



Department of Environmental Conservation

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Division of Environmental Remediation

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**Record of Decision Amendment**  
**Chemical Sales Corporation Site**  
**Operable Unit No. 1**  
**State Superfund Project**  
**Town of Gates, Monroe County New York**  
**Site Number 828086**

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**March 2010**

New York State Department of Environmental Conservation  
DAVID A. PATERSON, *Governor*      ALEXANDER B. GRANNIS, *Commissioner*

## **DECLARATION STATEMENT - RECORD OF DECISION AMENDMENT**

**Former Chemical Sales Corporation Site  
Operable Unit No. 1  
State Superfund Project  
Town of Gates, Monroe County, New York  
Site No. 828086**

### **Statement of Purpose and Basis**

The Record of Decision (ROD) Amendment presents the selected remedy for Operable Unit #1 of the Former Chemical Sales Corporation site, a Class 2 inactive hazardous waste disposal site. The selected remedial program was chosen in accordance with the New York State Environmental Conservation Law, 6 NYCRR Part 375, and is not inconsistent with the National Oil and Hazardous Substances Pollution Contingency Plan of March 8, 1990 (40CFR300), as amended.

This decision is based on the Administrative Record of the New York State Department of Environmental Conservation (the Department) for Operable Unit #1 of the Former Chemical Sales Corporation site and the public's input to the Proposed ROD Amendment presented by the Department. A listing of the documents included as a part of the Administrative Record is included in Appendix B of the ROD.

### **Description of Selected Remedy**

Based on the results of the remedial investigation/feasibility study (RI/FS) for the Former Chemical Sales Corporation site and the criteria identified for evaluation of alternatives, the Department has selected excavation and off-site disposal of contaminated soil and extraction and on-site treatment of contaminated groundwater. The components of the amended 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.
2. Excavation and off-site disposal of approximately 11,000 cubic yards of soil impacted with greater than 10 ppm total VOCs. It is assumed that, prior to excavation, the on-site building would be demolished and the remaining slab removed.
3. If there is residual soil contamination at concentrations above 10 ppm total VOCs a demarcation layer and cover would be placed over those areas. A soil cover would be constructed over all vegetated areas with residual contamination to prevent exposure to contaminated soils. The one-foot thick cover would consist of clean soil underlain by an indicator such as orange plastic snow fence to demarcate the cover soil from the subsurface soil. The top six inches of soil would be of sufficient quality to support vegetation. Clean soil would constitute soil that meets the Division of Environmental Remediation's criteria for backfill or local site background. Non-vegetated areas (buildings, roadways, parking lots, etc.) would be covered by a paving system or concrete at least 6 inches thick.

4. Installation of a groundwater extraction and treatment system (a series of recovery wells piped to an ex-situ treatment system; groundwater may be treated through ultraviolet [UV] oxidation and granular activated carbon [GAC]). The plan includes discharge of the treated water to a sanitary sewer or surface water in accordance with SPDES permit requirements. The extraction wells would be installed to capture groundwater impacted with greater than 10 ppm total VOCs to limit further plume migration off-site (treatment to 10 ppm total VOCs would involve treatment over an area of approximately 350,000 ft<sup>2</sup>).
5. Imposition of an institutional control in the form of an environmental easement that would require (a) limiting the use and development of the property to commercial use, which would also permit industrial use; (b) compliance with the approved site management plan (in those areas where residual soil contamination is present beneath one foot of soil meeting the 10 ppm total VOCs cleanup objective, proper management of the soils exceeding the cleanup objective would be addressed by the site management plan); (c) restricting the use of groundwater on the site as a source of potable or process water, without necessary water quality treatment as determined by NYSDOH; and (d) the property owner to complete and submit to the Department a periodic certification of institutional and engineering controls.
6. Development of a site management plan which would include the following institutional and engineering controls: (a) management of the cover system, if one is installed (depends on whether there is any residual soil contamination above 10 ppm total VOCs), to restrict excavation below the soil cover's demarcation layer, pavement, or buildings. Soil, groundwater and soil vapor encountered during ground-intrusive activities would be tested, properly handled to protect the health and safety of workers and the nearby community, and would be properly managed in a manner acceptable to the Department; (b) continued evaluation of the potential for soil vapor intrusion for any buildings developed on the site, including a provision for implementing any actions deemed necessary to address exposures related to soil vapor intrusion; (c) monitoring of groundwater; (d) identification of any use restrictions on the site; (e) provisions for the continued proper operation and maintenance of the components of the remedy.
7. The property owner would provide a periodic certification of institutional and engineering controls, prepared and submitted by a professional engineer or such other expert acceptable to the Department, until the Department notifies the property owner in writing that this certification is no longer needed. This submittal would: (a) contain certification that the institutional controls and engineering controls put in place are still in place and are either unchanged from the previous certification or are compliant with Department-approved modifications; (b) allow the Department access to the site; and (c) state that nothing has occurred that would impair the ability of the control to protect public health or the environment, or constitute a violation or failure to comply with the site management plan unless otherwise approved by the Department.
8. The operation of the components of the remedy would continue until the remedial objectives have been achieved, or until the Department determines that continued operation is technically impracticable or not feasible.

## **New York State Department of Health Acceptance**

The New York State Department of Health (NYSDOH) concurs that the remedy selected for this site is 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.

MAR 1 11 2010

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Date



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Dale A. Desnoyers, Director  
Division of Environmental Remediation

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# RECORD OF DECISION AMENDMENT

## CHEMICAL SALES SITE

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Town of Gates / Monroe County / Registry No. 828086  
March 2010

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

### 1.0 INTRODUCTION

On March 31, 2000 the New York State Department of Environmental Conservation (Department) signed a Record of Decision (ROD) which selected a remedy to cleanup the Chemical Sales Site, Operable Unit #1 (On-Site). The ROD selected in-situ steam stripping as the remedy to address the contamination in the soil, bedrock and groundwater below the site. A pilot study was needed to gather information to design the full-scale remedy. Accordingly, a pilot study was designed and the Department solicited bids. Only one bid was received for an amount that greatly exceeded the engineer's estimate. The cost of the project was prohibitively high and it became apparent that the remedy was not feasible based upon the cost of implementing a full-scale IST system to remediate this site. The purpose of this ROD Amendment is to modify the original remedy. The modification to the remedy includes excavation and off-site disposal of contaminated soil along with extraction and treatment of contaminated groundwater. Also, as a part of this Amendment, soil contamination was evaluated taking into account 6NYCRR Part 375 soil cleanup objectives and the Division of Environmental Remediation (DER) Technical and Administrative Guidance Memorandum (TAGM) #4046 soil cleanup objectives that were used to evaluate soil contamination in the March 2000 ROD.

A public comment period was held from November 16, 2009 – December 18, 2009 to provide an opportunity for you to comment on these proposed changes. A public availability session was held on December 1, 2009 at the Town of Gates Library, 1605 Buffalo Road, from 3:00 pm -5:00 pm, and 7:00 pm - 9:00 pm.

At the availability session a description of the original ROD and the circumstances that have led to proposed changes in the ROD was discussed. During the availability session representatives from the Department and NYSDOH were available to discuss the project with you and answer your questions, during which the public had the opportunity to submit verbal or written comments on the proposal.

The public also had the opportunity to submit written comments to:

**Mr. James Moras, Project Manager**  
**NYS Dept. of Environmental Conservation**  
**Division of Environmental Remediation**  
**625 Broadway**  
**Albany, NY 12233-7017**

The comments that were received, and the Department's responses to those comments, are included in the



## Responsiveness Summary (Appendix A).

The information presented in this document is a summary of what can be found in greater detail in reports that have been placed in the Administrative Record for the site. These documents are available at the following repository:

Town of Gates Public Library  
1605 Buffalo Road  
Rochester, NY 14624  
(585) 247-6446  
Hours: Mon.- Fri. 10 - 9, Sat. 10 - 5

## **2.0 SITE INFORMATION**

The Chemical Sales site is located at 190 Lee Road in the Town of Gates. It is the location of a former business 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).

### **2.1 Site Description**

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. # 1, which is the subject of this ROD Amendment, is limited to the area west of the barge canal, consisting of the Chemical Sales property, the contaminated portions of the surrounding property, and the drainage ditch between the site and the 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.

### **2.2 Site History**

The Chemical Sales 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.

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

In 1992, based on this and other information, the Department added the Chemical Sales 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. The Department began negotiating a legal agreement with Chemcore Incorporated (site owner) for Chemcore to perform an environmental investigation. However, in 1994, Chemcore filed for bankruptcy before an investigation could take place. Because the responsible party (Chemcore) was not able to perform the investigation, the State conducted the Remedial Investigation and Feasibility Study.

In January 2000, the NYSDEC administratively divided the site into two operable units. The first operable unit is the subject of this document and includes the area west of the barge canal, consisting of the Chemical Sales property, the contaminated portions of the surrounding property, the bedrock groundwater, and the drainage ditch between the site and the canal. Operable Unit #2 includes the off-site groundwater contamination beneath and east of the barge canal. There is a Record of Decision for Operable Unit #2, dated March 2001, which includes: the presumed completion of the remedy for OU#1, monitored natural attenuation, and a contingency to implement groundwater extraction and treatment or enhanced bioremediation if the off-site groundwater contamination does not sufficiently attenuate. The two operable units are distinctly separate, and the existence of Operable Unit #2 does not substantially alter the proposed remedial action for Operable Unit #1. However, a successful remediation of the on-site sources in Operable Unit #1 may reduce contamination in Operable Unit #2 in the future.

