Department of Environmental Conservation

Division of Environmental Remediation

# Record of Decision

## Cole-Zaiser Inactive Hazardous Waste Site
## Town of Brutus, Cayuga County
## Site Number 7-06-005

**September 1997**

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

# DECLARATION STATEMENT - RECORD OF DECISION

## Cole-Zaiser Inactive Hazardous Waste Site
## Brutus (T), Cayuga County, New York
## Site No. 7-06-005

**Statement of Purpose and Basis**

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

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

**Assessment of the Site**

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

**Description of Selected Remedy**

Based upon the results of the Remedial Investigation/Feasibility Study (RI/FS) for the Cole-Zaiser site and the criteria identified for evaluation of alternatives the NYSDEC has selected the excavation of petroleum and solvent contaminated soils with on site treatment utilizing ex-situ soil vapor extraction, followed by bioremediation to complete the treatment of the petroleum compounds. Surface soils with low level heavy metals contamination will be scraped up and placed in the excavations resulting from the removal of the petroleum /solvent contaminated soil and then covered with the treated soil. The components of the remedy are as follows:

- Chlorinated solvent and petroleum contaminated soil will be excavated and incorporated into an ex situ SVE system comprised of the soil pile, lateral pipes for air extraction, a blower, and a cover to be constructed on a staging pad. Metals contaminated soil scraped from the surface and stockpiled will be backfilled in the excavations once the petroleum/solvent contaminated soil has been removed.

- To complete the remediation of the soil once the SVE system has addressed the VOCs, continued treatment utilizing ex-situ bioremediation may be necessary to address some of the petroleum compounds. Additives, such as a bioculture, water, pH adjusters, and nutrients will be added to the soil as necessary, to sustain the microorganisms responsible for the breakdown of the petroleum hydrocarbons.

- Upon completion of soil treatment the treated soil will be utilized as a soil cover in the areas where the metals contaminated soil was backfilled.

- Periodic groundwater samples will be collected and analyzed from shallow groundwater wells until contaminants are below groundwater standards. The site will be periodically evaluated to determine whether a change in classification on the Registry of Inactive Hazardous Waste Disposal Sites is warranted.

## 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.

9/30/97
Date

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

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## SECTION 1: SITE LOCATION AND DESCRIPTION

The Cole-Zaiser Site, Site No. 7-06-005, is an abandoned above ground storage tank farm located in the Town of Brutus, Cayuga County. The three acre site, located within the food plain of the Seneca River, is bordered on the north by the Seneca River (part of the Erie Canal), the south by Stickle Road, and the east and west by private properties. The topography is flat and the area is primarily rural. Figure 1 shows the site map. The remaining structures of the inactive tank farm include a filter station, transfer station, garage, and office/warehouse. The former above ground storage tanks (ASTs) and associated piping have been removed. There are no other hazardous waste sites within five miles of the Cole-Zaiser site.

## SECTION 2: SITE HISTORY

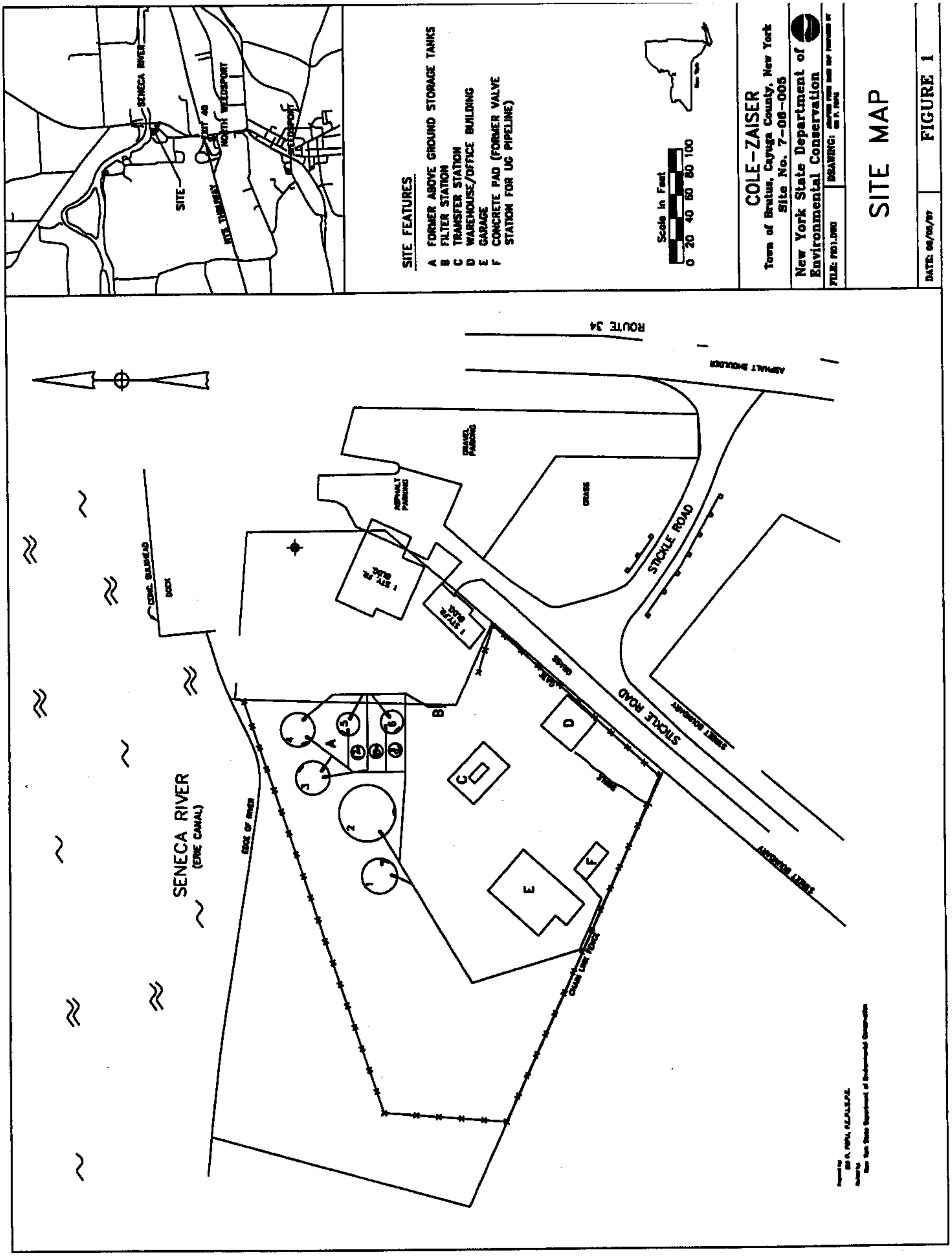
### 2.1: Operational/Disposal History

1925: The Standard Oil Company (now Mobil Oil Corporation) purchased the property and constructed all existing facilities and former tanks and piping.

1925-1973: Petroleum products were brought to the site by barges using the Seneca River, and later an underground pipeline, for storage and local distribution. The capacity of the nine ASTs that formerly occupied the site was approximately 1.25 million gallons. Products stored on site included oil, gasoline, lubricating oils, and lubricating greases. A filter and pumping station on the eastern site boundary pumped different products from the ASTs to awaiting tanker trucks at the transfer station. Tanker trucks then distributed products to area customers.

1973: Standard Oil ceased operation at the facility in December when they sold the property to Cole-Zaiser, Inc. Prior to the property changing ownership, the underground pipeline was decommissioned.

1973-1982: Cole-Zaiser Inc. used the site for collecting and storing waste petroleum products prior to recycling or disposal. According to a 1976 NYSDEC Application for Septic Tank Cleaner and Industrial Waste Collector Registration, Cole-Zaiser, Inc. accepted industrial oils and crankcase oils. Although the application states that solids, acids, alkalies, gasoline, greases, and solvents were not accepted at the facility; it does state that they accepted waste oils and water containing "Tri-Chlor" (presumably a chlorinated solvent) from Morse Chain Company and Xerox Corporation. Waste products were moved from the site to the Cole-Zaiser facility in Amboy, NY (NYS Inactive Hazardous Waste Disposal Site 7-38-013) for reclamation.


SITE FEATURES
A FORMER ABOVE GROUND STORAGE TANKS
B FILTER STATION
C TRANSFER STATION
D WAREHOUSE/OFFICE BUILDING
E GARAGE
F CONCRETE PAD (FORMER VALVE STATION FOR UG PIPELINE)
Scale in Feet
0 20 40 60 80 100
COLE-ZAISER
Town of Brutus, Cayuga County, New York
Site No. 7-06-005
New York State Department of Environmental Conservation
SITE MAP
FIGURE 1
SENECA RIVER
SITE
EXIT 40
NORTH WEEDSPORT
SENECA RIVER
(ERIE CANAL)
EDGE OF RIVER
ROUTE 34
ASPHALT SHOULDER
STICKLE ROAD
GRAVEL PARKING
ASPHALT PARKING
GRASS
DOCK
STREET BOUNDARY
CHAIN LINK FENCE

1982: Cayuga County took possession of the site from Cole-Zaiser, Inc. In December for non-payment of taxes.

1989: The property was purchased from the County by the current owner, Mr. Charles Cole, in May.

## 2.2: Remedial History

Initial Investigations

Prior to the RI/FS, preliminary site investigations were performed by NUS Corporation (HRS Model, 1986), Wehran Engineering, P.C. (Phase I Investigation, 1987), and ABB Environmental Services (Task 1 Investigation, 1990; PSA, Site 706005, 1993). These investigations were conducted to determine whether the site was eligible for the United States Environmental Protection Agency's (EPA) National Priority List (NPL), and to determine what (if any) the proper classification of the site should be for inclusion on the New York State Registry of Inactive Hazardous Waste Disposal Sites. The investigations determined that the site was not eligible for the NPL. The 1987 investigation resulted in the site being listed as a Class 2A site, indicating more data was necessary to properly classify the site. The 1990 Preliminary Site Assessment (PSA) determined that the site should be listed as a Class 2 site, indicating that the site presents a significant threat to the public health or environment - action is required.

Emergency Spill Response

On April 28, 1993 the Cayuga County Fire Department received complaints of sheens and petroleum odors in the Seneca River leaving the Cole-Zaiser site. When they were unable to contact the site owner, the Fire Department contacted the NYSDEC Division of Spills Response. Spring flood waters had infiltrated ASTs and drums located on site, causing petroleum products and floating drums to enter the Seneca River. A NYSDEC spill contractor responded to the site to recover petroleum product along the bank of the river and to relocate abandoned drums to higher ground. In addition, the drums were sampled to determine if they contained hazardous wastes. The contents of the drums were not found to be hazardous waste.

Remedial Investigation/Feasibility Study

In April 1995, the NYSDEC's Division of Environmental Enforcement arrived at an impasse in negotiations with Potentially Responsible Parties (PRP's), and referred the site to the Division of Environmental Remediation (DER). This referral gave DER the legal authority to proceed with a Remedial Investigation and Feasibility Study (RI/FS) under the State Superfund Program utilizing 1984 Environmental Quality Bond Act funds. The RI report is a summary of the investigations conducted as a result of that referral. The Feasibility Study (FS) details the alternatives evaluated to address the contamination identified at the site.

