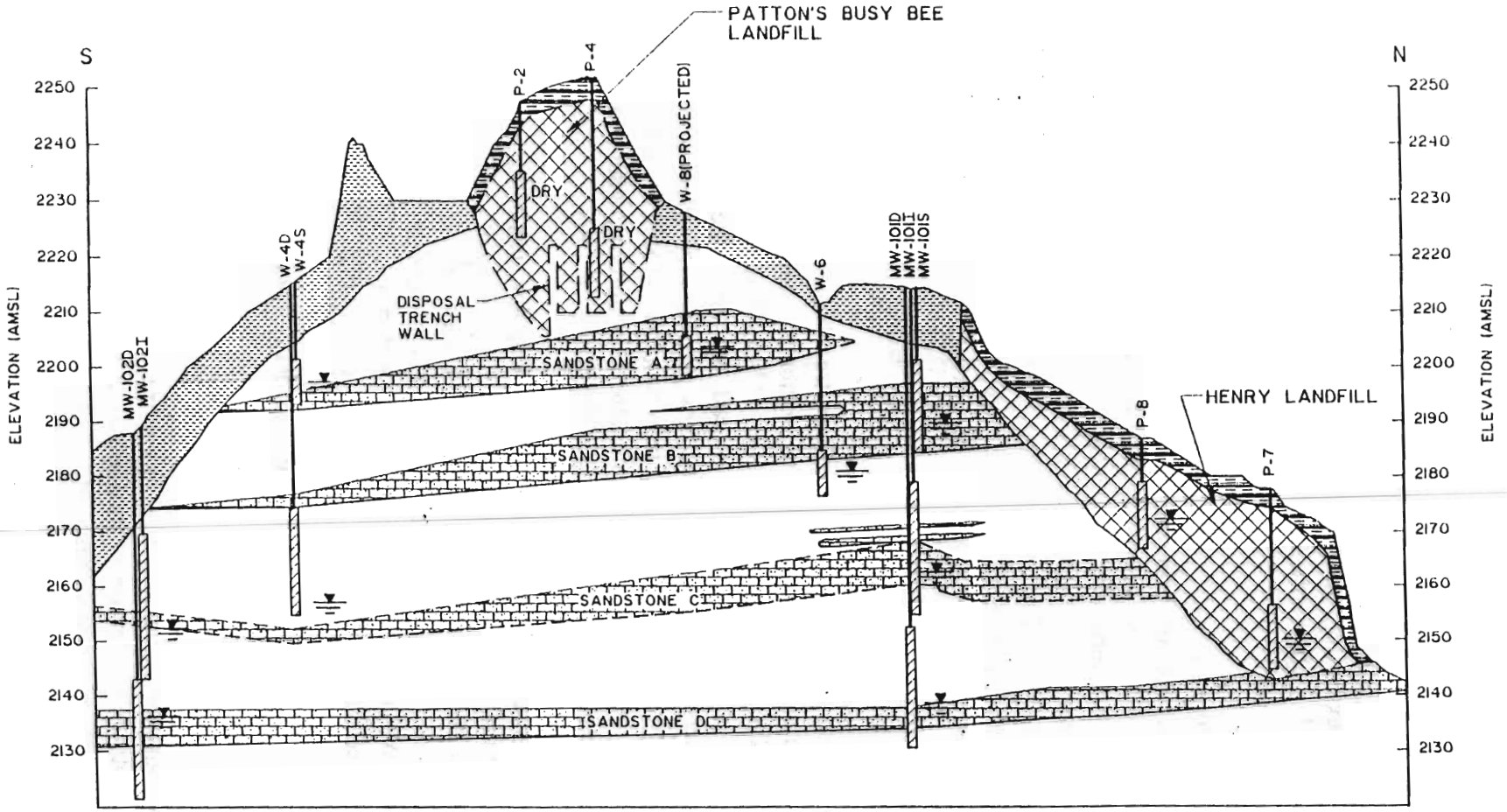
The Busy Bee Landfill consists of three older, unlined trenches and a newer, lined "remedial" trench. The lined trench was constructed, in part, to intercept and collect leachate migrating to the south and east from the older, unlined trenches. It has a two foot liner of low permeability material (approx. 1×10^{-8} cm/sec) beneath the waste. Perforated leachate collection pipes were placed in the trench over the low permeability layer before waste was deposited. Leachate is drained into two pairs of collection tanks located northeast and northwest of the landfill. These tanks have been emptied regularly by a subcontractor to the NYSDEC under the State Superfund Program since the Spring of 1994.

The Busy Bee Landfill ceased accepting waste in 1988. Capping was completed in 1991. Five gas vents were installed through the cap into waste. The cap material consists of two to four feet of low permeability material. Tests performed on the cap material in 1991 showed its permeability to be 1×10^{-7} cm/sec or less. It appears that the cap does meet the requirements of the applicable Solid Waste regulations (1985 6NYCRR Part 360: 18" low permeability soil barrier of 1×10^{-5} cm/sec, covered with a six inch layer of topsoil).

The Busy Bee Landfill unlined trenches likely are in direct contact with sandstone unit A.

Henry Landfill

The Henry Landfill is an older, unpermitted disposal area located north of and adjacent to the Busy Bee Landfill. Not much is known of its disposal history. It is believed that landfilling operations began in the late 1960s and ceased in the late 1970s when Mr. Patton received a NYSDEC permit to operate the Busy Bee Landfill. The Henry Landfill is unlined, and



VERTICAL EXAGGERATION IS 10X

LEGEND

WELL CASING
WELL INTAKE
GRAVELLY CLAYEY SILT COVER SOIL
SHALE
OVERBURDEN/ WEATHERED ROCK
SANDSTONE
FILL
INFERRED CONTACT
GROUNDWATER ELEV.

200 0 200
HORIZ. SCALE IN FEET

20 0 2
VERT. SCALE IN FEET

NOTES:

1. GEOLOGIC CONDITIONS SHOWN ARE REPRESENTATIVE OF CONDITIONS ENCOUNTERED AT EACH BORING LOCATION TO THE DEPTH DRILLED. EXTRAPOLATIONS BETWEEN BORINGS HAVE BEEN INTERPRETED USING STANDARD PRACTICES AND PRINCIPLES. ACTUAL CONDITIONS MAY VARY BETWEEN BORINGS FROM THOSE SHOWN.
2. GROUNDWATER ELEVATIONS SHOWN WERE RECORDED ON 6/12/95
3. VERTICAL EXAGGERATION 10X

CROSS-SECTION

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FIGURE 3

covered with six inches to two feet of soil material. The cover permeability has not been determined.

The Henry Landfill is likely in direct contact with sandstone units C and D.

A buried leachate collection tank was located during investigative activities in 1995. Since then, this tank has been emptied regularly along with the Busy Bee leachate collection tanks. Additionally, a previously undocumented waste area was located across the site access road from the Henry Landfill during test pit excavation activities.

3.1.1 Nature of Contamination

As described in the RI Report, many soil, groundwater, surface water, sediment and leachate samples were collected at the Site to characterize the nature and extent of contamination.

The primary groundwater contaminants are Volatile Organic Compounds (VOCs) such as trichloroethene, dichloroethene, and trichloroethane. These are chlorinated solvents which are generally used for degreasing. Some home cleaning products also contain one or more of these compounds. Exposure to large concentrations of these compounds by inhalation (breathing vapors) or ingestion (drinking contaminated water) is known to be toxic to animals. Although studies have not been performed on humans, these compounds are suspected to have similar effects.

3.1.2 Extent of Contamination

Tables 1 through 6 summarize the extent of contamination for the contaminants of concern in groundwater and compares the data with the proposed remedial action levels (Standards, Criteria, and Guidance, or SCGs) for the Site. The following are the media which were investigated and a summary of the findings of the investigation. Data from both landfills are included in this summary, although the PRAP addresses only the Busy Bee Landfill and contaminated groundwater.

Surface Soil

Although several VOCs and Semi-Volatile Organic Compounds (SVOCs) were identified in surface soils near both landfills, only four compounds were present above SCGs: Benzo(a)anthracene, chrysene, benzo(a)pyrene, and dibenzo(a,h)anthracene. Several metals, including cadmium, thallium, and nickel, also were present above SCGs, based on metals concentrations in site background surface soil samples. These exceedances are shown on Tables 1A and 1B.

Surface Water

Two ponds at the Site were sampled: a residential pond and a pond in the borrow pit next to the Busy Bee Landfill. Volatile organic compounds (acetone, 1,1,1-trichloroethane, and trichloroethene) were detected, but below surface water standards, in the residential pond during the first round of sampling. When this pond was resampled, these compounds were not detected. No SVOCs were detected in either of the ponds. Surface water standards were exceeded in both ponds for three metals: aluminum, iron, and lead. The standard for silver was exceeded in one of the ponds.

In addition to sampling the ponds, surface water was sampled at several other locations near the landfills. There were four low level detections of acetone, one of trichloroethene, and one of methylene chloride, all below surface water standards. One SVOC (methylphenol) was detected, at a level below the standard. Surface water standards for cadmium, copper, iron, lead, and zinc were exceeded.

Exceedances of surface water standards are shown on Tables 2A and 2B.

Sediments

Three sediment samples from the ponds were analyzed. One VOC (acetone) was detected in one sample, at a level below the screening criteria. Heptachlor, a pesticide, was detected in another sediment sample at 0.0044 (4.4×10^{-3}) ppm, above the screening criteria of 0.0008 (8.0×10^{-4}) ppm. Several SVOCs were identified in a background sediment sample; all were below SCGs. Screening criteria for inorganic compounds that exceeded "lowest effect levels on aquatic life" are shown on Tables 3A and 3B for comparison.

Groundwater

The primary groundwater contaminants are VOCs, specifically, chlorinated solvents and their breakdown products: trichloroethene, dichloroethene, and trichloroethane. The highest concentrations were measured in shallow monitoring well W-10S (off the western end of the Busy Bee Landfill) during the first round of sampling: over 40,000 ppb total VOCs. This well was dry for subsequent sampling events. Groundwater contamination in all other site wells is significantly less. The well with the next highest level of contamination is W-4S, off the southwest corner of the Busy Bee Landfill, where total VOCs measured 207 ppb.

Groundwater contamination is much lower near the Henry Landfill. The groundwater standard for benzene of 0.7 ppb was exceeded in three wells near the Henry Landfill, with the highest level being 3 ppb. Chlorobenzene was detected in one well, where it was measured at 7 ppb, slightly above the groundwater standard of 5 ppb. Acetone exceeded the 50 ppb groundwater standard in one well at 160 ppb.

Groundwater standards for several metals were exceeded. All compounds that exceeded groundwater standards are shown on Tables 4A and 4B.

Waste Materials

Busy Bee Landfill Waste: A sample of waste from a boring in the Busy Bee Landfill showed elevated levels of VOCs (including acetone, 2-butanone, benzene, toluene, xylene) and SVOCs (including methylphenol and phthalates). Several pesticides were detected. One PCB, Aroclor 1254, was identified at 11 ppm, below the hazardous waste value of 50 ppm. Elevated levels of several metals also were identified. Table 5A lists compounds that exceeded soil SCGs, based on background soil concentrations.

Henry Landfill Waste: Waste from a boring into the Henry Landfill was analyzed. Several VOCs were identified, including acetone and 2-butanone. Several SVOCs were identified, including phenol and methylphenol. Elevated levels of several metals also were identified. Table 5B lists compounds that exceeded soil SCGs, based on background soil concentrations.

A previously **unreported waste area** across the site access road next to the Henry Landfill was discovered during a test pit excavation. A soil sample obtained from a test pit excavation into waste showed the presence of four VOCs (acetone, 2-butanone, ethylbenzene, and xylene) and four SVOCs (naphthalenes and phthalates), all eight of which were below soil SCGs, based on background soil concentrations. Additionally, one PCB, Aroclor 1242, was detected (0.099 ppm) below SCGs. Several metals were identified. Table 5C lists compounds that exceeded soil SCGs, based on background soil concentrations.

Leachate

Busy Bee Landfill: Three Busy Bee Landfill leachate samples were obtained, two from the leachate collection tanks and one from a seep. Several VOCs, SVOCs, and metals were detected, as shown on Table 6A. Ethylbenzene and bis (2-ethylhexyl) phthalate exceeded surface water guidance values. One pesticide, Beta-BHC was detected at a low level. No other organic compounds were detected.

Henry Landfill: Four leachate samples were obtained, one each from the leachate collection tank, a piezometer installed into waste, a seep, and a test pit in the unreported waste area. Acetone, 2-butanone, benzene, toluene, ethylbenzene, and xylene exceeded surface water standards. Low levels of other VOCs and SVOCs were present. Several metals were identified.

All compounds detected in leachate samples are shown on Tables 6A and 6B.

Residential Wells

A total of sixteen neighboring residential wells have been periodically sampled by the NYS Department of Health since 1991. These residential wells were sampled again during the RI. During the first round of sampling, two wells showed the presence of common petroleum-related compounds. One residential well showed xylene at 3 ppb. Another well showed xylene at 14 ppb, toluene and ethylbenzene each at 2 ppb. The drinking water standard for each of these three compounds is 5 ppb. When these two wells were subsequently resampled, these compounds were not detected. It was determined that these low-level detections of petroleum compounds were not site-related because they were not contaminants otherwise associated with site groundwater.

One spring that serves as a residential water supply also was sampled, and no organic compounds were found. Two metals, aluminum and iron, were present above SCGs.

3.2 Summary of Human Exposure Pathways:

This section describes the types of human exposures that may present added health risks to persons at or around the site. A more detailed discussion of the health risks can be found in Section 7.0 of the RI Report.

An exposure pathway is how an individual may come into contact with a contaminant. The five elements of an exposure pathway are: 1) the source of contamination; 2) the environmental media and transport mechanisms; 3) the point of exposure; 4) the route of exposure; and 5) the receptor population. These elements of an exposure pathway may be based on past, present, or future events.

There are no known completed pathways at the site. A possible future human exposure pathway could be the ingestion of contaminated groundwater by nearby residents utilizing bedrock wells as a private water supply. Analysis of residential well water has shown no evidence of landfill contamination at the present time. Most of these wells are installed into bedrock much lower in elevation than the impacted bedrock at the site, or they are located upgradient of the site.

3.3 Summary of Environmental Exposure Pathways

This section summarizes the types of environmental exposures which may be presented by the site. The Fish and Wildlife Impact Assessment included in the RI presents a more detailed discussion of the potential impacts from the site to fish and wildlife resources. No pathways for environmental exposure to fish and wildlife have been identified. Neither surface water samples nor sediment samples identified elevated levels of site contaminants. No landfill impacts to surface waters or sediments were identified.

SECTION 4: ENFORCEMENT STATUS

Potentially Responsible Parties (PRPs) are those who may be legally liable for contamination at a site. This may include past or present owners and operators, waste generators, and haulers.

The PRPs for the site, documented to date, include: LaVerne Patton, SKF USA Inc., Loohn's Laundry Service, and Morrison Knudsen. NYSDEC is continuing the search to identify additional PRPs.

The PRPs failed to implement the RI/FS at the site when requested by the NYSDEC. After the remedy is selected, the PRPs again will be contacted to assume responsibility for the remedial program. If an agreement cannot be reached with the PRPs, the NYSDEC will evaluate the site for further action under the State Superfund. The PRPs are subject to legal actions by the State for recovery of all response costs the State has incurred.

SECTION 5: SUMMARY OF THE REMEDIATION GOALS

Goals for the remedial program have been established through the remedy selection process stated in 6 NYCRR Part 375-1.10. The overall remedial goal is to meet all Standards, Criteria, and Guidance (SCGs) and be protective of human health and the environment.

At a minimum, the remedy selected should eliminate or mitigate all significant threats to the public health and to the environment presented by the hazardous waste disposed at the site through the proper application of scientific and engineering principles.

The goals selected for this site are:

- Reduce, control, or eliminate to the extent practicable the generation of leachate within the fill mass.
- Eliminate the potential for direct human or animal contact with waste in the landfill.
- Reduce, control, or eliminate, to the extent practicable, migration of contaminants in the landfill to groundwater.
- Provide for attainment of SCGs for groundwater quality at the limits of the Area Of Concern (AOC), to the extent practicable.

SECTION 6: SUMMARY OF THE EVALUATION OF ALTERNATIVES

The selected remedy should be protective of human health and the environment, be cost effective, comply with other statutory laws and utilize permanent solutions, alternative technologies or resource recovery technologies to the maximum extent practicable. Potential remedial alternatives for the Patton's Busy Bee Disposal site were identified, screened and evaluated in a Feasibility Study. This evaluation is presented in the report entitled **Phase II Feasibility Study, June 1996.**

A summary of the detailed analysis follows. As used in the following text, the time to implement reflects only the time required to implement the remedy, and does not include the time required to design the remedy, procure contracts for design and construction or to negotiate with responsible parties for implementation of the remedy.

6.1: Description of Alternatives

The potential remedies are intended to effectively control the migration of contaminants from landfill waste into groundwater, and to reduce contamination in groundwater migrating offsite to meet groundwater standards. The Feasibility Study (FS) evaluated the following alternatives for the Busy Bee Disposal Site Operable Units (OUs):

Operable Unit 1, Busy Bee Landfill:

Alternative OU1-1:	No Action
Alternative OU1-2:	Institutional Action, including cap maintenance, leachate collection, long term monitoring

Operable Unit 2, Henry Landfill: Alternatives were not presented for this OU because consequential amounts of hazardous waste were not identified in the Henry Landfill, and therefore, it cannot be addressed by the State Superfund Program.

Operable Unit 3, Groundwater:

Alternative OU3-1:	No Action
Alternative OU3-2:	Institutional Action, including residential well monitoring
Alternative OU3-3:	Groundwater Collection and Treatment, including residential well monitoring
Alternative OU3-4:	Water Supply Extension

For details of each individual alternative, the reader is referred to the FS. These alternatives for each OU were combined into four site-wide alternatives for evaluation in this Proposed Remedial Action Plan. The four site-wide alternatives are:

Alternative I:	No Action for Busy Bee Landfill and Groundwater

Alternative II:	Institutional Actions for the Busy Bee Landfill and Groundwater
Alternative III:	Institutional Actions for the Busy Bee Landfill, and Groundwater Collection and Treatment
Alternative IV:	No Action for the Busy Bee Landfill, and Extension of Water Supply System

These four site-wide alternatives are evaluated in the following sections.

Alternative I: No Action

The No Action alternative is evaluated as a procedural requirement and as a basis for comparison. This alternative would leave the site in its present condition and would not provide any protection to human health or the environment. Operation and Maintenance (O & M) of the current leachate collection system would be discontinued. Leachate would be allowed to enter the groundwater system. Cap maintenance would not take place. No monitoring to assess possible future exposures would occur.

Present Worth:	$0
Capital Cost:	$0
Annual O&M:	$0
Time to Implement:	no time required

Alternative II: Institutional Actions

This site-wide alternative consists of institutional actions for both the Busy Bee Landfill and groundwater operable units. It would provide for continued operation and maintenance of the leachate collection system, maintenance of the landfill cap, and long term monitoring. Appropriate measures would be taken to limit site access. For groundwater, it would provide for routine targeted residential well monitoring, with installation and maintenance of individual residential well water treatment units in any home which may become impacted above drinking water standards by landfill contaminants.

Capital Cost:	$ 12,000
O&M over 30 years:	$ 654,000
Total Present Worth:	$ 666,000
Time to Implement:	Three months

Alternative III: Institutional Actions for the Busy Bee Landfill and Groundwater Collection and Treatment

This site-wide alternative consists of institutional actions as described in Alternative II. Groundwater would be collected from extraction wells installed in rock-blasted trenches in the

upper sandstone units southwest of the Busy Bee Landfill. An on-site treatment facility would be constructed to treat extracted groundwater to appropriate standards before being discharged to surface water. As with Alternative II, residential water supply wells would be monitored regularly. Additionally, it would include installation and maintenance of individual residential well water treatment units in any home which may become impacted above drinking water standards by landfill contaminants.

Capital Cost:	$ 992,000
O&M over 30 years:	$ 1,152,900
Total Present Worth:	$ 2,144,900
Time to Implement:	Two years

Alternative IV: No Action for the Busy Bee Landfill and Extension of Municipal Water Supply to Residences

This site-wide alternative was developed to address only the potential future impacts of the landfill on residential water supplies. Under this concept, the existing water supply in Alfred Station would be extended up Hartsville Hill, turning north along Crosby Creek Road, and then northwest along Clark Road as far as the site access road. Construction of a booster pump station at the bottom of Hartsville Hill as well as a storage tank at the top of the hill would be required. Hookups would be available to each resident along the supply line extension. Annual O&M costs would be the responsibility of residents and the municipality. Because homes would no longer use private water supplies, no groundwater monitoring would be required. No remedial actions would occur at the Patton's Busy Bee Disposal Site.

Capital Cost:	$657,000
O&M over 30 years:	$ 0 (O&M costs would be the responsibility of the supplier and/or homeowners)
Total Present Worth:	$657,000
Time to Implement:	Two years

6.2 Evaluation of Remedial Alternatives

The criteria used to compare the potential remedial alternatives are defined in the regulation that directs the remediation of inactive hazardous waste sites in New York State (6NYCRR Part 375). For each of the criteria, a brief description is provided followed by an evaluation of the alternatives against that criterion. A detailed discussion of the evaluation criteria and comparative analysis is contained in the Feasibility Study.

The first two evaluation criteria are termed threshold criteria and must be satisfied in order for an alternative to be considered for selection.

1. Compliance with New York State Standards, Criteria, and Guidance (SCGs). Compliance with SCGs addresses whether or not a remedy will meet applicable environmental laws, regulations, standards, and guidance.

Alternative I would not be consistent with Part 360 regulations for post-closure maintenance for the Busy Bee Landfill. Present site exceedances of chemical SCGs for groundwater would remain or even increase due to termination of leachate management efforts and future deterioration of the existing cap.

Alternative II would comply with SCGs for the Busy Bee Landfill. Continued operation and maintenance of the existing leachate collection system would aid in decreasing groundwater contamination. It is reasonable to expect that groundwater SCGs could be reached in a reasonable time frame and that the area of groundwater exceeding SCGs would significantly decrease. Institutional controls would ensure that drinking water standards would be met in the residential water supply.

Alternative III would comply with SCGs for both the landfill and groundwater. It would be expected that, except for the area immediately between the landfill and the collection trench, groundwater SCGs would be reached within a reasonable time. Institutional controls would ensure that drinking water standards would be met in the residential water supply.

Alternative IV would not comply with SCGs for either of the operable units, but would ensure that drinking water standards would be met in the residential water supply.

2. Protection of Human Health and the Environment. This criterion is an overall evaluation of the health and environmental impacts to assess whether each alternative is protective.

Risks to human health posed by the site, principally the potential for future contamination of residential wells through contaminated groundwater, would continue under Alternative I. Risks may actually increase with time due to the possibility of increased offsite migration of contaminants. Without post-closure maintenance at the landfill, the potential for more significant human and environmental exposures would increase as the existing landfill cover deteriorates and waste becomes exposed. There is no identified risk to the environment under existing conditions other than impacts to groundwater resources.

Human health would be protected under Alternative II. Routine residential well monitoring would identify any future impacts to private water supplies, and individual well treatment units would be provided and maintained at all homes where site contamination exceeds drinking water standards. Operation and maintenance of the leachate collection system would mitigate impacts to groundwater resources. Alternative II would protect against future human exposure to waste by providing for proper landfill maintenance.

Similar to Alternative II, Alternative III would be protective of human health through routine residential well monitoring and installation of treatment units, if necessary. In addition, it would be protective of groundwater resources by actively collecting and treating contaminated groundwater and leachate. Alternative III would also protect against future human exposure to waste by providing for proper landfill maintenance.

Alternative IV would protect human health by extending a water supply to nearby residences. However, the potential for future human and environmental exposure by contact with site waste would be greater than under either Alternative II or III since no efforts would be made to maintain the landfill cap. Alternative IV would allow leachate from the landfill to continue to migrate to the groundwater system.

The next five "primary balancing criteria" are used to compare the positive and negative aspects of each of the remedial strategies.

3. Short-term Impacts. The potential short-term adverse impacts of the remedial action upon the community, the workers, and the environment during the construction and/or implementation are evaluated. The length of time needed to achieve the remedial objectives is also estimated and compared against the other alternatives.

Alternatives I and II present no adverse short-term impacts because there would be no construction activities. Alternatives III and IV involve significant construction activities. Alternative III would present potential minor short-term risks due to volatile organic emissions from excavations into bedrock, however, the risks could be easily controlled. Short-term risks from contaminants would be minimal with Alternative IV because construction activities would take place through uncontaminated materials. Alternative IV would create traffic concerns during construction activities along affected roadways, and there would be a potential for sediment and erosion problems along the waterline alignment.

4. Long term Effectiveness and Permanence. This criterion evaluates the long term effectiveness of the remedial alternatives after implementation. If wastes or treated residuals remain on site after the selected remedy has been implemented, the following items are evaluated: 1) the magnitude of the remaining risks, 2) the adequacy of the controls intended to limit the risk, and 3) the reliability of these controls.