### **2.3 Nature and Extent of Site Contamination**

As described in the original ROD and other documents, many soil, groundwater, sediment, and air samples were collected at the site to characterize the nature and extent of contamination. The primary contaminants of concern include chlorinated (i.e., trichloroethene) and non-chlorinated (i.e., isopropanol) volatile organic compounds (VOCs). The main source of contamination at this site is most likely the result of spills and leaks that occurred over a long period of time. Volatile organic contamination has been detected at the site at levels which traditionally indicate the presence of pure product. Most organic solvents are not highly soluble in water and form a separate phase when mixed with water (gasoline is a good example of this), commonly referred to as Non-Aqueous Phase Liquids, or NAPLs. Co-solvents (alcohols, ethers, and ketones) are compounds that are miscible in both water and organic compounds. The result of mixing co-solvents and organic compounds with water is to increase the solubility of the otherwise insoluble organics. At the Chemical Sales site, the large quantities of co-solvents in the groundwater has likely greatly increased the solubility of the NAPLs, causing them to no longer exist as a separate phase in the groundwater, but as a water-co-solvent-VOC mixture that is more mobile than the chemical alone, and not easily distinguished from water.

The organic contaminants of concern at the Chemical Sales site are: 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 (1,1,1-TCA); 1,2-dichloropropane; 2-hexanone; trichloroethene (TCE); tetrachloroethene (PCE); benzene; toluene; ethylbenzene; xylene; isopropanol; ethyl acetate; n-butanol, and 4-methyl 2-pentanone.

Significant contamination is present in on-site surface soil, subsurface soil, bedrock and groundwater. Elevated contaminant concentrations in the surface soils are limited to the on-site source areas; the subsurface soil and groundwater contamination does extend beyond the on-site source areas as shown on Figures 5 and 6. Four surface water and sediment samples were collected from the on-site drainage ditch

and the barge canal. Site-related contaminants were detected in all four surface water samples and two sediment samples, but none of the surface water samples exceeded water quality standards. Three compounds exceeded the NYSDEC guidance levels for screening contaminated sediments in one of the barge canal samples: vinyl chloride, 1,2-DCA, and benzene. These compounds do not bioaccumulate in fish and wildlife.

In March 2008 air samples were collected near the site to evaluate whether actions are needed to address exposures to site-related contaminants due to soil vapor intrusion. The phrase "soil vapor intrusion" refers to the process by which volatile chemicals move from a below-ground source into the indoor air of overlying buildings. Soil vapor is the air found in the pore spaces between soil particles. Because of a difference in pressure, soil vapor enters buildings through cracks in slabs or basement floors and walls, and through openings around sump pumps or where pipes and electrical wires go through the foundation. Heating, ventilation or air-conditioning systems may create a negative pressure that can draw soil vapor into the building. This intrusion is similar to how radon gas seeps into buildings. Soil vapor can become contaminated when chemicals evaporate from subsurface sources and enter the soil vapor. Chemicals that readily evaporate are called "volatile chemicals." Volatile chemicals include volatile organic compounds (VOCs). Subsurface sources of volatile chemicals may include contaminated soil and groundwater, or buried wastes. Since VOC contamination at the site has migrated from the site in the groundwater, soil vapor intrusion samples (air samples from beneath, within and outside buildings and water samples, where present, from sumps) were collected from six homes/buildings in the area of the site. The results from these samples indicated that no actions are needed to address off-site exposures related to soil vapor intrusion.

## **2.4 Summary of Human Exposure Pathways**

This section was included in the original ROD and 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 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:

- **Inhalation:** The compounds at the site are highly volatile and evaporate easily. Persons digging, excavating, or performing any ground-intrusive activities at the 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.

Given the environmental conditions on the site, future exposures related to soil vapor intrusion are possible in the on-site building, should it become occupied, or in new buildings constructed on the site. As discussed in Section 2.3, the results of sampling at nearby buildings have indicated that no actions are needed to address off-site exposures related to soil vapor intrusion.

- **Direct contact:** People entering the site 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.

## **2.5 Summary of Environmental Assessment**

This section was included in the original ROD and summarizes the types of environmental exposures and ecological risks which may be presented by the site. The Fish and Wildlife Impact Assessment conducted during the RI presents a more detailed discussion of the potential impacts from the site to fish and wildlife resources. The following pathways for environmental exposure and/or ecological risks have been identified:

The water and sediment of the barge canal are contaminated with low levels of VOCs from the site. Contaminants are entering the barge canal from the drainage ditch, through seeps in the wall of the canal, and from contaminated groundwater entering the canal. The surface water contamination does not exceed the Department's water quality standards. Three compounds (benzene, 1,2-DCA, and vinyl chloride) exceed the Department's sediment screening guidance values in one isolated sediment sample. However, due to the large dilution effect of the canal, the impacted area is localized and relatively small. In addition, volatile compounds do not bioaccumulate in fish and wildlife and so are less of a threat to ecological resources in the canal. By eliminating the sources of contamination at the site and cutting off the continued migration of chemicals into the canal from the seeps, groundwater, and drainage ditch, the contamination in the canal should quickly attenuate.

## **2.6 Original Remedy**

The remedy originally selected in the March 2000 ROD included:

- Installation of approximately 180 steam injection and vapor extraction wells (approximately 135 injection wells and 45 extraction wells), covering approximately 2 acres of the site and surrounding property, to address both contaminated soil and groundwater; and
- Removal of all recovered hazardous wastes for off-site disposal or recycling.
- Removal of approximately 150 cubic yards of contaminated surface soils, including drainage ditch soils between the site and the barge canal.
- A long-term groundwater monitoring program.
- In the event that a potential threat from residual subsurface contamination remained after the steam stripping remedy has been completed, the Department would evaluate and, if necessary, implement additional remedial measures, including property use restrictions.

### **3.0 DESCRIPTION OF PROPOSED CHANGES**

#### **3.1 New Information**

A Record of Decision was issued in March 2000 to document the remedy selected by the State, which included in-situ steam treatment (IST) into the bedrock below the site (as discussed above). IST is a relatively new remedial technology and a pilot study was planned to collect information needed to design the full-scale IST system for the site. In August 2004 construction bids were accepted for the implementation of the pilot study; only one bid was submitted. The cost of the project was prohibitively high and it became apparent that the cost of implementing a full-scale IST system to remediate this site was not feasible.

When it was determined that the original remedy was not going to be feasible to implement based on the projected costs, a new Feasibility Study (FS) was performed to re-evaluate remedial options. Available site information was used to perform a "knee-of-the-curve" evaluation. The knee of the curve is the point, on a graph of costs versus contaminant removal, where large increased remediation costs do not justify the relatively small increases in the amount of the contaminant mass/concentrations removed. Figures 3/3A & 4 graphically demonstrate the knee of the curve, based on mass of contaminant removed, for potential soil and groundwater remediation alternatives. Figures 3 & 3A show the knee-of-the-curve for groundwater to be the alternative which would capture and treat groundwater contamination at a concentration of 10 ppm total VOCs or greater; Figure 4 shows the knee-of-the-curve for soil to be the alternative which would include excavation and off-site disposal of soil with a concentration of 100 ppm total VOCs or greater. The results of this evaluation were taken into account when developing the proposed modified remedy.

#### **3.2 Changes to the Selected Remedy**

The main change to the remedy, compared to the remedy selected in the March 2000 ROD, is that rather than treating/extracting the bulk of the contamination (soil and groundwater) in-place using steam injection and vapor extraction, contamination will be addressed by a combination of soil excavation and off-site disposal, backfilling excavated areas with clean fill, and groundwater extraction and treatment ([also, see Table 1]). This is a fundamental change to the remedy selected in the March 2000 ROD.

The soil cleanup objective included in this modified remedy is 10 ppm for total VOCs. Although the knee of the curve for soil (see Section 3.1) is 100 ppm total VOCs, an objective of 10 ppm total VOCs is proposed because it is not significantly greater in cost, it is an objective taken from TAGM #4046 (one is not included in Part 375 for total VOCs) which has been applied at other sites in the past, and it is more protective. Excavated areas will be covered with clean backfill. If there is residual contamination, outside the area to be excavated to 10 ppm for total VOCs, a cover will be placed over the area.

The modified remedy for groundwater will capture contaminated groundwater with total VOC contamination at or greater than 10 ppm via groundwater extraction and treat the extracted groundwater. At this site groundwater contamination is present at concentrations above groundwater standards. Under normal circumstances application of the SCOs for the protection of groundwater would be appropriate. However, at this site there are conditions which allow for the use of a cleanup objective considering land use (relevant to the property use at the site) rather than the groundwater protection SCOs. Specifically, as discussed in Part 375-6.5, the following conditions will be met by implementing the modified remedy:

(i) the groundwater standard contravention is the result of an on-site source which will be addressed by the

remedial program;

- (ii) an environmental easement will be put in place which provides for a groundwater use restriction on the site as set forth in paragraph 375-1.8(h)(2);
- (iii) the Department determined that contaminated groundwater at the site is migrating, or is likely to migrate, off-site, however, the remedy includes controls or treatment to address off-site migration; and
- (iv) the Department determined the groundwater quality will improve over time.

#### 4.0 EVALUATION OF PROPOSED CHANGES

##### 4.1 Remedial Goals

Goals for the cleanup of the site were established in the original ROD. The goals selected for this site are:

- *Eliminate, to the extent practicable, off-site migration of groundwater that does not attain Department Class GA Ambient Water Quality Criteria.*
- *Eliminate, to the extent practicable, exposures to volatile organic compounds in the on-site soils, groundwater and soil vapor.*
- *Eliminate, to the extent practicable, the migration of volatile organic compounds into the New York State Barge Canal.*
- *Eliminate, to the extent practicable, migration of LNAPL and DNAPL through removal and hydraulic management.*
- *Eliminate, to the extent practicable, exceedances of applicable environmental quality standards related to releases of contaminants to the waters of the state.*
- *Eliminate, to the extent practicable, the exposure of fish and wildlife to levels of volatile organic compounds above standards/guidance values.*

##### 4.2 Evaluation Criteria

The criteria used to compare the 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 criterion, a brief description is provided. A detailed discussion of the evaluation criteria and comparative analysis is contained in the original Feasibility Study.

