Department of Environmental Conservation

Division of Environmental Remediation

Record of Decision
Chemical Sales Corporation Site
Operable Unit #2, Off-Site
Town of Gates, Monroe County
Site Number 8-28-086

March 2001

New York State Department of Environmental Conservation
GEORGE E. PATAKI, *Governor* ERIN M. CROTTY, *Commissioner*

DECLARATION STATEMENT - RECORD OF DECISION

Chemical Sales Corporation Inactive Hazardous Waste Site
Operable Unit #2, Off-Site
Town of Gates, Monroe County, New York
Site No. 8-28-086

Statement of Purpose and Basis

The Record of Decision (ROD) presents the selected remedy for Operable Unit #2 of the Chemical Sales Corporation class 2 inactive hazardous waste disposal site which was chosen in accordance with the New York State Environmental Conservation Law. 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 on the Administrative Record of the New York State Department of Environmental Conservation (NYSDEC) for the Chemical Sales Corporation inactive hazardous waste site and upon public input to the Proposed Remedial Action Plan (PRAP) presented by the NYSDEC. A listing 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 significant threat to public health and the environment.

Description of Selected Remedy

Based on the results of the Remedial Investigation/Feasibility Study (RI/FS) for Operable Unit #2 of the Chemical Sales Corporation site and the criteria identified for evaluation of alternatives, the NYSDEC has selected **On-Site Hydraulic Containment with Off-Site Monitored Natural Attenuation**. The components of the remedy are as follows:

1. A remedial design program to verify the components of the conceptual design and provide the details necessary for the construction, operation and maintenance, and monitoring of the remedial program. Any uncertainties identified during the RI/FS would be resolved.

2. This remedy presumes the completion of the on-site steam stripping remediation selected for Operable Unit #1 as given in the OU-1 Record of Decision (March 2000);

3. On-site hydraulic containment through the use of pumping wells to isolate the off-site plume from the on-site remedy and cut off the migration of contaminated groundwater across the canal;

4. Monitored Natural Attenuation of the off-site plume east of the canal; and

5. In the event that the on-site remediation results in adverse impacts to the off-site plume or off-site contamination does not sufficiently attenuate, a contingency plan to either extract off-site groundwater or enhance bioremediation will be implemented.

6. Since the remedy results in untreated hazardous waste remaining at the site, a long-term monitoring program will be instituted. This program will allow the effectiveness of the Monitored Natural Attenuation to be monitored and will be a component of the 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 preference for remedies that reduce toxicity, mobility, or volume as a principal element.

3/30/2001
Date

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

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RECORD OF DECISION

Chemical Sales Corporation Site
Operable Unit #2, Off-Site
Town of Gates, Monroe County
Site No. 8-28-086
March 2001

SECTION 1: SUMMARY AND PURPOSE OF THE RECORD OF DECISION

The New York State Department of Environmental Conservation (NYSDEC) in consultation with the New York State Department of Health has selected this remedy to address the significant threat to human health and/or the environment created by the presence of hazardous waste at Chemical Sales Corporation, a class 2 inactive hazardous waste disposal site. As more fully described in Sections 3 and 4 of this document, past handling practices have resulted in the disposal of a number of hazardous wastes, including chlorinated solvents and non-halogenated solvents, at the site, some of which were released or have migrated from the site to surrounding areas, including the groundwater east of the New York State Barge Canal (the "canal"), which is the subject of this proposed plan. These disposal activities have resulted in the following significant threats to the public health and/or the environment:

- a significant potential threat to human health associated with exposures to contaminated off-site groundwater; and

- a significant environmental threat associated with the impacts of contaminants to off-site groundwater.

In order to eliminate or mitigate the significant threats to the public health and the environment that the hazardous wastes disposed at Chemical Sales have caused, the following remedy is selected:

- This remedy presumes the completion of the on-site steam stripping remediation selected for Operable Unit #1 as given in the OU-1 Record of Decision (March 2000);

- On-site hydraulic containment through the use of pumping wells to isolate the off-site plume from the on-site remedy and cut off the migration of contaminated groundwater across the canal;

- Monitored Natural Attenuation of the off-site plume east of the canal; and

- In the event that the on-site remediation results in adverse impacts to the off-site plume or off-site contamination does not sufficiently attenuate, a contingency plan to either extract off-site groundwater or enhance bioremediation will be implemented..

The selected remedy, discussed in detail in Section 8 of this document, is intended to attain the remediation goals selected for this site in Section 6 of this Record of Decision (ROD), in conformity with applicable standards, criteria, and guidance (SCGs).

SECTION 2: SITE LOCATION AND DESCRIPTION

The Chemical Sales Corporation site (NYSDEC site number 8-28-086) is the location of a former chemical operation that conducted chemical storage, warehousing, transferring and sales of hazardous materials. The site is located on an approximately 0.85-acre parcel landlocked by a larger 6.6-acre parcel on Lee Road (Figures 1 and 2). The site is located in an urban area in the Town of Gates, at the western boundary of the City of Rochester. Residential, industrial, and commercial properties are located directly to the west and south of the site, along both Lee Road and Person Place. The New York State Barge Canal and bike path are located to the east and north of the site.

Operable Unit No. 2 (OU-2), which is the subject of this PRAP, consists of the off-site groundwater contamination migrating beneath and east of the barge canal. An Operable Unit represents a portion of the site remedy which for technical or administrative reasons can be addressed separately to eliminate or mitigate a release, threat of release or exposure pathway resulting from the site contamination. The remaining operable unit for this site is described in Section 3.2 below.

SECTION 3: SITE HISTORY

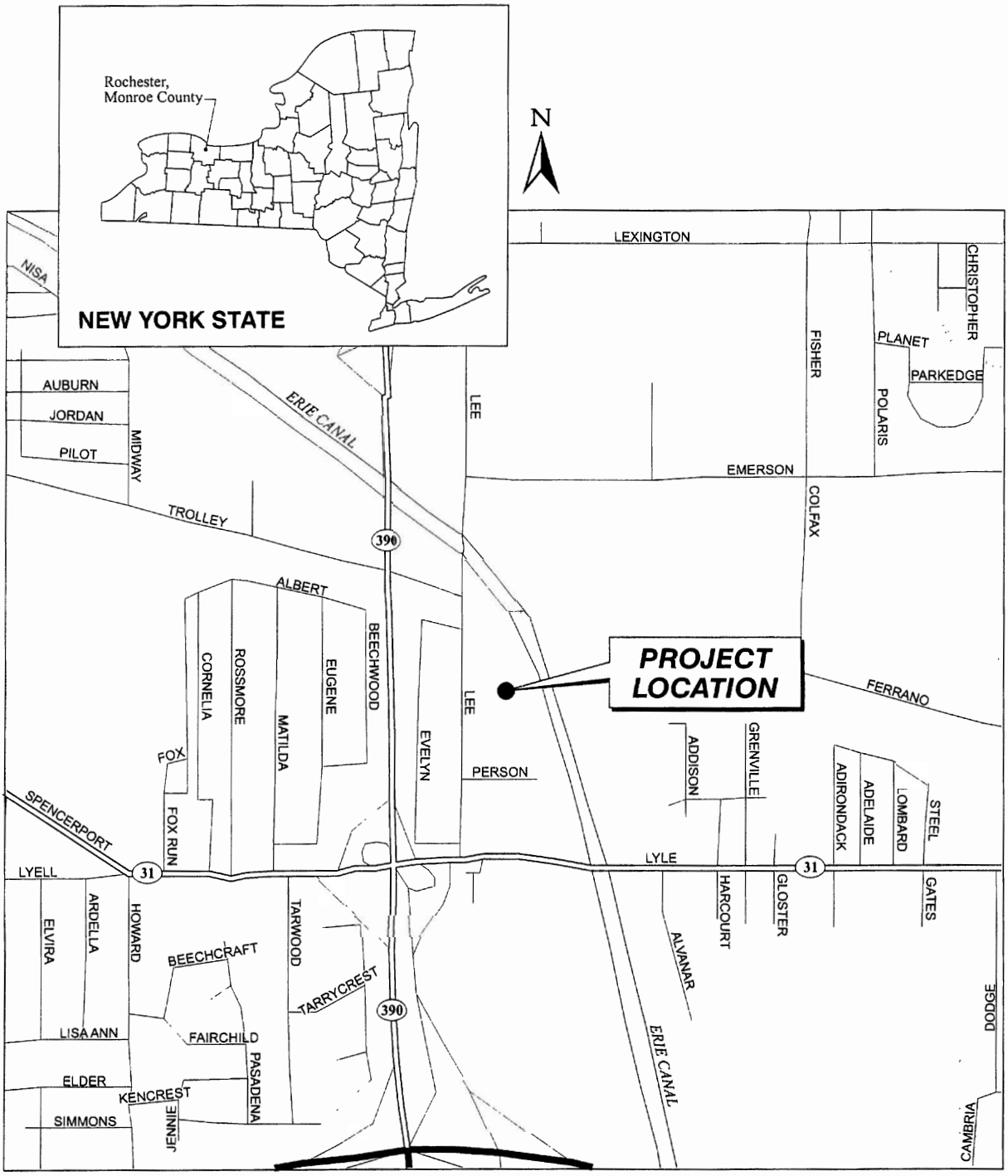
3.1: Operational/Disposal History

The Chemical Sales Corporation site is the location of a former solvent repackaging company. The former site was operated from 1976 until approximately 1997. Assorted chemicals were purchased by the company in bulk and repackaged into smaller containers for resale. The site had one main building, two smaller structures and numerous above ground storage tanks. Based on historical reports and company correspondence, solvents were the primary chemicals handled at the site. These included flammable and chlorinated solvents. The amount of materials handled is unclear but significant groundwater and soil contamination has been identified.

3.2: Remedial History

In 1989, as part of a real estate transaction, an environmental investigation was conducted on an adjacent property directly south of the Chemical Sales Corporation site. The investigation revealed that groundwater was contaminated with organic chemicals, most likely originating from the Chemical Sales Corporation property, in concentrations above New York State groundwater standards.

In 1992, based on this and other information, NYSDEC added the Chemical Sales Corporation site to its list of Inactive Hazardous Waste Disposal Sites as a class 2 site. A classification of 2 means the site poses a significant threat to public health and/or the environment, and action is required. NYSDEC began negotiating a legal agreement with Chemcore Incorporated for the performance of an environmental investigation. However, in 1994, Chemcore filed for bankruptcy before an investigation could take place.