Alternatives I and IV would offer no site remedy to address the presence of hazardous waste at the site. No monitoring or other controls would be implemented to protect the long term integrity of the cap or to collect leachate.

Both Alternatives II and III would minimize possible future human health risks at the site through proper long term O&M of the landfill cap and leachate collection system. Regular monitoring of on-site and residential wells would be adequate and reliable to protect remaining

risks. Alternative III would go one step farther by actively collecting contaminated groundwater and minimizing its potential to migrate, thus reducing remaining risk to the environment. Both Alternatives II and III would be permanent and effective in reducing contamination migration over the long term.

5. Reduction of Toxicity, Mobility or Volume. Preference is given to alternatives that permanently and significantly reduce the toxicity, mobility or volume of waste at the site.

Alternatives I and IV would not reduce toxicity, mobility, or volume of contaminants at the site.

Alternative II would meet this criteria better than either Alternative I or IV. This alternative would not reduce the toxicity or volume of waste, but through routine maintenance and leachate collection, the mobility of contaminants into the groundwater system would be mitigated.

Alternative III would meet this criteria better than any of the other alternatives. This alternative would not reduce the toxicity or volume of waste, but through routine maintenance and leachate collection, the mobility of contaminants into the groundwater system would be minimized. Additionally, groundwater collection would also act to minimize any offsite migration of contaminated groundwater.

6. Implementability. The technical and administrative feasibility of implementing each alternative are evaluated. Technical feasibility includes the difficulties associated with the construction and the ability to monitor the effectiveness of the remedy. For administrative feasibility, the availability of the necessary personnel and material is evaluated along with potential difficulties in obtaining specific operating approvals, access for construction, etc..

Alternatives I and II are easily implemented, with no administrative difficulties. Alternatives III and IV involve significant construction activities, but no insurmountable technical or administrative difficulties would be anticipated. Alternative IV would be the most difficult since it is anticipated that some right-of-way agreements would be required.

7. Cost. Capital and operation and maintenance costs are estimated for each alternative and compared on a present worth basis. Although cost is the last balancing criterion evaluated, where two or more alternatives have met the requirements of the remaining criteria, cost effectiveness can be used as the basis for the final decision. The costs for each alternative are presented in Table 7.

Alternative I is the least expensive, because no costs would be incurred. Alternative II includes costs for leachate collection and treatment and routine groundwater and residential well monitoring for thirty years. Alternative IV costs slightly less than Alternative II,

however, costs for O&M of the water supply system would be the responsibility of the supplier and/or homeowners. Alternative III involves major construction activities, and is significantly more expensive than the other alternatives: approximately three times the cost of Alternatives II or IV.

This final criterion is considered a modifying criterion and is taken into account after evaluating those above. It is focused upon after public comments on the Proposed Remedial Action Plan have been received.

8. Community Acceptance - Concerns of the community regarding the RI/FS reports and the Proposed Remedial Action Plan have been evaluated. A "Responsiveness Summary" that describes public comments received and the Department responses is included as Appendix A. In general, the public comments received were supportive of the selected remedy. Several comments were received, however, pertaining to frequency of residential well sampling. To address these concerns, selected residential wells initially will be sampled annually for five years. At the end of five years, data will be evaluated and a determination made to continue sampling on an annual basis, or to increase or reduce the frequency.

SECTION 7: SUMMARY OF THE SELECTED REMEDY

Based upon the results of the RI/FS, and the evaluation presented in Section 6, the NYSDEC has selected Alternative II as the remedy for this site.

Alternative I would not be adequately protective of human health or the environment over the long term, and is rejected on that basis. Alternative II will be protective of both human health and the environment, will comply with Part 360 regulations for post-closure maintenance of the Busy Bee Landfill, and will be cost effective. Alternative III would involve a major construction effort and significantly more costs than Alternative II for only a minimal increase in environmental protection and is therefore rejected. Alternative IV would be protective of human health, but would not comply with any SCGs and would not provide adequate long term protection from direct contact with site wastes. Additionally, Alternative IV would require a major construction effort to provide a water supply to residences that have not, and may never be, impacted by the site. As such, Alternative IV is also rejected.

Maintenance of the existing leachate management system will minimize migration of contaminants from the Busy Bee Landfill to the groundwater system, and to residential well supplies. Routine cap maintenance will protect against deterioration and resultant future exposure to landfill waste and increased contaminant migration.

The estimated total present worth cost to implement the remedy is $ 666,000. The cost to construct the remedy is estimated to be $ 12,000. The estimated annual operation and

maintenance cost is $ 42,500. Based on thirty years operation and a 5% discount rate, the estimated present worth of operation and maintenance is $ 654,000.

The elements of the proposed remedy are as follows:

1. Continued emptying of the leachate collection tanks at the site and transporting leachate for offsite treatment and disposal.

2. Maintenance of the landfill cap.

3. Appropriate measures to limit site access.

4. Long-term annual targeted residential well monitoring under the guidance of the NYSDOH, with future installation and maintenance of individual well treatment units for any home(s) that becomes impacted by landfill constituents at levels above drinking water standards. Data will be evaluated annually and a determination will be completed after the first three years to determine if a change in sampling frequency is necessary. More frequent follow-up sampling will be performed for any well found to contain any site-related compounds.

5. Since the remedy results in untreated hazardous waste remaining at the site, a long-term monitoring program will be instituted. This program will include an annual review to evaluate the effectiveness of the selected remedy as a component of the normal operation and maintenance for the site.

SECTION 8: HIGHLIGHTS OF COMMUNITY PARTICIPATION

As part of the remedial investigation process, a number of citizen participation activities were undertaken in an effort to inform and educate the public about conditions at the site and the potential remedial alternatives. The following citizen participation activities were conducted:

- Document repositories were established for public review of project related material.

- A site mailing list was established which included nearby property owners, local political officials, local media and other interested parties.

- Fact sheets were distributed to the mailing list on June 16, 1993 and November 18, 1993 to provide residents with an update on the status of the remedial program at the site.

- A Citizen Participation Plan was prepared in February, 1994 and placed in the document repositories.

- A fact sheet was distributed in March 1994 to describe the RI Work Plan.
- An informational meeting was held on March 15, 1994 to present the RI Work Plan.
- A fact sheet was distributed in April 1995 to provide residents with an update on the RI, including additional field work to be done in 1995.
- A fact sheet summarizing the RI Report was distributed in December 1995.
- A fact sheet announcing the availability of the PRAP and the public meeting was distributed on July 17, 1996.
- A public comment period was held from July 19, 1996 through August 19, 1996 to receive public input on the PRAP.
- A public meeting was held on July 30, 1996 to present the PRAP and discuss and answer questions regarding the proposed remedy and the RI/FS.
- In September 1996 a Responsiveness Summary was prepared and made available to the public in this ROD to address the comments received during the public comment period for the PRAP.

Table 1A
Nature and Extent of Contamination
Surface Soils

Busy Bee Landfill

MEDIA	CLASS	CONTAMINANT OF CONCERN	CONCENTRATION RANGE (ppm)	FREQUENCY of EXCEEDING SCGs	SCG (ppm)
Surface Soils	Volatile Organic Compounds (VOCs)	None exceeded SCGs			
	Semivolatile Organic Compounds (SVOCs)	Benzo(a)pyrene	ND-0.077	2 of 13	0.061
	Pest/PCBs	None exceeded SCGs			
	Metals	Aluminum	11,500-23,000	1/13	21,800
		Arsenic	10.1-37	2/13	21.1
		Barium	84.5-392	1/13	300
		Beryllium	0.32-1.7	1/13	1.3
		Cadmium	2.0-4.2	13/13	1.0
		Cobalt	10.6-40.9	2/13	30
		Copper	10.1-30.4	4/13	25
		Lead	17-66.5	3/13	43.6
		Magnesium	2,460-5,540	8/13	4170
		Manganese	594-8,880	1/13	4,390
		Mercury	ND-0.15	2/13	0.1
		Nickel	19.2-64.1	9/13	28.2
		Thallium	ND-1.2	11/13	0.43
		Zinc	67.9-141	1/13	139

Data for thirteen samples. Compounds listed are those which exceeded surface soil standards, based on site background concentrations.

Table 1B
Nature and Extent of Contamination
Surface Soils
Henry Landfill

MEDIA	CLASS	CONTAMINANT OF CONCERN	CONCENTRATION RANGE (ppm)	FREQUENCY of EXCEEDING SCGs	SCG (ppm)
Surface Soils	Volatile Organic Compounds (VOCs)	None exceeded SCGs			
	Semivolatile Organic Compounds (SVOCs)	Benzo(a)anthracene	ND-0.69	1 of 6	0.224
		Chrysene	ND-1.6	1/6	0.4
		Benzo(a)pyrene	ND-2.5	2/6	0.061
		Dibenzo (a,h)anthracene	ND-0.12	1/6	0.014
	Pest/PCBs	None exceeded SCGs			
		Arsenic	11.9-76.3	2/6	21.1
		Barium	103-482	1/6	300
		Cadmium	2.8-9.1	6/6	1.0
		Cobalt	7.6-34.8	1/6	30
		Copper	20.3-91.4	3/6	25
		Iron	28,500-82,800	3/6	41,100
		Lead	10.3-335	1/6	43.6
		Magnesium	2,530-6,640	5/6	4170
		Manganese	442-7,830	2/6	4,390
		Mercury	ND-1.8	2/6	0.1
		Nickel	27.1-54.1	4/6	28.2
		Thallium	ND-1.8	4/6	0.43
		Zinc	79.2-174	2/6	139

Data for six samples. Compounds listed are those which exceeded surface soil standards, based on site background concentrations.

Table 2A
Nature and Extent of Contamination
Surface Water
Busy Bee Landfill

MEDIA	CLASS	CONTAMINANT OF CONCERN	CONCENTRATION RANGE (ppb)	FREQUENCY of EXCEEDING SCGs	SCG (ppb)
Surface Water	Volatile Organic Compounds (VOCs)	None exceeded SCGs			
	Semivolatile Organic Compounds (SVOCs)	None exceeded SCGs			
	Pest/PCBs	None exceeded SCGs			
	Metals	Aluminum	56.8-44,600	3 of 17	varies*
		Cadmium	ND-6.5	4/17	varies
		Copper	ND-43.2	7/17	varies
		Iron	196-53,500	16/17	300
		Lead	ND-75.8	3/17	varies
		Silver	ND-0.3	1/17	0.1
		Zinc	5.4-220	6/17	varies

Data from seventeen samples (fifteen locations, residential pond and spring sampled twice). Compounds listed are those which exceeded surface water standards.
* Some SCGs for surface water vary due to hardness and/or class of specific samples.

Table 2B
Nature and Extent of Contamination
Surface Water
Henry Landfill

MEDIA	CLASS	CONTAMINANT OF CONCERN	CONCENTRATION RANGE (ppb)	FREQUENCY of EXCEEDING SCGs	SCG (ppb)
Surface Water	Volatile Organic Compounds (VOCs)	None exceeded SCGs			
	Semivolatile Organic Compounds (SVOCs)	None exceeded SCGs			
	Pest/PCBs	None exceeded SCGs			
	Metals	Iron	3,060-5,480	3 of 3	300

Data from three samples. Compounds listed are those which exceeded surface water standards.

Table 3A
Nature and Extent of Contamination
Sediments
Busy Bee Landfill

MEDIA	CLASS	CONTAMINANT OF CONCERN	CONCENTRATION RANGE (ppm)	FREQUENCY of EXCEEDING SCGs	SCG (ppm)
Sediments	Volatile Organic Compounds (VOCs)	None exceeded SCGs			
	Semivolatile Organic Compounds (SVOCs)	None exceeded SCGs			
	Pest/PCBs	Heptachlor	ND-0.0044 ($4.4x10^{-3}$)	1 of 2	0.0008 ($8x10^{-4}$)
	Metals	Arsenic	7.3-12.6	2/2	6
		Cadmium	1.9-3.7	2/2	0.6
		Copper	18.2	½	16
		Iron	21,600-28,000	2/2	20,000
		Nickel	18.7-31.1	2/2	16

Compounds listed are those which exceeded "lowest effect guidance values."

Table 3B
Nature and Extent of Contamination
Sediments
Henry Landfill

MEDIA	CLASS	CONTAMINANT OF CONCERN	CONCENTRATION (ppm)	FREQUENCY of EXCEEDING SCGs	SCG (ppm)
Sediments	Volatile Organic Compounds (VOCs)	None exceeded SCGs			
	Semivolatile Organic Compounds (SVOCs)	None exceeded SCGs			
	Pest/PCBs	None exceeded SCGs			
	Metals	Arsenic	15.6	1 of 1	6
		Cadmium	2.3	1/1	0.6
		Copper	17.5	1/1	16
		Iron	27,300	1/1	20,000
		Manganese	1,430	1/1	460
		Nickel	20.5	1/1	16

Compounds listed are those which exceeded "lowest effect guidance values."

Table 4A
Nature and Extent of Contamination
Groundwater
Busy Bee Landfill

MEDIA	CLASS	CONTAMINANT OF CONCERN	CONCENTRATION RANGE (ppb)	FREQUENCY of EXCEEDING SCGs	SCG (ppb)
Groundwater	Volatile Organic Compounds (VOCs)	Vinyl chloride	ND-4	1 of 40	2
		1,1-dichloroethene	ND-11	1/40	5
		1,2-dichloroethene	ND-36,000	17/40	5
		1,1,1-trichloroethane	ND-23	3/40	5
		Trichloroethene	ND-4,300	12/40	5
		1,1,2-trichloroethane	ND-12	1/40	5
		Tetrachloroethene	ND-9	1/40	5
		Toluene	ND-10	1/40	5
	Semivolatile Organic Compounds (SVOCs)	Pentachlorophenol	ND-11	1/40	1
	Pest/PCBs	none			
	Metals	Antimony	ND-16.6	1/40	3
		Barium	12.8-1,510	1/40	1,000
		Beryllium	ND-14.2	1/40	3
		Cadmium	ND-41.9	1/40	10
		Chromium	ND-259	1/40	50
		Copper	ND-1,200	1/40	200
		Iron	39.5-463,000	33/40	300
		Lead	ND-1670	2/40	15
		Magnesium	1,490-95,100	2/40	35,000
		Manganese	3.4-12,900	8/40	300
		Zinc	3.4-1,640	1/40	300

Data from total of three rounds of sampling site monitoring wells. Compounds listed are those which exceeded groundwater standards.

Table 4B
Nature and Extent of Contamination
Groundwater
Henry Landfill

MEDIA	CLASS	CONTAMINANT OF CONCERN	CONCENTRATION RANGE (ppb)	FREQUENCY of EXCEEDING SCGs	SCG (ppb)
Groundwater	Volatile Organic Compounds (VOCs)	Acetone	ND-160	1 of 22	50
		Benzene	ND-3	6/22	0.7
		Chlorobenzene	ND-7	2/22	5
	Semivolatile Organic Compounds (SVOCs)	none			
	Pest/PCBs	none			
	Metals	Antimony	ND-89.3	4/22	3
		Arsenic	ND-530	4/22	
		Barium	69.4-5,950	2/22	1,000
		Beryllium	ND-45	3/22	3
		Cadmium	ND-63.7	1/22	10
		Chromium	ND-2,720	1/22	50
		Copper	ND-854	2/22	200
		Iron	34.9-1,080,000	22/22	300
		Lead	ND-406	4/22	15
		Magnesium	9,650-367,000	12/22	35,000
		Manganese	32.8-75,100	17/22	300
		Zinc	4.6-2,860	4/22	300

Data from total of three rounds of sampling site monitoring wells. Compounds listed are those which exceeded groundwater standards.

Table 5A
Nature and Extent of Contamination
Busy Bee Landfill Waste

MEDIA	CLASS	CONTAMINANT OF CONCERN	CONCENTRATION (ppm)
Landfill Waste	Volatile Organic Compounds (VOCs)	Acetone	1.3
		2-Butanone	1.1
		Benzene	0.085
		Toluene	1.7
		Xylene	5.1
	Semivolatile Organic Compounds (SVOCs)	4-Methylphenol	6.7
		Butylbenzylphthalate	52
		Bis(2-ethylhexyl) phthalate	380
		Di-n-octylphthalate	620
	Pest/PCBs	Heptachlor epoxide	0.090
		Aroclor 1254	11
	Metals	Antimony	108
		Arsenic	21.9
		Barium	2,690
		Cadmium	48.7
		Chromium	163
		Copper	1,070
		Lead	3,910
		Mercury	1.7
		Nickel	437
		Zinc	6210

Data for one sample from a piezometer boring into waste.
Compounds listed are those present at elevated concentrations.

Table 5B
Nature and Extent of Contamination
Henry Landfill Waste

MEDIA	CLASS	CONTAMINANT OF CONCERN	CONCENTRATION RANGE (ppm)
Landfill Waste	Volatile Organic Compounds (VOCs)	Acetone	0.22
		2-Butanone	0.34
	Semivolatile Organic Compounds (SVOCs) (SVOCs)	Phenol	0.9
		4-Methylphenol	3.3
	Metals	Cadmium	4.2
		Chromium	25.8
		Copper	45.9
		Lead	61.9
		Mercury	0.27
		Nickel	38
		Zinc	811

Data for one sample from a piezometer boring into Henry Landfill waste.
Compounds listed are those present at elevated concentrations.

Table 5C
Nature and Extent of Contamination
Landfill Waste, Unreported Waste Area

MEDIA	CLASS	CONTAMINANT OF CONCERN	CONCENTRATION RANGE (ppm)
Waste	Metals	Cadmium	2.5
		Chromium	24.3
		Copper	31.9
		Lead	90.2
		Mercury	0.56
		Nickel	29.7
		Zinc	178

Data for one sample from the unreported waste area.
Compounds listed are those present at elevated concentrations.

Table 6A
Nature and Extent of Contamination
Busy Bee Landfill Leachate

MEDIA	CLASS	CONTAMINANT OF CONCERN	CONCENTRATION RANGE (ppb)	FREQUENCY of EXCEEDING SCGs	SCG (ppb) **
Leachate	Volatile Organic Compounds (VOCs)	Methylene chloride	ND-2	0 of 3	5
		Toluene	ND-3	0/3	5
		Chlorobenzene	2	0/3	20
		Ethylbenzene	ND-11	1/3	5
	Semivolatile Organic Compounds (SVOCs)	2,4-Dimethylphenol	ND-4	0/3	50
		Naphthalene	ND-1	0/3	10
		Diethylphthalate	ND-2	0/3	50
		Carbazole	ND-5	0/3	50
		Bis(2-ethylhexyl)phthalate	ND-9	1/3	4
	Pest/PCBs	Beta-BHC	ND-0.029	0/3	50
	Metals	Aluminum	158-449	3/3	100
		Antimony	ND-1.4	0/3	3
		Arsenic	3.4-9.4	0/3	50
		Barium	123-464	0/3	1,000
		Beryllium	ND-1.4	0/3	3
		Cadmium	ND-2.7	-/3	varies*
		Chromium	ND-64.6	1/3	50
		Cobalt	ND-10.7	2/3	5
		Copper	4.9-10.3	-/3	varies
		Iron	872-43,800	3/3	300
		Lead	ND-6.8	-/3	varies
		Magnesium	19,600-44,800	1/3	35,000
		Manganese	2,650-6,640	3/3	300
		Mercury	ND-0.18	0/3	2
		Nickel	29.5-168	-/3	varies
		Selenium	ND-22	1/3	10
		Silver	ND-0.4	0/3	50
		Thallium	ND-2.8	0/3	4
		Vanadium	ND-1.7	0/3	14
		Zinc	20.3-38.8	0/3	300

Data from three leachate samples, two obtained from leachate collection tanks, one from a seep. All compounds detected are listed.
**No SCGs exist for leachate. SCGs are given for surface water for comparison purposes.
* Some SCGs for surface water vary due to hardness and/or class of specific samples.

Table 6B
Nature and Extent of Contamination
Henry Landfill Leachate

MEDIA	CLASS	CONTAMINANT OF CONCERN	CONCENTRATION RANGE (ppb)	FREQUENCY of EXCEEDING SCGs	SCG (ppb)
Leachate	Volatile Organic Compounds (VOCs)	Chloroethane	ND-4	0 of 4	5
		Acetone	5-200	1/4	50
		1,2-dichloroethene	ND-4	0/4	5
		2-Butanone	ND-170	1/4	50
		Benzene	ND-8	2/4	0.7
		4-Methyl-2-pentanone	ND-9	0/4	50
		Toluene	ND-13	1/4	5
		Chlorobenzene	ND-19	0/4	20
		Ethylbenzene	ND-22	3/4	5
		Styrene	ND-2	0/4	50
		Xylene	ND-41	3/4	5
	Semivolatile Organic Compounds (SVOCs)	1,4-dichlorobenzene	ND-4	0/4	20
		Naphthalene	ND-8	0/4	10
		2-methylnaphthalene	ND-2	0/4	50
		Diethylphthalate	ND-4	0/4	50
	Metals	Aluminum	77.5-1,060,000	3/4	100
		Antimony	ND-42.2	1/4	3
		Arsenic	8.4-535	1/4	50
		Barium	308-84,200	2/4	1,000
		Beryllium	ND-333	2/4	3
		Cadmium	ND-3870	-/4	varies*
		Chromium	1.1-12,400	2/4	50
		Cobalt	2.9-6190	3/4	5
		Copper	2.6-34,900	-/4	varies
		Iron	14,200-29,800,000	4/4	300
		Lead	2.1-41,000	-/4	varies
		Magnesium	39,400-2,070000	4/4	35,000
		Manganese	2,990-352,000	4/4	300
		Mercury	ND-34.3	2/4	2
		Nickel	7.4-14,700	-/4	varies
		Silver	ND-344	2/4	50
		Vanadium	ND-8,600	2/4	14
		Zinc	39-135,000	2/4	300

Data from four leachate samples: one each from leachate collection tank, piezometer, seep, and a test pit. All compounds detected are listed.
**No SCGs exist for leachate. SCGs are given for surface water for comparison.* Some SCGs for surface water vary due to hardness and/or class of specific samples.

Table 7
Remedial Alternative Costs

Remedial Alternative		Capital Cost	Annual O&M	Present Worth O & M*	Total Present
Alternative I:	No Action	$ 0	$ 0	$ 0	**$ 0**
Alternative II:	OU 1: Institutional Actions:	0			
	Cap Maintenance		2,500	38,400	38,400
	On Site Well Monitoring		10,000	154,000	154,000
	Leachate Management		19,700	303,000	303,000
	OU 3: Institutional Actions:				
	Residential Well Monitoring	0	10,000	154,000	154,000
	Individual Treatment Units (if required)	12,000	300	4,600	16,600
	Total:	12,000	42,500	654,000	**666,000**
Alternative III:	OU 1: Institutional Actions:	0			
	Cap Maintenance		2,500	38,400	38,400
	On Site Well Monitoring		10,000	154,000	154,000
	Leachate Management		19,700	303,000	303,000
	OU 3: Groundwater:				
	Collection and Treatment	980,000	29,200	448,900	1,428,900
	Residential Well Monitoring	0	13,200	204,000	204,000
	Individual Treatment Units (if required)	12,000	300	4,600	16,600
	Total:	992,000	74,900	1,152,900	**2,144,900**
Alternative IV:	OU 1: No Action:	0	0	0	0
	OU 3: Water Supply Extension:	657,000	**9,800	**151,000	**657,000
	Total:	$657,000	$ **9,800	$ **151,000	$ **657,000**

* Present worth costs based on 30 year operation at 5% discount
** O & M costs for a water supply system would be the responsibility of the supplier and/or residents.

APPENDIX A

RESPONSIVENESS SUMMARY

PATTON'S BUSY BEE DISPOSAL SITE

Proposed Remedial Action Plan
Alfred (T), Allegany County
Hartsville (T), Steuben County
Site No. 9-02-014

The Proposed Remedial Action Plan (PRAP) for Patton's Busy Bee Disposal Site was prepared by the New York State Department of Environmental Conservation (NYSDEC) with input from the New York State Department of Health (NYSDOH) and issued to the public on July 18, 1996. This Plan outlined the basis for the recommended remedial action at Patton's Busy Bee Disposal Site and provided opportunities for public input prior to final remedy selection. The selected remedy consists of continued maintenance of the leachate management system, maintenance of the landfill cap, and appropriate measures to limit site access. Additionally, the remedy includes long-term annual targeted residential well monitoring under the guidance of NYSDOH, with future installation and maintenance of individual well treatment units for any home(s) that becomes impacted by landfill constituents at levels above drinking water standards. Data will be evaluated in three years to determine if a change in residential well sampling frequency is necessary.

The release of the PRAP was announced via a notice to the mailing list, informing the public of the PRAP's availability.

A public meeting was held on July 30, 1996, and included a presentation of the Remedial Investigation (RI) as well as a discussion of the PRAP. The meeting provided an opportunity for citizens to discuss their concerns and to ask questions and comment on the proposed decision. The comments have been integrated into the Administrative Record for this site. The public comment period closed on August 19, 1996.