## SECTION 3: CURRENT STATUS

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

### 3.1: Summary of the Remedial Investigation

The purpose of the RI was to define the nature and extent of any contamination resulting from previous activities at the site. The RI was conducted in one phase, between May 1996 and June 1997 A report entitled Remedial Investigation Report, June 1997 has been prepared describing the field activities and findings of the RI in detail. The RI included the following activities:

- A records search was conducted to identify past handling procedures, likely contaminants of concern, and areas of operation. Based on this search, a scope of work was developed for the Remedial Investigation, culminating in a Work Plan.

- A soil gas survey was conducted to delineate areas of gross soil contamination or waste disposal that may be acting as a source of groundwater contamination.

- A test pit investigation was conducted to visually delineate the extent of subsurface contamination and characterized the shallow overburden geology. Subsurface samples were collected to identify the types of contaminants observed.

- Sediment and water samples were collected from the Seneca River and a drainage swale leading to an adjacent wetland to identify if any contaminant migration from the site has occurred.

- Surface soil samples were collected and analyzed to determine the extent of surface soil contamination. Sample locations were based in part on the results of the soil gas survey; focusing on off site migration pathways.

- A soil boring program was carried out to characterize shallow overburden geology.

- Monitoring wells were installed to characterize subsurface geology and hydrogeology. Two rounds of groundwater samples were collected and analyzed to identify any site impacts on groundwater.

- Continuous groundwater elevations were collected utilizing electronic data recorders for a duration of approximately six weeks. All monitoring wells were included in this effort to determine vertical and horizontal groundwater flow patterns.

- A Fish and Wildlife Impact Analysis was conducted to identify any site impacts on fish and wildlife.
- A Qualitative Human Health Evaluation was conducted to identify any potential site impacts on public health.

To determine which media (soil, groundwater, etc.) contain contamination at levels of concern, the RI analytical data was compared to environmental Standards, Criteria, and Guidance (SCGs). Groundwater, drinking water and surface water SCGs identified for the Cole-Zaiser site were based on NYSDEC Ambient Water Quality Standards and Guidance Values and Part V of NYS Sanitary Code. NYSDEC TAGM 4046 soil cleanup guidelines for the protection of groundwater, background conditions, and risk-based remediation criteria were used as SCGs for soil and the NYSDEC Technical Guidance for Screening Contaminated Sediments was used for surface water sediments.

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

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

### 3.1.1 <u>Nature of Contamination:</u>

The contaminants of concern at the Cole-Zaiser site include heavy metals, chlorinated solvents, and petroleum products. Heavy metals are generally not biodegradable and can persist in the environment indefinitely.

Chlorinated solvents and their natural transformation products represent the most prevalent organic groundwater contaminants in the country. These solvents have been used widely for degreasing of engines, manufactured parts, electronic components, and clothing. Once dirty, chlorinated solvents have often been disposed of into refuse sites, waste pits and lagoons, and storage tanks. Because of their relative solubility in water and their somewhat poor sorption to soils, they tend to migrate downward through soils, contaminating groundwater with which they come into contact. Being denser than water, their downward movement is not impeded when they reach the water table, and so they can penetrate deeply beneath the water table. Chlorinated solvents and petroleum products break down by physical, chemical, and biological processes in the environment. It is important to note that some breakdown products of chlorinated solvents are more toxic than their parent compounds (ie: vinyl chloride produced by the breakdown of trichloroethene). Besides groundwater transport, chlorinated solvents are readily transported by volatilization.

At the Cole-Zaiser site, observations and data have shown that the chlorinated solvents have indeed migrated downward into the groundwater. However, a relatively impermeable layer of clay and peat located 0-9' below ground surface, and the very slow groundwater flow have combined to limit the migration of contaminants to locations on the site.

### 3.1.2 Extent of Contamination

Table 1 summarizes the extent of contamination for the contaminants of concern in surface soil, subsurface soil, and groundwater and compares the data with the proposed remedial action levels (SCGs) for the Site. The following are the media which were investigated and a summary of the findings of the investigation.

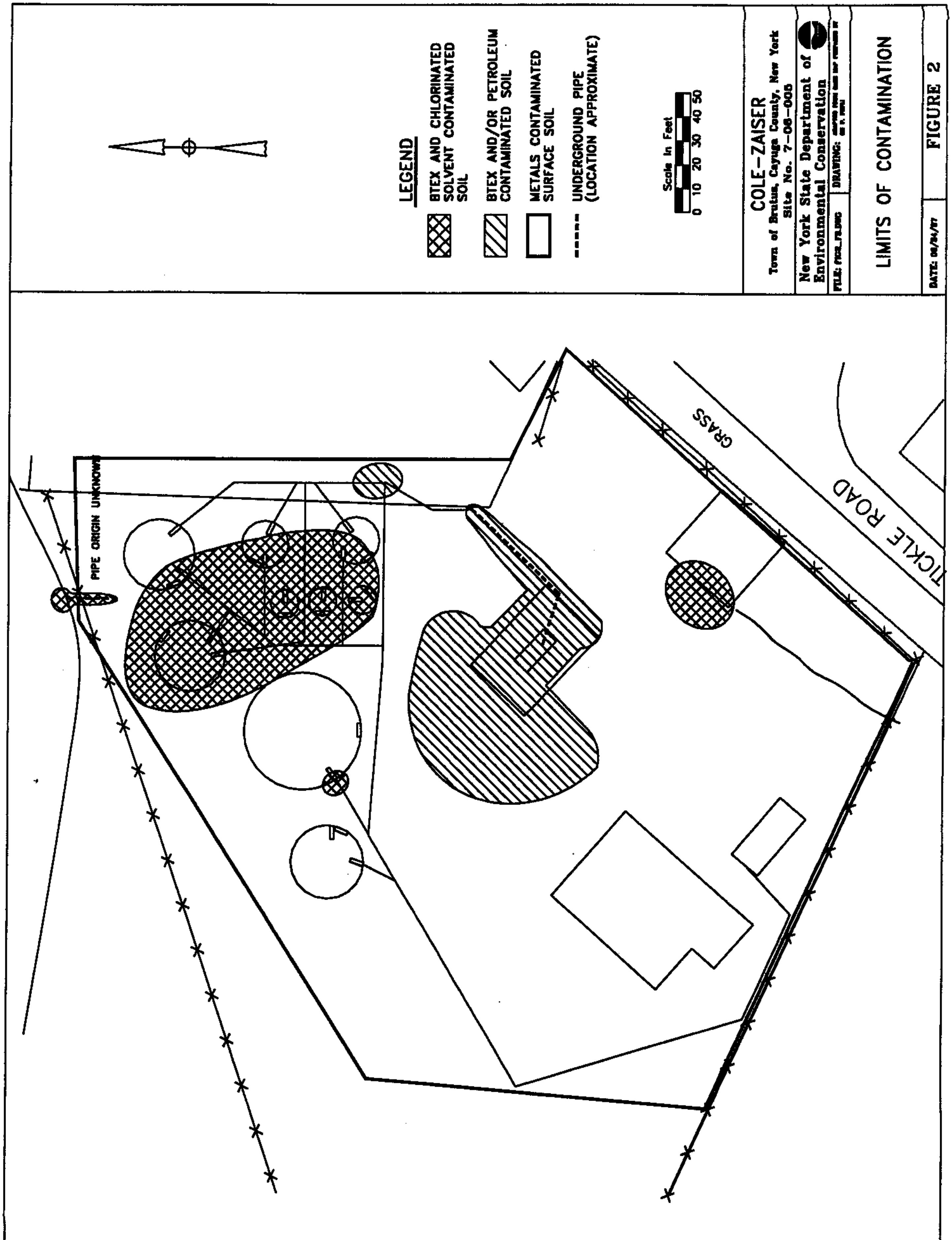
#### Soil

Chemical analysis during the soil gas survey and test pit investigation revealed areas of subsurface soils contaminated with petroleum related compounds around and between the transfer station and the filter station. Data also identified subsurface soil contamination with chlorinated solvents and petroleum related compounds in the area of the former ASTs, in sediment surrounding an outfall pipe to the Seneca River, and in front of the warehouse/office building. Petroleum saturated soil and non-aqueous phase liquids (NAPL) were observed in several test pits excavated around the ASTs, the transfer station and the warehouse/office building. Figure 2 shows the approximate extent of contamination at the Cole-Zaiser site, which includes a small area of contamination on the private property adjacent to the eastern site boundary, in the vicinity of a former piping junction.

The site lies on imported fill starting at the transfer pump station and gradually getting thicker to a maximum depth of nine feet near the Seneca River. Underneath the fill is a layer of very tight peat and/or clayey silt. Based on observations during the test pit investigation, hydrogeologic information, and groundwater data; subsurface contamination is limited to the fill. Based on the areas identified on Figure 2, approximately 580 cubic yards (cyds.) of soil are contaminated with petroleum compounds and an additional 1,300 cyds. contain both petroleum and chlorinated solvents, for a total of 1,880 cyds..

Several heavy metals were encountered in surface soils throughout the site. Surface soil samples throughout the site contained one or more of the following metals associated with past operations at the site: cadmium, chromium, cobalt, copper, lead, mercury, nickel, silver, and zinc above background levels and/or standards, criteria, and guidance values for surface soils (SCGs). Samples collected from test pit samples and analyzed by the Toxicity Characteristic Leaching Procedure (TCLP) showed that metals are not likely to leach from soil and that metals in those samples do not qualify the soil as a characteristic hazardous waste. Also, concentrations detected during Target Analyte List (TAL) Metals analysis of surface soils indicate that they are not likely to be a characteristic hazardous waste.

| TABLE 1<br>Nature and Extent of Contamination at the Cole-Zaiser Site (706005) | | | | | |
|---|---|---|---|---|---|
| Media | Class | Contaminant of Concern | Concentration Range in ppm | SCG in ppm | Frequency Exceeding SCGs |
| Surface Soil | Metals | Cadmium | ND to 46.6 | 10 | 2 of 25 |
| | | Chromium | 5.1 to 182 | 50 | 3 of 25 |
| | | Cobalt | 4.5 to 105 | 30 | 3 of 25 |
| | | Copper | 17.2 to 4060 | 40 | 16 of 25 |
| | | Lead | 17.6 to 7860 | 500 | 8 of 25 |
| | | Mercury | ND to 0.55 | 0.1 | 4 of 25 |
| | | Nickel | 9.3 to 1550 | 30 | 5 of 25 |
| | | Silver | ND to 17.4 | 1 | 2 of 25 |
| | | Zinc | 69 to 15400 | 100 | 25 of 25 |
| Subsurface Soil | Volatiles | 1,1-DCA | ND to 3.0 | 0.2 | 2 of 8 |
| | | 1,1-DCE | ND to 0.910 | 0.4 | 1 of 8 |
| | | 1,2-DCE | ND to 160.0 | 0.3 | 2 of 8 |
| | | 1,1,1-TCA | ND to 38.0 | 0.8 | 2 of 8 |
| | | TCE | ND to 40.0 | 0.7 | 1 of 8 |
| | | PCE | ND to 150.0 | 1.4 | 2 of 8 |
| | | Benzene | ND to 0.76 | 0.06 | 1 of 8 |
| | | Ethyl Benzene | ND to 11.0 | 5.5 | 1 of 8 |
| | | Toluene | ND to 4.5 | 1.5 | 1 of 8 |
| | | Xylene | ND to 77.0 | 1.2 | 3 of 8 |
| Groundwater Round 1 (Round 2 demonstrated similar patterns of contamina-tion) | Volatiles | Vinyl Chloride | ND to 0.030 | 0.002 | 1 of 9 |
| | | 1,1-DCA | ND to 0.039 | 0.005 | 1 of 9 |
| | | 1,2-DCE | ND to 0.035 | 0.005 | 1 of 9 |
| | | Benzene | ND to 0.004 | 0.0007 | 2 of 9 |
| | Metals | Lead | ND to 0.0716 | 0.025 | 1 of 9 |