APPROXIMATE SCALE IN FEET

1000 0 1000

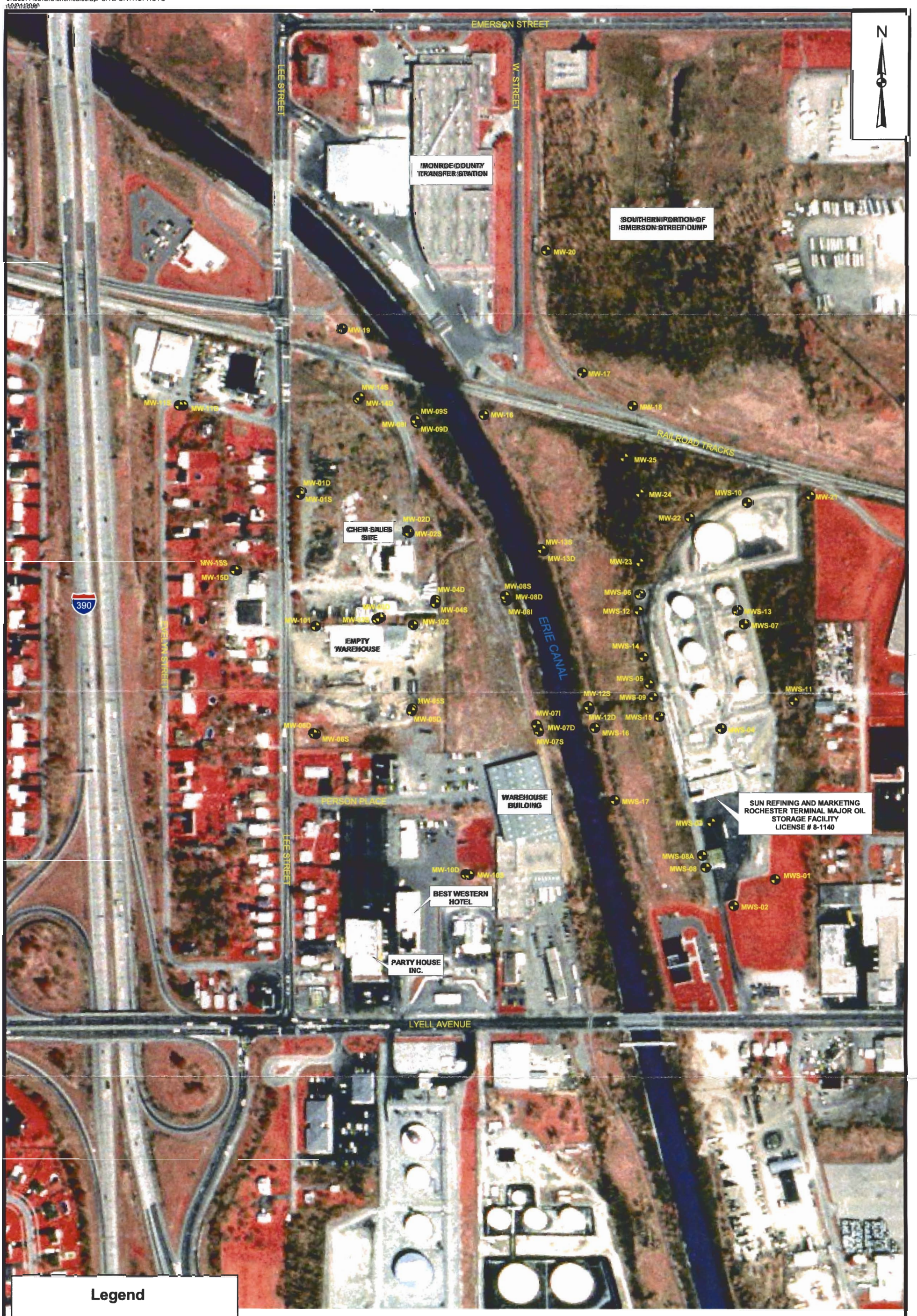
AG12817-35577.01-061198-GCM

URS

SITE LOCATION MAP

FIGURE 1

J:\35577.02\GIS\chemsales.apr SITE ORTHOPHOTO
10/21/2000



Legend

Monitoring Well Location

300 0 300 Feet

URS Greiner Woodward Clyde	SITE FEATURES	FIGURE 2

Because the responsible party (Chemcore) was not able to perform the investigation, the NYSDEC conducted the Remedial Investigation and Feasibility Study using funds from the 1986 Environmental Quality Bond Act.

In January 2000, the NYSDEC split the site into two operable units. The second operable unit is the subject of this document and includes the off-site groundwater contamination migrating beneath and east of the barge canal. Operable Unit #1 includes the area west of the barge canal, consisting of the Chemical Sales Corporation property, the contaminated portions of the surrounding property, the bedrock groundwater, the drainage ditch between the site and the canal, and the canal itself. A Record of Decision was issued for Operable Unit #1 in March 2000, specifying steam stripping as the remedial approach for the on-site area.

SECTION 4: SITE CONTAMINATION

To evaluate the contamination present at the site and to evaluate alternatives to address the significant threat to human health and the environment posed by the presence of hazardous waste, the NYSDEC has recently conducted a Remedial Investigation/Feasibility Study (RI/FS).

4.1: 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 off-site RI was conducted between August 2000 and October 2000. A report entitled "Remedial Investigation Data Summary Report" dated November 2000 has been prepared which describes the field activities and findings of the RI in detail.

The RI included the following activities:

- *A fracture-trace analysis of aerial photographs to determine the location and bearing of major fracture zones in the bedrock.*
- *Installation of monitoring wells for analysis of groundwater and hydrogeologic conditions.*

To determine which media (soil, groundwater, etc.) are contaminated at levels of concern, the RI analytical data was compared to environmental Standards, Criteria, and Guidance values (SCGs). Groundwater, drinking water and surface water SCGs identified for the Chemical Sales Corporation site are based on NYSDEC Ambient Water Quality Standards and Guidance Values and Part V of New York State Sanitary Code.

Based on the RI results, in comparison to the SCGs and potential public health and environmental exposure routes, certain media and areas of the site require remediation. These are summarized below. More complete information can be found in the RI Report.

Chemical concentrations are reported in parts per billion (ppb) and parts per million (ppm). For comparison purposes, where applicable, SCGs are provided for each medium.

4.1.1: Site Geology and Hydrogeology

The stratigraphic sequence near the site includes the following units from the surface down: miscellaneous and scattered surface debris; unconsolidated silt, sand, clay, and gravel (glacial till); and bedrock. The bedrock, to depths of approximately 175 feet, consists of the Lockport Dolomite and Rochester Shale Formations. The bedrock is divided into the Penfield and DeCew Members of the Lockport Formation, and the Gates Dolomite and Rochester Shale of the Rochester Shale Formation. The thickness of the overburden varies around the site, but in general ranges from a few feet to approximately 7 feet. The rock units also vary in thickness around the site but in general, the Lockport Formation is approximately 29 to 39 feet thick, and the Rochester Formation is reportedly approximately 150 feet thick.

Information obtained from the well borings were used to determine the depth to bedrock. West of the canal in the on-site area, the bedrock surface slopes gently toward the canal. East of the canal, in the off-site operable unit, the bedrock slopes gently toward the south.

The primary hydrogeologic unit identified near the site is the unconfined water-table aquifer present in the Lockport and upper Rochester Shale Formations. Locally, however, a perched water table is present in the some of the thin overburden soils. At most well boring locations, the water table was found to lie within the bedrock zone. No confining soil unit was identified during the RI, thus no barrier exists between the overburden and bedrock groundwater zones. In addition, it has been reported that the lower portion of the Rochester Shale Formation may act as a separate hydrogeologic unit (H&A 1994). Groundwater in the bedrock flows through primarily secondary porosity features in the rock including faults, joints, solution cavities and bedding planes. Both the Lockport and Rochester Formations have little primary porosity, so groundwater flow is controlled by the distribution of fractures within the rock.

The bedrock groundwater regime in the vicinity of the site is dynamic and is affected by depth, distance from, and stage of the Erie Barge Canal. The shallow bedrock zone appears to have a tighter hydraulic permeability than the more transmissive intermediate aquifer. The variation in hydraulic conductivity between the shallow and intermediate zones results in a perched shallow water condition when the canal level is lowered in the fall. This occurs because the more transmissive intermediate zone is well connected with the canal and reacts more rapidly to changes in the canal. The canal's influence on the shallow bedrock appears to generate a flux of water either into or out of the bedrock, depending on the seasonal stage of the canal. The intermediate bedrock zone appears to be hydraulically influenced by the seasonal nature of the canal as well, however it appears that the influence of the canal is limited to a steepening of the hydraulic gradient during high water conditions and a flattening of the gradient during low water conditions.

4.1.2: Nature of Contamination

As described in the RI report, many groundwater samples were collected at the site to characterize the nature and extent of contamination. The main categories of contaminants which exceed their SCGs are volatile organic compounds (VOCs) including chlorinated solvents, BTEX (benzene, toluene, ethylbenzene, and xylene) compounds, and non-halogenated solvents.

4.1.3: Extent of Contamination

Table 1 summarizes the extent of contamination for the contaminants of concern in the off-site intermediate groundwater zone and compares the data with the SCGs for the site. The following are the media which were investigated and a summary of the findings of the investigation.

Soil

Soils were not investigated in the off-site RI. All contaminated soils are part of the on-site operable unit. For a summary of soil contamination at the site, please see the on-site operable unit RI report.

Surface Water and Sediments

No surface water or sediment samples were collected during the off-site RI. Surface waters and sediments of the barge canal were investigated during the on-site RI. For a summary of those results, please see the on-site operable unit RI report.

Groundwater

The results of the groundwater samples taken from monitoring wells indicated the presence of a variety of solvents. Detected at levels exceeding NYS groundwater standards were: vinyl chloride, chloroethane, methylene chloride, acetone, 1,1-dichloroethene (1,1-DCE), 1,1-dichloroethane (1,1-DCA), 1,2-dichloroethene (1,2-DCE), 1,2-dichloroethane (1,2-DCA), methyl ethyl ketone (MEK), 1,1,1-trichloroethane (TCA), 1,2-dichloropropane, 2-hexanone, trichloroethene (TCE), tetrachloroethene (PCE), benzene, toluene, ethylbenzene, xylene, isopropanol, ethyl acetate, *tert*-butyl alcohol, and 4-methyl-2-pentanone.

