Department of Environmental Conservation

Division of Environmental Remediation

Record of Decision
STUART-OLVER-HOLTZ SITE
Town of Henrietta (T), Monroe County
Site Number 8-28-079

March 1997

New York State Department of Environmental Conservation
GEORGE E. PATAKI, *Governor* JOHN P. CAHILL, *Acting Commissioner*

DECLARATION STATEMENT - RECORD OF DECISION

STUART-OLVER-HOLTZ SITE
TOWN OF HENRIETTA (T), MONROE COUNTY, NEW YORK
SITE NO. 8-28-079

Statement of Purpose and Basis

The Record of Decision (ROD) for the Stuart-Olver-Holtz inactive hazardous waste disposal site presents the selected remedial action chosen in accordance with the New York State Environmental Conservation Law (ECL). The remedial program selected is not inconsistent with the National Oil and Hazardous Substances Pollution Contingency Plan of March 8, 1990 (40CFR300).

This decision is based upon the Administrative Record of the New York State Department of Environmental Conservation (NYSDEC) for the Stuart-Olver-Holtz inactive hazardous waste site and upon public input to the Proposed Remedial Action Plan (PRAP) presented by the NYSDEC. A bibliography of the documents included as a part of the Administrative Record is included in Appendix B of the ROD.

Assessment of the Site

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

Description of Selected Remedy

Based upon the results of the Remedial Investigation/Feasibility Study (RI/FS) for the Stuart-Olver-Holtz Site and the criteria identified for evaluation of alternatives, the NYSDEC has selected Sitewide Alternative #5 (SWA-5). The components of the remedy are as follows:

Overburden Groundwater Actions:

- Install a shallow groundwater collection trench system along the north and west property boundaries to collect and contain contaminated groundwater.

- Install and operate a passive groundwater pretreatment system. The system consists of subsurface vaults containing zero valence iron filings for destruction of chlorinated VOC's. Pretreated groundwater would discharge by gravity to the sanitary sewer for final treatment at the local POTW.

- Install and operate groundwater extraction wells for removal of contaminants from the source area near OW-7S.

- Install and operate a shallow groundwater collection trench adjacent to the Ruby-Gordon basement to intercept contaminated groundwater.

- Conduct periodic, long term overburden groundwater monitoring.

- Construct drainage improvements between Ruby-Gordon and the SOH site to minimize groundwater recharge to the Ruby-Gordon basement.

- Recommend deed restrictions on future use(s) of the site.

Bedrock Groundwater Actions:

- Implement institutional controls to reduce the potential for exposure to contaminated bedrock groundwater. This would include: disconnecting the SOH interior bedrock wells, conducting bedrock groundwater monitoring, and recommending deed restrictions on future use of groundwater.

Surface Soil Action:

- Excavate the on-site and off-site surface soils that are above SCGs and haul off-site for disposal. Regrade and restore the excavated areas. Isolation of on-site contaminated surface soils could be done in lieu of excavation.

SOH Sump Contents:

- Clean and dispose off-site accumulated sediments from site sumps, catch basins and related piping.

- Evaluate, upgrade or decommission drainage lines or connections.

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.

3/3/97
Date

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

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RECORD OF DECISION

STUART-OLVER-HOLTZ
Town of Henrietta, Monroe County, New York
Site No. 8-28-079
March 1997

SECTION 1: INTRODUCTION

The New York State Department of Environmental Conservation (NYSDEC) in consultation with the New York State Department of Health (NYSDOH) has selected Site Wide Alternative #5 (SWA-5) for the Stuart-Olver-Holtz (SOH) site. This remedy is selected to address the threat to human health and the environment created by the presence of elevated levels of contaminants in the on-site groundwater and surface soils. Site Wide Alternative #5 (SWA-5) will consist of several actions: a short term, source area extraction system for higher level contaminants found in the area around well OW-7S; a down gradient collection trench system for contaminated overburden groundwater; passive pretreatment of contaminated groundwater by zero valence iron and discharge to the local Publicly Owned Treatment Works (POTW); isolation and/or excavation and off-site disposal of contaminated surface soils; construction of minor drainage improvements; and restoration of the excavated areas. If necessary, a barrier wall may be constructed to help the collection trench achieve hydraulic containment of contaminated overburden groundwater. Bedrock groundwater will be addressed by institutional controls.

SECTION 2: SITE LOCATION AND DESCRIPTION

The approximately 3.8 acre site is located at 39 Commerce Drive, in a mixed commercial-industrial area of the Town of Henrietta, Monroe County, New York (See Figure 1). A manufacturing building occupies the eastern half of the site. The remaining area consists of a paved parking lot, driveways and grass covered areas. Immediately to the west is a weed and brush covered area with a swale that drains the site.

The site is bounded on the east by several small businesses: on the west by Pullman Manufacturing; on the south by Ruby Gordon property; and on the north side by Commerce Drive and several commercial properties, including a former Town of Henrietta Fire Station.

The site is located within the Red Creek drainage basin. Red Creek is located about ½ mile north and west of the site and flows into the Erie Canal about 2 miles north of the site. The westernmost portion of the site is located within the 100 year floodplain of the creek.

SECTION 3: SITE HISTORY

3.1: Operational/Disposal History

The Stuart-Olver-Holtz site was first developed from farm land in 1962 as Electro Chemical Products, Inc., a company formed by Maury H. Ryan and others. The company evolved into Stuart-Olver-Holtz, Inc. (SOH) as the business and properties were passed on to successors. SOH operated a specialty finishing business which included painting, conversion coating and metal plating of parts on a contract basis. In 1974 a fire occurred at the site, destroying a portion of the facility and also causing the release of plating and coating solutions into the environment.

In 1980 SOH applied for a permit to operate a solvent recovery unit at the facility and began accumulating drums of waste solvents for processing. Due to regulation changes, the permit was not issued, however SOH had accumulated a substantial volume of waste in the interim. Subsequently the NYSDEC issued an enforcement order against SOH requiring removal of the drums, some of which had been observed to be leaking. In August 1983 SOH removed some 200 drums from the site, but more than 100 remained. The accumulation of drums has since been a recurring problem at this facility. After efforts to have SOH complete a clean up of the site were not successful, the site was listed as an inactive hazardous waste disposal site with a Class 2 designation.

In 1986 SOH filed a Chapter 11 Bankruptcy petition. A plan for business reorganization was approved by the court that entailed transfer of the manufacturing facility to Metalade, Inc. Metalade established SOH Acquiring, Inc. to hold title to the facility and then leased it back from this holding company. Metalade conducts the same type of manufacturing operations at the facility as had SOH. A separate parcel of the property is still owned by principals of the original SOH, however, SOH as a corporation was dissolved. Environmental assessments of the site made in conjunction with this transfer confirmed the presence of soil and groundwater contamination at the site.

Adjoining the property to the south is Ruby Gordon, Inc., a furniture sales and warehousing enterprise. Ruby Gordon applied for a NYSDEC permit to discharge groundwater collected from basement sumps to a nearby surface drainage ditch. Due to the proximity to the SOH site and the presence of Volatile Organic Compounds (VOCs) there, Ruby Gordon was required to analyze its sump water for VOCs. Because of VOC contaminant levels found in the sump water, this water is now pretreated and then discharged to the Monroe County Pure Waters POTW.

3.2: Remedial History

In April 1985 and again in March 1986, the NYSDEC conducted an inspection of the SOH Facility. During those inspections several chemical containers and drums were observed unprotected outside of the facility, in the southwestern portion of the site. Container and drum contents were reported to consist of 1,1,1-Trichloroethane, etching waste, Methylene Chloride, waste thinner, nickel stripping solution, plating waste paint, and other solvents. The inspection also revealed the presence of three large dumpsters containing electroplating sludge outside of the SOH facility.

In 1987, a Site Assessment was conducted by SOH. Based on the results of this investigation, the following conclusions were reached:

- Groundwater flow in the overburden aquifer is generally towards the west to northwest.
- Volatile Organic Compounds (VOCs) were discovered in soil samples collected from the southwestern portion of the site, particularly in the vicinity of the drum storage area.
- VOCs were found in the three new monitoring wells in the southwestern portion of the site.
- VOCs were found in the two existing on-site production wells. Due to the lack of information about construction of these wells and indications that they may be screened at a different interval than the newly installed monitoring wells, the source of contamination and the direction of bedrock flow at these locations could not be determined.

In April 1991, Ruby Gordon conducted hydrogeologic investigations of the Ruby Gordon property to determine if SOH was contributing to contaminants detected in the Ruby Gordon basement sumps. This study concluded that contaminants found in water from the three basement sumps were attributable to contaminated groundwater migrating from the SOH site.

SECTION 4: CURRENT STATUS

In response to a determination that the presence of hazardous waste at the Site presents a significant threat to human health and/or the environment The NYSDEC has recently completed a Remedial Investigation and Feasibility Study (RI/FS). A Final RI Report, entitled *"Remedial Investigation Report, Stuart-Olver-Holtz Site, Henrietta, New York, September 1996"* has been prepared describing the field activities and findings of the RI in detail. A Final FS Report, entitled *"Feasibility Study Report, Stuart-Olver-Holtz Site, Henrietta, New York, October 1996"* has also been prepared to identify and evaluate remedial options for site cleanup.

4.1: Summary of the Remedial Investigation

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

The RI was conducted in two phases. Field work for the first phase was conducted between October 3, 1994 and December 6, 1994. Field work for a supplemental phase conducted between June 19, 1995 and October, 1995.

The RI included the following activities:

- Geophysical survey
- Soil vapor survey
- Air sampling during intrusive activities
- Test pit excavations
- Installation and sampling of soil borings
- Installation and sampling of overburden monitoring wells
- Installation and sampling of top of rock monitoring wells.
- SOH interior bedrock supply well assessment and sampling
- Hydraulic conductivity testings and groundwater level measurements
- Drainage swale surface water and sediments sampling
- Surface soil sampling

- Catch basin/sump sampling
- Ruby Gordon basement sump sampling
- Private well survey

To determine which media (soil, groundwater, etc.) contain contamination at levels of concern, RI data was compared to environmental Standards, Criteria, and Guidance (SCGs). Groundwater and surface water SCGs identified for the Stuart-Olver-Holtz (SOH) site were based on NYSDEC Ambient Water Quality Standards and Guidance Values. NYSDEC Technical Assistance Guidance Memorandum (TAGM) 4046 and guidance from the New York State Department of Health were used to evaluate site soils. NYSDEC TAGM 3028 "contained in criteria" was used for characterization of soil, sediment and groundwater for disposal purposes. USEPA Risk-Based Remediation Criteria and Preliminary Remedial Goals (PRGs) 1993 were also used as SCGs for soil and groundwater.

The RI identified a probable source area where levels of contamination in overburden groundwater were much higher than groundwater standards. This area is near the Metalade loading docks where well OW-7S was installed and where the most significant concentrations of contaminants of concern were detected in the two rounds of groundwater sampling conducted. Significant concentrations of chemicals of concern were also detected in the OW-6S area, where drums were historically stockpiled and where overburden groundwater may be migrating from the OW-7S source area due to the influence of the gradient induced from the Ruby Gordon basement sumps. The OW-7S source area along with the OW-6S area contribute to a larger contaminated groundwater plume found migrating in the overburden towards the northwest and south towards Ruby Gordon. Contaminant levels in the northwest overburden plume near the SOH property are also quite high, with well OW-3S also containing levels well above groundwater standards.

There are discontinuous areas where the surface soils have been contaminated to levels of concern, presumably by chemical spills and migration that occurred over the years of operation at this facility. Top of Bedrock groundwater immediately beneath the site also showed some contamination at levels of concern.

Based upon the results of the Remedial Investigation (RI), comparison to SCGs, and evaluation of potential human and environmental exposure routes, areas of contaminated overburden groundwater, surface soils and sediments at the site were identified that warrant remediation. The results of the RI are summarized below. More complete information can be found in the Final RI and FS Reports.

Concentrations of contaminants in groundwater are reported in parts per billion (ppb). Concentrations of contaminants in soils and sediments are reported in parts per million (ppm) for inorganics (metals) and in ppb for organic compounds.

4.1.1 Nature of Contamination:

As described in the Remedial Investigation (RI) Report, soil, groundwater, surface water, and sediment samples were collected to characterize the nature and extent of contamination at the site. Various samples were analyzed for Volatile Organic Compounds (VOCs), Semi-Volatile Organic Compounds (SVOCs), pesticides and Poly-Chlorinated Biphenyls (PCBs), cyanide based compounds and inorganics (metals).

Analytical results from the RI indicate the presence of elevated concentrations of VOCs, SVOCs, and metals in environmental media in and around the SOH site. Numerous chlorinated VOCs and metals were detected at concentrations above applicable Standards, Criteria and Guidance (SCGs) values in overburden groundwater (including water samples from the Ruby Gordon basement), in bedrock groundwater (including the samples from the SOH interior bedrock wells), in subsurface soils, and in water and sediment samples from sumps and catch basins. The compounds detected are typical for sites where plating, finishing and painting wastes were disposed or spilled.

Overburden groundwater appears to be the media with the most significant concentrations of chlorinated VOCs. The highest concentration of chlorinated VOCs was detected in the on-site well OW-7S near the loading dock area. In this well Trichloroethene was reported at up to 140,000 ppb, 1,1,1 Trichloroethane was reported up to 24,000 ppb, 1,1 Dichloroethane was reported up to 10,000 ppb, and Vinyl Chloride was reported up to 11,000 ppb. Monitoring well OW-6S, located in the southwest area of the site near where drums had historically been stored, contained similar VOCs and metals at very high levels. (See Figure 2 for monitoring well and sampling locations).

In the down gradient (northwest) plume, groundwater samples from well OW-3S showed lower but still significant levels of VOCs, with 1,2 Dichloroethene (DCE) (total) reported at up to 4,800 ppb, Vinyl Chloride (6,200 ppb); Trichloroethene (800 ppb); and Tetrachloroethene (1,500 ppb).

SVOCs were found at concentrations above SCGs in samples of surface soils and water from site sumps and catch basins. The most significant levels of SVOCs found were Poly-Aromatic Hydrocarbons (PAHs) detected in samples of the surface soils from on-site. The presence of high PAH levels in surface soil was sporadic, with some areas found above levels of concern, and other areas found below levels of concern.

Metals were detected at concentrations above SCGs in samples obtained from the overburden groundwater, bedrock groundwater, subsurface soils, surface water and in water and sediment from site sumps and catch basins. The more frequently encountered metals include cadmium, chromium, copper, lead, mercury, nickel, and zinc.

No Poly-Chlorinated Biphenyl compounds (PCBs) were detected during the RI.

4.1.2 Site Geologic and Hydrogeologic Summary

The site geology and hydrogeologic setting are generally consistent with regional conditions. The site overburden consists of fill soils, which overlie (in descending order) lacustrine silt and clay and glacial till. The glacial till consists of an upper unit which was relatively less dense and sandy and a dense lower till unit which contains a greater percentage of clay and silts. The glacial till deposit is the most prevalent overburden deposit encountered at the site and the upper till unit appears to be the primary water bearing unit in the overburden.

Bedrock underlying the glacial till is the Vernon Formation. The top of bedrock consists of weathered shale and is the second water bearing unit encountered during the RI at the site.

The overburden groundwater and top of bedrock groundwater appear to be under semi-confined conditions at the site. However, unconfined overburden groundwater conditions may exist at the site where the

thickness of the overlying lacustrine deposit is absent or too thin to provide a semi-pervious layer. The top of bedrock groundwater hydrogeologic conditions at the site are also apparently represented by semi-confined conditions. The top of bedrock groundwater is bounded above by the semi-pervious (low permeability) lower glacial till.

The overburden groundwater at the site flows in a north to northwest direction. However, during periods of high groundwater, a southward component of groundwater flow was observed along the Ruby Gordon property line in the vicinity of the building's basement (finished floor elev. 521.77). This southward flow direction is apparently induced when the basement sumps are pumping.

The top of bedrock groundwater flow direction is generally towards the northwest. The bedrock groundwater gradients are relatively consistent between the low and high groundwater flow conditions measured at the site.

4.1.3 Extent of Contamination

Tables 1 through 9 summarize the contaminant findings for soils, groundwater, surface water, sediments, and sump samples and compares the data with the proposed SCGs for the site. The following are the media which were investigated and a summary of the findings of the Remedial Investigation (RI).

Soils (subsurface)

A total of forty-one (41) subsurface soil samples were collected during the RI. Thirty-five (35) subsurface soil samples were collected from the split spoon samples during the test borings and monitoring well installations. Six (6) composite subsurface soil samples were collected from the test pit excavations.

Analyses of the subsurface soil samples showed that Volatile Organic Compounds (VOCs) were below SCGs. Semi-Volatile Organic Compounds (SVOCs), including total PAHs, were below the respective SCGs. Inorganics, except Arsenic, were also below SCGs. Arsenic levels slightly above SCGs appropriate for protection of groundwater were found in two samples. However, Arsenic was not found above SCGs in any groundwater samples from the site. As such, Arsenic found in these two subsurface soil samples and at similar levels in two surface soil samples is not considered a contaminant of concern for this site. Table 1 summarizes contaminant findings for these soils.

Soils (surface)

Eight (8) surface soil samples were collected during the RI at depths ranging from 1 to 6 inches. Surface soil samples SS-1, SS-2, and SS-3 were collected to evaluate spills which may have impacted the surface soils at the site. Surface soil samples SS-4, SS-5, and SS-6 were collected from off site locations to represent background concentrations. Surface soil samples designated as SED-1 and SED-4 were collected near the drainage swale at the western edge of the property.
No VOCs were detected in surface soils at or above SCGs. SVOCs, primarily PAHs, were detected above SCGs at two locations. The more significant individual PAHs detected included: Benzo(a)Anthracene, Chrysene, Benzo(b) Fluoranthene, and Benzo(a)Pyrene. Total PAH concentrations of 197,520 ppb at location SS-3 and 741,500 ppb at SS-1 were above the SCG for total PAHs. Inorganics, except for Cobalt

and Lead were below SCGs. Cobalt and Lead slightly above SCGs were found in one sample. No pesticides or PCBs were detected. Table 2 summarizes contaminant findings for the surface soils.

