MONITORING PLAN
OPERABLE UNIT 2 - GROUNDWATER AND WATER SUPPLY

STORONSKE COOPERAGE SITE
TOWN OF SCHODACK
RENSSELAER COUNTY, NEW YORK
SITE NO. 4-42-021

PREPARED FOR

NEW YORK STATE DEPARTMENT
OF ENVIRONMENTAL CONSERVATION

BY

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Section 1

1.0 BACKGROUND

1.1 Site Location and Description

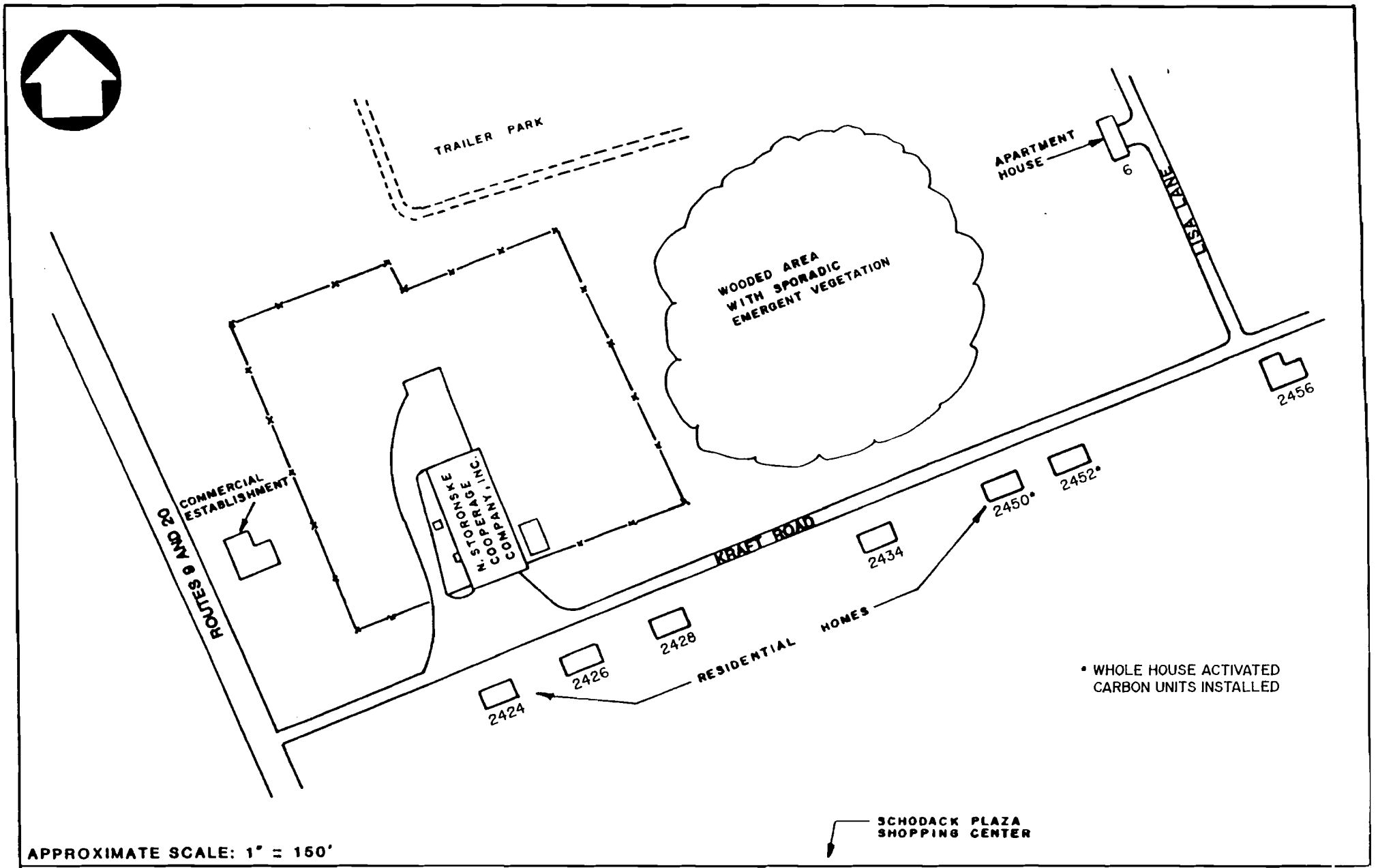
The Storonske Cooperage Site is approximately a 5-acre parcel of land located on the north side of Kraft Road immediately east of the intersection of Routes 9 and 20 in the Town of Schodack, Rensselaer County, New York.