Groundwater flow in the off-site area originates from the former Chemical Sales Corporation facility. The contaminated groundwater from the on-site areas can be described as having two separate fates. The shallow on-site water ultimately discharges to the barge canal and is included in the on-site operable unit. The deeper water flows beneath the bottom of the canal in a primarily east-northeast direction. Once beyond the canal, the groundwater plume flows beneath the Emerson Street Dump, where it appears to be mixing with contamination originating from either the dump or perhaps the major oil storage facility (MOSF) east of the site. The chlorinated contaminants from the Chemical Sales Corporation site begin to attenuate once past the barge canal (Figures 4 and 8) .

The nature of contamination changes from a primarily chlorinated solvent plume into a primarily BTEX plume on the east side of the canal (Figures 5 and 8). The miscible VOC plume off-site also appears to have a separate source (Figures 6 and 8). Tert-butanol was detected in five of the off-site wells east of the canal, but was not detected on-site. Tert-butanol is a byproduct of the biological degradation of methyl tert-butyl ether (MTBE), a common gasoline additive. Its presence east of the canal, but not on-site, coincides with the increased levels of BTEX compounds east of the canal and possibly indicates a fuel-related source of contaminants.

Table 1
Nature and Extent of Contamination

MEDIA	CLASS	CONTAMINANT OF CONCERN	CONCENTRATION RANGE (ppb, unless noted)	FREQUENCY of Detected Exceedances	SCG (ppb, unless noted)
Groundwater	Volatile Organic Compounds (VOCs)	Chloromethane	ND-19	1/11	5
		Vinyl Chloride	ND-550	1/11	2
		Chloroethane	ND-9	1/11	5
		Methylene Chloride	ND-430	1/11	5
		Acetone	ND-1,300	5/11	50
		1,1-Dichloroethene	ND-530	1/11	5
		1,1-Dichloroethane	ND-5,000	5/11	5
		1,2-Dichloroethene (total)	ND-2,700	2/11	5
		Methyl Ethyl Ketone	ND-240	6/11	50
		1,1,1-Trichloroethane	ND-12,000	1/11	5
		Trichloroethene	ND-1,300	1/11	5
		Benzene	ND-650	9/11	1
		Toluene	ND-350	8/11	5
		Ethylbenzene	ND-23	8/11	5
		Xylene (total)	ND-170	9/11	5
		Total VOCs	ND-24,080	10/11	**
	Non-Halogenated VOCs	Isopropanol	ND-880	2/11	**
		t-Butyl Alcohol	ND-4,500	5/11	**
		Methyl Ethyl Ketone	ND-560	5/11	50
		Ethyl Acetate	ND-230	2/11	**
		4-Methyl-2-Pentanone	ND-24	2/11	**

** These compounds do not have a published standard or guidance value. The listed number of exceedances reflects the number of samples where these compounds were detected at any concentration.

ND Not detected

J Estimated value

j:\35577.02\gis\chem(dec).apr TOTAL VOCs
2/5/2001

N

EMERSON STREET

LEE STREET

W. STREET

MW-20, 1,371 UG/L

MW-19, 2,143 UG/L

MW-17, 1,207 UG/L

MW-14D, 2,397 UG/L

MW-11D, 11 UG/L

MW-18, 1,378 UG/L

MW-16, 1,237 UG/L

MW-09I, 832 UG/L

MW-25, 225 UG/L

MW-01D, 219 UG/L

MW-24, 62 UG/L

MW-21, 1,157 UG/L

MW-22, 119 UG/L

MW-02D, 550,018 UG/L

ERIE CANAL

MW-13D, 24,080 UG/L

MW-15D, 6 UG/L

MW-23, 11 UG/L

MW-04D, 215,821 UG/L

MW-08I, 17,648 UG/L

EVELYN STREET

MW-12D, ND

MW-07I, ND

PERSON PLACE

LEE STREET

LYELL AVENUE

Legend

Total VOC Concentration

- ND - 10 UG/L
- 10 - 100 UG/L
- 100 - 1,000 UG/L
- 1,000 - 10,000 UG/L
- 10,000 - 100,000 UG/L
- 100,000 - 1,000,000 UG/L

MW-22, 119 UG\L
Well ID — Concentration — Units

300 0 300 Feet

URS Greiner Woodward Clyde

TOTAL VOC CONCENTRATION - INTERMEDIATE BEDROCK AQUIFER

FIGURE 3

j:\35577.02\gis\chem(dec).apr TOTAL CHLORINATED VOCs
2/5/2001

N

EMERSON STREET

LEE STREET

W. STREET

MW-20,
TOTAL CHL VOC, ND

MW-19
TOTAL CHL VOC, 6 UG/L
1,1,2-Trichloroethane, 6 UG/L

MW-14D
TOTAL CHL VOC, 1,152 UG/L
Chloromethane, 58 UG/L
1,1-Dichloroethane, 940 UG/L
1,2-Dichloroethene (total), 150 UG/L
Trichloroethene, 4 UG/L

MW-11D
TOTAL CHL VOC, ND

MW-16, 44 UG/L
1,1-Dichloroethane, 44 UG/L

MW-09I, 4 UG/L
1,1-Dichloroethane, 4 UG/L

MW-17
TOTAL CHL VOC, ND

MW-18
TOTAL CHL VOC, ND

MW-25
TOTAL CHL VOC, 65 UG/L
Chloromethane, 19 UG/L
Chloroethane, 3 UG/L
Methylene Chloride, 3 UG/L
1,1-Dichloroethane, 29 UG/L
1,2-Dichloroethene (total), 6 UG/L
Chloroform, 2 UG/L
Trichloroethene, 3 UG/L

MW-24
TOTAL CHL VOC, 20 UG/L
Chloroethane, 9 UG/L
1,1-Dichloroethane, 9 UG/L
1,2-Dichloroethene (total), 2 UG/L

MW-01D,
TOTAL CHL VOC 217 UG/L
Vinyl Chloride, 2 UG/L
Chloroethane, 3 UG/L
1,1-Dichloroethane, 210 UG/L
1,2-Dichloroethene (total), 2 UG/L

MW-13D
TOTAL CHL VOC, 22,513 UG/L
Vinyl Chloride, 550 UG/L
Methylene Chloride, 430 UG/L
1,1-Dichloroethene, 530 UG/L
1,1-Dichloroethane, 5000 UG/L
1,2-Dichloroethene (total), 2700 UG/L
1,1,1-Trichloroethane, 12000 UG/L
Trichloroethene, 1300 UG/L
Tetrachloroethene, 3 UG/L

ERIE CANAL

MW-21
TOTAL CHL VOC, ND

MW-22
TOTAL CHL VOC, 2 UG/L
1,1-Dichloroethane, 2 UG/L

MW-02D
TOTAL CHL VOC, 530,680 UG/L
Chloromethane, 30 UG/L
Vinyl Chloride, 1800 UG/L
Chloroethane, 12000 UG/L
Methylene Chloride, 35000 UG/L
1,1-Dichloroethene, 4500 UG/L
1,1-Dichloroethane, 51000 UG/L
1,2-Dichloroethene (total), 22000 UG/L
1,2-Dichloroethane, 150 UG/L
1,1,1-Trichloroethane, 330000 UG/L
Trichloroethene, 74000 UG/L
1,1,2-Trichloroethane, 80 UG/L
Tetrachloroethene, 120 UG/L

MW-15D
TOTAL CHL VOC, 6 UG/L
1,1-Dichloroethane, 6 UG/L

MW-23
TOTAL CHL VOC, 9 UG/L
1,1-Dichloroethane, 9 UG/L

MW-08I
TOTAL CHL VOC, 17,525 UG/L
Vinyl Chloride, 1200 UG/L
Methylene Chloride, 110 UG/L
1,1-Dichloroethene, 270 UG/L
1,1-Dichloroethane, 3000 UG/L
1,2-Dichloroethene (total), 4000 UG/L
1,1,1-Trichloroethane, 8900 UG/L
Trichloroethene, 42 UG/L
1,1,2-Trichloroethane, 2 UG/L
Tetrachloroethene, 1 UG/L

EVELYN STREET

MW-04D
TOTAL CHL VOC, 172,031 UG/L
Vinyl Chloride, 13000 UG/L
Methylene Chloride, 120 UG/L
1,1-Dichloroethene, 1600 UG/L
1,1-Dichloroethane, 19000 UG/L
1,2-Dichloroethene (total), 130000 UG/L
1,2-Dichloroethane, 870 UG/L
1,1,1-Trichloroethane, 7400 UG/L
Trichloroethene, 22 UG/L
Tetrachloroethene, 19 UG/L

MW-12D
TOTAL CHL VOC, ND

MW-07
TOTAL CHL VOC, ND

PERSON PLACE

LEE STREET

LYELL AVENUE

Legend

Total Chlorinated VOC Concentration

- ND - 10 UG/L
- 10 - 100 UG/L
- 100 - 1,000 UG/L
- 1,000 - 10,000 UG/L
- 10,000 - 100,000 UG/L
- 100,000 - 1,000,000 UG/L

MW-01D
TOTAL CHL VOC, 217 UG\L
Well ID | Parameter | Concentration | Units

TOTAL CHL VOC = Total Chlorinated Volatiles

300 0 300 Feet

URS Greiner Woodward Clyde	TOTAL CHLORINATED VOC CONCENTRATION - INTERMEDIATE BEDROCK AQUIFER	FIGURE 4

j:\35577.02\gis\chem(dec).apr TOTAL BTEX
2/5/2001

N

EMERSON STREET

LEE STREET

W. 6TREET

MW-20
TOTAL BTEX, 1,014 UG/L
Benzene, 500 UG/L
Toluene, 350 UG/L
Ethylbenzene, 14 UG/L
Xylene (total), 150 UG/L

MW-19
TOTAL BTEX, 1,790 UG/L
Benzene, 200 UG/L
Toluene, 470 UG/L
Ethylbenzene, 150 UG/L
Xylene (total), 970 UG/L

MW-17
TOTAL BTEX, 750 UG/L
Benzene, 400 UG/L
Toluene, 240 UG/L
Ethylbenzene, 10 UG/L
Xylene (total), 100 UG/L