Sediments (on-site sump/catch basin)

Two (2) on-site sump and catch basin samples, NSM-2 and NSM-3, were collected during the RI to characterize contamination of site drainage structures. Several VOC's were found to exceed SCGs, including: 1,1,1-Trichloroethane (at a maximum concentration of 2,000,000 ppb); Tetrachloroethene (max 91,000 ppb); Toluene (max 110,000 ppb); and total 1,2 Dichloroethane (max 17,000 ppb). SVOC's consisting mainly of PAHs were detected, however, the maximum total PAH concentration of 131,690 ppb did not exceed the respective SCG. Several inorganics were also found above SCGs, including: Cadmium (max 63 ppm); Chromium (max 714 ppm); Copper (max 355 ppm); Nickel (max 983 ppm); and Selenium (max 89 ppm). Table 3 summarizes the contaminants of concern for sump sediments.

Surface Soils (swale area)

Two (2) surface soil samples were collected during the RI. These samples were taken from the drainage swale on the western edge of the property. Samples SED-2 and SED-3 were collected at corresponding surface water locations SW-2 and SW-3. Though labeled as sediments, these samples were from an intermittent drainage swale and are more appropriately considered surface soil samples. As such, SCGs for surface soils are considered instead of sediment SCGs.

No VOCs were detected in these samples at or above SCGs. SVOCs detected consisted of mainly PAHs. The maximum total PAH concentration at location SED 3 (220,830 ppb) was the only location to exceed the SCG for PAHs. Inorganics except for Zinc (max 844 ppm), Nickel (max 26 ppm)and Copper (max 68 ppm) were below their respective SCGs. Table 4 summarizes contaminant findings for these samples.

SOH Sump/Catch Basin Water

Two (2) water samples from on-site sumps and catch basins were collected and analyzed during the RI. These samples, NSM-1 and NSM-4 were collected to characterize contamination of on-site drainage structures.

High levels of VOCs were detected in these water samples. VOCs found above SCGs included: 1,1 Dichloroethane (maximum 72,000 ppb); 1,1,1 Trichloroethane (max 7,900 ppb); Toluene (max 5,800 ppb); Ethyl benzene (max 2,700 ppb); and total Xylene (max 15,000 ppb). One SVOC, Phenol (max 360 ppb) was found above its respective SCG. Several inorganics were detected above SCGs, including Aluminum (max 15,700 ppb); Antimony (max 111 ppb); Cadmium (max 4,430 ppb); Chromium (max 4,940); Copper (max 3,580 ppb); and Lead (max 696 ppb). Table 5 summarizes contaminant findings for these water samples.

Ruby Gordon Basement Sump Water

Water samples were collected from the three Ruby Gordon basement sumps in two separate sampling events during the RI.

Several VOCs were found in these sump samples in both sampling events. Exceedances of SCGs were found for the following compounds: 1,1,1 Trichloroethane (maximum 2,000 ppb); total 1,2 Dichloroethene (max 590 ppb); Tetrachloroethene (max 150 ppb); 1,1 Dichloroethane (max 630 ppb); Methylene Chloride (max 84 ppb); and Vinyl Chloride (max 30 ppb).

No SVOCs were detected at or above SCGs during the first sampling event. SVOCs were not analyzed during the second sampling event. No metals were found at or above SCGs in the first sampling event, therefore they were not analyzed in the second sampling event. There were no detection of pesticides or PCB's in these samples. Table 6 summarizes contaminant findings for the Ruby Gordon sump.

Overburden Groundwater

Overburden groundwater samples were collected from sixteen (16) monitoring wells during two sampling rounds of the RI, to characterize the overburden groundwater at the site. In general, overburden groundwater was found to contain significant contaminant levels next to the Metalade building, near well OW-7S and the loading dock. This area represents a probable source area, though subsurface soil data does not confirm this. It is possible that the actual source is under the Metalade building, or that the limited number of soil borings simply missed the source area. However, a contaminant plume with levels well above SCGs extends to the west and northwest from this area. Contaminated overburden groundwater was also found to be migrating southward, towards the Ruby Gordon property, most likely in response to gradients created by the sump pumps in the Ruby Gordon basement.

VOCs were found in both rounds of overburden groundwater at levels well above SCGs. VOCs found to exceed SCGs during Round 1 include: Vinyl Chloride (max 11,000 ppb); Trichloroethene (max 140,000 ppb); total 1,2 Dichloroethene total (max 10,000 ppb); 1,1,1 Trichloroethane, (max 24,000 ppb); 1,1 Dichloroethane (max 10,000 ppb); 1,1 Dichloroethene (max 900 ppb); and Tetrachloroethene (max 8,800 ppb). During Round 2 VOCs found at or above SCGs included: Trichloroethene (max 140,000 ppb); 1,2 Dichloroethene (total) (max 9,300 ppb); 1,1,1 Trichloroethane (max 14,000 ppb); Tetrachloroethene (max 4,300 ppb); 1,1 Dichloroethane (max 7,800 ppb) and 1,1 Dichloroethene (max 260 ppb). There appears to be a consistent spatial trend of overburden contamination to the northwest and south as evidenced by the two rounds of sampling.

SVOCs were analyzed in the Round 1 sampling event, but were not found above their respective SCGs. Only well OW-7S was resampled for SVOCs during Round 2. Again no SVOCs were detected at or above SCGs.

Inorganics were analyzed in both sampling rounds. In Round 1 the metals found above SCGs included: Aluminum (max 14,900 ppb); Manganese (max 1,420 ppb); and Nickel (max 169 ppb). The Round 2 sampling detected similar metals, but generally at lower levels. No spatial trends in metals contamination were apparent from the two rounds of sampling.

No pesticides or PCBs were detected in either sampling round. Table 7 summarizes contaminant findings for the overburden groundwater.

Bedrock Groundwater

Top of Bedrock Monitoring Wells:

Groundwater samples were collected from five (5) top of bedrock wells that were installed during the RI. Two sampling rounds were conducted. In general, bedrock groundwater was found to contain higher contaminant levels near the manufacturing facility, but with rapidly decreasing levels away from the building. Most of the maximum SCG exceedances were from well OW-7R, located near the facility's loading docks and the presumed overburden source area.

Several VOCs were found in bedrock groundwater at or above SCGs during the Round 1 sampling, including: Trichloroethene (maximum 11,000 ppb); total 1,2 Dichloroethene (max 9,000 ppb); 1,1,1 Trichloroethane (max 170 ppb); 1,1 Dichloroethane (max 6,300 ppb); 1,1 Dichloroethene (max 270 ppb); Tetrachloroethene (maximum 66 ppb); Vinyl Chloride (max 110 ppb); and Methylene Chloride (max 6,000 ppb). Similar VOCs were detected in the Round 2 sampling, but with fewer exceedances of SCGs and at generally lower numbers. During Round 2 the VOCs found at or above SCGs were: Trichloroethene (max 15 ppb); 1,1,1 Trichloroethane (max 110 ppb); Vinyl Chloride (max 24 ppb); and Methylene Chloride (max 7 ppb). The generally lower VOC levels seen in the top of rock wells during Round 2 were likely the result of seasonal variations in groundwater infiltration, rather than from a sudden occurrence of natural attenuation mechanisms.

SVOCs were analyzed in Round 1. The only exceedance of groundwater SCGs for SVOCs in the top of rock wells was Phenol, found at 13 ppb in well OW-7R. Only rock well OW-7R was reanalyzed for SVOCs in Round 2. Phenol at 10 ppb was again the only SVOC detected above its respective SCG.

Inorganics were analyzed in both the Round 1 and Round 2 sampling events. The Round 1 analytical data showed Aluminum and Manganese above SCGs, with maximum concentrations of 1,400 ppb and 1,670 ppm respectively. The Round 2 sampling detected no metals compounds at or above SCGs.

There were no Pesticides or PCBs detected in the two sampling rounds. Contaminants findings for bedrock groundwater are summarized in Table 8.

SOH Interior Bedrock Wells

Two (2) preexisting bedrock wells located within the SOH (Metalade) building were sampled and analyzed during the RI. These interior wells, designated IW-1R and IW-2R, are reportedly no longer used, but in the past were used for supply and recirculation of cooling water for plant operations. When sampled, these wells still contained intact down hole pump equipment and discharge/return lines.

During Round 1 sampling of the interior bedrock wells several VOCs were found at or above SCGs, including: Vinyl Chloride (max 110 ppb); Trichloroethene (max 64 ppb); total 1,2 Dichloroethene (max 6,700 ppb); and 1,1 Dichloroethane (max 21 ppb). Round 2 sampling of these wells found similar VOCs above SCGs: Vinyl Chloride (max 69 ppb); Trichloroethene (max 150 ppb); total 1,2 Dichloroethene (max 670 ppb); 1,1 Dichloroethane, (maximum 96 ppb) and 1,1,1 Trichloroethane, (maximum 110 ppb). There was no obvious trend in VOC levels in the interior bedrock wells from Round 1 to Round 2.

No SVOCs at or above SCGs were detected during the Round 1 interior bedrock sampling. SVOCs were not reanalyzed in Round 2.

Inorganics were analyzed in both the Round 1 and Round 2 interior bedrock well sampling events. The Round 1 sampling event found the following metals at or above SCGs: Aluminum (max 753 ppb); Cadmium (max 190 ppb); Chromium (max 3,700 ppb); Nickel (max 7,770 ppb); Lead (max 78 ppb) and Zinc (max 2,790 ppb). The Round 2 results showed similar exceedances by metals: Cadmium (max 797 ppb); Chromium (max 4,380 ppb); Lead (max 75 ppb); Nickel (max 4,660 ppb) and Zinc (max 4,280 ppb) above their respective SCGs.

There were no pesticides or PCBs detected in either sampling event. Contaminants findings for bedrock groundwater are summarized in Table 8.

Surface Water (Swale Area)

Three (3) surface water samples, SW-1, SW-2, and SW-3 were collected from the adjacent drainage swale during the RI. Sample SW-1 was collected from the swale west of where it bends. Samples SW-2 and SW-3 were collected from the swale closer to the SOH facility, near surface sediment samples SED-2 and SED-3 respectively. No VOCs were detected at or above SCGs in the surface water samples. No SVOCs, with exception of one occurrence of Pentachlorophenol at 4 ppb, were detected at or above SCGs.

Inorganics found at or above SCGs included: Aluminum (maximum 997 ppb); and Manganese (max 909 ppb). There were no pesticides or PCBs detected in these samples. Contaminant findings for these surface water samples are summarized in Table 9.

4.2 Summary of Human Exposure Pathways:

This section describes the types of human exposures that may present added health risks to persons at or around the site. A more detailed discussion of potential exposures and health risks can be found in Section 6.00 of the RI Report.

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

A qualitative risk assessment was completed in the RI to identify potential risks to human health due to contaminants present at the site. This assessment evaluated the toxicological properties of the contaminants detected at the site and potential exposure pathways. The concentrations of contaminants at potential points of exposure were then compared to SCGs such as Drinking Water Standards, Surface Water Standards, Soil Guidance Values, USEPA Preliminary Remediation Goals and Risk Based Concentration Goals, and NYSDEC Aquatic Sediment Guidance Values.

Conclusions drawn from the risk assessment indicated that, although SCGs were exceeded for some VOCs, SVOCs and metals, there are no immediate health threats posed by the site under current exposure conditions. This is based in large part because groundwater near the site is not currently used as a water

supply by residents or businesses and because the site is used primarily for industrial purposes. However, two areas were identified during the RI where there is the potential for unacceptable exposure.

One potential exposure area identified was within the drainage swale at the SED-3 sampling location, (southwest of the Ruby-Gordon Building), where the drainage swale bends to the west. This area is accessible to children playing or exploring the swale. As such, a residential exposure scenario was considered appropriate for evaluating remedial options for this area. Surface soil SCGs appropriate for residential exposures were exceeded in this area.

The second potential exposure area identified was the overburden groundwater in the source area and the plume that extends from this area towards the south and northwest. This source area and plume poses a future long term threat of exposure to site contaminants. Utility workers working on subsurface utilities along Commerce Drive in the immediate site area, and construction workers involved in excavation or other intrusive activities in the plume area would likely be exposed to contaminants at levels of concern. Other unacceptable exposures could also occur if the site usage changes in the future.

The New York State Department of Health (NYSDOH) conducted two off site groundwater sampling events from sumps, one located at 56 Commerce Drive and the other at 80 Commerce Drive, to determine if contaminated groundwater from the SOH site is impacting off site receptors. Sampling was also conducted in an off site wetland located approximately 1,500 feet north of the site. The analytical results from the sampling concluded that there are no apparent impacts at this time from the SOH site to buildings or human receptors across Commerce Drive from the site or to the wetland area.

4.3 Summary of Environmental Exposure Pathways:

This section summarizes the environmental exposures which may be presented by the site. The Fish and Wildlife Impact Assessment included in the RI presents a more detailed discussion of the potential impacts from the site to fish and wildlife resources.

Under current conditions, surface water runoff from the site and erosion of surficial soils to the drainage swale on the western edge of the SOH facility may be contributing trace contaminants to the surface water and soils in the drainage swale. In the past, uncontrolled releases and subsequent runoff would likely have produced significantly higher loadings to the swale area.

Although SCGs appropriate for residential exposures were exceeded by total PAHs in surface soil location SED 3, they were not at levels where observable or significant impacts to fish or wildlife would likely occur. Since this is shallow swale that has very low flow and no significant fish propagation or population identified, very minimal impacts to fish or wildlife resources would be expected from the site contaminants found in the surface water and swale soils.

SECTION 5: ENFORCEMENT STATUS

In 1992, the Department began efforts to negotiate with Potentially Responsible Parties (PRPs) to have them conduct a Remedial Investigation and Feasibility Study (RI/FS) for the site. PRPs are those who may be legally liable for contamination occurring at a site. PRPs may include past and present owners and operators, waste generators, transporters, and those who arrange for the disposal of wastes. PRPs

identified for this site include the following: SOH as owner and operator at the time of releases; Maury A. Ryan, Dr. James H. Ryan, Jr., and Stanley Klimek, as owners at the time of releases and as current owners of part of the property; SOH Acquiring, Inc., as current owner of the manufacturing facility; and Metalade, Inc., as current operator and as an operator at the time of releases. Negotiations with the PRPs were unsuccessful, and the site was subsequently referred to the State Superfund for implementation of the RI/FS program.

Once final remedy selection is completed for this site, the NYSDEC will again approach site PRPs. The NYSDEC will seek to obtain an agreement for PRP implementation of the remainder of the remedial program, including design, construction, and long term operation and maintenance of the remedy.

Also in 1992, Ruby Gordon, Inc. filed a private Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) suit against SOH, Metalade, and related parties in the United States District Court, Western District of New York, to recover costs and damages associated with the treatment and discharge of contaminated groundwater emanating from the SOH site. In 1994, the Department was ordered by the court to join that CERCLA suit as a necessary party for resolution of issues raised by the suit. The court retains jurisdiction over the parties and resolution of the CERCLA suit for this site.

In addition to the remedial program being implemented to address contamination at the site, the Department has pursued RCRA enforcement procedures against SOH and Metalade for violations of hazardous waste management regulations during their respective operations at the site. These actions have been independent of this remedial program, except where leaking drums of wastes have established releases.

SECTION 6: SUMMARY OF THE REMEDIATION GOALS

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

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

The goals selected for this site are:

- *Eliminate to the extent practicable the potential for direct human or animal contact with site contaminants.*
- *Reduce, control, or eliminate to the extent practicable the contamination present within the soils and waste on site.*
- *Reduce, control, or eliminate to the extent practicable any further migration of contaminated groundwater from the site, including migration into the Ruby Gordon basement sumps.*
- *Provide, to the extent practicable, for attainment of groundwater SCGs in the area affected by the site.*

SECTION 7: SUMMARY OF THE EVALUATION OF ALTERNATIVES

The selected remedy will 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. A large number of potential remedial technologies and alternatives for the site were identified, screened and evaluated in the Final FS Report entitled *"Feasibility Study Report, Stuart-Olver-Holtz Site, Henrietta, New York, October 1996"*.

The alternatives presented in this ROD reference Site Wide Alternative (SWA) designations used in the FS Report. However, for simpler presentation, the ROD discusses a smaller number of alternatives that represent the range of alternatives evaluated in the FS. Not all Site Wide Alternatives presented in the FS Report are repeated in this ROD. Specifically, SWA-4 is not presented because little difference separates SWA-3 and SWA-4, with the substantive difference being in the disposal for surface soils and sediments.

A summary of the detailed analysis of alternatives follows. As used in the following text, the Time to Implement reflects only the time that would be required to implement the remedy, it does not include time required to task a design contractor, design the remedy and procure contracts for construction under a State funded program, nor to negotiate consent orders and design details with the responsible parties for PRP implementation of the remedy.

7.1: Description of Alternatives

The potential remedies are intended to address the contaminated soils, sediments, surface water and groundwater at the site. Because of the presence of an overburden source area near and possibly beneath the Metalade building, and the presence of a significant contaminant plume migrating from the site in the overburden groundwater, all of the alternatives except No Action also include source area and groundwater plume controls.

Site Wide Alternative #1 (SWA-1): No Action

Total Present Worth:	$201,500
Capital Cost:	$ 10,000
Annual O&M: (Present worth)	$191,500
Time to Implement:	immediately

The No Action Alternative was evaluated as a procedural requirement and as a basis for comparison. It would allow the site to remain in an unremediated state, but would require continued operation of the existing pretreatment system for the Ruby Gordon basement sump water. This alternative would leave the site in its present condition and would not provide any additional protection to human health or the environment.

Site Wide Alternative #2 (SWA-2): Deep Collection Trench; Source Area Extraction Wells; Active Groundwater Pretreatment and Discharge to POTW; Excavation and Off Site Disposal of Soil and Sediment

Total Present Worth:	$2,986,700

Capital Cost:	$1,410,000
Annual O&M:(Present worth)	$1,576,700
Time to Implement:	12-18 months

SWA-2 is shown conceptually on Figure 3 and was evaluated to include the following remedial actions:

Overburden Groundwater Actions for SWA-2

- Install and operate a groundwater collection trench approximately 23 feet deep along the north and west SOH property boundaries (across the overburden plume) to collect and contain contaminated groundwater. Groundwater from the collection system would be pumped for pretreatment on the SOH site. The system would be operated for long term control of contaminated groundwater.

- Install and operate a groundwater pretreatment system on the SOH site. The pretreatment system would consist of an air stripper (or performance equivalent) and any water conditioning needed to facilitate reliable stripping. Pretreated water would be discharged via gravity line to the existing sanitary sewer and POTW. Air treatment may be necessary for control of air emissions from the air stripper.