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

**1. 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.

##### SOIL

The original remedy would remove site-related contaminants via in-situ steam stripping, as well as excavation and off-site disposal of targeted soils outside of the area being addressed by steam

stripping (drainage ditch). The modified remedy would remove soil with total VOC concentrations at or above 10 parts per million (ppm) and, if necessary, would mitigate the potential for exposure to contaminants under the anticipated future use of the property by a combination of covering residual contamination (if any) above 10 ppm total VOCs, and institutional controls; furthermore, a site management plan would be developed that addresses the proper controls to be used to protect workers and the surrounding community during ground-intrusive activities on the site and provide for long-term monitoring. Both remedies would be protective of human health and the environment.

#### GROUNDWATER

The original remedy would both remove the source of contamination to the groundwater as well as remove the contaminated groundwater; the modified remedy would capture contaminated groundwater with total VOC contamination at or greater than 10 ppm via groundwater extraction and treatment. To address the potential for exposures to contaminated groundwater at the site, an environmental easement would be imposed that restricts the use of on-site groundwater as a source of potable or process water without necessary water quality treatment as determined by the NYSDOH. The residual groundwater concentration would decrease over time. Both remedies would be protective of human health and the environment.

#### SOIL VAPOR

The understanding of, and the approach to, addressing potential soil vapor intrusion (SVI) issues has changed since the original ROD was issued in March, 2000. As discussed in Section 2.3, the results of sampling at nearby buildings have indicated that no actions are needed to address off-site exposures related to soil vapor intrusion. Air samples have not been collected from the on-site building because it is currently vacant and would likely be demolished during the remedial process. To address the potential for future exposures in on-site buildings, the modified remedy would include a provision to perform a SVI evaluation if/when any new structures are built at the site. Furthermore, a site management plan would be developed that addresses the proper controls to be used to protect workers and the surrounding community during ground-intrusive activities on the site. As a result the new remedy would be protective of human health and the environment.

**2. Compliance with New York State Standards, Criteria, and Guidance (SCGs).** Compliance with SCGs addresses whether a remedy will meet environmental laws, regulations, and other standards and criteria. In addition, this criterion includes the consideration of guidance which the Department has determined to be applicable on a case-specific basis.

#### SOIL

The main SCGs for soil are the Soil Cleanup Objectives (SCOs) listed in Technical and Administrative Guidance Memorandum (TAGM) 4046.

Because the original remedy would treat/remove the contaminant source, it would comply with the preference for permanent remedies in 6 NYCRR 375. Soil SCGs would have been met for the most part, but there would have been some residual soil contamination that would have had to have been addressed (i.e., removal or covered/capped). The modified remedy would comply with site specific SCGs through a combination of the removal/off-site disposal of contamination at concentrations above 10 ppm total VOCs, along with preventing contact with residual contamination which may exist at concentrations above 10 ppm total VOCs (i.e., cover/cap, institutional controls). As a result, both remedies would comply with SCGs.



## GROUNDWATER

The main SCGs for groundwater are the Class GA Groundwater Standards listed in 6NYCRR Part 703 - Groundwater Quality Standards.

The original remedy would comply with the groundwater SCGs, to the extent practicable, through a combination of in-situ treatment/removal, as well as monitoring the post-remediation residual groundwater concentrations to insure residual concentrations would decrease over time and would not migrate to potential receptors. The modified remedy would comply with groundwater SCGs, to the extent practicable, through containment of the highest groundwater contaminant concentrations via groundwater extraction and treatment, as well as monitoring the post-remediation residual groundwater concentrations to ensure residual concentrations would decrease over time and would not migrate off-site to potential receptors. As a result, both remedies would comply with SCGs.

## SOIL VAPOR

The main SCG for soil vapor is the *Guidance for Evaluating Soil Vapor Intrusion in the State of New York*, dated October 2006.

As discussed previously, in the future, if any structures are built on-site a SVI evaluation would be performed; any deferred evaluation or mitigation activities would be completed in accordance with the *Guidance for Evaluating Soil Vapor Intrusion in the State of New York*.

**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.

The original remedy would present no significant hazards from moving or excavating soils at the site (relatively small amount of soil would be excavated). Steam stripping would present the possibility that contaminants could be mobilized in the subsurface before they could be collected. This could be avoided through careful design, construction, and operation of the system. It was estimated that the original remedy would take approximately one year to implement.

The modified remedy would present a potential for worker and residential exposure due to fugitive emissions including VOCs and particulates during excavation and transportation of contaminated soil. There would also be the potential for exposure during the hauling of contaminated soil for off-site treatment and disposal. The potential for exposure would be significantly reduced through the use of dust suppression measures, decontaminating trucks before they leave the site, proper covering of trucks, the implementation of a community air monitoring program, and the use of personal protection equipment by site workers. These dust suppression measures, as well as site access restrictions and air monitoring, would eliminate or greatly reduce any increased potential exposure to the public or impacts to the environment during construction. Another potential concern is the impact that the additional construction traffic would have on the occupants of adjacent properties. However, the use of traffic control measures and planned traffic flow patterns would minimize any impacts caused by the heavy truck traffic during the implementation of the remedy. It was

estimated that the modified remedy would take approximately one year to implement; the groundwater extraction and treatment system would operate for many years after construction of the remedy.

**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 engineering and/or institutional controls intended to limit the risk, and 3) the reliability of these controls.

The original remedy would reduce or remove the soil, unsaturated bedrock, and groundwater contaminant sources in a relatively short time frame however residual contamination in surface soils would have been addressed once the steam stripping was complete. The original remedy would provide the best possibility of removing contaminants from the unsaturated bedrock. Contamination left in the unsaturated bedrock would likely continue to act as a source of seeps in the canal and would be a continuing source of groundwater contamination in the long-term.

For the modified remedy, removal and off-site disposal of contaminated soils would be an effective remedy; for the groundwater portion of the remedy, long-term operation of groundwater extraction systems typically result in reduced efficiency, caused by factors such as aquifer heterogeneity and adsorptive partitioning of contaminants between the groundwater and aquifer materials. The result is a decrease in contaminant mass removal over time which typically limits the ability of the groundwater extraction system to achieve groundwater standards in a reasonable timeframe. Additionally, as less contaminant is removed from the aquifer, the cost-effectiveness of the treatment system decreases with time. Although potentially less effective in removing/treating contamination than some other remedial technologies, a groundwater extraction system would control the plume migration and volume, thus meeting the remedial goals for the site.

**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.

The original remedy would treat both the soil and groundwater in a short period of time, significantly reducing the mobility and volume of wastes at the site.

For the modified remedy, excavation of contaminated soil would eliminate the removed soil from acting as a continuing source of contamination and reduce the volume of contamination present at the site. For the groundwater portion of the modified remedy, initially groundwater extraction systems are typically effective at controlling plume migration, reducing the plume area, and removing contaminant mass from the aquifer. Contaminant mass is most quickly reduced early in the operation. As operation continues, however, release of contaminants from a residual source, such as adsorbed mass, results in a progressively slower rate of decline in dissolved contaminant concentration with continued operation of a groundwater extraction and treatment system. When this happens it typically limits the ability of the groundwater extraction system to achieve groundwater standards in a reasonable timeframe. However, this effect would not impact the ability of the groundwater extraction system to limit plume migration, or mobility.

**6. Implementability.** The technical feasibility and administrative feasibility of implementing each alternative are evaluated. Technical feasibility includes the difficulties associated with the

construction of the remedy and the ability to monitor its effectiveness. 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, institutional controls, and so forth.

The original remedy included a relatively innovative technology that would require more extensive design and monitoring to ensure its proper functioning. In addition, the steam stripping technology has had limited applications at sites where fractured bedrock has been impacted; this site would have been one of the first sites where steam stripping would have been attempted in fractured bedrock. It is believed that the technology would be successful and that the limitations of implementing most technologies in fractured bedrock is primarily a site characterization problem (accurately determining how much contamination is in the bedrock and how much has been treated/removed) and not a problem inherent in the technology.

For the modified remedy, soil excavation and off-site disposal is a proven technology and straightforward to implement. Groundwater extraction with ex-situ treatment consists of readily available technologies that are supplied by a number of specialty firms. Therefore, it is anticipated that the necessary equipment, personnel, and materials would be available to meet an appropriate schedule for implementation. As the proposed locations for some of the extraction wells are off-site, an access agreement would be needed; it is assumed that such access agreements can be obtained. The implementation of a groundwater extraction and ex-situ treatment system would require significant pre-design studies to finalize design of the system. This is due to the inherent complex flow patterns in the bedrock aquifer. Waste generated during implementation and initial operation of the system could be managed using generally accepted methods for off-site disposal and/or treatment.

**7. Cost-Effectiveness.** Capital costs and annual operation, maintenance, and monitoring costs are estimated for each alternative and compared on a present worth basis. Although cost-effectiveness is the last balancing criterion evaluated, where two or more alternatives have met the requirements of the other criteria, it can be used as the basis for the final decision.

A cost estimate of just over \$3 million was included in the March 2000 ROD to implement the original remedy. Biddable documents were prepared for a pilot study (a small scale version of the remedy conducted to gather the information needed to design the full-scale version of the remedy); only one bid was received on the pilot study in the amount of approximately \$3.8 million. At the time the original remedy was developed there had been limited applications of the in-situ steam stripping technology at sites with contamination in fractured bedrock. As a result, there was little information available to develop a reliable cost estimate. In the April 2009 FS the alternative that most closely reflects the original remedy is groundwater alternative #3, in-situ thermal treatment at the 100 ppm total VOC concentration line; the estimated cost to implement this remedy is significantly higher than the estimated cost to implement the modified remedy (approximately \$21.3 million compared to approximately \$11.7 million, respectively). There is still a level of uncertainty with cost estimates developed at the FS stage, but it is clear that the cost to implement the original remedy would be significantly more than the cost to implement the modified remedy.

**This final criterion is considered a modifying criterion and is considered after evaluating those above. It is focused upon after public comments on the proposed ROD amendment have been received.**



**8. Community Acceptance.** Concerns of the community regarding the proposed changes have been evaluated. The responsiveness summary (Appendix A) presents the public comments received and the manner in which the Department addressed the concerns raised.