MW-16
TOTAL BTEX, 826 UG/L
Benzene, 420 UG/L
Toluene, 260 UG/L
Ethylbenzene, 16 UG/L
Xylene (total), 130 UG/L

MW-14D
TOTAL BTEX, 1245 UG/L
Benzene, 520 UG/L
Toluene, 440 UG/L
Ethylbenzene, 25 UG/L
Xylene (total), 260 UG/L

MW-18
TOTAL BTEX, 1,188 UG/L
Benzene, 650 UG/L
Toluene, 350 UG/L
Ethylbenzene, 18 UG/L
Xylene (total), 170 UG/L

MW-11D
TOTAL BTEX, ND

MW-09I
TOTAL BTEX, 769 UG/L
Benzene, 360 UG/L
Toluene, 220 UG/L
Ethylbenzene, 19 UG/L
Xylene (total), 170 UG/L

MW-25
TOTAL BTEX, 153 UG/L
Benzene, 84 UG/L
Toluene, 35 UG/L
Ethylbenzene, 5 UG/L
Xylene (total), 29 UG/L

MW-01D
TOTAL BTEX, 2 UG/L
Benzene, 2 UG/L

MW-02D
TOTAL BTEX, 1,238 UG/L
Benzene, 4 UG/L
Toluene, 1200 UG/L
Ethylbenzene, 5 UG/L
Xylene (total), 29 UG/L

MW-24
TOTAL BTEX, 42 UG/L
Benzene, 21 UG/L
Ethylbenzene, 7 UG/L
Xylene (total), 14 UG/L

MW-22
TOTAL BTEX, 93 UG/L
Benzene, 38 UG/L
Toluene, 8 UG/L
Ethylbenzene, 23 UG/L
Xylene (total), 24 UG/L

MW-21
TOTAL BTEX, 649 UG/L
Benzene, 330 UG/L
Toluene, 220 UG/L
Ethylbenzene, 8 UG/L
Xylene (total), 91 UG/L

ERIE CANAL

MW-13D
TOTAL BTEX, 70 UG/L
Benzene, 23 UG/L
Toluene, 36 UG/L
Ethylbenzene, 2 UG/L
Xylene (total), 9 UG/L

MW-15D
TOTAL BTEX, ND

MW-23
TOTAL BTEX, 2 UG/L
Xylene (total), 2 UG/L

MW-08I
TOTAL BTEX, 123 UG/L
Benzene, 39 UG/L
Toluene, 68 UG/L
Ethylbenzene, 3 UG/L
Xylene (total), 13 UG/L

EVELYN STREET

MW-04D
TOTAL BTEX, 36,590 UG/L
Benzene, 890 UG/L
Toluene, 21000 UG/L
Ethylbenzene, 2700 UG/L
Xylene (total), 12000 UG/L

MW-12D
TOTAL BTEX, ND

MW-07I
TOTAL BTEX, ND

PERSON PLACE

LEE STREET

LYELL AVENUE

Legend

Total BTEX Concentration

- ND - 10 UG/L
- 10 - 100 UG/L
- 100 - 1,000 UG/L
- 1,000 - 10,000 UG/L
- 10,000 - 100,000 UG/L

MW-22
TOTAL BTEX, 93 UG\L
Well ID — Parameter — Concentration — Units

300 0 300 Feet

URS Greiner Woodward Clyde	TOTAL BTEX CONCENTRATION - INTERMEDIATE BEDROCK AQUIFER	FIGURE 5

j:\35577.02\gis\chem(dec).apr TOTAL MISCIBLE VOCs
2/5/2001

N

EMERSON STREET

LEE STREET

W. STREET

MW-20
TOTAL MISCIBLE VOC, 357 UG/L
Acetone, 180 UG/L
Methyl Ethyl Ketone (2-Butanone), 170 UG/L
4-Methyl-2-Pentanone, 2 UG/L
2-Hexanone, 5 UG/L

MW-19
TOTAL MISCIBLE VOC, 347 UG/L
Acetone, 190 UG/L
Methyl Ethyl Ketone (2-Butanone), 140 UG/L
2-Hexanone, 17 UG/L

MW-17
TOTAL MISCIBLE VOC, 457 UG/L
Acetone, 210 UG/L
Methyl Ethyl Ketone (2-Butanone), 240 UG/L
4-Methyl-2-Pentanone, 2 UG/L
2-Hexanone, 5 UG/L

MW-11D
TOTAL MISCIBLE VOC, ND

MW-14D
TOTAL MISCIBLE VOC, ND

MW-09I
TOTAL MISCIBLE VOC, 59 UG/L
Methyl Ethyl Ketone (2-Butanone), 59 UG/L

MW-18
TOTAL MISCIBLE VOC, 190 UG/L
Methyl Ethyl Ketone (2-Butanone), 180 UG/L
4-Methyl-2-Pentanone, 3 UG/L
2-Hexanone, 7 UG/L

MW-16
TOTAL MISCIBLE VOC, 367 UG/L
Acetone, 160 UG/L
Methyl Ethyl Ketone (2-Butanone), 200 UG/L
4-Methyl-2-Pentanone, 2 UG/L
2-Hexanone, 5 UG/L

MW-25
TOTAL MISCIBLE VOC, 7 UG/L
Methyl Ethyl Ketone (2-Butanone), 7 UG/L

MW-21
TOTAL MISCIBLE VOC, 508 UG/L
Acetone, 310 UG/L
Methyl Ethyl Ketone (2-Butanone), 190 UG/L
4-Methyl-2-Pentanone, 3 UG/L
2-Hexanone, 5 UG/L

MW-01D
TOTAL MISCIBLE VOC's, ND

MW-24
TOTAL MISCIBLE VOC, ND

MW-02D
TOTAL MISCIBLE VOC, 18,100 UG/L
Acetone, 17000 UG/L
Methyl Ethyl Ketone (2-Butanone), 1100 UG/L

ERIE CANAL

MW-22
TOTAL MISCIBLE VOC, 24 UG/L
Methyl Ethyl Ketone (2-Butanone), 24 UG/L

MW-13D
TOTAL MISCIBLE VOC, 1,398 UG/L
Acetone, 1300 UG/L
Methyl Ethyl Ketone (2-Butanone), 98 UG/L

MW-15D
TOTAL MISCIBLE VOC, ND

MW-04D
TOTAL MISCIBLE VOC, 7,200 UG/L
Acetone, 7200 UG/L

MW-23
TOTAL MISCIBLE VOC, ND

MW-08I
TOTAL MISCIBLE VOC, ND

EVELYN STREET

MW-12D
TOTAL MISCIBLE VOC, ND

MW-07I
TOTAL MISCIBLE VOC, ND

PERSON PLACE

LEE STREET

LYELL AVENUE

Legend

Total Miscible VOC Concentration

- ND - 10 UG/L
- 10 - 100 UG/L
- 100 - 1,000 UG/L
- 1,000 - 10,000 UG/L
- 10,000 - 100,000 UG/L

MW-04D
TOTAL MISCIBLE VOC, 7,200 UG\L
Well ID | Parameter | Concentration | Units

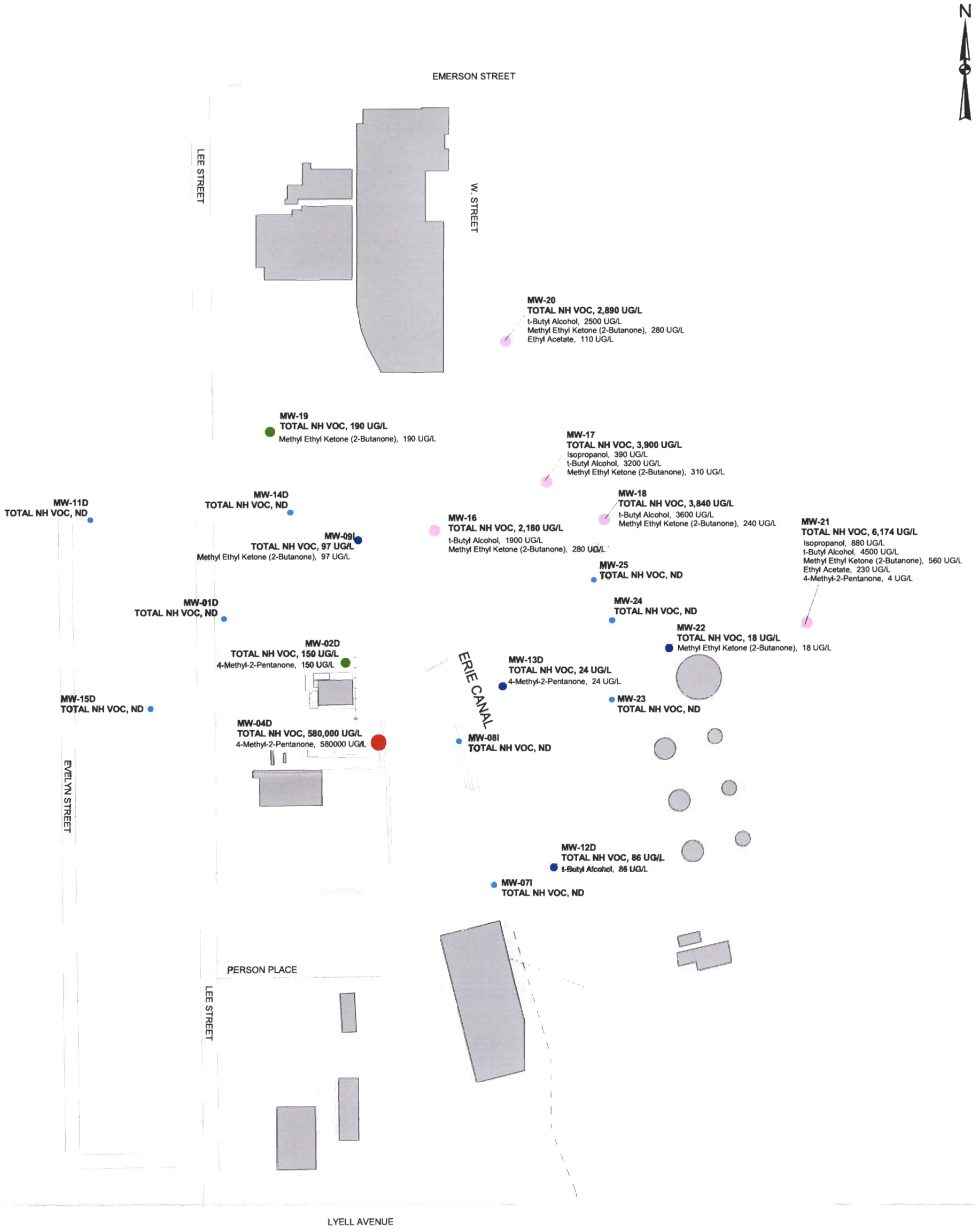
300 0 300 Feet

URS Greiner Woodward Clyde

TOTAL MISCIBLE VOC CONCENTRATION - INTERMEDIATE BEDROCK AQUIFER

FIGURE 6

j:\35577.02\gis\chem(dec).apr TOTAL NON HALOGENATED VOLATILES
2/5/2001



Legend

Total Non-Halogenated VOC Concentration

- ND - 10 UG/L
- 10 - 100 UG/L
- 100 - 1,000 UG/L
- 1,000 - 10,000 UG/L
- 10,000 - 100,000 UG/L
- 100,000 - 1,000,000 UG/L