The site is situated immediately adjacent to both residential and commercial establishments: to the north is a trailer park (Rensselaer Estates); to the east is a low lying wooded area and a small apartment complex (on Lisa Lane); to the south are seven residences on Kraft Road with private well water supplies and the Schodack Plaza water supply well; and to the west there are businesses on Routes 9 and 20 (see Figure 1).

There are, at present, no municipal water services in the area surrounding the Storonske Cooperage Site. All residences and commercial establishments rely on individual wells developed in either the overburden or bedrock aquifer for water supply. Former activities at the site have contaminated surrounding groundwater and some private wells as a result of private well contamination. Granular activated carbon (GAC) treatment units have been installed, where appropriate, on these impacted wells.

1.2 Site History

The Storonske Cooperage facility was used for the cleaning and reconditioning of 55-gallon drums from 1973 until it closed in 1992. Prior to 1973, the property was utilized by the Albany-Nassau Bus Company as a bus garage and depot. Wastewater from the Cooperage operation was discharged to an unlined concrete block lagoon which eventually leached into the soil and groundwater.



STORONSKE COOPERAGE SITE
FEASIBILITY STUDY

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SITE LOCATION MAP

FIGURE 1

The site came to the attention of the New York State Department of Environmental Conservation (NYSDEC) in March 1984 when NYSDEC staff conducted a facility inspection under the Resource Conservation and Recovery Act (RCRA) program. The sludge in the former wastewater lagoon was sampled and found to fail the EP Toxicity test for lead. This resulted in Storonske Cooperage, Inc. entering into a Consent Order with the State of New York in March 1986 to remove the lagoon from operation and to conduct an investigation of the impacts of the lagoon.

1.3 Previous Investigations

As part of a Focused Remedial Investigation, primarily to address on-site contamination and remediation, a soil sampling program was conducted to better delineate the horizontal and vertical extent of soil contamination on the Storonske Cooperage Site. Based on the investigation, the soil was found to be contaminated with various volatile and semivolatile organic compounds, metals and PCBs.

Based on the results of this investigation regarding soil contamination at the site (Operable Unit 1), a Record of Decision was issued by NYSDEC in March 1992 to perform in-situ vacuum extraction and excavation of contaminated soil at the site. Construction activities related to the remediation of the site are scheduled to be initiated the Fall of 1994.

In March 1989, the NYSDEC conducted a Remedial Investigation/Feasibility Study (RI/FS) at the site. This investigation was designed to determine the nature and extent of groundwater and water supply contamination originating from the site (Operable Unit 2), and to evaluate appropriate remedial alternatives.

1.4 Findings of Remedial Investigation for Operable Unit 2

The Phase I Remedial Investigation (RI) was completed in 1990 and based on the results of this investigation, groundwater on-site and downgradient of the site was found to be contaminated by volatile organic compounds (VOCs). Metals were also detected at concentrations exceeding groundwater standards (summary of the analytes of concern and their respective concentrations are found in Tables 1-1, 1-2 and 1-3). Some nearby water supply wells were also found to be contaminated above drinking water standards by volatile organic compounds.

A Phase II RI was conducted in 1992 to further define the extent of groundwater contamination on and off-site. This Phase II investigation indicated the following:

1.4.1 Groundwater

There was a significant reduction in the concentrations of contaminants in the groundwater based on sampling conducted during the Phase II RI when compared to the Phase I RI (see Tables 1-1 and 1-2).