No significant public comments were received.

## **5.0 SUMMARY OF CHANGES TO SELECTED REMEDY**

The Department has amended the Record of Decision (ROD) for the Chemical Sales Site, Operable Unit #1. The changes include:

- ▶ rather than performing in-situ steam stripping/extraction, the remedy has been modified to include:
  - excavation and off-site disposal of soils contaminated with total VOCs at concentrations of 10 ppm or greater (see Figure 5); excavated areas will be backfilled with clean fill, and
  - groundwater extraction and treatment to capture groundwater with total VOC concentrations of 10 ppm or greater (see Figure 6).
- ▶ Soil contamination was evaluated taking into account the property use and the Division of Environmental Remediation (DER) Technical and Administrative Guidance Memorandum (TAGM) #4046 soil cleanup. After completion of the soil excavation the top one foot of soil at the site will meet Part 375 soil cleanup objectives for commercial use.

The estimated present worth cost to carry out the amended remedy is \$11.7 million. The estimated present worth to complete the original remedy was \$3.1 million. However, as discussed in *Cost Effectiveness Section*, above, that estimate was made with little practical experience elsewhere in implementing the remedial technology in fractured bedrock. The cost estimate included in the April 2009 FS to perform in-situ thermal remediation (similar to the original remedy) was approximately \$21.3 million; it is apparent the cost estimate included in the March 2000 ROD for the original remedy was much lower than what it would actually cost to implement the remedy. The cost to construct the amended remedy is estimated to be \$7.2 million and the estimated average annual cost for 30 years is \$255,000.

The elements of the amended 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.
2. Excavation and off-site disposal of approximately 11,000 cubic yards of soil impacted with greater than 10 ppm total VOCs. It is assumed that, prior to excavation, the on-site building will be demolished and the remaining slab removed.
3. If there is residual soil contamination at concentrations above 10 ppm total VOCs a demarcation layer and cover will be placed over those areas. A soil cover will be constructed over all vegetated areas with residual contamination to prevent exposure to



contaminated soils. The one-foot thick cover will consist of clean soil underlain by an indicator such as orange plastic snow fence to demarcate the cover soil from the subsurface soil. The top six inches of soil will be of sufficient quality to support vegetation. Clean soil will constitute soil that meets the Division of Environmental Remediation's criteria for backfill or local site background. Non-vegetated areas (buildings, roadways, parking lots, etc.) will be covered by a paving system or concrete at least 6 inches thick.

4. Installation of a groundwater extraction and treatment system (a series of recovery wells piped to an ex-situ treatment system; groundwater may be treated through ultraviolet [UV] oxidation and granular activated carbon [GAC]). The plan includes discharge of the treated water to a sanitary sewer or surface water in accordance with SPDES permit requirements. The extraction wells will be installed to capture groundwater impacted with greater than 10 ppm total VOCs to limit further plume migration off-site (treatment to 10 ppm total VOCs will involve treatment over an area of approximately 350,000 ft<sup>2</sup>).
5. Imposition of an institutional control in the form of an environmental easement that will require (a) limiting the use and development of the property to commercial use, which will also permit industrial use; (b) compliance with the approved site management plan (in those areas where residual soil contamination is present beneath one foot of soil meeting the 10 ppm total VOCs cleanup objective, proper management of the soils exceeding the cleanup objective will be addressed by the site management plan); (c) restricting the use of groundwater on the site as a source of potable or process water, without necessary water quality treatment as determined by NYSDOH; and (d) the property owner to complete and submit to the Department a periodic certification of institutional and engineering controls.
6. Development of a site management plan which will include the following institutional and engineering controls: (a) management of the cover system, if one is installed (depends on whether there is any residual soil contamination above 10 ppm total VOCs), to restrict excavation below the soil cover's demarcation layer, pavement, or buildings. Soil, groundwater and soil vapor encountered during ground-intrusive activities will be tested, properly handled to protect the health and safety of workers and the nearby community, and will be properly managed in a manner acceptable to the Department; (b) continued evaluation of the potential for soil vapor intrusion for any buildings developed on the site, including a provision for implementing any actions deemed necessary to address exposures related to soil vapor intrusion; (c) monitoring of groundwater; (d) identification of any use restrictions on the site; (e) provisions for the continued proper operation and maintenance of the components of the remedy.
7. The property owner will provide a periodic certification of institutional and engineering controls, prepared and submitted by a professional engineer or such other expert acceptable to the Department, until the Department notifies the property owner in writing that this certification is no longer needed. This submittal will: (a) contain certification that the institutional controls and engineering controls put in place are still in place and are either unchanged from the previous certification or are compliant with Department-approved modifications; (b) allow the Department access to the site; and (c) state that nothing has occurred that will impair the ability of the control to protect public health or the environment, or constitute a violation or failure to comply with the site management plan unless otherwise approved by the Department.

8. The operation of the components of the remedy will continue until the remedial objectives have been achieved, or until the Department determines that continued operation is technically impracticable or not feasible.

## **6.0 HIGHLIGHTS OF COMMUNITY PARTICIPATION**

As part of the remedial process, a number of Citizen Participation activities were undertaken 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:

- Repositories for documents pertaining to the site were established;
- A public contact list, which included nearby property owners, elected officials, local media and other interested parties, was established;
- On November 17, 2009 a Fact Sheet was sent to everyone on the public contact list to inform people about the proposed ROD Amendment and to announce the public availability session;
- A public availability session was held on December 1, 2009 to present and receive comment on the Proposed ROD Amendment.

TABLE 1 - COMPARISON OF MARCH 2000 REMEDY with AMENDED REMEDY

COMPONENT OF ORIGINAL REMEDY INCLUDED IN MARCH 2000 ROD	AMENDED COMPONENT OF REMEDY
<ul style="list-style-type: none"> <li>In-SITU steam stripping/extraction and off-site disposal of recovered contamination</li> </ul>	<ul style="list-style-type: none"> <li>Excavation and off-site disposal of soil with total VOC concentrations greater than 10 ppm</li> <li>Groundwater extraction and treatment to capture groundwater with total VOC concentrations greater than 10 ppm</li> </ul>
<ul style="list-style-type: none"> <li>Soil contamination evaluated using the Division of Environmental Remediation (DER) Technical and Administrative Guidance Memorandum (TAGM) #4046</li> </ul>	<ul style="list-style-type: none"> <li>Soil contamination evaluated over 10 ppm total VOCs</li> </ul>

**TABLE 2** – Cost Estimates for Remedial Alternatives Considered in Feasibility Study

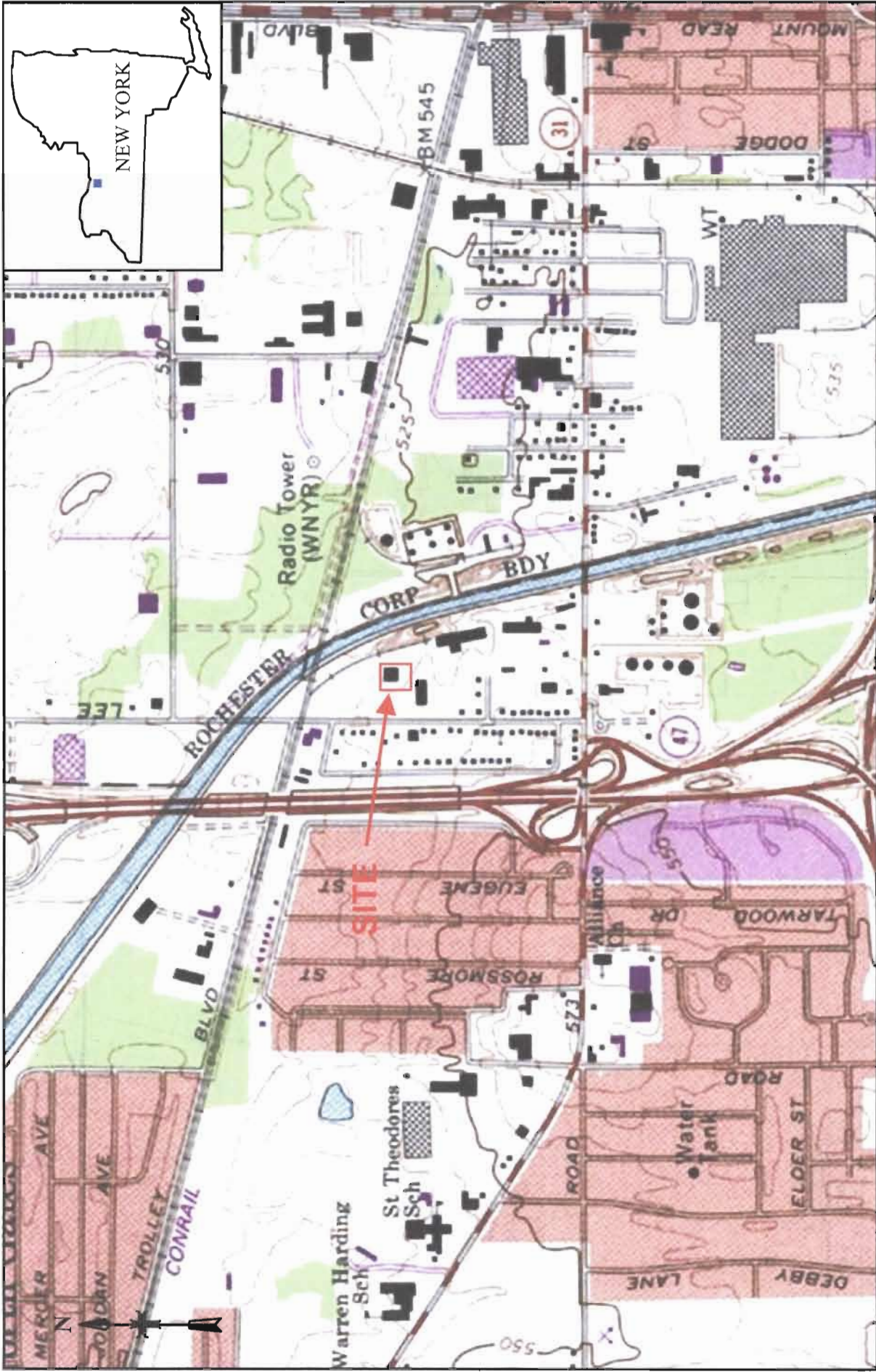
Soil

1. Soil Alternative 1: No Further Action	\$ 7,000
2. Soil Alternative 2: Soil Capping	\$ 402,000
3. Soil Alternative 3: Excavation/Off-Site Disposal (100 ppm) \$	\$4,600,000
4. Soil Alternative 4: Excavation/Ex-Situ Thermal (100 ppm)	\$4,640,000
5. Soil Alternative 3(a): Excavation/Off-Site Disposal (10 ppm)	\$5,770,000
6. Soil Alternative 4(a): Excavation/ Ex-Situ Thermal (10 ppm)	\$7,530,000