LEGEND
BTEX AND CHLORINATED SOLVENT CONTAMINATED SOIL
BTEX AND/OR PETROLEUM CONTAMINATED SOIL
METALS CONTAMINATED SURFACE SOIL
UNDERGROUND PIPE (LOCATION APPROXIMATE)
Scale In Feet
0 10 20 30 40 50
COLE-ZAISER
Town of Brutus, Cayuga County, New York
Site No. 7-06-005
New York State Department of Environmental Conservation
LIMITS OF CONTAMINATION
FIGURE 2
PIPE ORIGIN UNKNOWN
GRASS
TICKLE ROAD

### Sediments

The sediment sample from the outfall pipe that discharges to the Seneca River contained chlorinated solvents, DDT and its breakdown products, chlordane, and several metals above SCGs, as well as very low levels of benzene, toluene, ethyl benzene, and xylene (BTEX). There were several petroleum related compounds, pesticides, and metals in most river sediment samples. However, with the exception of the direct vicinity of the outfall, background (upstream) concentrations of these contaminants were mostly higher than those adjacent to, and downstream of the site. Therefore, these contaminants are likely a result of motorized traffic on the river, surface water drainage into the river, and pesticide application in the area. There were no other exceedences of contaminants that were site related in the river sediments. Based on field observations and analytical results, sediment contamination attributable to the site is limited to the direct vicinity of the outfall.

### Groundwater

Only two of the nine monitoring wells (MW-3S and MW-5S) installed exhibited contamination with volatile organic chemicals. These shallow wells are both immediately down gradient of the contaminated soils. The low hydraulic conductivity of the underlying peat and silty clay, which acts as an aquitard, appears to have prevented contamination from migrating to deeper zones. The shallow aquitard, in combination with the slow movement of groundwater, have greatly limited the extent of groundwater contamination at the site. Groundwater flow is north northwest toward the Seneca River, therefore the only nearby drinking water well located on the property which forms the eastern boundary of the site, is not likely to be impacted by the contaminated groundwater on the site. Sediment and surface water samples collected from the Seneca River show that the river has not been impacted by contaminated groundwater. This is likely due to the slow movement of groundwater, the relatively low concentrations of contaminants in groundwater, and the high flow rate of the Seneca River.

### Surface Water

No volatile, semi-volatile, pesticide, or PCB compounds were detected in the water of the Seneca River. The only target compounds that were observed in detectable quantities in surface water were inorganics. Of the fourteen metals detected, only aluminum and sodium exceeded the NYSDEC (1993b) Ambient Water Quality Standards. These levels are believed to represent background concentrations.

## 3.2 Interim Remedial Measures:

Interim Remedial Measures (IRMs) are conducted at sites when a source of contamination or exposure pathway can be effectively addressed before completion of the RI/FS.

In response to concerns associated with the Seneca River's annual flooding, in April 1995 the NYSDEC requested that the United States Environmental Protection Agency (EPA) consider the site for a removal action to address drums of hazardous waste and any waste contained in the ASTs and piping at the site. As a result of the EPA's pursuit of PRPs, Mobil Oil Corporation removed and disposed of eighty-one drums of grease and 13 drums of waste petroleum, as well as approximately 5,000 gallons of fuel oils from piping and filters on the site, in the Fall of 1995. The remaining waste in the ASTs was removed by the EPA by the Spring of 1996.

In May 1996, the EPA opened and sampled the seven ASTs containing waste liquids to characterize them for disposal, confirming they contained waste water, oils, and solvents. By September 1996 the EPA had removed all liquids from the ASTs and pressure washed them to decontaminate them; ending their removal action. The site owner then removed the clean tanks, eliminating the physical hazard they presented, in January 1997.

### 3.3 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 exposure pathways can be found in Section 5.3 of the RI Report.

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

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

- There is a potential pathway for trespassers or future site users to be exposed to heavy metals in surface soils.

### 3.4 Summary of Environmental Exposure Pathways:

This section summarizes the types of environmental exposures which may be presented by the site. The Fish and Wildlife Impact Assessment included in the RI presents a more detailed discussion of the potential impacts of the site on fish and wildlife resources. The following pathways for environmental exposure have been identified:

- There is an apparent completed exposure pathway for wildlife to contaminants in shallow groundwater.

- There is a potential sediment exposure pathway for aquatic organisms such as fish and macroinvertebrates and aquatic plants through dermal contact and ingestion of sediments containing solvents or petroleum products.

- There is a soil exposure pathways for terrestrial plants and wildlife within the subject area to be exposed to solvents, petroleum products, or heavy metals.

## SECTION 4: ENFORCEMENT STATUS

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

The Potential Responsible Parties (PRP) for the site, documented to date, include: Charles Cole, Mobil Oil Corporation, Borg-Warner Automotive, Inc. on behalf of the Morse Chain Division of Borg-Warner Corporation and Xerox Corporation.

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

## SECTION 5: SUMMARY OF THE REMEDIATION GOALS

Goals for the remedial program have been established through the remedy selection process stated in 6 NYCRR Part 375-1.10. The overall remedial goals are to comply with all applicable standards, criteria, and guidance (SCGs) and be protective of human health and the environment.

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

The goals selected for this site are:

- Reduce, control, or eliminate to the extent practicable the contamination present within the soils/waste present at the site.

- Eliminate the threat to surface waters by eliminating any future contaminated surface run-off from the contaminated soils on site.

- Eliminate the potential for direct human or animal contact with the contaminated soils on site.

- Prevent migration of contaminants to off-site properties by wind, flooding, or surface water erosion.
- Provide for attainment of SCGs for groundwater quality to the extent practicable.

## SECTION 6: SUMMARY OF THE EVALUATION OF ALTERNATIVES

The selected remedy should be protective of human health and the environment, be cost effective, comply with other statutory laws and utilize permanent solutions, alternative technologies or resource recovery technologies to the maximum extent practicable. Potential remedial alternatives for the Cole-Zaiser site were identified, screened and evaluated in a Feasibility Study. This evaluation is presented in the report entitled, *Feasibility Study, July 1997.*

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

### 6.1: Description of Alternatives

The potential remedies are intended to address the contaminated surface and subsurface soils at the site.

#### Alternative 1, No Action

The no action alternative is evaluated as a procedural requirement and as a basis for comparison. It requires continued monitoring only, allowing the site to remain in an unremediated state. This alternative would leave the site in its present condition and would not provide any additional protection to human health or the environment.

#### Alternative 2 - Offsite Treatment/Disposal

| | |
|---|---|
| Present Worth: | $ 3,789,000 |
| Capital Cost: | $ 3,770,300 |
| Annual O&M: | $ 4,080 |
| Time to Implement | 1 month |

**Description**: The soil from areas of the site exhibiting contamination greater than the site remedial goals would be excavated and hauled offsite for treatment and/or disposal. An estimated 1880 cyds. of solvent/petroleum and 2800 cyds. of metals contaminated soils would be addressed by this alternative. Soil contaminated with VOCs would be excavated within the known limits of contamination. Confirmatory samples would be collected from the floor and walls of the excavation to determine whether further removal was necessary. Excavation would continue vertically and laterally until confirmatory samples demonstrate complete removal of contaminated soil above remedial goals. Depending on the elevation of the water table during remediation, it may be necessary to dewater during excavations. Water collected during excavation dewatering would be treated as necessary with an onsite water treatment system.

Contaminated soil that is disposed of off site must comply with Federal and State regulations. In particular, any hazardous waste (as defined in 6NYCRR Part 371) disposed of must meet the requirements of the Federal Land Disposal Restrictions (LDRs). The Remedial Investigation determined that soil on the Cole-Zaiser site contaminated with metals or only petroleum compounds do not qualify as listed or characteristic hazardous wastes. This would be verified by sampling required for disposal. Therefore, LDRs would not apply to their disposal, and they could be disposed of as non-hazardous solid waste in a solid waste landfill. Soil contaminated with chlorinated solvents, however, qualify as listed (F002) hazardous waste (ref. 6NYCRR Part 371). Therefore, this waste cannot be land disposed unless contaminant concentrations are below those required under the Federal LDRs. To meet those requirements, the waste would have to be incinerated prior to disposal in a hazardous waste landfill.

A trench would be excavated along the bank of the Seneca River to determine whether any additional outfall or other migration pathways exist from the site into the Seneca River. Any outfalls would be removed and any contamination would be incorporated into the remedy. The trench would be backfilled upon verification of no migration pathways, or completion of any remedial actions. All excavations would be backfilled with clean fill. Six inches of top soil would be spread over the excavated areas. The site would then be seeded to promote a vegetative cover to control erosion. This remedy could be completed in one month. The Remedial Investigation identified only limited, shallow groundwater contamination in the vicinity of subsurface soil contamination. It is expected that with the removal of the contaminant source, groundwater contamination would attenuate below groundwater standards. Therefore, shallow monitoring wells would be periodically sampled for volatile organic compounds and metals. The site would be periodically evaluated to determine whether a change in classification on the Registry of Inactive Hazardous Waste Disposal Sites was warranted.

**Alternative 3 - Offsite Disposal of Subsurface Soil and Soil Cover**

| | |
|---|---|
| Present Worth: | $ 3,209,600 |
| Capital Cost: | $ 3,190,900 |
| Annual O&M: | $ 4,080 |
| Time to Implement | 1 month |

**Description**: Soil would be excavated and disposed of as in Alternative 2 with the exception of metals contaminated soil, which would be stockpiled onsite. The metals contaminated soil stockpiled onsite would be placed in the deepest portions of the excavations. The remainder of the excavations would be backfilled with clean fill. Six inches of top soil would be spread over the excavated areas. The site would then be seeded to promote vegetative cover, reducing erosion. A trench would be excavated as described in Alternative 2. This remedy could be completed in one month. Shallow monitoring wells would be periodically sampled for volatile organic compounds and metals. The site would be periodically evaluated to determine whether a change in classification on the Registry of Inactive Hazardous Waste Disposal Sites was warranted.

**Alternative 4 - Exsitu Soil Washing**

| | |
|---|---|
| Present Worth: | $ 886,500 |
| Capital Cost: | $ 867,800 |
| Annual O&M: | $ 4,080 |
| Time to Implement | 3 months |

**Description**: Metals contaminated soil would be excavated and stockpiled on site as described in Alternative 3. Solvent and petroleum contaminated soil would be excavated as in Alternative 2 and stockpiled onsite. Once the excavation of solvent and petroleum contaminated soil was complete, metals contaminated soil would be backfilled in the deepest excavations.