The most significant reduction in contaminant concentrations occurred on-site and directly downgradient of the former lagoon area, where the highest concentrations in groundwater were previously detected.

Elevated concentrations of select metals (barium, chromium, iron and manganese) did not appear to be related to contamination from the site and instead appear to be natural as a result of geologic formations within the study area.

Table 1-1

VOLATILE ORGANIC COMPOUNDS DETECTED AT ELEVATED CONCENTRATIONS IN GROUNDWATER

Contaminant	Maximum Concentration (ug/l) Phase I RI	Maximum Concentration (ug/l) Phase II RI	NYSDEC Class GA Groundwater Standards (ug/l)	NYSDOH Drinking Water Standards (ug/l)
1,2-Dichloroethane	83	30	5	5
1,1,1-Trichloroethene	27	15	5	5
Trichloroethane	29	19	5	5
Benzene	5	7	ND	5
Tetrachloroethene	20	10	5	5
Chlorobenzene	34	8	5	5
Ethylbenzene	130	7	5	5
Xylene* (Total)	200	63	5*	5*

ND: Not Detected

*Applies to each isomer individually.

Table 1-2

METALS DETECTED AT ELEVATED CONCENTRATIONS IN GROUNDWATER

Contaminant	Maximum Concentration (ug/l) Phase I RI	Maximum Concentration (ug/l) Phase II RI	NYSDEC Class GA Groundwater Standards (ug/l)	NYSDOH Drinking Water Standards (ug/l)
Barium	3,360	4,580	1,000	1,000
Cadmium	10.7	ND	10	10
Chromium	305	13	50	50
Iron	92,900	39,400	300	300
Manganese	13,700	7,500	300	300

ND: Not Detected

Table 1-3

VOLATILE ORGANIC COMPOUNDS
DETECTED IN PRIVATE WATER SUPPLY WELLS
ALONG KRAFT ROAD

Address	2424				2426				2434				2450*				2452*				2456				Schodack Plaza+				NYSDEC Class GA Groundwater Standards (ug/l)	NYSDOH Drinking Water Standards (ug/l)
Year	88	90	91	92	88	90	91	92	88	90	91	92	88	90	91	92	88	90	91	92	88	90	91	92	88	90	91	92		
COMPOUNDS																														
1,1-Dichloroethane	2	1	2	1.2	22	2	1	1.6	-	24	0	ND	75	45	52	22	1.2	0.7	0.8	1.0	<1	ND	-	-	4	-	ND	6.7	5	5
1,1,1-Trichloroethane	-	0	0	0	1	0.6	-	-	-	23	0	ND	43	31	26	20	7.8	8	7	5.0	<1	ND	-	-	11	-	ND	10	5	5

(concentrations in ug/l)

NOTES:
- \- No Samples
- * These homes are equipped with GAC Systems
- \+ A new well has been installed - no contaminants detected
- ND Not Detected
- Samples collected and analyzed from 1988 through 1992

1.4.2 Water Supply

VOCs were determined to be present in both the overburden and shallow bedrock aquifer used for water supply.

Two water supply wells in private residences downgradient from the site continue (based upon latest samples obtained in October 1993) to be affected by contamination from the site with concentrations of contaminants above drinking water standards. However, in general there has been a decreasing trend in the concentration of volatile organic compounds in private wells affected by contamination from the site (see Table 1-3).

1.4.3 Surface Water and Sediment

No impact in surface water and sediment has been identified as a result of contamination which may be migrating from the site.

1.5 Record of Decision

A Record of Decision (ROD) setting forth the selected remedial action plan for the Storonske Cooperage Site, Operable Unit 2-Groundwater was issued March 1993. As part of the ROD, a remedial plan was developed in accordance with the New York State Environmental Conservation Law and Regulations, and is consistent with the Comprehensive Environmental Response Compensation and Liability Act of 1980 (CERCLA), 42 US Section 9601, et. seq, as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA). It should be noted that the ROD for Operable Unit 1-On-site Soil was issued in March 1992. As described above, the remedy selected under the March 1992 ROD will be initiated shortly and will be supplemented by the remedy selected for Operable Unit 2.