This Responsiveness Summary responds to the questions and comments raised at the July 30, 1996 public meeting as well as to written comments received by NYSDEC. The following are the comments received at the public meeting, with responses of the NYSDEC and NYSDOH:

Question: How deep were the Busy Bee Landfill trenches?

NYSDEC Response: The unlined trenches at the Busy Bee Landfill are about twelve feet deep. The lined, "remedial" trench is about twenty feet deep.

Question: What is the direction of groundwater flow?

NYSDEC Response: Groundwater flow in the upper sandstone units is generally toward the southwest. This flow zone "daylights" above the level of existing residential wells. Groundwater flow in the lowest sandstone unit from which we collected data is toward the northwest. This deeper flow zone daylights at about the 2100 foot elevation level part way down the hill.

Question: I heard that TCE never degrades. If that is true, will it come out of the hillside at the gravel pit? How long will it take for TCE to disappear or degrade at this site? How fast will TCE flow in the groundwater? Will it degrade before it hits Canacadea Creek?

NYSDEC Response: Trichloroethene (TCE) degrades to dichloroethene (DCE) and other associated breakdown products. The rates of degradation vary from location to location depending on subsurface conditions. Research has shown that it can take from 34 days to 1,150 days for TCE to degrade to DCE (Principles of Contaminant Hydrogeology, Palmer, 1992, Lewis Publishers, Inc., Chelsea, Mi.). DCE, in turn, degrades to other intermediary chlorinated compounds, and ultimately, to carbon dioxide. Several processes contribute to the fate and transport of contaminants in groundwater, including contaminant degradation, matrix diffusion (or absorption into the small pores spaces of the rock), advection, dispersion and diffusion of the contaminant compounds in groundwater. The effects of these processes combined with the low concentrations observed in the underlying rock, and the fact that these bedrock layers outcrop close to the top of the hill, make it very unlikely that any of these compounds could be detected in groundwater at the gravel pit or Canacadea Creek (over 3,000 feet away to the west and more than 300 feet lower than the lowest bedrock zone studied).

Question: What is the relationship between the leachate and what is getting into the groundwater?

NYSDEC Response: The lined "remedial" trench was designed to collect leachate from all four trenches and direct it to buried tanks. As long as the collection tanks are emptied regularly, the collection system appears to be effective in intercepting a substantial volume (but not all) of leachate and preventing it from entering the groundwater system. If the leachate collection system is not maintained, it is likely that a significant volume of leachate can migrate into the groundwater system and increase contaminant levels.

Question: How often will leachate be removed from the tanks and who will do it? Will the same person be responsible for groundwater monitoring? How can the State guarantee that leachate removal will continue? What happens after 30 years?

NYSDEC Response: The Record of Decision (ROD) will contain a requirement for continued leachate management at the site. Legally, LaVerne Patton remains responsible for this effort, although he has not been meeting this commitment. NYSDEC will continue its efforts to identify viable responsible parties to implement the remedy described in the ROD, including the long-term operation and maintenance of the site. In the event that these efforts to obtain responsible party participation are not successful, the NYSDEC will continue to accept this responsibility. A contractor will be retained by NYSDEC to check the leachate collection tanks regularly and empty them when necessary.

Groundwater monitoring, whether funded by private parties or the State of New York, will probably be carried out through a separate contractor. The leachate management program and groundwater monitoring will continue as long as responsible private parties remain diligent in meeting their duties and/or the State of New York allocates resources to its inactive hazardous waste site program to protect human health and the environment.

Question: It seems like the NYSDEC is saying that the $2 million estimated for Alternative III is too much to pay for remediation of the site. Is this true? Are the DEC and DOH in collusion to not spend money to address these contaminants?

NYSDEC Response: As explained in the PRAP, Alternative III involves a major construction effort with intensive, long term operation, maintenance and monitoring at significantly higher cost than Alternative II. Alternative III would provide only a minimal increase in environmental protection over Alternative II, and the NYSDEC determined that the additional cost, whether to the taxpayers of New York State or to responsible parties, would not be appropriate.

The DEC and DOH are committed to spend the necessary resources to protect human health and the environment and are also responsible for spending these resources in a responsible, cost effective manner. Based on the results of the RI, it is our judgement that the less expensive Alternative II is protective of human health and the environment and that the added $2 million for Alternative III would not be cost effective.

Question: Could residential wells be sampled annually instead of once every three years? What compounds will be analyzed for? Wouldn't it be better to stagger the testing over the course of a year than to do them all at once?

NYSDEC Response: At the request of several residents, the frequency of residential well sampling will be changed from once every three years as proposed in the PRAP to annually. This change was made in the ROD. The NYSDEC and NYSDOH will require annual targeted residential well sampling. A three-year review will be completed to evaluate whether a change in sampling frequency is warranted. As with any of the residential sampling programs carried out in New York, more frequent follow-up sampling will be performed for

any well found to contain any site-related compounds. There is no advantage to staggering the sampling, and logistically more difficult. Residential well water likely will be analyzed for volatile organic compounds and metals.

Question: When does the DEC contract with the consultant end? When will someone else be contracted with to continue doing the work?

NYSDEC Response: Once the ROD is signed, the NYSDEC RI/FS work assignment contract requires no additional support from URS Consultants. When all site-related invoices have been paid by NYS to URS, the contract will close out.

The NYSDEC has already initiated the process to procure a contractor for continuing leachate removal and disposal. The contract will be completed as soon as possible so no interruption in leachate management will occur. Leachate management paid for by the Superfund will proceed while NYSDEC continues its search for PRPs.

Question: What is the status of the Superfund and the new Environmental Bond Act?

NYSDEC Response: The 1986 Environmental Quality Bond Act (a.k.a. Superfund) provided the NYSDEC with $1.1 billion for remediation of hazardous waste sites. Of this total, $606 million has been obligated (either expended or under contract), leaving $494 million uncommitted as of March 31, 1996.

The new "Clean Water, Clean Air" Bond Act to be placed before NYS voters this November, would provide $1.75 billion for the following categories of projects:

Clean Water Program - $790 million (municipal treatment improvements, etc);
Safe Drinking Water Program - $355 million (municipal drinking water systems);
Solid Waste Initiatives - $175 million (landfill closures);
Municipal Environmental Restoration Projects - $200 million (to clean up abandoned "brownfields" sites for reuse);
Air Quality Projects - $230 million (state investments in clean technologies).

More detailed information on the new Clean Water, Clean Air Bond Act is available from local State legislators.

Question: Is there enough money to implement the remedy and carry out the long term O&M?

NYSDEC Response: At this time, there is adequate money in the Superfund to perform this work should no private parties be found to meet this responsibility. There is

uncertainty concerning the long term availability of the Superfund that will have to be addressed by the public and its lawmakers.

Question: What effect will public comments have on the proposed plan?

NYSDEC Response: The residents' request for annual residential well sampling will be included as a detailed requirement in the ROD. There were no other specific requests for modifications to the PRAP.

Three letters were received regarding the PRAP. They will be filed with the Administrative Record for the site.

A letter was received from the Allegany County Department of Health with the following concerns and comments:

1. **Will sufficient State funds be available for thirty years' operation and maintenance?**

NYSDEC Response: At this time, there are sufficient funds available. However, we cannot be absolutely sure that additional funding will be made available by the State of New York when the 1986 Environmental Quality Bond Act funds supporting remediation of inactive hazardous sites are depleted.

2. **Does the DEC see any need to install on-site monitoring wells to the depth of the shallowest residential wells to monitor for groundwater contamination?**

NYSDEC Response: Results of the RI show a significant decrease in groundwater contaminant levels with increasing depth and distance from the Busy Bee Landfill. The low level of contaminants seen in the deepest bedrock groundwater zone don't support the installation of any more monitoring wells. The existing wells will be monitored, along with selected residential wells, and if monitoring results indicate increased contaminant migration, this decision will be re-evaluated.

3. **The Allegany County Health Department would like to see a full round of residential well sampling to coincide with initial on-site sampling to form a complete set of baseline data.**

NYSDEC Response: Arrangements will be made to do this.

4. **The Health Department would like to see all 16 residential wells sampled annually for at least the first three to five years, to be scaled back after that time if justified by sample results.**

NYSDEC Response: Selected residential wells, not necessarily including all 16 previously sampled wells, will be sampled annually for the first three years. At that time, the data will be evaluated to determine if a change in sampling frequency is necessary. As with any of the residential sampling programs carried out in New York, more frequent follow-up sampling will be performed for any residential well found to contain any site-related compounds.

A letter was received from an individual requesting that the frequency of residential well sampling be increased, possibly to semi-annual analysis.

NYSDEC Response: As discussed earlier in this Responsiveness Summary, targeted residential well sampling initially will take place annually. Data will be reviewed in three years to determine if a change in sampling frequency is necessary. If site-related compounds are confirmed in any residential well, more frequent follow-up sampling will be performed.

A letter was received from a local resident in support of the recommended remedy. The writer suggests that all residential wells be sampled in the first year of monitoring. He also recommends that local individuals be involved in site monitoring, to assure local residents that the long-term monitoring programs outlined in the ROD are being carried out.

NYSDEC Response: The Remedial Action Plan has been revised to include sampling selected residential wells annually for the first three years, with an evaluation at that time to determine if a change in sampling frequency is necessary (see earlier discussions). Local involvement in long-term monitoring may be possible; the NYSDEC will contact local officials when the O&M manual is prepared.

APPENDIX B

ADMINISTRATIVE RECORD

The following documents constitute the Administrative Record for Patton's Busy Bee Disposal Site Record of Decision:

Responsiveness Summary for Remedial Investigation/Feasibility Study and Proposed Remedial Action Plan (Appendix A of ROD), September 1996.

Letter dated August 17, 1996 from Peter S. Finlay regarding the PRAP.

Letter dated August 16, 1996 from James F. Booker regarding the PRAP.

Letter dated August 5, 1996 from the Allegany County Health Department regarding the PRAP.

Proposed Remedial Action Plan, Patton's Busy Bee Disposal Site, NYSDEC, July 1996.

Phase II Feasibility Study, Patton's Busy Bee Disposal Site, URS Consultants, June 1996

Final Report, Remedial Investigation, Patton's Busy Bee Disposal Site, URS Consultants, November 1995.

Citizen Participation Plan for the Remedial Investigation/Feasibility Study at the Patton's Busy Bee Disposal Site, URS Consultants, February 1994.

Remedial Investigation/Feasibility Study Health and Safety Plan, Patton's Busy Bee Disposal Site, URS Consultants, December 1993.

Remedial Investigation/Feasibility Study Work Plan, Quality Assurance Project Plan and Field Sampling Plan, Patton's Busy Bee Disposal Site, URS Consultants, February 1994.

Project Management Work Plan, Amendment No. 2, Patton's Busy Bee Disposal Site, URS Consultants, May 1995.

Project Management Work Plan, Amendment No. 1, Patton's Busy Bee Disposal Site, URS Consultants, May 1994.

Project Management Work Plan, Patton's Busy Bee Disposal Site, URS Consultants, December 1993.

Engineering Investigations at Inactive Hazardous Waste Sites, Preliminary Site Assessment, Patton's Busy Bee Disposal Site, URS Consultants, December 1990.

Certification Report, Final Capping, Patton's Busy Bee Disposal Service, JEB Consultants, November 1990.

Addendum to Supplemental Hydrogeological Investigation, Patton's Busy Bee Disposal Service, JEB Consultants, February 1988.

Hydrogeologic Investigation Report, Patton's Busy Bee Disposal Service, JEB Consultants, January 1987.

Liner Certification Report, Third Section - Remedial Trench, Patton's Busy Bee Disposal Service, JEB Consultants, November 1986.

Order on Consent No. 85-55, January 1986.

Order on Consent No. 87-137, November 1987.

NYSDEC, Division of Hazardous Waste Remediation Technical and Administrative Guidance Memoranda 4000-4053.

NYSDEC, Division of Water Technical and Operational Guidance Series

New York State Environmental Conservation Law 6 NYCRR Part 375, May, 1992.

National Oil and Hazardous Substance Pollution Contingency Plan, 40 CFR Part 300, 1990.

Appendix B

Sampling Procedures

Patton's Busy Bee Disposal Site
Alfred Station, New York
Site No. 9-02-014

Groundwater Well Sampling Procedures

To collect representative groundwater samples, groundwater wells must be adequately purged prior to sampling. Purging will require the removal of three to five well volumes of water in rapidly recharging wells and at least one volume from wells with slow recharge rates. Sampling will take place as soon as adequate recharge has occurred. Groundwater wells sampling locations and frequency of sampling are described in Section 5.1 and shown on Table 3. Well construction details for the long-term monitoring wells are included at the end of this section.

Well Purging Procedures:

1. The well cover will be unlocked and carefully removed to avoid having any foreign matter enter the well. The interior of the riser pipe will be monitored for organic vapors using a photoionization detector. If a reading of greater than 5 ppm is recorded, the well will be vented until levels are below 5 ppm before pumping continues.

2. Using an electronic water level detector, the water level below top of casing will be measured.

    2.1. Clean water level probe and lower portion of cable following standard decontamination procedures and test water level meter to ensure that the batteries are charged.

    2.2. Lower the probe slowly into the monitoring well until audible alarm indicates water.

    2.3. Read depth, to the nearest 100th of a foot from the graduated cable using the highest point on the riser pipe as a reference.

    2.4. Repeat the measurement for confirmation and record the water level.

    2.5 The end of the probe will be soap-and-water washed and deionized-water-rinsed between wells.

3. On wells with water levels within 25 feet below the top of casing, a suction-lift pump will be used to remove three to five well volumes, measured into a calibrated pail. (A well volume is the volume of water within the casing and sandpack, or borehole.) Dedicated new polyethylene discharge and intake tubing (3/8" low density polyethylene) will be used for each well.

    During this evacuation of the well, the intake opening of the pump tubing will be

positioned just below the surface of the well water. If the water level drops, then the tubing will be lowered as needed to maintain the flow. Pumping will continue until the required volumes are removed. All water removed from the well will be collected and disposed of in the on-site leachate collection system or storage tanks.

If the well purges to dryness and recharges rapidly (within 15 minutes), water will continue to be removed as it recharges until the required volumes are removed. If the well purges to dryness and is slow to recharge (greater than fifteen minutes), evacuation will be terminated.

4. A Waterra ™ pump may be used to purge deeper wells using dedicated polyethylene tubing and check valve.

5. Alternatively, a disposable bailer may be used to evacuate any well. The line for the bailer will be dedicated new 1/4 inch nylon. It will be discarded after use.

6. Purging will continue until a minimum of three well volumes has been removed. Measurements for pH, turbidity and conductivity will be recorded during purging. Once three well volumes have been removed and these parameters have stabilized, purging is complete.

7. Well purging data are to be recorded in the field notebook and on the Well Purging Log (included).

Groundwater Well Sampling Procedures:

1. Sampling should take place after purging as soon as the well has recovered sufficiently to sample. For slowly recovering wells, sampling should take place within 24 hours after evacuation. Sample bottles for VOC analysis should be filled first.

2. After well purging is completed and the well has recharged sufficiently for sampling, a sample will be collected into appropriate containers using a dedicated HDPE bailer. The bailer will have a 5-foot monofilament polypropylene "leader" which will be attached to a clean, dedicated 1/4 inch nylon line. The bailer will be lowered below the surface of the water just far enough that water will only contact the leader.

3. All sample bottles will be labeled in the field using a waterproof permanent marker. Labels will include the following information:
   - Site name and number
   - Sample identification code
   - Project number
   - Date/Time
   - Sampler's initials
   - Preservation added (if any)
   - Analysis to be performed

4. Samples will be collected into verifiably clean sample bottles (containing required preservatives, if any) and placed on blue ice in coolers. The sample temperature must be maintained at 4°C until received by lab. Pack carefully to ensure no breakage occurs during shipping. Complete Chain of Custody form. Ship by overnight delivery to laboratory.

5. A separate sample of approximately 200 ml will be collected into a bottle to measure pH, conductivity, turbidity, and temperature of the well in the field.

6. Well sampling data are to be recorded in the field notebook and on the Well Purging Log.

7. Replace monitoring well cap and lock protective cap.

Residential Well Sampling Procedures

1. Residents will be contacted in advance to arrange for a convenient sampling time. These procedures will be used for sampling the residential wells and the spring located at the house trailer next to 5633 Clark Road.

2. Label verifiably clean sample bottles using a waterproof permanent marker with the information in item # 3 of Groundwater Sampling Procedures.

3. Locate a sampling point as close to the well head as possible. Open the cold water valve and allow to run two to three minutes. Turn back flow rate and fill sample bottles. For VOC vials, fill vial slowly so that no air bubbles are present.

4. Place samples on ice to maintain sample temperature at 4°C until received by lab. Pack carefully to ensure no breakage occurs during shipping. Complete Chain of Custody form. Ship by overnight delivery to laboratory.

DRILLING SUMMARY

Geologist: Andre LaPres

Drilling Company: Technical Drilling Services

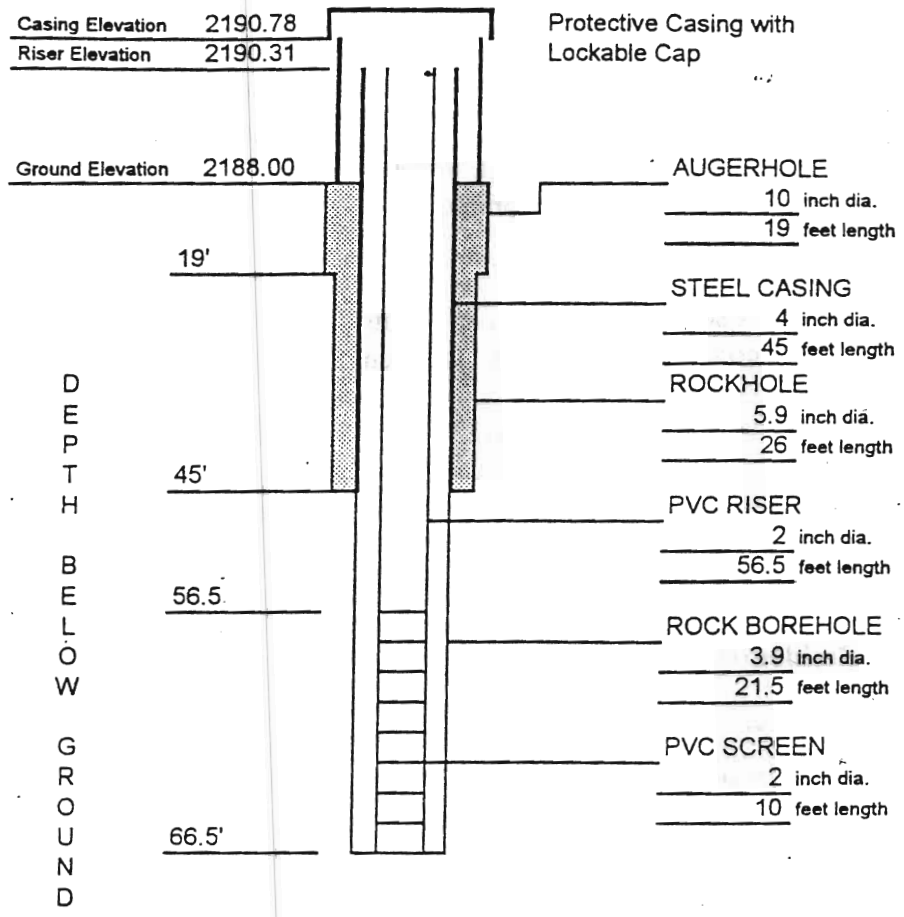
Driller: Carl Rengert

Rig Make/Model: Mobil B-51

Date: 06/20/94

GEOLOGIC LOG

Depth(ft.)	Description
0' - 15'	Red/brown gravelly clayey silt
15' - 30'	Gray shale, weathered, dry, oxidized on bedding and fracture surfaces
32' - 34'	Occurrences of interbedded sandstone
34' - 50.5'	Gray shale as above
50.5' - 58.0'	Sandstone, fractured & broken, fine grained, occurrence of interbedded shale and solution voids
58' - 61'	Occurrence of clay seams
61' - 66.5'	Shale, fractured along bedding planes



WELL DESIGN

CASING MATERIAL	SCREEN MATERIAL	FILTER MATERIAL
Surface: 4" Steel Protective Casing	Type: 2" Schedule 40 PVC	Type: Not Used
Monitor: 4" Steel	Slot Size: .010"	SEAL MATERIAL: Type: Cement Bentonite Grout Setting: 0.0'-45'

COMMENTS:

LEGEND

- Cement/Bentonite Grout
- Bentonite Seal
- Silica Sandpack

Client: N.Y.S.D.E.C.	Monitoring Well Construction Details	Project No.: 0535352.00
URS Consultants, Inc.	Patton's Busy Bee Alfred Station Allegany County, NY	Well Number: MW-102D

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13-Sep-95

DRILLING SUMMARY

Geologist: Andre LaPres

Drilling Company: Technical Drilling Services

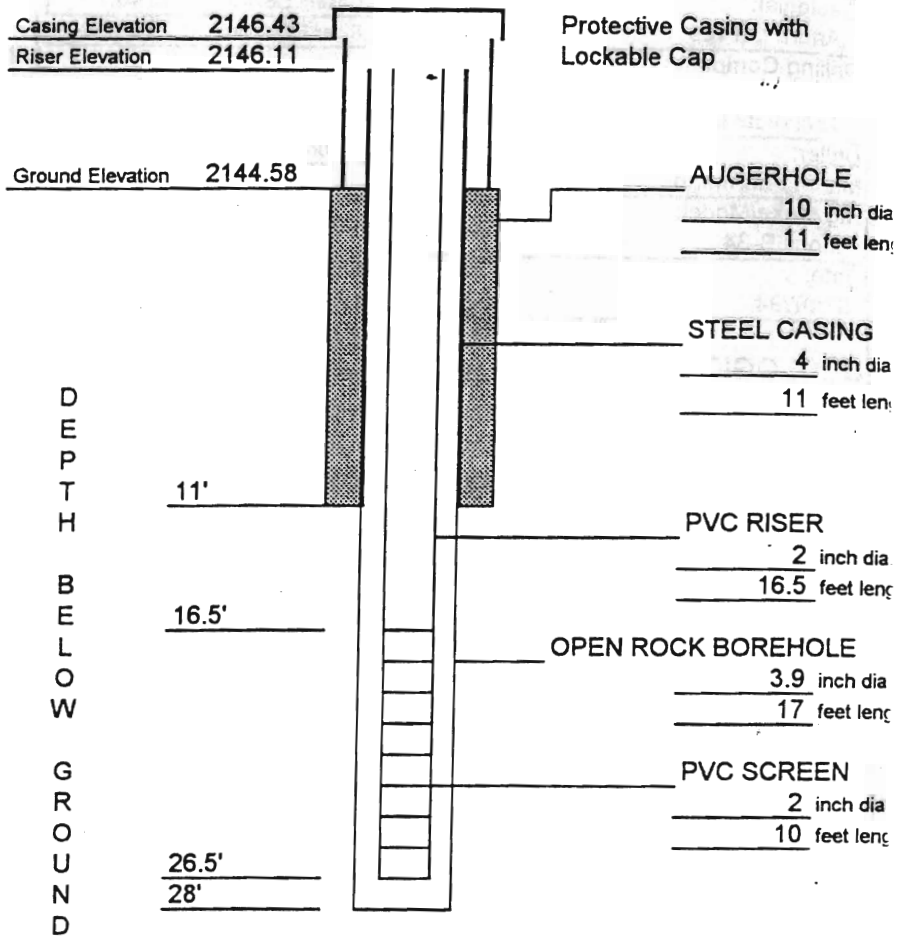
Driller: Martin Fuhrmann

Rig Make/Model: Mobil B-34

Date: 05/23/94

GEOLOGIC LOG

Depth(ft.)	Description
0 - 4.5'	Brown gravelly clayey silt
4.5' - 11'	Gray shale, weathered, dry
11' - 12.5'	Sandstone, fine grained fossiliferous, occurrence of solution voids
12.5' - 28'	Gray shale, highly weathered and fractured, oxidized on fracture and bedding surfaces



WELL DESIGN

CASING MATERIAL	SCREEN MATERIAL	FILTER MATERIAL
Surface: 4" Steel Protective Casing	Type: 2" Schedule 40 PVC	Type: Not Used
Monitor: 4" Steel	Slot Size: .010"	SEAL MATERIAL
		Type: Cement Bentonite Grout Setting: 0.0'-11.(

COMMENTS:

Drill cuttings at bottom of borehole 26.5 - 28 Ft.