Because the Seneca River floods seasonally, a three foot high staging pad would be constructed to protect the soil washing system in the event of a flood. Imported fill would be used in the construction of this earthen staging pad. The pad, which would be approximately 150'x150', would be properly compacted to insure stability. A geotextile, rip rap, or other stabilizing techniques would be used to protect the side slopes of the pad in the event of a flood.

VOC/petroleum contaminated soil would be treated in an onsite soil washing treatment unit. The soil washing process extracts contaminants from sludge or soils using different liquid washing solutions. This process would be used on excavated soil that is fed into the washing unit. The washing fluid could be composed of water, organic solvents, surfactants, acids, or bases. These rinsing agents all work to separate fine soil particles from course particles (fine particles tend to contain the largest amount of contaminants), strip contaminants from soil particles, and segregate contaminants away from soil particles so they can be physically separated. Contaminated soil typically enters the system through a feeder, where large, non-soil materials and debris that cannot be treated are removed with a course screen. The soil passes into a soil scrubber, where it is sprayed with washing fluid. Larger soil particles (greater than 2 mm), which tend not to absorb contaminants, are separated from fine particles and rinsed. They then leave the scrubber and are dewatered. The remaining fine soil particles enter a chemical extractor, where other washing fluids are used to remove absorbed contaminants. The fine particles are then dewatered. The remainder of the process removes contaminants from the washing fluid prior to its recycling.

A trench would be excavated as described in Alternative 2. The remainder of the excavations would be backfilled with treated soil. Soil used in the construction of the staging pad, which would be suitable for promoting vegetative growth, and seed would be placed in excavated areas as in Alternative 2. This remedy could be completed in three months. The site would be periodically evaluated to determine whether a change in classification on the Registry of Inactive Hazardous Waste Disposal Sites was warranted.

**<u>Alternative 5- Exsitu Soil Vapor Extraction</u>**

| | |
|---|---|
| Present Worth: | $ 396,400 |
| Capital Cost: | $ 377,700 |
| Annual O&M: | $ 4,080 |
| Time to Implement | 3 months |

Soil would be excavated as described in Alternative 2 and stockpiled onsite. A staging pad would be constructed onsite, as described in Alternative 4.

VOC/petroleum contaminated soil would be treated in an onsite, exsitu soil vapor extraction system. This process would be used to extract volatile organic compounds (VOCs) from soils. Soil would be excavated, stockpiled, and covered. Horizontal slotted piping would be placed within the waste mass, from which air could be drawn or injected. The slotted piping network would be connected to a blower, which would create a negative pressure gradient throughout the soil pile. Because of the pressure gradient, certain contaminants in the soil would volatilize and diffuse through air spaces between soil particles to the extraction pipes. The vacuum established would continuously draw VOC contaminated air from the soil pores and draw fresh air from the injection pipes. The removed volatiles would be processed through a liquid-vapor separator and then treated by an activated carbon bed, catalytic converter, or after burner, or could be discharged into the atmosphere; depending on the nature and concentrations of the vapor constituents. In addition, a gravel layer connected to a sump would be installed to collect any leachate generated initially by stockpiling saturated soil. Water collected from the pile would be stored and either treated on site, or sent off site for disposal/treatment.

Upon satisfactory removal of VOCs from the soil mass in the SVE unit, relatively non-volatile petroleum products could remain. Therefore, if analytical data showed that less volatile petroleum products were persisting in the soil pile, the soil would be further treated using exsitu bioremediation. As needed; fertilizer, lime, and/or water would be applied to the pile to optimize biodegradation. Since the majority of the volatile constituents would have been removed during the soil vapor extraction phase, no air collection or treatment would be expected to be necessary during this phase of remediation. The leachate collection system already in place would be used to collect and treat leachate generated by this process. Soil would be treated until confirmatory samples demonstrated attainment of remedial goals.

A trench would be excavated as described in Alternative 2. Backfilling operations and groundwater monitoring would occur as described in Alternative 4. This remedy would treat soil in approximately six to twelve months. The site would be periodically evaluated to determine whether a change in classification on the Registry of Inactive Hazardous Waste Disposal Sites was warranted.

<u>**Alternative 6 - Thermal Desorption**</u>

| | |
|---|---|
| Present Worth: | $ 942,100 |
| Capital Cost: | $ 923,400 |
| Annual O&M: | $ 4,080 |
| Time to Implement | 3 months |

Soil would be excavated as described in Alternative 2 and stockpiled onsite. A staging pad would be constructed onsite, as described in Alternative 4.

The stockpiled solvent and petroleum contaminated soil would be processed through a thermal desorption unit. Thermal desorption is an effective technology for the treatment of organic contaminated soils, sediments, and sludges which generates a lower volume of off-gas, has less environmental impact, and fewer permitting requirements than other on-site thermal treatment technologies. Thermal desorption technologies use heat to physically separate organic compounds from a media (such as soil) by heating to volatilize the contaminants. The heat is provided by hot oil, electric, or other source through a metal surface to the wastes. For heavy organic and chlorinated organic compounds, a medium temperature thermal desorption unit capable of heating the process materials up to 950°F may be required. The organic compounds that have been desorped are condensed and recovered from the off-gas. The recovered contaminants would then either be treated further on-site or sent off-site for treatment and disposal. Once soil has been treated, it would be analyzed to determine the effectiveness of treatment. Soil that does not meet remedial goals would be re-treated until goals where achieved.

A trench would be excavated as described in Alternative 2. Backfilling operations groundwater monitoring would occur as in Alternative 4. This remedy would treat soil in approximately three months. The site would be periodically evaluated to determine whether a change in classification on the Registry of Inactive Hazardous Waste Disposal Sites was warranted.

## 6.2 <u>Evaluation of Remedial Alternatives</u>

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

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

1. Compliance with New York State Standards, Criteria, and Guidance (SCGs). Compliance with SCGs addresses whether or not a remedy would meet applicable environmental laws, regulations, standards, and guidance. The most significant SCGs for the Cole-Zaiser site are NYSDEC TAGM 4046 and STARS Memo #1.

The No Action alternative would not meet SCGs since it would leave high levels of chlorinated solvents and petroleum compounds onsite, as well as a direct exposure pathway to elevated levels of heavy metals. The Offsite Treatment/Disposal alternative would meet all SCGs, since all contaminated soils would be disposed of offsite.

The Offsite Disposal of Subsurface Soil and Soil Cover, Exsitu Soil Washing, Exsitu Soil Vapor Extraction, and Onsite Thermal Desorption alternatives would all meet applicable SCGs for contaminated soil since the soil would either be treated to below remedial goals or covered with soil, eliminating likely exposure pathways.

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.

The No Action alternative would not be protective of human health and the environment since high concentrations of chlorinated solvents and petroleum compounds, and elevated levels of heavy metals would remain on site. The Offsite Treatment/Disposal alternative would be protective of human health and the environment since contaminated soil above action levels would be removed from the site. The Offsite Disposal of Subsurface Soil and Soil Cover, Exsitu Soil Washing, Exsitu Soil Vapor Extraction, and Onsite Thermal Desorption alternatives would be protective of human health and the environment since all exposure pathways would be eliminated. This would be achieved by the removal and treatment or off site disposal of chlorinated solvent and petroleum contaminated soil and the covering of heavy metal contaminated soil.

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

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

The No Action alternative would result in little or no increased short-term impacts since no intrusive work would take place. All the remaining alternatives would involve the excavation and handling of contaminated media. These actions could potentially impact worker health and safety, the environment, and the local community. Exsitu Soil Washing, Exsitu Soil Vapor Extraction, and Onsite Thermal Desorption would involve more extensive soil handling than Offsite Disposal of Subsurface Soil and Soil Cover, since material would be stockpiled and processed for treatment over a longer period of time. However, the use of engineering controls would minimize and/or eliminate any possible impact. These controls would include air monitoring, personal protective equipment, and dust suppression measures.

The Offsite Treatment/Disposal and Offsite Disposal of Subsurface Soil and Soil Cover alternatives would involve hauling contaminated materials offsite. This would involve a short-term risk due to possible spilling of contaminated media offsite. This would be mitigated by properly covering contaminated media and by establishing proper emergency spill response measures.

The Thermal Desorption alternative utilizes a technology that would create air emissions that must be treated. This poses a short-term risk should the air emissions control device be breached. This risk would be reduced through the use of air treatment devices, and the establishment of emergency procedures to be utilized in the event of a release of air emissions.

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

The No Action would not be effective in the long-term since high levels of chlorinated solvent and petroleum compounds, as well as elevated levels of heavy metals, would remain onsite.

The Offsite Treatment/Disposal, Offsite Disposal of Subsurface Soil and Soil Cover, Exsitu Soil Washing, Exsitu Soil Vapor Extraction, and Onsite Thermal Desorption alternatives would be effective in the long-term since all likely exposure pathways would be eliminated. This would be achieved by removing or treating all chlorinated solvent and petroleum contaminated soil, and by covering soil containing elevated levels of heavy metals.

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

The No Action alternative would not reduce toxicity, mobility, or volume. The Offsite Treatment/Disposal, Offsite Disposal of Subsurface Soil and Soil Cover, Exsitu Soil Washing, Exsitu Soil Vapor Extraction, and Thermal Desorption alternatives would reduce the toxicity, mobility, and volume of material contaminated with chlorinated solvents and petroleum compounds by destroying those compound off site or on site. None of the alternatives would reduce the volume or toxicity of heavy metals contaminated soil since soil would remain covered on site, or sent to a land fill off site. The mobility of heavy metals in soils would, however, be reduced in all alternatives other than the No Action alternative.

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

The No Action alternative would be the easiest to implement since no construction would be necessary. The Offsite Treatment/Disposal and Offsite Disposal of Subsurface Soil would also be easily implemented since they only involve excavation, hauling, and backfilling of material. Thermal desorption, although more involved, could be easily engineered, materials and vendors are readily available, and there would be no significant regulatory requirements. The soil washing and soil vapor extraction would require more engineering and a greater amount of quality control, but materials are readily available and there would be no significant permit requirements to be met for their implementation.

7. Cost. Capital and operation and maintenance costs are estimated for each alternative and compared on a present worth basis. Although cost is the last balancing criterion evaluated, where two or more alternatives have met the requirements of the remaining criteria, cost effectiveness can be used as the basis for the final decision. The costs for each alternative are presented in Table 2.

| Table 2<br>Summary of Remedial Costs | | | |
|---|---|---|---|
| **Alternative** | **Capital Cost** | **Annual O&M** | **Present Worth Cost** |
| **1. No Action** | **$ 0** | **$ 0** | **$ 0** |
| **2. Offsite Treatment/Disposal** | **$ 3,770,319** | **$ 4,080** | **$ 3,789,018** |
| **3. Offsite Treatment/Disposal of VOC/Petroleum Contaminated Soil, Soil Cover** | **$ 3,190,944** | **$ 4,080** | **$ 3,209,643** |
| **4. Ex-situ Soil Washing** | **$ 867,824** | **$ 4,080** | **$ 886,524** |
| **5. Ex-situ Soil Vapor Extraction** | **$ 377,737** | **$ 4,080** | **$396,437** |
| **6. Onsite Thermal Desorption** | **$ 923,446** | **$ 4,080** | **$ 942,146** |

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

8. Community Acceptance - Concerns of the community regarding the RI/FS reports and the Proposed Remedial Action Plan have been evaluated. The "Responsiveness Summary" included as Appendix A presents the public comments received and the Department's response to the concerns raised. The public comments received were supportive of the selected remedy, primarily seeking greater detail on the actual implementation of the remedy. In particular, the public had questions regarding the effectiveness of a soil cover to address metals contaminated soil. The justification for use of a soil cover was discussed during the public meeting and in the Responsiveness Summary.