- Install and operate groundwater extraction wells for removal of contaminants from the source area near OW-7S. Operation would occur until the source area is removed or until contaminant removal becomes inefficient as evidenced by steady state contaminant levels. Source area groundwater would be treated as described for the collection trench system. Alternately, a Soil Vapor Extraction system or Dual Phase Vacuum Extraction System could be used if design evaluations show this technology to be more efficient. An additional investigation to locate a soil contaminant source area would be done during design to support the evaluation for possible vapor extraction.

- Pump contaminated water collected from the Ruby Gordon basement sumps to the groundwater pretreatment system on the SOH site. Take the existing Ruby Gordon pretreatment system off-line. Divert surface water currently entering the basement drainage system from the Ruby Gordon loading dock to reduce the volume of water requiring pretreatment.

- Conduct periodic, long term overburden groundwater monitoring to evaluate the extent to which the remedial action objectives are being met.

- Construct drainage improvements in the area between the Ruby Gordon basement and the SOH site to minimize groundwater recharge to the basement sumps. Improvements would include a lined (low permeability) swale or equivalent.

- Deed restrictions would be recommended to prevent future uses of the site which are incompatible with the Site Wide Alternative.

Bedrock Groundwater Action for SWA-2

- Implement institutional controls to reduce the potential for exposure to contaminated bedrock groundwater. The proposed controls would include: disconnecting the SOH interior bedrock wells; conducting periodic groundwater use surveys in the site area; and conducting bedrock groundwater monitoring to track groundwater movement and contaminant levels. The monitoring program would be narrow in scope, but would require action be taken if conditions change and produce significant potential exposures or off site loadings. SWA-2 would also include a recommendation that deed restrictions be implemented to preclude future use of groundwater at the SOH site.

Soil Surface Actions for SWA-2

- Excavate the on-site and off site surface soils that are above SCGs and haul off site for disposal at a permitted waste disposal facility. Regrade the excavated areas, place topsoil and restore vegetation. Within SOH property boundaries, isolation of contaminated surface soils using a clean soil or asphalt cover could be done instead of excavation provided proper drainage and grading is maintained. It is estimated that as much as 875 CY of surface soil would require excavation or isolation. Prior to surface soil removal or isolation, a focussed soil sampling effort would be implemented to refine the limits of surface soils exceeding SCGs.

SOH Sump/Catch Basin Actions for SWA-2

- Evaluate all waste lines and other piping leading from the SOH building to identify any additional connections to sumps, catch basins or other uncontrolled discharge locations.

- Clean all accumulated sediments and debris from site sumps, catch basins and related piping. Transport off site for disposal in a permitted hazardous waste disposal facility.

- After cleaning, upgrade or decommission lines as appropriate to prevent further potential releases from spills or migration of contaminants from the source area.

Site Wide Alternative #3 (SWA-3): Downgradient and Source Area Extraction Wells; Groundwater Pretreatment and Discharge to POTW; Excavation and Off Site Disposal of Soil and Sediments.

Present Worth:	$2,778,300
Capital Cost:	$1,114,500
Annual O&M:(Present worth)	$1,663,800
Time to Implement:	12-18 months

SWA-3, shown in Figure 4, was evaluated to include the same remedial activities described in SWA-2 except that extraction wells would be used to intercept the overburden plume in lieu of the deep collection trench along the north and west SOH property boundaries. The extraction wells would be designed and operated to provide hydraulic containment of the overburden plume and to collect contaminated groundwater for treatment. The extraction wells would be installed approximately 50 feet apart to a depth of approximately 23 feet. Treatment of collected groundwater would occur as described for SWA-2.

Areas of contaminated surface soils, on-site sumps, catch basins and piping, and contaminated bedrock groundwater would all be addressed as outlined for SWA-2.

Site Wide Alternative #5 (SWA-5): Shallow Collection Trench System; Source Area Extraction Wells; Pretreatment by Zero Valence Iron and Discharge to POTW; Excavation or Isolation of Soils and Sediments with Off Site Disposal

Total Present Worth:	$2,778,100
Capital Cost	$1,917,000
Annual O&M (Present Worth)	$861,100
Time to Implement:	12-18 months

SWA-5, shown in Figure 5, is similar to SWA-2 with the major difference being a shallower collection trench augmented by high permeable relief columns (or an equivalent) and with passive pretreatment by zero valence iron. SWA-5 was evaluated to include the following remedial actions:

Overburden Groundwater Actions for SWA-5

- Install and operate a shallow groundwater collection trench system along the north and west property boundaries (across the overburden plume) to collect and contain contaminated groundwater. The trench system would consist of a shallow (approximately 15 feet deep) collection trench with high permeability relief columns (or functional equivalent) beneath the trench designed to intercept deeper contaminated sand lenses. Collected groundwater would flow by gravity to a passive on-site groundwater pretreatment vault. The system would be operated for long term control of contaminated groundwater.

- If necessary to achieve or enhance hydraulic containment by the collection trench system, a sheet piling barrier wall would be constructed just downgradient from the collection system. (The cost of sheet piling is included in the capital cost estimate, if not needed then approximately $240,000 of cost savings would incur)

- Install and operate a passive groundwater pretreatment system on the SOH site. The pretreatment system would consist of subsurface vaults containing zero valence iron filings for destruction of chlorinated VOC's. Groundwater pretreated by contact with the iron would discharge by gravity to the sanitary sewer for final treatment at the local POTW.

- Install and operate groundwater extraction wells for removal of contaminants from the source area near OW-7S. Operation would occur until the source area is removed or until contaminant removal becomes inefficient as evidenced by steady state contaminant levels. Source area groundwater would be pumped for pretreatment as described for the collection trench system. Similar to SWA-2 additional source area investigation would be done during design and installation of a Soil Vapor or Dual Phase Vapor Extraction System may be implemented if found cost effective for remediation at the source area.
- Install and operate a shallow groundwater collection trench along the portion of the south SOH property boundary adjacent to the Ruby Gordon basement. This trench would be installed deeper than the basement to intercept contaminated groundwater before it enters basement sumps. Collected groundwater would flow by gravity to the pretreatment vault. Operate for long term control of groundwater between the SOH site and the Ruby Gordon basement. Operation of the

existing Ruby Gordon pretreatment system would continue until the groundwater collection trench becomes effective and a evaluation is made to disconnect the existing system.

- Conduct periodic, long term overburden groundwater monitoring to evaluate the extent to which the remedial action objectives are being met.

- Construct drainage improvements in the area between the Ruby Gordon basement and the SOH site to minimize groundwater recharge to the Ruby Gordon basement and the overburden collection system.

- Deed restrictions would be recommended to prevent future uses of the site which are incompatible with the Site Wide Alternative.

Bedrock Groundwater Actions for SWA-5

- SWA-5 would include all the same institutional controls to address bedrock groundwater contamination that are described for SWA-2.

Soil Surface Actions for SWA-5

- SWA-5 would include all the same actions set forth for surface soils that are described for SWA-2.

SOH Sump/Catch Basin Actions for SWA-5

- SWA-5 would include all the same actions for site sumps, catch basins and related piping that are described for SWA-2.

7.2 Evaluation of Remedial Alternatives

The criteria used to compare the potential remedial alternatives are defined in the regulations that direct 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 more detailed discussion of the evaluation criteria and comparative analyses are contained in the Feasibility Study (FS).

The first two criteria are considered as "threshold criteria" which must be satisfied in order for an alternative to be eligible for the selection process.

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, or guidance.

Site Wide Alternative #1 (SWA-1), (No Action) would not be in compliance with SCGs, since no action is taken to address site contaminants found exceeding soil, water, and sediment criteria.

SWA-2 (Deep Trench), SWA-3 (Extraction Wells) and SWA-5 (Shallow Trench System) would be comparable in their ability to meet the groundwater SCGs in the long term. Groundwater SCGs would not be met quickly, but over a longer period each would be expected to reduce contaminants to levels approaching SCGs. Each of these alternatives would be expected to readily achieve SCGs for treatment and discharge of contaminated water through use of on-site pretreatment and discharge for final off site treatment at the local POTW.

SWA-2, SWA-3 and SWA-5 have the same remedial elements for soil and sediments and would be comparable in achieving soil SCGs. Each alternative would require that areas of contaminated surface soils that exceed SCGs be removed from the site or isolated.

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

SWA-1 (No Action), would not be protective of human health and the environment. No action would be taken to address contaminated groundwater, soils or sediments and the site would continue to pose a potential unacceptable risk of human exposure.

SWA-2 (Deep Trench), SWA-3 (Extraction Wells) and SWA-5 (Shallow Trench System) would each provide adequate overall protection of human health and the environment. These alternatives would equally limit the potential for unacceptable human exposure to site contaminants through the combined effect of surface soil remediation, control of contaminated groundwater and implementation of institutional controls. SWA-5 would provide an additional benefit by intercepting contaminated groundwater prior to entering the Ruby Gordon basement sumps and minimizing potential exposures through that route.

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

3. **Short-term Impacts and Effectiveness.** The potential short term adverse impacts of the remedial action upon the community, 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.

SWA-1 (No Action) would not be expected to produce any short-term impacts since there would be no construction activities and the site would be left in its present condition. Remedial objectives would not be expected to be achieved by SWA-1 within any reasonable time frame.

The most likely short term community impacts that could result from construction of SWA-2, SWA-3 or SWA-5 would be a temporary increase in truck traffic and construction noise, and an increased potential for nuisance dust emissions. Potential short term impacts to workers would be from the risks common to heavy construction activities and the risk of short term exposures to potential high levels of site contaminants.

SWA-3 (Extraction Wells) would produce less short term impacts to the community and to workers than SWA-2 and SWA-5 because the use of drilled wells instead of trench excavation would result in the least amount of site disturbance.

SWA-2 (Deep Trench) and SWA-5 (Shallow Trench System) would produce a higher risk of short term impacts to the community and to workers than SWA-3 due to the relatively large amount of excavation required and the greater quantities of potentially contaminated soils and construction water that would have to be handled. Because of differences between trench systems, SWA-5 would probably require less excavation and less soil and water handling than SWA-2 and somewhat lower short term impacts would be expected.

The time required to achieve remedial action objectives would be comparable for SWA-2, SWA-3 and SWA-5. Objectives applicable to the soil and sediment media would be met quickly. The objective for control of further migration of contaminated groundwater would also be met relatively quickly (months). The objective for attainment of groundwater SCGs in the overburden plume would be expected to take much longer (years), with SWA-2, SWA-3 and SWA-5 being considered equivalent. SWA-5 has the benefit of a south side collection trench that would be expected to help attain SCGs in water collected from the Ruby Gordon sumps more quickly than either SWA-2 or SWA-3.

4. **Long-term Effectiveness and Permanence.** This criterion evaluates the long term effectiveness of the remedial alternatives after implementation of the response actions.

SWA-1 (No Action) would not provide any effective long term or permanent improvements to site conditions since no action would occur at the site.

SWA-2 (Deep Trench) and SWA-3 (Extraction Wells) would be comparable overall in terms of the long term effectiveness and reliability of the remedial actions. SWA-5 (Shallow Trench System) would have an advantage from simpler long term operation and better operational reliability. SWA-5 would be a passive system and would continue to operate even if left untended for long periods. Both SWA-2 and SWA-3 would have a higher likelihood for periodic breakdown that if left untended, would result in lower long term effectiveness than SWA-5.

For surface soil and sediment media, SWA-2, SWA-3 and SWA-5 would be equally effective in the long term because excavation and off site disposal of soils and sediments would be permanent and irreversible.

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.

SWA-1 (No Action) would not reduce the toxicity, mobility or volume of contaminants at the site.

SWA-2 (Deep Trench), SWA-3 (Extraction Wells) and SWA-5 (Shallow Trench System) would be generally comparable in reducing the mobility and volume of contaminants in the overburden groundwater. The collection systems proposed in these alternatives would hydraulically limit further off site migration and over time would extract significant volumes of contaminated overburden groundwater from the area of concern. SWA-5 has the added advantage of a collection system that would directly intercept groundwater migrating from the site towards Ruby Gordon, before it gets to the basement sumps.

SWA-2, SWA-3 and SWA-5 would all be effective in reducing the toxicity of contaminants present in the collected groundwater since it would be subjected to on-site pretreatment and off site disposal to the local POTW. SWA-5 would have a significant advantage over SWA-2 and SWA-3 since the zero valence iron

pretreatment would destroy the chlorinated VOCs without air emissions. SWA-2 and SWA-3 would move contaminants from groundwater to another media, either into the atmosphere by direct stripping, or into a carbon stripper if that treatment is used for the air stream.

Reduction in contaminants from surface soils and sediments would be comparable for SWA-2, SWA-3 and SWA-5 since the soils and sediments would be permanently removed and disposed off site at a permitted facility.

6. **Implementability.** The technical and administrative feasibility of implementing each alternative are evaluated. Technical feasibility includes the difficulties associated with the construction, the reliability of the technology, and the ability to monitor the effectiveness of the remedy. Administratively, the availability of the necessary personnel and equipment are evaluated along with potential difficulties in obtaining specific operating approvals, access for construction, and availability of adequate disposal capacity at permitted disposal facilities.

SWA-1 (No Action) is easily implementable in that it involves no action other than the continued operation of the existing groundwater pretreatment system in the Ruby Gordon basement.

SWA-2 (Deep Trench), SWA-3 (Extraction Wells) and SWA-5 (Shallow Trench System) are generally comparable with regard to the administrative and monitoring considerations of this criterion. However, there are some significant differences in constructability and the amount of operation and maintenance required. SWA-3 would be the easiest to construct because the amount of excavation and soil handling is reduced by the reliance on drilled wells instead of conventional excavated collection trenches. Both SWA-2 and SWA-5 would involve more intrusive construction than SWA-3 and could encounter implementation difficulties from the quantities of excavated soil that would need to be handled and staged on-site while trench construction occurs. SWA-2 would in turn be more difficult to construct than SWA-5, because more excavated dirt would be expected from the deeper trench, and because of construction difficulties (equipment needs, shoring, dewatering) associated with placement of an open trench to a depth of 25 feet.

Contractors, equipment and material should be readily available for SWA-2, SWA-3 and SWA-5. However, the deeper trench of SWA-2 may require more specialized equipment for excavation and trench shoring. SWA-5 would require the acquisition of special iron media, however, other sites including one in upstate New York have used this material with success and without undue difficulties.

With regard to operation and maintenance, SWA-5 has a significant advantage over both SWA-2 and SWA-3 as both the collection and pretreatment systems would be passive in nature and require the least amount of labor and expense. However, SWA-5 is a relatively new technology with some question about how long the iron media would last before replacement is needed. SWA-2 and SWA-3 would include active groundwater pumping and pretreatment systems that would require regular, long term operational attention and maintenance. SWA-2 would be expected to have higher operation and maintenance costs than SWA-3 due to the reliance on pumping wells and their propensity for well clogging and pump failure over the long term. Because of the higher chance of well and pump failure, the long term reliability of SWA-2 would be considered somewhat less than SWA-3, and significantly less than SWA-5.

7. Cost. Capital and operation and maintenance costs are estimated for each alternative and compared on a present worth basis. Operation and maintenance costs are usually based on 30 years. 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 10.

SWA-1 (No Action) would be the lowest cost Site Wide Alternative, as no site remediation would occur except for the continued operation and maintenance of the Ruby-Gordon basement pretreatment system.

SWA-2 (Deep Trench) includes major construction activities such as excavation and collection trench installation along with high operation and maintenance costs. Likewise, SWA-5 has major construction activities and components associated with it, but has lower overall operational and maintenance costs. The capital costs of the barrier wall have been included in SWA-5 and if not implemented, the cost of SWA-5 would be reduced by approximately $240,000. However, either with or without the barrier wall the operation and maintenance costs of SWA-5 are not as great when compared to SWA-2 and SWA-3. Furthermore, although SWA-3 involves less physical construction than SWA-2 and SWA-5, the long-term operation and maintenance costs clearly outweigh any cost savings in capital construction costs.

Additionally, the alternatives that involve off site soil disposal, (SWA-2, SWA-3 and SWA-5) may have significant cost variations due to unanticipated events such as larger soil volumes or changes in off-site disposal pricing. The cost estimates for soil remediation may be modified based on pre-design sampling to further refine the area of soils requiring remediation.

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

8. Community Acceptance - Concerns of the community regarding the RI/FS reports and the Proposed Remedial Action Plan were evaluated and considered before a final selection of remedy was made. A " Responsiveness Summary" was prepared to describe public comments received and provided responses on how the Department addressed the concerns raised. This is included as Appendix A.

SECTION 8: SUMMARY OF THE SELECTED REMEDY

Based upon the results of the RI/FS, and the evaluation presented in Section 7, the NYSDEC has selected Site Wide Alternative #5 (SWA-5) as the remedy for this site.

This selection is based on the following factors:

Site Wide Alternative #1(No Action) would not adequately comply with the SCGs for any of the contaminated site media and would not be protective of human health and the environment. SWA-1 is rejected on that basis.

Site Wide Alternative #2 (Deep Trench) would be protective of human health and the environment and would adequately comply with SCGs, but it will not achieve the remedial objectives as fully as SWA-5. SWA-2 would be more costly than both SWA-3 and SWA-5, even if the SWA-5 barrier wall were to be constructed. SWA-2 would also likely produce more temporary impacts during construction than either

SWA-3 or SWA-5. SWA-2, while likely more reliable than SWA-3 over the long term, would not be as reliable as SWA-5. Because of these considerations, SWA-2 was not selected over SWA-5.

Site Wide Alternative #3 (Extraction Wells) would be protective of human health and the environment and would adequately comply with SCGs, but it will not achieve the remedial objectives as fully as SWA-5. SWA-3 would be comparable to SWA-5 in cost if the SWA-5 barrier wall were constructed. If the barrier were not constructed, then SWA-3 will be more costly than SWA-5. SWA-3 would produce less temporary impacts during construction than would either SWA-2 or SWA-5. SWA-3 would require significantly more long term operation and maintenance effort and cost than SWA-5, yet have less long term reliability. Because of these considerations SWA-3 was not selected over SWA-5.

SWA-5 will offer the added benefit of on-site contaminant destruction without air emissions. Air emissions would be a concern under SWA-2 and SWA-3 since both would rely on moving contaminants from the water media to air. Contaminant destruction under SWA-2 or SWA-3 would occur only as part of any air treatment that may be required for control of emissions.