MW-04D
TOTAL NH VOC, 580,000 UG\L

Well ID | Parameter | Concentration | Units

TOTAL NH VOC = Total Non Halogenated Volatiles

300 0 300 Feet

URS Greiner Woodward Clyde

TOTAL NON-HALOGENATED VOC CONCENTRATION - INTERMEDIATE BEDROCK AQUIFER

FIGURE 7

j:\35577.02\gis\chem(dec).apr VOC RATIO
2/5/2001

N

EMERSON STREET

LEE STREET

W. STREET

MW-20, 1,371 UG/L

MW-19, 2,143 UG/L

MW-17, 1,207 UG/L

MW-14D, 2,397 UG/L

MW-11D, 11 UG/L

MW-18, 1,378 UG/L

MW-16, 1,237 UG/L

MW-09I, 832 UG/L

MW-25, 225 UG/L

MW-01D, 219 UG/L

MW-24, 62 UG/L

MW-21, 1,157 UG/L

MW-02D, 550,018 UG/L

MW-22, 119 UG/L

MW-13D, 24,080 UG/L

MW-15D, 6 UG/L

MW-23, 11 UG/L

MW-04D, 215,821 UG/L

MW-08I, 17,648 UG/L

EVELYN STREET

MW-12D, ND

MW-07I, ND

ERIE CANAL

PERSON PLACE

LEE STREET

LYELL AVENUE

Legend

- No VOC Compounds Detected
- Total BTEX VOCs
- Total Chlorinated VOCs
- Total Miscible VOCs
- Miscellaneous VOCs

MW-22, 119 UG\L
Well ID — Concentration — Units

- 0.001- 100 UG\L
- 100 - 1,000 UG\L
- 1,000 - 10,000 UG\L
- 10,000 - 100,000 UG\L
- > 100,000 UG\L

300 0 300 Feet

URS Greiner Woodward Clyde	TOTAL VOCs BY CLASS - INTERMEDIATE BEDROCK AQUIFER	FIGURE 8

4.2: Natural Attenuation

The off-site intermediate depth groundwater plume appears to be undergoing a natural attenuation process. Natural attenuation is used to describe a combination of physical, chemical, and biological processes that result in the degradation and attenuation of groundwater contamination. The types of processes can range from simple dilution to more complicated chemical oxidation and reduction (redox) reactions as well as biological activity by microbes. The process of reductive dechlorination commonly occurs when chlorinated solvents are present in an anaerobic environment along with other organic contaminants such as BTEX, fuels, and other readily degraded compounds. The natural microbes in the subsurface utilize chlorinated solvents as an electron acceptor in place of oxygen to digest and consume the other contaminants which are electron donors. Indicators that reductive dechlorination is occurring include the presence of chlorinated daughter products, a strongly reducing environment, an increase in chloride concentrations, and sufficient concentrations of substrate (the organic food source, or electron donor) to promote bacterial growth.

The process of reductive dechlorination relies on maintaining an anaerobic and reducing environment in the groundwater. Changes in the groundwater environment will result in corresponding changes in the biological degradation's effectiveness. If the environment changes to oxidizing conditions, the reductive dechlorination process will stop. The result of this would be an increase in both the areal extent and concentration of chlorinated solvents in the off-site plume. Instead of being degraded, the chlorinated solvent instead would continue to migrate in the groundwater, impacting a larger area.

The groundwater plume from the Chemical Sales Corporation site exhibits all of the conditions to demonstrate that reductive dechlorination is occurring. In the on-site source areas, concentrations of PCE and TCA are very high, indicating a source disposal area. In addition, the concentrations of organic substrates such as toluene, xylene, ethyl acetate, isopropanol, and 4-methyl-2-pentanone indicate that sufficient electron donors are available as well. Redox conditions within the source areas are extremely low, with Eh readings between -100 mV and -300 mV. Within the source areas, large concentrations of degradation products have also been detected. Vinyl chloride, chloroethane, DCE, DCA, and TCE are all present at elevated concentrations.

As the plume moves beneath the canal and into the off-site operable unit, the parent compound PCE is no longer detected in the groundwater. Instead, TCE, DCE, and DCA are prominent in well MW-13D. TCA is still present in MW-13D as well. However, once the plume moves past MW-13D, chlorinated daughter products such as DCA, DCA, chloroethane, and chloromethane are only present at low concentrations in wells MW-23, MW-24, and MW-25. In the off-site groundwater, there also appears to be a separate source of BTEX compounds not related to the Chemical Sales Corporation site. These BTEX compounds are providing an elecron donor for the reductive dechlorination to proceed. It appears that within 300 to 400 feet east of the barge canal, the chlorinated solvents are degraded into non-hazardous compounds. The reducing environment east of the canal appears to be stronger than on-site, with Eh values between -200mV and -400mV. Figures 4 through 8 illustrate the apparent degradation of chlorinated solvents and the apparent off-site sources of BTEX and miscible VOC compounds.

4.3: Effects of On-Site Remediation

In March 2000, the DEC selected steam stripping as the remedy for Operable Unit #1, On-Site. The steam stripping remedy will involve the injection of low-pressure steam into numerous wells across the

site to enhance the recovery of volatile contaminants like solvents. Injecting large quantities of steam may result in a change in the groundwater environment due to small quantities oxygen dissolved in the steam. Because of the addition of the dissolved oxygen, the anaerobic reducing conditions may be changed into an aerobic oxidizing environment. Because changes to the groundwater environment may jeopardize the natural attenuation processes off-site, any off-site remedy that includes natural attenuation will have to prevent the on-site remediation from impacting the off-site anaerobic reducing environment.

While the on-site remedy poses some challenges in implementing any off-site remedy, it is still the Department's preferred means of addressing the on-site contamination. The challenges presented by the steam injection system are outweighed by the much greater benefit to be derived from the removal of large quantities of contaminants from the on-site source areas. Steam stripping still presents the best means for improving the overall quality of the environment at the Chemical Sales Corporation site.

4.4: 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 6.4 of the RI report.

An exposure pathway is the manner by which an individual may come in 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.

Pathways which are known to or may exist at the site include:

- Ingestion: Ingestion of contaminated groundwater is a potential future pathway at the site. All potable water in the vicinity of the site is currently delivered through a public water supply system. The possibility exists that groundwater extraction wells could be installed in the future, resulting in the ingestion of contaminated water.

4.5: Summary of Environmental Exposure Pathways

This section summarizes the types of environmental exposures and ecological risks which may be presented by the site. The following pathways for environmental exposure and/or ecological risks have been identified:

Groundwater off-site has been contaminated at levels above NYS Class GA standards. This contamination is the result of continuing migration of contaminants from the Chemical Sales Corporation site, beneath the barge canal, and into the off-site aquifer. The off-site aquifer is a natural resource that has been adversely impacted by the site and which requires restoration.

No wetlands, fish, or wildlife receptors have been identified for the off-site groundwater plume.

SECTION 5: 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 Potentially Responsible Parties (PRP) for the site, documented to date, include: Chemcore (the former Chemical Sales Corporation) and possibly 190 Lee Road, Inc.

Chemcore declined to implement the RI/FS at the site when requested by the NYSDEC. After the remedy is selected, the PRPs will again 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 6: 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 must eliminate or mitigate all significant threats to public health and/or 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:

- *Eliminate, to the extent practicable, the potential for ingestion of groundwater affected by the site that does not attain NYSDEC Class GA Ambient Water Quality Criteria.*

- *Eliminate, to the extent practicable, off-site migration of groundwater that does not attain NYSDEC Class GA Ambient Water Quality Criteria.*

- *Restore, to the extent practicable, off-site groundwater to achieve NYSDEC Class GA Ambient Water Quality Criteria.*

SECTION 7: SUMMARY OF THE EVALUATION OF ALTERNATIVES

The selected remedy must 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 Chemical Sales Corporation site were identified, screened and evaluated in the Feasibility Study Report dated December 2000.

A summary of the detailed analysis follows. As presented below, the time to implement reflects only the time required to construct 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.

7.1: Description of Remedial Alternatives

The potential remedies are intended to address the contaminated groundwater at the site.

Alternative 1: No Further Action (On-Site Remediation Only)

Present Worth *$118,424*
Capital Cost *$0*
Annual O&M (Average) *$7,709*
O&M Present Cost *$118,424*
Time to Implement ..... *N/A*

The no further action alternative is evaluated as a procedural requirement and as a basis for comparison. It requires continued monitoring only, allowing the off-site area to remain in an unremediated state. However, this alternative presumes the completion of the on-site remediation via steam stripping as specified in the Operable Unit #1 Record of Decision. This alternative would leave the off-site area in its present condition and would not provide any additional protection to human health or the environment. This alternative also assumes the on-site source areas would continue to impact the off-site areas both during and after the on-site remediation is conducted. Long-term monitoring of this remedy would include semi-annual monitoring of all the off-site wells for five years and then semi-annual monitoring of five wells each year thereafter. A thirty year monitoring period is assumed for cost estimating purposes.