LEGEND

- Cement/Bentonite Gro
- Bentonite Seal
- Silica Sandpack

Client: N.Y.S.D.E.C.	Monitoring Well Construction Details	Project No.: 0535352.00
URS Consultants, Inc.	Patton's Busy Bee Alfred Station Allegany County, NY	Well Number: MW-103I

DRILLING SUMMARY

Geologist: Andre LaPres

Drilling Company: Technical Drilling Services

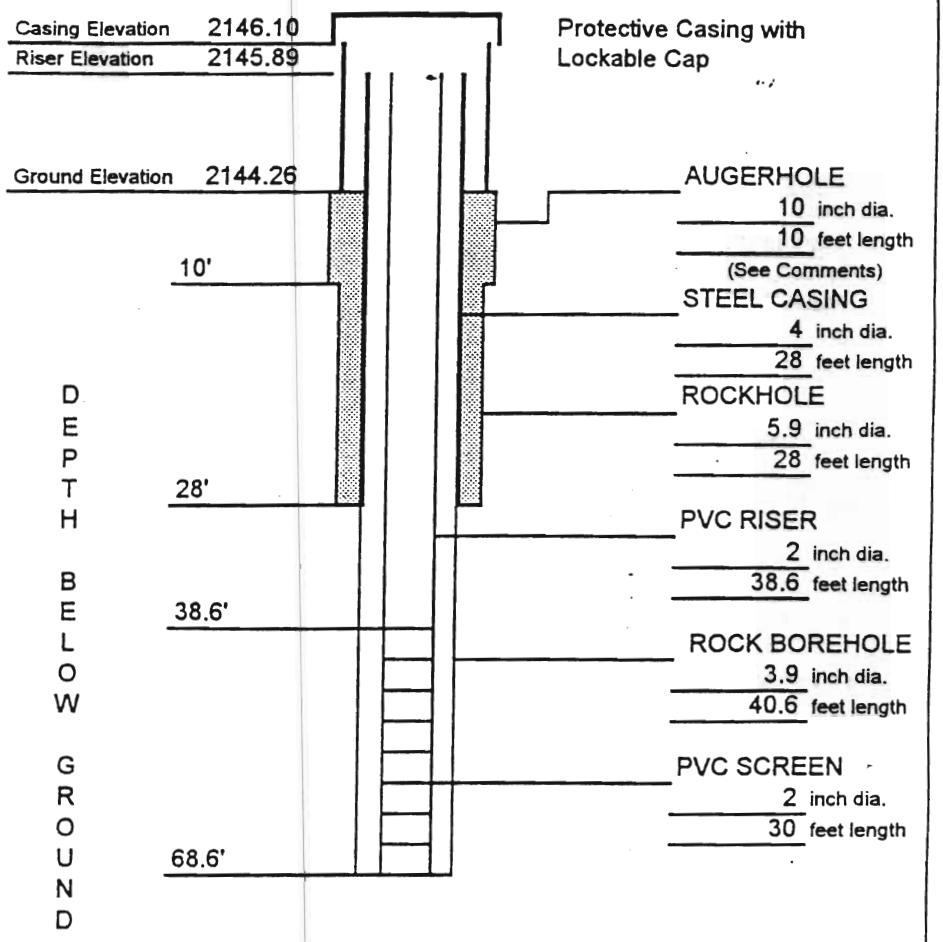
Driller: Martin Fuhrmann

Rig Make/Model: Mobil B-34

Date: 07/07/94

GEOLOGIC LOG

Depth(ft.)	Description
0 - 4.5'	Brown gravelly clayey silt
4.5' - 11'	Gray shale, weathered, dry
11' - 12.5'	Sandstone, fine grained fossiliferous, occurrence of solution voids
12.5' - 40.5'	Gray shale with clay seams. Highly weathered, oxidized on fracture and bedding surfaces
40.5' - 50'	Gray sandstone with interbedded shale, moderately fractured
50' - 68.6'	Gray shale as above



WELL DESIGN

CASING MATERIAL	SCREEN MATERIAL	FILTER MATERIAL
Surface: 4" Steel Protective Casing	Type: 2" Schedule 40 PVC	Type: Not Used
Monitor: 4" Steel	Slot Size: .010"	**SEAL MATERIAL**
		Type: Cement Bentonite Grout Setting: 0.0'-28.0'

COMMENTS:

A temporary 6" casing was set to 10 ft in a 10" auger hole and removed after the 4" steel casing was installed.

LEGEND

- Cement/Bentonite Grout
- Bentonite Seal
- Silica Sandpack

Client: N.Y.S.D.E.C.	Monitoring Well Construction Details	Project No.: 0535352.00
URS Consultants, Inc.	Patton's Busy Bee Alfred Station Allegany County, NY	Well Number: MW-103D

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13-Sep-95

DRILLING SUMMARY

Geologist: Andre LaPres / Mike Byrne

Drilling Company: Technical Drilling Services

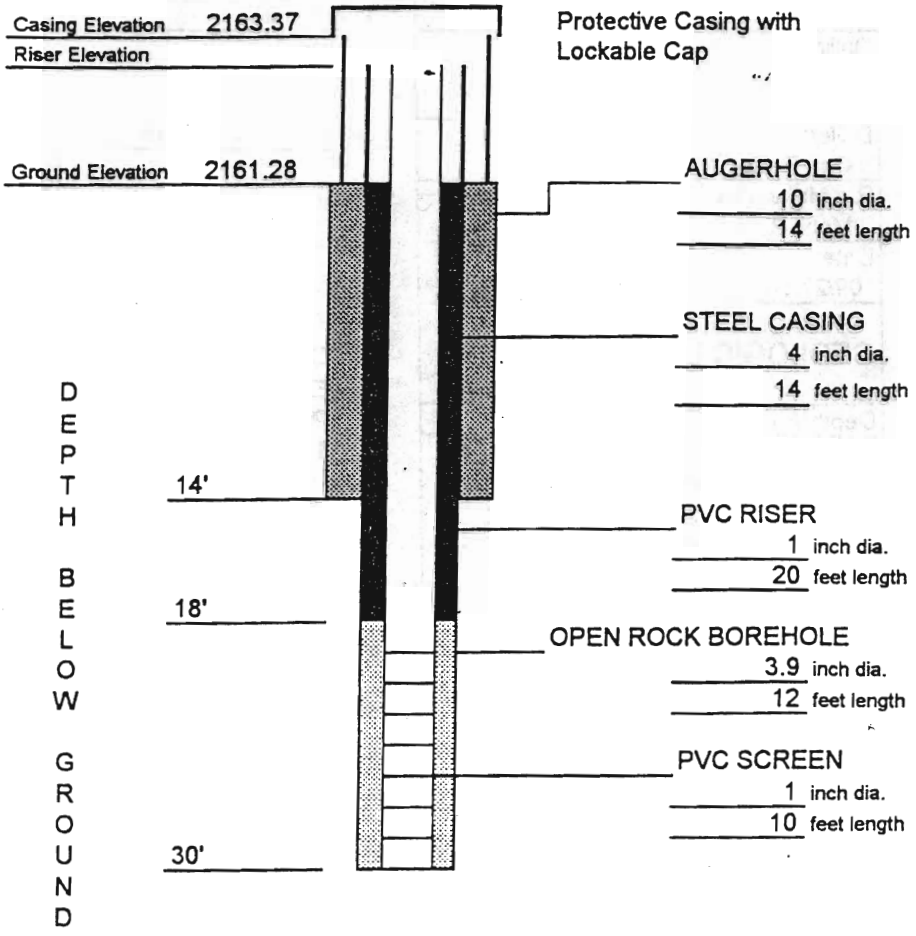
Driller: Carl Rengert/Martin Fuhrmann

Rig Make/Model: Mobil B-51

Date: 09/27/94

GEOLOGIC LOG

Depth(ft.)	Description
0 - 9.5'	Brown gravelly clayey silt
9.5' - 12'	Weathered gray shale with clayey silt
12' - 21'	Gray shale, fractured and broken, occurrences of calcite vugs and solution voids
21' - 25'	Gray sandstone and shale interbedded.
25' - 30'	Shale as above



WELL DESIGN

CASING MATERIAL	SCREEN MATERIAL	FILTER MATERIAL
Surface: 4" Steel Protective Casing	Type: 2" Schedule 40 PVC	Type: #4 Q Rok
Monitor: 4" Steel	Slot Size: .010"	SEAL MATERIAL: Type: Bentonite Setting: 0.0'-18.0'

COMMENTS:

MW-107S and MW-107I are 1" PVC wells installed in a single 3.9" diameter borehole. See Figure H-1.

LEGEND

- Cement/Bentonite Grout
- Bentonite Seal
- Silica Sandpack

Client: N.Y.S.D.E.C.	Monitoring Well Construction Details	Project No.: 0535352.00
U R S Consultants, Inc.	Patton's Busy Bee Alfred Station Allegany County, NY	Well Number: MW-107S

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14-Dec-94

DRILLING SUMMARY

Geologist: Andre LaPres / Mike Byrne

Drilling Company: Technical Drilling Services

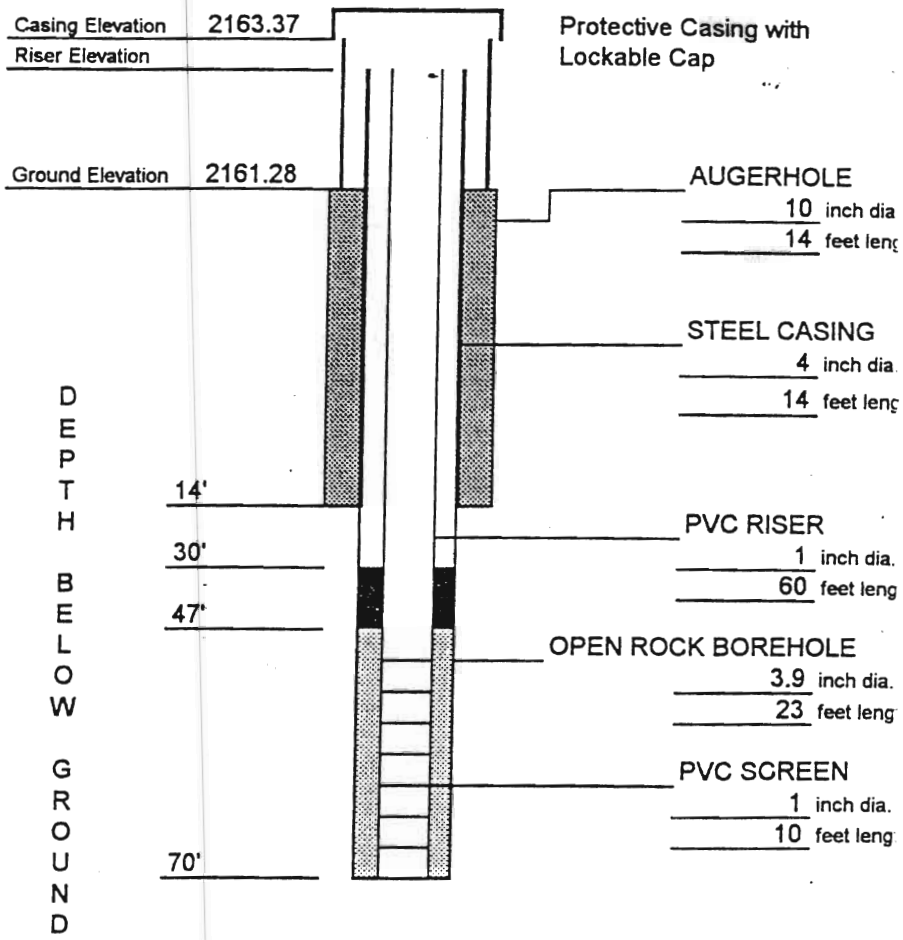
Driller: Carl Rengert/Martin Fuhrmann

Rig Make/Model: Mobil B-51

Date: 09/27/94

GEOLOGIC LOG

Depth(ft.)	Description
0 - 9.5'	Brown gravelly clayey silt
9.5' - 12'	Weathered gray shale with clayey silt
12' - 21'	Gray shale, fractured and broken, occurrences of calcite vugs and solution voids
21' - 25'	Gray sandstone and shale interbedded.
25' - 49'	Shale as above
49' - 70'	Gray sandstone & shaly sandstone



WELL DESIGN

CASING MATERIAL	SCREEN MATERIAL	FILTER MATERIAL
Surface: 4" Steel Protective Casing	Type: 2" Schedule 40 PVC	Type: #4 Q Rok
Monitor: 4" Steel	Slot Size: .010"	SEAL MATERIAL
		Type: Bentonite Setting: 30.0'-47.(

COMMENTS:

MW-107S and MW-107I are 1 " PVC wells installed in a single 3.9" diameter borehole. See Figure H-1.

LEGEND

- Cement/Bentonite Grou
- Bentonite Seal
- Silica Sandpack

Client: N.Y.S.D.E.C.	Monitoring Well Construction Details	Project No.: 0535352.00
URS Consultants, Inc.	Patton's Busy Bee Alfred Station Allegany County, NY	Well Number: MW-107I

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14-De

DRILLING SUMMARY

Geologist: Mike Byrne

Drilling Company: Technical Drilling Services

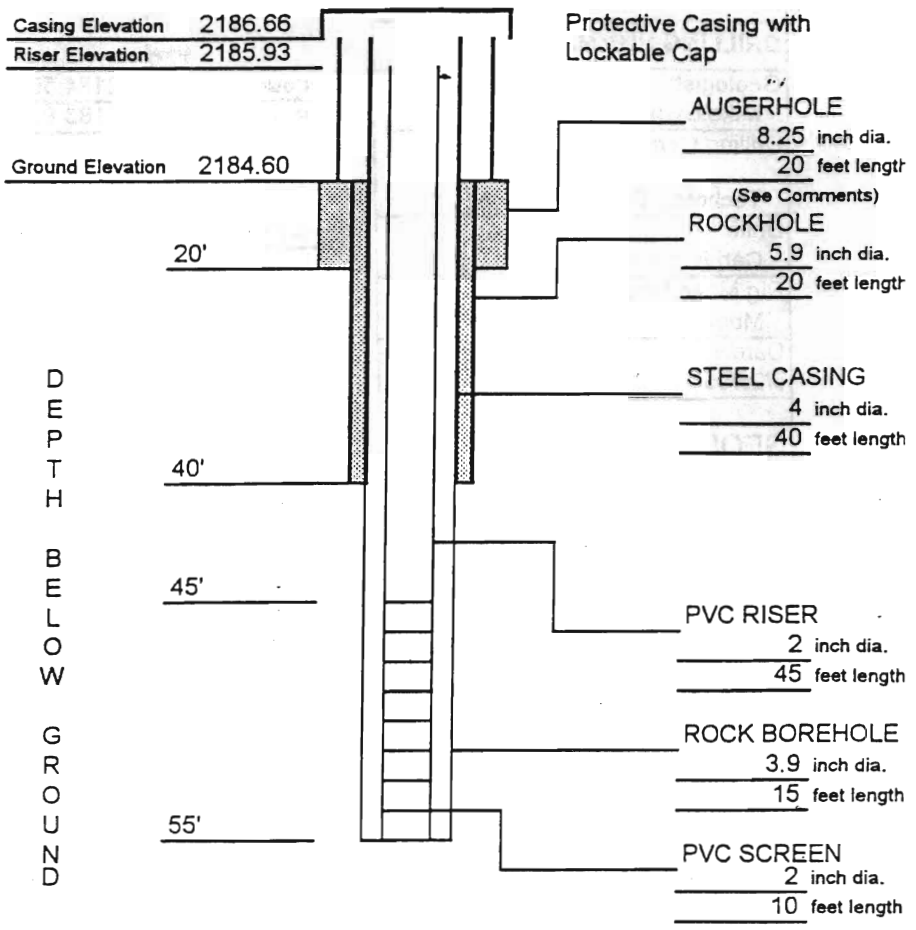
Driller: Carl Rengert

Rig Make/Model: Mobil B-51

Date: 4/27/94

GEOLOGIC LOG

Depth(ft.)	Description
0' - 6'	Brown gravelly clayey silt
6'-25'	Gray shale wxd, dry
25'-41'	Gray Shale, Fractured
41'-52'	Gray finegrained sandstone interbedded w/gray shale
52'-71'	Shale as above
71'-82'	Gray sandstone interbedded w/ shales
82'-85'	shale as above



WELL DESIGN

CASING MATERIAL	SCREEN MATERIAL	FILTER MATERIAL
Surface: 4" Steel Protective Casing	Type: 2" Schedule 40 PVC	Type: None Setting:
Monitor: PVC	Slot Size: .010"	SEAL MATERIAL
		Type: Bentonite Slurry Setting: 0-20'

COMMENTS:

A temporary 6" steel casing was set 20' BGS in a 10" auger hole while installing 4" steel casing.

LEGEND

- Cement/Bentonite Grout
- Bentonite Seal
- Silica Sandpack

Client: N.Y.S.D.E.C.	Monitoring Well Construction Details	Project No.: 0535352.00
URS Consultants, Inc.	Patton's Busy Bee Alfred Station Allegany County, NY	Well Number: MW-108I

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13-Sep-

DRILLING SUMMARY

Geologist: Mike Byrne

Drilling Company: Technical Drilling Services

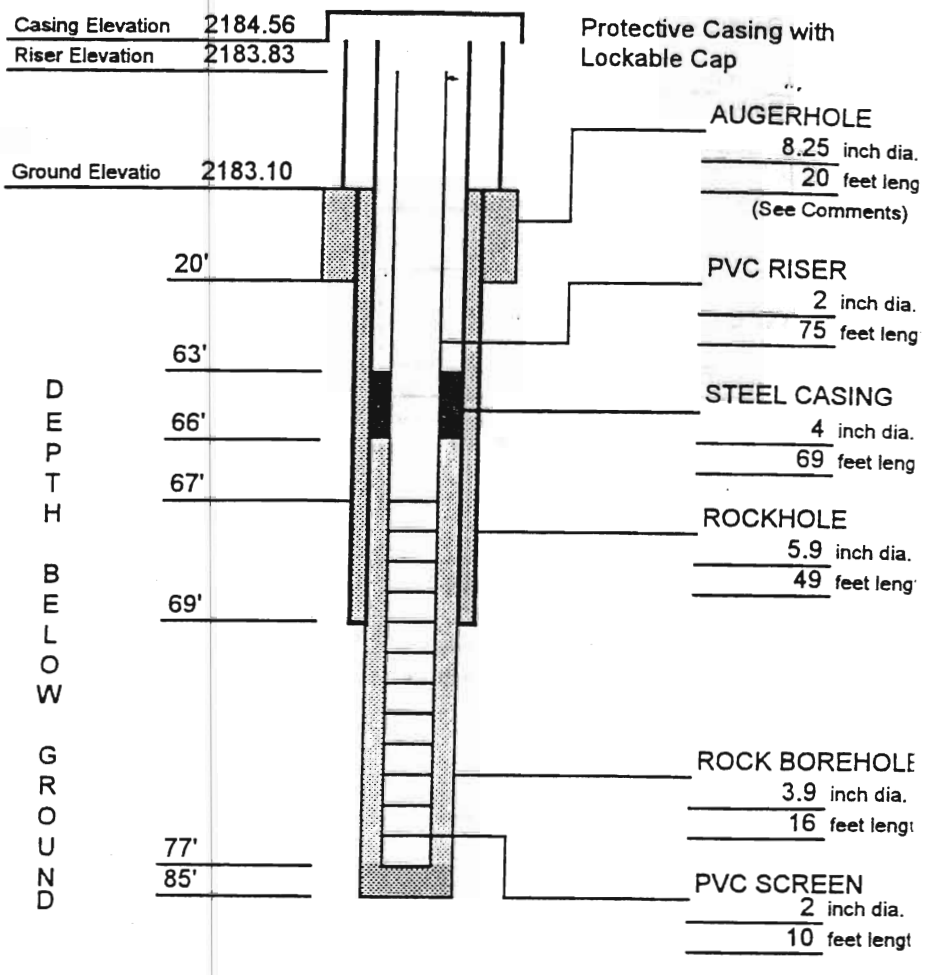
Driller: Carl Rengert

Rig Make/Model: Mobil B-51

Date: 5/26/95

GEOLOGIC LOG

Depth(ft.)	Description
0'-6'	Brown/gray clayey silt
6'-25'	Gray shale wxd, dry
25'-41'	Gray shale, fractured
41'-52'	Gray finegrained sandstone interbedded w/ gray shale
52'-71'	Shale as above
71'-82'	Gray sandstone interbedded w/ shales
82'-85'	Shale as above



WELL DESIGN

CASING MATERIAL	SCREEN MATERIAL	FILTER MATERIAL
Surface: 4" Steel Protective Casing	Type: 2" Schedule 40 PVC	Type: None Setting:
Monitor: PVC	Slot Size: .010"	SEAL MATERIAL
		Type: Bentonite Slurry Setting: 0-69'

COMMENTS:

Temporary 6" steel casing installed upon auger refusal, and subsequently removed once 4" casing was installed.

Rockhole collapsed to 77' prior to well installation.

LEGEND

- Cement/Bentonite Gro
- Bentonite Seal
- Silica Sandpack

Client: N.Y.S.D.E.C.	Monitoring Well Construction Details	Project No.: 0535352.00
U R S Consultants, Inc.	Patton's Busy Bee Alfred Station Allegany County, NY	Well Number: MW-108D

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13-S-

DRILLING SUMMARY

Geologist: Mike Byrne

Drilling Company: Technical Drilling Services

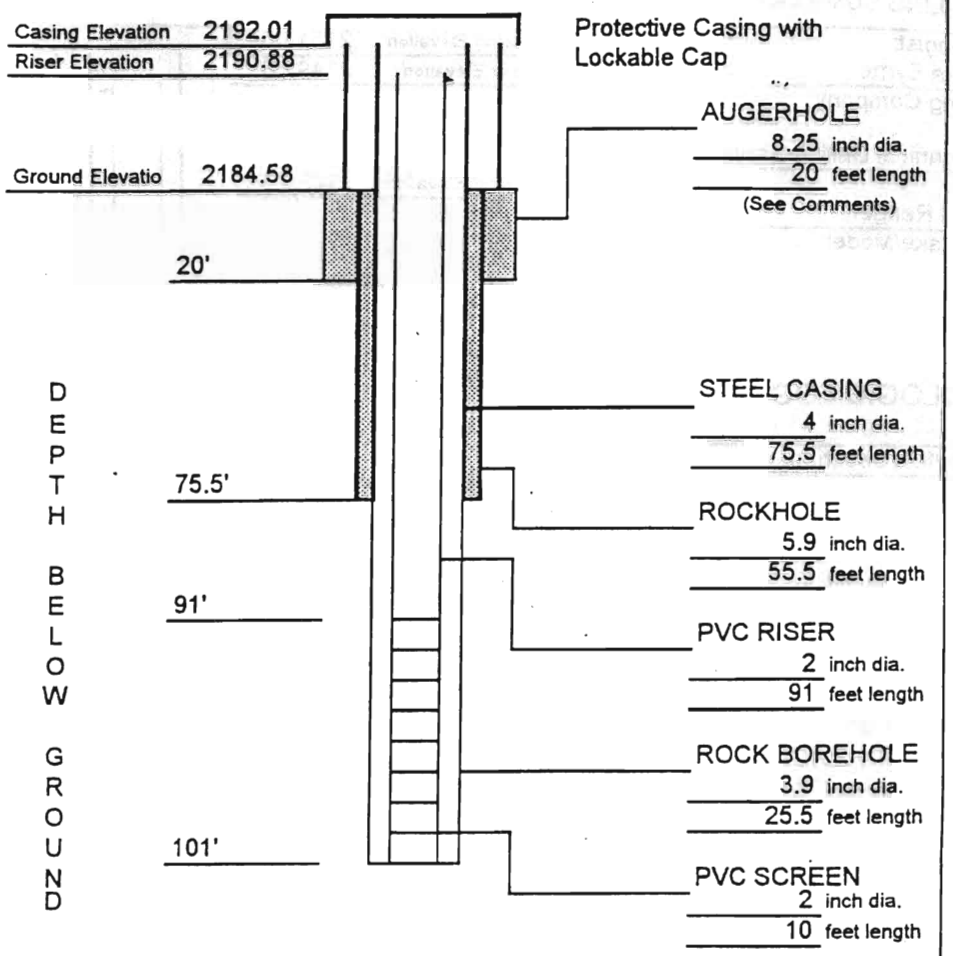
Driller: Carl Rengert

Rig Make/Model: Mobil B-51

Date: 4/27/94

GEOLOGIC LOG

Depth(ft.)	Description
0' - 4'	Brown clayey silt
4'-8'	Gray sandstone fragments
8'-20'	Weathered gray shale
20'-52'	Gray shale, fractured
52'-59'	Interbedded sandstone and shale
59'-88'	Shale as above
88'-100'	Interbedded shaley sandstone and shale
100'-101'	Shale as above



WELL DESIGN

CASING MATERIAL	SCREEN MATERIAL	FILTER MATERIAL
Surface: 4" Steel Protective Casing	Type: 2" Schedule 40 PVC	Type: None Setting:
Monitor: PVC	Slot Size: .010"	SEAL MATERIAL
		Type: Bentonite Slurry Setting: 0-20'

COMMENTS:

A temporary 6" steel casing was set 20' BGS in a 10" auger hole to seal off upper sandstone groundwater, while installing 4" steel casing.