The estimated total present worth cost to implement the remedy is **$2,778,100.** The capital cost to construct the remedy is estimated to be **$1,917,000** and the estimated average annual operation and maintenance present worth cost for 30 years is **$861,100.**

The elements of the selected remedy are as follows:

OVERBURDEN GROUNDWATER

- Install and operate a shallow groundwater collection trench system along the north and west property boundaries (across the overburden plume) to collect and contain contaminated groundwater. The trench system will consist of a shallow (approximately 15 feet deep) collection trench with high permeability relief columns (or functional equivalent) beneath the trench designed to intercept deeper contaminated sand lenses. Collected groundwater will flow by gravity to a passive on-site groundwater pretreatment vault. The system will be operated for long term control of contaminated groundwater.

- If necessary to achieve or enhance hydraulic containment by the collection trench system, a sheet piling barrier wall will be constructed just downgradient from the collection system. (The cost of sheet piling is included in the capital cost estimate for SWA-5. If not needed then approximately $240,000 of cost savings will incur)

- Install and operate a passive groundwater pretreatment system on the SOH site. The pretreatment system will consist of subsurface vaults containing zero valence iron filings for destruction of chlorinated VOC's. Groundwater pretreated by contact with the iron will discharge by gravity to the sanitary sewer for final treatment at the local POTW.

- Install and operate groundwater extraction wells for removal of contaminants from the source area near OW-7S. Operation will occur until the source area is removed or contaminant removal becomes inefficient as evidenced by steady state contaminant levels. Source area groundwater will be pumped for pretreatment as described for the collection trench system. A Soil Vapor or Dual

Phase Vapor Extraction System may be implemented to address the source area if found cost effective for remediation at the source area. An additional investigation to locate a soil contaminant source area will be conducted during design to support the evaluation for possible vapor extraction.

- Install and operate a shallow groundwater collection trench along the portion of the south SOH property boundary adjacent to the Ruby Gordon basement. This trench will be installed deeper than the basement to intercept contaminated groundwater before it enters basement sumps. Collected groundwater will flow by gravity to the pretreatment vault. Operate for long term control of groundwater between the SOH site and the Ruby Gordon basement. Operation of the existing Ruby Gordon pretreatment system will continue until the groundwater collection trench becomes effective and an evaluation is made to disconnect the existing system.

- Conduct periodic, long term overburden groundwater monitoring to evaluate the extent to which the remedial action objectives are being met.

- Construct drainage improvements in the area between the Ruby Gordon basement and the SOH site to minimize groundwater recharge to the Ruby Gordon basement and the overburden collection system.

- Deed restrictions will be recommended to prevent future uses of the site which are incompatible with the selected remedy.

BEDROCK GROUNDWATER

- Implement institutional controls to reduce the potential for exposure to contaminated bedrock groundwater. The proposed controls will include: disconnecting the SOH interior bedrock wells; conducting periodic groundwater use surveys in the site area; and conducting bedrock groundwater monitoring to track groundwater movement and contaminant levels. The monitoring program will be narrow in scope, but will require action be taken if conditions change and produce significant potential exposures or off site loadings. SWA-5 will also include a recommendation that deed restrictions be implemented to preclude future use of groundwater at the SOH site.

SURFACE SOILS

- Excavate the on-site and off site surface soils that are above SCGs and haul off site for disposal at a permitted waste disposal facility. Regrade the excavated areas, place topsoil and restore vegetation. Within SOH property boundaries, isolation of contaminated surface soils using a clean soil or asphalt cover could be done instead of excavation, provided proper drainage and grading can be maintained. It is estimated that about 875 CY of surface soil will require excavation or isolation. Prior to surface soil removal or isolation, a focused soil sampling effort will be implemented to refine the limits of surface soils exceeding SCGs.

SOH SUMP CONTENTS

- An evaluation will be made of all waste lines and other piping leading from the SOH building to identify any additional connections to sumps, catch basins or other uncontrolled discharge locations.

- All accumulated sediments and debris from site sumps, catch basins and related piping will be cleaned and transported off site for disposal in a permitted hazardous waste disposal facility.

- After cleaning and disposal is completed the lines will be upgraded or decommissioned as appropriate to prevent further potential releases from spills or migration of contaminants from the source area.

SECTION 9: HIGHLIGHTS OF COMMUNITY PARTICIPATION

As part of the citizen participation process, a notice was sent to residents living near the site, property owners and other interested persons to inform them of the proposed plan and advise them of the public meeting to be held to discuss this plan. The public meeting was conducted on February 12, 1997 at the Town of Henrietta Town Hall. The purpose of this meeting was to present the Proposed Remedial Action Plan (PRAP) for the site and obtain public comment on the plan. All comments provided by the public have been evaluated and are addressed in the Responsiveness Summary (Appendix A). There have been no substantive changes made to the remedy proposed in the PRAP as a result of the public comments received.

In general, comments received during the public meeting related to site conditions, remedy technology and and to the details of remedy design and implementation. One letter was received from an interested party in support of the proposed remedy. A lengthy series of comments were also received from consultants hired by SOH, the original site owners and operators. SOH's comments raised numerous technical objections to the scope and details of the RI and to the proposed remedy. Many of the comments received will be used to help guide development of final design details for construction of the remedy. A summary of public participation efforts follows.

Document Repositories were established at the following locations for public review of project related material:

The Town of Henrietta Town Library
455 Calkins Road
Henrietta, New York 14467

NYSDEC - Region 8 Office
6724 East Avon-Lima Road
Avon, New York 14414

NYSDEC - Central Office, Albany
50 Wolf Road - Room 348
Albany, New York 12233-7010

The following citizen participation activities were conducted:

- Citizen Participation Plan prepared August 29, 1994.
- December 1994 - Fact Sheet describing on-going RI activities and announcement of public meeting.
- December 15, 1994 - Public information meeting to present activities conducted during the Phase I RI and discuss on-going RI activities.
- January 23, 1997 - PRAP issued.
- January, 1997 - Fact Sheet distributed describing proposed remedy and announcement of public meeting mailed to public.
- January 24, 1997 - Legal Notice published on availability of PRAP, public meeting date and establishment of the public comment period.
- January 24, 1997 to March 17, 1997; public comment period on PRAP.
- February 12, 1997 - Public availability session and meeting to present PRAP and receive comments.
- Original end of comment period, February 24, 1997 was extended to March 17, 1997.

Table 1
SUMMARY OF CONTAMINANTS OF CONCERN
IN SUBSURFACE SOILS

Contaminant of Concern	Concentration Range *µg/l* (ppb)	SCGs *µg/l* (ppb)	Frequency of Exceeding SCGs
Volatiles:	----	No Exceedances above SCGs, [1], [2]	----
Semi-Volatiles:	----	No Exceedances above SCGs, [1], [2]	----
Metals:	Concentration Range *mg/kg* (ppm)	No Exceedances above SCGs	

Footnote: [1] NYSDEC TAGM 4046 SCG.
[2] SCG based upon USEPA Region IX Preliminary Remediation Goals (PRGs) 1993

Table 2
SUMMARY OF CONTAMINANTS OF CONCERN
IN SURFACE SOILS

Contaminant of Concern	Concentration Range *µg/kg* (ppb)	SCGs *µg/kg* (ppb)	Frequency of Exceeding SCGs
Volatiles:	- - - -	No Exceedances [1],[2] above SCGs	- - - -
Semi-Volatiles:			
Total PAHs	815 - 741,500	100,000 [a]	2/8
Metals:	Concentration Range *mg/kg* (ppm)	SCGs *mg/kg* (ppm)	
Cobalt	3.2 - 36.6	30 [1]	1/8
Lead	15.8 - 529	500 [1]	1/8

Footnote: [1] NYSDEC TAGM 4046 SCG.
[2] SCG based upon USEPA Region IX PRGs 1993.
[a] Total PAHs 100,000 ppb, SCG based upon a determination by NYSDOH and NYSDEC of potential health impacts from surface soil exposure pathway.

Table 3
SUMMARY OF CONTAMINANTS OF CONCERN
IN SOH SUMP/CATCH BASIN SEDIMENTS

Contaminant of Concern	Concentration Range *µg/l* (ppb)	SCGs *µg/l* (ppb)		Frequency of Exceeding SCGs
Volatiles:				
1,1 Dichloroethane	ND-32,000	200[1]	---	1/2
1,2 Dichloroethene (total)	ND-17,000	300[1]	1,400 [2]	1/2
1,1,1 Trichloroethane	8,300-2,000,000	800[1]	49,000 [2]	1/2
Carbon Tetrachloride	ND-140,000	600[1]	1,600 [2]	1/2
Chlorobenzene	ND-8,600	1,700[1]	---	1/2
Trichloroethene	ND-8,900	700[1]	---	1/2
Tetrachloroethene	350-91,000	1,400[1]	650 [2]	1/2
Toluene	580-110,000	1,500[1]	---	1/2
Ethylbenzene	ND-9,200	5,500[1]	---	1/2
Xylene (total)	490-46,000	1,200[1]	---	1/2
Semi-Volatiles:				
Total SVOCs (as PAHs)	43,680 - 131,690	500,000 ppb [1]		0/2
Metals:	*mg/kg* (ppm)	*mg/kg* (ppm)		
Cadmium	4.2-63.3	10.0 [3]		1/2
Chromium	165-714	50.0[3]		2/2
Copper	90.8-355	25.0 [1]		2/2
Nickel	233-983	13 [1]		2/2
Selenium	4.4-89.8	2 [1]		2/2
Zinc	256-2210	20 [1]		2/2

Footnote: [1] SCG from NYSDEC TAGM 4046
[2] SCG based upon USEPA Region IX PRGs (1993)
[3] SCG from May 1995 draft TAGM 4046 revision

Table 4
SUMMARY OF CONTAMINANT OF CONCERN
IN SURFACE SOILS IN SWALE AREA

Contaminant of Concern	Concentration Range *µg/l* (ppb)	SCGs *µg/l* (ppb)	Frequency of Exceeding SCGs
Volatiles:	----	None Exceeded SCGs [1], [2]	----
Semi-Volatiles:			
Total PAHs	3,707 - 220,830	100,000 [a]	1/2
Metals	*mg/kg* (ppm)	*mg/kg* (ppm)	
Copper	17.1-68.9	25 [1]	1/2
Nickel	11.2-26.2	13 [1]	1/2
Zinc	442-844	20 [1]	2/2

Footnote: [a] Total PAHs = 100,000 ppb, SCG based upon a determination by NYSDOH/NYSDEC of potential health impacts from surface soil/sediment exposure pathway.
[1] NYSDEC TAGM 4046 SCG.
[2] SCG based upon USEPA Region IX PRGs (1993)

Table 5
SUMMARY OF CONTAMINANTS OF CONCERN
IN SOH SUMP/CATCH BASIN WATER

Contaminant of Concern	Concentration Range $\mu g/l$ (ppb)	SCGs $\mu g/l$ (ppb)	Frequency of Exceeding SCGs
Volatiles:			
1,1 Dichloroethane	ND-72,000	5.0 [4]	1/2
1,1,1 Trichloroethane	ND-7,900	5.0 [4]	1/2
Toluene	ND-5,800	5.0 [4]	1/2
Ethylbenzene	ND-2,700	5.0 [4]	1/2
Xylene (total)	ND-15,000	5.0 [4]	1/2
Semi-Volatiles:			
Phenol	ND-360	1.0 [4]	1/2
Metals:			
Aluminum	2,940-15,700	100 [4]	2/2
Cadmium	34.7-4,430	10.0 [4]	2/2
Chromium	454-4,940	50 [4]	2/2
Copper	261-3,580	1,300 [5]	1/2
Lead	457-696	25 [4]	2/2
Manganese	288-7,980	500 [4]	1/2
Mercury	ND-2.4	2.0 [4]	1/2
Nickel	840-56,700	100 [5]	2/2
Silver	6.3-99.9	50 [4]	1/2
Zinc	7,610-63,500	300 [4]	2/2

Footnote: [4] NYSDEC Division of Water Ambient Water Quality Standards & Guidance TOGS 1.1.1, Oct. 1993
[5] USEPA MCLs & MCLGs

Table 6
SUMMARY OF CONTAMINANTS OF CONCERN IN RUBY-GORDON BASEMENT SUMP WATER

Contaminant of Concern	Concentration Range µg/l (ppb)	SCGs µg/l (ppb)	Frequency of Exceeding SCGs
Volatiles:			
Vinyl Chloride	ND-30	2.0 [4]	3/6
Methylene Chloride	ND-120	5.0 [4]	4/6
1,1 Dichloroethene	ND-120	5.0 [4]	3/6
1,1 Dichloroethane	26-750	5.0 [4]	6/6
1,2 Dichloroethene (total)	ND-760	5.0 [4]	5/6
1,1,1 Trichloroethane	15-3,200	5.0 [4]	6/6
Trichloroethene (TCE)	4.4-550	5.0 [4]	4/6
Tetrachloroethene (PCE)	3-180	5.0 [4]	4/6
Semi-Volatiles:	- - - -	No Exceedances [4] above SCGs	- - - -
Metals:			
Aluminum	36.5-951	100 [4]	2/3
Antimony	ND-12.1	6.0 [5]	1/3

Footnote: [4] NYSDEC Division of Water Ambient Water Quality Standards & Guidance TOGS 1.1.1, Oct. 1993
[5] USEPA MCLs & MCLGs

Table 7
SUMMARY OF CONTAMINANTS OF CONCERN
IN OVERBURDEN GROUNDWATER

Contaminant of Concern	Concentration Range $\mu g/l$ (ppb)	SCGs $\mu g/l$ (ppb)	Frequency of Exceeding SCGs
Volatiles:			
Vinyl Chloride	ND-11,000	2 [4]	9/32
Methylene Chloride	3.9-350	5 [4]	4/32
1,1 Dichloroethene	3.6-900	5 [4]	14/32
1,1 Dichloroethane	ND-10,000	5 [4]	18/32
1,2 Dichloroethene (total)	2.9-10,000	5 [4]	13/32
1,1,1 Trichloroethane	3.1-24,000	5 [4]	12/32
Trichloroethene (TCE)	1.4-140,000	5 [4]	12/32
1,1,2-Trichloroethane	12.0-53.0	35 [4]	2/32
Tetrachloroethene (PCE)	3.3-8,800	5 [4]	8/32
Metals:			
Aluminum	ND-14,900	100 [4]	15/16
Manganese	ND-1,420	500 [4]	7/16
Nickel	ND-169	100 [5]	2/32

Footnote: [4] NYSDEC Division of Water Ambient Water Quality Standards & Guidance TOGS 1.1.1, Oct. 1993
[5] USEPA MCLs & MCLGs

Table 8
SUMMARY OF CONTAMINANTS OF CONCERN
IN TOP OF BEDROCK AND INTERIOR BEDROCK GROUNDWATER

Contaminant of Concern	Concentration Range $\mu g/l$ (ppb)	SCGs $\mu g/l$ (ppb)	Frequency of Exceeding SCGs
Volatiles:			
Vinyl Chloride	ND-110	2 [4]	4/14
Methylene Chloride	ND-5,500	5 [4]	3/14
1,1 Dichloroethene	5.0-250	5 [4]	2/14
1,1 Dichloroethane	1.5-5,900	5 [4]	6/14
1,2 Dichloroethene (total)	3.8-9,000	5 [4]	7/14
1,1,1 Trichloroethane	ND-170	5 [4]	3/14
Trichloroethene (TCE)	1.5-10,000	5 [4]	6/14
Tetrachloroethene (PCE)	4.0-66	5 [4]	1/14
Semi-Volatiles:			
Phenol	ND-10	1 [4]	1/8
Metals:			
Aluminum	247-1,400	100 [4]	7/7
Cadmium	ND-797	10 [4]	4/14
Chromium	ND-4,380	50 [4]	4/14
Lead	ND-78.1	25 [4]	4/14
Manganese	ND-1,670	500 [4]	6/7
Nickel	ND-7,770	100 [5]	4/14
Vanadium	ND-22.7	20 [6]	1/7
Zinc	20.7-4,280	300 [4]	3/14

Footnote: [4] NYSDEC Division of Water Ambient Water Quality Standards & Guidance TOGS 1.1.1, Oct. 1993
[5] USEPA MCLs & MCLGs
[6] USEPA Health Advisory, Adult Lifetime

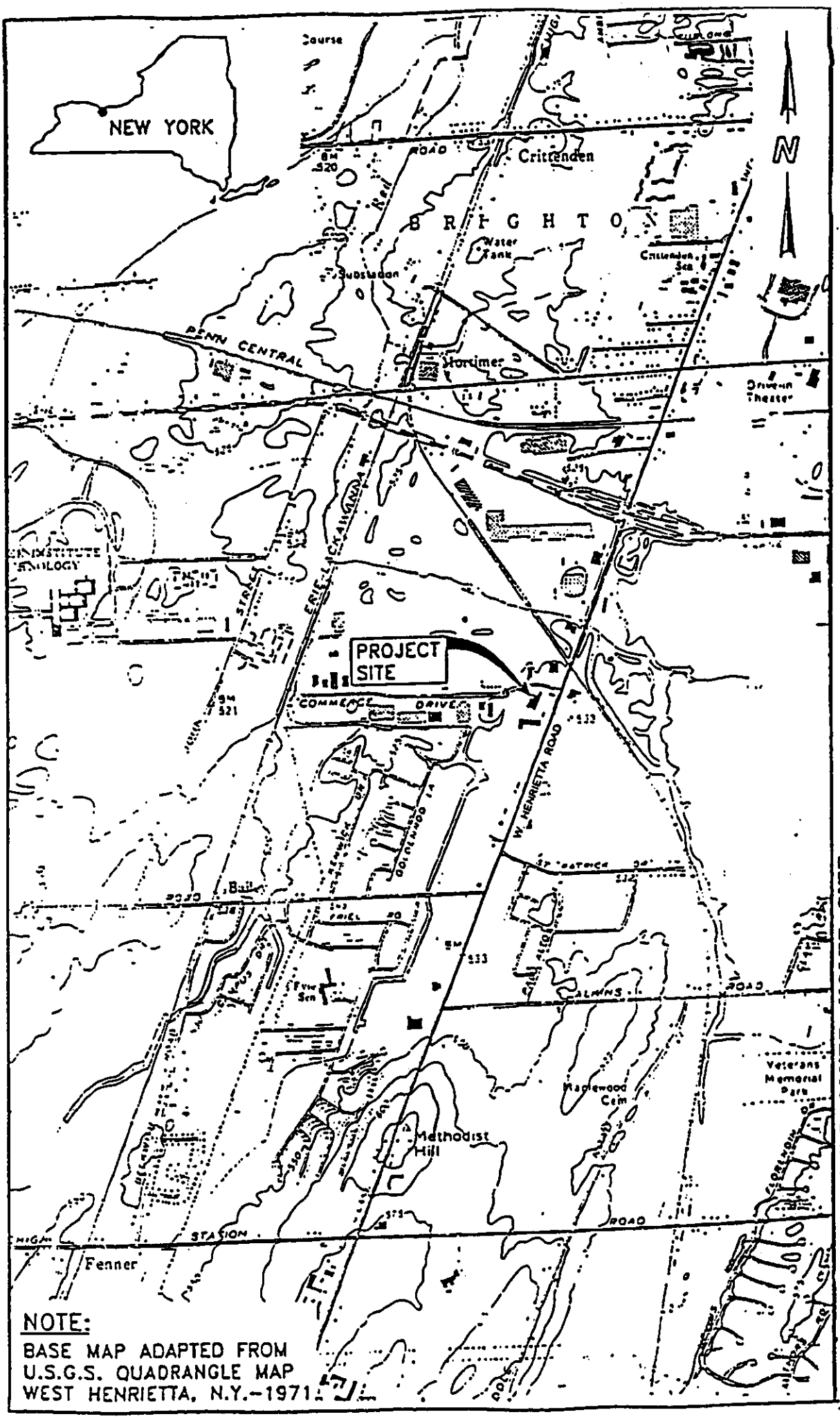
Table 9
SUMMARY OF CONTAMINANTS OF CONCERN
IN SURFACE WATER (SWALE AREA)