## SECTION 7: SUMMARY OF THE SELECTED REMEDY

Based upon the results of the RI/FS, and the evaluation presented in Section 6, the NYSDEC is selecting Alternative 5, Exsitu Soil Vapor Extraction as the remedy for this site.

There are two different types of contaminated soils at the Cole-Zaiser site. Site surface soils are generally only contaminated with elevated levels of heavy metals and subsurface soils are generally only contaminated with chlorinated solvents and petroleum compounds. There were two remedial alternatives considered in the final screening for metals contaminated soils; offsite disposal and utilizing a soil cover. The metals contamination is not at extremely high levels and the metals will not easily mobilize in the environment. Even though the groundwater table routinely rises into the zone of heavy metal contamination, groundwater has remained uncontaminated by these metals;

suggesting that the metals do not leach in the presence of water. Therefore, the main mechanism for the migration of these contaminants will be erosion, whereby soil contaminated with heavy metals is transported by wind, water, or mechanical means. Placing a soil cover over metals contaminated soil will prevent their migration in the environment by erosion and eliminate likely exposure pathways to these contaminants (ie: dermal contact). Based on this analysis, it was determined that a soil cover will be as protective of human health and the environment as offsite disposal. Because of the equivalent protection provided by these alternatives, only one alternative was developed which incorporated offsite disposal of metals contaminated soil. This alternative was rejected based on the large difference in cost compared to an insignificant increase in the protection of human health and the environment.

Subsurface soils at the Cole-Zaiser site are contaminated with high concentrations of mobile contaminants (chlorinated solvents and petroleum compounds). Although the shallow aquitard and low hydraulic gradient have greatly limited the extent of contaminant migration in groundwater, the presence of these contaminants will serve as a continuing source of localized groundwater and Seneca River sediment contamination. Therefore, the alternatives considered for dealing with subsurface soils all removed and/or treated soils contaminated above remedial goals. These alternatives (Offsite Disposal, Soil Washing, Soil Vapor Extraction, and Thermal Desorption) are all equally protective of human health and the environment since contaminated soils will be removed and treated to below remedial goals. Furthermore, all four alternatives utilize proven technologies. The only major difference between alternatives will be cost. Since Soil Vapor Extraction met all criteria, and will be the most cost effective, it was chosen as the recommended remedial alternative.

The estimated present worth cost to implement the remedy will be $396,400. The cost to construct the remedy has been estimated to be $377,700 and the estimated average annual operation and maintenance cost for 5 years will be $1,680.

The elements of the selected remedy are as follows:

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

2. To insure that there are not any other outfalls or other pathways for contaminant migration to the river, a trench will be dug along the site boundary, in the vicinity of the former above ground storage tanks, adjacent to the Seneca River. Any outfalls or migration pathways discovered will be removed and any contaminated soil will be incorporated into the remediation of the site.

3. Heavy metals contaminated surface soil will be excavated and stockpiled on site. The volume of material to be excavated is approximately 2,800 cyds, based upon a one foot

excavation depth, additional sampling to better define the extent of the metals contamination may be undertaken during design to reduce the depth of the excavation.

4. An approximately three foot high 150'x150' staging pad will be constructed for the SVE system. The actual dimensions of the pad will be determined during design, based on the SVE system requirements and historical data on Seneca River elevations. A leachate collection system for initially dewatering soil, and later for collecting leachate during treatment activities, will be constructed on the staging pad.

5. The chlorinated solvent and petroleum contaminated soil will be excavated and incorporated into a soil treatment pile on the staging pad. The volume of the material to be treated is estimated to be 1,880 cyds., an is present in the areas shown on Figure 2. Included in the volume of soil to be addressed by the remedy is a small area of contamination located on the private property which is adjacent to the eastern site boundary. Since the Remedial Investigation data indicates that the metals contaminated surface soil is not characteristic hazardous waste, it will be used to backfill the on-site excavations once removal of the material to be treated is complete.

6. An exsitu SVE system comprised of the soil pile, lateral pipes for air extraction, a blower, and a cover will be constructed on the staging pad.

7. To complete the remediation of the soil pile once the SVE system has addressed the VOCs, it may be necessary to continue treatment utilizing exsitu bioremediation to address some of the petroleum compounds. Additives, such as a bioculture, water, pH adjusters, and nutrients will be added to the soil as necessary, to sustain the microorganisms responsible for the breakdown of the petroleum hydrocarbons.

8. Soil will be treated until remedial goals are achieved. Since the remedial goals for hazardous waste at the site are based on TAGM 4046 screening levels, and are below those required under *40 CFR, Part 268, Land Disposal Restrictions Phase II - Universal Treatment Standards,* soil will no longer have to be handled as hazardous waste and would be backfilled on site.

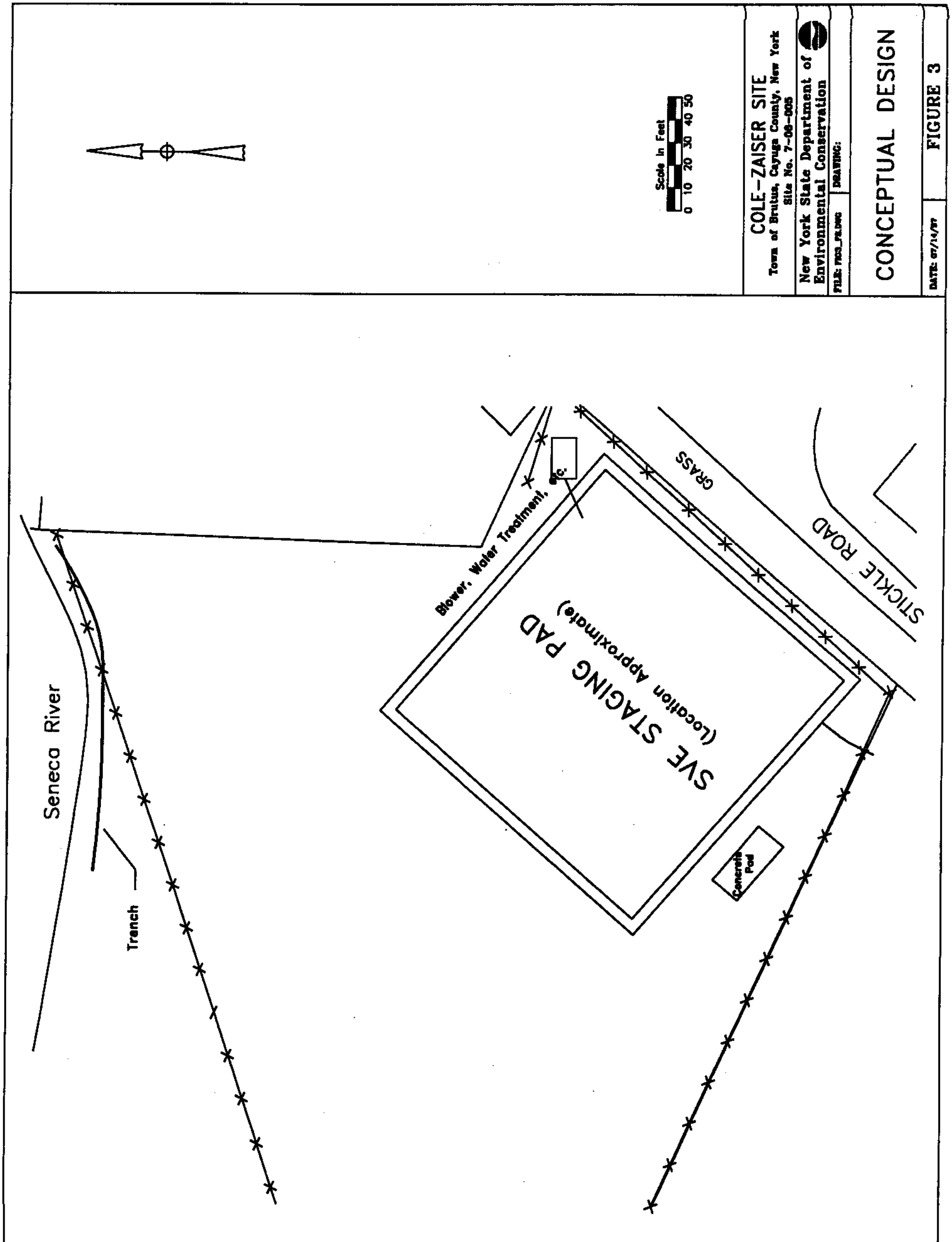
9. Upon completion of soil treatment the treated soil will be backfilled on the site. The metals contaminated soil, which was backfilled prior to treatment, will be covered by the treated soil. This will provide a soil cover, eliminating the dermal contact exposure pathway to metals contaminated soil. The earthen staging pad will be dismantled and used as final cover for the entire site. The entire area will be seeded to promote vegetative cover; thereby reducing erosion. In addition, stabilization measures will be provided in the areas excavated along the Seneca River Bank, to prevent erosion of the backfilled metals contaminated soils.

10. Periodic groundwater samples will be collected and analyzed from shallow groundwater wells until contaminants are below groundwater standards. The site will be periodically evaluated to determine whether a change in classification on the Registry of Inactive Hazardous Waste Disposal Sites was warranted.