LEGEND

- Cement/Bentonite Grout
- Bentonite Seal
- Silica Sandpack

Client: N.Y.S.D.E.C.	Monitoring Well Construction Details	Project No.: 0535352.00
URS Consultants, Inc.	Patton's Busy Bee Alfred Station Allegany County, NY	Well Number: MW-109

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13-Sep-95

DRILLING SUMMARY

Geologist: Mike Byrne

Drilling Company: Technical Drilling Services

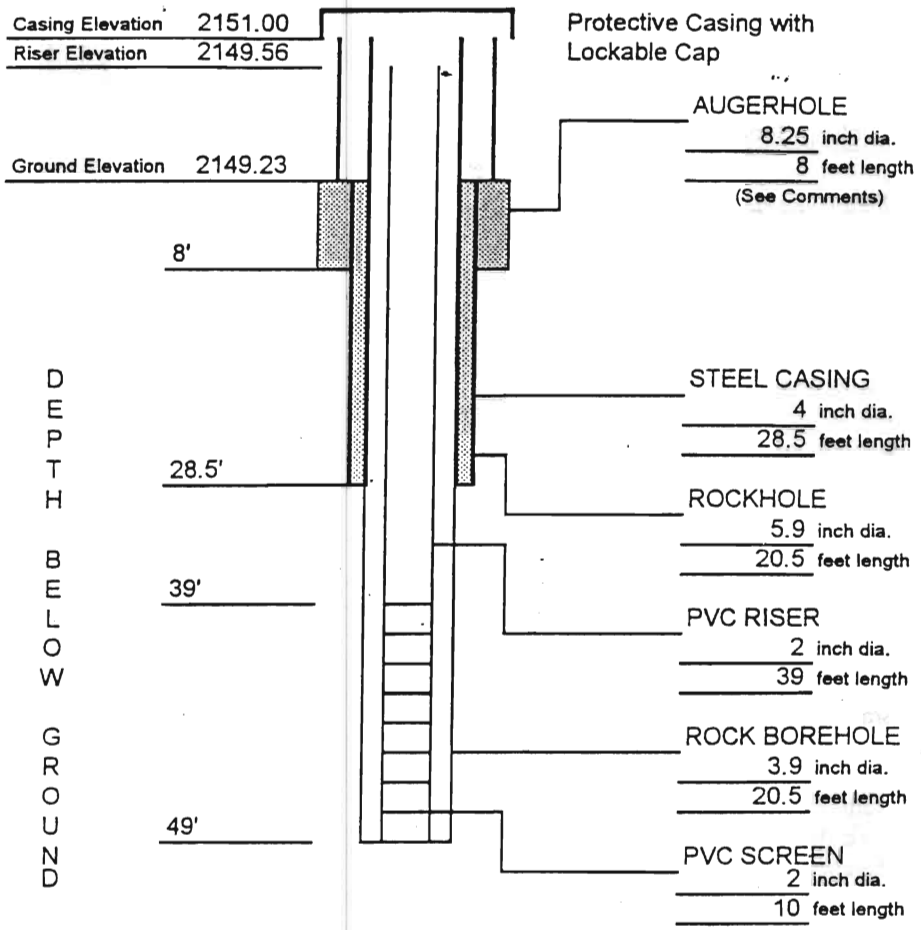
Driller: Carl Rengert

Rig Make/Model: Mobil B-51

Date:

GEOLOGIC LOG

Depth(ft.)	Description
0'-8'	Brown/gray clayey silt w/rounded sandstone fragments 4"-8".
8'-9.5'	Gray Sandstone
9.5'-28.5'	Highly weathered shale-clayey silt seemed predominant
28.5'-42.5'	Sandstone - interbedded shaley siltstone
47.5'-49'	Highly weathered shale



WELL DESIGN

CASING MATERIAL	SCREEN MATERIAL	FILTER MATERIAL
Surface: 4" Steel Protective Casing	Type: 2" Schedule 40 PVC	Type: None Setting:
Monitor: PVC	Slot Size: .010"	SEAL MATERIAL
		Type: Cement Bentonite Grout Setting: 0-28.5'

COMMENTS:

Temporary 6" steel casing installed upon auger refusal, and subsequently removed once 4" casing was installed.

LEGEND

- Cement/Bentonite Grout
- Bentonite Seal
- Silica Sandpack

Client: N.Y.S.D.E.C.	Monitoring Well Construction Details	Project No.: 0535352.00
URS Consultants, Inc.	Patton's Busy Bee Alfred Station Allegany County, NY	Well Number: MW-113

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13-Sep-95

Patton's Busy Bee Disposal Site Site No. 9-02-014	**Well Purging Log**

PROJECT TITLE: _____

PROJECT NO.: _____

STAFF: _____

DATE: _____

WELL NO.: _____

① TOTAL CASING AND SCREEN LENGTH (FT.): _____

② BOREHOLE INTERNAL DIAMETER (in.): _____

③ WATER LEVEL BELOW TOP OF CASING (FT.) _____

④ VOLUME OF WATER IN _____ (GAL.) _____

WELL I.D	VOL. GAL./FT.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

$V = 0.0408 (②)^2 \times (① - ③) =$ _____ GAL. (3 casings)

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	0										
pH											
Spec. Cond. (μmho)											
Turbidity (NTU)											
Temperature (°C)											

COMMENTS:

A-2347

Patton's Busy Bee Disposal Site
Alfred Station, New York
Site No. 9-02-014

RESIDENTIAL WELL SAMPLING

Form to be completed at time of sampling

DATE OF SAMPLING _____ TIME OF SAMPLING _____

NAME OF SAMPLER _____

OWNER OF WELL:

Name _____Telephone No. _____
Address_____

OCCUPANT OF HOUSE SERVED BY WELL (If other than owner):

Name _____Telephone No. _____
Address _____

WATER USE: (please circle)

Domestic: Yes No Number of persons using water _____
Livestock: Yes No Number and type of livestock _____
Irrigation: Yes No Acres _____ Frequency _____
Other (specify) _____

WATER TREATMENT:

Chlorinator present? Yes No Water Softener? Yes No
Water Filter? Yes No Type _____
Other (specify) _____

DESCRIBE WHERE WATER SAMPLE WAS OBTAINED: (e.g. outdoor faucet, kitchen tap) (Water should be sampled as close to well head as possible)

_____

FUTURE USE: Are there any planned changes to current supply?

_____

ADDITIONAL COMMENTS: _____

_____

_____

Appendix C

Site Inspection Form

Leachate Tank Monitoring Tables

PATTON'S BUSY BEE DISPOSAL SITE

Alfred Station, New York
SITE NO. 9-02-014

SITE INSPECTION FORM

Name of Inspector: _____
Title: _____

Date of Inspection: _____

1. Leachate tanks being monitored regularly: ☐ yes ☐ no
   Date of last tank inspection _____

2. Access road condition: ☐ Good ☐ Fair ☐ Poor

   If poor, describe: _____
   _____

3. Vegetative cover: ☐ Good ☐ Fair ☐ Poor

   If poor, describe: _____
   _____

4. Woody plants present on cap: ☐ Yes ☐ No

5. Mowing required: ☐ Yes ☐ No

6. Condition of gas vents: ☐ Unobstructed ☐ Obstructed ☐ Damaged ☐ Missing

   If damaged, describe: _____
   _____

7. Erosion of cap: ☐ None ☐ Minor ☐ Needs Repair

   Describe repair needed: _____
   _____

8. Evidence of ponded water on cap: ☐ None ☐ Suspected ☐ Observed
   Indicate location on map and describe: _____
   _____

9. Evidence of animal borrows on cap: ☐ No ☐ Yes
   If yes, backfill as required. Date backfilled: _____

10. Leachate seeps observed on cap: ☐ No ☐ Yes
If yes, indicate location(s) on site map. Describe appearance: _____

_____

11. Other leachate seeps observed (not on cap): ☐ No ☐ Yes
If yes, indicate location(s) on site map. Describe appearance: _____

_____

12. Litter present on or around landfill: ☐ No ☐ Yes
If yes, describe and indicate location(s) on site map: _____

_____
Remove at time of inspection if possible.

13. Condition of monitoring wells. *Inspect each well and check boxes below as completed. All wells should be secured and locked. If damaged, identify well number and describe damage*:

_____

_____

☐ W-3	☐ W-8	☐ MW-101I	☐ MW-104I	☐ MW-107I
☐ W-4S	☐ W-9	☐ MW-101D	☐ MW-104D	☐ MW-108I
☐ W-4D	☐ W-10S	☐ MW-102I	☐ MW-105S	☐ MW-108D
☐ W-5	☐ W-10D	☐ MW-102D	☐ MW-105I	☐ MW-109
☐ W-6	☐ W-11	☐ MW-103I	☐ MW-106I	☐ MW-110
☐ W-7	☐ MW-101S	☐ MW-103D	☐ MW-107S	☐ MW-113

Additional Comments:

_____

_____

_____

_____

_____

_____

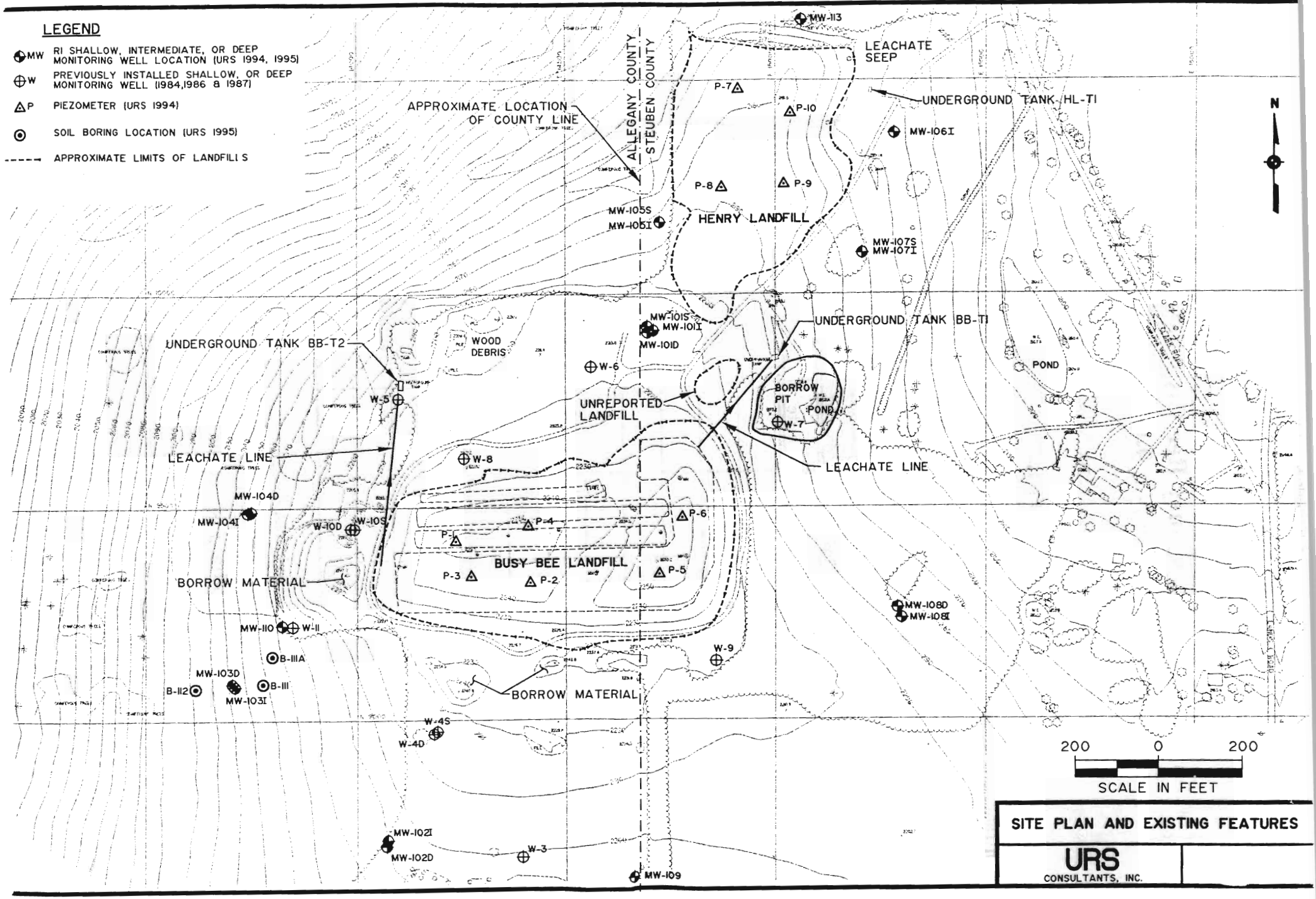
_____

Send copies of completed form to:

Mr. Gerald Rider
NYSDEC Div. Env. Rem.
O&M Section
50 Wolf Road
Albany, NY 12233-7010

Mr. Michael Hinton
NYSDEC Div.of Env. Rem.
Region 9 Office
270 Michigan Avenue
Buffalo, NY 14203-2999

Ms. Mary Jane Peachey
NYSDEC Div.of Env. Rem.
Region 8 Office
6274 East Avon-Lima Road
Avon, NY 14414



SITE INSPECTION MAP

Patton's Busy Bee Disposal Site
Site No. 9-02-014

Leachate Tank Monitoring

Tank #BB-T1-North

North Tank: Estimated Capacity: 15,000 gallons
Distance from Top of Standpipe to Bottom of Tank: 12.4'
Tank Diameter: 10' (est)
Tank Length: 25' (est)

Leachate Tank Measurement							
Date	Depth	Date	Depth	Date	Depth	Date	Depth
9/11/97	8.05'						

Note: Depth measured from top of riser to leachate level

Arrange for removal when leachate is within 4.9' of top of riser

Patton's Busy Bee Disposal Site
Site No. 9-02-014

Leachate Tank Monitoring

Tank #BB-T1-South

South Tank: Estimated Capacity: 18,000 gallons
Distance from Top of Standpipe to Bottom of Tank: 12.8'
Tank Diameter: 10.7' (est)
Tank Length: 28' (est)

Leachate Tank Measurement							
Date	Depth	Date	Depth	Date	Depth	Date	Depth
9/11/97	6.25'						

Note: Depth measured from top of riser to leachate level

Arrange for removal when leachate is within 4.8' of top of riser

Patton's Busy Bee Disposal Site
Site No. 9-02-014

Leachate Tank Monitoring

Tank #BB-T2-North

North Tank: Estimated Capacity: 2000 gallons
Distance from Top of Standpipe to Bottom of Tank: 7.5' (est)
Tank Diameter: 5' (est)
Tank Length: unknown

Leachate Tank Measurement							
Date	Depth	Date	Depth	Date	Depth	Date	Depth
9/11/97	7.1						

Note: Depth measured from top of riser to leachate level

Arrange for removal when leachate is within 3.5' of top of riser

Patton's Busy Bee Disposal Site
Site No. 9-02-014

Leachate Tank Monitoring

Tank #BB-T2-South

South Tank: Estimated Capacity: 4000 gallons
Distance from Top of Standpipe to Bottom of Tank: 6.3'
Tank Diameter: 5.1' (est)
Tank Length: 24' (est)

Leachate Tank Measurement							
Date	Depth	Date	Depth	Date	Depth	Date	Depth
9/11/97	3.05'						

Note: Depth measured from top of riser to leachate level

Arrange for removal when leachate is within 2.3' of top of riser

Appendix D

Annual Report Distribution

Patton's Busy Bee Disposal Site
Alfred Station, New York
Site No. 9-02-014

Annual Report Distribution - See Addendum #2 4/00
Addendum #3 2/01
Addendum #4 2/02

Mr. Gerald Rider
NYSDEC Div.of Env. Rem.
Operations, Maintenance and Support
50 Wolf Road
Albany, New York 12233-7010

Mr. Michael Hinton
NYSDEC Div.of Env. Rem.
Region 9 Office
270 Michigan Avenue
Buffalo, New York 14203-2999

~~Ms. Mary Jane Peachey~~ - Removed Addendum #4
~~NYSDEC Div.of Env. Rem.~~
~~Region 8 Office~~
~~6274 East Avon-Lima Road~~
~~Avon, New York 14414~~

Mr. ~~Richard Tuers~~ ~~Michael Kadlec~~ Ms. Charlotte Bethoney
NYSDOH BEEI
~~2 University Place~~ Flanigan Square, Room 300
~~Albany, New York 12203-3313~~ 547 River St.
Troy, NY 12180

Mr. Thomas Hull, Dep. Public Health Dir.
Allegany County Board of Health
County Office Building
Belmont, New York 14813

Alfred Town Clerk
East Valley Road
Alfred Station, New York 14803

Hartsville Town Clerk
RD 1, Box 104
Hornell, New York 14843

~~Mr. Terry L. Towner~~ - Removed Addendum #4
~~P.O. Box F~~
~~Addison, New York 14801~~

Appendix E
Landfill Cap Repair Protocol

Patton's Busy Bee Disposal Site
Alfred Station, New York
Site No. 9-02-014

Landfill Cap Repair Protocol

1. a. If less than six inches of cover material has been eroded, replace with sufficient like material to bring to grade.

   b. If more than six inches of cover has been eroded, emplace low permeability (less than or equal to 1×10^{-5} cm/sec) material in six inch lifts, compacting each lift with appropriate vibratory compactor. Add sufficient barrier material to bring to surrounding grade.

2. Spread seed and cover with straw.

Appendix F

Health and Safety Plan

HEALTH AND SAFETY PLAN

FOR THE

REMEDIAL INVESTIGATION

AT

PATTON'S BUSY BEE DISPOSAL SITE

ALFRED STATION (T), ALLEGANY COUNTY (C), NEW YORK

(SITE NO. 9-02-014)

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

DIVISION OF HAZARDOUS WASTE REMEDIATION

WORK ASSIGNMENT D002340-26

DECEMBER 1993

PREPARED BY:

URS CONSULTANTS, INC.

282 DELAWARE AVENUE

BUFFALO, NEW YORK 14202

TABLE OF CONTENTS

		Page No.
1.0	Introduction	1-1
2.0	Responsibilities	2-1
	2.1 Project Health and Safety Officer	2-1
	2.2 Site Health and Safety Officer	2-1
	2.3 Field Team Personnel	2-2
	2.4 Key Personnel and Organization	2-3
3.0	Site Description and History	3-1
4.0	Training Requirements	4-1
5.0	Medical Surveillance Requirements	5-1
6.0	Site Hazard Evaluation	6-1
	6.1 Chemical Hazards	6-1
	6.2 Physical Hazards	6-1
	6.3 Temperature Stress	6-3
	6.3.1 Heat Stress	6-3
	6.3.2 Cold Stress	6-7
7.0	Site Control	7-1
	7.1 Support Zone	7-1
	7.2 Contamination Reduction Zones	7-1
	7.3 Exclusion Zone	7-2
	7.4 Site Visitation	7-2
8.0	Personal Protection	8-1
9.0	Air Monitoring	9-1
	9.1 Total Volatiles	9-1
	9.2 Explosive Atmosphere/Oxygen Content	9-5
	9.3 Particulates	9-5
	9.4 Work Stoppage Responses	9-5
	9.5 Calibration of Air Monitoring Instruments	9-6

TABLE OF CONTENTS - Continued

		Page No.
9.6	Community Air Monitoring Plan	9-6
9.6.1	Vapor Emission Response Plan	9-7
9.6.2	Major Vapor Emission Response Plan	9-7
10.0	Handling of Samples	10-1
11.0	Decontamination Procedures	11-1
11.1	Decontamination of Personnel	11-1
11.2	Decontamination of Equipment	11-1
12.0	Emergency Procedures	12-1
12.1	Communications	12-1
12.2	Escape Routes	12-1
12.3	Evacuation Signal	12-2
12.4	Other Signals	12-2
12.5	Fire	12-2
12.6	First Aid	12-5
12.7	Emergency Assistance	12-6
12.8	Spills	12-6
12.8.1	Liquid Spills	12-6
12.8.2	Soil Spills	12-6
12.9	Community Protection Plan	12-7
12.9.1	General	12-7
12.9.2	Vapor Emission Response	12-7
12.10	Reports	12-8
12.11	Accident Investigation and Reporting	12-8
12.11.1	Accident Investigations	12-8
12.11.2	Accident Reports	12-8

TABLE OF CONTENTS - Continued

		Page No.
13.0	Safety Concerns and Contingency Measures During Drilling Operations	13-1
13.1	Soil Borings	13-1
13.2	Drill Cuttings and Decontamination/Well Development/ Well Evacuation Water	13-1
14.0	Safety Concerns and Contingency Measures during Excavation Operations .	14-1
14.1	Excavation	14-1
14.2	Inspection Methodologies	14-2
14.3	Mobile Contamination Reduction Zone	14-3

LIST OF FIGURES

		Following Page
2-1	Health and Safety Chain-of-Command	2-3
3-1	Site Location Map	3-1
3-2	Site Map	3-1
12-1	Route to Hospital	12-5

LIST OF TABLES

		Page
5-1	Components of Medical Surveillance	5-2
6-1	Hazard Characteristics of Contaminants of Concern Detected at the Busy Bee Disposal Site	6-2
8-1	Components of Personal Protection Levels	8-2
8-2	Planned Levels of Personal Protection For Each Activity	8-3
9-1	Action Levels During Drilling Activities	9-2
9-2	Action Levels During Excavation Activities	9-3
12-1	Emergency Hand Signals	12-3
12-2	Emergency Contacts	12-4
A-1	Waste Site Worker Training Program (40 Hours)	Appendix A
A-2	Waste Site Worker Supervisory Training Program (8 Hours)	Appendix A
A-3	Waste Site Worker Refresher Training Program (8 Hours)	Appendix A
C-1	Personal Safety Rules	Appendix C
C-2	Operational Safety Rules	Appendix C

APPENDICES

A Waste Site Worker Training Programs

B Field Activity Forms

C Standard Operating Safety Procedures

1.0 INTRODUCTION

This Health and Safety Plan (HASP) includes appropriate health and safety procedures to be followed during investigative activities at and in the vicinity of the Busy Bee Disposal Site in the Town of Alfred Station, Allegany County, New York, under New York State Department of Environmental Conservation (NYSDEC) State Superfund Work Assignment No. D002340-26. Anticipated field activities at the site will include:

- geophysical survey
- soil gas screening
- construction of support facilities
- test pit excavation
- drilling supervision/soil sample logging
- groundwater monitoring well installation, development, and hydraulic conductivity testing
- environmental sampling of soil gas, groundwater, surface water, soil, and sediment.
- surveying

The procedures presented in this plan comply with the following regulatory or guidance documents:

- OSHA Occupational Safety and Health Regulations, 29 CFR 1910/1926, U.S. Department of Labor, Occupational Safety and Health Administration, OSHA, March 6, 1990.

- OSHA Occupational Safety and Health Standards, 29 CFR 1910.120.

- USEPA Order 1440.2, Health and Safety Requirements for Employees Engaged in Field Activities, July 12, 1981.

- NIOSH/OSHA/USCG/USEPA, Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities, October 1985.

- Standard Operating Safety Guides, United States Environmental Protection Agency, Office of Emergency and Remedial Response, November 1984.

- URS Safety Manual, Hazardous Waste Site Investigations.

All URS personnel who will be involved in intrusive activities on site have completed the appropriate waste site worker training as required by OSHA 1910.120(e)(2), 1910.120(e)(3), and 1910.120(e)(8), as applicable, and the required medical surveillance as required by OSHA 1910.120(f). Copies of training certificates and medical surveillance certification for all URS field personnel will be maintained on site.

3.0 SITE DESCRIPTION AND HISTORY

The Patton's Busy Bee Disposal Site, #9-02-014, a Class 2 site, is located approximately one mile northeast of Alfred Station in Allegany County (Figure 3-1). The portion of the landfill under investigation is an eight to ten acre trench area which was permitted by the NYSDEC in 1980 to operate as a sanitary landfill (Figure 3-2). Additionally, there appears to be an old landfill adjacent to the north side of Patton's Busy Bee Disposal Site. Possible impacts of the old landfill on this site and adjacent areas will be investigated as part of this Remedial Investigation/Feasibility Study (RI/FS).

From 1980 until 1986, Patton's Busy Bee Disposal Site landfill utilized three unlined trenches. A lined remedial trench along the southern and eastern edges of the unlined trenches was constructed in 1986 to intercept leachate produced in the unlined trenches. A leachate collection system in the remedial trench was designed to collect and discharge leachate into holding tanks.

The landfill reportedly accepted municipal waste from Allegany County, as well as industrial waste from various sources. The landfill also accepted dewatered sewage sludge from wastewater treatment plants. One industry, SKF Industries, formerly of Hornell, New York, reported disposing of 77 tons of a corrosive liquid, reportedly an alkaline metal cleaning solution with a pH of 12.5.