Alternative 2: Off-Site Monitored Natural Attenuation

Present Worth *$330,498*
Capital Cost *$0*
Annual O&M (Average) *$21,500*
O&M Present Cost *$330,498*
Time to Implement ..... *3 months*
Estimated Time to Completion ..... *30 years*

This alternative presumes the completion of the on-site remediation of the source areas, as described in the Operable Unit #1 (On-Site) Record of Decision for the site. Any residual contamination in the off-site area, as well as any quantities continuing to migrate in the event that the on-site remedy is only partially successful, would be allowed to naturally attenuate without any active treatment in the off-site areas. No preventive measures would be taken to ensure that the off-site groundwater environment remained favorable for natural attenuation. The monitoring requirements for monitored natural attenuation are more rigorous than under the No Action alternative, resulting in a higher cost for long-term monitoring.

Alternative 3: On-Site Grout Curtain with Off-Site Monitored Natural Attenuation

Present Worth	*$951,498*
Capital Cost	*$621,000*
Annual O&M (Average)	*$21,500*
O&M Present Cost	*$330,498*
Time to Implement	*3 months*
Estimated Time to Completion	*30 years*

This alternative would be identical to the monitored natural attenuation remedy above, but would include the installation of a grout curtain on the Gates (west) side of the canal to prevent further migration of site-related contaminants to the off-site area. Grout curtains are a technology that involve the injection of grout, typically a portland cement-based compound, into the subsurface to seal off any water migration pathways. Any residual contamination in the off-site area would be allowed to naturally attenuate without any active treatment. In the event that the on-site remediation is only partially successful in the long-term or if it substantially alters the redox conditions in the short-term, the grout curtain would provide a barrier to the migration of site-related groundwater into the off-site areas. The monitoring requirements for monitored natural attenuation are more rigorous than under the No Action alternative.

Alternative 4: On-Site Hydraulic Containment with Off-Site Monitored Natural Attenuation

Present Worth	*$627,917*
Capital Cost	*$262,128*
Annual O&M (Average)	*$23,813*
O&M Present Cost	*$365,789*
Time to Implement	*approximately 6 months*
Estimated Time to Completion	*4-6 years*

This alternative presumes the completion of the on-site remediation in accordance with the Operable Unit 1 (On-Site) Record of Decision for the site. This alternative would also include the addition of approximately 10 groundwater pumping wells to the on-site remedy which would be installed to a depth of approximately 50 feet. It is estimated that the system would extract approximately 15 to 25 gallons per minute for an estimated period of 6 years. Once removed, the groundwater would be treated on the premises and discharged to either surface water or the sanitary sewers, as necessary and appropriate.

The pump and treat system would operate with the goal of preventing the migration of additional contamination across the canal. It would also capture any oxidized groundwater which may be leaving the on-site area and preventing it from impacting the natural attenuation processes off-site. In the event that the on-site remediation is only partially successful, the pump and treat system could remain in operation to control the migration of oxidized and/or contaminated groundwater in the off-site area, although its use as a long-term containment technology is not anticipated. The long-term monitoring requirements of this remedy would be identical to the other monitored natural attenuation alternatives.

A contingency plan would be developed during the remedial design that could be implemented in the event that off-site conditions are adversely impacted by the on-site remediation. Additional measures to be considered as contingencies may include off-site groundwater extraction, injection of Hydrogen

Release Compound (HRC), a substance used to alter the redox conditions in an aquifer and promote biodegradation, or other appropriate technologies.

This alternative presents groundwater pump and treat as one alternative. Two different treatment options are potentially applicable for this site including air stripping (volatile organics are partitioned from extracted ground water by aerating or increasing the surface area of the contaminated water exposed to air; aeration methods include packed towers, diffused aeration, tray aeration, and spray aeration) and ultraviolet oxidation (UV oxidation is a destruction process that oxidizes organic contamination in the water by the addition of strong oxidizers and irradiation with UV light). Treatment via air stripping would be included in the preferred remedy, so that a cost estimate could be developed. However, if included as a part of the preferred remedy, the final decision on the method of treatment for the extracted groundwater would be deferred until the Remedial Design.

7.2 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 (6 NYCRR 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 included 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.

The primary SCG for this site is 6 NYCRR Part 703.5, Class GA Ambient Water Quality Standards. Alternative 1 would not meet SCGs for the site. The remaining three alternatives are all expected to achieve SCGs once the on-site remediation is completed and the off-site area is allowed to naturally attenuate. However, Alternative 2 may create a short-term increase in off-site contaminant levels exceeding SCGs. Alternatives 3 and 4 both attempt to eliminate any off-site impacts from the on-site remediation. Alternative 4 is anticipated to be more effective in the short-term than Alternative 3.

2. Protection of Human Health and the Environment. This criterion is an overall evaluation of each alternative's ability to protect public health and the environment.

Alternative 1 is not protective because it does not attempt to achieve the Remedial Action Objectives identified in Section 6. Because of a significantly increased risk of short-term impacts, Alternative 2 would not be entirely protective of human health and the environment. Alternatives 3 and 4 would both prevent the migration of groundwater from the on-site sources and prevent any adverse off-site impacts from the steam stripping remedy. Both Alternatives 3 and 4 are considered to be protective of human health and the environment, with Alternative 3 having a slightly greater risk of short-term impacts.

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

3. Short-term Effectiveness. 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 1 and 2 both present the possibility of significant short-term impacts occurring. It is possible that the on-site steam stripping remedy could substantially alter the redox conditions in the off-site groundwater, resulting in a temporary halting of the natural attenuation that is occurring off-site. If that were to occur, an increase in both the area and concentration of chlorinated solvents in the off-site plume may result. Alternative 2 does not mitigate this risk. Alternatives 3 and 4 both include measures to mitigate the short-term risks with Alternative 4 being more reliable than Alternative 3. Alternative 4 generates an additional short-term risk from air emissions generated by the groundwater treatment system. The risks from the air emissions can be controlled through conventional technology.

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.

Alternative 1 would not provide long-term effectiveness. Alternative 2 would be effective in the long-term, but relies heavily on the effectiveness of the on-site remediation. Any residual wastes remaining on-site will continue to impact the off-site area, preventing it from achieving groundwater standards. Alternatives 3 and 4 would also be effective in the long-term, but provide additional protective measures to prevent off-site migration, making them less dependent on the on-site remediation. Alternative 4 allows for continued operation of the pumping wells if necessary as well as several contingency plans if off-site conditions worsen.

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

Alternative 1 would not actively reduce the volume or mobility of contaminants already in the groundwater. The three remaining alternatives rely greatly on the on-site remediation to reduce the mobility, toxicity, and volume of contaminants entering the off-site area. Alternative 2 does not prevent the migration of source area residuals into the off-site area. Alternatives 3 and 4 would provide an additional reduction in the mobility of contaminants in the event that the on-site remediation is incomplete. During the natural attenuation process included in Alternatives 2, 3, and 4, the toxicity of the contaminants may be temporarily increased, but it will ultimately be reduced when the degradation is completed. Alternative 4 would actively remove contaminants from the subsurface and treat them, thereby reducing the mobility and volume of contaminants in the 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 materials is evaluated along with potential difficulties in obtaining specific operating approvals, access for construction, etc.

Alternatives 1 and 2 would be the easiest to implement, requiring no capital investment or construction. Alternative 3 includes the construction of a grout curtain in fractured bedrock. Installing a grout curtain in fractured rock is possible, but it requires a significant amount of quality assurance during construction to ensure that no spaces or gaps occur in the subsurface barrier. Its implementability is considered to be difficult. Alternative 4 includes minor construction requirements which would be straightforward to implement, as the systems are commercially available from several vendors. All of the alternatives would require some combination of long and short-term property access agreements with land owners, while Alternatives 3 and 4 would require additional access agreements for construction. Alternative 3 is considered the most difficult to implement, but is achievable.

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 2. The costs are the present worth based on a 5% discount rate over the estimated length of the remedial action. Alternative 3 is the most expensive, followed, in order, by Alternatives 4, 2, and 1.

This final criterion is considered a modifying criterion and is taken into account after evaluating those above. It is evaluated 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. The "Responsiveness Summary" included as Appendix A presents the public comments received and the Department response to the concerns raised.

In general the public comments received were supportive of the selected remedy. Several comments were received, however, pertaining to the implementation and scheduling of the remedy.

SECTION 8: SUMMARY OF THE SELECTED REMEDY

Based on the results of the RI/FS, and the evaluation presented in Section 7, the NYSDEC is selecting **Alternative 4, On-Site Hydraulic Containment with Off-Site Monitored Natural Attenuation**, as the remedy for this site. This remedy includes:

- This remedy presumes the completion of the on-site steam stripping remediation selected for Operable Unit #1 as given in the OU-1 Record of Decision (March 2000);
- On-site hydraulic containment through the use of pumping wells to isolate the off-site plume from the on-site remedy and cut off the migration of contaminated groundwater across the canal;
- Monitored Natural Attenuation of the off-site plume east of the canal; and
- In the event that the on-site remediation results in adverse impacts to the off-site plume or off-site contamination does not sufficiently attenuate, a contingency plan to either extract groundwater or enhance bioremediation will be implemented.

Table 2
Remedial Alternative Costs

Remedial Alternative	Capital Cost	Annual O&M	Total Present Worth
1. No Action	$0	$7,709	$118,424
2. Off-Site Monitored Natural Attenuation	$0	$21,500	$330,498
3. On-Site Grout Curtain with Off-Site Monitored Natural Attenuation	$621,000	$21,500	$951,498
4. On-Site Hydraulic Containment with Off-Site Monitored Natural Attenuation	$262,128	$23,813	$627,917

This selection is based on analysis of the four alternatives: No Action/Groundwater Monitoring (Alternative 1), Off-Site Monitored Natural Attenuation (Alternative 2), On-Site Grout Curtain with Off-Site Monitored Natural Attenuation (Alternative 3), and On-Site Hydraulic Containment with Off-Site Monitored Natural Attenuation (Alternative 4).

The off-site plume appears to be naturally attenuating, presumably through anaerobic reductive dechlorination, under current site conditions. In the short-term, it is expected that the on-site steam stripping remedy will create an aerobic environment in the subsurface. If aerated groundwater were to travel off-site, it could potentially disturb the anaerobic natural attenuation processes that are underway off-site.

Alternative 1 was rejected because it would not address an area of off-site groundwater contamination which is in exceedance of SCGs and ultimately would not be protective of human health and the environment. Alternative 2 is also rejected because it does not mitigate the short-term risks associated with on-site remediation and is therefore not adequately protective of human health and the environment.