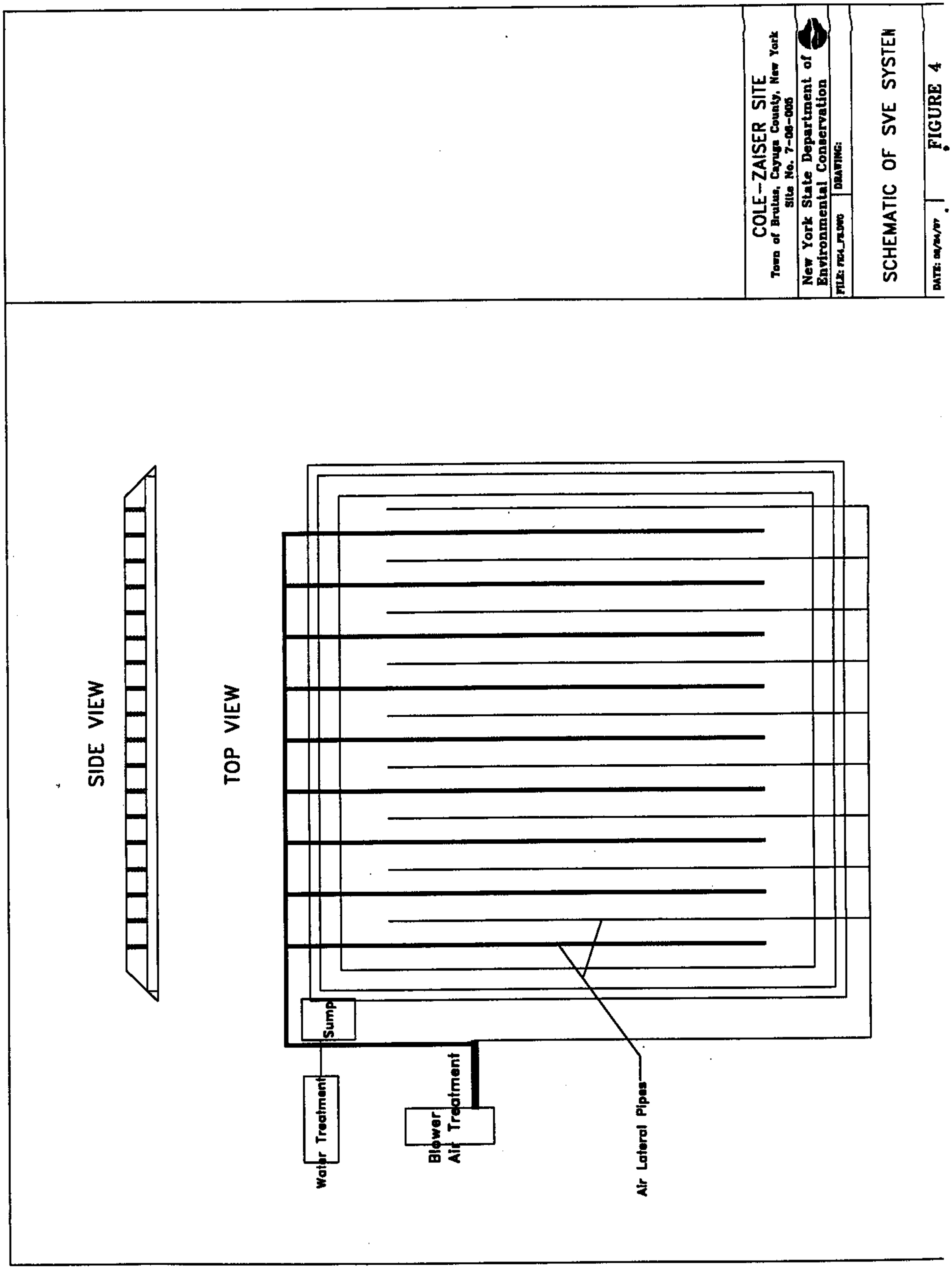
## SECTION 8: HIGHLIGHTS OF COMMUNITY PARTICIPATION

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

- A repository for documents pertaining to the site was established.
- A site mailing list was established which included nearby property owners, local political officials local media and other interested parties.
- A Citizen Participation Plan was developed and implemented.
- A Fact Sheet announcing the completion of the RI was sent to the public in June, 1997
- A Fact Sheet announcing the release of the FS and PRAP was sent to the public in July 1997. This fact sheet also announced the time and place for a public meeting, which was held on August 5, 1997.
- A public meeting was held on August 5, 1997 to discuss the RI/FS and the PRAP. Public comments were solicited during this meeting.
- In September, 1997 a Responsiveness Summary was prepared and made available to the public, to address the comments received during the public comment period for the PRAP.



COLE-ZAISER SITE
Town of Brutus, Cayuga County, New York
Site No. 7-06-005
New York State Department of Environmental Conservation
DRAWING:
CONCEPTUAL DESIGN
DATE: 07/14/97
FIGURE 3
Scale In Feet
0 10 20 30 40 50
Seneca River
Trench
SVE STAGING PAD
(Location Approximate)
Blower, Water Treatment, etc.
GRASS
STICKLE ROAD
Concrete Pad


COLE—ZAISER SITE
Town of Brutus, Cayuga County, New York
Site No. 7-06-005
New York State Department of Environmental Conservation
DRAWING:
SCHEMATIC OF SVE SYSTEN
FIGURE 4
SIDE VIEW
TOP VIEW
Sump
Water Treatment
Blower
Air Treatment
Air Lateral Pipes

# Appendix A

# RESPONSIVENESS SUMMARY

**Cole-Zaiser Site**
**Proposed Remedial Action Plan**
**Brutus (T), Cayuga County**
**Site No.7-06-005**

The Proposed Remedial Action Plan (PRAP) for the Cole-Zaiser Site was prepared by the New York State Department of Environmental Conservation (NYSDEC) and issued to the local document repository on July 22, 1997. This Plan outlined the preferred remedial measure proposed for the remediation of the contaminated soil and sediment at the Cole-Zaiser site. The preferred remedy calls for the use of an ex-situ soil vapor extraction system to address volatile organic and petroleum contamination present in site soils, followed by bioremediation as necessary to complete the treatment of the petroleum hydrocarbons. Soil contaminated with heavy metals will be placed in the excavations and capped with the treated soil.

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

A public meeting was held on August 5, 1997 which included a presentation of the Remedial Investigation (RI) and the Feasibility Study (FS) as well as a discussion of the proposed remedy. The meeting provided an opportunity for citizens to discuss their concerns, ask questions and comment on the proposed remedy. Written comments were also received from the Cayuga County Health Department, Borg-Warner Automotive, Inc. and the Cayuga County Environmental Management Council. These comments have become part of the Administrative Record for this site.

The public comment period for the PRAP was to have ended on August 22, 1997, however a request for additional time to review the documents was received at the public meeting, and the comment period was extended until September 12, 1997. The comment period officially closed on September 12, 1997.

This Responsiveness Summary responds to all questions and comments raised at the August 5, 1997 public meeting and to the written comments received.

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

<u>COMMENT 1</u>: Where did you take background samples?

RESPONSE 1: Background samples were collected from surface soils, river sediments, surface water and groundwater and analyzed during the RI. The purpose of a background sample is to determine at what level compounds are found in the area as a result of non-site related activities or as naturally occurring elements, in the case of the heavy metals. For example, river sediments commonly contain petroleum related compounds as a result of boat traffic and runoff from nearby roads. The following background samples were collected for analysis at the Cole-Zaiser site:

- Two surface soil samples were collected during the RI. Their locations were in the grass median between Stickle Road and Route 34 (CZ-38), and in the woods southeast of Stickle Road (CZ-39). These samples were used to determine screening levels for metals in soils. If concentrations in site soil samples exceeded screening levels, a more detailed look at those samples was appropriate.

- Four sediment samples were collected from the Seneca River (CZ-10, CZ-12, CZ-14, and CZ-37). Samples showed background levels of pesticides, metals, and petroleum related compounds. These are likely related to local agriculture, boat traffic, and road run-off. Elevated levels of metals may also be naturally occurring.

- One background surface water sample was collected from the Seneca River (CZ-36). The sample showed elevated levels of sodium and aluminum, which are likely naturally occurring.

- One background groundwater monitoring well was installed and sampled (MW-1). This well showed elevated levels of iron and magnesium, which are likely to be naturally occurring.

COMMENT 2: Are you proposing to dig a hole and put the metals contaminated soil in it?

RESPONSE 2: The selected remedy calls for the scraping up and stockpiling of surface soil contaminated with metals. Soil contaminated with petroleum and solvents will then be excavated and placed in the treatment cell. The stockpiled metals contaminated soil will then be placed in the excavations resulting from the removal of the petroleum and solvent contamination and later covered with the treated soil.

The metals contaminated soil is not by definition a hazardous waste. Although concentrations of metals in site surface soils are above background soil levels, they are not considered to be very high. Placing the metals contaminated soil underneath the treated soil is a very conservative measure that will eliminate any exposure pathways to humans or fish and wildlife.

COMMENT 3: How deep do you have to excavate in the proposed remedy?

RESPONSE 3: Excavation will continue until soil above cleanup levels is removed. It is anticipated that this will involve all the fill material within the areas identified on Figure 2 of the Record of Decision (ROD). Based on test pits dug during the RI, this will involve excavation of material to a depth of up to ten feet below the ground surface in some areas.

COMMENT 4: Your excavation will fill up with water as soon as you dig. I have tried to dig in the past and can't get below three feet before my hole fills with water.

RESPONSE 4: The NYSDEC is aware of the shallow groundwater table at the site. During the RI, groundwater was encountered at a depth of about three feet during test pit excavations. During the spring and fall, flood waters often cover the entire site. The time of year for excavation will be critical in implementing this project and the contractor will be encouraged to make sure that excavation occurs during the dry season. In addition, the remedial design will include provisions for dewatering activities and excavation stabilization measures.

COMMENT 5: You are proposing to bury the metals contaminated soil in the deepest excavations. This is near the river. Aren't you concerned that the metals will migrate into the river?

RESPONSE 5: At the present time groundwater is frequently present in the zone of metals contaminated soil, however, metals contamination has not been identified in groundwater. In addition, the Toxicity Characteristic Leaching Procedure (TCLP), which is used to determine whether a chemical will leach from soil, was conducted on soil samples. This test showed that metals are not likely to leach into the groundwater. Metal concentrations in soil are not very high, so even if metals did leach, it is unlikely that drinking water standards would be exceeded. For these reasons, the NYSDEC does not believe that groundwater or the Seneca River will be impacted by burying the metals contaminated soil. Groundwater will be sampled and analyzed for metals for a period of time and if groundwater standards are exceeded due to the metals contaminated soil, the need for further remedial measures would be evaluated.

COMMENT 6: Why aren't you placing a liner around the metals contaminated soil to help prevent migration?

RESPONSE 6: No containment alternatives, such as a containment cell, were considered during the Feasibility Study (FS) because the site lies within the flood plain of the Seneca

River. Liners would not be effective if constructed below the groundwater table and would be very difficult, if not impossible to reliably construct. In addition, as little if any migration to groundwater is anticipated, placing a liner around the metals contaminated soil would offer very little additional protection against migration of metals to the groundwater.

As stated in the response to Comment 5, metal concentrations are not very high, and are not likely to leach in groundwater. Groundwater will be monitored and additional remedial measures would be considered if groundwater standards were exceeded.

COMMENT 7: The soil washing alternative cost much more than the soil vapor extraction alternative. Does soil washing treat soil better? Will it treat the metals contaminated soil?

RESPONSE 7: The soil washing process is capable of treating metals contaminated soil. However, two separate soil washing units would be required (one for metals, one for petroleum and chlorinated solvents). Because bringing two units on site would make costs for this alternative prohibitive, soil washing was not considered for metals contaminated soil. Both soil washing, as presented and estimated in the PRAP, and soil vapor extraction are capable of attaining cleanup goals for petroleum and chlorinated solvents.

More expensive does not mean more effective. Soil washing may be more cost effective for treating larger volumes of soil. However, because of the low volume of soil to be treated, soil washing is not as economical as soil vapor extraction for the Cole-Zaiser site.

COMMENT 8: How long would the proposed remedy take for treatment to be complete.

RESPONSE 8: Once construction has begun, the treatment should take approximately one year. The length of treatment could vary depending on soil properties and the time of the year the treatment unit begins operating.