Section 2

2.0 DESCRIPTION AND IMPLEMENTATION OF SELECTED REMEDY

2.1 Description of Selected Remedy for Operable Unit 2

The major components of the selected remedy for Operable Unit 2 (groundwater and water supply) are summarized as follows.

2.1.1 Water Supply

The selected remedy for water supply was "Individual Well Head Treatment."

The components of this remedy are:

- Replacement of the two existing granular activated carbon filter systems with more effective systems.
- Semiannual monitoring and maintenance of the carbon filter systems for 5 years.
- Provision for additional granular activated carbon filter systems if the monitoring program documents the need for treatment of other individual water supply wells.
- Semiannual monitoring of all potentially impacted private and commercial water supply wells in the study area.
- Re-evaluation of the site and monitoring and maintenance plan at the end of the 5-year period.

2.1.2 Groundwater

The selected remedy for groundwater contamination is "No Action." The rationale and components of the remedy are based upon the NYSDEC March 1992 ROD for Operable Unit 1 (on-site soils), which provides for installation and operation of a soil vapor extraction system (and excavation of contaminated soils). This remedy, when implemented in late 1994, is expected to reduce the source of volatile organic chemical contamination to the groundwater and to accelerate

the rate of natural attenuation of the groundwater contamination which is currently taking place at the site. Therefore, the interim selected remedy for groundwater was No Action with continued groundwater monitoring. This action will be re-evaluated after the review of data from the monitoring program before and after the implementation of soil vapor extraction system. Should there be a need to treat the groundwater after the review of the data, reconsideration would be given to extraction and treatment of the groundwater, which would include:

- Installation of five recovery wells each pumping 10 gallons per minute to remove contaminated groundwater for treatment.
- Treatment of the recovered contaminated groundwater by air stripping.
- Reinjection of the treated groundwater into the affected aquifer.

2.2 Implementation of Selected Remedy for Operable Unit 2

Rust Environment and Infrastructure (REI) was issued a work assignment by NYSDEC to upgrade and maintain the existing whole house carbon treatment units located at 2450 and 2452 Kraft Road. Monitoring performed by REI is conducted semiannually for VOCs in raw water prior to the treatment units, between carbon treatment units and at the tap located at the kitchen sink representing fully treated water. Only the homes which have carbon treatment units installed (2450 and 2452 Kraft Road) are currently monitored by REI.

The New York State Department of Health (NYSDOH) performed monitoring in the study area in November 1993 which included homes that may either have been potentially impacted by the site, but have concentrations of contaminants below drinking water standards, or the water supply wells are located in the area of concern. The NYSDOH will conduct semiannual monitoring of the wells in the study area until this monitoring plan is implemented.

Section 3

3.0 RECOMMENDED WATER SUPPLY AND GROUNDWATER MONITORING PROGRAM

Based upon the historical data from samples collected from water supply wells and two rounds of groundwater samples collected from groundwater monitoring wells, the following program for water supply and groundwater is recommended (see Table 3-1 and Figure 3-1) as part of the remedy included in the March 1993 Record of Decision.

3.1 Water Supply Wells

On a semiannual basis, one sample should be collected from all water supply wells (raw water on residences with carbon or other treatment units installed) within the study area. There are 12 recommended locations which are indicated in Table 1-4. Analysis will be performed for Target Compound List (TCL) volatiles +10 constituents. If no elevated results for other parameters are identified as a result of performing monitoring of groundwater monitoring wells as discussed in Section 3.2 (above those previously determined as background for metals, as well as other chemicals) are identified, monitoring will continue to comprise analysis for TCL volatiles +10 for the remainder of the 5-year period. An annual summary and interpretation of sample results will be prepared and incorporated into a final 5-year review. The program will be re-evaluated after 5 years of data has been collected.