Both Alternatives 3 and 4 would provide for containment of the on-site plume, albeit through different methods. The grout curtain is susceptible to flaws created during construction which are difficult to detect. This would allow groundwater from the site to migrate off-site and potentially impact the effectiveness of the off-site natural attenuation. However, Alternative 4 provides for a series of wells to hydraulically contain the on-site plume.

It is believed that the wells are more flexible and therefore can achieve better performance in containing the on-site plume than the grout curtain can. In addition, the wells only need to be operated until the groundwater returns to anaerobic conditions upon completion of the steam stripping remedy or until the source area is sufficiently remediated that it no longer presents a significant threat from migrating contamination. The grout curtain of Alternative 3 would remain in place permanently after the on-site remediation is completed. It is unlikely that it would be needed on a permanent basis since the on-site remedy is expected to significantly improve groundwater quality and the off-site plume has been shown to naturally attenuate under the current site conditions. The combined capital and O&M costs of the extraction wells is also less than the capital costs of installing the grout curtain. Alternative 4 is believed to be more effective than Alternative 3 in the short-term and has a lower present cost.

Alternative 4, On-Site Hydraulic Containment with Off-Site Monitored Natural Attenuation, is the selected alternative.

The estimated present worth cost to implement the remedy is $627,917. The cost to construct the remedy is estimated to be $262,128 and the estimated average annual operation and maintenance cost for 30 years is $23,813.

The elements of the proposed remedy are as follows:

- A remedial design program to verify the components of the conceptual design and provide the details necessary for the construction, operation and maintenance, and monitoring of the remedial program. Any uncertainties identified during the RI/FS would be resolved.

- This remedy presumes the completion of the On-site steam stripping remediation as described in the Operable Unit #1 Record of Decision (March 2000);

- On-site hydraulic containment through the use of pumping wells to isolate the off-site plume from the on-site remedy and cut off the migration of contaminated groundwater across the canal;

- Monitored Natural Attenuation of the off-site plume east of the canal; and

- In the event that the on-site remediation results in adverse impacts to the off-site plume or off-site contamination does not sufficiently attenuate, a contingency plan to either extract off-site groundwater or enhance bioremediation will be implemented.

- Since the remedy results in untreated hazardous waste remaining at the site, a long term monitoring program will be instituted. This program will allow the effectiveness of the Monitored Natural Attenuation to be monitored and will be a component of the operation and maintenance for the site.

SECTION 9: 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 public participation activities were conducted for the site:

- A repository for documents pertaining to the site was established.

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

- Fact Sheets were mailed to all parties on the site mailing list in August 1998, July 1999, February 2000, and February 2001.

- Public Meetings were held to discuss the site investigations on July 15, 1999, the Operable Unit #1 proposed remedy on March 15, 2000, and the Operable Unit #2 proposed remedy on February 27, 2001.

- In March 2000 a Responsiveness Summary was prepared and made available to the public, to address the comments received during the public comment period for the Operable Unit #1 PRAP.

- In March 2001 a Responsiveness Summary was prepared and made available to the public, to address the comments received during the public comment period for the Operable Unit #2 PRAP.

APPENDIX A

Responsiveness Summary

RESPONSIVENESS SUMMARY

Chemical Sales Corporation Site
Operable Unit #2, Off-Site
Proposed Remedial Action Plan
Town of Gates, Monroe County
Site No. 8-28-086

The Proposed Remedial Action Plan (PRAP) for the Chemical Sales Corporation Site, was prepared by the New York State Department of Environmental Conservation (NYSDEC) and issued to the local document repository on February 14, 2001. This Plan outlined the preferred remedial measure proposed for the remediation of the contaminated soil and sediment at the Chemical Sales Corporation Site. The release of the PRAP was announced via a notice to the mailing list, informing the public of the PRAP's availability. The selected remedy is described in Section 8 of the Record of Decision.

A public meeting was held on February 27, 2001 which included a presentation of the Remedial Investigation (RI) and the Feasibility Study (FS) as well as a discussion of the proposed remedy. The meeting provided an opportunity for citizens to discuss their concerns, ask questions and comment on the proposed remedy. These comments have become part of the Administrative Record for this site. Written comments were received from William Timmons, Gates Deputy Fire Marshall.

The public comment period for the PRAP ended on March 16, 2001.

This Responsiveness Summary responds to all questions and comments raised at the February 27, 2001 public meeting and to the written comments received.

The following are the comments received at the public meeting, with the NYSDEC's responses:

Comments On the Proposed Remedy and Site

COMMENT 1: Will the steam injection cleanup (OU-1) definitely proceed?

RESPONSE 1: The Department has recently received approval to design and construct the on-site remedy under the State Superfund. The design is underway. Regarding construction, New York State is in the process of establishing a mechanism for the long-term refinancing of the State Superfund. Assuming that the plan proposed by the Governor, or something similar, is adopted, funding will be available to complete the remedy.

COMMENT 2: Why is there a concern for the other side of the canal?

RESPONSE 2: The other (east) side of the canal is contaminated with solvents at levels greatly exceeding New York State groundwater standards.

COMMENT 3: How will steam cleaning impact residents?

RESPONSE 3: There should not be any significant impacts. The steam used to remove contamination from below ground will all be collected below the ground surface under a plastic cover. The collected steam-vapor will be treated to remove contaminants so that they are not released to the atmosphere. To prevent the off-site migration of contaminants in concentrations that may represent a health concern, a community health and safety plan, which will include an air monitoring program, will be implemented during site remediation. The treatment systems will be tested regularly to ensure they are operating as designed. Visually, residents should expect to see some process equipment and piping around the site during operation of the remedy.

COMMENT 4: What did the second round of sampling show when you re-tested the wells?

RESPONSE 4: The on-site wells showed no significant differences from previous rounds of sampling.

COMMENT 5: Will the pumps be loud?

RESPONSE 5: The Department will attempt to utilize visual barriers and sound baffling to minimize any aesthetic impacts on the area.

COMMENT 6: Being a chemical site, wasn't the site inspected to make sure they weren't dumping?

RESPONSE 6: Because of problems created by sites such as this one, requirements for operating and inspecting chemical storage/handling have increased over the years. The requirements that were in place when this site was in operation did not prevent the releases that have resulted in the contamination we have found.

COMMENT 7: Is there contamination at the adjacent and nearby properties?

RESPONSE 7: The contamination from the Chemical Sales Corporation site has contaminated both the soil and groundwater at the immediately adjacent scrap yard. In addition, small areas of the adjacent southern property are expected to contain subsurface contamination from the Chemical Sales Corporation operations. The groundwater contamination from the site is present beneath the site and extends easterly under the canal and into the City of Rochester. In addition, shallow groundwater from the site eventually discharges from the walls of the canal and into the canal itself.

COMMENT 8: Has contamination been detected on Person Place or Crossly Rd.?

RESPONSE 8: No.

COMMENT 9: Have there been any changes in monitoring well results since last year?

RESPONSE 9: As stated in Response 4, there have been no significant changes in the groundwater sampling results.

COMMENT 10: Will there be ground cover or vegetation after the surface cleanup?

RESPONSE 10: The Department will restore any areas utilized by the remediation. However, the Department can not change the light industrial uses of the adjacent properties, nor can it require any scrap metal or debris to be removed.

COMMENT 11: Will fences be installed during steam cleaning?

RESPONSE 11: As stated in Response 3, the Department will attempt to utilize visual barriers and sound baffling to minimize any aesthetic impacts on the area. The specific type of visual barrier will be determined during design.

COMMENT 12: Where will the contaminated materials go?

RESPONSE 12: As contaminants are removed from the subsurface, they will be collected by a vapor and groundwater collection system. The recovered contaminants will then be treated on-site. The specific treatment method has not been determined yet.

COMMENT 13: Will contaminants migrate toward Lee Rd.?

RESPONSE 13: As stated in Response 3, the Department does not believe that contaminants will migrate toward the residential areas on Lee Road. To prevent the off-site migration of contaminants in concentrations that may represent a health concern, a community health and safety plan, which will include an air monitoring program, will be implemented during site remediation. The vapor and groundwater collection systems will be adequately designed to recover the site contaminants.

COMMENT 14: How deep are the wells in the off-site area?

RESPONSE 14: The monitoring wells in the off-site area are approximately 40 to 50 feet deep.

COMMENT 15: Where will the treated water go?

RESPONSE 15: The Department will decide how to dispose of the treated water during the design phase. After being treated on-site to remove the contamination, several options are available including disposal to the sanitary sewer or discharge to the canal.

COMMENT 16: What's the depth to rock? Are you removing contaminants in the rock?

RESPONSE 16: The bedrock at the site is relatively shallow, between one and seven feet deep. The Department anticipates steam stripping the entire subsurface down to approximately 50 feet, including both the soil and bedrock.

COMMENT 17: Where will the soil go from the ditch?

RESPONSE 17: The soils removed from the drainage ditch will be disposed off-site.

COMMENT 18: Will the steam be gathered in a vapor form?

RESPONSE 18: The steam will heat up the subsurface, forcing the contaminants to evaporate. The contaminant vapors will be collected along with the steam and treated to remove the contaminants.

COMMENT 19: What are the contaminants?

RESPONSE 19: The chemicals of concern at the site are volatile organic compounds (VOCs). These include chlorinated solvents (perchloroethylene, trichloroethylene), non-halogenated solvents (acetone, methyl ethyl ketone, isopropyl alcohol), and petroleum based solvents (toluene, hexane, xylene).

COMMENT 20: How will the soil be put in trucks?

RESPONSE 20: Excavated soils will be handled with regular construction equipment like loaders and dump trucks. The trucks will be cleaned and covered before leaving the site. Any bulk liquid contaminants that are recovered would be stored in drums or tanks and transferred into tanker trucks periodically for off-site disposal.

COMMENT 21: Will the state monitor the contractor?

RESPONSE 21: Yes. The state will have its own personnel as well as a state-hired consultant to supervise the contractor.

Comments on Health Concerns

COMMENT 22: How much of a threat is the site to the families living on Lee Road?