Contaminant of Concern	Concentration Range *µg/l* (ppb)	SCGs *µg/l* (ppb)	Frequency of Exceeding (SCGs)
Volatiles:	----	None Exceeded [4] SCGs	----
Semi-Volatiles:			
Pentachlorophenol	ND-4.0	0.4 [4]	1/3
Metals:			
Aluminum	158-997	100 [4]	3/3
Lead	7.4-8.2	526 [4]	0/3
Manganese	185-909	300 [4]	2/3

Footnote: [4] NYSDEC Division of Water Ambient Water Quality Standards & Guidance TOGS 1.1.1, Oct. 1993

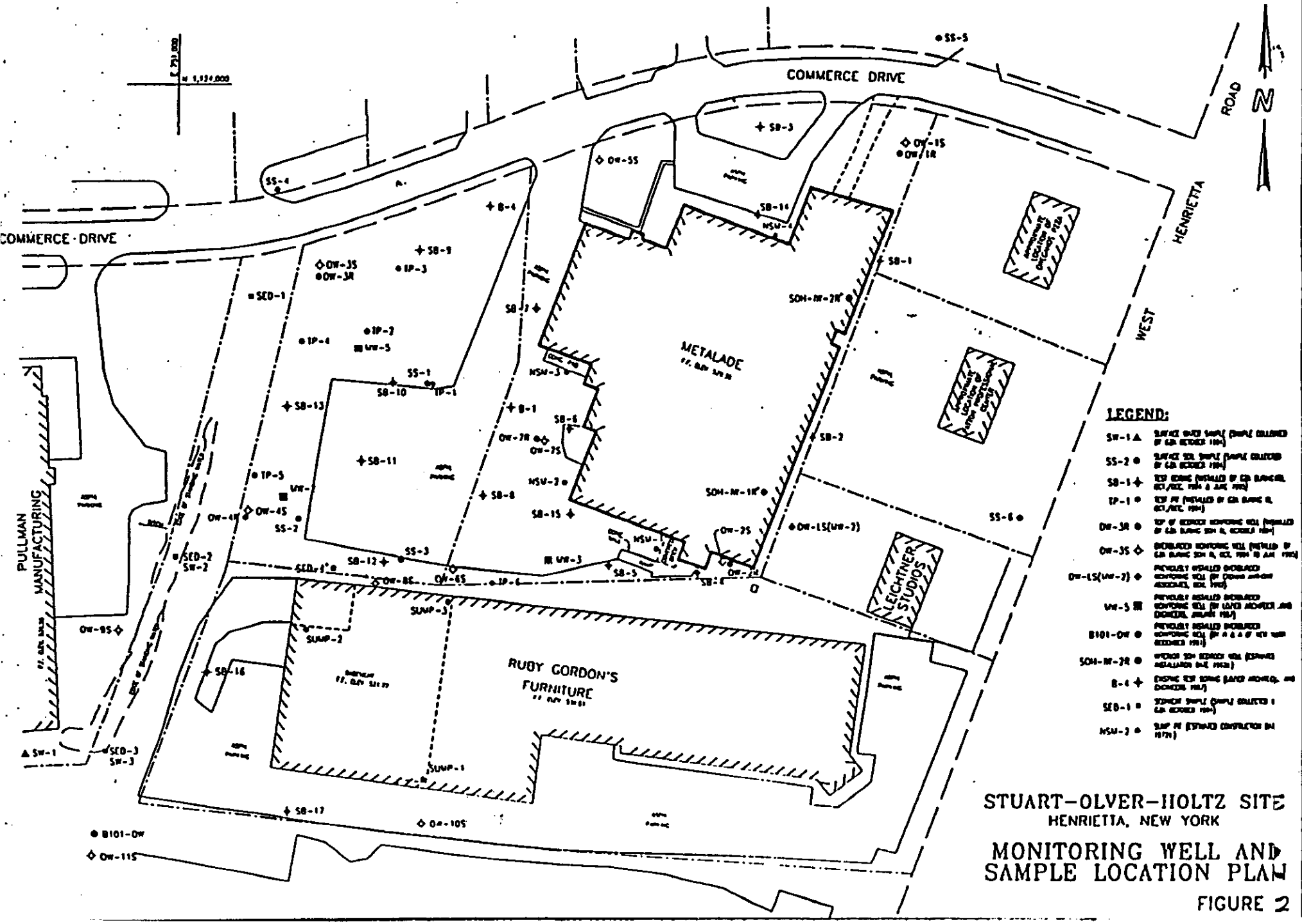
Table 10
SITE WIDE REMEDIAL ALTERNATIVE COSTS

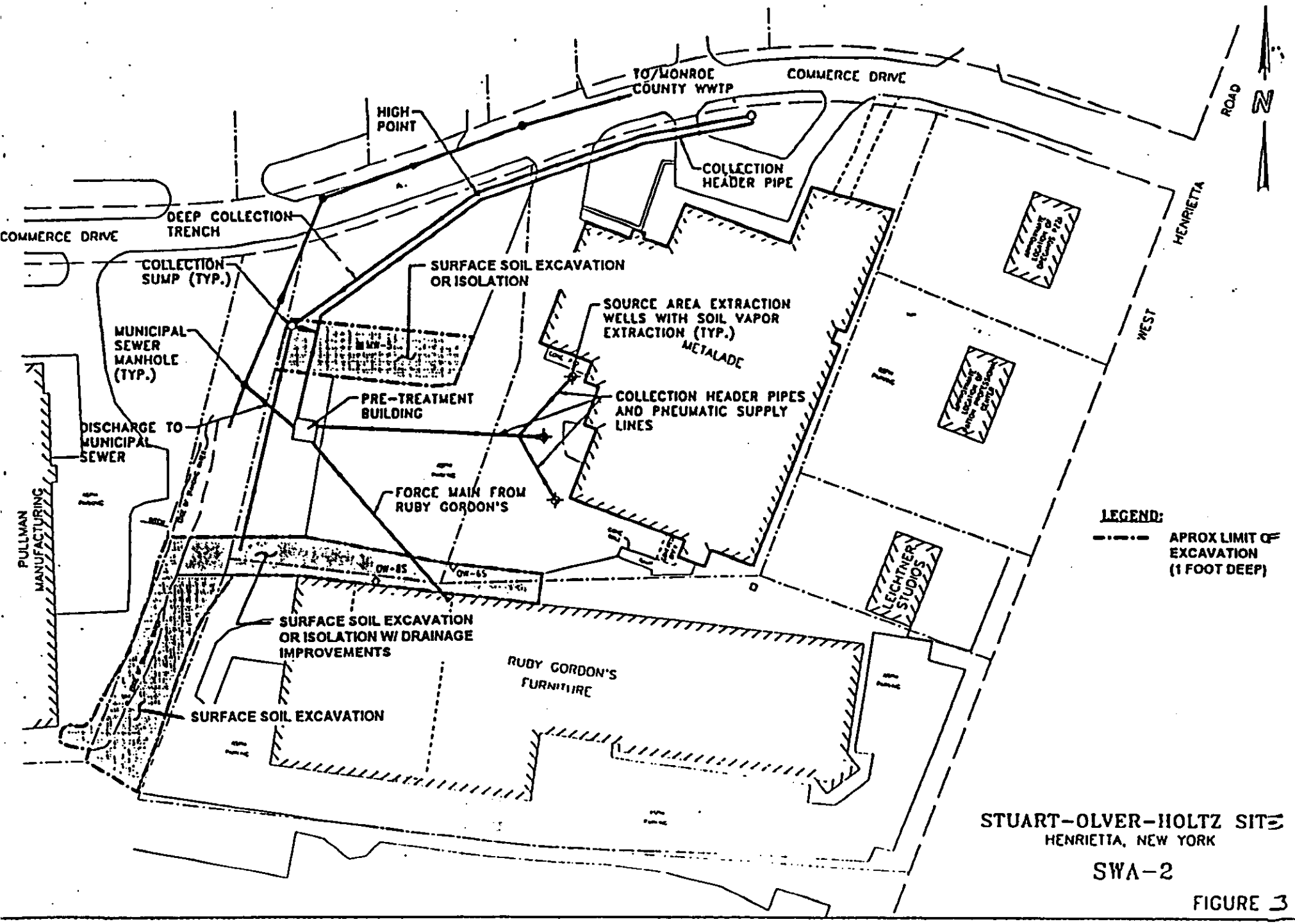
Remedial Alternative	Capital Cost	Present Worth of Annual O&M	Total Present Worth
Site Wide Alternative No. 1 (No Action)	$10,000	$191,500	$201,500
Site Wide Alternative No. 2	$1,410,000	$1,576,700	$2,986,700
Site Wide Alternative No. 3	$1,114,500	$1,663,800	$2,778,300
Site Wide Alternative No. 5	$1,917,000	$861,100	$2,778,100

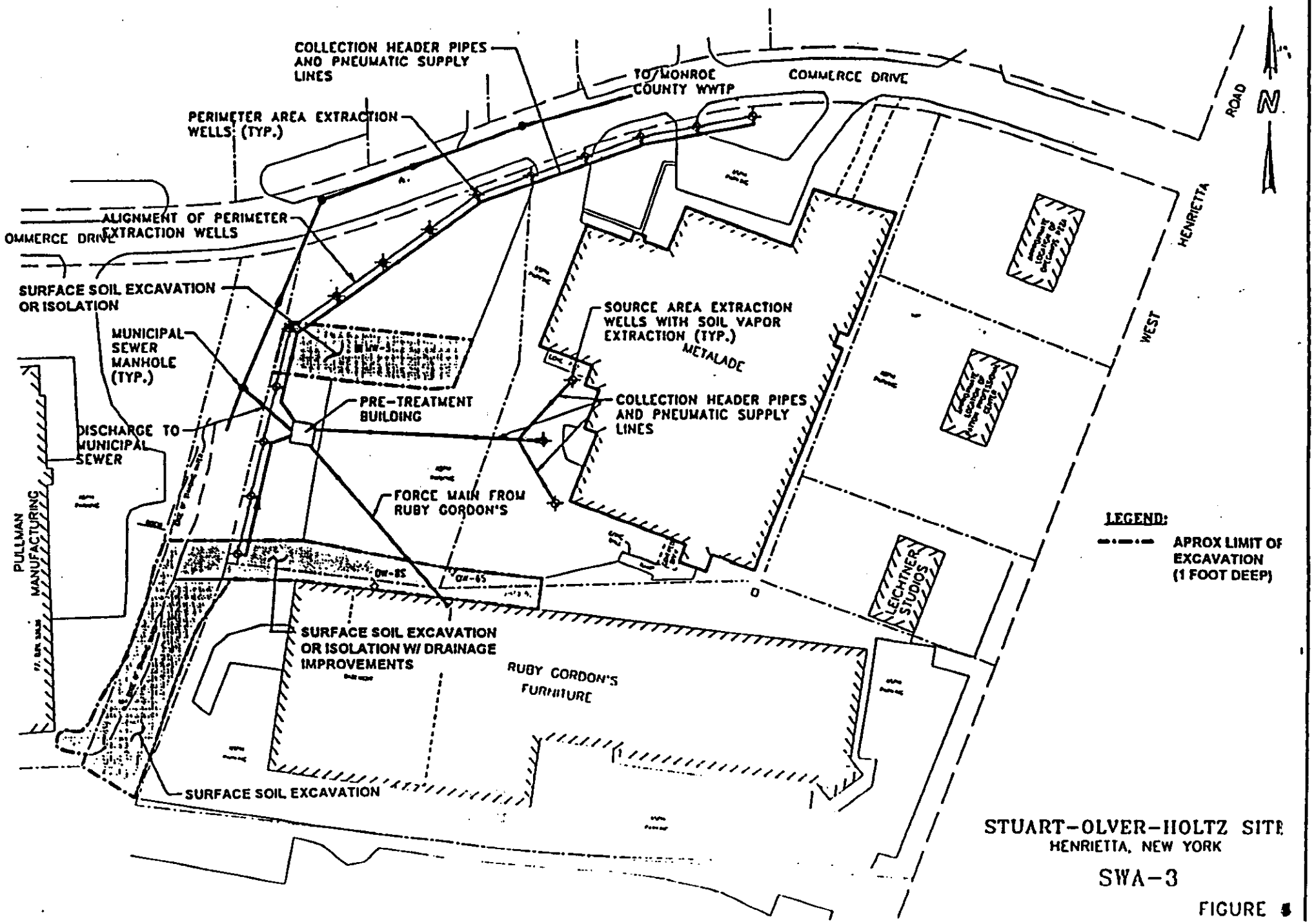


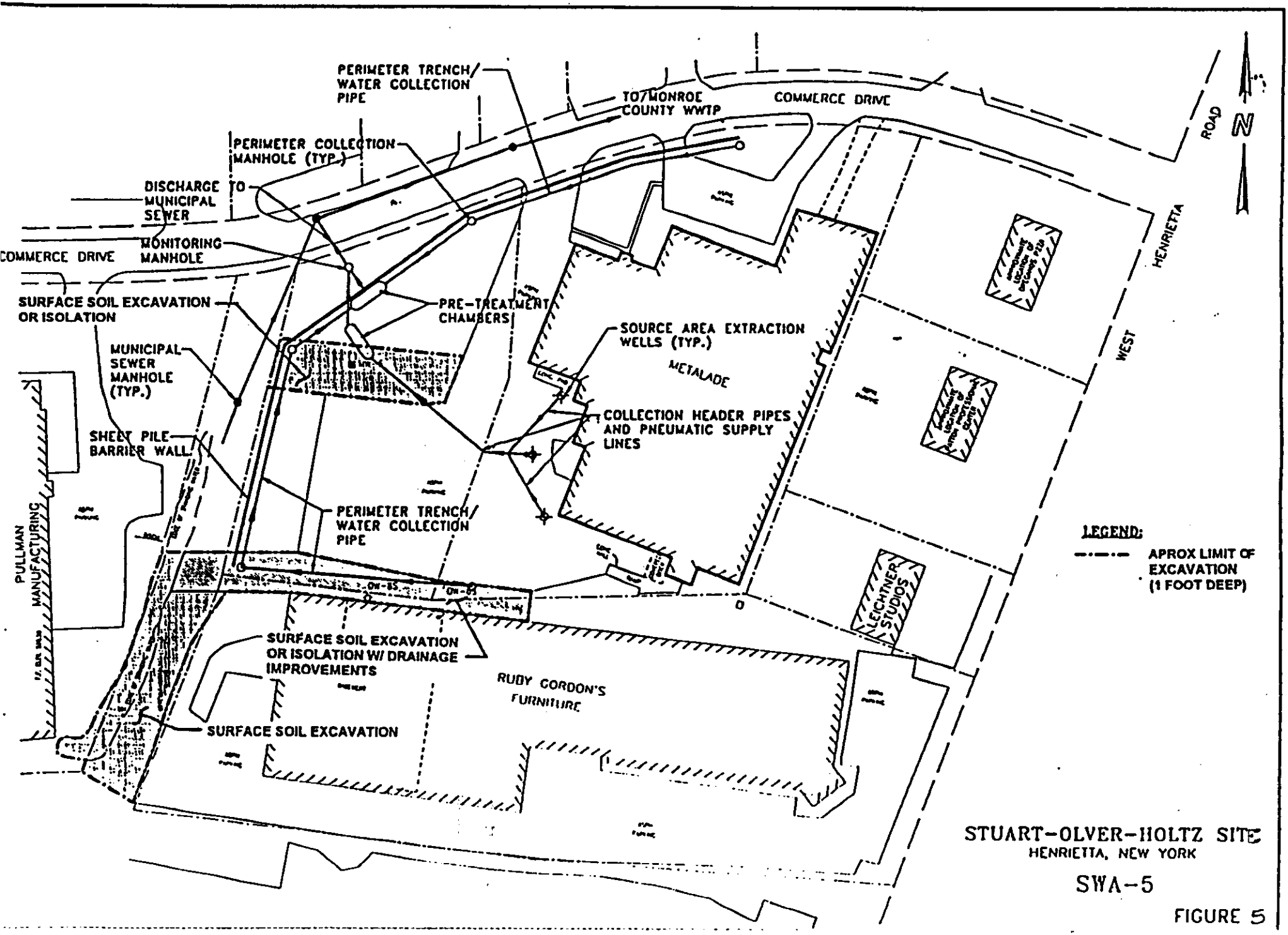
STUART-OLVER-HOLTZ SITE
HENRIETTA, NEW YORK

SITE LOCATION
FIGURE 1


COMMERCE DRIVE
COMMERCE DRIVE
HENRIETTA ROAD
WEST
N
METALADE
RUBY GORDON'S FURNITURE
PULLMAN MANUFACTURING
LEICHTNER STUDIOS
LEGEND:
STUART-OLVER-HOLTZ SITE
HENRIETTA, NEW YORK
MONITORING WELL AND SAMPLE LOCATION PLAN
FIGURE 2


TO MONROE COUNTY WWTP
COMMERCE DRIVE
HIGH POINT
COLLECTION HEADER PIPE
DEEP COLLECTION TRENCH
COMMERCE DRIVE
COLLECTION SUMP (TYP.)
SURFACE SOIL EXCAVATION OR ISOLATION
SOURCE AREA EXTRACTION WELLS WITH SOIL VAPOR EXTRACTION (TYP.)
METALADE
MUNICIPAL SEWER MANHOLE (TYP.)
PRE-TREATMENT BUILDING
COLLECTION HEADER PIPES AND PNEUMATIC SUPPLY LINES
DISCHARGE TO MUNICIPAL SEWER
FORCE MAIN FROM RUBY GORDON'S
PULLMAN MANUFACTURING
SURFACE SOIL EXCAVATION OR ISOLATION W/ DRAINAGE IMPROVEMENTS
RUBY GORDON'S FURNITURE
SURFACE SOIL EXCAVATION
LEICHTNER STUDIOS
HENRIETTA ROAD
WEST
N
LEGEND:
APROX LIMIT OF EXCAVATION (1 FOOT DEEP)
STUART-OLVER-HOLTZ SITE
HENRIETTA, NEW YORK
SWA-2
FIGURE 3


COLLECTION HEADER PIPES AND PNEUMATIC SUPPLY LINES
TO MONROE COUNTY WWTP
COMMERCE DRIVE
PERIMETER AREA EXTRACTION WELLS (TYP.)
ALIGNMENT OF PERIMETER EXTRACTION WELLS
OMMERCE DRIVE
SURFACE SOIL EXCAVATION OR ISOLATION
MUNICIPAL SEWER MANHOLE (TYP.)
SOURCE AREA EXTRACTION WELLS WITH SOIL VAPOR EXTRACTION (TYP.)
METALADE
PRE-TREATMENT BUILDING
COLLECTION HEADER PIPES AND PNEUMATIC SUPPLY LINES
DISCHARGE TO MUNICIPAL SEWER
FORCE MAIN FROM RUBY GORDON'S
PULLMAN MANUFACTURING
SURFACE SOIL EXCAVATION OR ISOLATION W/ DRAINAGE IMPROVEMENTS
RUBY GORDON'S FURNITURE
SURFACE SOIL EXCAVATION
WEST HENRIETTA ROAD
LEICHTNER STUDIOS
N
LEGEND:
APROX LIMIT OF EXCAVATION (1 FOOT DEEP)
STUART-OLVER-HOLTZ SITE
HENRIETTA, NEW YORK
SWA-3
FIGURE



STUART-OLVER-HOLTZ SITE
HENRIETTA, NEW YORK

SWA-5

FIGURE 5

APPENDIX A

STUART-OLVER-HOLTZ RESPONSIVENESS SUMMARY

I. Questions raised during the public meeting of February 12, 1997:

1. **Question:** Do you have an estimate on when work would begin?