3.2 Groundwater Monitoring Wells

Since groundwater monitoring wells have not been sampled since April 1992, it is recommended that a full round of samples from all 29 monitoring wells that are present in the study area be conducted in the near future, prior to activation of the soil vapor extraction system at the site, currently anticipated in the Fall of 1994. It is recommended that analysis be performed for full TCL +30 constituents on shallow and deep monitoring well numbers 1-9 and 15 and TCL volatiles +10 for shallow and deep monitoring wells 10-14 and 16. It is recommended that sampling be performed subsequently for constituents of concern (TCL volatiles +10) on a semiannual basis for a 5-year period dependent upon results of the sampling. An annual summary

Table 3-1

RECOMMENDED MONITORING PROGRAM

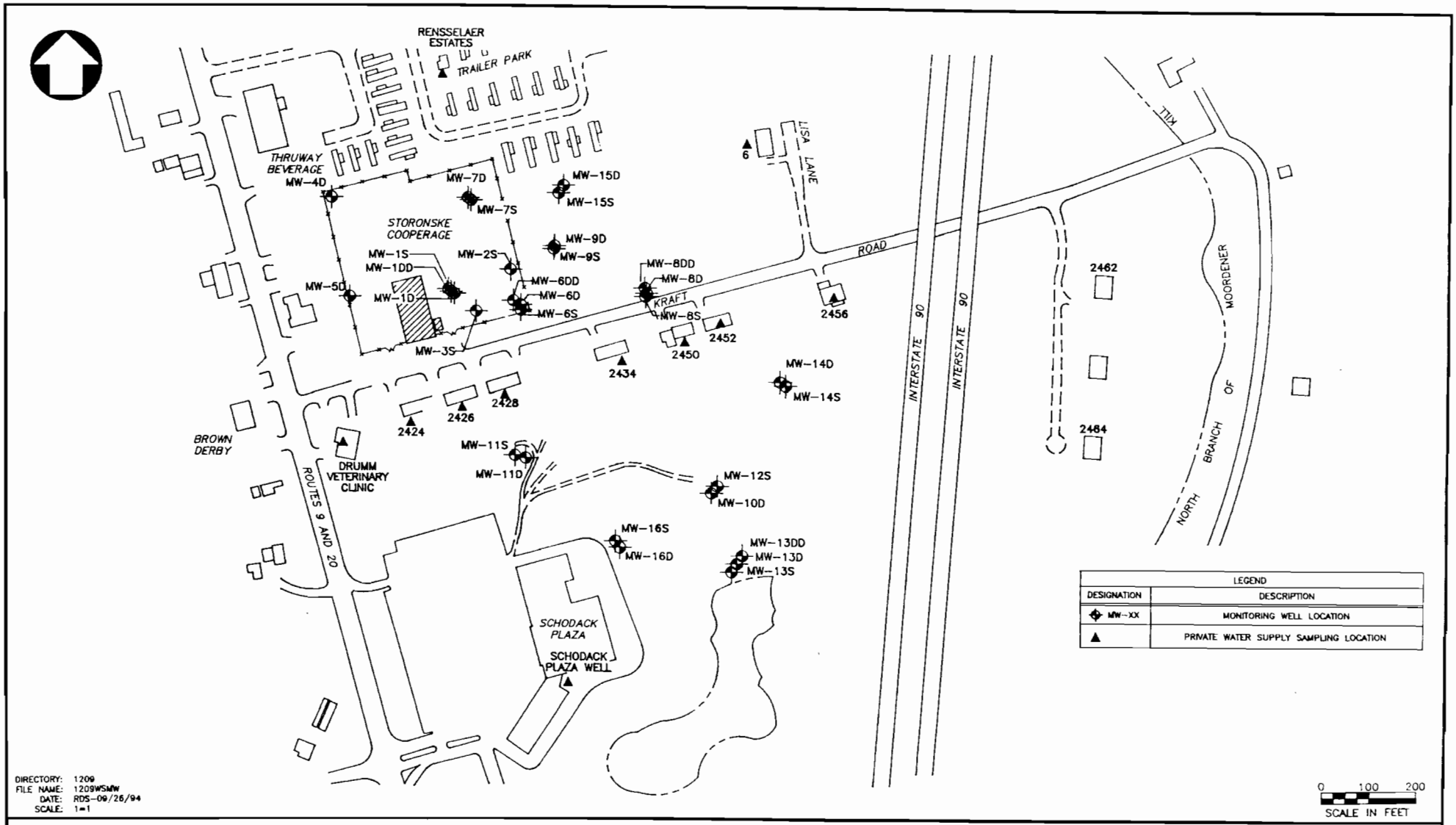
Water Supply Location	Current Frequency	Sampling Agency	Proposed Frequency	Recommended Parameters: First Round	Recommended Parameters: Subsequent Rounds*
Kraft Road	Annually	NYSDOH	Semiannually	TCL Volatiles +10	TCL Volatiles +10
2424	Annually	NYSDOH	Semiannually	TCL Volatiles +10	TCL Volatiles +10
2426	Annually	NYSDOH	Semiannually	TCL Volatiles +10	TCL Volatiles +10
2428	Annually	NYSDOH	Semiannually	TCL Volatiles +10	TCL Volatiles +10
2434	Annually	NYSDOH	Semiannually	TCL Volatiles +10	TCL Volatiles +10
2450	Semiannually	NYSDEC	Semiannually	TCL Volatiles +10	TCL Volatiles +10
2452	Semiannually	NYSDEC	Semiannually	TCL Volatiles +10	TCL Volatiles +10
2456	Annually	NYSDOH	Semiannually	TCL Volatiles +10	TCL Volatiles +10
2462	Annually	NYSDOH	Semiannually	TCL Volatiles +10	TCL Volatiles +10