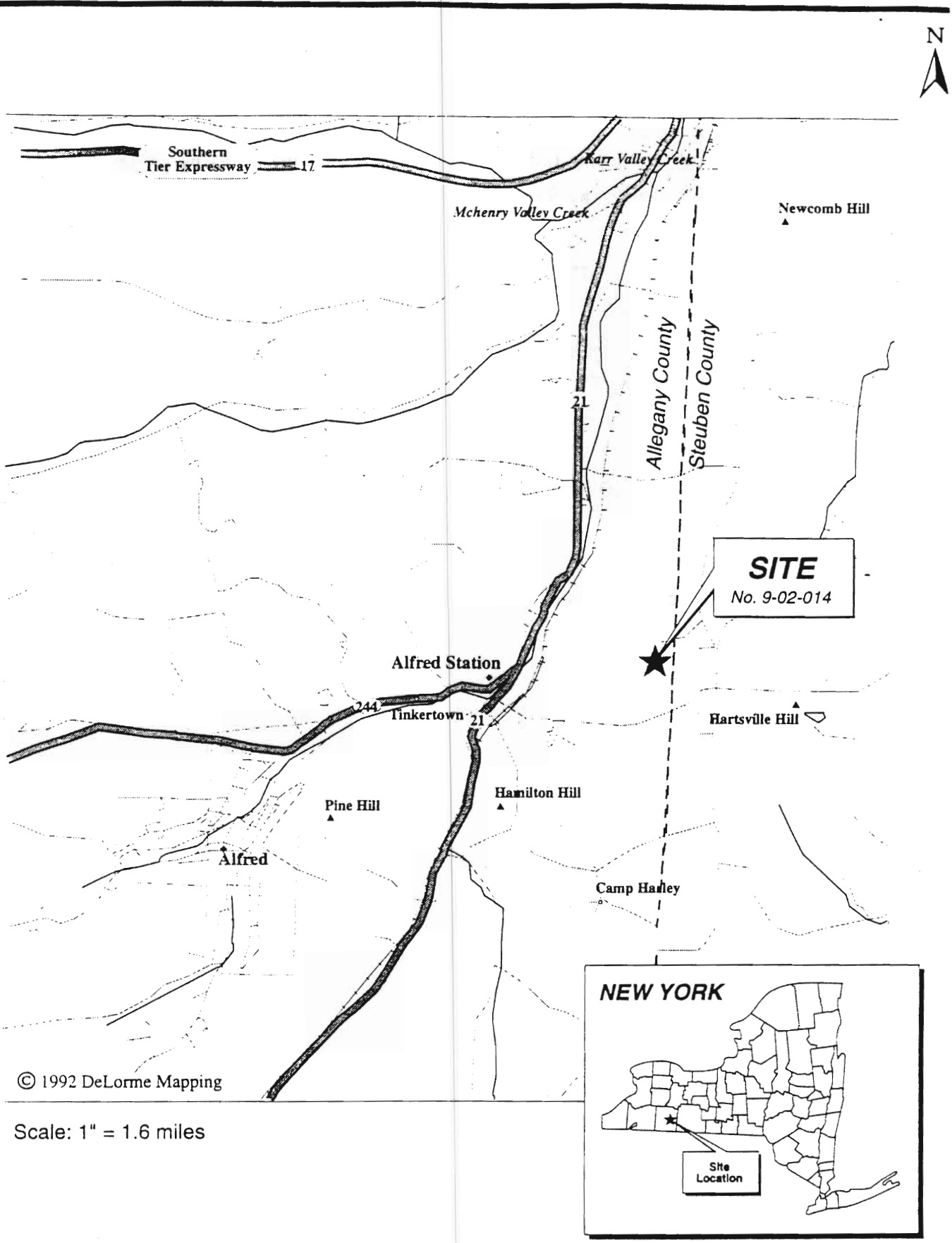
The landfill was closed in 1988 under terms of a Consent Order. A closure plan was never submitted to or approved by the NYSDEC. It is believed that all trenches have been covered with a clay cap, however, construction details and quality control of construction activities are not known.

A total of fourteen bedrock groundwater monitoring wells have been installed, nine of which have been periodically monitored. Volatile organic compounds have been detected in both shallow (20-30 feet) and deep (50-60 feet) wells along the western and southwestern edges of the site. Primary compounds and maximum concentrations in groundwater have been found to be trichloroethylene (110 ppm) and trans-1,2-dichloroethylene (59 ppm).

The surrounding residences in this rural area are served by private wells. Selected private wells sampled by NYSDOH since 1991 have not been impacted by the site.

This work assignment is for the performance of the RI/FS for the site. The purpose of the study is to determine the nature and extent of contamination in groundwater, surface water, and adjacent surficial and subsurface soils. The scope of the RI/FS will include compiling all available data, conducting field investigations, and the development, screening, and selection of remedial alternatives.

Several potentially responsible parties (PRPs) who may have generated hazardous waste disposed of at the site and the present owner and operator have all been issued notice letters and a demand to conduct the RI/FS. Each party has either refused outright or has claimed to be unable to implement a satisfactory site investigation and evaluation program. Therefore, the Division of Environmental Enforcement has referred the site to the Division of Hazardous Waste Remediation. URS has been issued a Work Assignment to conduct the RI/FS under a Standby Contract with the New York State DEC.



URS CONSULTANTS, INC.

PATTON'S BUSY BEE DISPOSAL SITE
SITE LOCATION MAP

Figure 3-1

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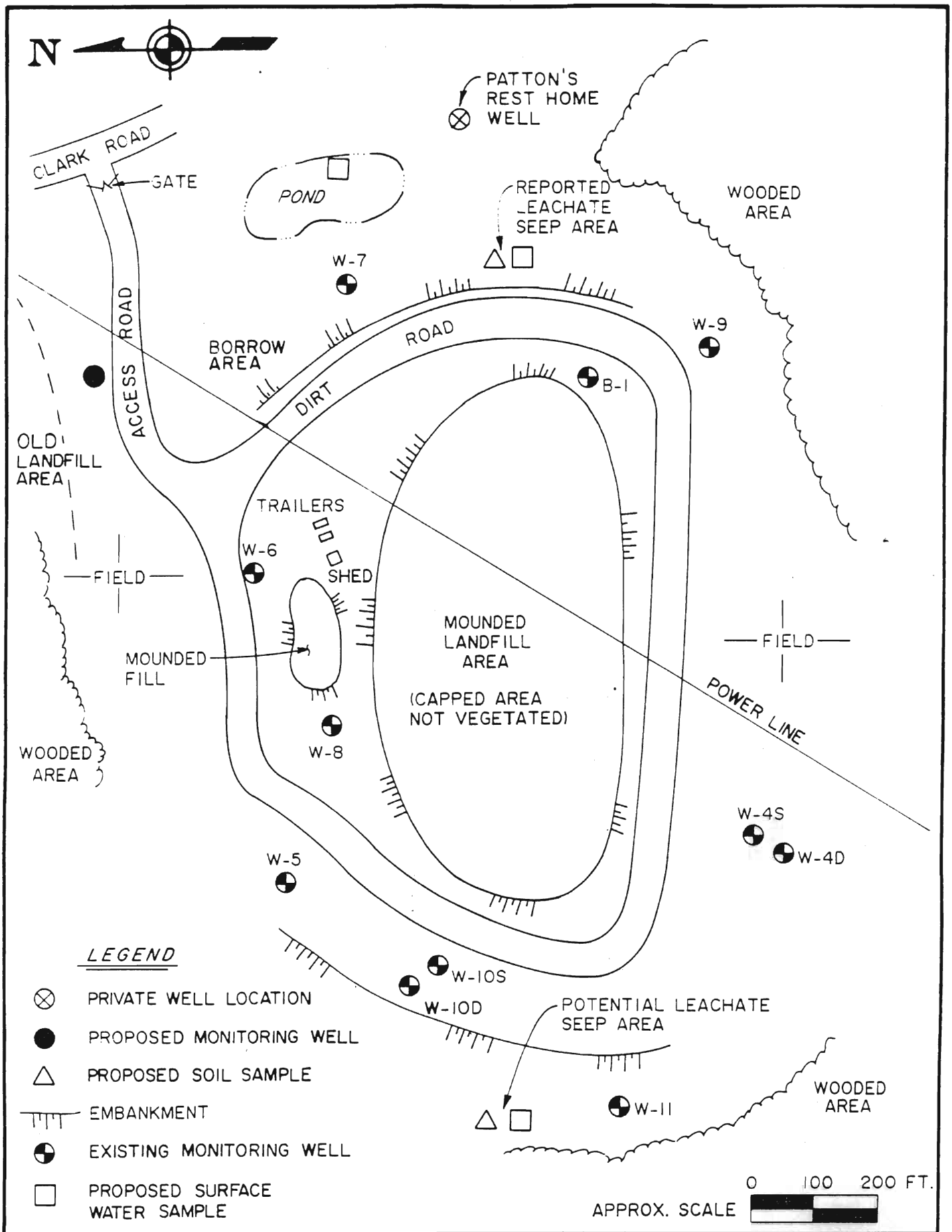


URS CONSULTANTS, INC

PATTON'S BUSY BEE DISPOSAL SITE SKETCH

FIGURE 3-2

A-3325

4.0 TRAINING REQUIREMENTS

All personnel conducting field activities on site are required to be certified in health and safety practices for hazardous waste operations as specified in the Federal OSHA Regulations (29 CFR 1910.120) (revised March 6, 1990). Paragraph (e) (2) of the above-referenced regulations requires that each employee, at the time of job assignment, receive a minimum of 40 hours of initial instruction off the site, and a minimum of three days of supervised field experience.

Paragraph (e) (3) of the above referenced regulations requires that all onsite management and supervisory personnel directly responsible for, or who supervise employees engaged in hazardous waste operations, must initially receive eight hours of additional specialized training. Management and supervisory training must emphasize health and safety practices related to managing hazardous waste work.

Paragraph (e)(8) of the above referenced regulations requires that workers and supervisors must receive eight hours of refresher training annually on the items specified in Paragraph (e)(1) and/or (e)(3).

Additionally, all personnel must receive adequate site-specific training, in the form of an Onsite Health and Safety Briefing given by the Project HSO prior to participating in onsite field work. This will involve a review of this Health and Safety Plan with emphasis on the following:

- Protection of the adjacent community from hazardous vapors which may be released during intrusive activities,
- Attention to health effects and hazards of substances known to be present on site,
- Hazards and protection against heat/cold,
- The need for vigilance in personal protection, and the importance of attention to proper use, fit, and care of personal protective equipment,

- The effectiveness and limitations of personal protective equipment,
- Prescribed decontamination procedures,
- Site control, including work zones, access, and security,
- The proper observance of daily health and safety practices, such as the entry and exit of work zones and site, proper hygiene during lunch, break, etc.,
- Recognition in oneself or in others of physical conditions requiring immediate medical attention, and application of simple first aid measures, and
- Emergency procedures to be followed (with rehearsals) in cases of fire, explosion, or sudden release of hazardous gases.

NYSDEC shall be notified when such site-specific training sessions are to be conducted.

Health and Safety Meetings will be conducted daily by the Site HSO and will cover rotective clothing and other equipment to be used that day, potential chemical and physical azards, emergency procedures, and conditions and activities from the previous day.

All visitors entering the Exclusion Zone or Contamination Reduction Zone will be equired to receive the necessary site-specific training from the Site HSO, must be equipped with ie proper personal protective equipment, and if not equipped with fit test certification, will be equired to pass an irritant smoke respirator fit test.

5.0 MEDICAL SURVEILLANCE REQUIREMENTS

All URS personnel who engage in onsite activities for 30 days or more per year participate in the Medical Surveillance Program which involves undergoing a medical examination once every year. The examination must be conducted by a physician who is board-certified in occupational medicine. The physician will have been made familiar with the job-related duties of each worker examined. URS personnel working out of the Buffalo office are examined at HealthWorks, 300 Two Mile Creek Road, Tonawanda, New York 14150. All project personnel involved in onsite activities in the Exclusion Zone at the Busy Bee Disposal Site participate in the Medical Surveillance Program.

Components of the Medical Surveillance Program are shown in Table 5-1. The physician must certify whether the individual is fit to conduct work on hazardous waste sites using personal protection, or whether he or she must work within certain restrictions. Personnel may be excluded from this site for medical reasons. Copies of medical examination reports are given to each employee who are encouraged to forward copies to their personal physician.

Any person exposed to high levels of hazardous substances will be required to undergo a repeat medical exam at or before the conclusion of the project to determine possible health impacts. Any person suffering a lost-time injury or illness must have medical approval prior to returning to work on site. When employment is terminated for any reason, the employee must receive an exit medical examination.

All medical records will be held by the employer for the period of employment plus at least 30 years, in accordance with OSHA regulations on confidentiality and any other applicable regulations and will be made available to OSHA upon request.

TABLE 5-1

COMPONENTS OF MEDICAL SURVEILLANCE

- Medical and occupational history
- Physical examination, with particular attention to the cardiopulmonary system, general physical fitness, skin, blood-forming, hepatic, renal, and nervous systems
- Urinalysis, to include:
  - color
  - appearance
  - specific gravity
  - pH
  - ketones
  - protein
  - glucose
  - blood
  - bilirubin
  - leukocyte esterase
  - nitrite
  - WBC
  - RBC
  - casts
  - bacteria
  - epithelial cells
  - crystals
  - yeasts
- Blood analysis, to include:
  - complete blood count
  - hemoglobin
  - albumin, globulin, total protein
  - bilirubin - direct and total
  - g-glutamyl transpeptidase
  - serum glutamic oxalacetic transaminase
  - lactic dehydrogenase
  - alkaline phosphatase
  - sodium
  - potassium
  - chloride
  - magnesium
  - calcium
  - phosphorus
  - uric acid
  - BUN (blood urea nitrogen)

TABLE 5-1 (Continued)

- creatinine
- cholesterol
- triglycerides
- glucose
- iron
- heavy metals - arsenic, lead, mercury, and zinc protoporphyrin

- Pulmonary function test

- Additional tests as appropriate, including:

  - chest X-ray
  - electrocardiogram
  - stress test

6.0 SITE HAZARD EVALUATION

6.1 Chemical Hazards

From groundwater sampling results for the site, volatile organic compounds (VOCs) are the primary chemical hazards of concern. These VOCs include trichloroethylene, trans-1,2-dichloroethylene, 1,1,2-trichloroethane, 1,1-dichloroethylene, tetrachloroethylene, methylene chloride, toluene, vinyl chloride, acetone, and phenol. The health and safety characteristics and exposure limits for these contaminants are summarized in Table 6-1. The risk of exposure to these contaminants can be by the dermal or respiratory route, depending on the type of compound and intrusive activity being conducted.

6.2 Physical Hazards

Physical hazards range from the dangers of tripping and falling on uneven ground to those associated with the operation of heavy equipment such as drill rigs.

During site activities, workers may have to work on drilling equipment by climbing the mast. The drilling subcontractor will conform with any applicable OSHA and NIOSH recommendations for climbing activities. These activities will be overseen by the subcontractor drilling supervisor and URS field geologist.

Field activities that involve drilling and sampling usually involve contact with various types of machinery. At least one person on site must be currently American Red Cross-certified in first aid and CPR. Personnel trained and certified in first aid should be prepared to take care of cuts and bruises as well as other minor injuries. A first aid kit approved by the American Red Cross will be present and available during all field activities.

Animals and some insects may bite and thereby pose a health hazard in the form of irritation, illness, or poisoning. Anyone bitten should be given immediate first aid as necessary, and shall be transported to the nearest medical facility (if necessary). Members of the field investigation team will be properly briefed regarding the potential for encountering insects and

TABLE 6-1
HAZARD CHARACTERISTICS OF CONTAMINANTS OF CONCERN DETECTED AT THE BUSY BEE SITE

Substance	Toxicity/Carcinogenicity	Standards *
Acetone	Low to moderate toxicity by ingestion and inhalation. Skin and eye irritant. Narcotic in high concentration.	1,800 mg/m^3 (PEL) 1,780 mg/m^3 (TLV-TWA) 590 mg/m^3 (REL)
1,1-Dichloroethylene	Acutely toxic by oral and inhalation route. Possible human carcinogen	20 mg/m^3 (TLV-TWA) 4 mg/m^3 (PEL and REL) 8 mg/m^3 (TLV-STEL) (1)
Trans-1,2-Dichloroethylene	Moderately toxic by ingestion, inhalation, and skin contact. Irritant and narcotic in high concentrations.	793 mg/m^3 (TLV-TWA) 790 mg/m^3 (PEL and REL)
Methylene Chloride	Strongly corrosive to eyes. Causes nausea, vomiting, and headache. Narcotic in high concentration. Possible human carcinogen.	174 mg/m^3 (TLV-TWA) 500 ppm (PEL)
Phenol	High toxicity via the oral, intraperitoneal, subcutaneous, and dermal routes. In acute poisoning, the main effect is on the central nervous system.	19 mg/m^3 (Skin) (TLV-TWA, PEL, and REL)
Tetrachloroethylene (Perchloroethylene)	Moderately toxic. Irritant to eyes and skin. Possible human carcinogen.	170 mg/m^3 (PEL) 339 mg/m^3 (TLV-TWA) 1,357 mg/m^3 (TLV-STEL)(1)
Toluene	Moderate toxicity via the oral, inhalation, and intraperitoneal routes, low toxicity via the dermal route.	188 mg/m^3 (Skin) (TLV-TWA) 375 mg/m^3 (PEL and REL) 560 mg/m^3 (STEL) (1) (PEL and REL)
Trichloroethylene	Toxic by inhalation. Possible human carcinogen.	269 mg/m^3 (TLV-TWA) 270 mg/m^3 (PEL) 1,070 mg/m^3 (TLV-STEL)(1)

TABLE 6-1 (Continued)

Substance	Toxicity/Carcinogenicity	Standards *
1,1,2-Trichloroethane	Toxic by ingestion, inhalation, and skin absorption. Irritant and narcotic in high concentrations. Possible human carcinogen.	55 mg/m^3 (TLV-TWA) 55 mg/m^3 (PEL) 55 mg/m^3 (REL)
Vinyl Chloride	Highly irritating via inhalation, skin, eyes, and mucous membranes. Acts as anesthetic in high concentrations. Causes circulatory and bone changes in fingertips of workers. A human brain carcinogen.	13 mg/m^3 (TLV-TWA)(2) 1 ppm (PEL and REL)

* Standards are 8-hour Time-Weighted Averages (TWAs) unless otherwise noted.

Notes

(1) TLV-STEL-Short Term Exposure Limit - 15 minute TWA exposure which should not be exceeded at any time during a work day.
(2) Confirmed human carcinogen: The agent is carcinogenic to humans based on the findings of epidemiologic studies of, or convincing clinical evidence in, exposed humans.

References

"Pocket Guide to Chemical Hazards." National Institute for Occupational Safety and Health and Occupational Safety and Health Administration, Publication No. 90-117, Cincinnati, Ohio, June, 1990.

"Threshold Limit Values and Biological Exposure Indices for 1991-1992." American Conference of Governmental Industrial Hygienists, Cincinnati, Ohio, 1991.

Department of Labor, Occupational Safety and Health Administration, 29 CFR, Part 1910, Air Contaminants; Final Rule, January 19, 1989.

Sax, N. Irving. Dangerous Properties of Industrial Materials, Sixth Edition, New York, Van Nostrand Reinhold, 1984.

Sax, N. Irving and Richard J. Lewis, Sr. Hazardous Chemicals Desk Reference, New York, Van Nostrand Reinhold, 1987.

Hawley, Gessner G. The Condensed Chemical Dictionary, Tenth Edition, New York, Van Nostrand Reinhold, 1981.

animals. The potential threat of the deer tick and the possibility of contracting Lyme Disease is a serious matter. The likelihood of contracting Lyme Disease will be greatly decreased by field personnel wearing long pants, long sleeved shirts, and hard hats. All field personnel will be instructed to take a shower daily upon returning to the hotel or place of residence to further decrease the likelihood of contracting Lyme Disease.

Improper lifting by workers is one of the leading causes of industrial injuries. Field workers in the drilling program will often be required to lift heavy objects (drill casings, auger flights, etc.). Therefore, all members of the field crew should be trained in the proper methods of lifting heavy objects. All workers should be cautioned against lifting objects too heavy for one person.

6.3 Temperature Stress

A Heat/Cold Stress Log will be kept and maintained on a daily basis for all personnel wearing protective ensembles on site.

6.3.1 Heat Stress

The combination of high ambient temperature, high humidity, physical exertion, and personal protective apparel which limits the dissipation of body heat and moisture can cause heat stress. The Site HSO is responsible for monitoring heat stress in the field team personnel.

The following prevention, recognition, and treatment strategies will be implemented to protect personnel from heat stress. Personnel will be trained to recognize the symptoms of heat stress, and to apply the appropriate treatment.

A. Prevention

1. Provide plenty of liquids. Available in the Support Zone will be a 50% solution of fruit punch in water, or the like, or plain water.

2. Provide cooling devices. A portable, pump-activated sprayer and containers of tap water will be available in the Contamination Reduction Zone to reduce body temperature, cool protective clothing, and/or act as a quick-drench shower in case of an exposure incident.

3. Adjustment of the work schedule. During the hot summer days, labor intensive tasks which pose a high potential risk of heat stress can be performed during the coolest part of the day.

B. Recognition and Treatment

Any person who observes any of the following forms of heat stress, either in himself or in another worker, will report this information to the Site HSO immediately after implementing treatment, if possible.

1. Heat Rash (prickly heat):

Cause: Continuous exposure to hot and humid air, aggravated by chafing clothing.

Symptoms: Eruption of red pimples around sweat ducts, accompanied by intense itching and tingling.

Treatment: Remove source of irritation and cool the skin with water or wet cloths.

2. Heat Syncope (fainting):

Cause: Sun rays beating down on victim's head and prolonged upright position can lead to mild dehydration and contraction of the blood vessels resulting in a temporary deficiency of blood to the brain.

Symptoms: Brief loss of consciousness.

Treatment: Worker should assume a horizontal position and drink 1/2 liter to one liter of fluid (not alcohol). Elevate the legs and cover the head.

3. Heat Cramps (heat prostration):

Cause: Profuse perspiration accompanied by inadequate replenishment of body water and electrolytes.

Symptoms: Sudden development of pain and/or muscle spasms in the abdominal region.

Treatment: Move the worker to the Contamination Reduction Zone. Remove protective clothing. Provide fluids orally. Decrease body temperature and allow a period of rest in a cool location.

4. Heat Exhaustion (heat toxemia, sunstroke):

Cause: Overexertion in a hot environment and profuse perspiration accompanied by inadequate replenishment of body water and electrolytes. A serious condition.

Symptoms: Muscular weakness, tiredness, staggering gait, nausea, dizziness, shallow breathing, pale and clammy skin, approximately normal body temperature.

Treatment: Perform the following while simultaneously making arrangements for transport to a medical facility: Move the worker to the Contamination Reduction Zone. Remove protective clothing. Lie the worker down on his or her back, in a cool place, and raise the feet 6 to 12 inches. Keep warm, but loosen all clothing. If conscious, provide sips of a salt water solution using one teaspoon of salt in 12 ounces of water. Transport the worker to a medical facility.

5. Heat Stroke:

Cause: Same as heat exhaustion. An extremely serious condition.

Symptoms: Dry, red, hot skin, dry mouth, dizziness, nausea, headache, rapid pulse. Temperature continues to rise unless treatment is implemented.

Treatment: The basic principle is to lower the body temperature rapidly.

1. Move the victim out of the sun.
2. Remove clothes.
3. Soak victim completely with water, wet hair as well.
4. Place victim in front of a fan or in a breeze, if possible.
5. If ice is available, apply directly to the victim, especially under the arms and on the head.
6. Monitor body temperature with available thermometers. Temperature should start to decrease within minutes.
7. As temperature approaches 101°F, stop cooling measures and initiate transport to a hospital or declare an emergency response. The temperature should continue to fall, often to subnormal, during this period.

Other considerations in treating heat stroke are:

1. Rub skin briskly during cooling process.
2. If cardiac arrest occurs, perform CPR (ONLY IF CERTIFIED) and continue cooling.

3. If a seizure occurs, continue cooling; the seizure will stop.
4. No drugs of any kind are to be given to the victim.

D. Heat Stress - Predisposing Factors

Preventing heat stress is clearly preferred to treatment. The following factors increase the individual's risk of heat stress:

- Physically unfit
- Age
- Not accustomed to heat
- Sunburn
- Alcohol and drugs
- Dehydration
- Heavy or non-breathable clothing
- Not covering one's head

6.3.2 Cold Stress

Personnel can be susceptible to cold stress while conducting field work during cold weather months. To guard against cold stress and to prevent cold injuries, appropriate warm clothing should be worn, warm shelter must be previously identified and readily available, rest periods should be adjusted as needed, and the physical conditions of onsite field personnel should be closely monitored. All personnel working onsite must be able to recognize the signs and symptoms of cold stress and apply first aid as needed. The Site HSO is responsible for monitoring the signs and symptoms of cold stress among field personnel.

The development of cold stress and cold injuries is influenced by three factors: the ambient temperature, the velocity of the wind, and the amount of sunshine. Fingers, toes, and ears are the most susceptible parts of the body affected by cold.

A. Frost Nip: Frost nip is the first sign of frost bite and is the only form of local cold injury that can be definitively treated in the field.

Symptoms: A whitened area of the skin which is slightly burning or painful.

Treatment: Rewarming the affected part.