   Answer: The timeframe would be dependent on the negotiation process that will be part of efforts to get the Potentially Responsible Parties (PRPs) to fund the Remedial Design and Construction. If the PRPs are cooperative the State believes that remedial construction work could begin in 1998.

2. **Question:** What is the depth of the sumps over at Ruby-Gordon compared to the depth of the trench drain at the edge of the Stuart-Olver-Holtz property and is there a chance the sumps would circumvent the trench?

   Answer: The elevation of the Ruby-Gordon sumps is approximately 520.0 while the main collection trench would likely be at approximately elevation 512.0. There is sufficient elevation difference available to promote positive drainage from the sumps to the collection trench. The Remedial Design would determine final elevations and details, however, the sumps should not circumvent the trench.

3. **Question:** When would the site be delisted? Can that be done by the initiative of NYSDEC?

   Answer: The State maintains a registry of inactive hazardous waste sites. The delisting of a site from the registry means that the hazardous waste is no longer present or of concern. This site would not be a candidate for a delist, but a classification change would be expected in the future once the remedy has been implemented, is operating and is determined to be effective. The site may be a candidate for a classification change from a Class 2 to a Class 4, which means that the contamination has been properly addressed but that active and continued operation and maintenance is still required. The reclass petition can be initiated either by the NYSDEC or the property owner.

4. **Question:** If no private parties are willing to take responsibility for the cleanup, how long before the State would take action?

   Answer: There is no set time. The time necessary for a reasonable opportunity for Potentially Responsible Parties (PRPs) to negotiate with each other and the NYSDEC has not been determined at this time.

5. **Question:** How long do you give private parties to comply?

   Answer: There is no definite timeframe established. Each case is different and an evaluation must be made of their unique circumstances. In this case all the parties have been identified and the Department would expect a timely resolution. However, if negotiations prove fruitless

then the Department would undertake action to implement the remedy.

6. **Question:** Would the newly passed Environmental Bond Act be available as a source of funding and would these funds become public expenditures?

Answer: No. There are currently no provisions in the new Environmental Bond Act that would fund this site's remedy or otherwise help to replenish the State Superfund Program.

7. **Question:** Is there a priority system for site classification?

Answer: Yes. There are five classes in the site classification process. However, only Classes 1, 2 and 3 are used on unremediated sites. A Class 1 site is one that poses an imminent threat to human health and the environment and is the highest priority classification. There are currently no Class 1 sites designated in New York. A Class 3 site is where there is identified hazardous waste but not a significant risk to human health or the environment, therefore action may be deferred. Class 2 sites comprise the bulk of hazardous waste sites in New York State which require remedial action. Class 2 sites pose a significant threat to the human health and the environment and action is required.

8. **Question:** Where would you put this site in the whole scheme of things if the PRPs somehow don't fund this cleanup?

Answer: Although this site occupies a small area, there are significant levels of contamination present in the groundwater that are well above groundwater standards. This site would warrant action by NYSDEC even if the PRPs do not follow through with remediation at this site.

9. **Question:** Is there a danger that site conditions might change?

Answer: It is not likely that rapid or dramatic changes will occur. The site has been present for quite a number of years, and the contamination plume appears fairly stable. Under current conditions there is a continued gradual release of contamination from the source area(s) that sustains the overburden groundwater plume at the site. Only if ill considered subsurface changes are made at or very near the site would significant changes to site conditions be likely.

10. **Question:** Is it possible for contamination to reach below the aquitards that are present at the site as a result of the installation of the relief columns?

Answer: No. The lower till thickness is approximately 14 feet and the relief columns would only be keyed into the lower till by a foot or two. Therefore, the integrity of the lower till as an aquitard would be maintained.

11. **Question:** Would the sump pumps and pretreatment system in the Ruby-Gordon basement continue to operate after installation of the remedy?

Answer: Yes. Operation of the sumps and pretreatment system at Ruby-Gordon would continue until the interceptor trench becomes effective and an evaluation shows that the Ruby-

Gordon pretreatment system is no longer needed. The basement sumps may still be needed sometimes to keep the basement dry, but it is anticipated that the pretreatment system could be disconnected at an appropriate time after the remedy is implemented.

12. Question: What influence do the sumps have on the groundwater contours?

Answer: When the groundwater is high, as shown on the October 1995 groundwater contour maps in the RI Report, the sumps pull in contaminated groundwater from the SOH site. However, when the groundwater level is lower than the sumps and they are not operational, contaminated groundwater from SOH flows to the North-Northwest, away from Ruby-Gordon.

13. Question: If the Ruby-Gordon sumps were not operating, would that cause the groundwater flow to change direction?

Answer: The operation of the sumps are contingent on seasonal variations of groundwater elevations and are critical to preventing the flooding of the Ruby-Gordon basement. If the sumps were not operating during high water, groundwater would flow into and flood the Ruby-Gordon basement.

14. Question: Why can't you use the Ruby-Gordon sumps as part of a Remedial Alternative or Interim Remedial Measure (IRM)?

Answer: The use of the Ruby-Gordon basement or any other occupied structure as a collection system is not considered by the State as a viable alternative. Ruby-Gordon has been impacted by contamination from the SOH site and should be protected from further contamination entering its building and property.

15. Question: Would it be extremely expensive to excavate the worst contaminated soils and take them off-site? Could they be incinerated?

Answer: Other than the sporadic presence of contaminated surface soils, the RI did not identify any large volumes of soils that could be treated in this way. As such, no cost estimates are available. It is considered likely though that subsurface soil source areas are present, most likely beneath the SOH building. Excavating contaminated soils is in itself not usually highly expensive but the off-site disposal costs can be. It is unlikely that site soils would be a candidate for incineration, but they would need to be disposed at a properly operated and licensed facility.

16. Question: Do you expect over the long haul that the groundwater plume would continue to be drawn to the collection trench?

Answer: Yes. The collection trench system would be expected to provide long term control of contaminated groundwater. The trench would be deep enough to induce a strong controlling gradient in all but possibly the driest years.

17. **Question:** Is the contaminated groundwater plume at the far edge of the site?

Answer: Yes. The plume extends at least as far as monitoring well location OW-3S near the northwest edge of the SOH property. It is likely that the plume extends beyond the SOH property. It is also likely that the existing sanitary sewer under Commerce Drive acts to minimize further northward migration of the plume.

18. **Question:** Were the outermost investigations of the plume above the groundwater standards?

Answer: The on-site monitoring well OW-3S in the northwest quadrant of the property had significant levels of contamination well above groundwater standards. However, off-site monitoring wells were not installed to the northwest because no receptors were identified. There are no supply wells in that direction and the majority of buildings are on slabs and do not contain basements. Instead, the NYSDOH identified and sampled water from sumps located at 56 Commerce Drive, sampled water seepage into a utility vault at 80 Commerce Drive and sampled surface water from a wetland located north off Cook Drive. None of these samples showed signs of site related contamination.

19. **Question:** Could the Public Comment Period be extended to the end of March since this is an extensive remedy and the PRAP was made available in January 1997?

Answer: In response to public request, the public comment period was extended by three weeks from February 24, 1997 to March 17, 1997. The NYSDEC believes that the March 17, 1997 extension was reasonable. This date provided three more weeks for public review while still enabling the State to meet its goal to complete a ROD by the end of March.

II. Written Comments received during Public Comment Period:

A letter dated March 14, 1997 was received from the technical consulting firm Blasland, Bouck and Lee, Inc. (BBL) that contained numerous comments on the RI/FS and PRAP. These comments were made on the behalf the former shareholders of SOH at the request of SOH's counsel, Harris, Beach and Wilcox. Many of the comments were in lengthy paragraph format. They have been summarized in this Responsiveness Summary.

20. **Introductory Comments by BBL:** (SOH's ¶2 on cover page and ¶s 1&2 on page 2)
SOH stated it's belief that the RI/FS process was administratively and technically deficient and will result in a response action that will fail to adequately address site issues, achieve stated goals, etc.. BBL stated SOH's inability to concur with the proposed remedy. SOH also indicated a willingness to work with NYSDEC in redefining a cost effective remedy that meets appropriate goals and can be implemented in a timely manner.

Response: *The NYSDEC has selected SWA-5 as a remedy that 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 most appropriate for the site remediation. The 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. Concurrence by the SOH shareholders, as site PRPs or parties to the ongoing litigation concerning the site, is not essential for selection of the remedy or its implementation. However,*

NYSDEC is encouraged by the expression of some willingness by SOH to work towards a site remedy. Should the SOH shareholders elect to enter into a consent order with the Department for implementation of the remedy, the Department would certainly work with SOH to develop a reasonable, technically sound design, including any fully supportable, appropriate enhancements to the remedy.

Comments Made by SOH Titled "Technical"

21. **Technical Comment 1, ¶ 1:** (SOH's page 2) SOH objected that NYSDEC has not adequately identified possible contaminant contributions from other PRPs and objected to the "narrow" focus on contaminants originating from the SOH property. SOH claims that available data shows upgradient impacts to the site and that the RI/FS should have included a more complete characterization as required by State and Federal guidance.

Response: *The State has already made reasonable effort to secure Responsible Party implementation, including an unsuccessful effort to have SOH complete an adequate RI/FS. Furthermore, the ongoing litigation in U.S. District Court to which the State is enjoined, Ruby v. Ryan, is the highest degree of legal effort the State can attain in pursuit of Responsible Parties. See response to comments numbered 22 through 26 for specifics regarding contaminants from offsite sources.*

22. **Technical Comment 1, ¶ 2:** (SOH's page 3) SOH contended that the remedy in the FS and PRAP fails to account for contaminants that are present in the Ruby-Gordon sumps but not otherwise associated with the SOH site.

Response: *Regardless of the source of any of the compounds that are present, the proposed remedy will be able to properly address them. The RI/FS study confirmed that the source of major contaminants present in the Ruby-Gordon sumps is the SOH site. Even the groundwater contours provided by BBL (see comments 27 & 28) and contaminant distribution within the Ruby-Gordon sumps clearly show that loadings arise from the SOH side of the basement sump system.*

23. **Technical Comment 1, ¶ 3:** (SOH's page 3) SOH referred to a RI/FS work plan previously prepared by another SOH consultant and it's reference material as evidence that Rudy-Gordon was a potential source of 3 contaminants (1,1,1 TCA, MEK and MIBK).

Response: The work plan referred to was never implemented and was considered by the State as technically deficient to guide an adequate RI/FS for the SOH site. Despite SOH's contention of potential contributions, there is no conclusive evidence that Ruby-Gordon significantly contributed to the observed groundwater problem. The RI/FS did conclusively identify the SOH site as a source of significant contamination.

24. **Technical Comment 1, ¶ 4:** (SOH's page 3) SOH made reference to an Air Permit at Ruby-Gordon that identifies emissions of 1,1,2, trichloroethane and 1,2,2 trifluoroethane, and noted that Ruby-Gordon sump water was not analyzed for these constituents.

Response: The compounds referenced by SOH either were not analyzed for (1,2,2 trifluoroethane) or not found to be a compound of concern. The air permit referenced is not

material and does not detract from the overwhelming evidence that contaminant migration from the SOH site is impacting the Ruby-Gordon property.

25. **Technical Comment 1, ¶ 5:** (SOH's page 3) SOH pointed out that monitoring wells B-101-OW and OW-11S are upgradient from the SOH site and were found to contain several contaminants, therefore a source other than SOH should have been evaluated.

Response: *Several wells, including well OW-11S, were installed specifically to evaluate upgradient conditions. Well OW-11S was installed near the older well B-101-OW and confirmed the presence of four compounds at this location that are also associated with the SOH site. One compound, 1,1,1 TCA, was found at a moderately elevated level but still well below levels encountered on the SOH property. The contamination in OW-11S and B-101-OW was found to be confined to this one location. Other well data from this upgradient area (OW-10S and OW-9S) were all Non-Detects. When groundwater flow conditions are considered along with this information, it seems very unlikely that another contaminant plume is being generated upgradient of SOH and Ruby-Gordon. As such, no remedial component was developed to address this area of lower level contamination.*

Upon additional review during ROD preparation it seems likely that, rather than coming from another groundwater plume or source, the OW-11S contamination may be the remnant of SOH contaminants placed inadvertently during excavation of the Ruby-Gordon basement. NYSDEC has not previously explored this possibility, but believes that effort should be made to better define the origin of the contaminants in this area and to determine if a soil source problem may exist that warrants remediation.

26. **Technical Comment 1, ¶ 6:** (SOH's page 3) SOH contends that NYSDEC should have evaluated the above-listed Technical Comment 1 items with respect to potential sources and other PRPs.

Response: *The State believes that the RI/FS reports and PRAP have evaluated the source of contamination and potential risks in sufficient detail to support moving forward with remedial action. The State also believes that the RI/FS has conclusively identified the SOH site as a major source of contamination.*

27. **Technical Comment 2:** (SOH's page 3) SOH pointed out an apparent discrepancy between groundwater contour maps and individual August 24, 1995 well elevation data and supplied an alternate interpretation of groundwater contours.

Response: *Overall the groundwater figures presented in the RI accurately depict site groundwater elevations and contours. Upon review of SOH's proposed revision, it was found that the elevation for well OW-8S on RI Figure 7 was incorrectly labeled with the elevation for well OW-6S. Well OW-6S is correct, but the OW-8S datum should have been 518.60. With this correction, the groundwater contour revision suggested by SOH should not be made. Instead, it appears that the gradients towards the Ruby-Gordon sumps in the area of wells OW-6S and OW-8S would be slightly steeper than presented in the RI. Overall, the impact of the SOH contaminant plume on the Ruby-Gordon sumps is unchanged.*

28. **Technical Comment 3:** (SOH's Page 4) SOH suggested revision to the groundwater contours presented in the RI for the October 23, 1995 water elevation data. SOH concluded from this revision that the potential for groundwater flow and contaminant transport from the SOH site is less severe than depicted in the RI.

Response: *NYSDEC agrees that the area where SOH suggests revision can be interpreted differently. There is relatively scant groundwater data in this area and SOH's interpretation is reasonable. However, NYSDEC does not agree with SOH's conclusion of a reduced potential for groundwater flow and contaminant transport. Actually, the revised contours show more complete capture of local groundwater by the basement sumps than did the interpretation presented in the RI.*

29. **Technical Comment 4:** (SOH's page 4) SOH contends that their revised groundwater contours and the presence of 1,1,1 TCA in Ruby-Gordon's Air Permit makes Ruby-Gordon at least a potential source of this compound. SOH also contends that the fact that 1,1,1 TCA is not detected at locations on the SOH site (OW-7S, MW-5, OW-3S) that are not immediately downgradient of the Ruby-Gordon property implicates Ruby-Gordon as a source.

Response: *Regarding SOH's allegation that Ruby-Gordon is a potential source of 1,1,1 TCA, this is an issue best discussed in the ongoing litigation between these parties. Regarding SOH's focus on RI data showing Non-Detects of 1,1,1 TCA in certain locations, the NYSDEC believes that these selected locations do not provide a complete picture of the overall TCA distribution at the site. Other facts should also be considered, including very high TCA levels in the drainage structures around the SOH building and much higher levels of TCA in groundwater on the SOH property (in known drum areas) than anywhere on the Ruby-Gordon property.*

30. **Technical Comment 5:** (SOH's page 4) SOH noted that the Ruby-Gordon basement appears to be built within the 100 year floodplain at an elevation below the 100 year flood elevation and that installation of sumps to pump water have adversely impacted the natural groundwater flow patterns.

Response: *This comment does not seem to have any bearing on the RI/FS results or on the evaluation and selection of an appropriate remedy. The RI/FS reports do indicate that portions of the site are located within the 100 year flood plain.*

31. **Technical Comment 6:** (SOH's page 4) SOH contends that the NYSDEC should have evaluated catch basins in the Ruby-Gordon parking lot as a potential pathway for transport of contaminants from unknown sources into the Ruby-Gordon sumps.