COMMENT 9: How long do you propose to monitor?

RESPONSE 9: Although no set monitoring period has been established, we anticipate a monitoring period of less than five years based on concentrations currently found in the groundwater. Groundwater would be monitored for chlorinated solvents and petroleum products until concentrations were below standards. Metals would also be monitored to ensure that groundwater and the river were not being impacted by the metals contaminated soil present under the soil cap.

COMMENT 10: Are you familiar with the GE Powerex Site in Auburn, NY? They have been treating for a very long time. Contaminants are leaving the site in a plume. Is this likely to happen at the Cole-Zaiser site?

RESPONSE 10: The Powerex site has very different geology from that present at the Cole-Zaiser site. The Powerex site is expected to involve a much more complicated remediation that will have to address contamination of the bedrock. Groundwater contamination at the Cole-Zaiser site is present only in the relatively shallow aquifer and is directly attributable to the contaminated soils present in the vicinity, which are to be removed by the remedy. A plume is not present at the site and nor is there evidence of off site migration.

COMMENT 11: How deep did you core in the river? I am concerned that you sampled silt that has been recently deposited, and that there is greater contamination in deeper sediment.

RESPONSE 11: Two rounds of sediment sampling were conducted in the Seneca River. Sediment samples were collected along the bank of the river, at a depth of 0-12" and samples were also collected from the middle of the river using a boat and sediment sampler. Samples were collected from the top of the river sediment, below the highly organic material. These samples were collected to determine whether a shallow groundwater discharge or the erosion of contaminated surface soil was impacting the river. The only sample where contaminants were identified, they were found at relatively shallow depth, for this reason, coring to greater depths was not considered to be appropriate.

Monitoring wells 4S, 4D, 5S, and 5D were also installed between the site and the river, and were used to determine contaminant pathways at greater depths. Monitoring wells 4S, 4D, and 5D did not show any contamination. Monitoring well 5S showed minimal contamination, which indicates that the discharge of contaminants present in the groundwater would not be high enough to impact the Seneca River water or sediments. For these reasons, the NYSDEC does not believe that there is contamination at greater depths in the river sediment.

COMMENT 12: I own property adjacent to the site. I can show you places where contaminants are leaching out of the river bank now (area pointed out on map during public meeting). The bank is orange stained and you can watch the oil slick go right down the river.

RESPONSE 12: Prior to the collection of sediment samples, the NYSDEC (including a wildlife biologist) visually inspected the bank of the Seneca River and in one area orange staining and sheens, similar to those noted in the comment, were observed by the NYSDEC. The staining and sheens observed by the NYSDEC, however, were determined to be the result of naturally occurring iron bacteria and organic decay. This is a common natural occurrence and is not attributable to contamination. Most likely, this is what was observed by the commentor.

During the RI, sediment samples were collected from locations near the riverbank, upstream, adjacent to, and downstream of the site. These samples only identified contamination in the immediate vicinity of a known outfall from the site. Four monitoring wells were also installed between the site and the Seneca River (see Response No. 11).

While the NYSDEC does not believe there are other migration pathways to the Seneca River, we do recognize that we could have missed another outfall. For this reason, the selected remedy includes the provision for the excavation of a trench along the property boundary bordering the Seneca River. This trench will be excavated until the native material is reached, at a depth of approximately ten feet.

COMMENT 13: Are there any site diagrams that show where the piping from the old barge dock to the above ground storage tanks were located?

RESPONSE 13: The NYSDEC requested historic site drawings from Mobil as part of the investigation, however they stated that they no longer have copies of site drawings, since they sold the property over 20 years ago. Visual inspections and test pit excavations did not identify any pipes running to the river, other than the small outfall previously discussed. It is assumed that the piping used to pump petroleum products from barges to on site tanks was removed some time after the underground pipeline came into use. Based upon the other piping present at the site it is also likely that this was above ground piping, since with only a few exceptions all piping serving the facility was above ground. While it is also possible that the pipe from the barges to the tanks was underground and was not found during the RI, the trench to be excavated between the site and the Seneca River during construction contamination should find any previously unidentified piping.

COMMENT 14: Why don't you just transport all the contaminated material off site?

RESPONSE 14: Off-site disposal of the contaminated soils was evaluated in the Feasibility Study (FS) and the Proposed Remedial Action Plan (PRAP). Because of the hazardous nature of the solvent contamination, off site disposal would require incineration. As noted in the evaluation of alternatives in the above documents, incineration does not provide any additional protection over on site treatment and it is substantially more expensive. For these reasons, on site soil vapor extraction was selected as the remedy for the site.

COMMENT 15: I live along the river, and have lost 11 feet of my bank. Do you plan to do anything to prevent the bank from eroding, which could carry metals contaminated soil into the river?

RESPONSE 15: The use of measures to stabilize the river bank during and after construction of the remedy was not specifically discussed in the PRAP. However, the Record of Decision (ROD) acknowledges that appropriate stabilization measures will be incorporated in the remedial design, which could include the placement of rip-rap, sheet piling, or other stabilization techniques.

COMMENT 16: If you put all the metals contaminated soil in one area, won't you be concentrating them, making the problem worse?

RESPONSE 16: During the course of excavating and stockpiling the metals contaminated soil, it is anticipated the material, to a degree, will be homogenized. This will result in fewer concentrated hot spots of metals, and a lower concentration of metals in any one spot. In other words, the entire mass of soil will have the average concentration of metals in the soil. This average concentration is expected to be lower than the hot spots that now exist at the site.

COMMENT 17: How will you leave the site? Will it be able to be used for future development?

RESPONSE 17: It is possible that one or both of the buildings remaining at the site will be demolished as part of the remedy to provide sufficient area to construct the staging pad. Upon completion of the soil treatment, the staging pad and treated soil will be used to backfill the excavations, covering the metals contaminated soil and eliminating the potential exposure to this material. The site will be graded to the original elevations and seeded to promote vegetation, thereby controlling erosion from the site. Measures will also be included in the to insure the stability of the bank of the Seneca River (see response #15). Monitoring of groundwater will continue until is shown that groundwater is no longer impacted by the site.

After remediation of site soils is complete, the site will be evaluated for a change of status on the NYS Registry of Inactive Hazardous Waste Disposal Sites (Registry). Eventually, after completion of the groundwater monitoring program, the site should be able to be delisted from the Registry. The future use of the property should not be affected by the former presence of hazardous waste at the site. Future use would, however, likely be limited by the fact that the site lies within the floodplain of the Seneca River. Any future use of the property would have to conform to the regulations, governing development within floodplains.

COMMENT 18: Does the underground pipe that brought petroleum products to the site go underneath Route 34?

RESPONSE 18: The underground pipe used by Mobil Oil to bring petroleum products to the site does run underneath Route 34. The NYSDEC contacted Mobil Oil and was told that the pipe has been cleaned, filled with an inert gas, and capped. This occurred when the property was sold to Cole-Zaiser, Inc. in 1973.

COMMENT 19: There are 55 gallon drums on the site. Will these be removed before the remediation occurs?

RESPONSE 19: At the time of the public meeting there were a number of 55-gallon drums stored at the site. These drums contain adsorbent materials from the Emergency Spill response in 1993 as well as used personal protective equipment (PPE), soil from monitoring well installation and water produced during well development during the recently completed Remedial Investigation. The drums from the spill response and those containing the PPE and development water were removed from the site for proper disposal by a NYSDEC contractor on August 19 and 21 1997. Those with soil drums which contained the soil from the well installation have been secured in one of the remaining buildings at the site, where they will stay until the soil can be incorporated into the remedy for the rest of the site. Flooding of the site should not affect these drums because they are too heavy to float.

COMMENT 20: The site accepted oils, including crankcase oil and oil contaminated by trichlor. The combination of heated waste petroleum and chlorine has the potential for the production of dioxins and furans. This was demonstrated during the Times Beach incident where waste oil was used to keep dust down on roads. Did you test for these compounds?

RESPONSE 20: The chlorinated dibenzo-p-dioxins are a class of compounds that are loosely referred to as dioxins. There are 75 possible dioxin isomers. Dibenzofurans, which are physically, chemically, and biologically very similar to dioxins, have 135 possible isomers. Of particular concern is the 2,3,7,8-TCDD isomer of dioxin, which is the most toxic isomer.

It is true that dioxins can be formed when chlorinated solvents are in an extremely heated environment. In general, dioxins can be formed whenever chlorine and any organic compound are together in an extremely heated environment. Dioxins can be formed during the incineration of municipal and certain industrial wastes. Wood, which can contain salts (which contain chlorine), can form dioxins when burned.

While there are many processes that have the potential for the production of dioxins, there are only certain processes that can form appreciable amounts of dioxins. This is because there is a great amount of energy required to form and join the benzene rings that make up dioxin. Chemicals that already contain substituted benzene rings have a much greater potential to form appreciable amounts of dioxin than chemicals that do not contain these rings. PCB's and the pesticide 2,4,5-T both contain the ring structure that make the formation of dioxins possible. The chlorinated solvents found at the Cole-Zaiser site do not contain the necessary ring structure to form appreciable amounts of dioxins or furans.

The source of the chlorinated solvents at the Cole-Zaiser site does not indicate the possible generation of even small amounts of dioxins or furans. Trichlor was used as an industrial degreasing agent and was not mixed with heated oils. When these materials were combined later, the oil was no longer hot. It is also questionable whether the heat generated in a crankcase would provide the necessary energy to form dioxins or furans.

For these reasons, there was little potential for dioxin to be a problem at the Cole-Zaiser site, therefore, the NYSDEC did not sample for them.

COMMENT 21: Did you test for PCBs?

RESPONSE 21: Yes, the soil, sediment and groundwater samples collected at the site were all analyzed for PCBs. No PCBs were detected in these samples.

COMMENT 22: Do you think the TCLP is an appropriate test to determine leachability?

RESPONSE 22: Yes. The United States Environmental Protection Agency (EPA) and the NYSDEC use two procedures to define hazardous wastes. A substance is a hazardous waste if it is specifically listed as such in regulations, or if it exhibits hazardous characteristics. To determine whether a substance exhibits hazardous characteristics, a sample of the substance is tested for ignitability, corrosivity, reactivity, and the toxicity characteristic. The Toxicity Characteristic Leaching Procedure (TCLP) is used to determine the toxicity characteristic. The TCLP test is intended to measure the tendency of the substance in question to leach from the sample media into the environment. If a substance leaches at a concentration greater than a published standard, the substance is considered a hazardous waste. The rationale behind this test is that a substance that cannot be mobilized in groundwater or surface water cannot pose as much of a threat to human health or the environment as a substance that is readily mobilized.

Since the TCLP is specifically designed to determine the potential for a substance to leach in the environment, it is very appropriate for determining whether the metals in contaminated soil would leach into the groundwater if buried under a soil cap.

COMMENT 23: With the legal delay that will result from the need to pursue potentially responsible parties (PRPs) for the cost of remediation, what do you think is the best case scenario for how long it will take to begin construction?

RESPONSE 23: The best case scenario for this site would be to begin construction in the Spring of 1998. Unfortunately, this could only occur if we began the design immediately. Because of the mandate to first attempt to negotiate with PRPs for the implementation of the remedial design and construction at the site, the earliest the NYSDEC anticipates a construction start would be the Spring or Summer of 1999.