2462B	Annually	NYSDOH	Semiannually	TCL Volatiles +10	TCL Volatiles +10
2464	Annually	NYSDOH	Semiannually	TCL Volatiles +10	TCL Volatiles + 10
Lisa Lane	Annually	NYSDOH	Semiannually	TCL Volatiles +10	TCL Volatiles +10
6	Annually	NYSDOH	Semiannually	TCL Volatiles +10	TCL Volatiles +10
Rensselaer Estates Well System	Annually	NYSDOH	Semiannually	TCL Volatiles +10	TCL Volatiles +10
Schodack Plaza Well	Annually	NYSDOH	Semiannually	TCL Volatiles +10	TCL Volatiles +10
Drumm Veterinary Clinic	Annually	NYSDOH	Semiannually	TCL Volatiles +10	TCL Volatiles +10

Table 3-1 (continued)

RECOMMENDED MONITORING PROGRAM

Ground Water Location	Sampling Agency	Proposed Frequency	Recommended Parameters First Round	Recommended Parameters Subsequent Rounds*
Shallow and Deep Monitoring Well Numbers 1-9 and 15	NYSDEC	Semiannually	TCL + 30	TCL Volatiles + 10
Shallow and Deep Monitoring Wells 10-14 and 16	NYSDEC	Semiannually	TCL Volatiles + 10	TCL Volatiles + 10

* Subsequent rounds will include additional parameters detected above background concentrations based upon sampling of shallow and deep groundwater monitoring well numbers 1-9 and 15 for full TCL + 30 analysis.



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DATE: RDS-09/26/94
SCALE: 1=1

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WATER SUPPLY AND MONITORING WELL SAMPLING LOCATION MAP

FIGURE 3-1

and interpretation of sample results will be prepared and incorporated into a final 5-year review. Monitoring will be evaluated at the completion of 5 years to determine whether additional or reduced sampling frequency, or groundwater remediation is appropriate based upon the contaminant concentration trends.