Response: *There is one catch basin near the doors to the Ruby-Gordon basement that is piped to the sumps. This catch basin drains an area of driveway as well as part of the south side of the SOH site. There is no evidence to support SOH's theory that contamination originates from this pathway.*

32. **Technical Comment 7:** (SOH's Page 4) SOH noted that the SOH site is in an industrial zone with a commercial buffer separating the site from residential areas. SOH believes that use of residential exposure criteria for contaminants in surface soils is inappropriate and suggested an industrial exposure scenario is more appropriate based on zoning, property use and government

risk guidance.

Response: *The use of residential exposure criteria for surface soils is justified. Potential exposure could readily occur through ingestion and dermal contact by children playing in the swale area and on the SOH site. There is an apartment complex near the site, children have been observed playing in the swale area adjacent to the site, and there are no physical restrictions to access to the SOH site.*

33. **Technical Comment 8:** (SOH's Page 5) SOH questioned the basis for the surface soil SCG of 100,000 µg/kg for total PAHs.

Response: *The determination to use the 100,000 µg/kg (ppb) for total PAHs was a decision by NYSDOH and NYSDEC that considered potential risk to human health through exposure to the PAHs identified at this site. The presence of PAHs at or about this level is of potential health concern and warrants remedial consideration. Since the 100,000 ppb number reflects total PAHs rather than individual compounds it is best considered as a screening level. In the area of the site where this number is approached or exceeded, particularly off of the SOH property where the site owner cannot readily exert access control, further sampling is warranted to define the full extent of PAHs in surface soils. Based on results of the additional sampling a determination will be made during remedial design as to what final soil area is to be remediated. This determination will be based on a reasonable assessment of the PAH s present, including the relative presence of individual PAH compounds that present the most concern.*

34. **Technical Comment 9:** (SOH's Page 5) SOH offered several alternative potential sources for PAH's found in the drainage swale area of the site, including runoff from other areas, oils & grease from other areas, contribution from asphalt, etc.. SOH pointed to elevated background levels as evidence that other sources have influenced the soils in the drainage swale area.

Response: *The State agrees that PAH's arise from many sources and SOH's suggestion of PAH contamination from other sources is plausible However, the high PAH concentrations in the surface soils and swale area are also consistent with what would be expected from incomplete combustion. In 1974 a massive fire occurred at the SOH site. The berm located along the swale area contains remnants of buried rubble and debris from the fire and is considered a continuing PAH source to the swale area..*

The NYSDEC notes that the surface soil sample SS-6 was collected from adjacent to NYS Route 15. Surface soils at this location would contain high levels of PAHs due to asphalt road material and deposition from vehicle emissions. This is why NYSDEC has not accepted SS-6 as an appropriate background sample.

35. **Technical Comment 10:** (SOH's ¶ 1) SOH points out that the area of surface soil remediation shown in the PRAP overlaps a sample location where results were below SCGs and that basing the need and areal limits for excavation on limited samples and including areas without SCG exceedances are not appropriate

Response: *The limit of excavation shown in the PRAP is conceptual and not intended to represent final excavation limits. The PRAP calls for a focussed soil sampling effort to refine the limits of the surface soils exceeding SCGs prior to excavation or isolation. Excavation limits will be based on a reasonable level of sampling and application of SCGs. See related response*

to comment 33.

36. **Technical Comment 10:** (SOH's ¶ 2) SOH challenged the State's conclusion that contaminants from the site pose unacceptable risks to utility or construction workers involved in excavation or other intrusive activities. SOH cited a study completed for the Route 15 reconstruction project as evidence that nearby workers are not threatened by site contaminants and would be adequately protected by the normal level of caution prudent for utility or construction work near any facility having a release of hazardous constituents.

Response: *The study cited by SOH is not applicable to the known distribution of SOH contaminants. The location cited in the study is hundreds of feet east and cross gradient of the area where the SOH plume is known to leave the property.*

37. **Technical Comment 11:** (SOH's page 6) SOH noted that analytical samples were not taken at the same time that ground water elevations were taken, and suggests that the determination of groundwater flow at the site was not consistent in time with reported contaminant concentrations.

Response: *The NYSDEC believes that both contaminant transport and distribution have been adequately determined for accurate site characterization and for support of remedy evaluation and selection.*

Comments Made by SOH Titled "Scoping and Site Management"

38. **Scoping Comment 1:** (SOH's page 7) SOH presented it's opinion that the RI work conducted at the site by NYSDEC was redundant and excessive, listed previous studies of the site and nearby properties, and listed the RI activities conducted by NYSDEC.

Response: *NYSDEC does not share SOH's opinion. The previous studies identified SOH as the source of contamination but were not sufficient to fully evaluate the nature and extent of contamination. See related comments 21, 23, 24, 25 and 26 where SOH objected to the narrow focus and/or inadequacy of the RI scope.*

39. **Scope Comment 2:** (SOH's page 7) SOH's present consultant noted that a previous consultant for SOH prepared a work plan that now appears to have been more than adequate for an RI/FS.

Response: *The draft work plan submitted by IT Corporation on behalf of the parties to litigation was reviewed by NYSDEC and found to be deficient for a proper RI/FS for the SOH site. The parties declined to make revisions suggested by NYSDEC and brought the matter before the court. This issue was heard before U.S. District Court Judge Michael A. Telesca, in July of 1994, who subsequently ruled in favor of the NYSDEC. Based upon this ruling, the NYSDEC initiated the RI/FS at the SOH site using it's own work plan.*

40. **Scope Comment 3:** (SOH's page 8) SOH presented it's opinion that the geophysical study completed by NYSDEC was unnecessary and inappropriate.

Response: *The NYSDEC does not share SOH's opinion. A geophysical survey is a common and integral part of any RI/FS where the possibility of buried drums and tanks exists or where other subsurface features may exist that could be damaged by, or cause harm to, operators of drilling*

equipment. This site has historical photos and documentation showing significant drum activity as well as demolition and excavation work following the major fire that occurred at the SOH facility in 1974.

41. **Scope Comment 4:** (SOH's page 8) SOH contended that wells drilled through areas of known or suspected contamination were not properly constructed and should have been installed differently.

Response: *The NYSDEC believes that the drilling protocols used during the RI were adequate to prevent significant cross-contamination during installation of the borings and monitoring wells. This is no evidence that supports SOH's assertion that cross-contamination may have occurred during the RI.*

Comments Made by SOH Titled "Remedial Alternatives Development"

42. **Unnumbered Comment:** (¶1 on SOH's page 8 and ¶2 on SOH's page 9) SOH raised an general objection to the remedy selection process, asserting that the NYSDEC was not consistent with the National Oil and Hazardous Substance Pollution Contingency Plan (NCP), the requirements of 6 NYCRR Part 375 of the Environmental Conservation Law (ECL), and applicable NYSDEC Technical Assistance Guidance Memorandums (TAGMs). SOH cited as an example the conclusion by NYSDEC that the No Action option is unacceptable for this site.

Response: *The NYSDEC does not share SOH's opinion and disagrees with every aspect of this comment*

43. **Unnumbered Comment:** (¶2 on SOH's page 8) SOH objected to NYSDEC having included remedial objectives in the PRAP that are different from the FS. Specifically, SOH objected to the objective to "Eliminate the potential for direct human or animal contact with site contaminants", noting that this is an unpracticable and unattainable goal.

Response: *SOH's objection to the unqualified objective to "Eliminate the potential for direct human or animal contact with site contaminants" is understood. This will be revised to read "Eliminate to the extent practicable the potential for direct human or animal contact with site containments".*

44. **Unnumbered Comment:** (¶1 on SOH's page 9) SOH contended that NYSDEC has not acknowledged the technical impracticability issues associated with groundwater containing chlorinated volatile organics.

Response: *The technical impracticability (TI) issue comes from federal guidance that is applied on a case by case basis to sites containing chlorinated organics present as Non-Aqueous Phase Liquids (NAPL). There have been no observations of NAPL at the SOH site. Regardless, the NYSDEC recognizes that the high levels of contaminants at the site will make aquifer restoration difficult to achieve.*

Comments Made by SOH Titled "Comments Regarding Natural Attenuation"

45. **Attenuation Comment:** (SOH's page 9) SOH claimed that there are sufficient data to demonstrate that site contaminants are being degraded under naturally occurring conditions.

SOH cited a decline in compound concentrations between two sampling events and changes in the relative concentrations of specific compounds as evidence that natural degradation is occurring. SOH presented graphical representations of these interpretations and also applied a simple regression to show that the contaminant decline with distance closely resembles theoretical biological decay patterns.

Response: *The NYSDEC does not agree that SOH's interpretation of the RI data is a conclusive indication of natural degradation, particularly the rate that degradation may be occurring. SOH failed to account for seasonal groundwater variations or inherent sampling and analytical variations that could affect the reported concentrations. The NYSDEC concurs that contaminant breakdown occurs naturally and is likely at work at the SOH site. The elevated presence and distribution of Vinyl Chloride and other intermediate break down products is a reliable indicator of the degradation of SOH contaminants. However, the NYSDEC and NYSDOH are very concerned about the breakdown products, particularly Vinyl Chloride, which in turn require remedial attention. Furthermore, the site has been contaminated for decades, if natural attenuation of itself were an adequate reason for inaction, then the intervening years should have lead to much better site conditions than are present today.*

Comments Made by SOH Titled "General Comments for Alternatives SWA-2 through SWA-5"

46. **General Comment 1:** (SOH's page 10) SOH noted that several of the evaluated alternatives had only minor variations and that this shows that remedy development was not appropriate. SOH also suggested that the similarity in overall costs between SWA-3 and SWA-5 is indication that a broad range of alternatives were not considered.

Response: *The range of alternatives was reduced somewhat by the presence of an active operating facility over a large portion of the site. NYSDEC did not believe it appropriate to include alternatives that would be incompatible with continued operation if other options existed to properly address site conditions. NYSDEC believes that the focus on alternatives intended to address the groundwater contamination plume was appropriate for site conditions. The sitewide remedial alternatives were developed and evaluated to include technologies that could satisfy the remedial objectives established for this site Although some aspects of each site wide alternative had common elements, each were evaluated separately as to their ability to satisfy the remedial objectives and the selection criteria.*

47. **General Comment 2:** (SOH's page 10) SOH questioned the NYSDEC's assumption that contaminated surface soils are classified hazardous waste. SOH also questioned the estimated volume of surface soils to be remediated.

Response: *When the FS was prepared classification of the affected surface soils was uncertain. The soils were assumed to be hazardous to ensure that cost estimates were not significantly under estimated. Actual disposal costs may be less if the soils are found not to need disposal as a hazardous waste. The estimation of excavation limits and volumes will be refined in the remedial design.*

48. **General Comment 3:** (SOH's page 10) SOH recommended that soil cover be used in lieu of geomembrane for isolating soils at the site.

Response: *SOH's comment concerns design level detail not needed for remedy evaluation. The PRAP was purposely left flexible on the issue of materials to be used for isolation and/or drainage improvements.*

49. **General Comment 4:** (SOH's page 10) SOH questioned the details for the Soil Vapor Extraction component included with alternatives SWA-2 through SWA-5)

Response: *Implementation of a Soil Vapor or Dual Phase Extraction system was included as an option for remediation of the source area around OW-7S. The design and operation of such a system would be evaluated in the remedial design to determine if it would be a cost effective replacement or enhancement to the source area well extraction component. If it proves too costly or ineffective, it would not become part of the remedy.*

50. **General Comment 5:** (SOH's page 10) SOH questioned the rationale and details for the remedial component that addresses pipes, sumps and catch basins associated with the SOH facility.

Response: *Site Wide Alternatives SWA-2 through SWA-5 included the decommissioning or upgrading of drainage lines, sumps and catch basins because of the presence of high levels of site contaminants present in these structures. The location, connections and functions for each of these structures were not identified during the RI and will need to be defined as part of the remedial design process. The need for, and appropriate means to decommission these features will depend on a detailed inventory and upon the site operational needs. This will require previously unavailable access to the Metalade facility and its operational details. The contaminated sediments from the sumps, catch basins and related piping would be removed and disposed off site. Estimated costs are included as a lump sum items in Appendix A of the FS.*

51. **General Comment 6:** (SOH's page 11) SOH contends that the NYSDEC did not provide sufficient design and cost details on the disconnecting or abandonment of the two existing interior bedrock wells located within the SOH Building.

Response: *Again, SOH is requesting design level detail that is not normally available at this point. The costs associated with disconnecting the two interior bedrock wells were provided by NYSDEC to SOH through Harris, Beach and Wilcox in the cost estimate information for SWA-5. The costs for this component are the same under each sitewide alternative. The details for disconnection and/or abandonment will be developed in Remedial Design.*

Comments Made by SOH Titled "Site-Wide Alternative No. 2 (SWA-2)"

52. **SWA-2 Comment 1:** (SOH's page 11) SOH contends that the remedial technologies and components of SWA-2 are inappropriate and excessive for reducing exposure to the overburden groundwater, and questioned the rationale for proposing a deep collection trench.

Response: *NYSDEC does not agree with SOH's opinion. The exposure risks and pathways were identified for the site and SWA-2 was developed to address these pathways. Regarding the development of a deep trench system, see response to related comments 72 and 73.*

53. **SWA-2 Comment 2:** (SOH's page 11) SOH noted that the zero valence iron pretreatment system could have been included in SWA-2 to potentially reduce O&M costs.

Response: *Many different combinations of technologies can be imagined, only a reasonable number were presented. The zero valence iron was not included in this sitewide alternative.*

54. **SWA-2 Comment 3:** (SOH's page 11) SOH suggested that a conventional pretreatment system of air stripping could have been included as a variant of SWA-5.

Response: *NYSDEC agrees that this and many other technology combinations are possible.*

55. **SWA-2 Comment 4:** (SOH's page 11) SOH questions the rationale for adding a SVE system in the source area (OW7S) where subsurface soil samples have not shown high levels of VOC's.

Response: *NYSDEC agrees that a soil based extraction system will not be effective where high levels of contaminants are not present. However, though high levels of VOCs were not found in the limited number of subsurface soil samples, the site groundwater concentrations clearly indicate that a source area must be present. There is a high likelihood that there are contaminated soils near or under the building that would benefit from an SVE system.*

56. **SWA-2 Comment 5:** (SOH's page 11) SOH contends that the operation of extraction wells near the source area OW7 is not an appropriate action.

Response: *See response to the same issue raised by SOH under SWA-5, comment 74.*

57. **SWA-2 Comment 6:** (SOH's page 11) SOH contends that soil excavation of contaminated soils is not necessary, nor was on-site isolation of the soils considered.

Response: *Soil excavation was evaluated and would be a necessary component of SWA-2. Contrary to SOH's comments, on-site soil isolation was considered in this alternative.*

Comments Made by SOH "Titled Site-Wide Alternative No. 3 (SWA-3)"

58. **SWA-3 Comment 1:** (SOH's page 12) SOH contends that SWA-3 could have been developed into a more reasonable, cost effective and potentially viable remedy. SOH also contends that the number of extraction wells contained in SWA-3 is excessive and that three extraction wells would provide hydraulic control of the groundwater plume.

Response: *SWA-3 included a reasonable number of extraction wells to provide for the hydraulic control of the groundwater plume. The assertion made by SOH that three wells in the northwest would be able to control the plume is without an adequate basis to warrant changing the SWA-3 concept. See related response to comment 73 below.*

59. **SWA-3 Comment 2:** (SOH's page 12) SOH contends that the source area (OW-7S) extraction wells with SVE are not necessary. SOH also noted that the zero valence iron pretreatment system may be more cost effective technology for groundwater treatment for this alternative.

Response: *The source area extraction wells (OW-7S) would be a necessary and vital component of SWA-3. Soil or Dual Phase Vapor Extraction would be an optional replacement or enhancement for these wells. The zero valence iron pretreatment system as detailed in SWA-5 could be applied under the SWA-3 alternative.*

60. **SWA-3 Comment 3:** (SOH's page 12) SOH notes that there is a discrepancy between the FS text and the PRAP figures regarding the number of overburden extraction wells that would be installed and used to implement to sitewide alternative.

Response: *The correct conceptual design for SWA-3 includes 12 new wells and 2 existing wells for the perimeter collection system, and 2 new wells and one existing well for the source area collection system. Thus, the total number of extraction wells would be 17 (14 perimeter and 3 source area). Additional wells for monitoring would also be required. SOH's review has revealed an inconsistency of one well between the conceptual designs set forth in the PRAP and the FS. The PRAP is correct. The FS still lists 3 existing wells in the perimeter system. This is left over from an earlier well alignment concept.*

61. **SWA-3 Comment 4:** (SOH's page 12) SOH contends that the excavation of surface soils is not necessary, and that isolation of surface soils was not considered in SWA-3.

Response:. *NYSDEC does not agree with SOH's opinion. The remediation of surface soils in SWA-3 would be a necessary component of that sitewide alternative. Contrary to SOH's comment, isolation of on-site surface soils was a component of SWA-3.*

62. **SWA-3 Comment 5:** (SOH's page 12) SOH notes that with appropriate modifications to SWA-3, this alternative would be comparable or less in cost than the selected remedy SWA-5.

Response: *Since SOH provided no basis or specifics as to how it has reached this conclusion, the NYSDEC cannot respond in any detail to this comment. However, if SOH's concept would be reduce the number of extraction wells down to 3 only (see comment 58) then SWA-3 would certainly become a cheap remedy.*

Comments Made by SOH Titled "Site-Wide Alternative No. (SWA-4)"

63. **SWA-4 Comment 1:** (SOH's page 12) SOH contends that the need for excavation or isolation of surface soils is not necessary, especially in the area between the SOH property and the Ruby-Gordon property. Additionally, SOH notes an apparent discrepancy in the FS text in SWA-4, that characterizes the excavated soils as an F-listed waste while the other sitewide alternatives do not have such a characterization.

Response: *The excavation and disposal of surface soils would be a necessary component of SWA-4. SWA-4 does not include isolation of contaminated surface soils between the SOH property and Ruby-Gordon. However, it includes drainage improvements and a geomembrane with soil cover to prevent infiltration and recharge to the Ruby-Gordon basement and sumps. Additionally, it is noted that reference was made to an F-listed hazardous waste on Alt#4-4 of the FS. This reference is incorrect in the FS, soil disposal will be based on NYSDEC TAGM 3028. The soil disposal in SWA-4 should be consistent with the soil disposal of the other SWAs.*

64. **SWA-4 Comment 2:** (SOH's page 12) SOH notes that there is a discrepancy between the FS text and the PRAP Figures regarding the number of overburden extraction wells that would be installed and used to implement the sitewide alternative.