B. Frost Bite: Local damage is caused by exposure to low temperature environmental conditions. It results at temperatures when ice crystals form, either superficially or deeply, in the fluids and underlying soft tissues of the skin. The nose, cheeks, ears, fingers, and toes are most commonly affected.

Symptoms: Skin is cold, hard, white, and numb. There may also be blisters. The affected parts will feel intensely cold; however, there may not be any pain. The victim may not know that he or she is frost-bitten.

As time goes on, the victim may experience mental confusion and impairment of judgment. The victim may stagger and eyesight may fail. The victim may fall and become unconscious. Shock is evident and breathing may cease. If death occurs, it is usually due to heart failure.

Treatment: Generally, definitive thawing should not be performed in the field, because if re-freezing occurs, it could result in severe damage. The victim should be transported to a medical facility after the following measures are instituted:

Do Not:

- Do not walk on a thawed foot or toes or use thawed hands.
- Do not allow victim to smoke or drink alcohol.

- Do not rub affected area with anything.
- Do not break any blisters.
- Do not apply heat of any kind.

Do:

- Do place victim in protected environment.
- Do prevent further heat loss (warmer clothes).
- Do protect from further damage (warm covering).

C. Mild Hypothermia

Symptoms: The single most important sign of mild hypothermia is a change in behavior. Some signs that can be observed are:

- Decrease in work efficiency
- Decreased level of communication
- Forgetfulness
- Poor judgment
- Poor motor skills (difficulty in handling objects, dropping tools)

The target organ of mild hypothermia is the brain. During mild hypothermia, most of the body's protective mechanisms for temperature control are intact. Shivering is usually present and "goose flesh" and pale skin persist. When asked directly, the victim will usually say that he feels cold. A worker impaired by mild hypothermia can be a danger to himself and co-workers.

Treatment:

- The victim should be moved indoors or into a heated vehicle.

- Remove all wet or damp clothing, dry skin, and apply dry clothing.
- The head should be covered with a hat or blanket.
- Blankets should be put on the victim.
- The victim should be given hot fluids (no alcohol).
- If possible, monitor the victim's temperature at 15 minute intervals.

D. Moderate Hypothermia: For field purposes, this may be defined as the stage at h the patient is clearly incapable of functioning effectively, but is conscious.

Symptoms: The victim's body temperature is well below normal and some mental changes may occur which include:

- Disorientation to people, place, and time
- Hallucinations
- Inappropriate laughing or crying
- Bizarre behavior for that individual

During moderate hypothermia, shivering is absent, "goose flesh" disappears, and the heart rate may slow down. The victim does not "feel" cold.

Treatment:

- First, treat the patient for mild hypothermia.
- Provide warming with hot blowers or heaters.
- Use human body heat.
- Watch for signs of returning to normal (e.g., shivering, goose flesh, teeth chattering).
- Monitor mental status.

After these steps are initiated, the victim should be taken to a medical facility. The patient should not return to work for at least 48 hours.

E. Severe Hypothermia:

Symptoms: Characterized by a decrease in the body temperature which results in a deep coma in which even vital signs become very weak and finally undetectable. Most occupational cases occur when the victim is alone or lost. These victims, for all practical purpose, appear to be dead, but the saying "not dead until warm and dead" applies to severe hypothermia. Many of these victims can survive.

Treatment:

1. The patient is not to be considered dead.
2. Remove wet clothes, dry skin, and apply dry clothes.
3. Activate rewarming.
4. Prepare to transfer the victim to a medical facility.
5. If the patient is pulse-less and is not breathing, perform CPR (ONLY IF CERTIFIED), while enroute to the medical facility.
6. Very cold victims often tolerate long periods of arrest, even without CPR. The victim must be handled very carefully because of extreme susceptibility to even minor trauma.

7.0 SITE CONTROL

In order to keep unauthorized personnel from entering the work area during drilling or environmental sampling activities, and for good control of overall site safety, three work zones will be established. The three work zones are the Support Zone, the Contamination Reduction Zone, and the Exclusion Zone. Actual Exclusion Zone size will be determined by optimal size of work area and by local obstructions.

7.1 Support Zone

The Support Zone for the Busy Bee Site will be located adjacent to the onsite shed. The Support Zone will be where support facilities such as the office and equipment storage shed will be located.

The office and equipment storage shed will contain personal protective equipment (disposable suits, gloves, boots, etc.), a first aid kit, a fire extinguisher, a stretcher, sampling equipment, sample containers, 50% solution of fruit punch or the like in water (or plain drinking water), and self-contained breathing apparatus.

7.2 Contamination Reduction Zones

A Mobile Contamination Reduction Zone will lie adjacent to each active drilling Exclusion Zone as described below.

During drilling operations, materials brought to the surface may come in contact with workers' boots or protective clothing and equipment. A mobile decontamination area will be set up adjacent to the active drilling area. All personnel in the active drilling area will be required to decontaminate themselves and light equipment prior to leaving the active drilling Exclusion Zone.

7.3 Exclusion Zone

The Exclusion Zone is the area around each active drilling location. The exact size of this active drilling Exclusion Zone will be determined by optimal size of work area and by local obstructions.

All personnel leaving the active drilling or Exclusion Zone will be required to do so via the Mobile Contamination Reduction Zone, and to carry out proper decontamination procedures.

7.4 Site Visitation

It is expected that officials from NYSDEC and other regulating bodies and jurisdictions will visit the site during operations. It is also possible that an OSHA representative will wish to inspect the operations. All such officials must meet the same requirements as onsite workers (OSHA-approved training, site-specific training, and medical surveillance) before going into any Exclusion Zone. All visitors must read this HASP prior to entering an Exclusion Zone. Visitors other than NYSDEC, OSHA, NYSDOH, or Town or County government representatives will be subject to the additional requirement of having to receive written permission from NYSDEC to enter an Exclusion Zone. A Daily Site Visitors Log will be kept and all visitors to the site will sign in and provide their affiliation, the date of visit, affirmation that they have read and understood the HASP, arrival time, departure time, and purpose of visit.

8.0 PERSONAL PROTECTION

Since personnel working on site may be exposed to unexpected levels of hazardous airborne contaminants released during drilling activities, or may come in contact with contaminants in wastes, drill cuttings, or soils, various levels of protection must be available. It is anticipated that Level D protection will be utilized during most drilling activities. Components of all levels of personal protection that will be available are listed in Table 8-1. Self-contained breathing apparatus (SCBAs) will be available in case sustained PID readings greater than 25 ppm are detected. If readings above this action level are detected during drilling activities, drilling will cease, all necessary Exclusion Zone personnel will don SCBAs, and the borehole will be sealed. If these action levels are attained during any other activities, those activities will cease immediately, and the level of protection used by onsite personnel will be reassessed. Planned levels of protection for various activities are given in Table 8-2.

In the event that unexpected levels of organic vapors are encountered, any personnel working at Level D protection will don their respirators (change to Level C). The Site HSO will consult with the Project HSO to decide if and when Level D protection may be resumed, or if a higher level of personal protection is required.

Some modification in safety equipment (e.g., switching from poly-coated disposable coveralls to standard disposable coveralls) may be implemented in order to balance concerns for full contaminant protection against concerns for the possibility of heat stress resulting from the need to wear more restrictive protective equipment. Such modifications may be implemented only if approved in advance by the Site HSO, following consultation with the Project HSO. Protective equipment which fully complies with the requirements of all required levels of protection will be immediately available at all times on the site.

Level C respiratory protection will normally be provided using NIOSH/MSHA-approved full-face respirators, with HEPA combination filter cartridges approved for removal of organic vapors, particulates, gases, and fumes. The HEPA filter cartridges will be changed at the end of each work day or when breakthrough occurs, whichever comes first. All URS field team

TABLE 8-1
COMPONENTS OF PERSONAL PROTECTION LEVELS

Level D Protection	Level C Protection	Level B Protection
• Safety glasses with side shields (or goggles)	• Hard hat	• Hard hat
• Hard Hat	• Poly-coated disposable (or standard disposable) coveralls	• Poly-coated disposable (or standard disposable) coveralls
• Face shield (optional)	• Inner gloves of tight-fitting latex or vinyl	• Inner gloves of tight-fitting latex or vinyl
• Ordinary coveralls	• Outer gloves of neoprene or nitrile	• Outer gloves of neoprene or nitrile
• Outer gloves of neoprene or nitrile	• Steel-toe, steel-shank work shoes or boots (chemical resistant)	• Steel-toe, steel-shank work shoes or boots (chemical resistant)
• Steel-toe, steel-shank work shoes or boots (chemical resistent)	• Outer boots of neoprene or butyl rubber	• Outer boots of neoprene or butyl rubber
• Outer boots of neoprene or butyl rubber	• Disposable outer "booties"	• Disposable outer "booties"
	• Full-face air-purifying respirator (to be worn)**	• SCBA
	• Taping of gloves and boots to disposable coveralls	• Taping of gloves and boots to disposable coveralls

* Respirator to be fitted with NIOSH/MSHA-approved high-efficiency filter (HEPA) combination respirator cartridges approved for organic vapors, particulates, gases, and fumes.

** Half-face respirator, face shield, and safety glasses with side shields (or goggles) may be substituted with approval of the Site HSO.

TABLE 8-2

PLANNED LEVELS OF PERSONAL PROTECTION FOR EACH ACTIVITY

Field Activity	Level of Protection*
A. Non-Intrusive Activities	
1. Control Survey	D
2. Support Zone Activities	D
B. Intrusive Activities	
1. Test Pit Excavation	C
2. Drilling	D
3. Environmental Sampling	D
4. Equipment Decontamination	D

* These are the levels of protection at which work will commence during the various activities on the site. Due to onsite conditions, and as directed by the Site Health and Safety Officer, it may become necessary to upgrade the level of personal protection.

members will have been fit-tested for respirators using irritant smoke prior to project assignment. Due to difficulties in achieving a proper seal between face and mask, persons with facial hair will not be allowed to work in areas requiring respiratory protection.

For the fullest protection of site personnel, the supervising field geologist will conduct gas/vapor monitoring at closely spaced intervals during drilling activities and as appropriate during environmental sampling activities. Monitoring will be accomplished by real-time monitoring equipment.

The primary purpose of this monitoring will be to assess the adequacy of respiratory protection and to make it possible to stop work quickly if explosive or hazardous gases are encountered, or if an oxygen-deficient atmosphere is detected. The air monitoring to be carried out during all intrusive activities is summarized in Section 9.

9.0 AIR MONITORING

Air monitoring will be performed throughout the drilling program and as appropriate during environmental sampling activities by trained URS personnel. While intrusive activities are in progress, monitoring frequencies will be as summarized in Table 9-1. Air monitoring equipment will be calibrated daily and all data will be recorded in the field notebook and transferred to Instrument Reading Logs (Appendix B). Each day, intrusive work will not begin until the instruments are calibrated and background levels are taken and recorded. Air will be monitored for total volatiles with a photoionization detector (HNu Model PI 101, or equivalent). Explosive atmosphere and oxygen content will be monitored with an explosimeter (Gastech Model 1641, or equivalent). All air monitoring results and meteorological data (e.g., temperature range, wind speed, wind direction, etc.) will be recorded in the field notebook and will be transferred to Instrument Reading Logs.

9.1 Total Volatiles

During drilling activities, air monitoring for total volatiles (organic vapors) will be performed using a photoionization detector (HNu Model PI 101, or equivalent) equipped with the standard probe which contains a 10.2 eV lamp. When readings less than 5 ppm above background in the breathing zone are observed consistently, monitoring will take place for every sample retrieved and Level D protection will be utilized. If readings from 5-25 ppm above background in the breathing zone are observed, and all other air monitoring action levels indicate that drilling can proceed, monitoring will take place continuously and Level C protection will be utilized. If organic vapor readings continue to exceed 25 ppm above background in the breathing zone, or other instrument readings continue to necessitate work suspension, drilling activities will be halted and the level of protection used by onsite personnel will be reassessed.

TABLE 9-1

ACTION LEVELS DURING INTRUSIVE ACTIVITIES

ıment readings in breathing zone above borehole unless otherwise noted.
action level is independent of all other action levels in determining responses.

rganic Vapors (PID)	Combustibles	Oxygen	Responses
5 ppm Above ackground	0-10% LEL	19.5-21%	o Continue drilling. o Level D protection. o Continue monitoring every sample retrieved.
25 ppm Above ackground, ıstained Reading	10-20% LEL	19.5-25%	o Discontinue drilling unless PID reading is only action level exceeded. o Level C protection, possible upgrade to Level B. o Continuous monitoring for organic vapors at Exclusion Zone perimeter. o Continuous monitoring for LEL at borehole. o Continuous 0_2 monitoring at borehole.
25 ppm Above ackground, ıstained Reading	>20% LEL	<19.5% or >25%	o Discontinue drilling. o Withdraw from area; shut off all engine ignition sources. o Allow hole to vent. o Continuous monitoring for organic vapors at Exclusion Zone perimeter. o Continuous LEL monitoring in borehole, determination made of safe re-entry level. o Continuous 0_2 monitoring, determination made of safe re-entry level.

ES: Air monitoring for action levels will occur in the breathing zone 18" above the borehole. Readings will be taken in the borehole, but will not be used for action levels.

If action levels for any one of the monitoring parameters is exceeded, the appropriate responses listed in the right hand column should be taken.

If instrument readings do not return to acceptable levels after the borehole has been vented for a period of greater than one-half hour, the hole will be covered with a 55-gallon drum to reduce emissions. A decision will then be made whether or not to seal the hole with a cement-bentonite plug and abandon it.

9.2 Explosive Atmosphere/Oxygen Content

A Gastech explosimeter Model 1641, or equivalent, will be used to monitor for explosive atmosphere and percent oxygen. Monitoring frequencies during drilling activities will be as summarized in Table 9-1. Readings greater than 20% LEL, less than 19.5% oxygen, or greater than 25% oxygen will require temporary suspension of intrusive activities until the Project HSO determines a safe re-entry level.

9.3 Work Stoppage Responses

The following responses will be initiated whenever one or more of the action levels necessitating a work stoppage is exceeded:

(1) The Site HSO will be consulted immediately.

(2) All personnel (except as necessary for continued monitoring and contaminant mitigation, if applicable) will be cleared from the work area (e.g., from within the Exclusion Zone).

(3) Monitoring will be continued until intrusive work resumes or the soil boring is grouted.

(4) If, during drilling activities, downwind monitoring PID readings are greater than 5 ppm above background for more than one half hour, the soil boring will be grouted or covered with an empty 55-gallon drum until grouting can safely be completed.

Any chemical release to air, water, or soil must be reported to the Site HSO at once. Any exposure resulting from protective equipment failure must be immediately reported to the Site HSO and to the Project HSO in writing within 24 hours.

9.4 Calibration of Air Monitoring Instruments

A. Photoionization Detector: The photoionization detector will be calibrated to a benzene surrogate daily (prior to field activities) and the results will be recorded in the field log book and transferred to Instrument Reading Logs.

B. Explosimeter: Once a day, the explosimeter will be calibrated to a methane gas standard. Prior to each use, the oxygen sensor will be air-calibrated at an upwind location. This calibration involves adjusting the meter to read 20.5%, the concentration of oxygen in ambient air.

9.5 Community Air Monitoring Plan

Real-time air monitoring for volatile organic compounds and particulate levels will be conducted during the excavation of test pits as follows:

- Volatile organic compounds will be monitored at the downwind perimeter of the work area on a continuous basis. If total organic vapor levels exceed 5 ppm above background, work activities will be halted and monitoring continued under the provisions of a Vapor Emission Response Plan. All readings will be recorded and be available for NYSDEC and NYSDOH personnel to review if requested.

- Particulates will be continuously monitored upwind, downwind, and within the work area at temporary particulate monitoring stations. If the downwind particulate level is 150 $\mu g/m^3$ greater than the upwind particulate level then dust suppression techniques will be employed. All readings will be recorded and be available for NYSDEC and NYSDOH personnel to review if requested.

Vapor Emission Response Plan

If the ambient air concentration of organic vapors exceeds 5 ppm above background at the perimeter of the work area, activities will be halted and monitoring continued. If the organic vapor level decreases below 5 ppm above background, work activities can resume. If the organic vapor levels are greater than 5 ppm over background but less than 25 ppm over background at the perimeter of the work area, activities can resume provided the organic vapor level 200 feet downwind of the work area or half the distance to the nearest residential or commercial structure, whichever is less, is below 6 ppm over background.

If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shut down. When work shut down occurs, downwind air monitoring as directed by the Site Health and Safety Officer will be implemented to ensure that vapor emission does not impact the nearest residential or commercial structure at levels exceeding those specified in the Major Vapor Emission Response Plan.

Major Vapor Emission Response Plan

If any organic vapor levels greater than 5 ppm over background are identified 200 feet downwind from the work area or half the distance to the nearest residential or commercial property, whichever is less, all work activities will be halted.

If, following the cessation of work activities, or as the result of an emergency, organic vapor levels persist above 5 ppm above background 200 feet downwind or half the distance to the nearest residential or commercial property from the work area, then the air quality will be monitored within 20 feet of the perimeter of the nearest residential or commercial structure (20 foot zone).

If efforts to abate the emission source are unsuccessful and organic vapor levels approaching 5 ppm persist for more than 30 minutes in the 20 foot zone, then the Major Vapor Emission Response Plan shall automatically be placed into effect.

However, the Major Vapor Emission Response Plan shall be immediately placed into effect if 20 foot zone organic vapor levels are greater than 10 ppm above background.

Upon activation of the Major Vapor Emission Response Plan, the following activities will be undertaken:

- All Emergency Response authorities will immediately be contacted by the Site Health and Safety Officer and advised of the situation.
- Air monitoring will be conducted at 30 minute intervals within the 20 foot zone. If two successive readings below action levels are measured, air monitoring may be halted or modified by the Site Health and Safety Officer.

10.0 HANDLING OF SAMPLES

The collection and analysis of environmental samples will require caution, not only to ensure safety of site sampling and support personnel, but also to ensure accuracy of results. To minimize hazards to lab personnel, sample volumes will be no larger than necessary, and the outside of all sample containers will be wiped clean prior to shipment.

In order to preserve sample integrity and to prevent contaminant escape, packaging of samples will follow the sampling protocols outlined in the Field Sampling Plan (FSP). All samples will be placed in a sealed shipping container prior to shipment.

Provisions for chain-of-custody documentation are also described in the FSP.

11.0 DECONTAMINATION PROCEDURES

11.1 Decontamination of Personnel

Protective clothing, boots, and gloves, will be decontaminated before entering the Support Zone by a thorough soap-and-water wash prior to leaving the Exclusion Zone. Personnel performing intrusive tasks in potentially contaminated areas (drilling, test pit excavation, environmental sampling) will be advised that all clothing worn under protective clothing (i.e., underwear, shirts, socks, trousers) should be laundered separately from street clothing before re-wearing. If protective clothing is breached and personal clothing becomes contaminated, the personal clothing will be disposed of.

11.2 Decontamination of Equipment

Decontamination of sampling equipment is described in the FSP. Other light equipment (such as tools, containers, monitoring instruments, radios, clipboards, etc.) will be segregated and deposited on plastic drop cloths or in plastic-lined containers placed in the Contamination Reduction Zone and will be wiped off with damp cloths.

Decontamination of drilling equipment, such as auger flights, and excavation equipment, such as backhoe shovels, will be carried out by high-pressure water in the Contamination Reduction Zone.

12.0 EMERGENCY PROCEDURES

The most likely incidents for which emergency measures might be required are:

- an exposure-related worker illness
- a sudden release of hazardous gases/vapors during drilling or excavation
- an explosion or fire occurring during drilling or excavation
- a heavy equipment-related accident, or other accident resulting in personal injury
- slipping, tripping, or falling resulting in personal injury
- spill of contaminated liquid or solid

Emergency procedures established to respond to these incidents are covered under the sections that follow.

12.1 Communications

Communications will be centered in the field vehicles, which will contain a telephones for direct outside communications with emergency response organizations. The vehicles will also contain two-way radios for contact with personnel working on site. If the Onsite Coordinator or his designee leaves a field vehicle, a radio will be carried by him at all times. A radio will be maintained at the drill rig, at each trench location, and with any groups of personnel who are performing tasks on site (e.g., environmental sampling). Work in the Exclusion Zone will always be done with at least two people on site and a third person in a field vehicle.

12.2 Escape Routes

Flags will be positioned near drill rigs to indicate wind direction. In the event of a sudden release of hazardous gases, or a fire, all personnel will be required to move upwind or at 90 degrees away from the location of the release or fire, toward the site exit point. This may require personnel to move from the Exclusion Zone directly into an offsite area without proper decontamination. At the conclusion of the emergency, they should perform proper decontamination.

12.3 Evacuation Signal

In the event of a sudden release or fire requiring immediate evacuation of the site, three quick blasts will be sounded on an air horn. Sounding the air horn will be the responsibility of the drill rig operator or the supervising geologist. The horns will be kept in a conspicuous place for quick access by personnel. The geologist will also contact the command office via the two-way radio to report the incident and request aid if necessary. An air horn will also be kept in the Contamination Reduction Zone. NYSDEC and the Project HSO will be notified by telephone, and later by written report whenever a site evacuation is executed.

12.4 Other Signals

Emergency hand signals for use by personnel wearing air-purifying respirators are summarized in Table 12-1.

12.5 Fire

At the start of intrusive work, the Alfred Station Fire Control will be notified and briefed about the potential hazards at the site (see Table 12-2). The Project HSO will be responsible for this notification. It will be the responsibility of the drill rig and backhoe operator to have a fire extinguisher available for each respective rig. The drilling operator will have the further responsibility of taking fire prevention measures such as the continuous removal from the drill rig of accumulated oil, grease, or other combustible materials.

In the event of a drill rig fire or other fire that cannot be controlled with available equipment, the local fire department will be summoned immediately by the Onsite Coordinator or his designee, who shall apprise them of the situation upon their arrival. NYSDEC will also be notified. (See Table 12-2 for telephone numbers of emergency response agencies).

TABLE 12-1

EMERGENCY HAND SIGNALS

o Hand gripping throat	- Can't breathe.
o Grip partner's wrist, or place both hands around wrist	- Leave area immediately, no debate!
o Hands on top of head	- Need assistance.
o Thumbs up	- I am all right, OK, I understand.
o Thumbs down	- No, negative.

TABLE 12-2

EMERGENCY CONTACTS

Emergency Response Agencies	
Alfred Station Fire Control	716-268-7200 *
Alfred Station Police Department	587-8877 (Area Code 607)
Allegany County Sheriff Department	716-268-7200 *
Medical Facilities	
St. James Mercy Hospital 411 Canisteo Street, Hornell, NY 14843	324-3900 (Area Code 607)
Environmental and Health Agencies	
USEPA National Response Center (Chemical spills, oil spills, pollutant discharges)	800-424-8802 *
New York State Department of Environmental Conservation Gerald Rider)	518-457-0927
New York State Department of Health, (Richard Tuers)	518-458-6309 *

12.6 First Aid

At the startup of field activities, the Project HSO will contact hospital personnel regarding the potential hazards at the site. Chemical fact sheets will be provided to the hospital for all known contaminants at the site.

First aid for personal injuries will be administered at the shed by the Onsite Coordinator or his designee. If a site worker should require further treatment, he will be transported to the hospital in the URS vehicle located on site or an ambulance will be summoned. The onsite vehicle will carry written directions to the hospital as well as a copy of Figure 12-1 showing the route.

All accidents, however insignificant, will be reported to the Site HSO, who will report the accident to the Project HSO.

All personnel designated to administer first aid will have received a minimum of eight hours training in first aid and CPR, and be certified by the American Red Cross.

In the event of an emergency rescue situation, the appropriate rescue equipment will be immediately available. The rescue equipment are items such as safety harnesses and lines and a stretcher.

In the event of a serious personal injury requiring offsite medical attention, the injured person will first be moved to the Contamination Reduction Zone, where an attempt will be made to go through the decontamination procedures, including removal of protective clothing. If the injury is life-threatening, decontamination will be of secondary importance, and the injured party will be taken directly to the hospital. If a head, neck, back, or spinal injury is suspected, the injured person will not be moved and an ambulance will be summoned to the site.

12.7 Emergency Assistance

The name, telephone number, and location of police, fire, hospital, and other agencies whose services might be required, or from whom information might be needed, will be posted near the telephone in the field vehicles. The list is presented in Table 12-2.