Groundwater

1. GW Alternative 1: No Further Action	\$ 116,000
2. GW Alternative 2: Groundwater Extraction (100 ppm)	\$ 5,340,000
3. GW Alternative 2(a): Groundwater Extraction (10 ppm)	\$ 6,060,000
4. GW Alternative 3: In-Situ ERH (100 ppm)	\$21,300,000
5. GW Alternative 3(a): In-Situ ERH (10 ppm)	\$63,900,000





MAP SOURCE: USGS 7.5 MINUTE TOPOGRAPHIC SERIES, ROCHESTER WEST QUADRANGLE 1971 PHOTO REVISED 1978

APPROXIMATE SCALE IN FEET

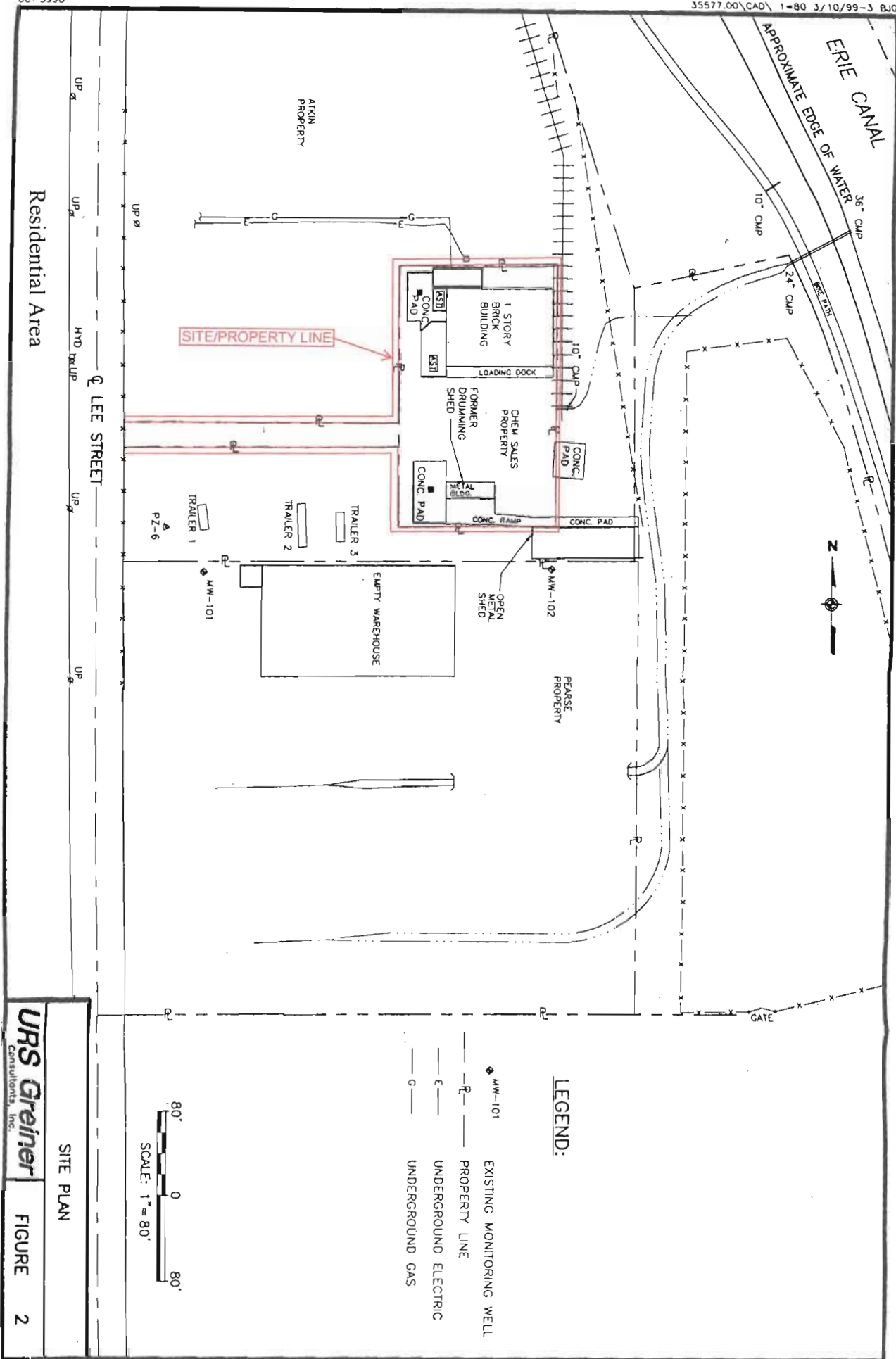
0 600 1200 2400

CHEMICAL SALES OU#1 SITE (HW 8-28-086)  
TOWN OF GATES, NEW YORK

**SITE LOCATION**

**FIGURE 1**

**MALCOLM  
PIRRIE**



**FIGURE 3**  
**Groundwater - Cost per Pound VOCs Removed**

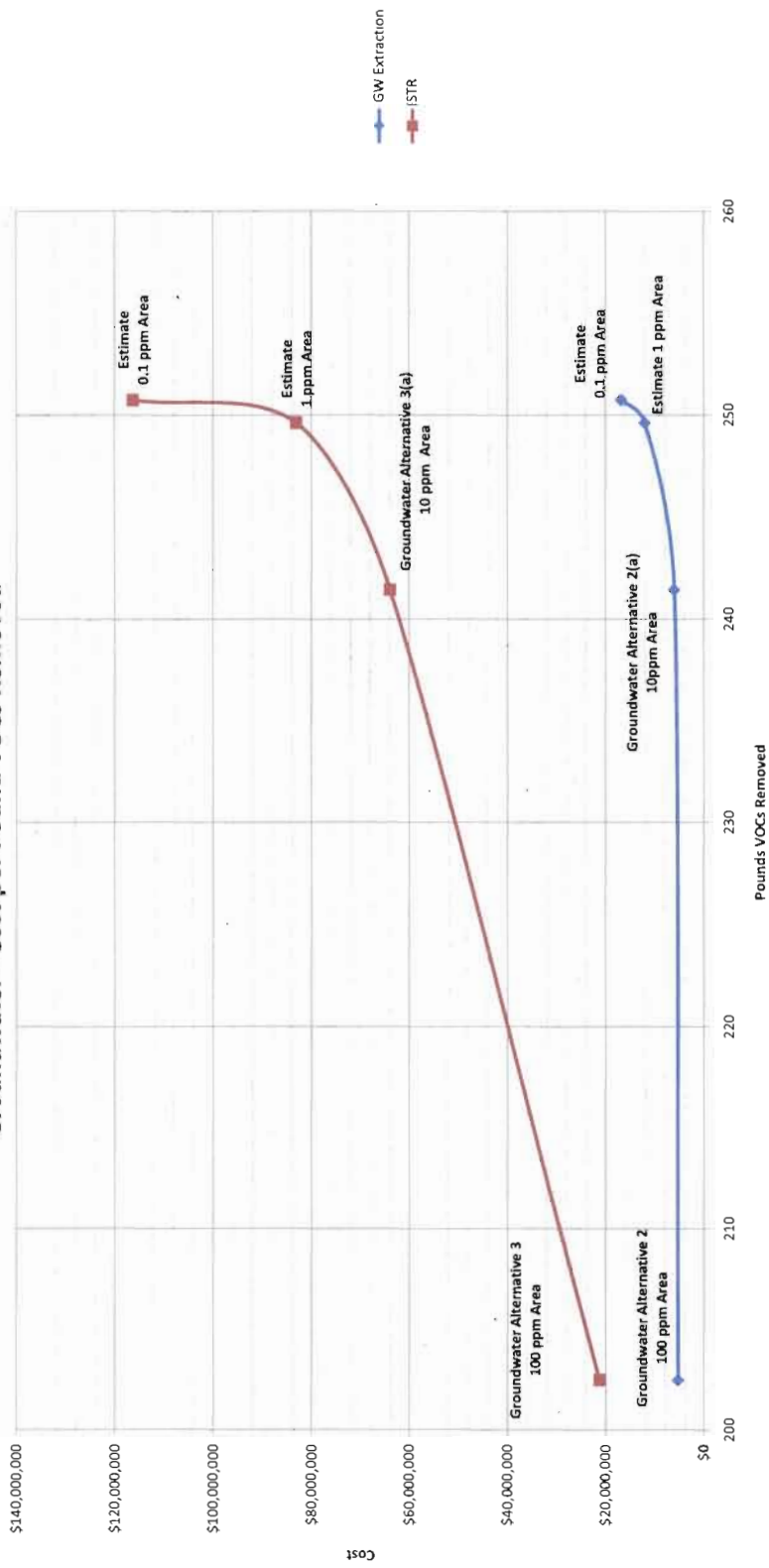
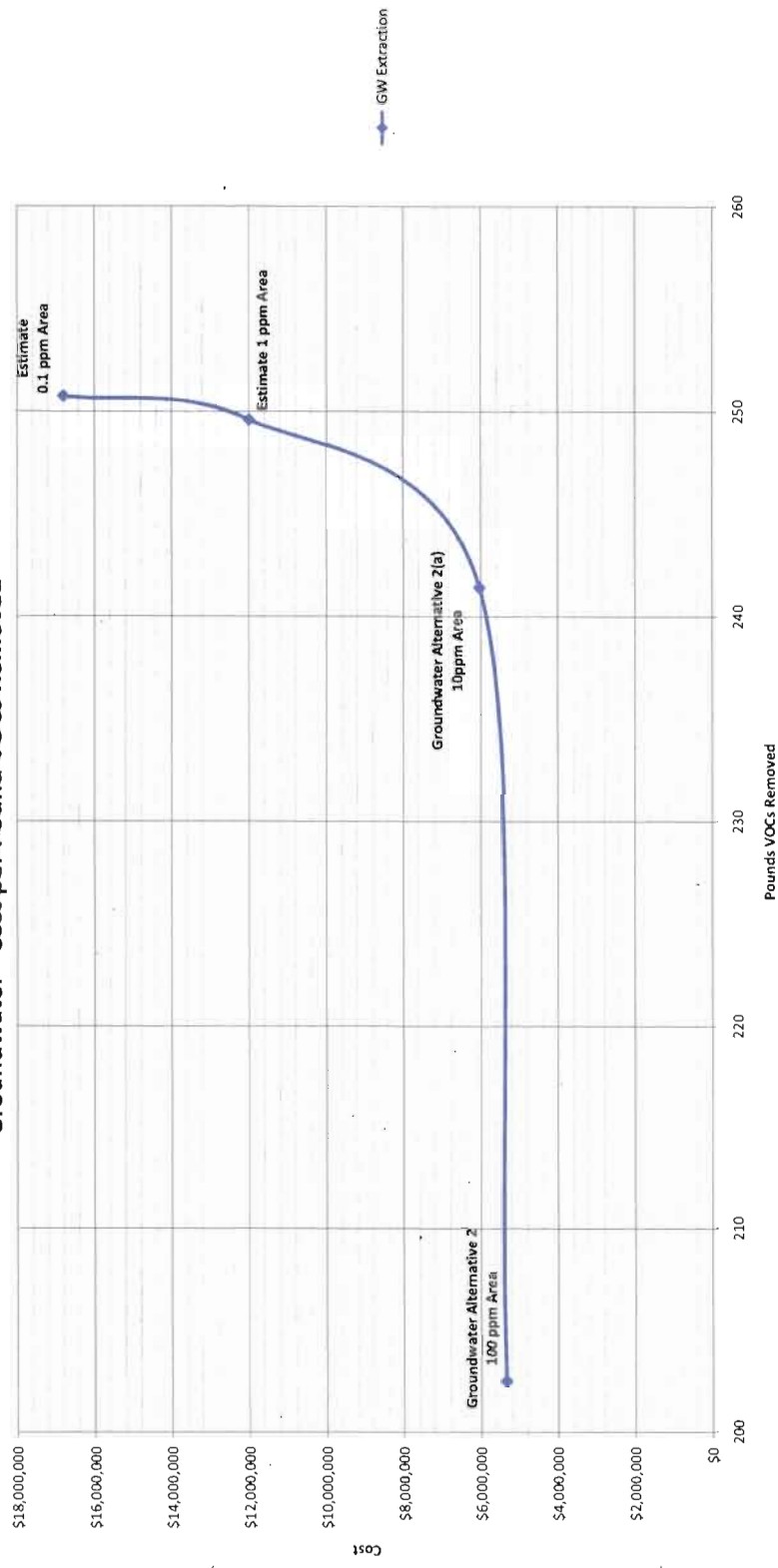