Response: *See response to same issue raised for SWA-3 under comment 60.*

Comments Made by SOH Titled "Site-Wide Alternative No. 5 (SWA-5)"

65. **SWA-5 Comment 1, 1st Bullet:** (SOH's page 13) SOH contends that the process to reach, develop and select SWA-5 is flawed and inconsistent with the NCP, State Regulations and NYSDEC Guidance.

Response: *The State does not agree with this contention. Since SOH provided no basis or specifics as to how it has reached this conclusion, the NYSDEC cannot respond in any detail to this comment.*

66. **SWA-5 Comment 1, 2nd Bullet:** (SOH's page 13) SOH contends that "there are inconsistencies and flaws in the development and evaluation" of SWA-5.

Response: *No basis or specifics are offered with the comment and the NYSDEC cannot respond in any detail. NYSDEC believes that the Site-Wide Alternatives have been adequately developed for purposes of remedy evaluation and selection.*

67. **SWA-5 Comment 1, 3rd Bullet:** (SOH's page 13) SOH suggests that "more appropriate and cost-effective alternatives should have been made for comparison to SWA-5".

Response: *As with any remedial program, a very large number of possible combinations of individual technologies can be imagined and developed into site wide alternatives. NYSDEC believes that the focus on alternatives intended to provide groundwater plume control was appropriate and adequate for site conditions and that a reasonable number of possible alternatives were developed and evaluated for this site. See related comment 46.*

68. **SWA-5 Comment, 4th Bullet:** (SOH's page 13) SOH contends that components of SWA-5 have not been fully developed and evaluated or not adequately described.

Response: *The NYSDEC agrees that design elements are conceptual for all of the presented Site Wide Alternatives and that many detailed technical items are not developed. This is the nature of the process whereby selection of a remedy occurs prior to committing resources to the full scale, detailed design for a remedy. The State believes that the level of development of Site-Wide Alternatives in the FS and the PRAP is adequate for remedy evaluation and selection.*

69. **SWA-5 Comment 2:** (SOH's page 13) SOH does not agree with the proposed use of gravity drainage to provide hydraulic control because the depth to the iron treatment is not practical and may require pumping.

Response: *The NYSDEC and it's consultant evaluated the feasibility of a passive system and do not agree with SOH's conclusion. Since SOH did not offer any specifics on how it has reached this conclusion, the NYSDEC cannot respond in detail. However, should the detailed design determine that pumping is required, this could be done without detracting from how well the remedial alternative meets it's overall objectives. Should SOH, as a Party to the Litigation, agree to implement the remedy and prefer to pump the trench as part of remedy operation, the State would be willing to work with them to see that it can be done as effectively as possible.*

70. **SWA-5 Comment 3:** (SOH's page 13) SOH notes that the capture zone of the extraction trench is limited by the top of the lower till and the invert of the sewer line and that pumping the trench

or use of pumping wells can create greater drawdown.

Response: *The NYSDEC agrees that a more aggressive groundwater extraction system could be devised to dewater to an elevation below the existing sewer line. However, this would eliminate the possibility of a passively operated system, may result in pumping more water than necessary, and, in the case of a pumped trench system, would be significantly more expensive to build (SWA-2 is just such a trench system and was evaluated in detail during the remedy selection process).*

71. **SWA-5 Comment 4:** (SOH's page 13) SOH noted that the collection trench segment proposed for near the Ruby-Gordon property line should be only 1 to 2 feet below the sump, but that a preliminary cross section of the trench shows it unnecessarily deep.

Response: *NYSDEC agrees with SOH's evaluation concerning the depth needed for this trench segment. The referenced cross section was for the main trench segment along the west and north SOH property lines.*

72. **SWA-5 Comment 5:** (SOH's page 13) SOH suggested the proposed trench will not provide significant hydraulic control along the west side of the SOH property, that the west portion of the trench is unnecessary, and that the trench should be constructed down gradient of well OW-3S. SOH also suggested that NYSDEC should have used available, simple groundwater models for a more accurate assessment of groundwater capture systems.

Response: *NYSDEC agrees that simple models can be very useful under certain site conditions. In this case a simple hydrogeologic model was applied during remedy development to evaluate trench hydraulics. However it was considered to be of limited use because the contaminated groundwater flow occurs in discrete and discontinuous stringers of fine sand, rather than in a homogenous aquifer that simple models assume. Effective hydraulic control must rely on interception of the sand stringers rather than on any calculated drawdown in an idealized aquifer. Regardless, the exact length, alignment and construction of the trench will be determined during detailed design as part of efforts to maximize effectiveness while minimizing costs. Should SOH decide to participate in remedy implementation, it will have the opportunity to propose a specific design for the trench system.*

73. **SWA-5 Comment 6:** (SOH's page 14) SOH questioned the northeastward extent of the trench given the limited VOC concentrations east of well cluster OW-3. SOH also presented results of some groundwater modeling it performed and suggested that a much smaller hydraulic control system could do the job without a need for the sheetpile barrier wall.

Response: *NYSDEC too considered a shorter northern tench segment during remedy development but ultimately rejected this idea. While VOC levels to the east are lower than in the OW-3S area, levels of VOCs several times higher than groundwater standards remain (See OW-5S and OW-1S well data). These areas would not likely be influenced by a shorter segment. NYSDEC is certainly willing to revisit trench length and location during detailed design, but remains committed to achieving the stated remedial objectives. Concerning proposed revisions based on SOH's modeling, NYSDEC is not convinced that simple modeling is the best basis for hydraulic design of groundwater systems for this site. In particular, the presence and function of the discontinuous sand stringers cast serious doubt on the ability of a small handful of pumping wells to exert adequate hydraulic control of the site plume. Regarding the sheetpile wall, the*

NYSDEC has already recognized that the need for this feature is still under consideration and therefore, has included it in the PRAP as a contingent item to be installed only if remedy operation shows it to be needed.

74. **SWA-5 Comment 6:** (SOH's page 14) SOH disagreed with the need for the proposed source area extraction wells near OW-7S, primarily because this area is within the controlled area of the proposed collection trench system. In support of this conclusion, SOH also contended that the high levels of VOCs found in the vicinity of OW-7S:
a.) are being naturally attenuated by the time groundwater reaches the proposed trench location;
b.) could render the iron pretreatment ineffective;
c.) could be remobilized and exacerbate contaminant distribution at the site, and;
d.) may render groundwater restoration in this area technically impracticable.

Response: *The NYSDEC's experience at many similar sites is that when a hot spot or source area can be directly and effectively addressed, this effort provides the most cost effective removal of site contaminants. There are many sites in New York where this approach has been selected and successfully implemented. If the OW-7S hot spot area is not aggressively removed, the NYSDEC does not believe that groundwater at the site will become sufficiently clean within a reasonable time frame. This in turn will require that the collection trench system be operated for an indeterminate and lengthy time period. As an alternative to the source area well component, SWA-5 does provide the option to implement a Soil Vapor or Dual Phase Extraction system that would provide more aggressive source removal and possibly allow termination of the trench system operation earlier than a well based source removal system would.*

The NYSDEC concurs that VOC contaminant breakdown can occur naturally. The elevated presence and distribution of Vinyl Chloride is a reliable indicator of the degradation process. However, the NYSDEC and NYSDOH are very concerned about the breakdown contaminants particularly Vinyl Chloride, which in turn require remedial attention. The site has been contaminated for decades, if natural attenuation of in itself were an adequate reason for inaction, then the intervening years should have lead to much better site conditions than are present today.

Regarding SOH's concerns about VOC impacts to the iron pretreatment and possible remobilization, see response to comment 8, below. Concerning groundwater restoration, it is not the expectation of the State that groundwater standards will be achieved any time soon in the area around well OW-7S and this is not one of the stated objectives of the program.

75. **SWA-5 Comment 8:** (SOH's page 14) SOH noted that construction of a collection trench near the Ruby-Gordon property line could remobilize the high levels of VOCs found there in unpredictable ways, and that the high levels could render the iron pretreatment ineffective. SOH suggested consideration of a vertical subsurface barrier in lieu of the collection trench for this location.

Response: *The suggestion for a subsurface barrier was evaluated during remedy development. While a barrier would have some merits, the NYSDEC believes that an active collection system is necessary. Unlike a barrier, the trench system will actively reduce the volume of contaminants present at the site while also serving to pull back some contaminants that have already crossed onto Ruby-Gordon property. NYSDEC does not believe that high levels of dissolved phase*

VOCs will pose any insurmountable problems from remobilization or render the iron pretreatment ineffective. The pretreatment system could be easily designed with the flexibility to vary iron contact times for adequate treatment of varying dissolved contaminant levels. Non-Aqueous Phase Liquid (NAPL) contaminants however, may create complications for an iron pretreatment system if present and not properly controlled with a NAPL separator. If NAPL were to enter the iron, it would likely coat the iron particles and for a time reduce treatment effectiveness. Though NYSDEC has not observed any NAPL at the site, the possibility does exist. If SOH, it's consultant or any other party has knowledge of NAPL presence, then this information should be provided to support proper design.

76. **SWA-5 Comment 9:** (SOH's page 14) SOH noted that design flows were not provided for the trench segment near the Ruby-Gordon property and requested they be provided.

Response: *Flow in this trench segment will vary seasonally from zero during very dry periods up to a maximum of approximately 0.5 to 1.5 gallons per minute. These flow estimates are based upon engineering judgement and experience. The maximum flow rate will depend on how related drainage improvements are constructed, and on how many, if any, of the fine sand stringers are intercepted by the trench profile.*

77. **SWA-5 Comment 10:** (SOH's page 14) SOH reraised issues raised earlier in its comment letter.

Response: *See responses to comments numbered 32 through 35.*

78. **SWA-5 Comment 11:** (SOH's page 14) SOH questioned whether the cost for the surface soil sampling set forth in the PRAP is included in the FS estimates, requested the rationale for this sampling effort, and asked how this work will be limited to maximize cost effectiveness.

Response: *These sampling costs were not estimated separately, but are included along with the costs of all other design efforts in the cost estimate for design included in the FS. NYSDEC included this sampling effort to provide Parties to Litigation or the State (which ever ends up implementing the remedy) with the option to focus soil removal efforts to just those soils that require attention. Surface soil samples taken during the RI were limited in number, as a result the FS estimate of affected soil volumes may be high. If the private parties prefer to implement the soil remedy based upon the FS estimate of affected soil volumes then no predesign sampling would be needed. If the State implements the remedy, it will certainly perform this focussed predesign sampling effort as a way to minimize expenditure of unnecessary public funds.*

79. **SWA-5 Comment 12:** (SOH's page 15) SOH disagreed with the proposed "relief columns" included in the SWA-5 trench system, but suggested that they contain a sump to collect potential heavier than water NAPL.

Response: *NYSDEC did not observe NAPL at the site, either light or heavy, though the possibility does exist. NYSDEC does not see a real need for any such sumps along the trench alignment as this is well away from the most likely location where NAPL might exist (near the OW-7S well and under the SOH building). Further, even if sumps were installed, there would be no way to access those sumps to see if any NAPL is accumulating. If SOH has knowledge of a NAPL source area, they should provide that information to ensure the remedial design will address such a source.*

80. **SWA-5 Comment 13:** (SOH's page 15) SOH objected that the number of relief columns estimated in the FS is excessive, and that their construction may mobilize VOCs in unpredictable ways.

Response: *The number of relief columns estimated in the FS were conceptual for preliminary design and cost purposes. Final construction details for this feature (or its functional equivalent) including size, number, depth, alignment, etc. will be determined during detailed remedial design. Regarding remobilization of VOC's, unless there is NAPL along the trench alignment, this would not be a significant concern.*

81. **SWA-5 Comment 14:** (SOH's page 15) SOH questioned the rationale behind the proposed drainage improvements in the area between the Ruby-Gordon basement and the SOH property, what the improvements would specifically look like, and what they would cost.

Response: *The proposed improvements would be minor in nature and are intended primarily to minimize the amount of clean surface water that infiltrates into the collection system. They would likely consist of regrading for positive drainage, and possibly adding asphalt or some other reduced permeability material such as geomembrane. The cost of the improvements are included in line item No. 6 of the cost estimate summary table in Appendix A of the FS. Over the long run, this feature should provide a significant savings in operational costs of the pretreatment system.*

NYSDEC Response to Memorandum from Joseph D. Picciotti, of Harris, Beach and Wilcox, LLP dated March 14, 1997 referenced as an addendum to Public Comment Letter dated March 14, 1997 from Harris, Beach and Wilcox transmitting comments from Blasland, Bouck and Lee (BBL) consultants.

82. SOH raises a conflict issue with a former employee of GZA, NYSDEC's consultant.

Response: *The NYSDEC does not consider this issue, memorandum or attachments of correspondence as part of the remedy evaluation and selection process. Therefore, no further response in this record is required. SOH has the opportunity to raise issues that it believes germaine to the ongoing litigation in U.S. District Court.*

NYSDEC Response to letter dated March 13, 1997 signed by Thomas F. Walsh, Esq. Of Jaeckle, Fleischmann and Mugel LLP, Counsel Representing Ruby-Gordon, Inc., commenting on the PRAP for the SOH Site.

83. **Ruby-Gordon Comment 1:** Ruby-Gordon supports the Department's preferred remedy, particularly the installation and operation of a shallow groundwater collection trench along the portion of the south SOH property boundary adjacent to Ruby-Gordon's basement. Ruby-Gordon stated that installation of this trench is critical to Ruby-Gordon's ability to eventually discontinue the pretreatment of its basement sump water discharge.

Response: *NYSDEC recognizes and accepts Ruby-Gordon's support for the preferred remedy SWA-5, which includes the installation of the interceptor trench along Ruby-Gordon property.*

84. **Ruby-Gordon Comment 2:** Ruby-Gordon supports the construction of drainage improvements in the area between its basement and the SOH facility in order to minimize groundwater recharge

to its basement sumps.

Response: *NYSDEC recognizes and accepts Ruby-Gordon's support of the drainage improvements between the SOH property and the Ruby-Gordon basement to minimize groundwater recharge to the basement sumps, which is a component of the preferred remedy SWA-5.*

85. **Ruby-Gordon Comment 3:** Ruby-Gordon suggested that the ongoing operation and maintenance of its basement sump water pretreatment system be incorporated into the proposed remedy until such time as the sump water no longer requires pretreatment.

Response: *The preferred remedy, SWA-5, does not require that treatment of sump water be incorporated into the SOH remedy. At this time, the ongoing pretreatment pursuant to NYSDEC adequately protects human health and the environment and incorporation into the SOH remedy is not required. However, incorporating the Ruby-Gordon pretreatment may have economic and convenience advantages and can be explored as part of litigation settlement.*

86. **Ruby-Gordon's requested continued involvement and ability to comment on any further alternative remedial proposals that may be received from the Responsible Parties for the SOH site.**

Response: *Ruby-Gordon is on the site contact list. NYSDEC will keep Ruby-Gordon apprised of any further developments regarding the SOH site and would welcome their comments and suggestions.*

APPENDIX B

ADMINISTRATIVE RECORD

- February 1987; "Site Assessment for Stuart-Olver-Holtz, Inc.; Henrietta, New York" prepared by Lozier Architects and Engineers.

- April 1991; "Report on Hydrogeologic Investigations; Ruby-Gordon Property; Henrietta, New York" prepared by H&A of New York, Rochester, New York.

- October 1992; "Phase I Environmental Audit for 50 Commerce Drive, Town of Henrietta, Monroe County, New York" prepared by Larsen Engineers.

- December 1992; "Phase II Environmental Assessment; 50 Commerce Drive, Henrietta, New York" prepared by Larsen Engineers.

- April 1994; "Soil and Groundwater Sampling Report for the Hazardous Waste Investigation of New York Route 15 West Henrietta Road SH62, Town of Henrietta, Monroe County PIN 4008.15.121 prepared by URS Consultants, Inc.

- August 18, 1994; Entry of Order, Ruby v. Ryan et al, 92 CV-06021, United States District Court, Western District of New York, signed by United States District Judge Michael A. Telesca.

- August 29, 1994; Submittals prepared by TAMS Consultants and GZA Geoenvironmental of New York.

  - Project Management Plan, Stuart-Olver-Holtz, Site No. 8-28-079 dated August 29, 1994.

  - "Field Activity Plan, Stuart-Olver-Holtz, Site No. 8-28-079" dated August 29, 1994.

  - "Quality Assurance Project Plan, Stuart-Olver-Holtz, Site No. 8-28-079" dated August 29, 1994.

  - "Health and Safety Plan, Stuart-Olver-Holtz, Site No. 8-28-079" dated August 29, 1994.

  - "Citizen Participation Plan, Stuart-Olver-Holtz, Site No. 8-28-079" dated August 29, 1994.

- GZA letter dated October 25, 1994; Revised the drilling procedures for the top-of-

bedrock monitoring wells in the Field Activity Plan.

- TAMS memorandum dated June 13, 1995; Revised the Quality Assurance Project Plan (QAPP).
- GZA letter dated June 16, 1995; Revised the Field Activity Plan.
- GZA letter dated June 16, 1995; Revised the Health and Safety Plan.
- April 1996; NYSDEC, Division of Hazardous Waste Remediation, Inactive Hazardous Waste Disposal sites in NYS, Volume 8.
- July 22, 1996 and August 14, 1996; NYSDOH analytical data from sampling of 4 sumps at 56 Commerce Drive; at 80 Commerce Drive utility vault sampling; loading dock water sampling at 80 Commerce; and surface water sample of wetland on North side of Cook Drive.
- September 1996; "Remedial Investigation Report, Stuart-Olver-Holtz Site, Henrietta, New York, September 1996" Volumes 1 and 2.
- October 1996; "Feasibility Study Report, Stuart-Olver-Holtz Site, Henrietta, New York, October 1996".
- January 1997; Proposed Remedial Action Plan (PRAP) prepared by NYSDEC for the Stuart-Olver-Holtz Site, Henrietta, New York.
- January 17, 1997; NYSDOH letter to NYSDEC, G. Anders Carlson to Michael J. O'Toole, Jr. regarding NYSDOH concurrence on PRAP.
- January 24, 1997; Legal Notice, Published in the Rochester Democrat and Chronicle announcing the release and availability of the PRAP, announcing Public Meeting date of February 12, 1997 and announcing public comment period.
- March 1997; Record of Decision (ROD) prepared by NYSDEC for the Stuart-Olver-Holtz site.