The following comments were received in a letter dated August 25, 1997 from Eileen S. O'Connor of the Cayuga County Department of Health (CCDOH):

COMMENT 24: What contaminants will the groundwater be monitored for, how frequently will the monitoring occur, what levels will trigger additional action and what will this action be? The CCDOH requests that groundwater be sampled for metals as well as the volatiles and non-volatile petroleum products.

RESPONSE 24: The groundwater will be monitored for volatiles, petroleum constituents and metals on a yearly basis, as stated in Section 6.2 of the Feasibility Study (FS). With regard to the need for additional action based on this monitoring, it would likely be triggered only by a sustained and significant increase in the concentrations of any of the contaminants, using the preremedial levels as a baseline. Initially, the additional action would be to increase the frequency of sampling and could be followed by a reevaluation of the need for groundwater treatment or other actions, dependent upon the compounds of concern and their source.

COMMENT 25: Flooding events have occurred at the Cole-Zaiser site in the past at many times of the year including the months of June and September. The CCDOH would like to recommend that plans be included as part of the remediation project to allow the project to be closed and down and protected from flood waters within 24-48 hours in the event the river should rise quickly.

RESPONSE 25: The remedial design will include the need to develop contingency plans to address the possibility of the flooding of the site during the remediation.

The following comments were received in a letter dated September 10, 1997 from Jane E. Montgomery of Schiff, Hardin &Waite on behalf of Borg-Warner Automotive:

COMMENT 26: Borg-Warner requests that care be used in the making references to Borg-Warner in this document. The company that generated oils which were treated in Amboy by Cole-Zaiser and which leased above-ground storage tanks in Brutus was Morse Chain, a division of Borg-Warner Corporation, the predecessor of the Borg-Warner. In Section 5, the second paragraph should identify that the PRPs may include Borg-Warner Automotive, Inc., on behalf of the Morse Chain Division of Borg-Warner Corporation.

RESPONSE 26: The ROD has been revised to conform the identification of Borg Warner as a PRP with that presented in the comment.

COMMENT 27: The historical statement for the time period 1973 to 1982 appears to be in error, or at least not in accordance with facts relayed to Borg-Warner's counsel by Mr. Charles Cole, owner and operator of the site. First, Cole indicated that he did not use the Brutus County site for storage of untreated oils. Instead, he indicated that he rented above-ground storage tanks to various companies for various time frames.

Invoices from Cole-Zaiser and statements by Mr. Cole indicate that Morse Chain rented two tanks to store fuel oil during the energy crisis in and about 1973. The fuel oil contained at the site guarded against any potential shut-down at the Ithaca facility if fuel oil were not available.

Mr. Cole also informed counsel for Borg-Warner that he stored alcohol and ammonia for one customer and may have stored other products for other parties. According to Cole, the Brutus Site was not used for the storage of used oils prior to its being processed at the Amboy site. According to Mr. Cole, the cost of storing and transporting the materials outweighed the amount to be received for the reclaimed fuel.

It is also our understanding that Cole-Zaiser ceased to do business in early 1977 and that the company essentially abandoned the site at that time. This date should be reflected in the site history.

Borg-Warner requests that the DEC make corrections to these factual statements, or, at the very least, contact Mr. Cole for a sworn statement as to the use of the Brutus facility.

RESPONSE 27: The facts presented in the PRAP represent the NYSDEC's understanding of the history and operation of the site at the present time, based upon both NYSDEC and USEPA reviews of information provided by parties associated with the site. If Borg-Warner can provide sworn statements which support the version they have set forth above, the NYSDEC will consider this evidence in any future negotiations. At this time, the sections of the PRAP in question will remain unchanged in the ROD.

COMMENT 28: In Section 4.1.1, Nature of Contamination, the summary refers to heavy metals, chlorinated solvents, and petroleum products. In spite of the fact that the site was used for over 50 years as a petroleum product storage facility, the report does not make any statements about the petroleum products and the likelihood that certain of the solvents could have been generated by the petroleum products.

RESPONSE 28: A review by NYSDEC staff of current literature on petroleum sites was conducted as part of the Remedial Investigation. While it did result in the identification of a number of heavy metals, many of which were identified at the site, which are known to be present in crude and refined petroleum products, other than the BTEX compounds, no data was found which could account for the levels of solvents present at the site being attributable to petroleum products.

COMMENT 29: Table 1, Nature and Extent of Contamination at the Cole-Zaiser Site, includes no reference to 'Total Petroleum Hydrocarbons' or 'TPH.' Was there an analysis for TPH? If not, how was the extent of petroleum contamination determined?

RESPONSE 29: No, the total petroleum hydrocarbon analysis was not included in the analytical protocols for this site. Areas of petroleum contamination were delineated by visual observations of petroleum product present in the subsurface soils during the extensive test pit investigation carried out at the site. The presence of these compounds was confirmed and quantified to a degree by the results of the semivolatile analysis, particularly the reported "tentatively identified compounds."

COMMENT 30: In Section 4.4, Summary of Environmental Exposure Pathways the qualifier 'apparent' should be deleted from the first bullet item.

RESPONSE 30: The qualifier "apparent" is appropriate and will be maintained since sampling of biota was not performed to confirm this exposure.

COMMENT 31: No where in the PRAP were we able to find the estimate of yardage to be treated. Please provide this information.

RESPONSE 31: The volume of material was inadvertently not specified in the PRAP. The volumes of material to be addressed by the remedy are as follows:

Soil volume contaminated only with petroleum compounds - 580 cubic yards

Soil volume contaminated with both petroleum and solvents - 1300 cubic yards

Total soil volume to be treated as part of the selected remedy - 1880 cubic yards

Volume of metal contaminated surface soils to be covered[1] - 2800 cubic yards

These volumes have been incorporated into the ROD in the description of the selected remedy.

[1] This estimate assumes removal of one foot of material. Sampling may be performed as part of the design to determine if this depth of removal can be decreased based upon the distribution of the metals in the soil.

The following comments were received in a letter dated September 11, 1997 from Walt Aikman, Chairman of the Impact Review Committee of the Cayuga County Environmental Management Council (EMC):

COMMENT 32: While the EMC endorses the proposed remediation plan in general we wonder how well the Seneca River can be restrained during the trenching phase of the operation. The trenching is certainly an essential component of the plan, and any contaminated sediments found there must be removed and treated. We ask that every consideration be given to the timing of this phase of the operation to ensure it is done when the river stage is low and stable. Also we request that you notify the Town of Brutus, this Council, and the Cross Lake - Seneca River Association when you do carry out this phase of the operation.

RESPONSE 32: As suggested by this comment, it is the NYSDEC's intent that the excavation of contaminated soil adjacent to the River and the trenching to identify any other possible pathways for migration to the river be carried out, to the extent practical, during the summer months when conditions of low, stable flow in the Seneca River and appropriate weather conditions for excavation are most likely to occur. Additional stabilization and erosion control requirements will also be incorporated into the design as discussed in

Response #4 above. The Town, Council and the Cross Lake-Seneca River Association, along with the other individuals and groups on the site mailing list will be kept informed s the design and construction of the project progresses by way of fact sheets and at least one meeting to discuss the final design of the project.

COMMENT 33: We wonder why the contaminated soils on the adjacent property have not been explicitly included in the proposed remediation plan. The Remedial Investigation Report documents refer to testing done on at least one adjacent property, but there is no mention of how far the remediation effort will extend off-site. We request that all off-site contaminated areas directly related to the Cole-Zaiser Site be included in the remediation effort, and that this commitment be formalized in the plan and distributed to all interested parties.

RESPONSE 33: Assuming that the off-site contamination in question is the area adjacent to the eastern boundary of the site associated with BTEX/solvent contamination, shown on Figure 2 of the PRAP and the ROD, this will be addressed by the remedy. While the PRAP did not specifically identify that this contamination would be removed, the selected remedy and all the alternatives evaluated included this area as part of the defined extent of contamination to be addressed by the remedy. The ROD has been written to specificcally identify the extent of the contamination to be addressed by the selected remedy relative to the adjacent property. Before implementing the remedy on the adjacent property, the NYSDEC will contact the property owner to arrange for access.

COMMENT 34: We are concerned about the possibility of contamination beyond the wide area already tested. Has there been a spatially extended sampling within the 100 year flood zone inland of the site?

RESPONSE 34: No sampling, with the exception of the two background samples CZ-38 and 39 referenced in response # 1, was conducted inland of the site. Sampling in this area was not considered necessary during the Remedial Investigation (RI) because of the extensive study of the site, the adjacent property to the east of the site, as well as along the shore and into the Seneca River. This sampling started with a soil gas survey which delineated suspected hot spots of volatile organic and petroleum compounds. This was followed up by test pit and soil boring investigations, to provide both visual and analytical data for the subsurface soil, as well as a surface soil sampling program. The results of these investigations did not identify a need to extend the sampling program off site in a southerly (inland) direction. The NYSDEC feels that the data collected during the RI has adequately delineated the type and extent of contamination and that this data correlates well with our understanding of past operations at the site. The investigation and sampling program is detailed in the RI report, which is available in the local document repository at the Brutus Town Hall.

COMMENT 35: We also wonder about the condition and contents of remaining pipelines. We request that the proposed remediation plan include or initiate an extended investigation and inventory of the quantity, location, and condition of all pipelines expecting they be emptied, cleaned, and capped.

RESPONSE 35: See response #18. Based upon the information reported by Mobil and the negative results from sampling in the area of the site where this pipeline was located, the NYSDEC does not consider further investigation of the pipeline is warranted at this time.

# Appendix B

# ADMINISTRATIVE RECORD

**for the**
**Record of Decision**

**Cole-Zaiser Site**
**Brutus (T), Cayuga County**
**Site No. 7-06-005**

The following documents constitute the Administrative Record for the Cole-Zaiser Inactive Hazardous Waste Disposal Site record of Decision.

Documents

*U.S. Environmental Protection Agency (USEPA) Site Inspection Report*, NUS Corporation, July 1986

*New York State Department of Environmental Conservation (NYSDEC) Phase 1 Investigation Report*, Wehren Engineering, May 1987

*Cole-Zaiser Site Preliminary Site Assessment*, ABB Environmental Services, August 1993

*Remedial Investigation Report-Cole-Zaiser Inactive Hazardous Waste Disposal Site*, NYSDEC, June 1997

*Feasibility Study Report fr the Cole-Zaiser Inactive Hazardous Waste Disposal Site*, NYSDEC, July 1997

Proposed Remedial Action Plan (PRAP) Comments

Letter dated August 25, 1997 from Eileen A. O'Connor, Director of the Environmental Health Division of the Cayuga County Health Department to Robert Schick of the NYSDEC

Letter dated September 10, 1997, from Jane E. Montgomery of Schiff, Hardin & Waite, on behalf of Borg-Warner Automotive, Inc. to Robert Schick of the NYSDEC

Letter dated September 11, 1997 from Walt Aikman, Impact Review Committee Chair of Cayuga County Environmental Management Council to Jeffrey A. Edwards of the NYSDEC