Figure 3A

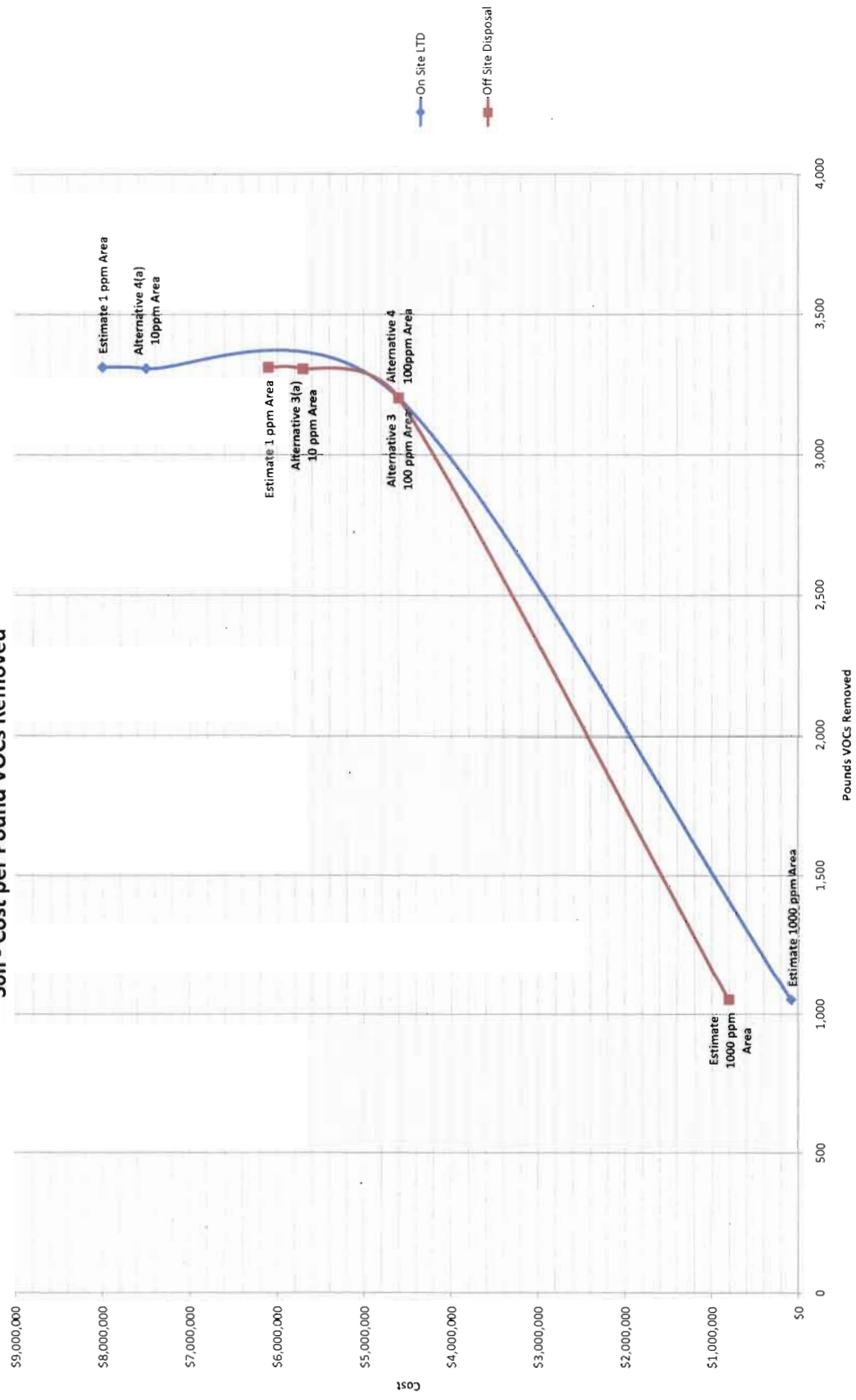
### Groundwater - Cost per Pound VOCs Removed