RESPONSE 22: The greatest risk for exposure to site contaminants would be for those who actually go on the Chemical sales property. Pathways which are known to or may exist at the site include:

- Inhalation: The compounds at the site are highly volatile and evaporate easily. Persons digging, excavating, or performing any intrusive activities on-site may be exposed to harmful vapors. However, merely walking around the site does not represent a significant threat of exposure to site-related chemicals through inhalation. VOCs can volatilize from contaminated groundwater. This raises the concern that contaminants could migrate into the basements of nearby homes. Since the level of total VOCs does not exceed 100 parts-per-billion (ppb) in the groundwater monitoring wells located in the residential area of Lee Road, and the depth to the contaminated aquifer is approximately 35 to 50 feet, inhalation of site-related contaminants via this pathway of exposure is not expected. During the RI, water samples were collected from basement sumps of some of the homes closest to the site. Contaminants related to the site were not detected in the sump samples.

- Direct contact: People entering the on-site area may be exposed to contaminants in the surface soils. The areas of surface soil contamination are localized and would only present a

risk to anyone trespassing on-site. It is possible for people using the nearby barge canal to come in contact with site-related contaminants in the surface water of the canal. However, the levels of contamination detected in the water of the canal during the RI do not represent a significant health risk when evaluating exposures through direct contact with contaminated surface water.

- Ingestion: Ingestion of contaminated soils is a potential exposure pathway for people entering the site. Children playing in the soil have the potential for ingesting small quantities of contaminated soil. Workers at the site have the potential for ingesting contaminated soils if they fail to wash their hands before eating. All potable water in the vicinity of the site is delivered through a public water supply system. Groundwater is not used for potable purposes.

COMMENT 23: Clarify what is meant by a "significant threat."

RESPONSE 23: The term "significant threat" is defined in 6 NYCRR Part 375 of state regulations. It covers a wide variety of actual or potential impacts to environmental resources such as wetlands, groundwater, surface water, wildlife, or the atmosphere. It can also include potential or actual impacts to public health. The investigation for this site indicates that residents around the site are not being exposed to site contaminants. Groundwater and on-site soil, however, are highly contaminated. If someone dug into the contaminated soil or collected contaminated groundwater for some use, the potential for exposure to site-related contaminants would increase significantly.

COMMENT 24: How often will the steam get tested to see if it's hazardous to residents?

RESPONSE 24: The steam system will be monitored nearly continuously during its operation for certain parameters. As stated in Response 13, the Department does not believe that contaminants will migrate toward the residential areas on Lee Road. Also, as stated in Response 3, to prevent the off-site migration of contaminants in concentrations that may represent a health concern, a community health and safety plan, which will include an air monitoring program, will be implemented during site remediation. The vapor and groundwater collection systems will be adequately designed to recover the site contaminants.

Comments on Timing and Scheduling

COMMENT 25: I don't feel comfortable living there. Are you waiting for legal approval to proceed?

RESPONSE 25: Yes and no. The Department has received approval to proceed with the on-site steam stripping design (Operable Unit #1). Once a final decision regarding the off-site remedy has been made, we will seek approval to proceed with the design and construction of the off-site remedy (Operable Unit #2). We do not anticipate any substantial delay in obtaining a referral for the off-site remedial design.

COMMENT 26: How soon will it be before financial institutions could invest in this property?

RESPONSE 26: Financial institutions have their own criteria for when they are willing to invest in a property. The Department acknowledges that such investment is deterred by the presence of hazardous waste at a site. The Department currently plans to have the steam stripping system operational in approximately two years and then plans to operate it for another two to five years.

COMMENT 27: How many years before the property can be developed?

RESPONSE 27: The ability to develop the property will be limited until the Department has completed the steam stripping process and has removed all the equipment from the site.

COMMENT 28: When will it start? Will it be here within 3 years? If monitoring results show worsening conditions, could it start earlier?

RESPONSE 28: Please see Response 26 for an estimate of scheduling. If monitoring results show any changes in site conditions that could create an exposure, the Department would be able to implement an "interim remedial measure" to address the situation. Because the steam injection system involves a complicated design, it is not likely that the steam system could be implemented early as a contingency for such a scenario. Instead, a series of pumping wells or some other measure would have to be implemented.

COMMENT 29: Have you begun pumping these wells?

RESPONSE 29: No. Please see Response 26 for an estimate of scheduling. The Department anticipates that both the on-site and the off-site remedies will be implemented concurrently.

Miscellaneous Comments

COMMENT 30: Please explain the difference between a class 2 and class 3 site.

RESPONSE 30: A "class 3" site means the site does not pose a significant threat to the environment or public health. See also Responses 22 and 23.

COMMENT 31: I can't sell my house. Potential buyers won't buy it.

RESPONSE 31: The Department acknowledges your situation. By cleaning up the site, the Department hopes that any adverse impacts on nearby real estate will be relieved.

COMMENT 32: Does contamination extend to the area where the dumpsters, tractor trailers, rusted vehicles and canisters are located?

RESPONSE 32: The contaminated soils at the site are primarily located around the buildings and sheds at the back end of the property. The Department did not discover any significant soil contamination near Lee Road.

COMMENT 33: There appears to be little concern for our houses from the town.

RESPONSE 33: The Department has been in contact with the Town of Gates and has received cooperation from the Town whenever necessary.

COMMENT 34: How much of the area is zoned residential?

RESPONSE 34: Zoning maps are available from the Gates Town Clerk. The site itself and the adjacent properties are zoned as light industrial.

COMMENT 35: There should be better notification. The library has DEC pamphlets dated 1989. When I bought my house in 1990, I didn't know about it. How could you know about this for so many years and not bring it to our attention? There's legal correctness and then there's decency.

RESPONSE 35: Your comment is acknowledged. Currently, the law requires the Department to notify adjacent property owners only when a site is listed on the Registry.

COMMENT 36: Will the Town get involved if we drop like flies from cancer, leukemia?

RESPONSE 36: The Town does not have the authority or resources to remediate the contamination at the Site. The Department encourages the Town to continue its cooperation with the Department in addressing the site.

COMMENT 37: Will the Town get the junk on the surrounding property cleaned up?

RESPONSE 37: Town representatives were present at the meeting and are aware of the concerns of nearby residents. A copy of this Responsiveness Summary will also be provided to the Town.

COMMENT 38: What are the Town's future plans? The property would be an asset to the community.

RESPONSE 39: The property is not owned or controlled by either the Department or the Town. It is privately held. As such, there is a limited range of actions that can be taken with the site once it is cleaned up.

COMMENT 40: Will DEC give the site a clean bill of health or certificate?

RESPONSE 40: When remediation is complete, the site can be reclassified to either a class 4, meaning that it has been properly remediated, but requires continued monitoring, a class 5, meaning it has been properly closed and does not need continued monitoring, or it can be completely delisted from the Registry of Inactive Hazardous Waste Disposal Sites if all hazardous wastes have been removed from the site.

COMMENT 41: Who owns the property now?

RESPONSE 41: The property is currently controlled by a bankruptcy trustee.

COMMENT 42: I would like to thank the State and Town for trying to clean up this problem.

RESPONSE 42: You're welcome. The Department will continue to work towards the final cleanup of the site.

Written Comments

A letter dated March 5, 2001 was received from Mr. William Timmons, Town of Gates Deputy Fire Marshall which included comments concerning vandalism and fire hazards posed by the site. In the letter Mr. Timmons presented several requests:

COMMENT W-1: The Department should enhance the security of the property by placing an adequate chain link fence around the current structures.

RESPONSE W-1: Because fencing is not needed to prevent exposures to contamination, the Department cannot spend Superfund money to pay for items to prevent vandalism. This is still the responsibility of the owner. The Department shares your concern and encourages you to raise your concerns with the bankruptcy trustee so that it can be properly addressed.

COMMENT W-2: Combustible materials still present inside the building (e.g., papers, wooden pallets, etc.) are a violation of the NYS Uniform Fire Prevention and Building Code.

RESPONSE W-2: The Department shares your concern and encourages you to raise your concerns with the bankruptcy trustee so that it can be properly addressed.

COMMENT W-3: All empty barrels should be removed from the property.

RESPONSE W-3: See Response W-2.

COMMENT W-4: The Department should properly maintain the property during the remediation, including snow and vegetation removal.

RESPONSE W-4: While the remedy is in operation, the Department will maintain adequate snow and vegetation removal. However, while the remedy is not in operation, the Department is constrained from spending public money on items not directly related to remediation of the hazardous wastes at the site. The Department shares your concern and encourages you to raise your concerns with the bankruptcy trustee so that it can be properly addressed.

COMMENT W-5: The Department should consider demolishing the building.

RESPONSE W-5: The Department cannot expend Superfund money to demolish the building unless it is necessary to do so to implement the remedy. At this time, it is not clear if demolition is necessary. This will be determined during design. If immediate action is necessary, the Department encourages you to raise your concerns with the bankruptcy trustee so that it can be properly addressed.

APPENDIX B

Administrative Record

Administrative Record File Index
Chemical Sales
Operable Unit No. 2 (Off-Site)
Site ID No. 8-28-086
Town of Gates, Monroe County
ROD Signed: March 2001

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1. **File Index**

Reports

2. **Record of Decision**, prepared by the NYSDEC, dated March 2001.

3. **Proposed Remedial Action Plan**, prepared by the NYSDEC, dated February 2001.

4. **Feasibility Study**, prepared by the NYSDEC, dated December 2000.

5. **Remedial Investigation Data Summary Report,** prepared by URS Greiner, dated February 2001.

Fact Sheets

6. Meeting Announcement, Proposed Remedial Action Plan, prepared by the NYSDEC, February 2001.

Correspondence

7. Letter, from G. Anders Carlson, Director, Bureau of Environmental Exposure Investigation, NYSDOH to Michael O'Toole, Director, Div. of Environmental Remediation, Re: Record of Decision for the Chemical Sales Site, dated March 30, 2000.

8. Letter, from William P. Timmons, Deputy Fire Marshall, Town of Gates to Joseph Moloughney, NYSDEC, dated March 5, 2001.

9. Letter, from G. Anders Carlson, Director, Bureau of Environmental Exposure Investigation, NYSDOH to Michael O'Toole, Director, Div. of Environmental Remediation, Re: Proposed Remedial Action Plan for the Chemical Sales Site, dated February 14, 2000.

NOTE: Additional correspondence and reports for this site can be found in the Operable Unit # 1 (On-Site) Administrative Record for the site.