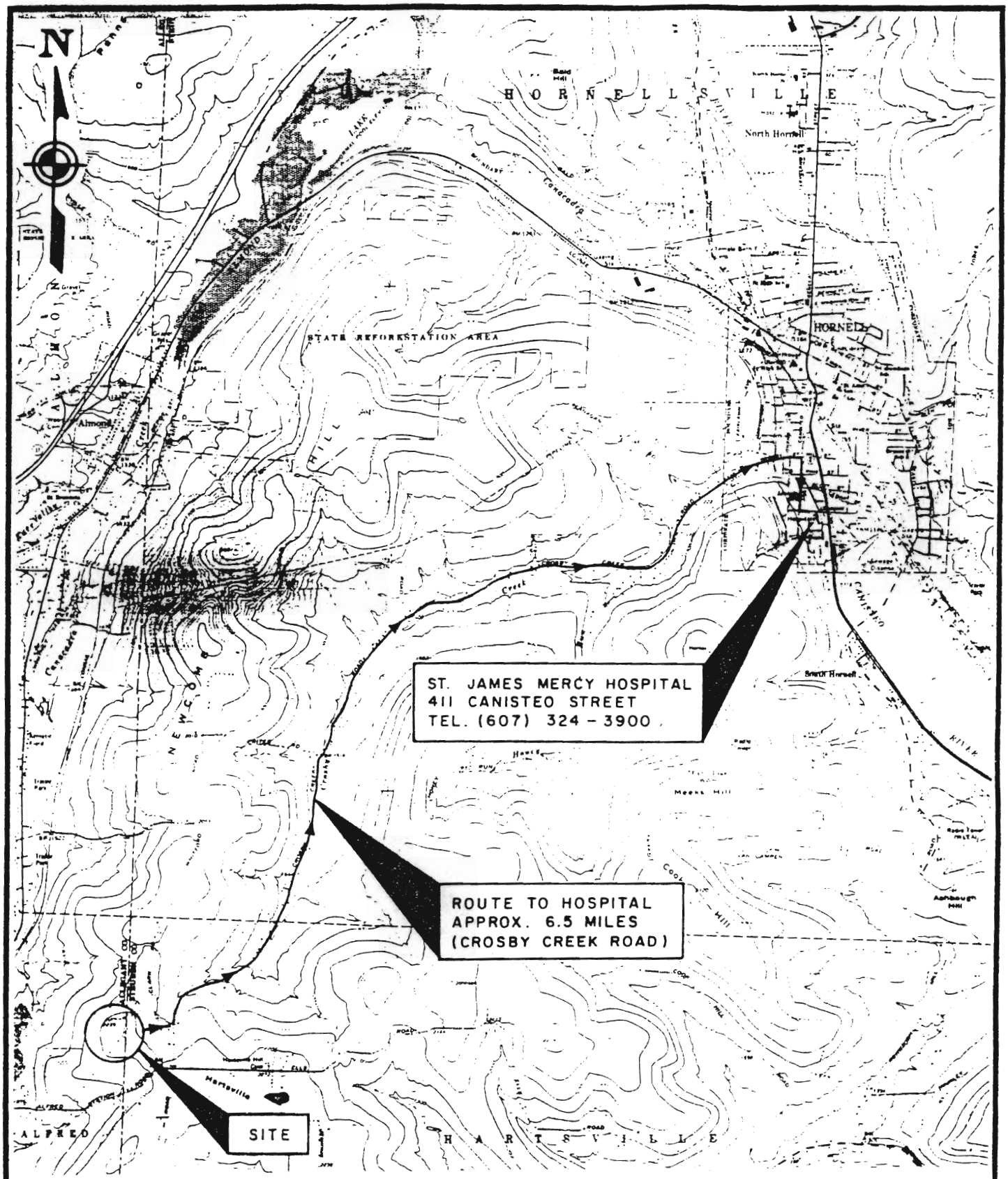
If an ambulance should have to be called to the site, the injured person should meet the ambulance outside the Exclusion Zone if possible. If a head or spinal injury is suspected or the person is unconscious for any reason, medical personnel may have to come into the Exclusion Zone.

12.8 Spills

The potential for spills to occur during onsite work at the Busy Bee Site is minimal, since the direct handling of hazardous waste containers (drums, tanks, etc.) is not part of the scope of work. In the event that residual materials are spilled onsite, the following procedures will be implemented:

12.8.1 Liquid Spills - If a liquid (decontamination water, well development water, etc.) is spilled on a permeable surface, two inches of surficial soil will be removed where the spill occurred and drummed. The area will later be either backfilled with clean soil or regraded. If liquid is spilled on an impermeable surface, a sorbent material will be applied to the spill area. The sorbent material will be swept up and drummed, and the spill area washed down with clean water.

12.8.2 Soil Spills - Contaminated soil spilled on a permeable surface will be shovelled into a drum, and the top two inches of soil where the spill occurred will also be removed and drummed. The area will then be either backfilled with clean topsoil or regraded. If soil is spilled on an impermeable surface, the material will be shovelled (or swept) back into a drum, and the area washed with clean water.



MAP SOURCE:
USGS 7.5 MINUTE SERIES QUADRANGLE
HORNELL, N.Y. 1965 (Rev. 1978)

4,000 FT. 0 4,000 FT.
SCALE

URS
CONSULTANTS, INC.

PATTON'S BUSY BEE DISPOSAL SITE

ROUTE TO HOSPITAL

FIGURE 12-1

A-5323

All spills will be reported to the Project HSO within 24 hours. The Project HSO in turn will inform NYSDEC of the incident.

12.9 Community Protection Plan

12.9.1 General - Among URS's Health and Safety responsibilities is protection of the community. Prior to onsite work, the Project HSO will notify the local health department, hospital, police, and fire departments to let them know when work is to be conducted on site.

12.9.2 Vapor Emission Response - The most important component of the Community Protection Plan is the Vapor Emission Response Plan, designed to protect the adjacent community from the possible release of hazardous vapors during drilling activities. Should such a release occur, the Vapor Emission Response Plan will be initiated immediately.

If the ambient air concentration of organic vapors exceeds 5 ppm above background at the perimeter of the work area, activities will be halted and monitoring continued. If the organic vapor level decreases below 5 ppm above background work activities can resume but more frequent intervals of monitoring, as directed by the Site HSO must be conducted. If the organic vapor levels are greater than 5 ppm above background, but less than 25 ppm above background at the perimeter of the work area activities can resume provided:

1) The organic vapor level 200 ft. downwind of the work area or half the distance to the nearest residential or commercial structure, whichever is less, is below 5 ppm over background, and

2) More frequent intervals of monitoring, as directed by the Site HSO, are conducted.

If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown. When work shutdown occurs, downwind air monitoring as directed by the Site HSO will be implemented to ensure that vapor emissions do not impact the nearest residential or commercial structure.

12.10 Reports

Any emergencies, spills, or releases that occur on the site will be reported to the Project HSO and NYSDEC within one hour and will be followed by written notification within 24 hours.

12.11 Accident Investigation and Reporting

12.11.1 Accident Investigations

All accidents requiring first aid which occur incidental to activities onsite will be investigated. The investigation format will be as follows:

- interviews with witnesses,
- pictures, if applicable, and
- necessary actions to alleviate the problem.

12.11.2 Accident Reports

In the event that an accident or some other incident such as an explosion or exposure to toxic chemicals occurs during the course of the project, the Project HSO and NYSDEC will be telephoned within one hour and receive a written notification within 24 hours. The report shall include the following items:

- Name, telephone number, and location of the Contractor, if not URS personnel.
- Name and title of person(s) reporting.
- Date and time of accident/incident.
- Location of accident/incident, ie., building number, facility name.
- Brief summary of accident/incident giving pertinent details including type of operation ongoing at the time of the accident/incident.
- Cause of accident/incident.
- Casualties (fatalities, disabling injuries).
- Details of any existing chemical hazard or contamination.

- Estimated property damage, if applicable.
- Nature of damage; effect on contract schedule.
- Action taken by Contractor/URS to insure safety and security.
- Other damage or injuries sustained (public or private).

13.0 SAFETY CONCERNS AND CONTINGENCY MEASURES DURING DRILLING OPERATIONS

Normally, the drilling program poses one of the greatest threats to the safety of site personnel. Drilling at this site will be conducted under the OSHA Safety and Health Standards (29 CFR 1926/1910) relative to heavy equipment operation. The following sections describe site-specific safety measures to be implemented during various phases of drilling activities.

13.1 Soil Borings

An active drilling Exclusion Zone is established by the opening of a borehole. A photoionization detector calibrated to a benzene surrogate, and an explosimeter calibrated to methane, will be used in this zone. As described in Table 9-1, readings will be made at the borehole every time a sample is retrieved from the borehole. Monitoring with real-time instrumentation will be performed at the borehole and around the drill rig. Action levels will be considered to have been reached when a continuous, steady reading at or above an action level has been observed.

If at any time during the drilling program, buried drums, cylinders, metal, or concrete are encountered, drilling activities will cease immediately. After obtaining instrument readings, the project geologist and the Site HSO will decide whether to continue or discontinue drilling.

13.2 Drill Cuttings and Decontamination/Well Development/Well Evacuation Water

Water generated from the decontamination of personnel and equipment in the Contamination Reduction Zone, will be disposed of in the onsite leachate collection tanks.

14.0 SAFETY CONCERNS AND CONTINGENCY MEASURES DURING EXCAVATION OPERATIONS

During the excavation of test trenches, several health and safety concerns usually arise and control the method of excavation. All excavations must be sloped for stabilization. Personnel near the excavation may be exposed to toxic or explosive gases and oxygen-deficient environments. Due to these potential hazards, substantial air monitoring shall be conducted, and appropriate respiratory equipment and protective clothing shall be utilized without exception. There must be at least four persons present at the immediate excavation site at all times. No person shall enter an excavation for any reason except when necessary for a rescue.

Excavation at this site will be conducted under the safety regulations specified by OSHA Safety and Health Standards (29 CFR 1926/1910.120, 1910.134). The following sections describe site-specific safety measures to be implemented during the test trench excavation program. Action levels are listed in Table 9-2.

14.1 Excavation

A temporary fence barrier will be established about 50 feet away from the working area prior to test trench excavation. Excavation will be timed so as to not permit any test trenches to remain open overnight. URS personnel will regularly police the outside of the temporary fence barrier during the excavation of test trenches.

Stabilization of the trench sides can be achieved by sloping the walls at a sufficiently flat angle or by using sheeting. Benching or terracing may be used for deeper excavations. Dewatering may be required to assure the stability of the side walls, to prevent the bottom of the pit from heaving, and to keep the excavation dry. Water will be removed via submersible or trash pumps depending on volume and infiltration rate. The water will be contained in drums for offsite disposal. Liquids removed as a result of dewatering operations must be handled in the same manner as decontamination water, as potentially contaminated materials.

If a drum is accidentally ruptured during excavation, the following equipment will be

assembled to control the situation if necessary:

Class ABC fire extinguishers
Class D fire extinguishers
Sand
Canvas tarps
Sorbant materials
Drum grapples
Overpacks
Drum sampling equipment
Explosion shield

14.2 Inspection Methodologies

Test trench excavation will proceed in twelve-inch lifts using a backhoe equipped with a non-sparking bucket. Between each lift, a visual inspection will be made to look for drums. If an intact drum is found, it will be carefully brought to the surface and will be inspected. The inspection crew will look for:

- Symbols, words, or other marks on the drum indicating that its contents are hazardous
- Symbols, words, or other marks on the drum indicating that it contains discarded laboratory chemicals, reagents, or other potentially dangerous materials in small-volume individuals containers
- Signs of deterioration, such as corrosion, rust, and leaks
- Signs of the drum is under pressure, such as swelling and bulging
- Drum type such as polyethylene or PVC-lined drums, exotic metal drums, single-walled drums used as a pressure vessel and laboratory packs
- Configuration of the drum head (e.g. - whole lid removable, has a bung, or contains a liner)

While excavating, the test trench will be visually inspected after each twelve-inch lift, and

instrument readings will be taken in the trench using extension probes. If waste materials, discoloration, or elevated instrument readings are detected, the material will be brought to the surface and a sample will be collected from the backhoe bucket. The material will then be returned to the excavation.

14.3 Mobile Contamination Reduction Zone

During test trench excavation operations, potentially contaminated material will be brought to the surface and may come in contact with the boots or protective clothing of personnel. In order to minimize the potential for contaminating clean areas of the site as personnel and equipment move from an active excavation site to the decontamination area, and to prevent cross-contamination, a mobile decontamination station will be set up adjacent to the active excavation area where personnel decontamination will take place. All heavy equipment will be precleaned at the test trench site following excavation and backfilling to remove loose soil and debris and these materials will be placed in the excavation prior to moving to the next test trench.

This mobile decontamination area will have the following equipment available:

- water spray canister
- long handle brushes
- water and soap
- plastic tub
- eyewash station
- fire extinguishers (Class ABC and Class D)
- first aid kit
- sand
- large tarp
- sorbent materials, containers, and various hand tools

APPENDICES

APPENDIX A

WASTE SITE WORKER TRAINING PROGRAMS

TABLE A-1

WASTE SITE WORKER TRAINING PROGRAM (40 HOURS)

Introduction to Program
Sources of Reference
Hazardous Waste Operations and Emergency Response (29 CFR 1910.120)
Heat Stress/Cold Exposure
Chemical & Physical Hazards
Chemical Protective Clothing (CPC)

Toxicology
Respiratory Protection Principles
Air-Purifying Respirators (APR)
APR Inspection, Donning, and Doffing
Self Contained Breathing Apparatus (SCBA)
SCBA Checkout
SCBA Field Exercise
Review of SCBA Lab and Field Exercise
Air-Line Respirators (ALR)

Site Safety
Site Control
Decontamination
Air Monitoring Equipment
Permit Required Confined Spaces (29 CFR 1910.146)
Entry Permit Development
Confined Space Entry
Review of Confined Space Lab and Field Exercise
Material Handling and Spill Containment

Health and Safety Plans (HASP)
Emergency Response Plans (ERP)
HASP & ERP Development

Level A/B Field Exercise
Level B/C Field Exercise
Air Monitoring Equipment Lab
SCBA Proficiency Checkout

Review of Lab & Field Exercises

Review of Air Monitoring Equipment Lab
Medical Monitoring
Hazard Communication (29 CFR 1910.120)
Risk Assessment
APR Fit Test Demonstration and Certification
Written Test

35352.00
B/APP.H&S/gem

TABLE A-2

WASTE SITE WORKER SUPERVISORY TRAINING PROGRAM (8 HOURS)

Record keeping Requirements Under Standard 29 CFR 1910.120
OSHA Inspections
Establishing Community Relations
Employee Training and Motivation
Management Traits
Dermal Protection Program
Respiratory Protection Program
Preventative Heat Stress and Cold Exposure Management
Medical Monitoring Requirements
Reporting and Recording Occupational Injuries, Illnesses, and Exposures
Accident Prevention
Spill Containment Program
Permit Required Confined Spaces (29 CFR 1910.146)
Determining the Effectiveness of Decontamination Procedures
Implementation of Site Health and Safety Plans
Implementation of Emergency Response Plans
Implementation of the Hazard Communication Standard (29 CFR 1910.120)
Responsibilities of the Site Safety and Health Supervisor and Project Manager
Personnel Sampling
Interpretation of Air Monitoring Data

TABLE A-3

WASTE SITE WORKER ANNUAL REFRESHER TRAINING PROGRAM (8 HOURS)

OSHA Requirements
Hazardous Wastes
Toxicology
Exposure Limits
Chemical Hazards
Temperature Stress
Other Physical Hazards
Radiation
Site Control at Hazardous Waste Sites
Decontamination Procedures
Personal Protective Equipment
Confined Spaces
Air Monitoring Equipment
Field Exercises

APPENDIX B
FIELD ACTIVITY FORMS

URS Consultants, Inc.
282 Delaware Ave.
Buffalo, N.Y. 14202

HAZARDOUS WASTE ACTIVITIES
HEALTH & SAFETY CHECKLIST

Project: _____

Project Manager: _____

Onsite Health & Safety Officer: _____

The Project manager, or onsite health and safety officer will signify the completion of the following items by initialing and dating each item.

	Initial	Date
Site health and safety plan prepared and approved by health and safety manager	_____	_____
All employees who will be onsite:		
• Have received initial (24 or 40 hr.) Training	_____	_____
• Have received annual 8 hr. refresher training	_____	_____
• Have reviewed the site health and safety plan and received pre-job briefing	_____	_____
• Have received respiratory protective equipment training including SCBA if required	_____	_____
• Have received negative pressure respirator fit test	_____	_____
• Have had a medical exam within the past 12 months	_____	_____

This form is to be submitted to the health and safety director prior to onsite work which may involve exposure to hazardous materials.

A--3522

A-3741

EMPLOYEE / VISITOR REGISTER

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Buffalo, New York 14202

Project: _____

Project Manager: _____

Onsite Health & Safety Officer: _____

Name / Signature	Affiliation	Purpose	Onsite Safety Briefing	PPE	Time In	Time Out
1.						
2.						
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						

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ONSITE SAFETY BRIEFING

Date: _____ Project: _____

Meeting Conducted by: _____

Name

_____

_____

_____

_____

_____

_____

_____

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A-2783-B

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Buffalo, N.Y. 14202

TAILGATE SAFETY MEETING

Date: _____ Customer: _____

Specific Location: _____

Safety Topics Presented:

Protective Clothing / Equipment: _____

_____

Chemical Hazards: _____

_____

Physical Hazards: _____

_____

Emergency Procedures: _____

_____

Hospital / Clinic: _____ Phone: _____

Paramedic Phone: _____

Hospital Address: _____

Special Equipment: _____

_____

Other: _____

_____

_____

Attendees:

Name Printed:	Signature:
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Meeting Conducted By:

_____ _____

Name Printed Signature

A-2783-C

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Buffalo, N.Y. 14202

INSTRUMENT READING LOG

Project: _____ Job No.: _____

Date: _____ Operator: _____

Instrument: _____ Calibration: _____
Amt, Component, Date

Sampling Technique: _____

Temperature Range: _____ **Humidity:** _____ **Wind Speed/ Direction:** _____

Sample Interval: _____

Background Reading: _____

Action Level/Response: _____

Time	Location / Task	Reading (units)	Detection Limit (Scale)

A-2783-A

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SCBA Monthly Inspection Checklist

(To be kept with SCBA)

SCBA ID # _____

Hydrotest Certification Date _____

The following items are to be checked by the inspector:

- Connections are tight
- Headbands, valves and connecting tubes are in good condition
- Rubber parts are pliable with no signs of deterioration
- Regulator functions properly
- Warning device function properly
- Tank is fully charged

Any deficiencies in the above items require removing the SCBA from service

Inspected by:	Date:	Inspected by:	Date:

A – 3524

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TEST ATMOSPHERE QUALITATIVE FIT TEST

Type of Test Atmosphere (Circle one)
- Isoamyl Acetate
- Saccharin
- Irritant Smoke

	PASS	FAIL
Employee Sensitive to Test Atmosphere	___	___
Breathe Normally	___	___
Breathe Deeply	___	___
Turn Head from Side to Side	___	___
Move Head Up & Down, Inhale With Head Up	___	___
Talk Aloud (Rainbow Passage)	___	___
Count	___	___
Jog in Place for Three Minutes	___	___
Breathe Normal	___	___
Overall Evaluation of Respirator Fit	___	___

Restrictions/Limitations:_____

_____

_____

Date of Fit Test: _____

Date Respirator Issued:_____

A-3515

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METEOROLOGICAL DATA LOG

DATE __/__/__ ________ TIME ______

B.P. ______.____ mm Hg

TEMP. _____.___ °C

WIND ________ AT _______ MPH

DESCRIPTION ____________________

Precip. since last reading _____ in.

DATE __/__/__ ________ TIME ______

B.P. ______.____ mm Hg

TEMP. _____.___ °C

WIND ________ AT _______ MPH

DESCRIPTION ____________________

Precip. since last reading _____ in.

DATE __/__/__ ________ TIME ______

B.P. ______.____ mm Hg

TEMP. _____.___ °C

WIND ________ AT _______ MPH

DESCRIPTION ____________________

Precip. since last reading _____ in.

DATE __/__/__ ________ TIME ______

B.P. ______.____ mm Hg

TEMP. _____.___ °C

WIND ________ AT _______ MPH

DESCRIPTION ____________________

Precip. since last reading _____ in.

DATE __/__/__ ________ TIME ______

B.P. ______.____ mm Hg

TEMP. _____.___ °C

WIND ________ AT _______ MPH

DESCRIPTION ____________________

Precip. since last reading _____ in.

DATE __/__/__ ________ TIME ______

B.P. ______.____ mm Hg

TEMP. _____.___ °C

WIND ________ AT _______ MPH

DESCRIPTION ____________________

Precip. since last reading _____ in.

DATE __/__/__ ________ TIME ______

B.P. ______.____ mm Hg

TEMP. _____.___ °C

WIND ________ AT _______ MPH

DESCRIPTION ____________________

Precip. since last reading _____ in.

DATE __/__/__ ________ TIME ______

B.P. ______.____ mm Hg

TEMP. _____.___ °C

WIND ________ AT _______ MPH

DESCRIPTION ____________________

Precip. since last reading _____ in.

A—3518

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HEAT/COLD STRESS LOG

PROJECT _____

PROJECT MANAGER _____

ONSITE HEALTH & SAFETY OFFICER _____

EMPLOYEE NAME _____ TODAY'S DATE _____

DATE OF BIRTH _____ HEIGHT _____ WEIGHT _____

MEDICAL APPROVAL DATE _____ RESTRICTIONS _____

LEVEL OF PROTECTION _____

TEMPERATURE _____ HUMIDITY _____ WIND SPEED _____

OTHER _____

HEAT STRESS MONITORING

HEART RATE AT BEGINNING OF REST PERIOD _____

BODY TEMPERATURE AT BEGINNING OF REST PERIOD _____

SYMPTOMS _____ TREATMENT _____

_____ _____

_____ _____

COLD STRESS MONITORING

BODY TEMPERATURE AT BEGINNING OF REST PERIOD _____

WARM CLOTHING WORN _____ WARM SHELTER USED _____

LENGTHS OF REST PERIOD _____

SYMPTOMS _____ TREATMENT _____

_____ _____

_____ _____

A-3516

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REPORT OF ACCIDENT/INJURY

Project: _____ Date of Occurrence: _____

Location: (be specific) _____

_____

Type of Occurrence: (check all that Apply)

- ☐ Disabling Injury
- ☐ Other Injury
- ☐ Property Damage
- ☐ Equipment Failure
- ☐ Chemical Exposure
- ☐ Fire
- ☐ Explosion
- ☐ Vehicle Accident
- ☐ Other (explain) _____

_____

Witnesses to Accident / Injury: (and office)

_____ _____

_____ _____

_____ _____

Injuries:

Name of Injured: _____ Office: _____

What was being done at the time of the accident / injury?

_____

_____

_____

_____

A-2783-D

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Nature of the Accident / Injury: _____

_____

_____

What caused the Accident / Injury? _____

_____

_____

_____

_____

What corrective action will be taken to prevent recurrence? _____

_____

_____

_____

_____

Signatures:

Health and Safety Officer_____ Date _____

Project Manager_____ Date _____

Reviewer_____ Date _____

Comments by Reviewer: _____

_____

_____

_____

_____

_____

_____

A-2783-D

APPENDIX C

STANDARD OPERATING SAFETY PROCEDURES

APPENDIX C - STANDARD OPERATING SAFETY PROCEDURES

Rules for onsite personal safety are shown in Table C-1; rules for operational safety appear in Table C-2.

TABLE C-1

PERSONAL SAFETY RULES

- Personnel on site must use the buddy system when wearing respiratory protective equipment.

- Visual contact must be maintained between crew teams on site.

- Any practice that increases the probability of hand-to-mouth transfer and ingestion of materials is prohibited in any area designated as contaminated. These practices include as a minimum, eating, drinking, chewing gum or tobacco, and smoking.

- Hands and face must be thoroughly washed upon leaving the work area, and before engaging in any other activities, especially eating or drinking.

- Due to interference of facial hair with the mask-to-face seal on air-purifying respirators, personnel working onsite will not be permitted to wear facial hair that interferes with the seal.

- Contact with contaminated surfaces or surfaces suspected of contamination should be avoided. Site personnel should avoid walking through puddles, mud, or other discolored areas, and should not kneel or sit on the ground.

TABLE C-1 (Continued)

- Field personnel, shall be familiar with the physical characteristics of the site, including:

  - wind direction in relation to the working area
  - accessibility to associates, equipment, and vehicles
  - communications
  - work zones
  - site access

- Medicine and alcohol can exacerbate the effect from exposure to toxic chemicals. Prescribed drugs should not be taken by field personnel where the potential for absorption, inhalation, or ingestion of toxic substances exists unless specifically approved by a qualified physician. Alcoholic beverage and controlled substance intake is strictly forbidden during onsite operations.

TABLE C-2

OPERATIONAL SAFETY RULES

- No visitors shall be allowed into any Exclusion Zone without the express permission of the New York State Department of Environmental Conservation.

- Onsite personnel must use the buddy system when wearing respiratory protective equipment. A third person, suitably equipped, is required as a safety backup during initial site entries.

- During day-to-day operations, onsite workers will act as a safety backup to each other. Offsite personnel will provide emergency assistance.

- Wind indicators will be set up so as to be visible from the Exclusion Zone.

- Drilling rigs will be kept clean and free of accumulated greases, oils, and other combustible materials.

- No containers or fuels or other flammables will be kept within 100 feet of any drilling rig, borehole, or test trench.

- Daily briefings will be held to review site hazards, changes in level of personal protection required, special safety precautions for assigned work activities, and emergency response.

- All personnel going on site must be thoroughly briefed on anticipated hazards, and trained on equipment to be worn, safety procedures, emergency procedures, and communications.