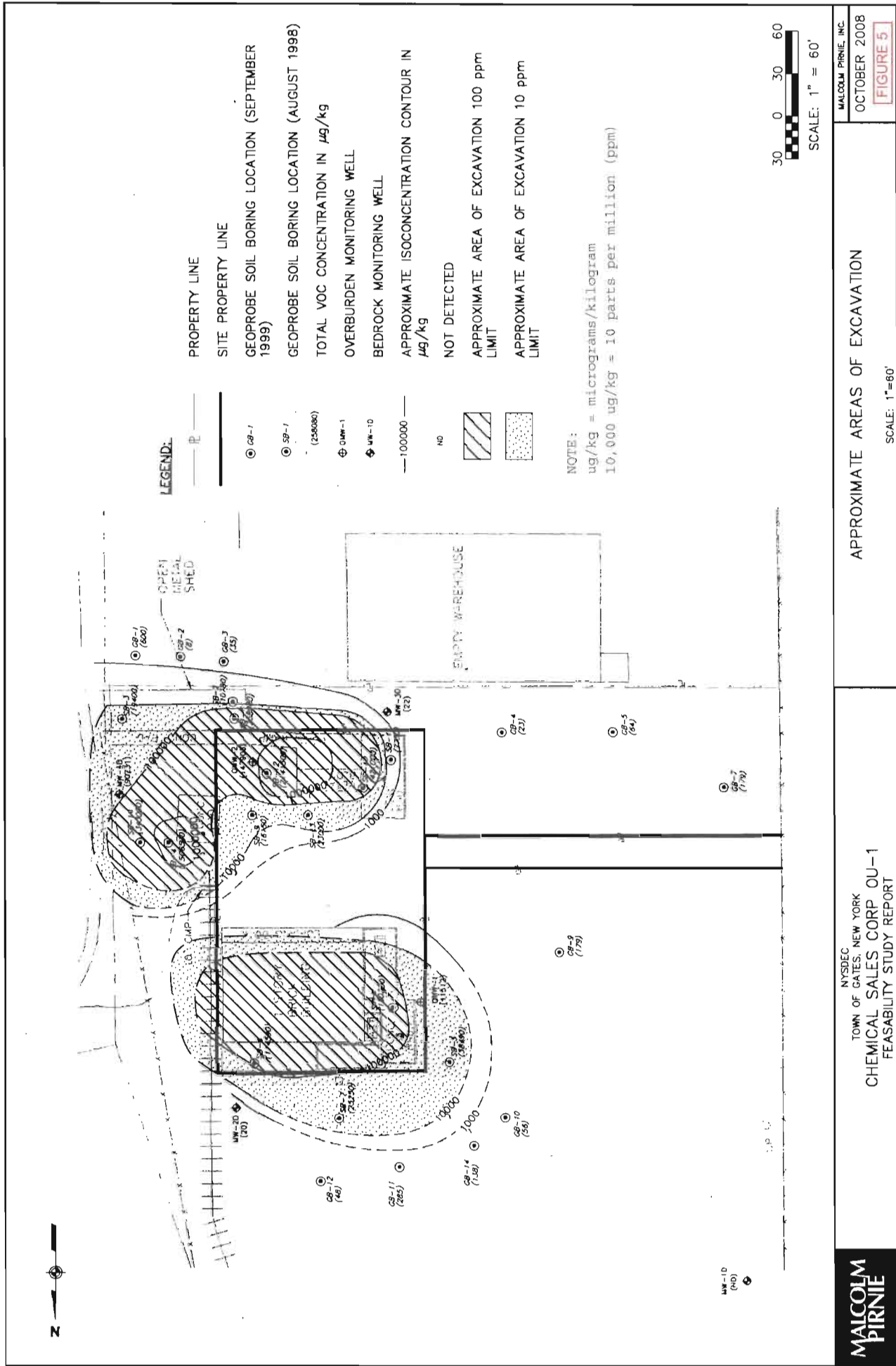


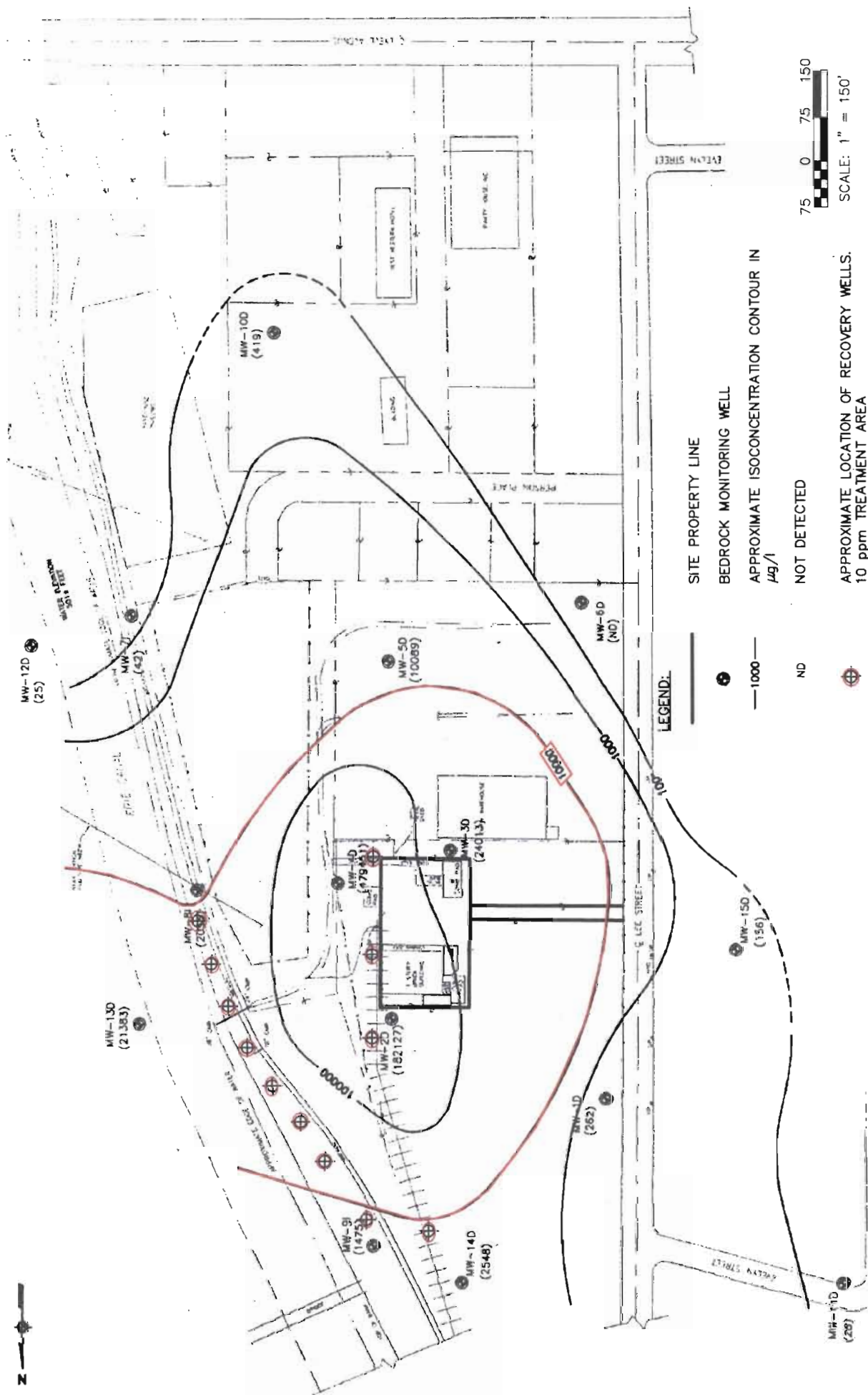


**FIGURE 4**

**Soil - Cost per Pound VOCs Removed**





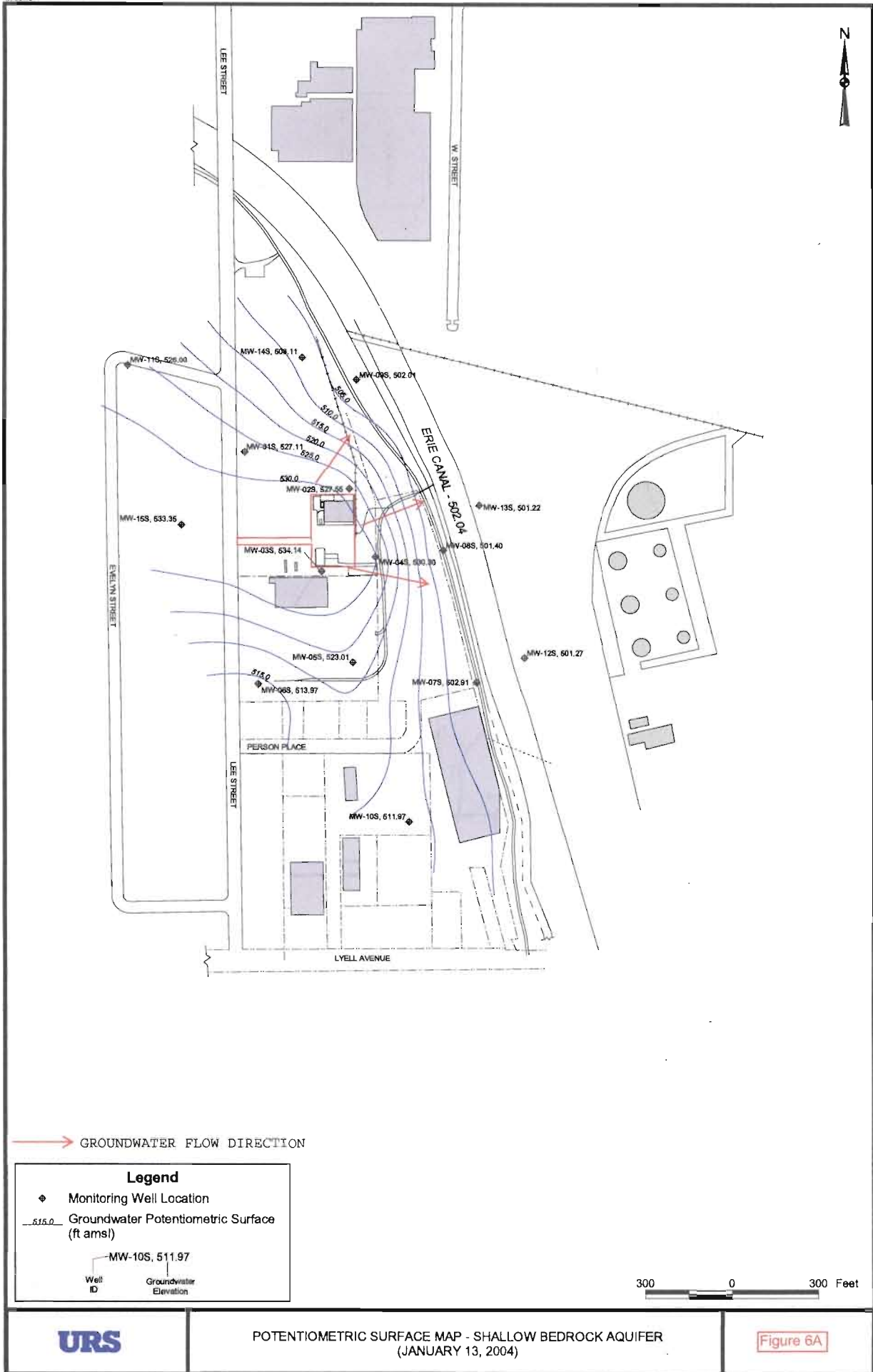


NOTE:

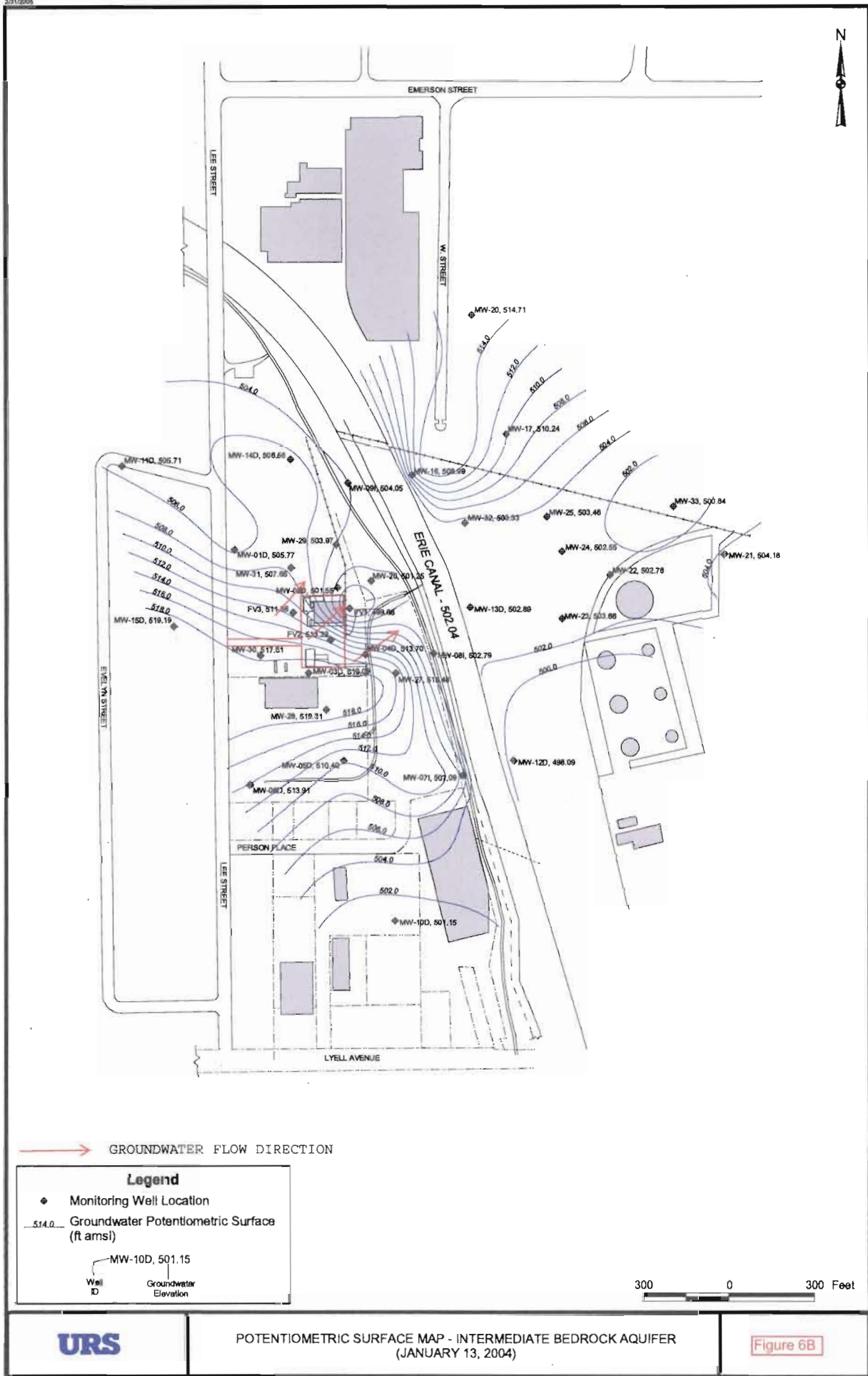
ug/l = micrograms/liter

10,000 ug/l = 10 parts per million (ppm)

## FIGURE 6







# **APPENDIX A**

## **Responsiveness Summary**

# RESPONSIVENESS SUMMARY

**Chemical Sales Corporation Site  
Operable Unit No. 1  
State Superfund Project  
Town of Gates, Monroe County, New York  
Site No. 828086**

The Proposed Record of Decision (ROD) Amendment for the Former Chemical Sales Corporation site, was prepared by the New York State Department of Environmental Conservation (the Department) in consultation with the New York State Department of Health (NYSDOH) and was issued to the document repositories on November 17, 2009. The ROD Amendment outlined the remedial measure proposed for the contaminated soil and groundwater at the Former Chemical Sales Corporation site.

The release of the Proposed ROD Amendment was announced by sending a notice to the public contact list, informing the public of the opportunity to comment on the proposed remedy.

A public availability session was held on December 1, 2009, which included a presentation of the remedial investigation/feasibility study (RI/FS) for the Former Chemical Sales Corporation as well as 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. The public comment period for the Proposed ROD Amendment ended on December 18, 2009.

This responsiveness summary responds to all questions and comments raised during the public comment period. The following are the comments received, with the Department's responses:

**COMMENT 1:** One gentleman, who lives near the site, was concerned about contamination potentially entering his home.

**RESPONSE 1:** As part of the vapor intrusion evaluation, performed in 2008 at locations near the site, homes and structures were evaluated for the potential for volatile organic compounds (VOCs) to migrate from the site to structures/homes near the site. As a part of this evaluation indoor air and sump water (where present) samples were collected. The results from these samples indicated that no actions are needed to address off-site exposures related to soil vapor intrusion.

Mr. Richard P. Manns, with the New York State Canal Corporation, submitted a letter dated December 15, 2009 which included the following comments:

**COMMENT 2:** A Canal Work Permit will be required for any remedial work located on Canal lands.

**RESPONSE 2:** Permits are not required per 6NYCRR Part 375-1.12. However, during the remedial design the exact location of the groundwater extraction wells, as well as the limits of the soil excavation, will be determined. Once the locations/limits are determined, if access to property owned by the New York State Canal Corporation is required the Department will work with the Canal Corporation to obtain that access.

**COMMENT 3:** Properties which require institutional controls, Site Management Plans (SMPs) and certification should be clearly identified in the Proposed Record of Decision Amendment.

**RESPONSE 3:** In Section 5.0 of the ROD Amendment, Item #5, it states that institutional controls, a Site Management Plan and periodic certifications will be developed for the site/the property, the limits of which are clearly marked on Figure 2 of the ROD Amendment.

**COMMENT 4:** As indicated by the March 2000 ROD, and by the November 2009 Proposed ROD Amendment, contamination associated with the Chemical Sales site exceeds levels that are of concern to either the New York State Thruway/New York State Canal Corporation (NYSTA/NYSCC), the NYSDEC or the USEPA, the responsible party must remove and/or acceptably treat and monitor to DEC and EPA's satisfaction all of the contaminated material from the canal property and properly dispose of it in an approved location.

No claim shall be made against the NYSTA/NYSCC for the remediation of the NYSTA/NYSCC right-of-way.

**RESPONSE 4:** The remedy included in the ROD Amendment will remove contamination to levels/concentrations that are acceptable and will allow for the continued and anticipated future use of the properties (site property as well as the adjacent Canal Corporation property) in the manner that they are currently being used (commercial, passive recreational).

Potentially Responsible Parties (PRPs) are those who may be legally liable for contamination at a site. The Potential Responsible Parties (PRP) for this site, documented to date, include: Chemcore (the former Chemical Sales) and possibly 190 Lee Road, Inc. The PRPs are subject to legal actions by the state for recovery of all response costs the state has incurred.



## **APPENDIX B**

### **Administrative Record**

# **Administrative Record**

**Chemical Sales Corporation Site  
Operable Unit No. 1  
State Superfund Project  
Town of Gates, Monroe County,} New York  
Site No. 828086**

**[This list supplements the existing Administrative Record included in the March 2000  
Record of Decision]**

1. *Proposed Record of Decision Amendment for the Chemical Sales Corporation site, Operable Unit No.1*, dated November 2009, prepared by the Department.
2. "Feasibility Study Report, Chemical Sales Corporation OU#1", April 2009, prepared by Malcolm Pirnie, Inc.
3. Letter from David J. Freeman (Paul, Hastings, Janofsky & Walker LLP) to James Moras (New York State Department of Environmental Conservation), dated April 13, 2010.  
[added to Administrative Record May 2010]



# STATE OF NEW YORK DEPARTMENT OF HEALTH

Flanigan Square 547 River Street Troy, New York 12180-2216

Richard F. Daines, M.D.  
Commissioner

James W. Clyne, Jr.  
Executive Deputy Commissioner

November 13, 2009

Mr. Dale Desnoyers, Director  
Division of Environmental Remediation  
NYS Dept. of Environmental Conservation  
625 Broadway - 12<sup>th</sup> Floor  
Albany, NY 12233

RE: Record of Decision Amendment  
Chemical Sales  
Site #828086  
Gates (T), Monroe County

Dear Mr. Desnoyers:

Staff reviewed the October 2009 draft Proposed Record of Decision Amendment for Operable Unit #1 of the above-referenced site. Based on that review, I understand that the remedy proposed in March 2000, *in-situ* steam stripping, has become infeasible due to the costs associated with the remedy's design and implementation. The amendment presents a proposal for a modified remedy, which includes the following actions to address site-related contamination in groundwater, soil, sediment and soil vapor, as well as exposures to the contamination:

- soil containing more than 10 part per million (ppm) total volatile organic compounds would be excavated and removed from the site;
- excavated areas would be backfilled with soil meeting the New York State Department of Environmental Conservation's criteria for backfill or local site background;
- a demarcation layer and appropriate cover system would be placed over soil remaining on-site that contains more than 10 ppm total volatile organic compounds;
- a groundwater treatment and extraction system would be installed and groundwater quality would be monitored;
- an environmental easement would be established restricting the use of on-site groundwater and limiting the use and development of the property to commercial/industrial use;
- a soil vapor intrusion evaluation would be completed for buildings developed on the site;
- a site management plan would be developed; and
- periodic certification of institutional and engineering controls would be submitted.

I believe the proposed modified remedy is protective of public health and concur with it. If you have any questions, please contact Geoff Laccetti at (518) 402-7860.

Sincerely,

Steven M. Bates, Assistant Director  
Bureau of Environmental Exposure Investigation

ec: A. Salame-Alfie, Ph.D. / G. Litwin / G. Laccetti / File  
R. Van Houten – RFO

J. Albert / J. Kosmala – MCHD

L. Paulsen / R. Knizek / J. White / J. Moras – NYSDEC Central Office

B. Putzig – NYSDEC Region 8

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